6055 R-020-104 .7

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT APPLICATION TO SHIP WASTE TO THE NEVADA TEST SITE, REVISION 5.1

08/09/94

DOE-2175-94
DOE-FN DOE-NV
574
APPLICATION

United States Government | Department of Energy
Fernald Field Office

memorandum

6055

DATE: AUG 09 1994

REPLY TO ATTN OF: DOE-2175-94

FN:Rast

SUBJECT: **FERNALD ENVIRONMENTAL MANAGEMENT PROJECT APPLICATION TO SHIP WASTE TO THE NEVADA TEST SITE, REVISION 5.1**

TO: J. N. Fiore, DOE-NV

This memorandum is to officially transmit to the Department of Energy, Nevada Field Office (DOE-NV) the final revisions to the Fernald Environmental Management Project (FEMP) Application to Ship Waste to the Nevada Test Site (NTS), Revision 5.1. This submittal includes the revised pages to be inserted into the application submitted for DOE-NV review in December, 1993. These revisions are the result of the application review comment and close out surveillance finding resolutions. These revisions have been informally provided to DOE-NV during the approval process. By this submittal, the draft application submitted for review in December will be consistent with the DOE-NV approval.

The submittal includes the following:

- FEMP Application to Ship Waste to the Nevada Test Site, Revision 5.1 signature page - provides the FEMP authorization of the application.

  Approved Waste Streams (9) Include:

  Process Area Scrap
  Construction/Removal Action Waste
  Low/High Grade Residues
  Contaminated Trash
  Low/High Grade Residues Compacted by Subcontractor (SEG)
  Metal Melt Wastes (SEG slag)
  Thorium Residues and Waste Not Amenable to Sampling
  Thorium Residues
  AMCCOM (Depleted Uranium) Metal

- Controlled copy record - provides the acknowledgement of receipt of the application revisions.

- Index - provides a description of the changes being submitted.

- Revised application pages - to be inserted into the draft application.

- Applicable FERMCO and SEG procedures revised during the approval process

Six copies for DOE-NV are included. The numbers of copies provided for DOE-NV (one controlled and five non-controlled) were requested by W. A. Griffin.

The application approval and annual recertification process leading to this approval was initiated in July, 1993. The cooperative professionalism presented by the DOE-NV audit team, primarily Wendy Griffin and Ed Opelski, permitted the FEMP to continue shipping waste to the NTS during the approval process. It is particularly important that DOE-FN and FERMCO acknowledge this attitude which resulted in a win-win situation for all parties involved. This office is appreciative for the opportunity to demonstrate that our program is sound. The lessons learned during this approval cycle will be of benefit not only to the FEMP, but also to all NTS waste generators.

If you or your staff have any questions, please contact David Rast at (513) 648-3138.

Ray Hansen

R. J. Hansen
Acting Director

FN:Rast

Attachment: As Stated

cc w/att:

B. Skokan, EM-423/QO

cc w/o att:

K. Chaney, EM-423/QO
J. Rowe, FERMCO/66

NON CONTROLLED COPY

CONTROL NO. _____
SITE STANDARD OPERATING PROCEDURE
DOCUMENT NO. SSOP-0002
REVISION NO. 4

6055

INITIATING WASTE CHARACTERIZATION ACTIVITIES USING THE MATERIAL EVALUATION FORM (MEF)

SSOP-0002

Effective Date: 03-29-94

AUTHORIZED BY: _____ 3/22/94
J. A. Rasile, Executive Vice President Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 398704
Cincinnati, Ohio 45239-8704

TH AND SAFETY REQUIREMENTS (cont.)

e which could have resulted in an intake of radioactive
halation, ingestion, or absorption shall immediately be
upervisor. The Supervisor shall immediately report the
possible radioactive materials intake to ES&H Radiological
ent for evaluation. When the suspect isotope is uranium,
rsonnel shall report to the Urine Sampling Station at the
ift to complete an Incident Investigation Report (IIR) (Form
1458), and submit an incident urine sample. The involved
also report to the Urine Sampling Station at the start of
t to submit a follow up urine sample. When the suspect
r than uranium, the involved personnel shall report to the
on of the Radiological Control Department for further
f actions. Employees are responsible for complying with
irements as specified by the Radiological Control Section.

which could have resulted in the inhalation, ingestion, or
a hazardous material shall immediately be reported to a
to the Assistant Emergency Duty Officer (AEDO), who will
port the circumstances to Medical and Industrial Hygiene.
ersonnel shall be directed by the Supervisor or AEDO as to
to report for medical evaluation, completion of an Incident
Report (IIR) (Form No. FMPC-IRS&T-1458), and submitting
es (e.g. blood, urine). Employees are responsible for
any additional requirements as specified by ES&H.

ing techniques when manually lifting wood or metal material.
all be lifted with mechanical lifting devices.

er a suspended load unless load has been blocked or
jack stands.

ions, and Notes in this procedure precede the step to which

spect/prepare and evaluate scrap wood per Step 7.2 using
No. FS-F-3465, scrap metal per Step 7.3 using checklist
-3464, scrap vehicles per Step 7.4 using checklist Form No.
plastic, rubber, paper, fiberglass and rope per Step 7.5
t Form No. FS-F-3580.

Wood Waste Stream

ct and evaluate every item to be packaged for disposal
eria of Section I of Materials Evaluation and Container
od, Form No. FS-F-3465 (See Figure 1).

Fernald Environmental FERMCO Restoration Management Corporation	Title: INITIATING WASTE CHARACTERIZATION ACTIVITIES USING THE MATERIAL EVALUATION FORM (MEF)
	DOCUMENT NO: SSOP-0002 REVISION NO: 4
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LIST OF ATTACHMENTS

ATTACH	TITLE	PAGE
A	SAMPLE CHECKLIST	A-1

RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
01-11-91	0	Instructions for completing the Material Evaluation form required per Request No. P90-292, initiated by K. Nuhfer.
04-16-91	1	Revised to update form and include steps to allow for an MEF revision per Request No. P91-093, initiated by J. Ogg.
06-20-91	2	Revised to update technical content and form per Request No. P91-235, initiated by R. Henderson.
10-22-91	3	Revised to insert correct form per Request P91-390, initiated by L. Hamblin.
03-29-94	4	Revised to update to current FERMCO requirements and format per Request No. S93-037, initiated by C. S. Waugh. This supersedes and replaces WEMCO Revision 3, dated 10-22-91.

1.0 PURPOSE

The Fernald Environmental Management Project (FEMP) Waste Management System provides for appropriate control and management of waste materials from the point of generation, through required interim storage, to final disposition. The functional requirements for this waste management system are established in "driver" documents such as the state and federal hazardous waste rules and negotiated legal agreements (e.g., Stipulated Amendment to the Consent Decree and the Amended Consent Agreement). The FEMP utilizes appropriate document systems, including site and department procedures, to specify activities to satisfy these functional requirements.

All waste managed at the FEMP shall be appropriately characterized to support selection of safe, effective, and least cost management alternatives. This procedure specifies the required activities to initiate waste characterization using the Material Evaluation Form (MEF) and associated generator documentation. A completed MEF establishes a "waste profile" which identifies requirements for managing materials that match the profile. The associated generator documentation (checklists, the MEF Inventory Attachments and the MEF Verification Form) provides a means for relating specifically inventoried material to an established MEF. In order to achieve the most expeditious characterization, it is imperative that the generator contact Waste Characterization (WC) and initiate the MEF **prior to the actual generation of the waste or the start of the project--whenever possible.**

Detailed instructions for using the MEF, the MEF Inventory Attachments, and the MEF Verification Form are provided on the back of each form. They are also included as attachments to this procedure.

2.0 SCOPE

This procedure applies to all waste, containerized and bulk, that is managed by the FEMP Waste Management System. This includes waste generated at the FEMP as well as FEMP-generated waste returned from offsite sources or vendors. FEMP containerized waste management facilities include designated container storage areas as well as container staging areas. FEMP bulk waste management facilities include: tanks, bins, silos, controlled soil stockpiles, the Central Storage Facility (CSF), the Scrap Metal Pad (SMP), the Decontamination Facility Pad (DFP), the Soil and Rubble Pile Cover (SRPC) and other (future) bulk waste management facilities.

2.0 **SCOPE** (cont.)

This procedure is not applicable to site products or excess materials being sold at fair market value to be used for their intended purposes. This procedure is, however, applicable to certain recyclable materials (e.g., certain materials that must be reclaimed prior to reuse). This procedure does not apply to soils returned to their point of excavation or Investigation Derived Waste (IDW) managed at the point of generation with its parent materials. This procedure does apply, however, to excess soils and IDW that require management in the FEMP Waste Management and Inventory Systems.

3.0 **DEFINITIONS**

Checklist(s) - A document applying to a specific container of waste that is used to validate the contents of the container against the physical characterization criteria noted in a completed MEF. Checklist validation is used for high volume, continuously generated wastes such as scrap wood, scrap metal, or scrap light duty vehicles. Checklist validation is controlled by procedure 20-C-625. (Attachment A is a sample checklist.)

Controlled Holding Area - The area designated for holding uncharacterized material (excluding backlog material and material generated from a soil boring activity) for a maximum period of 89 calendar days. Wastes are placed here while awaiting characterization and proper storage.

FEMP Waste Characterization Process - The actions and procedures used to complete the MEF, associated MEF worksheets, and inventory validation documentation.

FEMP Waste Management System - The interaction of physical activities and their associated management facilities as governed by relevant procedures and other documentation that provides for the management of waste materials from the point of generation, through required interim storage, to final disposition.

Generator - A person (or persons) who either directly or indirectly produces a waste stream or supervises/manages projects which produce waste streams requiring waste characterization.

Inventory Validation Documentation - Documents which demonstrate identification and control of waste from the point of generation through characterization and eventually, to final disposition. Within the scope of this procedure, inventory validation allows for the immediate identification of the characterization of any inventoried waste. Verification Form and MEF Inventory Attachment samples are provided in Figures 3 and 4.

3.0 **DEFINITIONS** (cont.)

Material Evaluation Form (MEF) - The FEMP document which identifies unique waste streams. A completed MEF establishes a "waste profile" which identifies requirements for managing materials that match the profile.

MEF Number - A unique identifying numeric string that denotes a waste stream, and its associated waste characterization file.

MEF Verification Form and MEF Container Inventory Attachment - A two-part system of documentation by which discrete material is associated with a specific waste profile documented on an MEF. MEF Verification Form and MEF Container Inventory Attachment shall be used for all wastes generated and containerized.

MEF Worksheets - Forms used by WC personnel to document the basis for decision making which results in the completed Evaluation Section of the MEF. Guidance for completing the worksheets is found in the Waste Characterization Manual.

Re-evaluation Date - Date specified by WC upon which material must be re-evaluated based on waste stream specific factors, generation rates, and waste management practices. At a minimum, continuously generated waste streams must be re-evaluated annually or until sufficient data is collected to justify a longer period between required re-evaluations.

Requestor - Person or persons providing input for the waste characterization system.

Waste - A material that is no longer needed or suitable for its intended use and has been discarded or is intended for discard.

Waste Characterization Manual - A manual that provides an overview of the waste characterization process at the FEMP for external customers (e.g., Nevada Test Site (NTS) or auditors) and provides criteria used by FERMCO's WC activities.

4.0 **RESPONSIBILITIES**

Generator

- Ensuring that the waste stream is characterized in its present generated form. This process begins with submittal of MEF and concludes upon receipt of the completed MEF and MEF Inventory Attachment.

- Completing the requestor section of the MEF, the requestor section of the MEF Verification Form, and the MEF Inventory Attachment.

4.0 **RESPONSIBILITIES** (cont.)

Generator

- Providing the WC group with all available and relevant information regarding the material which is being evaluated and providing timely response to requests for further information.

- Requesting re-evaluation of a waste stream when the waste stream has changed in composition or when the generating process has changed.

- Arranging for transfer of material to the controlled holding area if necessary (e.g., when waste is generated and requires temporary storage prior to characterization or sampling if required.)

  NOTE: Material may be transferred to the Controlled Holding Area only when sampling and analysis has been requested or when otherwise specified. See SSOP-0008, "Preparing and Transferring Uncharacterized Waste to the Controlled Holding Area."

- For containerized wastes, obtaining complete inventory information, (full 15 digit lot code and drum number, inventory number or container serial number) prior to initiating actions to transfer waste to site management facilities.

- Ensuring that generated wastes are managed in a safe and compliant manner either through the transfer of the waste to appropriate designated storage areas or through pre-designated management methods at the location of generation.

- Maintaining a copy of the completed MEF, MEF Verification Forms, and the MEF Inventory Attachments associated with the waste.

Waste Characterization Personnel

- Maintaining a listing of sequential MEF numbers to be used by the facility to identify waste streams and their associated characterization documentation. MEF numbers are to be provided to generators upon request. However, until the generator submits a completed MEF, the MEF remains on an inactive status with WC.

- Verifying that an MC&A Inventory exists for the material which has been represented to WC on the submitted MEF form.

- Performing necessary actions in compliance with applicable Federal and State regulations, the Waste Analysis Plan and Waste Characterization Manual in order to fully characterize materials documented in the Generator section of each MEF.

4.0 **RESPONSIBILITIES** (cont.)

Waste Characterization (WC) Personnel

- Responding to inquiries regarding the use and completion of the MEF.
- Notifying generators of requirements for re-evaluation of continuous or periodically generated waste streams.
- Maintaining a waste characterization file of the original of each MEF as a part of the FEMP Operating Record.
- Maintaining a waste characterization database which at a minimum provides a summary of information contained in the characterization files and provides a means of tracking required actions to complete waste characterizations.
- Identifying, at any time during the characterization process, unique or previously undocumented health and safety issues related to a specific waste. When identified, forward to Environmental Safety and Health (ES&H) copies of relevant information pertaining to the waste along with a Health and Safety Addendum for completion.
- Distributing copies of the completed MEF paperwork per the distribution noted on the form. This includes the generator who required a copy of the completed MEF in order to gain admittance to a warehouse.
- Maintaining a list of personnel authorized to sign part D of the evaluation section of the MEF and Section D of the Verification Request Form. Changes to this list shall be forwarded per the general distribution shown on the MEF.
- Providing assistance to generators in identifying appropriate MEFs for verification of additionally generated waste inventory. Evaluation of verification forms shall be completed within five (5) working days following their receipt by WC.

Materials Control and Accountability (MC&A)

- Maintaining the site-wide RCRA and All Materials Inventories with the corresponding inventory information for each container documented on the MEF Verification Form and associated MEF Inventory Attachments or Checklists.

4.0 **RESPONSIBILITIES** (cont.)

Materials Control and Accountability (MC&A)

- Providing generators with FEMP lot codes, container numbers and (optionally) inventory numbers for generated wastes when requested.
- Notifying Waste Characterization of discrepancies in the site-wide waste inventories which require assistance to resolve.

Environmental Safety and Health (ES&H) - Providing concurrence on non-radioactive waste classification of materials when required.

Regulatory Programs - Providing regulatory policy guidance/concurrence relative to waste classification of materials when required.

Hazardous Waste Compliance - Maintaining the official site RCRA Operating Record in accordance with all applicable federal and state regulations.

5.0 **GENERAL**

Waste Characterization (WC) maintains a list of the principle technical contacts for each CERCLA/RCRA Unit (CRU). These representatives have been designated as the primary interface between CRU activities and characterization functions within the Waste Management system. When initiating a waste characterization activity, the generators should first contact their respective CRU representative in Waste Characterization.

The generator may also contact WC either in person or at 738-9353 to obtain an MEF number of each waste stream generated or for use of the Verification Form (see the instructions on the back of each form). At this time the generator will be asked to provide a brief description of the waste, the generating organization, generator point of contact, and a cost account charge number to be used for all activities which are required to characterize the waste.

5.0 **GENERAL** (cont.)

Blank forms may be obtained from Waste Characterization. Forms may be copied for the sake of expediency; however, **the user of the form must exercise caution to insure that copies are legible and centered, and contain all required information.** This information includes the instructions on the reverse side of each page. Waste Characterization will **not** accept forms judged to be of insufficient quality to be placed in the site's operating record. Corrections must be made by striking out incorrect entries with a single line, then initialing and dating the correction. Do not use "liquid paper" or "white out" to make corrections.

For wastes which currently exist, all applicable forms must be submitted immediately. For wastes not yet generated, generators are required to forward applicable forms (discussed below) to Waste Characterization within 30 days of requesting the MEF number. Waste Characterization will cancel MEF numbers for which the generator submittals have not been received within this time.

Generators may contact Waste Characterization at 738-9353 if assistance is required in completing the necessary forms.

6.0 **PREREQUISITES**

None

7.0 **PROCEDURE**

7.1 INTRODUCTION

The Material Evaluation Form (MEF) is not only the document by which generators identify materials which require characterization, but also the document on which the Waste Characterization staff records the summary of those characterization efforts. The MEF does **not** reproduce or duplicate the delineation of specific waste as identified in the site inventory system; rather, it maps to a particular waste stream which is uniquely identified via the MEF number. Specific inventories of materials are assigned to a particular MEF using the MEF Verification Request Form and the Inventory Identification Attachment.

7.2 COMPLETING THE MATERIAL EVALUATION FORM (MEF)

GENERATOR

NOTE: Incomplete entries will not be accepted. "None", "Unknown", and "N/A" (Not Applicable) may be used when appropriate.

1. Obtain the correct MEF form (Figure 1) and an MEF Number from Waste Characterization. Once this procedure is finalized, only the new forms (attached) will be accepted for use--except in those cases in which the generator has as MEF characterization in process using the old forms.

2. Complete each item in the requestor section of the MEF in accordance with the directions provided in Figure 1, Sheet 3 of 3. The directions are also found on the reverse side of each page of the requestor section of the MEF.

3. If there is not sufficient space on the form, prepare an attachment sheet noting the MEF number at the top of sheet.

4. Upon completion of the MEF, attach all relevant information concerning the material (e.g., SOPs, analytical results, narrative describing generating process, etc.) and forward to Waste Characterization for completion.

5. Maintain a copy of the MEF in requestor's files, including the evaluation section (Figure 2) when completed by Waste Characterization.

7.3 USING THE MEF TO RE-EVALUATE A WASTE STREAM

GENERATOR

1. Determine that a revision to the MEF is required due to changes in the composition of the waste or to changes in the generating process.

2. Complete requestor section of the MEF. The MEF number is the same as the original. Indicate "revision" next to the MEF number.

Fernald Environmental Management Project
MATERIAL EVALUATION FORM (MEF)

Requestor Section

page 1 of 2

A. REQUESTOR/WASTE STREAM IDENTIFICATION

1. MEF#: Original: _____ Revision: _____	2. Date Submitted:	3. Material Type and Source Code:
4. Requestor Name:	5. Phone No.:	6. Badge No./Co. Name:

B. GENERATION INFORMATION

1. Provide best descriptive name for material:	2. Does this material originate in a HWMU or SWMU? Unit Name/No.		3. Project, Activity, or Work Area generating waste (include CRU # if applicable).
4. Date of first or expected generation: ☐ estimate; ☐ actual _____	5. Generation Quantity:	6. Generation frequency:	7. Similar waste stream MEF# (or MTC/SRC):

8. Provide a detailed description of what the material is:

9. Provide a detailed description of how and where (specific origin) the waste stream is/will be generated, including any units which manage the material:

[Note: Generator must attach all supporting documentation concerning items 8 and 9.] ○ additional narrative; ○ SOP;

○ MSDS; ○ AEDO Log excerpt; ○ release report; ○ manufacturing specs; ○ Other: _____

FORM GEN, Revision 2.1, 8/16/93

Figure 1 - Material Evaluation Form (MEF) Sheet 1 of 3

Fernald Environmental Management Project
MATERIAL EVALUATION FORM (MEF)

Requestor Section

page 2 of 2

C. PHYSICAL CHARACTERISTICS

1. Describe Color/Appearance:

2. Phase:
☐ Liquid ☐ Solid debris/rubble
☐ Semi-solid/sludge ☐ Dry solid residue
☐ dry powder/dusty residue ☐ Other, specify:

3. Contains Free Liquids:
☐ yes ☐ no ☐ unknown
based on:
○ PFLT (results attached)
○ Visuals (results attached)
☐ Knowledge of waste

[NOTE: DO NOT SMELL THE MATERIAL]
4. Note Any Incidental Odor:

5. Layers:
☐ single layer
☐ bi-layered
☐ multi-layered

6. pH: specify range or "unknown"
_____
☐ estimate; ○ documentation attached

7. Flash Point: Specify range or "unknown"
_____
☐ estimate; ○ documentation attached

D. MATERIAL COMPOSITION

1. Components:

	Min	Max:	circle
_____	____	____	% (or) ppm
_____	____	____	% (or) ppm
_____	____	____	% (or) ppm
_____	____	____	% (or) ppm
_____	____	____	% (or) ppm
_____	____	____	% (or) ppm
_____	____	____	% (or) ppm
_____	____	____	% (or) ppm
_____	____	____	% (or) ppm
	Total Maximum:	____	%

maximum must equal or exceed 100 %

Basis:
☐ knowledge of the material
○ analytical data attached

2. Does the material contain any of the following?
☐ asbestos ☐ polychlorinated biphenyls (PCBs)
☐ infectious waste
☐ reactives (circle applicable items):
water reactive, explosive
cyanide/sulfide, shock sensitive
normally unstable
exclude materials which normally produce hydrogen gas.
☐ toxicity characteristic metals (circle applicable items):
arsenic, barium
cadmium, chromium
lead, mercury
nickel, selenium
silver, thallium
(or)
☐ None of the above
(or)
☐ Unknown

Basis:
☐ knowledge of the material
○ analytical data (attached)

3. Radionuclide Contamination:
☐ material is not contaminated with radionuclides
☐ material contains incidental radionuclide contamination
☐ radionuclide bearing material/residue

Radionuclides of Concern if any:
☐ uranium
☐ thorium
☐ transuranics (TRU)

Basis:
☐ knowledge of the material ☐ RMMA generated
○ analytical data attached ☐ Other: _____

4. Identify the container or repository type(s) in which the waste is (or is expected to be) managed on-site:
☐ drum ☐ box
☐ Sea/Land ☐ soil/debris pile
☐ small container (5 gal. or less)
☐ landfill, pit, or other land-based unit
☐ discharge to WWTS

FORM GEN. Revision 2.2. 9/27/93 wcpforms\gen.01

Figure 1 - Material Evaluation Form (MEF) Sheet 2 of 3

Fernald Environmental FERMCO Restoration Management Corporation	Title: INITIATING WASTE CHARACTERIZATION ACTIVITIES USING THE MATERIAL EVALUATION FORM (MEF)	
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Instructions to Generators for Completing the Material Evaluation Form (MEF), Requestor Section

The Waste Characterization Section is responsible for providing characterization for all wastes generated by FEMP personnel/activities. However, it is the individual generator's responsibility to ensure that his/her waste is properly characterized in its present form.

The Material Evaluation Form (MEF) is the document by which generator identify material which requires characterization and on which the Waste Characterization group summarizes the results of the characterization effort. The MEF does not delineate specific waste as identified in the site inventory system, but refers only to the characteristics of a particular waste stream (identified by MEF #). Specific inventoried material is assigned to a particular using the MEF Verification Request Form and Inventory Identification Attachment.

The following directions have been developed to assist in the completion of the generator's section of the MEF. Each block of the form must be completed for MEF to be accepted. Use of 'None' or 'N/A' is acceptable when appropriate. Checkbox items shown with a "O" require attached documentation. Upon completion of this form submit to Waste Characterization at MS # 46. [Note MEFs will not be accepted with incomplete information or lacking documentation (e.g. MSDS, release report, etc)].

PART A: GENERATOR/WASTE STREAM IDENTIFICATION

1. MEF #: Enter number of the form as received from Waste Characterization (x8932). Check whether this submittal is original or a revision to an existing MEF as appropriate.
2. Date Submitted: Enter the date the form is submitted to Waste Characterization.
3. Lot Marking Code: Enter first the Material Type then the Source Code assigned to the waste if this information is known. Contact Materials Control and Accountability (MC&A), x6275, for assistance in determining this information. Enter "Unknown" if applicable.
4. Generator Name: provide First Name, Last Name and Middle Initial.
5-6. Badge No./Co. Name/Phone No: Self Explanatory

PART B: GENERATION INFORMATION

1. Name: Provide the best descriptive name for the material (e.g. spent acetone, dust collector residues, soil borings, purge water etc.)
2. HWMU: If the material originates from a Hazardous Waste Management Unit please provide unit name and #. If you are unsure please consult your supervisor, Waste Characterization or cognizant CRU representative for assistance.
3. Self-explanatory.
4. Self-explanatory. Always provide at least an estimate. If the waste is "backlogged" or has otherwise already been generated, provide the historical date of generation as an actual date. This information may usually be obtained from existing records or from MC&A. "Unknown" is not acceptable.
5. Generation Quantity: Enter the amount and unit of waste to be generated (i.e. 50 gal). This is generally the amount of waste in a container (or a multiple thereof). If the generation event is one-time only, enter the total amount of waste.
6. Quantity/Frequency: Enter a time period (week, year etc.) during which the amount specified in item 5 will be generated, or "one-time" as appropriate.
7. Similar waste stream: Enter MEF # or Material Type/Source Code for a similar waste stream if known. Otherwise "N/A".
8. Description: Provide a clear concise description of what the waste stream actually is (e.g., residues from dust collector servicing). Include all components of the waste stream and any relevant information concerning packaging, absorbents etc. Be as detailed as possible. *DO NOT REPEAT THE DESCRIPTION CORRESPONDING TO THE MATERIAL TYPE CODE.*
9. Description of Generation: Provide a detailed description of how the waste stream is/will be generated. Include specific process involved, history of waste etc. For containerized wastes include packaging information (e.g. labpacked, packed with absorbent materials) Check and include all relevant supporting documentation (e.g. MSDS, SOP, Manufacturing Specification, Release Reports etc.).

PART C: PHYSICAL CHARACTERISTICS

1. Color/Appearance: Be as detailed as space will allow. What does the waste look like?
2. Phases: Check all that are present in the waste.
3. Free Liquids: If yes, check a "based on" criteria.
4. Odor: DO NOT SMELL THE WASTE! If the waste has a known incidental odor, then describe the odor (e.g., acrid, pungent, solvent, sweet).
5. Layers: Check appropriate box. Single layer means the waste has no distinct separation or layers (e.g., water, or oil, or semi-solid). Bi-layered means the waste is comprised of two distinct layers (e.g., water/dirt or oil/solids). Multilayered means more than two distinct layers (e.g., oil/water/semi-solid).
6. pH: If the waste contains aqueous free liquids, list the range of pH if known. If the pH is not known mark "not known" in the blank. If a pH range is entered, check the basis for the range. Documentation may consist of analytical data, MSDS, or pH paper results. For non-aqueous wastes enter N/A.
7. Flash Point: If the waste contains free liquids list the range of its flash point if known. if the flash point is not known, mark "not known" in the blank. If a flash point range is entered, check the basis for the range. Documentation may consist of analytical data or MSDS.

PART D: MATERIAL COMPOSITION

1. Composition: List all components which make up the waste stream along with the range of the approximate volume in percent or parts per million. Circle the unit (% or ppm) used for each component. Use ppm only if less than 10,000. Assume a value of 1% for any component given in ppm when calculating the "Total Maximum". If only partial knowledge of the components in the waste stream is available, list those components and provide the approximate percentage of the waste which is unknown. Provide basis for the components in this section.
2. Waste Characteristics: Check each box which applies to the waste. Circle items as appropriate. Do not document items "suspected" of being present in the waste. These should be noted in block B8.
   None of the above - Check this when no entries above apply.
   Not Known - Check this when adequate information is not available to answer the questions above.
   Basis - Check the appropriate box when specific items above are checked.
3. Radionuclide contamination: Indicate radionuclide contamination status of the material. If analytical data is available please attach to form. Contact RS&T for information on radionuclide contamination of materials onsite. Indicate the basis for the checked item. Material Accounting information may be attached as analytical data.

FORM GEN_INS, Revision 1.1, 8/16/93 wcpforms\gen.sol

Figure 1 - Material Evaluation Form (MEF) Sheet 3 of 3

Fernald Environmental Management Project
MATERIAL EVALUATION FORM (MEF)

Evaluation Section

A. WASTE STREAM IDENTIFICATION

1. MEF # . Revision No.:	2. Date Completed	3. Material Type / Source Code of original material: Mat. Src.
4. Evaluator	5. Phone No	6. Badge No./Co. Name:

B. MATERIAL REGULATORY STATUS (check all that apply)

Regulated:	Material Specific Regulation:	Regulated:	Material Specific Regulation:
__ yes __ no	TSCA PCB Waste	__ yes __ no	High Level Radioactive Waste
__ yes __ no	Asbestos Containing-Waste Materials	__ yes __ no	Transuranic (TRU) Waste
__ yes __ no	OAC Infectious waste	__ yes __ no	AEA 11(e)(2) Byproduct Material
__ yes __ no	OAC Solid Waste (RCRA Subtitle D)	__ yes __ no	Source (or) Special Nuclear Material
__ yes __ no	RCRA Solid Waste (RCRA Subtitle C)	__ yes __ no	Low Level Radioactive Waste (LLRW).
__ yes __ no	RCRA Hazardous Waste	__ yes __ no	Non-Radioactive waste. ***

Hazardous Waste Code(s): _____

*** Concurrence. Radiological Assessment- Date: _____

Re-evaluation Date: _____

Note: Waste streams must be re-evaluated by WCS if it is generated after the re-evaluation date listed above or when the stream/generating process changes

C. MATERIAL MANAGEMENT

1. Waste Form Criteria:	2. Container Specification:	3. Reactivity Group Code(s):
__ yes __ no Health & Safety Addendum Attached. (Note: if marked "yes" do not manage this material without information from attached H&S Addendum.)		
__ yes __ no Material contains free liquids.		
__ yes __ no LLRW meets NVO-325 Waste Acceptance Criteria (See NTS Form in material evaluation file)		

D. WASTE CHARACTERIZATION APPROVAL

Name: _____ Signature _____

E. DISTRIBUTION

__ Generator	_____	__ Waste Reduction Program	_____
__ MC&A	_____	__ Site Media Sampling	_____
__ Facilities and Warehousing	_____	__ IS&H	
__ Sample Disposition (if sampled)	_____	__ Other _____	_____

FORM EVAL. Revision 2.3. 10 15/93 wcpformeval fri

Figure 2 - Material Evaluation Form (MEF) - Evaluation Section

7.3 USING THE MATERIAL EVALUATION FORM (MEF) TO RE-EVALUATE A WASTE STREAM (cont.)

3. Upon completion of the MEF attach all relevant information concerning the material (e.g., SOPs, analytical results, additional narrative describing generating process, etc.) and forward to WC for completion.

4. Maintain a copy of the MEF revision in requestor's files.

7.4 COMPLETING THE MEF VERIFICATION FORM

GENERATOR

NOTE: The MEF Verification Form is submitted whenever there is physically identifiable waste that is to be associated with a particular MEF. It may be submitted with the original MEF if the waste has already been generated, or after characterization is completed if the generator's intent is to characterize before generating. It is also submitted when additional waste is generated; or in the case of backlogged production wastes, when additional waste is identified which is believed to match an existing waste profile. **The Verification Form is always submitted with an Inventory Attachment.**

1. Obtain the MEF Verification Form from WC. (Example provided in Figure 3.)

2. Complete each item in the requestor section in accordance with the directions provided in Figure 3. These directions are also provided on the reverse side of the form.

3. Upon completion of the Verification Form, attach all relevant information concerning the material (e.g., SOPs, analytical results, additional narrative describing generating process, etc.) and forward to Waste Characterization for completion.

4. Forward the form to Waste Characterization at M.S. #46.

5. Maintain a copy of the Verification Request in requestor's file.

Fernald Environmental Management Project
MATERIAL EVALUATION FORM (MEF)

Verification Form

A. WASTE STREAM IDENTIFICATION

1. Requestor:	2. Phone:	3. Serial Number:
4. Generation Event: ☐ Original Generation ☐ Additional Generation ☐ Safe Shutdown Generation ☐ Other (Describe):		5. Date Submitted: (see instruction note!)
6. Material Description:		
7. Process Description: ○ Documentation Attached		
8. Generation Location:		

B. WASTE STREAM TO VERIFY AGAINST

1. MEF#:	2. Material Description:	
3. Determination Date:	4. Determination:	5. Hazardous Waste No(s).
6. Rationale: ○ Extra page(s) attached		

Evaluation Section

C. MATERIAL STATUS

1. Evaluator:	2. Date:
3. Summary ☐ Material is characterized by MEF # _____. Inventory is revised to include the inventory shown on the associated inventory attachment.	Material Determination: ☐ RCRA Solid Waste (a.k.a Non-RCRA) ☐ RCRA Hazardous Waste Hazardous Waste No(s).

☐ This material does not match the characterization of the referenced MEF. Submit a new MEF for this material immediately.

Rationale:

Waste Characterization Approval Signature: _____ Date: _____

D. DISTRIBUTION

Requestor:	Waste Characterization Files:

FORM VER. Revision 2.1, 9/27/93 wcpformver.fr

Figure 3 - Material Evaluation Form (MEF) - Verification Form (Sheet 1 of 2)

Fernald Environmental FERMCO Restoration Management Corporation	Title: INITIATING WASTE CHARACTERIZATION ACTIVITIES USING THE MATERIAL EVALUATION FORM (MEF)	
	DOCUMENT NO: SSOP-0002 REVISION NO: 4	
	Effective Date: 03-29-94	Page 17 of 21

Instructions to Generators for Completing the MEF Verification Form

The Waste Characterization Section is responsible for providing characterization for all wastes generated by FEMP personnel/activities. However, it is the individual generator's responsibility to ensure that his/her waste is properly characterized in its present form.

The MEF Verification Form must be used whenever there exists discrete waste material which must be associated with a specific waste profile documented on an MEF. This form is accompanied by an MEF Container Inventory Attachment when the discrete waste is containerized. Use of the MEF Verification Form streamlines the characterization process by providing a means of associating uncharacterized waste materials with an existing waste profile documented on an MEF. This eliminates the need to produce a new MEF for each and every generation event. The MEF Container Inventory Attachment then provides the means of associating specific containers (inventory) with a waste profile documented on an MEF. Data quality objectives are the same as for any characterization. The Waste Characterization group may be contacted at x8932 to determine if any appropriate MEF exists against which a waste may be verified. The information provided by the requestor on this form must show sufficient process control, and/or documentation of waste matrix and constituents to verify that the waste meets the profile specified on the referenced MEF. The Waste Characterization group may request additional visual inspections and/or sampling to confirm the match.

The completed MEF Inventory Attachments along with the parent MEF serve as the characterization documentation required to received waste into a site waste management facility (including the controlled holding area). This documentation provides the key data link for associating MC&A inventory information with waste characterization information (i.e., provides a means for identifying an MEF number for each item in inventory). The following directions have been developed to assist in the completion of the Requestor's section of this form. Please note that each block of the form must be completed in order for form to be accepted. Use of 'None' or 'N/A' is acceptable when appropriate. Do not leave any blocks in the requestor section blank. When complete attach the necessary Inventory Identification Attachments and forward to Waste Characterization at MS # 46.

PART A: WASTE STREAM IDENTIFICATION

1. **Requestor:** Provide First Name, Last Name, and Middle Initial.
2. **Phone:** Self Explanatory
3. **Serial Number:** This is a unique four digit alpha-numeric string assigned by Waste Characterization. Examples: "1001"; "SS01". When approved, the Verification Form will be identified as "MEF#-Serial#". Examples: 1978-1001; 20001-SS01. **THIS BLOCK WILL BE COMPLETED BY WASTE CHARACTERIZATION!**
4. **Generation Event:** Check the appropriate item:
   - Original Generation: First quantity of material generated for which MEF was originally submitted
   - Additional Generation: Additional material generated which meets the MEF profile
   - Safe Shutdown Generation: Material generated by Safe Shutdown programs
5. **Date Submitted:** Self explanatory. NOTE: for original generation materials, complete item B1 with MEF number and fill in all remaining requestor section boxes with "N/A".
6. **Material Description:** Provide a clear concise description of what the waste stream actually is (e.g., residues from dust collector servicing). Include all components of the waste stream and any relevant information concerning packaging, absorbents etc. DO NOT REPEAT THE DESCRIPTION CORRESPONDING TO THE MATERIAL TYPE CODE.
7. **Process Description:** Provide a clear and concise description of the process generating the waste. The process description and attached documentation (if included) must be of sufficient detail to provide the evaluator in the Waste Characterization Group with enough information to verify that the waste corresponds to the characterization described in the MEF. In general, attached documentation will be required. Examples include project logbooks, AEDO spill reports, Satellite Accumulation Area (SAA) container records, SOPs, analysis data etc. Waste characterization may request additional visual inspections or sampling in order to verify inventory with an existing MEF characterization.
8. **Generation Location:** Be as specific as possible.

PART B: WASTE STREAM TO VERIFY AGAINST

1. **MEF#:** Enter the Material Evaluation Form # of the waste stream against which the material is to be verified.
2. **Material Description:** Enter the material description as found on the Waste Characterization database or MEF.
3. **Determination Date:** Enter the Determination date from the WC Database or the MEF Evaluation Section.
4. **Determination:** Enter the determination from the WC Database or the MEF Evaluation Section (e.g., RCRA Hazardous, Non-RCRA (a.k.a. Non-Hazardous) etc.)
5. **Hazardous Waste No(s).** Enter the Hazardous waste No(s). if applicable.
6. **Rationale:** Indicate your reason for believing the waste described in section A is characterized by the MEF described in section B. Please provide thorough and detailed explanations (use additional sheets if required).

PARTS C & D: *TO BE COMPLETED BY WASTE CHARACTERIZATION*

FORM VER_INS. Revision 1.1. 9/27/93 wcpforms\ver.sl

Figure 3 - Material Evaluation Form (MEF) - Verification Form (Sheet 2 of 2)

7.4 COMPLETING THE MEF VERIFICATION FORM (cont.)

6. Complete the MEF evaluation form and distribute it to the generator within five (5) working days.

7.5 COMPLETING THE MEF CONTAINER INVENTORY ATTACHMENT

GENERATOR

1. Obtain the Inventory Identification Attachment from Waste Characterization. (Example provided in Figure 4.) The Inventory Identification Attachment is always submitted in conjunction with the original MEF or an MEF Verification Request Form.

2. Complete each item in Sections A and D in accordance with the directions provided in Figure 4. These directions are also provided on the reverse side of the form.

3. Attach the Inventory Identification Attachment to the MEF Verification Form and forward to Waste Characterization at M.S. 46.

4. Maintain a copy of the Inventory Identification Attachment in requestor's files.

8.0 APPLICABLE DOCUMENTS

8.1 DRIVERS

- DOE Order 5820.2A, "Radioactive Waste Management"
- 40 CFR 61, Subpart M, "Protection of the Environment/Asbestos Regulations"
- 40 CFR 261-272, "Protection of the Environment/Solid Wastes"
- 40 CFR 761, "Protection of the Environment/Toxic Substance Control Act (TSCA)-PCB"
- Amended Consent Agreement (ACA)
- FEMP Part B Permit Application - Waste Analysis Plan

Fernald Environmental FERMCO Restoration Management Corporation	Title: INITIATING WASTE CHARACTERIZATION ACTIVITIES USING THE MATERIAL EVALUATION FORM (MEF)
	DOCUMENT NO: SSOP-0002 REVISION NO: 4
	Effective Date: 03-29-94 — Page 19 of 21

Fernald Environmental Management Project
MATERIAL EVALUATION FORM (MEF)

Container Inventory Attachment

Page ____ of ____

A. GENERAL INFORMATION:

1. MEF #: Verification Serial #:	2. Date Completed:	3. Completed by:

4. Special Notes: (a) TOTAL NUMBER OF CONTAINERS EQUALS TOTAL IN LOT UNLESS INDIVIDUAL CONTAINERS SPECIFIED.

(b)

(c)

5. Key on Inventory Container Type:
DM = Drum or Over-Pack Drum; SL = Sea-Land; TK = Tank; SM = small container (≤ 5 gal);
MC = Miscellaneous Container; WB = Wood Box; WM = White Metal Box.

B. APPROVAL:

Waste Characterization Name: _____ Signature: _____

C. DISTRIBUTION

Requestor:	Facilities and Warehousing:
Materials Control and Accountability:	Waste Characterization Files:

D. INVENTORY COUNT BY CONTAINER

ITEM No.	LOT CODE IDENTIFICATION:	Total Number of Containers	Type of Container	Individual Container Identifications (if required)

FORM INVATT, Revision 2.0, 08/12/93 wcplorms\mv.frl

Figure 4 - Material Evaluation Form (MEF) - Container Inventory Attachment (Sheet 1 of 2)

Instructions to Generators for Completing the MEF Container Inventory Attachment

The Waste Characterization Section is responsible for providing characterization for all wastes generated by FEMP personnel/activities. However, it is the individual generator's responsibility to ensure that his/her waste is properly characterized in its present form.

The MEF Inventory Attachment (this form) is submitted in conjunction with the MEF Verification Form. These documents are used whenever there exists quantifiable waste material which must be associated with a particular waste stream profile documented on an MEF (see section 7.3 of SSOP-0002 for applications). When completed by both the requestor and Waste Characterization, this form serves as the documentation by which the waste is received at a site waste management unit (including the controlled holding area). It also serves as the means for inputting the status of characterization (documented on the MEF) into the site's waste inventory system.

The following directions have been developed to assist in the completion this form by generators. Attach this form to the completed MEF Verification Form and forward to Waste Characterization at MS # 46.

PART A: GENERAL INFORMATION

Upper right

Page __ of __: Complete as appropriate.

1. **MEF #:** Enter the MEF number from the MEF Verification Form
   Serial Number: TO BE COMPLETED BY WCS
2. **Date Completed:** Self-explanatory.
3. **Completed by:** The name of the person completing Parts "A" and "D" of this form.
4. **Special Notes:** Note any special identifying information. Material being received from offsite should be noted here.

PARTS B AND C: FOR USE BY WASTE CHARACTERIZATION ONLY

PART D: INVENTORY COUNT BY CONTAINER

Item No. This is a line item number. Start with "1" and number consecutively for each line completed.
Lot Code Information: Enter the 15 digit lot code obtained from MC&A (see section 4.0 of SSOP-0002). Do not enter only a material type and source code.
Total Number of Containers: Enter either the total number of containers in the lot or "1" as appropriate. The use of "1" signifies that not all containers in the lot are applicable. A "1" requires an entry in the "Individual Container Identification" column.
Type of Container: Enter the appropriate code from block A-5.
Individual Container ID: Enter the drum number, inventory number, or container serial number if the "Total Number of Containers" is 1. Otherwise enter "Note 4a" to signify that the total represents all containers in the lot.

8.0 **APPLICABLE DOCUMENTS** (cont.)

8.1 DRIVERS (cont.)

- FEMP Sitewide CERCLA Quality Assurance Project Plan (SCQ)
- Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements (NVO-325-Rev. 1), June 1992 (Rev. 1)
- Ohio Administrative Code (OAC) 3745-20, "Asbestos Regulations"
- Ohio Administrative Code (OAC) 3745-51 to 69, "Hazardous Waste Regulations"
- Stipulated Amendment to the Consent Decree (SACD)

8.2 REFERENCES

- Waste Characterization Manual (Department Document)
- FEMP RCRA Part B Permit Application - Waste Analysis Plan
- FEMP Sitewide CERCLA Quality Assurance Project Plan (SCQ)
- SOP 20-C-625, "Evaluating Low Level Radioactive Waste (LLRW) Bulk Waste Streams for Shipment"
- SSOP-0008, "Preparing and Transferring Uncharacterized Waste to the Controlled Holding Area"
- Revised FMPC Waste Determination Plan, September 20, 1990

ATTACHMENT A

SAMPLE CHECKLIST

FEMP
LOW-LEVEL RADIOACTIVE WASTE
MATERIALS EVALUATION AND CONTAINER INFORMATION - WOOD

Reference MEF # 905

SECTION I

WASTE EVALUATION	YES	NO	N/A
1. Treated: a. Material free from creosote treatment			
2. Residues. a. Free from process or waste residues			
3. Stains: a. Stains cover less than 10% of wood surface or Stain covers more than 10% of wood surface caused by green salt, black oxide, white salt, or orange oxide.			
4. Paint: a. Free from lead-based paint or Paint covers less than 10% of material			
5. Plastic/Rubber: a. Material consists of less than 20% by volumes other materials and does not contain any oil, solid residues, or entrapped liquids (e.g. plastic or rubber parts/hardware)			
6. Metal: a. Metal constitutes more than 10% by volume (If yes, then metals checklist (FS-F—3464) must also be used.)			

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION

2. PACKAGING START DATE | PACKAGING FINISH DATE

3. OPERATOR(S) SIGNATURE | DATE

4. CONTAINER NUMBER

5. CONTAINER TYPE
☐ S/L ☐ WHITE METAL BOX

6. 65 CARD NUMBER

7. LOCATION PACKAGED

8. * MEF NUMBER

9. % COMBUSTIBLE

APPROVED BY
SUPERVISOR(S) SIGNATURE/DATE

APPROVED BY
QA SIGNATURE/DATE

* When materials are packaged that do not meet the criteria established in Section I, but have an approved MEF number, the MEF number and materials must be recorded

GENERATOR TO MAKE DISTRIBUTION:	
1* Original to Facilities and Material Evaluation	MS65
2 Copy to Waste Shipping	MS63
3 Copy to Environmental Compliance	MS65
4 Copy to Materials Control and Accountability	MS26

FS-F-3465 (REV 6/7/92)

6055

PACKAGING LOW LEVEL RADIOACTIVE WASTE (LLRW) INTO ISO CONTAINERS FOR OFFSITE SHIPMENT

SSOP-0078

Effective Date: 12-14-92

AUTHORIZED BY: _____ 11/30/92
H. F. Daugherty, President Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Westinghouse Environmental Management Company of Ohio
P. O. Box 398704
Cincinnati, Ohio 45239-8704

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE DOCUMENT PROGRAM		SITE STANDARD OPERATING PROCEDURE Page 1 of 18
Title: **PACKAGING LOW LEVEL RADIOACTIVE WASTE (LLRW) INTO ISO CONTAINERS FOR OFFSITE SHIPMENT**		DOCUMENT NO: SSOP-0078 REVISION NO. 0
Authorization: H. F. Daugherty, President	Replaces: SSOP-0024, Dated 10-14-91, Rev. 0	Effective Date: 12-14-92

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
12-14-92	0	New procedure required for shipping LLRW in ISO containers per Request S92-175, initiated by M. Hundley. SSOP-0079, SSOP-0075, and SSOP-0078 replace SSOP-0024.

1.0 PURPOSE

This procedure provides the instructions for packaging low level radioactive waste (LLRW) into ISO containers for shipment offsite from the Fernald Environmental Management Project (FEMP).

2.0 SCOPE

This procedure outlines the steps for (1) preparing the empty ISO container, (2) inspecting the waste to be packaged, (3) filling container with waste, (4) weighing container, and (5) labelling container.

The packaging operation is applicable to FEMP personnel (including subcontractors) responsible for packaging LLRW in ISO containers at any packaging location of the FEMP site. This operation originates upon approval by DOE for a specific waste stream. LLRW may be packaged at any designated packaging location at the FEMP.

3.0 DEFINITIONS

Free Liquid - Any free flowing liquid or any liquid that readily separates from the solid portion of a waste under ambient temperature and pressure conditions. Ice is also considered a free liquid.

ISO Container - An Intermodal container (Dry Cargo Type). Those used at the FEMP typically measure 8-1/2 feet high X 8 feet wide X 20 feet long with two doors on the end. Although frequently referred to as a "Sea/Land" container at the FEMP, an ISO container may be, but is not necessarily, a Sea-Land container.

Low Level Radioactive Waste (LLRW) - Waste that contains radioactivity and is not classified as high level waste, transuranic waste, spent nuclear fuel or 11e(2) byproduct material as defined by DOE Order 5820.2A. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium, may be classified as low-level waste, provided the concentration of transuranic is less than 100 nCi/g.

Packaging Location - Any area where waste is stored or generated.

Resource Conservation and Recovery Act (RCRA) - The Congressional Act which established safe and environmentally acceptable management practices for specific wastes. RCRA requires strict "cradle to grave" control, documentation and proper management of hazardous wastes.

3.0 **DEFINITIONS** (cont.)

Toxicity Characteristic Leaching Process (TCLP) - A RCRA term referring to wastes, the extracts from which contain the contaminants listed in Table 1 of 40 CFR 261.24, at a concentration equal to or greater than the respective value given in the table.

4.0 **RESPONSIBILITIES**

Checker fills out weight ticket.

Environmental Management (Facilities & Material Evaluation) provides documentation supporting characterization results as needed.

Industrial, Radiological Safety & Training (IRS&T)

- Provides a Radiological Safety Technician, as requested.
- Determines appropriate respiratory equipment and any other employee protection.

Logistics Administration specifies the required waste container.

Materials Control and Accountability (MC&A) provides bar-code labels.

Packager

- Inspects waste and container per this procedure.
- Packages waste per this procedure.
- Complies with any additional requirements specified by IRS&T.

Quality Assurance (QA) overviews packaging operation to ensure compliance with this procedure.

Supervisor of the waste generation area or packager

- Specifies applicable scale procedures and standard tare weight of packages.
- Ensures packaging materials are available for packagers.
- Ensures that trained personnel package waste material.
- Determines disposition of waste material identified in this procedure.

4.0 **RESPONSIBILITIES** (cont.)

- Ensures that personnel package waste for shipment to meet applicable Nevada Test Site (NTS), Department of Transportation (DOT), and Environmental Protection Agency (EPA) regulations.
- Contacts Industrial, Radiological Safety and Training (IRS&T) to determine the appropriate respiratory protection for the process being performed and the radiological surveys required for materials moving in and out of regulated areas.
- Contacts Radiological Safety for a radiological work permit or other safety permits and ensures permits are obtained and signed prior to performing work.
- Provides packagers with the required respiratory protection and other personal protective equipment.
- Ensures the doors on an unfilled waste containers are secured when no packaging is occurring thereby preventing addition of unknown materials.
- Ensures waste packages are weather-protected.
- Contacts IRS&T prior to opening any container of unknown radioactive material.

5.0 **GENERAL**

5.1 The determination to package a waste stream is based on approval by DOE and a completed Material Evaluation Form.

5.2 On-site movement of waste shall be completed per PP-0314.

6.0 **PREREQUISITES**

6.1 INDUSTRIAL SAFETY AND HEALTH REQUIREMENTS

Safety glasses with side shields shall be worn unless other eye protection is specified.

Respiratory protection provided by the supervisor shall be worn when required.

Leather-palm gloves shall be worn when handling containers, operating equipment and when handling rough, sharp-edged, or contaminated material.

6.0 **PREREQUISITES** (cont.)

6.1 INDUSTRIAL SAFETY AND HEALTH REQUIREMENTS

Neoprene rubber gloves shall be worn when handling HEPA type filter vacuum cleaners, or a vacuum system approved by IRS&T with a current DOP test label properly affixed to vacuum shall be used for cleaning.

A Radiation Work Permit must be approved and current.

Face shields shall be worn when removing lids or bungs of containers filled with liquids or during operations where the possibility exists that personnel could be splashed with liquids.

Any circumstance that could have resulted in an intake of radioactive materials by inhalation, ingestion or absorption shall immediately be reported to a supervisor. The supervisor shall immediately report the circumstance of possible radioactive materials intake to IRS&T Radiological Safety Section for evaluation. The involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form FMPC-ES&H-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow-up urine sample. Employees are responsible for complying with additional requirements as specified by the Radiological Safety Section.

6.2 TOOLS AND MATERIALS REQUIRED

Obtain the following items/supplies prior to performing the packaging operation:

- appropriate safety protective equipment
- silicone caulk
- caulk gun
- absorbent pads
- 1/4 inch x 4 foot x 8 foot plywood sheets (all grades)
- plastic liner (6 mil)
- utility knife
- clean rags
- indelible marker
- 1-1/2 inch black bands, clips, and banding equipment

FEMP
SITE DOCUMENT SYSTEM

SDC No. SC93-006
Effective Date: 04-05-93
Expiration Date: 10-05-93

SITE DOCUMENT CHANGE

1. AFFECTED DOCUMENT NUMBER SSOP-0078	2. AFFECTED DOCUMENT PAGE NUMBER 6

3. TITLE OR SUBJECT:
Packaging LLRW into ISO Containers for Offsite Shipment

4. ACTIVITY AND AREA AFFECTED:
Packaging LLRW/RSO

5. APPROVAL SIGNATURE:

J. Long	Department	4/5/93 Date

6. CHANGE:

1) An additional Industrial Safety and Health Requirement is added to Section 6.1 as follows:

A hard hat shall be worn when inside a front/side loaded ISO container.

7. DOCUMENTATION CONTROL REQUIRED DOCUMENT ACTION

[ ] No Procedure Action

[X] Revise affected procedure/specification per this document.

FILING INSTRUCTIONS: File facing page 6 , Document No. SSOP-0078
(Effective Date: 12-14-92 , Revision No. 0)

6.0 **PREREQUISITES** (cont.)

6.3 WASTE CHARACTERIZATION REQUIREMENTS

A Material Evaluation Form (MEF), FMPC-OPR-3252 shall be initiated to determine if the material as RCRA/Non-RCRA. The packaging operation may be started before the characterization results are received.

NOTE: A numbered MEF may be obtained from Waste Management Records and initiated per SSOP-0002.

Additional documentation supporting the characterization results shall be provided by Facilities and Material Evaluation (F&ME).

A sample of the waste for Toxicity Characteristic Leaching Process (TCLP) may be required as requested by Hazardous & Solid Waste Compliance.

A sample may be required for major radionuclides and other suspected nuclides as determined by supervision.

6.4 PERSONNEL REQUIREMENTS

A minimum of two personnel are required to package waste.

Packagers shall be certified in use of Personal Protective Equipment (PPE).

7.0 **PROCEDURE**

7.1 PREPARING EMPTY ISO CONTAINER

SUPERVISOR

1. Notify Facilities and Warehousing (F&W) to deliver an empty ISO container to the designated packaging area.

   NOTE: The specific ISO container type will be determined by Logistics Administration.

7.1 PREPARING EMPTY ISO CONTAINER (cont.)

PACKAGER

2. After the container is delivered, open ISO container doors and visually inspect the container interior and exterior for damage, such as dents, holes, or other defects.

   a. If the container is damaged or shows evidence of leakage, notify supervisor.

3. Visually inspect interior to ensure the container is empty.

   a. If material is present in the container, notify supervisor.

SUPERVISOR

4. Specify the scale for weighing and method of transporting the container to the scale.

PACKAGER

5. Inspect the scale to be used per the scale procedure applicable to the area.

HEO

6. As directed by the supervisor, move the container onto the scale.

PACKAGER

7. Tare weigh every twentieth container per the applicable department scale procedure applicable to the area.

8. Calculate tare weight by adding 350 lbs to weight of container.

   NOTE: The weight of 350 lbs represents the materials used to prepare the container.

9. Initiate an Item Production/Certification/Identification XX card, Form FS-F-1945 by recording the tare weight (see Figure 1).

HEO

10. Using the method specified by supervisor, remove the container from the scale.

7.1 PREPARING EMPTY ISO CONTAINER (cont.)

PACKAGER

11. Caulk seams, air vents, welded patches, and any other container openings.

    NOTE: Seams closed with a continuous weld need not be caulked.

    a. If a breach or hole is present, notify supervisor.

       NOTE: Supervisor shall contact Maintenance to complete repair.

12. Completely cover floor of container with two layers of absorbent pads permitting no gaps. Allow padding to extend three inches, ± one inch, upward along each wall.

    NOTE: Doorway edge shall remain free of padding at this time.

13. Apply silicone caulk, approximately 4 feet, ± 6 inches high, along the three walls of the container to hold liner in place.

14. Starting at the back of the container, unroll plastic liner over floor to the front of the container, ensuring plastic is up a minimum of 4 feet, along each wall.

15. Using a utility knife, cut off excess liner extending beyond front of container.

16. Drape and press remaining sections of liner to the three caulked walls of the container.

17. Place one layer of absorbent pads over liner on container floor, allowing pad to extend approximately three inches, ± one inch, upward along the three walls.

18. Starting at the back of container, place plywood sheets over the pads, overlapping, across the container floor to the doorway.

19. Lean three plywood sheets along each container side and one plywood sheet along the back wall.

7.1 PREPARING EMPTY ISO CONTAINER (cont.)

PACKAGER

20. Adhere the "Prohibited Materials List" (see Figure 2) to interior side of door.

21. Notify supervisor the container preparation is complete.

    NOTE: Supervisor shall notify QA that the container has been prepared.

QA

22. Inspect container preparation per applicable department procedure for compliance with this procedure.

7.2 INSPECTING THE WASTE

PACKAGER

1. Ensure the waste to be packaged is not on the "Prohibited Materials List" (see Figure 2).

    a. If the waste is listed on the "Prohibited Materials List", do not package this waste. Notify supervisor for disposition.

2. When weather conditions occur that could cause ice, carefully inspect waste for ice.

    a. If ice is present in waste, notify supervisor.

3. Record the following data on the XX Card (see Figure 1) for each container as follows:

    a. Determine the FEMP Lot Marking Code per RM-0005, "FEMP Lot Marking and Color-Coding System" and record code in the areas titled "P.O. No.", "Source", "Class", and "Material Type".

    b. Record a general description of the waste in the area titled "Waste Description and Comments".

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE DOCUMENT PROGRAM		SITE STANDARD OPERATING PROCEDURE Page 11 of 18
Title: **PACKAGING LOW LEVEL RADIOACTIVE WASTE (LLRW) INTO ISO CONTAINERS FOR OFFSITE SHIPMENT**		DOCUMENT NO: SSOP-0078 REVISION NO. 0
Authorization: H. F. Daugherty, President	Replaces: SSOP-0024, Dated 10-14-91, Rev. 0	Effective Date: 12-14-92

CARD 65-1 **ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION** INV. NO.:

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DATE DAY	DATE YEAR	SHIFT	BADGE NO.	CONT. NO.	SERIAL NO.

SEAL NUMBER	SEAL DATE MONTH	SEAL DATE DAY	SEAL DATE YEAR

WASTE DESCRIPTION AND COMMENTS

PACKAGE TYPE	
PACKAGE SIZE	
PROJECT	

PACKAGE PHYSICAL CERTIFICATION	YES	NO
EMPTY CONTAINER AT START		
RUST HOLES OR DENTS		
MATERIAL IS AS CODED		
PROHIBITED MATERIALS		
LIQUIDS IN CONTAINER		
MINIMUM OF VOID SPACE		
PACKAGE SECURED		
DRAIN PLUG SECURED		
OVERPACK		
REPACK		

PLANT	PROD. MBA	MEF NO.
DCAR	SURV. NO.	GROSS WEIGHT
		TARE WEIGHT
		NET WEIGHT

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE DATE

FS-F-1945-1 (REV. 11/20/92)

Figure 1 - Item Production/Certification/Identification (Form FS-F-1945)

PACKAGING GUIDELINES FOR WASTE GENERATOR

Package has been properly prepared for closing:

- No liquids of any kind have been placed in container
- Heavy/bulky items have been secured within container
- All available space has been utilized efficiently
- Prohibited materials have been excluded (see below)
- Packaging has not been damaged during loading
- Liner is in place and properly lapped and sealed

PROHIBITED MATERIALS

Compressed Gases (unpunctured aerosol cans included)

- Explosives
- Free liquids
- Fine particulates (respirable fines)
- Hazardous Waste (Suspect RCRA materials included)
- Corrosive materials
- Etiologic agents

Figure 2 - Prohibited Materials List

7.3 FILLING ISO CONTAINERS WITH WASTE MATERIAL

PACKAGER

1. Maintain communication with QA to permit QA to overview filling of containers in accordance with applicable QA department procedure.

QA

2. If a nonconformance is identified, document and evaluate for corrective action per applicable department procedure.

PACKAGER

> **CAUTION**
>
> **A RESPIRATOR AND OTHER PERSONAL PROTECTIVE EQUIPMENT PROVIDED BY THE SUPERVISOR SHALL BE WORN PRIOR TO FILLING CONTAINERS.**

3. As specified by supervisor, load waste into container as tightly as possible.

7.4 SECURING ISO CONTAINER

QA

1. Perform final examination of contents and complete documentation for verification of materials packaged.

   NOTE: This documentation may include photographs.

PACKAGER

2. If directed by supervisor, place two sheets of plywood vertically in front of container doorway for shoring.

3. Roll absorbent pads (double-thick) together and place evenly along the floor (maintaining continuous contact with floor) in front of the plywood sheets.

4. Caulk door frame interior and inside edges of each door.

5. Close the container doors.

7.4 SECURING ISO CONTAINER (cont.)

PACKAGER

6. Close and latch doors ensuring all latching mechanisms are engaged.

7. Band doors securely together with 1-1/4 inch bands spaced approximately 2 feet apart around the center locking bars at mid-height of the container.

8. Secure each band with two double-crimp seals.

7.5 WEIGHING FILLED ISO CONTAINERS

SUPERVISOR

1. Contact Logistics Administration for weight limits.

2. Notify Heavy Equipment Supervisor to move container to the appropriate scale.

   NOTE: The scale shall be a currently calibrated accountability scale.

HEO

3. Move container on to scale.

CHECKER

4. Fill out weight ticket and transmit to Shipping Coordinator.

   a. If the box is over the specified weight limit, notify supervisor and proceed as directed.

HEO

5. Remove container from the scale.

PACKAGER

6. Complete the XX card, Form FS-F-1945 (see Figure 1) and transmit card to supervisor.

7.5 WEIGHING FILLED ISO CONTAINERS (cont.)

SUPERVISOR

7. Sign XX card and transmit to MC&A.

MC&A

8. Using XX card data, print required bar-code labels.

9. Submit bar-code labels to supervisor.

7.6 LABELLING AND INSPECTING FILLED CONTAINERS

PACKAGER

1. Affix the bar-code labels, provided by MC&A, to sides of ISO container as shown in Figure 3.

2. Using paint, touch up container exterior. If paint is flaking, scrape container and paint over bare metal.

3. Using as "ISO Final Inspection Checklist" (see Figure 4), perform a final visual inspection of container and fill out checklist.

4. Transmit completed checklist to supervisor.

SUPERVISOR

5. Review checklist for unacceptable inspection items.

   a. If an item is unacceptable, complete appropriate corrective action.

   b. If container is acceptable, contact Heavy Equipment Supervisor to move box to designated staging area.

8.0 <u>APPLICABLE DOCUMENTS</u>

8.1 DRIVERS

- NVO-325, "Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements"

8.0 **APPLICABLE DOCUMENTS** (cont.)

8.2 REFERENCES

- RM-0005, "FEMP Lot Marking and Color-Coding System"
- SSOP-0002, "Completing the Material Evaluation Form"
- PP-0314, "Packaging, On-Site Movement, and Off-Site Shipment of Material"

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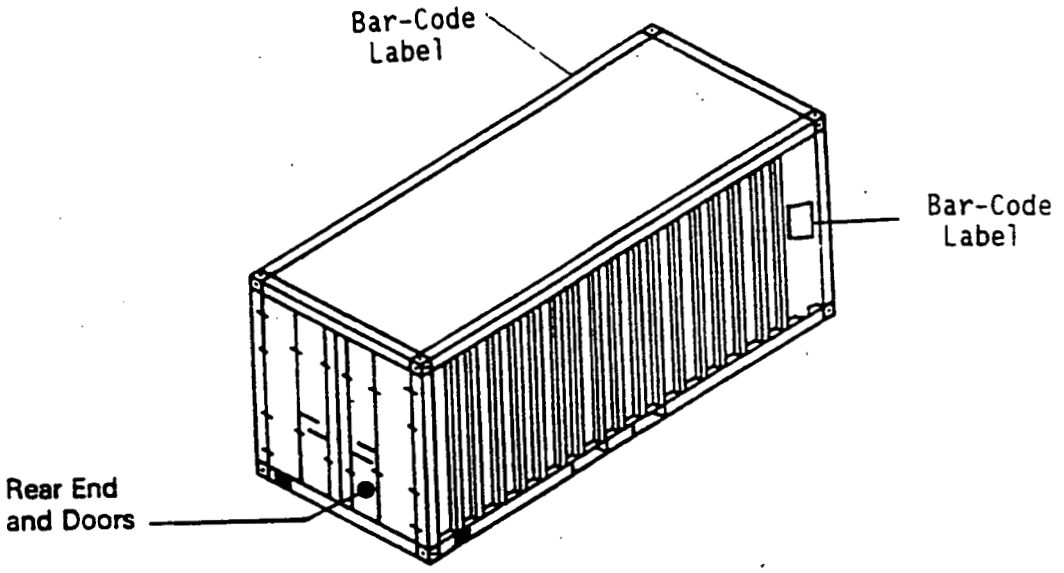

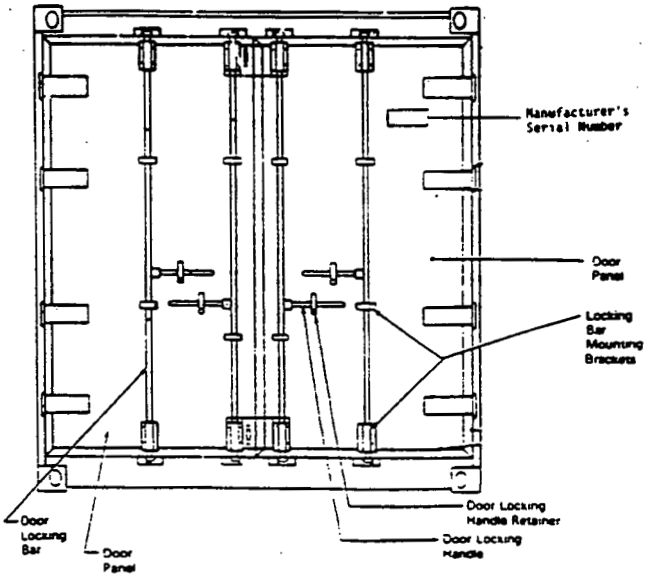

TYPICAL REAR END AND DOOR STRUCTURE

Figure 3 - Diagram of LLRW ISO Container Labeling

ISO FINAL INSPECTION CHECKSHEET

ISO SHIPMENT NO: _____

NUMBER OF CONTAINERS IN SHIPMENT _____

NAME: _____
BADGE NO: _____
DATE OF INSPECTION: _____

NAME: _____
BADGE NO. _____
DATE OF INSPECTION: _____

INSPECTION ITEM	*PLACE INITIALS BELOW IF ACCEPTABLE*
1. Doors and vents caulked. Caulking visible around entire door and vent area	
2. Doors banded with two bands and two clips. Banding is tight.	
3. All erroneous markings blacked out.	
4. Container in good condition (no holes or structrually affecting dents)	
5. Container clean - free of debris and loose dirt.	
6. Labels are placed on two sides of container, not doors.	
7. Labels are placed on two sides of container, not doors.	

Inspector's Signature _____ Date _____

Inspectors's Signature _____ Date _____

Figure 4 - ISO Final Inspection Checksheet

NON-CONTROLLED COPY

1.0 PURPOSE

The purpose of this document is to provide the procedure for baling contaminated trash for off-site disposal.

2.0 APPLICABILITY

This procedure applies to the SELCON Trash Baler in the Incinerator Bldg.

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3.0 RESPONSIBILITIES

3.1 Supervisors shall be responsible for the following:

3.1.1 Ensuring that personnel are qualified per the established training requirements identified by the Department Manager.

3.1.2 Maintaining training records of personnel operating the trash baler.

3.1.3 Contacting Environmental Safety and Health (ES&H) to determine the appropriate respiratory protection for handling contaminated trash.

3.1.4 Providing operators with the required respiratory protection.

3.1.5 Shutting off and locking out power to the baler per SSOP-0719 prior to repairs, making adjustments, or cleaning the baler.

3.1.6 Establishing and revising (when required) a regular schedule for the delivery of contaminated trash to the trash baler.

3.1.7 Providing Waste Generation Control with the information on prohibited items identified in Nevada Test Site Waste Stream ONLO-000000007 (contaminated trash).

3.1.8 Contacting Quality Control/Waste Verification when ready to load bales into ISO for shipment.

R 3.2 Baler Operators shall be responsible for the following:

R 3.2.1 Complying with this SOP.

R 3.2.2 Operating the baler at least one shift per day, five days a week.

3.0 **RESPONSIBILITIES** (cont.)

3.3 **RSO Operations/Waste Generation Control (WGC)** shall be responsible for the following:

3.3.1 Periodically updating the prohibited items list, that is posted on the trash baler, with action to take if prohibited items are found.

3.3.2 Notifying generators, facility owners, and trash handlers, on a monthly basis, the disposal alternative for prohibited items.

3.4 **Package Certifiers** shall be responsible for the following:

3.4.1 Inspecting 10 percent of trash prior to baling.

3.4.2 Documenting prohibited items segregated.

3.4.3 Notifying violators of prohibited items.

3.4.4 Documenting prohibited item notifications.

3.4.5 Completing Part III of the "Trash Baler Operation Log."

3.5 **Real Time Radioscopic (RTR) Operators** shall be responsible for the following:

3.5.1 Inspecting on 10 percent of the baled trash.

3.5.2 Documenting, on the examination log, prohibited items that are found.

3.5.3 Forwarding a copy of the examination log each week to WGC.

3.6 **Quality Assurance** shall be responsible for the following:

3.6.1 Evaluating the "Trash Baler Operation Log" and documentation from the Package Certifiers (pre-baled trash).

3.6.2 Notifying the Baler Supervisors of prohibited items.

3.6.3 Issuing Deviation Reports whenever appropriate.

4.0 **DEFINITIONS**

4.1 Contaminated Material - A substance containing radioactive constituents that are above the limit for unrestricted release (1,000 dpm/cm^2).

4.2 Platen - Pressure plate of the baler.

5.0 **APPLICABLE DOCUMENTS**

5.1 Drivers

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

5.1.2 RM-0012, "Quality Assurance Program Description"

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5.0 APPLICABLE DOCUMENTS (cont.)

5.1.3 NVO-325, "Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements"

5.2 References

5.2.1 SOP 20-C-902, "Liquid Propane Gas (LPG) Powered Handstackers and Tuggers"

5.2.2 SSOP-0719, "FERMCO Lockout and Tagout (Hazardous Energy Control) Procedure"

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

6.1 Safety glasses shall be worn unless other protection is specified by the supervisor, ES&H, or posted signs.

6.2 Leather-palm gloves shall be worn when loading or conveying trash.

6.3 When making adjustments or cleaning the baler, electrical power shall be shut off and locked out per SSOP-0719.

6.4 Respiratory protection issued by the supervisor shall be worn when specified by ES&H, the supervisor, or posted signs.

6.5 Personnel shall move away from the incinerator bin and conveyor while dumpsters are being emptied.

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

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

7.0 GENERAL

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

R 7.2 If the baler, supporting facility, or associated vehicles become
R inoperative, the supervisor shall be notified and the Contingency Plan
R (Refer to Figure 1) initiated.

8.0 PROCEDURE

8.1 Trash Receiving

BALER OPERATOR

8.1.1 After a dumpster has been emptied, check inside to ensure that the trash has been deposited in the bin.

8.1.1.1 If trash remains inside the dumpster, use a rake and pull the material from the dumpster and into the bin.

8.1.2 Complete Part I of the "Trash Baler Operation Log".

8.1.3 Visually inspect the trash for prohibited items or categories of waste (See Figure 3).

8.1.4 If prohibited items are found, proceed as follows:

> **WARNING**
>
> **Protective clothing identified by the supervisor or by posted signs shall be worn while removing items.**

8.1.4.1 Remove the items from the trash.

8.1.4.2 Label the items with their point of origin.

8.1.4.3 Segregate each item in a container or plastic bag designated for that type of waste.

NOTE: Prohibited waste types shall be separated into containers (such as paint cans in one, glass in another).

8.1.4.4 Place the removed items in the interim storage receptacle located adjacent to the baler.

8.1.4.5 Document from which area the prohibited item originated in Part II of the "Trash Baler Operation Log".

8.1.4.6 Label each bag/container with the waste description.

8.1.4.7 Notify the supervisor of prohibited items found.

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8.0 **PROCEDURE** (cont.)

SUPERVISOR

NOTE: WGC (X8444) shall be notified if prohibited items found are a serious violation of requirements or if more than 10 percent of dumpster contents consist of prohibited items.

8.1.4.8 Notify the Dumpster Owner and Waste Generation Control (WGC) of prohibited items found.

8.1.4.9 Forward a copy of the Trash Baler Operation Log to Quality Control Package Certifiers after Parts I and II are completed.

BALER OPERATOR

R **NOTE**: A red "X" identifies bags that were dropped at a dumpster with
R no identification showing point of origin.

R 8.1.5 Check for bags identified with a red X and unmarked bags. If found, proceed as follows:

R 8.1.5.1 Identify unmarked bags with a red X.

R 8.1.5.2 Set X-marked bags aside for inspection.

R **NOTE**: WGC shall be present when the unmarked bags are opened for
R inspection and shall also arrange for a Radiological Control
R Technician (RCT) to be present.

R 8.1.5.3 Notify the supervisor and WGC of X-marked bags.

R 8.1.5.4 When permission is granted by WGC and the RCT, open the bag(s) and
R inspect the contents.

R 8.1.5.5 If prohibited items are found, perform Substeps 8.1.4.1 thru 8.1.4.4,
R 8.1.4.6, and 8.1.4.7.

R **SUPERVISOR**

R 8.1.5.6 If prohibited items were contained in the trash, notify the Dumpster
R Owner.

R **BALER OPERATOR**

R 8.1.5.7 If prohibited items were found, enter (if possible) the following on
R the baler log:
R (A) the point of generation
R (B) bags inspected
R (B) items removed at the baler

R 8.1.5.8 Label each bag with the description of the waste material contained.

R 8.1.5.9 Give the operation log to the supervisor.

8.0 **PROCEDURE** (cont.)

R **SUPERVISOR**

R 8.1.5.10 Forward the operation log to Quality Control for completion of
R Part III.

R **BALER OPERATOR**

8.1.6 Fill out the applicable portions of Part II of the operating log.

NOTE: The Trash Baler operator shall sign the 1945-XX Card as "Generator".

8.1.7 Complete an "Item Production/Certification/Identification" card, Form FS-F-1945-XX (See Figure 4).

8.1.8 Ensure that the bale removal chain at the rear of the baler is unhooked from the platen (See Figure 5).

NOTE: The Trash Baler will not operate in the automatic mode unless the door is positioned against limit switches and latched.

8.1.9 Ensure that the bale removal door is closed and securely latched.

8.1.10 Check the scaffold for loose items.

8.1.10.1 Remove items, if found, from the scaffold.

8.1.11 Position the scaffold platform against the bale removal door.

8.1.12 Lock the scaffold wheels in place.

8.1.13 Latch scaffolding chain locks onto the baler frame.

8.1.14 Place moveable walkway between the scaffolding and the platform.

8.1.15 Position the south swinging gate between the angle iron and scaffolding.

8.1.16 Chain and lock the north swinging gate to the scaffolding.

8.2 Baler Operation (See Figure 5)

8.2.1 Raise the safety gate.

8.2.2 Cover the bale chamber floor with a large sheet of trash cardboard.

8.2.3 Place trash bags in the bale chamber.

NOTE: The baler will not operate in the automatic mode unless the safety gate is closed and latched.

8.2.4 Pull down the safety gate until the gate is latched.

8.0 PROCEDURE (cont.)

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NOTE: The baler will automatically compact the contents and return to the UP position.

8.2.5 At the control panel, press the DOWN button.

8.2.6 Repeat Steps 8.2.1 and 8.2.3 thru 8.2.5 until the bale is nearly complete.

8.2.7 Before compaction is complete, add a large cardboard sheet to the top of bale.

NOTE: When a bale is completed, the indicator at the control panel will light and the baler automatically shut off in the DOWN position.

8.2.8 Repeat Steps 8.2.1 and 8.2.3 thru 8.2.5 and complete the bale.

8.2.9 Record the bale number on the "Trash Baler Operation Log."

8.3 Bale Removal

8.3.1 Check the scaffold to ensure that loose items have been removed from the platform.

8.3.1.1 Remove remaining loose items, if found.

8.3.2 Unlock scaffold platform wheels.

8.3.3 Move the platform away from the bale removal door.

8.3.4 Using the gradual tension release latch, open the Bale Removal Door.

8.3.5 Insert wires (a maximum of six) through the slots in the floor of the baling chamber.

8.3.6 Wrap the wires around bale and then back through the slots in the ram of the baler.

8.3.7 Insert the end of each wire through the end loop.

8.3.8 Wrap each end of the wire at least four times above the end loop.

8.3.9 At the rear of the baler, hook the bale removal chains onto the platen.

8.3.10 Inspect, per SOP 20-C-902, the handstacker or tugger to be used.

8.3.11 Operate the handstacker or forklift to be used without a load to ensure safe conditions.

8.3.12 Using the handstacker or forklift, position a wood skid at bale removal door.

8.0 **PROCEDURE** (cont.)

8.3.13 Ensure that the baler safety gate is in the closed position.

NOTE: Only one bale shall be placed on a skid.

8.3.14 At the control panel, press and hold the UP button until the bale rolls out onto the skid.

8.3.15 Using the handstacker or forklift, move the skid away from the baler.

NOTE: Use bale number "W050-240-P-027-XXXX." The last four numbers shall be in sequence, starting with 0001.

8.3.16 Mark the bale with the date and bale number.

8.3.17 Record the bale number on the Trash Baler Operation Log.

8.3.18 On the baler, close and latch the bale removal door.

8.3.19 At control panel, press and hold the DOWN button.

8.3.20 When the baler platen reaches the lowest position, ensure that bale removal chains automatically unhook from rear of platen.

8.3.21 If chains fail to unhook proceed as follows:

8.3.21.1 Release the DOWN button.

8.3.21.2 Press the EMERGENCY STOP button at the control panel.

8.3.21.3 Manually unhook the chains.

NOTE: The baler cycle shall complete with the baler ram in the UP position.

8.3.21.4 Turn the EMERGENCY STOP button head.

NOTE: The baler shall return to the UP position.

8.3.22 Release the DOWN button.

8.3.23 Complete the "Item Production/Certification Identification" card (See Figure 3).

8.3.24 Give the completed 1945-XX card and, when filled-out, the Trash Baler Operation Log to the supervisor.

8.3.25 Move completed bale to the designated storage area.

8.3.26 When bailing is complete, secure the area and switch baler power off.

8.0 **PROCEDURE** (cont.)

8.4 Trouble Shooting

8.4.1 If the baler will not start or stops during operation, proceed per Table 1.

8.4.2 If the problem cannot be corrected or if other problems are encountered, notify the supervisor.

SUPERVISOR

8.4.3 Inform Maintenance that repair is required.

8.4.4 Report problems to the Facility Owner of the building where the dumpster is located.

9.0 **APPLICABLE FORMS**

9.1 NN, "Trash Baler Operation Log"

9.2 FS-F-1945-XX, "Item Production/Certification/Identification"

TABLE 1
BALER TROUBLE SHOOTING

PROBLEM	CAUSE	CORRECTIVE ACTION
1. Baler will not start.	A. Bale removal door/latch open. B. Safety Gate Open. C. EMERGENCY STOP Switch activated.	A. Close removal door and latch. B. Close Safety Gate. C. Turn EMERGENCY STOP push button head to release the locking device.
2. Baler Shuts Down	A. Safety gate raised faster than ram. B. Releasing the UP push button during the ejection cycle.	A. Allow ram to move up before activating safety gate. B. Press and hold the UP button.

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R TRASH BALER CONTINGENCY OPERATING PLAN

R ASSUMPTIONS: Baler operates 5 days a week 8 hours a day (1st shift).

R This contingency plan shall be used until the new compactor is
R on-line and baling operations are transitioned.

R Generation rate of compactable unbaled trash on any given two
R week period can be contained in 3 ISO containers.

R STRATEGY STATEMENT: This plan shall be effective in the event the Trash Baler,
R supporting facility, or vehicles are inoperable for a period of
R 3 working days. Should this period of inoperability exceed 10
R working days, additional contingencies shall be made available.

R COLLECTION: Dumpster Owners shall notify Waste Operations of excess trash
R (trash that can not be put into the dumpster because the
R dumpster is full). This trash will be collected daily by RSO
R Waste Operations and taken to the area containing the interim
R storage ISO containers.

R HANDLING: RSO Waste Operations shall load and unload excess compactable
R trash.

R INSPECTION: QC shall inspect excess trash prior to loading into the interim
R storage ISO containers. If scheduling conflicts arise and QC
R can not inspect prior to lading, the ISO may be inspected
R during unloading for compaction at the baler.

R STORAGE: Storage of the excess compactable trash shall be in three
R containers numbered I, II, and III and located north of Storm
R Sewer Lift Station. These ISO containers shall be used when
R this plan is activated and shall be unloaded and baled at the
R earliest possible date.

FEMP
WEEKLY TRASH BALER OPERATION LOG
PLANTS 2/3

PART I							PART II	PART III	
DATE	SHIFT	OPERATOR INITIALS	DUMPSTER #, BLDG #, PROJ #, OR AREA	NUMBER OF BAGS/LABELLED *	BALE NUMBER	PROHIBITED ITEMS FOUND AND DESCRIPTION	WHERE WAS PROHIBITED ITEM DISPOSED?	NAME OF DUMPSTER OWNER OR GENERATOR CONTACTED	QUALITY CONTROL SIGNATURE/DATE

At the end of each week:

1. Operators complete PARTS I and/or II, forward a copy to QC at MS 67.
2. QC complete PARTS II and/or III and forward a copy to Operators at MS 62 and Waste Generation Control at MS 73.
3. QC keep a copy as part of Deviation Reporting System backup file.
4. Operators keep original and copy from QC on file at Baler work station.

* Any bag that has no markings (Building #, Plant, Area, Project, or a red "X") shall be marked with a red "X" and set aside for internal inspection.

WEEKLY TRASH BAILER OPERATION LOG
Figure 2

6055

NTS Waste Stream -- ONLO-00000007
"Contaminated Trash"

Allowed Items	Restrictions
Certain Batteries	No Lead-Acid (vehicle) or Ni-Cad (rechargeable)
Empty Cans	No Prohibited Item Residue
Metal	Less than 2 ft. in length. Free from grease, oil, residues, lead-based paint
Paper/Cardboard	
Personal Protective Equipment (Anti-C's, Boots, Gloves, Tyvek)	Unless specifically restricted by Work Plan
Plastic	
Rope, Twine, String	
Styrofoam, Rubber	
Wood	Less than 2 ft. in length. Free from creosote, residue, stains, lead-based paint

Dumpster Usage Instructions:

1. All trash MUST be marked with the building or area of origin.
2. All trash MUST be placed inside the dumpster **(except green-bagged Office Trash)**.

Prohibited Items	Examples	Where to Go	Who to Contact
Asbestos Containing Material	Transite, Pipe Insulation, Floor Tile	---	Leigh Fisher, x8638
Batteries	Auto, Ni-Cad Rechargeable	Plant 6	Susan Hoskins, x6826
Compressed Gases and Aerosol Cans (unpunctured)	Spray Paint, Deodorant Cans, Spray Disinfectant Cleaner, WD-40, Propane	Plant 1	Sam Laupoia, x6052
Glass	Bottles, Jars, Light bulbs	Plant 1	Sam Laupoia, x6052
Lead-bearing Material	Lead metal, Pipe dope, Lead flashing, Oil filters	Satellite Accum. Areas	John Grace, x8924
Liquids	Water, Coffee, Ice, Pop	Sink	---
Mercury-bearing Material	Switches, Vaccuum Pumps	Satellite Accum. Areas	John Grace, x8924
Particulates (unbagged)	Ashes, Dust, Pad Sweepings	---	Chris Gilbert, x6428
Solvents and Soaked Rags	Kerosene, Toluene, Acetone	Satellite Accum. Areas	John Grace, x8924
UNCONTAMINATED TRASH	Office Trash, Paper, Non-radioactive trash	---	Chuck Menche, x6428
Wood	Pallets, 2x4's,Lumber	Plant 1	Lori Hurst, x8448

Any Questions...Call
Waste Generation Control - x8444

PROHIBITED WASTE
Figure 3

6601

CARD 65-1 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

REV NO

P O NO | SOURCE | CLASS | MATERIAL TYPE | LOT SEQUENCE NO. | DATE (MO | DAY | YEAR) | SHIFT | BADGE NO | CONT. NO | SERIAL NO

SEAL NUMBER | SEAL DATE (MONTH | DAY | YEAR)

PACKAGE PHYSICAL CERTIFICATION (YES / NO)
- EMPTY CONTAINER AT START
- RUST HOLES OR DENTS
- MATERIAL IS AS CODED
- PROHIBITED MATERIALS
- LIQUIDS IN CONTAINER
- MINIMUM OF VOID SPACE
- PACKAGE SECURED
- DRAIN PLUG SECURED
- OVERPACK
- REPACK

PLANT | PROD. MBA | MEF NO

DCAR | SURV. NO | GROSS WEIGHT

WASTE DESCRIPTION AND COMMENTS

PACKAGE TYPE

PACKAGE SIZE

PROJECT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE | SUPERVISOR SIGNATURE | DATE

FS-F-1945-1 (REV 11/20/92)

CARD 65-2 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

INV. NO.:

P. O. NO. | SOURCE | CLASS | MATERIAL TYPE | LOT SEQUENCE NO. | DATE (MO | DAY | YEAR) | SHIFT | BADGE NO. | CONT. NO. | SERIAL NO.

SEAL NUMBER | SEAL DATE (MONTH | DAY | YEAR)

PACKAGE PHYSICAL CERTIFICATION (YES / NO)
- EMPTY CONTAINER AT START
- RUST HOLES OR DENTS
- MATERIAL IS AS CODED
- PROHIBITED MATERIALS
- LIQUIDS IN CONTAINER
- MINIMUM OF VOID SPACE
- PACKAGE SECURED
- DRAIN PLUG SECURED
- OVERPACK
- REPACK

PLANT | PROD. MBA | MEF NO

DCAR | SURV. NO. | GROSS WEIGHT

WASTE DESCRIPTION AND COMMENTS

PACKAGE TYPE

PACKAGE SIZE

PROJECT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE | SUPERVISOR SIGNATURE | DATE

FS-F-1945-2 (REV 11/20/92)

CARD 65-3 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

INV. NO.:

P. O. NO. | SOURCE | CLASS | MATERIAL TYPE | LOT SEQUENCE NO. | DATE (MO | DAY | YEAR) | SHIFT | BADGE NO. | CONT. NO. | SERIAL NO.

SEAL NUMBER | SEAL DATE (MONTH | DAY | YEAR)

PACKAGE PHYSICAL CERTIFICATION (YES / NO)
- EMPTY CONTAINER AT START
- RUST HOLES OR DENTS
- MATERIAL IS AS CODED
- PROHIBITED MATERIALS
- LIQUIDS IN CONTAINER
- MINIMUM OF VOID SPACE
- PACKAGE SECURED
- DRAIN PLUG SECURED
- OVERPACK
- REPACK

PLANT | PROD. MBA | MEF NO.

DCAR | SURV. NO | GROSS WEIGHT

WASTE DESCRIPTION AND COMMENTS

PACKAGE TYPE

PACKAGE SIZE

PROJECT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE | SUPERVISOR SIGNATURE | DATE

FS-F-1945-3 (REV 11/20/92)

CARD 65-4 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

INV. NO.:

P. O. NO. | SOURCE | CLASS | MATERIAL TYPE | LOT SEQUENCE NO. | DATE (MO | DAY | YEAR) | SHIFT | BADGE NO. | CONT. NO. | SERIAL NO.

SEAL NUMBER | SEAL DATE (MONTH | DAY | YEAR)

PACKAGE PHYSICAL CERTIFICATION (YES / NO)
- EMPTY CONTAINER AT START
- RUST HOLES OR DENTS
- MATERIAL IS AS CODED
- PROHIBITED MATERIALS
- LIQUIDS IN CONTAINER
- MINIMUM OF VOID SPACE
- PACKAGE SECURED
- DRAIN PLUG SECURED
- OVERPACK
- REPACK

PLANT | PROD. MBA | MEF NO

DCAR | SURV. NO | GROSS WEIGHT

WASTE DESCRIPTION AND COMMENTS

PACKAGE TYPE

PACKAGE SIZE

PROJECT

TARE WEIGHT

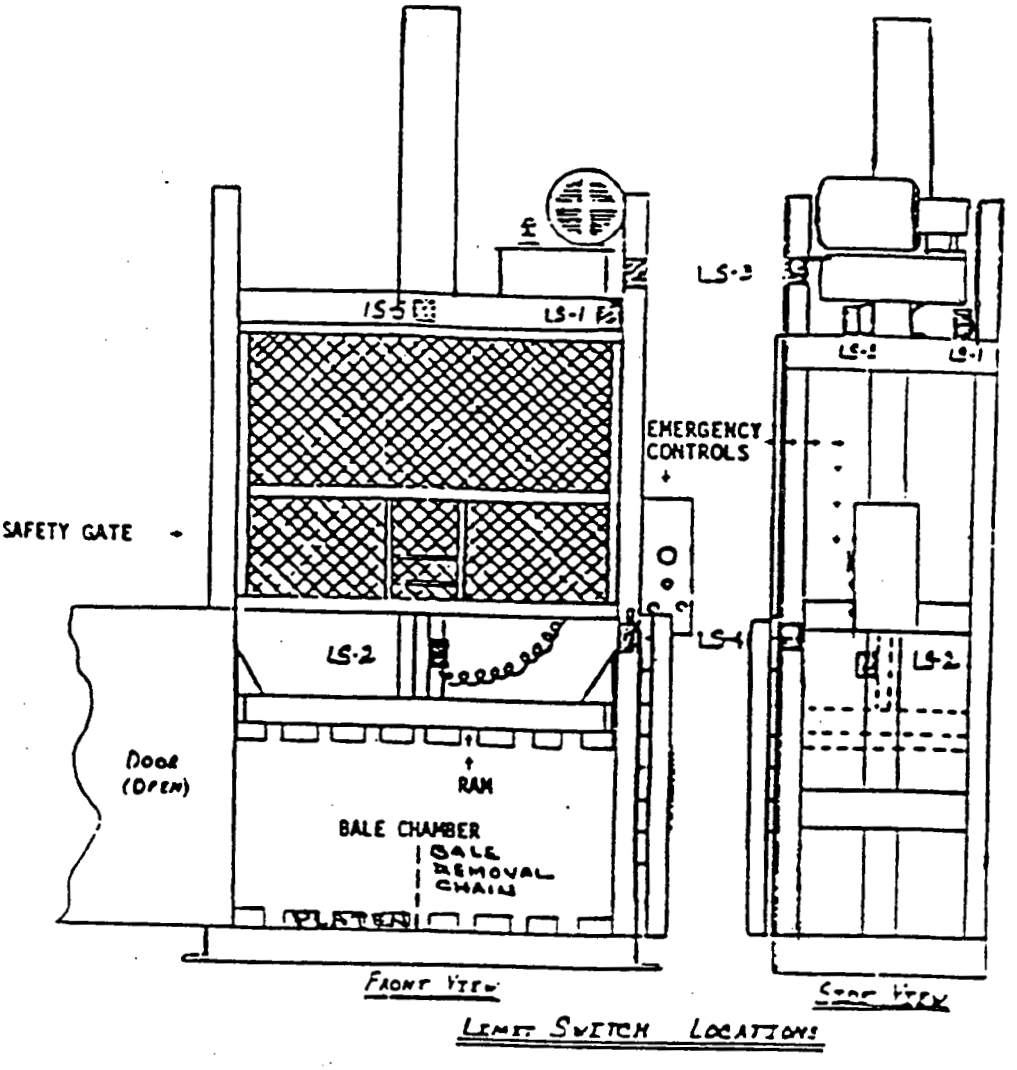
NET WEIGHT

GENERATOR SIGNATURE | SUPERVISOR SIGNATURE | DATE

FS-F-1945-4 (REV 11/20/92)

ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION
FS-F-1945-1 thru 4
Figure 4

6055



LS-1 - UP STOP
LS-2 - GATE-PLATEN INTERLOCK
LS-3 - GATE CLOSE
LS-4 - BALE CHAMBER DOOR
LS-5 - BALE SIZE

TRASH BALER CONFIGURATION
Figure 5

RECORD OF ISSUE/REVISIONS

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
10-21-87	N/A	Preparation of procedure for Baling Trash per Request No. P86-168, initiated by B. Perkins.
06-19-89	N/A	Revised to incorporate C89-002 per Request No. P89-098.
09-01-89	1	Revised to incorporate CIO Nos. C89-065 (P89-352), C89-066 (P89-372), and C89-005 (P89-100). Revision program changed from "Page Revision Date" to "Revision No.".
10-14-91	0	Reissued to update technical content per Request P91-270, initiated by M. Jackson and to incorporate CIOs C90-058, (P91-095) and C90-062 (P91-112).
07-01-92	1	Revised to incorporate CIO C92-014 (P92-137) and update to current procedure program requirements, other than CIO incorporation, no changes were made to technical content.
10-18-93	0	Reissued to update procedure to current requirements, per Request No. P93-1004, initiated by R.W. Bischoff. Also CIO C93-716 (P93-1005) incorporated.
05-10-94	1	Revised to incorporate CIOs C93-754 (P94-0252), C93-755 (P94-0253), and C94-001 (P94-0254).

Fernald Environmental Management Project Fernald Environmental Restoration Management Corp. REMEDIATION SUPPORT OPERATIONS DOCUMENT PROGRAM		Page 1 of 10 Revision No. 0 Revision Date: N/A
REMEDIATION SUPPORT OPERATIONS PROCEDURE	**CONTROL AND UTILIZATION OF CONTAMINATED TRASH DUMPSTERS**	SOP 20-C-604 Area: As Applicable
(Signature on File) Authorization: M.L. West, Manager, Env. Waste Management	Supersedes: 20-C-604 Dated: 05-24-88	Issue Date: 10-18-93

NOV 1993

1.0 PURPOSE

The purpose of this document is to provide the procedure for moving, filling, securing, and inspecting the 28 contaminated trash dumpsters with contaminated trash on the controlled side to meet NVO-325 requirements.

2.0 APPLICABILITY

This procedure is applicable to anyone moving, collecting, and depositing trash into contaminated trash dumpsters.

3.0 RESPONSIBILITIES

3.1 **Administration/Training/Remediation Services Training/Site Support Training** shall be responsible for providing porters, laborers, Motor Vehicle Operators (MVO) and their immediate supervisors, plus any other waste handler associated with collecting or depositing trash into the contaminated trash dumpsters with training or training material on controlling contaminated trash dumpsters.

3.2 **Supervisors** shall be responsible for the following:

3.2.1 Ensuring that personnel are qualified per the established training requirements identified by the Department/Section Manager.

3.2.2 Maintain training records of personnel who are using the dumpsters.

3.2.3 Providing training records to Facilities & Waste Operations.

3.2.4 Contacting Radiological Control or Industrial Safety & Health to determine the appropriate respiratory protection for handling contaminated trash.

3.2.5 Providing Contaminated Trash Handlers with the required respiratory protection.

3.2.6 Reviewing applicable Material Safety Data Sheets with Contaminated Trash Handlers.

3.3 **Contaminated Trash Generators** shall be responsible for ensuring that prohibited items are not placed into trash receptacles. (See Figure 1)

3.0 **RESPONSIBILITIES** (cont.)

3.4 **Facility/Dumpster Owners** shall be responsible for the following:

3.4.1 Ensuring that designated contaminated trash dumpster access doors remain locked when not in use.

3.4.2 Ensuring that contaminated trash does not accumulate around the dumpsters.

3.4.3 Maintaining ownership (or delegating ownership) of the key to open the "Master" lock on the contaminated trash dumpster.

3.4.4 Notifying Waste Management, specifically Waste Generation Control (738-8444), to whom ownership of the key has been delegated.

3.4.5 Notifying Waste Generation Control (738-8444) of any problems associated with contaminated trash dumpsters.

3.5 **Contaminated Trash Handlers** shall be responsible for complying with this SOP.

3.6 **Remedial Support Operation/Operations/Waste Management/Waste Generation Control (WGC)** shall be responsible for the following:

3.6.1 Periodically updating the prohibited items list to be posted on each contaminated trash dumpster and the appropriate action to take if prohibited items are found.

3.6.2 Maintaining a list of facility/dumpster owners and copies of the keys to the dumpster locks.

3.6.3 Routinely issuing "employee updates" to inform personnel of their responsibilities pertaining to the generation of contaminated trash.

3.6.4 Configuration of contaminated trash dumpsters to better serve the site needs.

3.7 **Quality Control (QC)** shall be responsible for the following:

3.7.1 Performing weekly inspections of 25% of the dumpsters and documenting that information in Figure 3.

3.7.2 Contacting dumpster Owners about deviations and forwarding copies to Quality Assurance (QC) & (WGC).

3.8 **Quality Assurance** shall be responsible for the following:

3.8.1 Evaluating the Contaminated Trash Dumpster QC Inspection Checklist along with documentation from the package certifiers (pre-baled trash inspection) and baler operators.

3.8.2 Contacting Facility/Dumpster Owners and issuing Deviation Reports whenever appropriate.

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4.0 DEFINITIONS

4.1 Contaminated Material - A substance containing radioactive constituents that are above the limit for unrestricted release (1,000 dpm/cm^2).

4.2 Contaminated Trash Dumpster - Secured container for the collection of contaminated trash located throughout the controlled area. The dumpsters are gray in color with a rounded top and a locked door on each end (two doors).

4.3 Contaminated Trash Generator - Any person that has a TLD and works within the controlled area, or will access the controlled area periodically to perform their duties, and subsequently be disposing of trash.

4.4 Contaminated Trash Handler - Any person (porter, laborer, HAZWAT, chemical operator, sub-contractor, MVO, or radiation technician) that will collect contaminated trash for disposal.

4.5 Contaminated Trash - Any trash on the site suspected to have contaminated material which would prelude the trash from disposal at a sanitary landfill.

5.0 APPLICABLE DOCUMENTS

5.1 Drivers

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

5.1.2 "FEMP Conduct of Operations Manual"

5.1.3 RM-0012, "Quality Assurance Program Description"

5.1.4 NVO-325, "Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirement"

5.2 References or Related Documents

5.2.1 SOP 02-C-923, "Trash Baler Operation"

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

6.1 A defined safety system is not involved.

6.2 Safety glasses with side shields shall be worn unless other eye protection is specified by ES&H or posted signs.

6.3 Respiratory protection provided by the supervisor shall be worn when required by ES&H.

6.4 Leather-palm gloves shall be worn when handling rough and/or contaminated material.

6.5 Contaminated trash shall not be allowed to accumulate around the dumpsters.

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

6.6 Contaminated Trash Handlers shall have reviewed and be familiar with MSDSs for hazardous materials/chemicals that may be used or handled.

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

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

7.0 GENERAL

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

8.0 PROCEDURE

CONTAMINATED TRASH HANDLER

8.1 Bag Inspection

8.1.1 Visually examine the trash for prohibited items or categories of waste (See Figure 1) as the clear plastic bags are filled, or where that is not possible, perform external visual inspection.

8.1.1.1 Remove prohibited items from the trash and dispose of in an approved manner (See Figure 1) as instructed by the supervisor or Waste Generation Control.

8.1.1.2 Contact the supervisor and dumpster owner and request disposition instructions. If the supervisor or dumpster owner are unable to determine disposition contact the Waste Generation Control at 738-8444.

8.1.1.3 Ensure the building, office area, or project from which the trash originated is clearly marked on the accumulation bags with a permanent marker or paint pen.

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8.0 PROCEDURE (cont.)

8.2 Filling Contaminated Trash Dumpsters

8.2.1 Dispose of small or loose items as follows:

8.2.1.1 Place the small/loose material in clear plastic bags.

8.2.1.2 Inspect the trash in the secured clear plastic bag to ensure there are no prohibited items.

8.2.1.3 Gather or twist the open end of the bag until the opening is closed.

8.2.1.4 Using tape, secure the bag.

8.2.1.5 Ensure that the building, office area, or project from which the trash originated is clearly marked on the accumulation bags with a permanent marker or paint pen.

8.2.2 Contact the Dumpster/Facility owner listed on the information sheet that is posted on the dumpster to obtain approval for disposal and the lock key (See Figure 2).

8.2.3 Unlock dumpster.

8.2.4 Place bulky items (such as oversize pieces of cardboard) directly into the dumpster.

8.2.6 Inspect the bags for damage.

8.2.6.1 Place damaged bags into undamaged bags.

CAUTION

Piping and pieces of wood over two feet in length shall not be placed in the dumpster.

NOTE: Do not place unsecured, unidentified bags or damaged bags into the dumpster. Do not place green-tinted "clean office trash bags" into the dumpsters. These bags are disposed of separately than the contaminated trash. A "clean office trash" program is established and green-tinted bags are accumulated next to the contaminated trash dumpsters. The bags are picked up by transportation twice per week.

8.2.7 Place identified contaminated trash, excluding items in Figure 1, into the dumpster.

8.2.8 Lock dumpster.

8.2.9 Return the lock key to the Dumpster/Facility owner.

8.2.10 Notify Dumpster/Facility owner when dumpster becomes full and requires emptying.

8.0 **PROCEDURE** (cont.)

8.3 Transporting Contaminated Trash Dumpsters

MOTOR VEHICLE OPERATOR (MVO)

8.3.1 Transport the contaminated trash dumpsters according to the schedule listed in Figure 2.

8.3.2 Pick up any prohibited items that have been properly segregated and transport them for disposal at the appropriate locations.

8.3.3 Contact Facility/Dumpster Owner when transport schedule cannot be met.

8.4 Dumpster Inspection

QUALITY CONTROL

8.4.1 Each dumpster shall be inspected monthly and the inspection documented in Figure 3.

8.4.2 The Facility/Dumpster Owner shall be contacted/copied on the results of the inspection (Figure 3).

8.4.3 Copy Waste Generation Control on the inspection report (Figure 3).

9.0 **APPLICABLE FORMS**

9.1 NN, "Contaminated Trash Dumpsters"

9.2 NN, "Contaminated Trash Dumpsters - QC Inspection Checklist"

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NTS Waste Stream -- ONLO-00000007

"Contaminated Trash"

Allowed Items	Restrictions
Certain Batteries	No Lead-Acid (vehicle) or Ni-Cad (rechargeable)
Empty Cans	No Prohibited Item Residue
Metal	Less than 2 ft. in length, Free from grease, oil, residues, lead-based paint
Paper/Cardboard	
Personal Protective Equipment (Anti-C's, Boots, Gloves, Tyvek)	Unless specifically restricted by Work Plan
Plastic	
Rope, Twine, String	
Styrofoam, Rubber	
Wood	Less than 2 ft. in length, Free from creosote, residue, stains, lead-based paint

Dumpster Usage Instructions:

1. All trash MUST be marked with the building or area of origin.
2. All trash MUST be placed inside the dumpster **(except green-bagged Office Trash)**.

Prohibited Items	Examples	Where to Go	Who to Contact
Asbestos Containing Material	Transite, Pipe Insulation, Floor Tile	---	Leigh Fisher, x8638
Batteries	Auto, Ni-Cad Rechargeable	Plant 6	Susan Hoskins, x6826
Compressed Gases and Aerosol Cans (unpunctured)	Spray Paint, Deodorant Cans, Spray Disinfectant Cleaner, WD-40, Propane	Plant 1	Sam Laupola, x6052
Glass	Bottles, Jars, Light bulbs	Plant 1	Sam Laupola, x6052
Lead-bearing Material	Lead metal, Pipe dope, Lead flashing, Oil filters	Satellite Accum. Areas	John Grace, x8924
Liquids	Water, Coffee, Ice, Pop	Sink	---
Mercury-bearing Material	Switches, Vaccuum Pumps	Satellite Accum. Areas	John Grace, x8924
Particulates (unbagged)	Ashes, Dust, Pad Sweepings	---	Chris Gilbert, x6428
Solvents and Soaked Rags	Kerosene, Toluene, Acetone	Satellite Accum. Areas	John Grace, x8924
UNCONTAMINATED TRASH	Office Trash, Paper, Non-radioactive trash	---	Chuck Menche, x6428
Wood	Pallets, 2x4's,Lumber	Plant 1	Lori Hurst, x8448

Any Questions...Call
Waste Generation Control - x8444

PROHIBITED WASTE
Figure 1

Contaminated Trash Dumpsters

No.	Check-Off	New Lock	Pickup Schedule Mon	Tue	Wed	Thu	Fri	Location	Location Description	Facility Owner	Phone	Keyholder(s)	Phone
1		2459						Pit 4 E	E Entrance to Plant 4	Bob Bischoff	6256	Darrell Kirby	6410
2		2703						H&S	Outside (North) of Medical	Joe Legge	6975	Sam Wilhite	6477
3		2989						Pit 7 S	Gravel near T-84	Joe Legge	6975	Bob Gindling	8409
4		2759						Pit 5 NE	NE corner	Ken Peters	6451	Ken Peters	6451
5		2977						Pit 6 S	Across street from Garage	Dale Vizedom	6478	Dale Vizedom	6478
6		2870						Pit 6 Insp	E side of Plant 6	Ken Peters	6451	Alan Blundell	6611
7		2212						Pit 6 N	N side of Plant 6	Ken Peters	6451	Alan Blundell	6611
8		2589	x	x	x	x	x	Lab Pad 15B	Between Lab and Services Bldg	Doug Stamper	8984	Wanda Burk	6556
9		X2227						Garage	S side near fence	Tony Frye	6078	Roy Peterson	6078
10		X2232						Bldg 12 SE	SE end of bldg	Karl Schaefer	6866	Paul Raab	6441
11		X2698						Bldg 12 SW	SW end of bldg	Karl Schaefer	6866	Mark Collins	6673
12		X2362						Pit 1	Near Plant 1 Pad	Sam Laupola	6052	Sam Laupola	6052
13		2333						Decontamination	SE corner	Jerry Knight	6708	Roy Douglas	6274
14		2287						Pit 9 W	NW corner	Ken Peters	6451	Bill Gibson	6798
15		2323					x	Bldg 12 N	North side (Electrical Shop)	Bill Libbert	6855	Bill Libbert	6855
16		X2403						Pit 1	Near loading dock	Sam Laupola	6052	Sam Laupola	6052
17		2655	x	x	x	x	x	Pilot Plant	Between Lab and Pilot Plant	Bob Bischoff	6256	Jim Campbell	6798
18		2256						Pit 1	Near offices on west side	Sam Laupola	6052	Sam Laupola	6052
19		X2890						Lab W	Between Lab and Pilot Plant	Doug Stamper	8984	Wanda Burk	6556
20		X2386						Bldg 3045	NE corner	C.K. Smith	6953	C.K. Smith	6953
21		2728						Services Bldg	W side, near Laundry	Joe Legge	6975	Jean West	8476
22		X2445						Hot Raffinate Bldg	South side	Bob Bischoff	6256	Jim Campbell	6798
23		2382						Pit 6 E	In contamination area on south side	Ken Peters	6451	Phil Kraus	6696
24		2709						Pit 1	NE of Bldg 71	Sam Laupola	6052	Sam Laupola	6052
25		X2122						Plant 2/3 S	South Alley	Bob Bischoff	6256	Billy Bowling	9081
26		X2464						Water Treatment	Beneath "Electrostatic Precipitator" sign	Bill Naber	6434	Bill Naber	6434
27		2553						K-65	East of K-65 silos	Nick Glassey	648-6602	Ray Rosenberry	6433
28		2191						Lime Bldg	S. of Bulk Lime Handling Building	Ron Young	6437	Mike Olberding	6425
		Totals	2	2	2	2	3						

CONTAMINATED TRASH DUMPSTERS
Figure 2

Contaminated Trash Dumpsters
QC Inspection Checklist

No.	Location	Description	Dumpster Condition OK?		Locks on both Doors?		Prohibited List Posted?		How full is the Dumpster?	ALL Bags Labeled?		Prohibited Items Found(1)?	Dumpster Owner Contacted(2)	# Bags Outside Dumpster(3)	
			Yes	No	3P1	Master	Yes	No	(Approx. %)	Yes	No			Green	Other
1	Plt 4 E	E Entrance to Plant 4													
2	H&S	Outside (North) of Medical													
3	Plt 7 S	Gravel near T-84													
4	Plt 5 NE	NE corner													
5	Plt 6 S	Across street from Garage													
6	Plt 6 Insp	E side of Plant 6													
7	Plt 6 N	N side of Plant 6													
8	Lab Pad 15B	Between Lab and Services Bldg													
9	Garage	S side near fence													
10	Bldg 12 SE	SE end of bldg													
11	Bldg 12 SW	SW end of bldg													
12	Plt 1	Near Plant 1 Pad													
13	Decontamination	SE corner													
14	Plt 9 W	NW corner													
15	Bldg 12 N	North side (Electrical Shop)													
16	Plt 1	Near loading dock													
17	Pilot Plant	Between Lab and Pilot Plant													
18	Plt 1	Near offices on west side													
19	Lab W	Between Lab and Pilot Plant													
20	Bldg 3045	NE corner													
21	Services Bldg	W side, near Laundry													
22	Hot Raffinate Bldg	South side													
23	Plt 6 E	In contamination area on south side													
24	Plt 1	NE of Bldg 71													
25	Plant 2/3 S	South Alley													
26	Water Treatment	Beneath "Electrostatic Precipitator" sign													
27	K-65	East of K-65 silos													
28	Lime Bldg	S. of Bulk Lime Handling Building													

Notes:

(1) Visually inspect 5 bags, or the entire dumpster contents, whichever is less.
(2) Refer to Prohibited Items Posting on each dumpster for Facility Owner name and number.
(3) Only if the dumpster is FULL, are bags (other than the segregated Office Trash "green bags") allowed outside the dumpster.

Inspector: _____

Date: _____

Instructions:

a) At a minimum, seven (7) dumpsters are to be inspected each week.
b) Sign and date the checklist at the bottom right.
c) Send one copy of this checklist to Waste Generation Control and file one copy for Deviation Report documentation.

CONTAMINATED TRASH DUMPSTERS
QC INSPECTION CHECKLIST
Figure 3

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
05-24-88	0	New procedure issued from CIO C88-014 per Request No. P88-056, initiated by J. E. Harmon.
12-27-90	1	Revised procedure to incorporate CIO C90-024 per Request No. P90-255.
01-28-91	2	Revised to incorporate CIO C91-061 per Request No. P92-015.
12-08-92	3	Revised to incorporate CIO C92-015 (P92-284) and update to current procedure program requirements.
10-18-93	0	Reissued to update to current requirements per Request No. P93-1006, initiated by C. Gilbert. Also CIO C93-717 (P93-1007) was incorporated.

Fernald Environmental Management Project Fernald Environmental Restoration Management Corp. REMEDIATION SUPPORT OPERATIONS DOCUMENT PROGRAM		Page 1 of 11 Revision No. 1 Revision Date: 8-2-93	
REMEDIATION SUPPORT OPERATIONS PROCEDURE	**EVALUATING LOW LEVEL RADIOACTIVE WASTE (LLRW) BULK WASTE STREAMS FOR SHIPMENT**	SOP 20-C-62 Area: As Applicable	
Authorization: H.R. Bailey, Materials Management Manager	Supersedes: 20-C-625 Date: 06-26-92	Issue Date: 11-05-92	

NON-CONTROLLED COPY

1.0 PURPOSE

The purpose of this procedure is to allow waste generators to evaluate bulk waste streams designated as Low Level Radioactive Waste (LLRW). The waste streams must be evaluated to ensure the material is properly characterized as non hazardous (as defined by the Resource Conservation and Recovery Act) prior to packaging and shipment for disposal.

2.0 APPLICABILITY

This document is applicable to plastic, rubber, paper, fiberglass, rope, scrap wood, scrap metal, and scrap vehicles (including light/medium duty vehicles and forklifts) waste streams being packaged (excluding wastes associated with a Hazardous Waste Management Unit) for disposal as low level radioactive waste.

3.0 RESPONSIBILITIES

3.1 **Supervisors** shall be responsible for the following:

3.1.1 Ensuring that only trained personnel perform this procedure.

3.1.2 Contacting Industrial Hygiene or Radiological Safety to determine the appropriate respiratory protection requirements.

3.1.3 Providing waste generator with the required respiratory protection.

3.2 **Waste generators** shall be responsible for submissions of Material Evaluation Forms (MEF) and associated characterizations per site procedures.

3.3 **Logistics Administration** shall be responsible for transporting material to the packaging area upon request.

3.4 **Centralized Training** shall be responsible for supporting the training and maintaining training records supplied by Site Services.

4.0 DEFINITIONS

4.1 Low Level Radioactive Waste - Radioactive waste that is not classified as high level waste, transuranic waste, spent nuclear fuel, or by product material as defined by DOE order 5820.2A. However, test specimens of fissionable material irradiated for research and development purposes only, and not for the production of power or plutonium, may be classified as low level radioactive waste provided the activity of transuranic material is less than 100 nCi/g.

4.2 Waste Generator - Organization (point of generation) at which waste originates.

4.0 **DEFINITIONS** (cont.)

4.3 RCRA (Resource Conservation Recovery Act) - The federal statute which established safe and environmentally acceptable management practices for specific wastes. RCRA requires strict "cradle to grave" control and proper management of solid and hazardous wastes

4.4 Entrapped Liquids - Collected fluids that have accumulated by exposure to elements.

4.5 Internal Fluids - Liquid within equipment which functioned as a working component of the equipment.

4.6 Waste Streams - For the purpose of this procedure, this term is defined as wood, metal, light/medium duty vehicles or fork lifts designated as Low Level Radioactive Waste.

4.7 Hazardous Waste Management Unit - Any unit/facility where hazardous waste is currently controlled or an empty unit which held hazardous waste (e.g. treatment, storage or disposal).

4.8 Empty - A container is considered "Empty" of hazardous waste residues as defined by OAC 3745-51-07 in lieu of 40 CFR 261.7.

5.0 **APPLICABLE DOCUMENTS**

5.1 Drivers

5.1.1 DOE 5820.2A, Radioactive Waste Treatment

5.1.2 OAC 3745-51-07, Residues of Hazardous Waste in Empty Containers

5.1.3 40 CFR 262.11, Hazardous Waste Determination

5.1.4 PO-D-0026, "Site Services Document Program"

5.1.5 FEMP Conduct of Operations Manual

5.2 References

5.2.1 SSOP-0002, "Completing the Material Evaluation Form"

5.2.2 SOP 20-C-605, "Establishment and Control of Satellite Accumulation Areas"

6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS**

6.1 Safety glasses with side shields shall be worn unless other eye protection is specified by IRS&T.

6.2 Respiratory protection provided by the supervisor shall be worn when required by IRS&T.

6.3 Leather-palmed gloves shall be worn to protect hands from rough material and contamination.

6.4 HEPA type filter vacuum cleaners or an IRS&T approved vacuum shall be used for cleaning.

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6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

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

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

6.7 Use proper lifting techniques when manually lifting wood or metal material. Heavy objects shall be lifted with mechanical lifting devices.

6.8 Do not work under a suspended load unless load has been blocked or supported with jack stands.

7.0 PROCEDURE

7.1 General

7.1.1 Warnings, Cautions, and Notes in this procedure precede the step to which they apply.

7.1.2 Generators inspect/prepare and evaluate scrap wood per Step 7.2 using checklist Form No. FS-F-3465, scrap metal per Step 7.3 using checklist Form No. FS-F-3464, scrap vehicles per Step 7.4 using checklist Form No. FS-F-3472, and plastic, rubber, paper, fiberglass and rope per Step 7.5 using checklist Form No. FS-F-3580.

7.2 Evaluating Scrap Wood Waste Stream

7.2.1 Visually inspect and evaluate every item to be packaged for disposal using the criteria of Section I of Materials Evaluation and Container Information-Wood, Form No. FS-F-3465 (See Figure 1).

7.0 **PROCEDURE** (cont.)

7.2.2 Check the "YES," "NO," and "N/A" boxes as appropriate for all criteria listed in Section I. If one answer to items 1 through 5 is "NO", the item being evaluated must be set aside - not packaged - and a Material Evaluation Form (MEF)completed for that item. Contact Facilities and Material Evaluation (FME) Dept. for guidance. A "NO" to one of items 1 through 5 checked on a form causes rejection of the package for shipment by quality assurance.

7.2.3 Complete Section II of Form No. FS-F-3465 as material is packaged.

7.2.3.1 List the type of material packaged into the container and the material origin as determined by the packager in the MATERIAL ORIGIN/DESCRIPTION block (block 1) of Section II.

7.2.3.2 List the MEF number of any material placed into the package that was not evaluated using Section I of Form No. FS-F-3465, but is approved for shipment based on an existing and approved MEF in the MEF NUMBER block (block 8) of Section II.

7.2.4 The completed Form No. FS-F-3465 must be signed by the waste packager, the packager's supervisor, and then sent to quality assurance for approval.

7.2.5 Quality assurance verifies there are no questionable materials listed in Section II, question 1 and that questions 1-5 in Section I are all checked "YES" or "N/A".

7.2.6 Distribute form as required by the distribution block in the lower left corner of each form.

7.3 Evaluating Scrap Metal Waste Stream

7.3.1 Evaluate every item to be packaged for disposal using the criteria of Section I of Materials Evaluation and Container Information - Metal, Form No. FS-F-3464 (See Figure 2).

7.3.2 Check the "YES," "NO," and "N/A" boxes as appropriate for all criteria listed in Section I. If one answer to items 1 through 5 is "NO", the item being evaluated must be set aside - not packaged - and a Material Evaluation Form (MEF) completed for that item. Contact Facilities and Material Evaluation (FME) Dept. for guidance. A "NO" checked on items 1 through 5 of a form causes rejection of the package for shipment by quality assurance.

7.3.3 Complete Section II of Form No. FS-F-3464 as material is packaged.

7.3.3.1 List the type of material packaged into the container and the material origin as determined by the packager in the MATERIAL ORIGIN/DESCRIPTION block (block 1) of Section II.

7.3.3.2 List the MEF number of any material placed into the package that was not evaluated using Section I of Form No. FS-F-3464, but is approved for shipment based on an existing and approved MEF in the MEF NUMBER block (block 8) of Section II.

Index of Changes

Title Page:	This reflects the organization changes made since December 1993. The application, however, is written to the organization in effect December, 1993 and still in effect at this date. A new organization chart will be forwarded to NTS within 30 days after it is finalized.
Table of Contents:	This reflects the pagination changes.
Page 2:	Fred H. Ford is the acting Manager, Quality Certification.
Page 2:	Marjorie L. Cain (Environmental Waste Engineer) is the contact for transportation.
Page 2:	Grady J. Calhoun (Manager, Radiological Compliance) is the alternate contact.
Page 3:	E. B. Spencer is the new acting Chief Waste Certification Official. The other WCOs signatures are also included.
Page 5 & 6	Waste Package Certifiers' signatures are provided.
Page 13:	The last sentence of the third paragraph of Documentation was added.
Page 17:	The word "punctured" was added to aerosol cans in section 2.1.1.2.a.
Page 20:	"and 'Prohibited Materials' checklist in procedures SSOP-0075, SSOP-0078 and SSOP-0079." was added to the bottom paragraph.
Page 30:	A spacing error was corrected in the bottom Note.
Page 33:	"which are not allowed in the waste package by the 'Prohibited Materials' list (SSOP-0078 and SSOP-0079)." was added in the first paragraph.
Page 80:	Added last two sentences to Note.
Page 83:	Replaced top paragraph on Page 83.
Page 95:	"NVO-325 (Rev.1)" was added to the top paragraph.
Page 95:	"and subsequent waste packaging" was added to section d., Compliance Method, first paragraph.
Page 95:	Added last sentence to section d., Compliance Method, first paragraph.

Page 95:	Replaced "contain no free liquids" with "be eliminated" in section d., Compliance Method, second paragraph.
Page 118:	Deleted "intermediate products" from Note.
Page 157:	Added Section C to Exemption Request.
Page 158 to 161:	Correct pagination for subsequent pages from added Section C.
Page 162:	White Metal Box drawing, 30A 5500 M 00059 0, not included in the December Rev. 5.1 submission.
SSOP-0002:	Procedure revised.
SSOP-0078:	Procedure revised.
SOP 2-C-923:	Procedure revised.
SOP 20-C-604:	Procedure revised.
SOP 29-C-625:	Procedure revised.
CIO C94-021:	Replaces SOP 20-C-805.

Appendix II

Page 2:	Section 1.1, end of first paragraph corrected to "Figure 2."
OP-2.2	Procedure not previously provided.
OP-2.8	Procedure not previously provided.
OP-4.2	Procedure not previously provided.
OP-4.3	Procedure not previously provided.
OP-4.4Q	Procedure not previously provided.
SEG/QA-4.1	Procedure not previously provided.
SEG/QA-7.2	Procedure not previously provided.
SEG/QA-10.1	Procedure not previously provided.
SEG/QA-15.1	Procedure not previously provided.
QP-12.08	Procedure revised.

Appendix III

This section has been rewritten to reflect the many changes in the Metal Melt precess. Pages 1 to 15 needs to be removed and replaced with pages 1 to 17 for Appendix III.

Page 9:	Last two paragraphs added to Section 9.5.
Page 14:	Forth paragraph added to Section 15.0.
Page 15:	Paragraph added to the top page, Section 16.0.
Page 17:	Changes to Table I listings.
OP-6.17	Procedure not previously provided.
SEG/QAP-114	Procedure not previously provided.
STD-P-17-700	Procedure not previously provided.
QP-6.07	Procedure revised.

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

APPLICATION TO SHIP WASTE TO THE NEVADA TEST SITE

MAY 1989

Revision 5.1 December 1993

Prepared by
FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT CORPORATION
P. O. BOX 398704
CINCINNATI, OHIO 45239-8704

Prepared for
U.S. DEPARTMENT OF ENERGY
FERNALD FIELD OFFICE
Contract DE-AC05-86OR21600

SIGNATURES BELOW ATTEST THAT THE INFORMATION CONTAINED IN THIS APPLICATION IS CORRECT AND THAT THE WASTE STREAMS TO BE SHIPPED WILL MEET THE NTS WASTE ACCEPTANCE CRITERIA:

DOE-FN Ray Hansen, Acting Manager

FERMCO President, D. Ofte

FERMCO Executive Vice President
J. W. Thiesing
(Transportation, Operations,
Analytical Laboratory)

FERMCO Vice President, L.G. Abernathy
Quality Assurance

FERMCO Vice President, K.L. Alkema
Regulatory Programs
(Environmental Compliance)

FERMCO Acting Chief Waste Certification
Official, E. B. Spencer

RECORD OF REVISIONS

Revision No.	Date
0	5/89
1	8/90
2	11/90
3	5/91
4	7/92
4.1	10/92
4.2	11/92
4.2	1/93
4.2	2/93
5	6/93
5.1	12/93

APPLICATION TO SHIP WASTE

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I. GENERATOR INFORMATION

A. Signature Page

See cover page.

B. EPA Identification Number

OH6890008976

C. Facility Name and Location

Shipping Address:

Fernald Environmental Management Project (FEMP)
7400 Willey Road
Fernald, Ohio 45030

Mailing Address:

Fernald Environmental Management Project
P. O. Box 398704
Cincinnati, Ohio 45239-8704

D. DOE Field/Area Office and Contacts

Primary:

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E. Contractor Name and Contacts

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(513) 738-9352
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I. GENERATOR INFORMATION

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F. Waste Certification Officials and Alternates

1.0 Chief Waste Certification Official (Acting)

Eleanor B. Spencer (Associate Engineer II) EB Spencer
Fernald Environmental Restoration Management Corporation
P.O. Box 398704
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(513) 738-8648
Facsimile Number (513) 738-8651

2.0 Alternate Waste Certification Officials

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Glenna L. Gerster (Associate Engineer II) Glenna L Gerster
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(513) 738-9226
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Justification for additional alternate waste certification officials:

- The FEMP is a large volume shipper of low level waste, over 744,000 cubic feet in FY-1992.
- Services of Waste Certification Officials are required each day of the work week, and occasionally on weekends and other shifts.
- The physical layout of operations, and inflexible work schedules, require the services of a Waste Certification Official in several places at the same time.
- Availability of certification personnel is limited by increased training requirements, vacations, and other assignments.

I. GENERATOR INFORMATION

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December 1993

3.0 Waste Package Certifiers

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I. GENERATOR INFORMATION

Revision 5.1
December 1993

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Nonproject generated waste (Low/High Grade Residues, Contaminated Trash, Metal Melt Waste, Contaminated Regulated Asbestos Containing Material Waste, and Thorium Waste and Residue) are wastes from activities at the FEMP that are not large enough or planned with enough lead time to fall into the project generated waste category. The preference for these waste streams is still to characterize them prior to packaging, but this is not generally as feasible as with the project generated waste.

Documentation

All documentation to support the waste characterization is contained in WC's Waste Characterization File System. The system is comprised of a physical file for each waste stream with its status summarized in the WC Waste Streams Database. Some elements of the waste stream file are mandatory (e.g., unique identification number), while others only contain information when applicable for the waste stream (e.g., sampling data). The WC Waste Streams Database provides a convenient way to track a material's status through waste characterization, to check the status of an evaluated waste stream, and to summarize information across broad categories of waste streams.

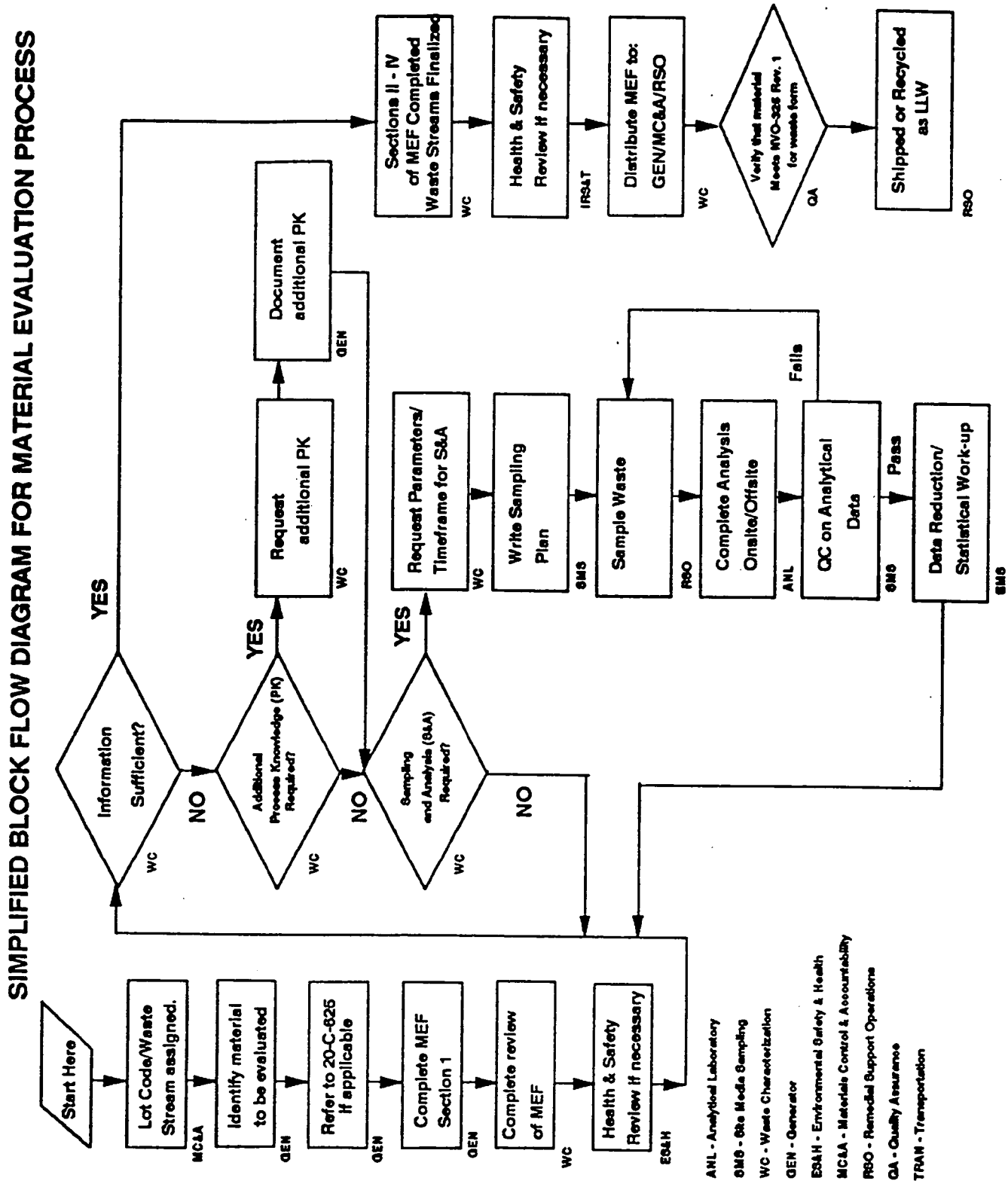
Access to the Waste Characterization File System is limited to WC personnel and persons assisted by WC personnel. Files must be signed out when removed. The Waste Characterization System is maintained in a secured location with limited access.

In addition to the WC file system, duplicate copies of waste characterization determinations are available in QA. Duplicate copies of supporting documentation is kept at MC&A, where the MEFs are filed, and at the FEMP laboratory and at Site Media Sampling, where analytical data is kept. Any waste characterization file can be reassembled using these sources.

D. Standardized Data Reporting Forms

The FEMP has requested an exemption to this NVO-325 (Rev.1) requirement. The exemption request is presented in Section V of this application.

E. Waste Characterization Flow Diagram Figure 1



000090

III. WASTE STREAM INFORMATION

2.1.1 Waste Stream Characterization Data Sheet

1. Waste Stream No.: 0 N L 0 0 0 0 0 0 0 0 0 1

2. Waste Description:

   a. Physical Characteristics: Dry solid demolition materials from maintenance and remediation activities which generate scrap wood, scrap metal, PPEs, compressed gas cylinders, punctured aerosol cans, construction debris, and scrap vehicles. No treatment of this waste is performed prior to packaging.

   b. Special Handling/Disposal Requirements: None
   The average radiation levels on contact is .50 mrem/hr. with a range of <.50 mrem/hr to .90 mrem/hr.

3. Basis for Characterization:
   a. Process Knowledge: ✓ b. Analytical Knowledge: ____
   c. Both: ___

   If b or c, provide Standard Data Reporting Forms as necessary.

4. Radioactive Characteristics:

   a. Is Waste > NRC Class-C (see Title 10 CFR 61.55)?: No

   b. WMIS Nuclide Category (circle): 1 (2) 3 4 5 NA 7 8

   (Choose the highest predominate nuclide. The number 6 is not an option.)

   c. Radioactive Constituents:

Specific Activity Range of Waste Stream

	Nuclide	Chemical Forms	Low	Mean	High	Units(Ci/kg)
(1)	U-238 (0.1% to 1.0% U)	*	3.36E-07	1.81E-06	3.29E-06	Ci/kg
(2)	U-235 (0.2% to 2.0% on a U basis)	*	4.76E-09	2.19E-07	4.34E-07	Ci/kg
(3)	U-234 (0.001% to 0.01% on a U basis)	*	1.38E-07	4.07E-06	8.01E-06	Ci/kg

* Uranium oxides and salts (typically UO_3, U_3O_8, and UF_4)

5. Hazardous Components (for MW): **NOT APPLICABLE**

   a. Basis for Identifying as MW (circle): (1) Ignitable

      (2) Reactive (3) Corrosive (4) TCLP (5) Listed Waste

   b. List the applicable EPA waste code, the chemical name, the treatment performed (if applicable) and the Regulatory/Treatment Standard. Attach Standardized Data Forms.

EPA Hazardous Waste No.	Chemical Name	Treatment Performed	Regulatory Threshold/Treatment Standard
(1)			
(2)			
(3)			
(4)			

NOTE: Waste characterization of materials included in this waste stream is predominantly completed using process knowledge because the material meets all the criteria of NVO-325 (Rev.1), Section 4.1.1.A, B, and C. Administrative controls are also employed to maintain waste stream integrity (SOP 20-C-625, "Evaluating Low Level Radioactive Waste Bulk Waste Stream for Shipment").

2.2 Waste Stream Specific Criteria

a. Low Level Waste: Only the contaminated process area scrap wastes defined as LLW per DOE Orders 5820.2A, 5400.1, and 5480.11 guidelines shall be shipped to the NTS. (NVO-325 (Rev.1), 5.5.1).

Compliance Method: In general, wastes that originate from Controlled Areas at the FEMP are considered radioactive waste unless demonstrated otherwise through analysis or administrative controls. Further guidance on radioactive waste characterization is provided in the DOE Performance Objective (Draft). (In accordance with the "Waste Minimization and Pollution Prevention Awareness Plan," the FEMP attempts to minimize waste generation whenever possible.)

b. Transuranics: The contaminated process area scrap wastes shall have a TRU concentration less than 100 nCi/g (e.g., shall not be regulated as TRU waste). (NVO-325 (Rev.1), 5.5.1.1(A)).

Compliance Method: MC&A records indicate there are no materials at the FEMP with TRU concentrations above the 100 nCi/g level. The highest TRU concentration for any material at the FEMP as determined by analysis is 93,904 dpm/g (42 nCi/g). Because process area scrap wastes are bulk materials that have become radioactively contaminated they cannot exceed these highest TRU concentrations recorded on site.

c. Hazardous Waste: All contaminated process area scrap wastes shall be evaluated for any characteristics of, or listed, hazardous waste as identified in Title 40 CFR 261, "Identification and Listing of Hazardous Waste," or state of generation hazardous waste regulations. (NVO-325 (Rev.1), 5.5.1.1(B)).

Compliance Method: Process area scrap wastes are evaluated in accordance with SOP 20-C-625 "Evaluating Low Level Radioactive Waste Bulk Waste Streams for Shipment." This procedure provides a checklist which identifies the criteria that must be met in order for the waste to be identified as non-hazardous and acceptable for shipment to the NTS. The checklist criteria were developed based on a detailed review of the waste stream versus the criteria for identifying hazardous waste codified in the federal and state hazardous waste regulations. This comprehensive review of regulatory criteria is documented on a MEF for the waste stream on file in the Waste Characterization Files.

All cases that could possibly cause a waste stream to be identified as a hazardous waste (or otherwise fail to meet NVO-325 (Rev.1), WAC) are specifically excluded under the checklist. For example, because free liquids are specifically prohibited, scrap wastes that meet checklist criteria could not possibly exhibit the hazardous waste characteristic of corrosivity. Other such required exclusions are incorporated into the checklist criteria as well to ensure that no characteristic or listed hazardous waste are packaged for shipment to the NTS.

d. Free Liquids: The contaminated process area scrap wastes disposed at NTS waste management sites shall contain as little free liquids as is reasonably achievable, but in no case shall the liquid equal or exceed 0.5% by volume of the external waste container and shall meet the NVO-325 (Rev.1), 5.5.1.1(C) criteria.

Compliance Method: Free liquids in process scrap wastes may be evaluated based on process knowledge or waste testing to determine whether the waste stream meets this criteria. Determinations based on process knowledge generally include a visual inspection of the waste (e.g., during packaging) according to procedure SOP 20-C-625 "Evaluating LLRW Bulk Waste Streams for Shipment."

The container packaging procedures SSOP-0078, SSOP-0079, and SOP 20-C-625 prevent the introduction of free liquids into the containers of this waste stream. Equipment will be determined to contain no free liquids when the chamber containing the liquid has been drained completely and no dripping is observed. Following SOP 20-C-625 "Evaluating LLRW Bulk Waste Streams for Shipment" gas and oil filters are removed and treated as RCRA waste. Gas tanks are removed and drained. Diesel tanks and transmission pans are drained. Chambers will be emptied and the equipment tagged as drained.

Nondestructive examination using RTR and visual inspection is preformed to ensure compliance with the free-liquid criteria for Waste Stream ONL0000000001 legacy waste containers (filled prior to implementation of SOP 20-C-625). In the event that free liquid is detected; the container is segregated and not shipped; DR and QC reports are generated; and the container is opened, drained, and repacked.

e. Particulates: Wastes containing greater than 1 weight percent fine particulate materials less-than-ten-micrometer-diameter or 15 weight percent less-than-200 micrometer diameter particles shall be immobilized or packaged in accordance with NVO-325 (Rev.1), 5.5.1.1(D).

Compliance Method: Based on the waste matrix and checklist requirements, process area scrap wastes will always meet this NVO-325 (Rev.1), WAC requirement. In no case will the scrap waste streams (metal, wood, and vehicles) be comprised of or contain particulate matter. The checklist provides additional assurance for this by requiring that all residues be removed from the scrap waste before the waste may be packaged for disposal at the NTS.

f. Gases: Process area scrap waste streams shall not produce pressure in the package greater than 1.5 atmospheres at 20° celsius. (NVO-325 (Rev.1), 5.5.1.1(E))

Compliance Method: The only potential sources of gases in this waste stream are compressed gas cylinders and aerosol cans. Compressed gas cylinders and aerosol cans are considered to be scrap metal when the valves are removed and/or the containers are punctured and are void of all free liquids. This WAC is verified by using the scrap metal MEF checklist in SOP 20-C-625 and "Prohibited Materials" checklist in procedures SSOP-0075, SSOP-0078, and SSOP-0079.

III. WASTE STREAM INFORMATION

2.1.1 Waste Stream Characterization Data Sheet

1. Waste Stream No.: 0 N L 0 0 0 0 0 0 0 0 0 2

2. Waste Description:

   a. Physical Characteristics: Dry solid demolition materials from construction and/or removal action activities which generates soils, gravel, concrete, metal, wood, paper, plastic, glass, and asphalt. No treatment of this waste is performed prior to packaging.

   b. Special Handling/Disposal Requirements: None
   The average radiation levels on contact is .50 mrem/hr. with a range of <.50 mrem/hr. to 1.5 mrem/hr.

3. Basis for Characterization:

   a. Process Knowledge:____ b. Analytical Knowledge:__ c. Both: ✓

   If b or c, provide Standard Data Reporting Forms as necessary.

4. Radioactive Characteristics:

   a. Is Waste > NRC Class-C (see Title 10 CFR 61.55)?: No

   b. WMIS Nuclide Category (circle): 1 (2) 3 4 5 NA 7 8
   (Choose the highest predominate nuclide. The number 6 is not an option.)

c. Radioactive Constituents:

Specific Activity Range of Waste Stream

Nuclide	Chemical Forms	Low	Mean	High	Units(Ci/kg)
(1) U-238 (0.1% to 1.0% U)	*	3.36E-07	1.84E-06	3.33E-06	Ci/kg
(2) U-235 (0.2% to 1.0% on a U basis)	*	4.76E-09	1.08E-06	2.16E-06	Ci/kg
(3) U-234 (0.001% to 0.01% on a U basis)	*	1.38E-07	2.15E-05	4.29E-05	Ci/kg

* Uranium oxides and salts (typically UO_3, U_3O_8, and UF_4)

5. Hazardous Components (for MW): **NOT APPLICABLE**

a. Basis for Identifying as MW (circle): (1) Ignitable

(2) Reactive (3) Corrosive (4) TCLP (5) Listed Waste

b. List the applicable EPA waste code, the chemical name, the treatment performed (if applicable) and the Regulatory/Treatment Standard. Attach Standardized Data Forms.

EPA Hazardous Waste No.	Name	Chemical Performed	Treatment Threshold/Treatment Standard	Regulatory
(1)				
(2)				
(3)				
(4)				

NOTE: Waste characterization of materials included in this waste stream is completed using a combination of sampling and analysis and process knowledge. Process knowledge is used when the material meets one or more of the criteria of NVO-325 (Rev.1), Section 4.1.1.A, B, and C. (Examples of materials characterized by process knowledge includes metal, wood and other construction/demolition debris, equipment, etc.)

Compliance Method: Contaminated construction/removal action wastes are evaluated for their potential to produce pressure in excess of 1.5 atmospheres at 20· C during the hazardous waste determination (SSOP-0002). The only potential source of gas in contaminated construction/removal action waste is compressed gas cylinders which are not allowed in the waste package by the "Prohibited Material" list (SSOP-0078 and SSOP-0079). Compressed gas cylinders are considered scrap metal after their valves are removed to demonstrate that they are at atmospheric pressure. Representative sampling of drum and WMB final packages are evaluated by RTR to verify that compressed cylinders have been altered.

g. Stabilization: Where practical, contaminated construction/removal action wastes shall be treated to reduce volume and provide a more structurally and chemically stable waste form. (NVO-325 (Rev.1), 5.5.1.1(F))

Compliance Method: WSD will identify wastes that are candidates for treatments to reduce volume and provide a structurally stable waste form. No treatment of this waste will be required to stabilize harmful gases or vapors. Free liquids will be drained per SOP 20-C-625. WC will identify all LLW streams that have potential to generate harmful gases, vapors, or liquids. Waste that fail this WAC will not be shipped to the NTS.

h. Etiologic Agents: All contaminated construction/removal action wastes to be shipped to the NTS will not contain pathogens, infectious wastes, or other etiologic agents as defined in Title 49 CFR 173.386. (NVO-325 (Rev.1), 5.5.1.1(G)).

Compliance Method: The only significant source of potential etiologic agents on site is from medical services. Such materials may include band aids, tongue blades, syringes, cotton balls or other materials stained with blood or other body fluids, and outdated pharmaceuticals. These materials are managed according to Ohio Infectious Waste Law/Regulation (ORC 3734 and OAC 3745-27-01 through 25) which includes segregated packaging at the point of generation. Materials are placed in a red bag in a box premarked with the international biohazard label. These boxes are then transported by a registered transporter to a licensed treatment facility. These administrative controls prevent etiologic agents from entering the contaminated construction/removal action wastes. Reference FEMP Waste Characterization Manual - Infectious Waste Section for additional evaluation criteria.

i. Chelating Agents: If a waste is determined to contain chelating agents above the one percent by weight limit, the waste shall not be approved for disposal at the NTS. (NVO-325 (Rev.1), 5.5.1.1(H)).

Compliance Method: Chelating agents form coordination compounds by offering two or more chemical bonds (through ligands) to a central metal ion. The most common chelating agent is EDTA. Common chelating agents are other aminopolyacteic acids, hydroxy-carboxylic acids, and polycarboxylic acids. Excess chemicals from the on-site laboratory are potentially materials that may be classified as chelating agents. Chelating agent content determination will be accomplished through the use of the MEF which will designate the waste as containing above one percent by weight chelating agents.

WC has generated a list of potential chelating or complexing agents through an on-line database search and will consult this list to evaluate potential chelating or complexing agents. The waste certification official is responsible for ensuring that this material has been characterized as not containing chelating agents at concentrations greater than one percent by weight. Containers not meeting the criteria for shipment will be segregated from other waste being shipped for disposal at the NTS.

j. Polychlorinated Biphenyls: PCB contaminated waste shall not be shipped for disposal at NTS in the contaminated construction/removal action waste stream unless the PCB concentration meets the municipal solid waste disposal limits. See Title 40 CFR 761.60 for PCB disposal requirements. (NVO-325 (Rev.1), 5.5.1.1(I)).

Compliance Method: The FEMP samples wastes for PCB contamination when the waste matrix (e.g., oily material) or review of previous operations, manufacturers manuals, and previous sampling and analyses provides a reason to suspect PCB contamination. This determination is performed during the waste characterization by WC. Reference FEMP Waste Characterization Manual - TSCA PCB Section for evaluation criteria.

k. Explosives and Pyrophorics: Contaminated construction/removal action waste shall not contain potentially explosive or pyrophoric material in a form that may spontaneously combustion if the container is breached. (NVO-325 (Rev.1), 5.5.1.1(J)).

Compliance Method: No material in this waste stream contains potentially explosive or pyrophoric material that may spontaneously combust. This WAC is evaluated during the hazardous waste characterization and is also generally addressed in the health and safety plan for a project if there is any potential concern. This evaluation is performed in accordance with the FEMP Waste Characterization Manual. Any waste streams that potentially fails this WAC shall be identified by WC and the material will not be shipped to the NTS for disposal.

2.3 Waste Stream General Packaging Criteria

a. Design

Waste packaging criteria for contaminated construction/removal action waste shipped to the NTS for disposal will meet DOT Regulations, 49 CFR 173, Subpart I. Standard operating procedures listed in Table I of the Waste Certification Plan, concerning storage and off-site shipments, will be used to assure that all shipments meet DOT requirements and NTS site-specific requirements.

b. Nuclear Safety

The quantity of radioactive materials in contaminated construction/removal action wastes shipped to the NTS will be limited so that an infinite array of packages will remain subcritical. This quantity will be determined on the basis of a specific nuclear safety analysis, considering credible accident situations, and taking into account the actual materials in the waste and will meet 49 CFR, Parts 173.453(c)(3) and 173.453(d). Contaminated construction/removal action waste

III. WASTE STREAM INFORMATION

2.1.1 Waste Stream Characterization Data Sheet

1. Waste Stream No.: 0 N L 0 0 0 0 0 0 0 0 0 9

2. Waste Description:

   a. Physical Characteristics: Scrap metal, metal equipment and machinery, and metal from construction and/or removal actions are treated at SEG by being melted, the slag collected, and shipped to NTS along with the metal oxides (rust), other debris separated from the scrap metal before melting, refractory brick, and metal not amenable to melting.

   b. Special Handling/Disposal Requirements: This material has an average radioactive level on contact of 2.0 mrem/hr. with a range of <0.5 mrem/hr. to 10.0 mrem/hr. Time, distance, and shielding techniques should be employed to reduce exposure.

3. Basis for Characterization:

   a. Process Knowledge:___ b. Analytical Knowledge:____
   c. Both: ✓

If b or c, provide Standard Data Reporting Forms as necessary.

4. Radioactive Characteristics:

   a. Is Waste > NRC Class-C (see Title 10 CFR 61.55)?: No

   b. WMIS Nuclide Category (circle): 1 (2) 3 4 5 NA 7 8
   (Choose the highest predominate nuclide. The number 6 is not an option.)

Page 2 of Waste Stream Characterization Data Sheet

c. Radioactive Constituents:

SPECIFIC ACTIVITY RANGE of WASTE STREAM

Nuclide	Chemical Forms	Low	Mean	High	Units(Ci/kg)
(1) U-238 (0.01% to 2.0% U)	*	3.36E-08	3.29E-05	6.58E-05	Ci/kg
(2) U-235 (0.2% to 1.0% on a U basis)	*	4.76E-10	2.16E-06	4.32E-06	Ci/kg
(3) U-234 (0.001% to 0.01% on a U basis)	*	1.38E-08	4.29E-05	8.58E-05	Ci/kg

* Uranium oxides and salts (typically UO_3, U_3O_8, and UF_4)

5. Hazardous Components (for MW): **NOT APPLICABLE**

a. Basis for Identifying as MW (circle): (1) Ignitable

(2) Reactive (3) Corrosive (4) TCLP (5) Listed Waste

b. List the applicable EPA waste code, the chemical name, the treatment performed (if applicable) and the Regulatory/Treatment Standard. Attach Standardized Data Forms.

EPA Hazardous Waste No.	Chemical Name	Treatment Performed	Regulatory Threshold/Treatment Standard
(1)			
(2)			
(3)			
(4)			

NOTE: Waste characterization of materials included in this waste stream is predominantly completed prior to melting using process knowledge because the material meets the criteria of NVO-325 (Rev.1), Section 4.1.1.B. Materials characterized by process knowledge includes metal and equipment. The FEMP will conduct confirmatory analysis of the slag in accordance with the FEMP containerized waste prototype sampling plan to verify the process knowledge waste characterization of the feed metal prior to disposal at the NTS. The stabilized waste matrix will be sampled to verify TCLP limits are meet. Boxes with acceptable chacterization are sealed, labeled appropriately, and prepared for shipment.

Metal oxides and slag that fail the TCLP test for heavy metals will be designated as non-conforming (NC). A workplan, which will be available for NTS review, will be developed to immobilize this waste. The containers will be marked and labeled appropriately and prepared for shipment.

d. Free Liquids: Metal melt slag waste disposed at NTS waste management sites shall contain as little free liquids as is reasonably achievable, but in no case shall the liquid equal or exceed 0.5% by volume of the external waste container and shall meet the NVO-325 (Rev.1), 5.5.1.1(C) criteria.

Compliance Method: Free liquids in metal melt slag wastes are evaluated based on process knowledge or waste testing to determine if the waste stream meets this criteria. Any water will be driven off by the high temperatures reached during the preheating process. In order for the loose oxides to separate from the scrap metal when unloading at SEG, it needs to be dry. As each box is filled with these oxides, it will be visually evaluated for free liquid content to ensure compliance to the NVO-325 (Rev.1) criteria.

The containerized slag and oxides are protected from the elements during storage to minimize any contact with water. The compaction process when used will also eliminate any water that may have accumulated.

e. Particulates: Wastes containing greater than 1 weight percent fine particulate materials less-than-ten-micrometer-diameter or 15 weight percent less-than-200 micrometer diameter particles shall be immobilized or packaged in accordance with NVO-325 (Rev.1), 5.5.1.1(D).

Compliance Method: The metal melt slag waste stream will meet this NVO-325 (Rev.1), WAC requirement based on the nature of its solid matrix. It is packaged in metal boxes to contain particles generated by compaction.

Testing is required to clearly determine if the separated metal oxide meets the WAC. This testing will be conducted using polarized light microscopy. Should the waste fail the criteria for particulates, immobilization is achieved by packaging. The metal oxides will be packaged in metal boxes in accordance with NVO-325 (Rev.1), Section 5.5.5.3.

f. Gases: Gases shall be stabilized or absorbed so that pressure in the waste package does not exceed 1.5 atmospheres at 20° celsius. Compressed gases as defined by Title 49 CFR 173.300, including unpunctured aerosol cans, shall not be shipped for disposal in the metal melt waste stream. Aerosol cans shall have puncture disfigurements readily recognizable by real-time-radiography. Expended gas cylinders shall have the valve mechanism removed. (NVO-325 (Rev.1), 5.5.1.1(E)).

Compliance Method: The metal melt waste stream will always meet this NVO-325 (Rev.1), WAC requirement based on the nature of the slag's and metal oxide's solid matrix. In no case will the slag produce pressure in the package greater

than 1.5 atmospheres at 20° celsius.

g. Stabilization: Where practical, metal melt waste shall be treated to reduce volume and provide a more structurally and chemically stable waste form. (NVO-325 (Rev.1), 5.5.1.1(F)).

Compliance Method: The volume of the waste scrap metal is reduced 90% - 95% by the metal melt process. Separating the oxides/rust, melting the scrap metal, separating the slag, which contains a majority of the contamination, and compacting (when practical) the slag accomplishes the stabilization objectives.

h. Etiologic Agents: Metal melt wastes to be shipped to the NTS shall not contain pathogens, infectious wastes, or other etiologic agents as defined in Title 49 CFR 173.386. (NVO-325 (Rev.1), 5.5.1.1(G)).

Compliance Method: The only significant source of potential etiologic agents at the FEMP site is from medical services. Syringes and other metal devices can come from this area. The dry nature of the loose oxidized metal/rust material and the high melting temperatures, which will destroy any etiologic agents, and the non-organic nature of the slag material does not allow for any microbial activity. No pathogens, infectious wastes, or other etiologic agents as defined in Title 49 CFR 173.386 will exist in this waste stream shipped to NTS.

i. Chelating Agents: If a waste is determined to contain chelating agents above the one percent by weight limit, the waste shall not be approved for disposal at the NTS. (NVO-325 (Rev.1), 5.5.1.1(H)).

Compliance Method: Chelating agents form coordination compounds by offering two or more chemical bonds (through ligands) to a central metal ion. The most common chelating agent is EDTA. Other common chelating agents are also aminopolyacteic acids. Excess chemicals from the on-site laboratory are the primary potential source of materials that may be identified as true chelating agents. This determination will be accomplished through the use of the MEF which will designate the waste as containing above one percent by weight chelating agents. WC has generated a list of potential chelating or complexing agents through an on-line database search and will consult this list to evaluate potential chelating or complexing agents. The MEF (example provided in this application) contains a specific section for denoting the presence of chelating agents. This information is provided to the waste certification official who is responsible for ensuring that material containing chelating agents at concentrations greater than one percent by weight are properly tagged as not meeting the criteria for shipment. This process prevents waste that does not meet the NTS WAC from being shipped for disposal.

Due to the high temperatures experienced through the melting process, organic compounds, which make up chelating agents, would be destroyed in the slag waste process.

package are padded or otherwise protected to prevent damage to the plastic inner wrap during handling, shipping, and disposal. Because the asbestos must be wetted during abatement activities, an absorbent is added to the overpack container to ensure compliance with the free liquid requirement (see NVO-325 (Rev.1), Section 5.5.1.1.C).

All LLW containing regulated asbestos is packaged, marked, and labeled in accordance with the requirements of 40 CFR 61.150.

d. Free Liquids: Contaminated RACMs disposed at NTS waste management sites shall contain as little free liquids as is reasonably achievable. In no case shall the liquid equal or exceed 0.5% by volume of the external waste container and shall meet the NVO-325 (Rev.1), 5.5.1.1(C) criteria.

Compliance Method: During the removal of ACM, wetting of the material is often preformed as prescribed by 40 CFR 61 to reduce personal and environmental exposure. This wetting and subsequent waste packaging is performed in such a manner as to provide protection without compromising the NVO-325 (Rev.1) requirements to have less than 0.5% by volume of free liquid. The packaging process for wet asbestos is addressed in Exemption C, Section V. C. of this application.

Free liquids in contaminated RACMs are evaluated based on process knowledge or testing to determine if the waste stream meets this criteria. Determinations based on process knowledge generally include a visual inspection. Working fluids from equipment/piping will be determined to be eliminated when the chamber containing the liquid has been drained completely and no dripping is observed. Chambers will be plugged or sealed and the equipment tagged as being drained. Free liquid determinations are generally completed as part of the RCRA waste characterization process. (Reference FEMP Waste Characterization Manual - RCRA Section.) Absorbent is added into the overpack container at the time of packaging to fix the water used to control dust during asbestos abatement.

Real-Time Radiography (RTR) is used to verify the absence of free liquids in drum and White Metal Box (WMB) final packages of this waste stream. Representative sampling is preformed to ensure compliance with the free-liquid criteria. In the event that free liquid is detected, the container is segregated and not shipped; DR and QC reports are generated; the container is opened, drained, and repacked; and more or all the containers generated by that work activity are evaluated by RTR.

e. Particulates: Wastes containing greater than 1 weight percent fine particulate materials less-than-ten-micrometer-diameter or 15 weight percent less-than-200 micrometer diameter particles shall be immobilized or packaged in accordance with NVO-325 (Rev.1), 5.5.1.1(D).

Compliance Method: Some contaminated RACM streams will categorically fail the particulates WAC while others may require testing to complete a rigorous evaluation. Friable ACMs have been defined to have greater than one percent by

material meets the WAC. This testing will be conducted using polarized light microscopy. Should the waste fail the criteria for particulates, immobilization is achieved by packaging. RACM will be double wrapped in plastic with a combined thickness equaling at least six mil. Wrapped RACM is packaged using steel drums, wooded crates, or steel boxes, in accordance with NVO-325 (Rev.1), Section 5.5.5.3.

f. Gases: Contaminated asbestos containing material streams shall be evaluated to determine if they contain any items that potentially produces pressure in the package greater than 1.5 atmospheres at 20° celsius. (NVO-325 (Rev.1), 5.5.1.1(E))

Compliance Method: Contaminated RACMs are evaluated for the potential to produce pressure in excess of 1.5 atmospheres at 20° C during the hazardous waste determination (SSOP-0002). The primary source of gases in this waste stream, compressed gas cylinders, shall have their valves removed to demonstrate that they are at atmospheric pressure. Aerosol cans shall be punctured and void of all free liquids to demonstrate that they meet the WAC. Representative sampling of drum and WMB final packages are evaluated by RTR to verify that compressed cylinders and aerosol cans have been altered.

g. Stabilization: Where practical, contaminated RACMs shall be treated to reduce volume and provide a more structurally and chemically stable waste form. (NVO-325 (Rev.1), 5.5.1.1(F))

Compliance Method: The FEMP will identify wastes that are candidates for treatments to reduce volume and provide a structurally stable waste form. No treatment of this waste will be required to stabilize harmful gases or vapors. Free liquids will be drained per SOP 20-C-625. WC will identify all LLW streams that have potential to generate harmful gases, vapors, or liquids. Waste that fail this WAC will not be shipped to the NTS.

h. Etiologic Agents: All contaminated RACMs to be shipped to the NTS shall not contain pathogens, infectious wastes, or other etiologic agents as defined in Title 49 CFR 173.386. (NVO-325 (Rev.1), 5.5.1.1(G)).

Compliance Method: The only significant source of potential etiologic agents on site is from medical services. Such materials may include band aids, tongue blades, syringes, cotton balls, outdated pharmaceuticals, or other materials stained with blood or other body fluids. These materials are managed according to Ohio Infectious Waste Law/Regulation (ORC 3734 and OAC 3745-27-01 through 25) which includes segregated packaging at the point of generation. Materials are placed in a red bag in a box premarked with the international biohazard label. These boxes are then transported by a registered transporter to a licensed treatment facility. These administrative controls prevent etiologic agents from entering the contaminated ACMs. Reference FEMP Waste Characterization Manual - Infectious Waste Section for additional evaluation criteria.

III. WASTE STREAM INFORMATION

2.1.1 Waste Stream Characterization Data Sheet

1. Waste Stream No.: 0 N L 0 0 0 0 0 0 0 0 1 2

2. Waste Description:

   a. Physical Characteristics: Dry thorium oxide and hydroxide generated during thorium oxide production. Small amounts of thorium oxalate and tetrafluoride are also present. No treatment of this material was performed prior to packaging.

   b. Special Handling/Disposal Requirements: This material has an average radioactive level on contact of 50 mrem/hr with a range of 25 mrem/hr to 105 mrem/hr. Time, distance, and shielding techniques should be employed to reduce exposure.

3. Basis for Characterization:

   a. Process Knowledge:____ b. Analytical Knowledge:____ c. Both: ✓

If b or c, provide Standard Data Reporting Forms as necessary.

4. Radioactive Characteristics:

   a. Is Waste > NRC Class-C (see Title 10 CFR 61.55)?: No

   b. WMIS Nuclide Category (circle): 1 (2) 3 4 5 NA 7 8

   (Choose the highest predominate nuclide. The number 6 is not an option.)

Page 2 of Waste Stream Characterization Data Sheet

c. Radioactive Constituents:

SPECIFIC ACTIVITY RANGE of WASTE STREAM

Nuclide	Chemical Forms	Low	Mean	High	Units(Ci/kg)
(1) Th-232 (0.1% to 100% Th)	*	1.09E-07	5.46E-05	1.09E-04	Ci/kg
(2) Th-228 Natural abundance	*	1.09E-07	5.46E-05	1.09E-04	Ci/kg
(3) Th-230 (Activity = 10% Th-232 activity)	*	1.09E-08	5.46E-06	1.09E-05	Ci/kg
(7) U-233 (0.0013% on a Th basis)	**	5.69E-08	2.85E-05	5.69E-05	Ci/kg

* Thorium oxide, hydroxide, oxalate, and tetrafluoride
** Uranium oxides (typically UO_2, UO_3, and U_3O_8)

5. Hazardous Components (for MW): **NOT APPLICABLE**

a. Basis for Identifying as MW (circle): (1) Ignitable

(2) Reactive (3) Corrosive (4) TCLP (5) Listed Waste

b. List the applicable EPA waste code, the chemical name, the treatment performed (if applicable) and the Regulatory/Treatment Standard. Attach Standardized Data Forms.

EPA Hazardous Waste No.	Chemical Name	Treatment Performed	Regulatory Threshold/Treatment Standard
(1)			
(2)			
(3)			
(4)			

NOTE: Waste characterization of materials included in this waste stream is completed using a combination of process knowledge and confirmatory sampling and analysis. Process knowledge is used when the material meets one or more of the criteria of NVO-325, (Rev.1), Section 4.1.1.A, B, C. (Examples of materials characterized by process knowledge includes residues from various thorium production processes.) Sampling and analysis is used to support process knowledge for materials not processed at FEMP and for residue materials.

3. Corrective Action

The Standardized Data Reporting Forms will be required in future laboratory contracts. Analytical results completed prior to the initiation of the new contract could be transcribed on to standardized data reporting forms; however, the amount of data to be transcribed forces the FEMP to reserve this action for specific analytical results requests from DOE/NV. Copies of the data reporting forms, as received from the laboratory, along with the FEMP generated data validation forms will be provided. The exemption request will be reevaluated at the time of the next DOE/NV Application Audit.

B. Metal Shipping Boxes for Area 5

1. Exemption

Noncompliance: The Metal Shipping Box, Code 113, (Table I) is presently being used for storage of thorium waste at the FEMP. This container does not meet the NVO-325, (Rev.1) Section 5.5.1.3 package strength requirements for disposal at Area 5 RWMS.

Note: The drawing, No. 30A-5500-M-00059-0, appears after Sections VI of this application.

Circumstance: There are approximately 40 of these metal boxes of this type containing thorium LLW in drums packaged for shipment to NTS. Shipping these containers as is would be in accordance with ALARA because repackaging increases personnel exposure to radioactively.

This metal box fails the strength test by itself when it alone provides the only structural support. In this circumstance, however, these metal boxes are used as an overpack container. The packed drums inside the boxes provide additional support and together with the metal box are possibly adequate to prevent subsidence when stacked or buried. The combined strength of the drums and metal box has not been tested.

REECO will be able to segregate these properly identified containers into stacks surrounded (nested) by other containers meeting the strength requirement.

2. Duration

This exemption is requested for the duration of this application. Approximately 40 boxes with thorium waste drums are considered in this exemption.

3. Corrective Action

This exemption only applies to metal boxes previously packaged and stored at the FEMP. Current packages meet all NVO-325 (Rev.1) requirements.

The approximately 40 metal boxes, which comprise this exemption request, will have a two inch yellow tape strip wrapped around the top half of the container for easy identification.

C. Packaging Wet Radioactively Contaminated Regulated Asbestos Containing Material

1. Exemption

Noncompliance: Contaminated RCMAs with a free liquid content exceeding the 0.5% by volume NVO-325 (Rev.1), 5.5.1.1(C) criteria will be packaged for shipment to the NTS.

Circumstance: Asbestos containing materials are wetted during removal to reduce personal and environmental exposure as prescribed by 40 CFR 61. These materials may contain more than 0.5% free liquid when packaged in two plastic bags whose individual thickness equals at least 6 mil. These bags are overpacked into drums, metal boxes, or ISO containers for shipment.

2. Duration

This exemption is requested for the duration of this application and will be reevaluated at the next application revision.

3. Corrective Action

To ensure no liquid migration from the waste package, sufficient absorbent is added to the overpack container assuming 25% by weight of the asbestos material is water. In addition, sharp edges and corners within the package are padded or otherwise protected to prevent damage to the plastic inner wrap during handling, shipping, and disposal.

Alternative packaging methods that does not jeopardize the health and safety of the workers and environment and allows for less than 0.5% free liquid by volume will be investigated for future disposal.

The procedures listed below have been provided in the SOP section of this application.

SSOP 0002 - Completing the Material Evaluation Form

SSOP 0075 - Packaging Low Level Radioactive Waste (LLRW) in Drums for Offsite Disposal

SSOP 0078 - Packaging Low Level Radioactive Waste (LLRW) into ISO Containers for Offsite Disposal

SSOP 0079 - Packaging Low Level Radioactive Waste (LLRW) in Metal Boxes for Offsite Disposal

SOP 2-C-923 - Trash Baler Operation

SOP 20-C-604 - Control and Utilization of Contaminated Trash Dumpsters

SOP 20-C-625 - Evaluating Low Level Radioactive Waste Bulk Waste Streams for Shipment

SOP 20-C-805 - Sampling Drummed Waste for Hazardous Determinations

List of Acronyms

ACM	Asbestos Containing Materials
ALARA	As Low As Reasonably Achievable
ASTM	American Society for Testing of Materials
CAO	Conditions Adverse to Quality
CAR	Corrective Action Report
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
Ci/kg	Curies per Kilogram
CWCO	Chief Waste Certification Official
DCAR	Deviation and Corrective Action Reporting
DOE	U.S. Department of Energy
DOE/NV	U.S. Department of Energy/Nevada Field Office
DOT	U.S. Department of Transportation
DR	Deviation Report
DWMD	DOE Waste Management Division
EC&QA	Environmental Compliance & Quality Assurance
EPA	U.S. Environmental Protection Agency
FEMP	Fernald Environmental Management Project
FERMCO	Fernald Environmental Restoration Management Corporation
FME	Facilities and Materials Evaluation
IIR	Incident Investigation Report
IRS&T	Industrial Radiological Safety & Training
ISO	International Shipping Organization
LLW	Low Level Waste

List of Acronyms

LLRW	Low Level Radioactive Waste
LQ	Limited Quantity
LSA	Low-Specific Activity
MC&A	Materials Control & Accountability
MEF	Material Evaluation Form
MSDS	Material Safety Data Sheet
MW	Mixed Waste
nCi/g	Nanocuries per gram
NIST	National Institute of Standard and Technology
NPDES	National Pollution Discharge Elimination System
NRC	Nuclear Regulatory Commission
NTS	Nevada Test Site
OAC	Ohio Administrative Code
OR	Occurrence Report
PCB	Polychlorinated Biphenyls
PFLT	Paint Filter Liquid Test
PLM	Polarized Light Microscopy
PPE	Personal Protective Equipment
PS&D	Package Storage & Disposal
QA	Quality Assurance
QAP	Quality Assurance Program
QC	Quality Control
RACM	Regulated Asbestos Containing Material
RCRA	Resource Conservation and Recovery Act
RD/RC	RCRA Characterization/Radiological Determination

List of Acronyms

REECo	Reynolds Electrical & Engineering Co., Inc.
RSP&I	Resource Planning, Scheduling and Integration
S&A	Sample and Analysis
S&TIL	Safety and Training Instrument Laboratory
SCAQ	Significant Conditions Adverse to Quality
SDR	Supplier Disposition Requests
SOP	Standard Operating Procedure
TA	Test Authorization
TC	Toxicity Characteristic
Th	Thorium
TRU	Transuranic
TRUMW	Transuranic Mixed Waste
TSCA	Toxic Substances Control Act
TSDF	Treatment, Storage, and Disposal Facility
U	Uranium
VOC	Volatile Organic Compound
WAC	Waste Acceptance Criteria
WC	Waste Certification
WCO	Waste Certification Official
WCPP	Waste Certification Program Plan
WMIS	Waste Management Information System
WPC	Waste Package Certifier
WSD	Waste Storage and Disposition

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1.0 PURPOSE

The purpose of this procedure is to allow waste generators to evaluate bulk waste streams designated as Low Level Radioactive Waste (LLRW). The waste streams must be evaluated to ensure the material is properly characterized as non hazardous (as defined by the Resource Conservation and Recovery Act) prior to packaging and shipment for disposal.

2.0 APPLICABILITY

This document is applicable to plastic, rubber, paper, fiberglass, rope, scrap wood, scrap metal, and scrap vehicles (including light/medium duty vehicles and forklifts) waste streams being packaged (excluding wastes associated with a Hazardous Waste Management Unit) for disposal as low level radioactive waste.

3.0 RESPONSIBILITIES

3.1 **Supervisors** shall be responsible for the following:

3.1.1 Ensuring that only trained personnel perform this procedure.

3.1.2 Contacting Industrial Hygiene or Radiological Safety to determine the appropriate respiratory protection requirements.

3.1.3 Providing waste generator with the required respiratory protection.

3.2 **Waste generators** shall be responsible for submissions of Material Evaluation Forms (MEF) and associated characterizations per site procedures.

3.3 **Logistics Administration** shall be responsible for transporting material to the packaging area upon request.

3.4 **Centralized Training** shall be responsible for supporting the training and maintaining training records supplied by Site Services.

4.0 DEFINITIONS

4.1 Low Level Radioactive Waste - Radioactive waste that is not classified as high level waste, transuranic waste, spent nuclear fuel, or by product material as defined by DOE order 5820.2A. However, test specimens of fissionable material irradiated for research and development purposes only, and not for the production of power or plutonium, may be classified as low level radioactive waste provided the activity of transuranic material is less than 100 nCi/g.

4.2 Waste Generator - Organization (point of generation) at which waste originates.

4.0 **DEFINITIONS** (cont.)

4.3 RCRA (Resource Conservation Recovery Act) - The federal statute which established safe and environmentally acceptable management practices for specific wastes. RCRA requires strict "cradle to grave" control and proper management of solid and hazardous wastes

4.4 Entrapped Liquids - Collected fluids that have accumulated by exposure to elements.

4.5 Internal Fluids - Liquid within equipment which functioned as a working component of the equipment.

4.6 Waste Streams - For the purpose of this procedure, this term is defined as wood, metal, light/medium duty vehicles or fork lifts designated as Low Level Radioactive Waste.

4.7 Hazardous Waste Management Unit - Any unit/facility where hazardous waste is currently controlled or an empty unit which held hazardous waste (e.g. treatment, storage or disposal).

4.8 Empty - A container is considered "Empty" of hazardous waste residues as defined by OAC 3745-51-07 in lieu of 40 CFR 261.7.

5.0 **APPLICABLE DOCUMENTS**

5.1 Drivers

5.1.1 DOE 5820.2A, Radioactive Waste Treatment

5.1.2 OAC 3745-51-07, Residues of Hazardous Waste in Empty Containers

5.1.3 40 CFR 262.11, Hazardous Waste Determination

5.1.4 PO-D-0026, "Site Services Document Program"

5.1.5 FEMP Conduct of Operations Manual

5.2 References

5.2.1 SSOP-0002, "Completing the Material Evaluation Form"

5.2.2 SOP 20-C-605, "Establishment and Control of Satellite Accumulation Areas"

6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS**

6.1 Safety glasses with side shields shall be worn unless other eye protection is specified by IRS&T.

6.2 Respiratory protection provided by the supervisor shall be worn when required by IRS&T.

6.3 Leather-palmed gloves shall be worn to protect hands from rough material and contamination.

6.4 HEPA type filter vacuum cleaners or an IRS&T approved vacuum shall be used for cleaning.

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

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

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

6.7 Use proper lifting techniques when manually lifting wood or metal material. Heavy objects shall be lifted with mechanical lifting devices.

6.8 Do not work under a suspended load unless load has been blocked or supported with jack stands.

7.0 PROCEDURE

7.1 General

7.1.1 Warnings, Cautions, and Notes in this procedure precede the step to which they apply.

7.1.2 Generators inspect/prepare and evaluate scrap wood per Step 7.2 using checklist Form No. FS-F-3465, scrap metal per Step 7.3 using checklist Form No. FS-F-3464, scrap vehicles per Step 7.4 using checklist Form No. FS-F-3472, and plastic, rubber, paper, fiberglass and rope per Step 7.5 using checklist Form No. FS-F-3580.

7.2 Evaluating Scrap Wood Waste Stream

7.2.1 Visually inspect and evaluate every item to be packaged for disposal using the criteria of Section I of Materials Evaluation and Container Information-Wood, Form No. FS-F-3465 (See Figure 1).

7.0 PROCEDURE (cont.)

7.2.2 Check the "YES," "NO," and "N/A" boxes as appropriate for all criteria listed in Section I. If one answer to items 1 through 5 is "NO", the item being evaluated must be set aside - not packaged - and a Material Evaluation Form (MEF)completed for that item. Contact Facilities and Material Evaluation (FME) Dept. for guidance. A "NO" to one of items 1 through 5 checked on a form causes rejection of the package for shipment by quality assurance.

7.2.3 Complete Section II of Form No. FS-F-3465 as material is packaged.

7.2.3.1 List the type of material packaged into the container and the material origin as determined by the packager in the MATERIAL ORIGIN/DESCRIPTION block (block 1) of Section II.

7.2.3.2 List the MEF number of any material placed into the package that was not evaluated using Section I of Form No. FS-F-3465, but is approved for shipment based on an existing and approved MEF in the MEF NUMBER block (block 8) of Section II.

7.2.4 The completed Form No. FS-F-3465 must be signed by the waste packager, the packager's supervisor, and then sent to quality assurance for approval.

7.2.5 Quality assurance verifies there are no questionable materials listed in Section II, question 1 and that questions 1-5 in Section I are all checked "YES" or "N/A".

7.2.6 Distribute form as required by the distribution block in the lower left corner of each form.

7.3 Evaluating Scrap Metal Waste Stream

7.3.1 Evaluate every item to be packaged for disposal using the criteria of Section I of Materials Evaluation and Container Information - Metal, Form No. FS-F-3464 (See Figure 2).

7.3.2 Check the "YES," "NO," and "N/A" boxes as appropriate for all criteria listed in Section I. If one answer to items 1 through 5 is "NO", the item being evaluated must be set aside - not packaged - and a Material Evaluation Form (MEF) completed for that item. Contact Facilities and Material Evaluation (FME) Dept. for guidance. A "NO" checked on items 1 through 5 of a form causes rejection of the package for shipment by quality assurance.

7.3.3 Complete Section II of Form No. FS-F-3464 as material is packaged.

7.3.3.1 List the type of material packaged into the container and the material origin as determined by the packager in the MATERIAL ORIGIN/DESCRIPTION block (block 1) of Section II.

7.3.3.2 List the MEF number of any material placed into the package that was not evaluated using Section I of Form No. FS-F-3464, but is approved for shipment based on an existing and approved MEF in the MEF NUMBER block (block 8) of Section II.

7.0 **PROCEDURE** (cont.)

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7.3.4 The completed Form No. FS-F-3464 must be signed by the waste packager's supervisor and the operator, and then sent to quality assurance for approval.

7.3.5 Quality assurance verifies there are no questionable materials listed in Section II, question 1 and that questions 1-5 in Section I are all checked "YES" or "N/A".

7.3.6 Distribute the form as required by the distribution block in the lower left corner of each form.

7.4 Evaluating Scrap Vehicles and Forklifts Waste Stream

NOTE: Only light/medium duty vehicles and forklifts are to be evaluated per this procedure. This document is not applicable to heavy equipment.

7.4.1 Evaluate every vehicle to be packaged for disposal using the criteria of Section I of Evaluation and Container Information - Scrap Vehicle, Form No. FS-F-3472 (See Figure 3).

7.4.2 Check the "YES," "UNKNOWN," "NO," and "N/A" boxes as appropriate for all criteria listed in Section I. If the appropriate answer to the criteria is "NO", the vehicle being evaluated cannot be packaged and a Material Evaluation Form (MEF) must be completed for that vehicle. Contact Facilities and Material Evaluation Dept. for guidance. A "NO" checked on a form causes rejection of the package for shipment by quality assurance.

7.4.3 Complete Section II of Form No. FS-F-3472 as material is packaged.

7.4.3.1 List the type of material packaged into the container and the material origin as determined by the packager in the MATERIAL ORIGIN/DESCRIPTION block (block 1) of Section II.

7.4.3.2 List the MEF number of any material placed into the package that was not evaluated using Section I of Form No. FS-F-3472, but is approved for shipment based on an existing and approved MEF in the MEF NUMBER block (block 8) of Section II.

7.4.4 The completed Form No. FS-F-3472 must be signed by the waste packager's supervisor and the operator. Send Form to Quality Assurance for approval.

7.4.5 Quality assurance verifies there are no questionable materials listed in Section II, question 1 and that questions 1-12 in Section I are all checked "YES" or "N/A".

7.4.6 Distribute form as required by the distribution block in the lower left corner of each form.

7.5 Evaluating Scrap, Plastic, Paper, Fiberglass & Rope Waste Stream

7.5.1 Visually inspect and evaluate every item to be packaged for disposal using the criteria of Section I of Materials Evaluation and Container Information-plastic, rubber, paper, fiberglass and rope, Form No. FS-F-3580 (See Figure 4).

7.0 **PROCEDURE** (cont.)

7.5.2 Check the "YES," "NO," and "N/A" boxes as appropriate for all criteria listed in Section I. If one answer to items 1 through 7 is "NO", the item being evaluated must be set aside - not packaged - and a Material Evaluation Form (MEF) completed for that item. Contact Facilities and Material Evaluation (FME) Dept. for guidance. A "NO" to one of items 1 through 7 checked on a form causes rejection of the package for shipment by quality assurance.

7.5.3 Complete Section II of Form No. FS-F-3580 as material is packaged.

7.5.3.1 List the type of material packaged into the container and the material origin as determined by the packager in the MATERIAL ORIGIN/DESCRIPTION block (block 1) of Section II.

7.5.3.2 List MEF number of any material placed into the package that was not evaluated using Section I of Form No. FS-F-3580, but is approved for shipment based on an existing and approved MEF in the MEF NUMBER block (block 8) of Section II.

7.5.4 The completed Form No. FS-F-3580 must be signed by the waste packager, the packager's supervisor, and then sent to quality assurance for approval.

7.5.5 Quality assurance verifies there are no questionable materials listed in Section II, question 1 and that questions 1-7 in Section I are all checked "YES" or "N/A".

7.5.6 Distribute form as required by the distribution block in the lower left corner of each form.

8.0 **APPLICABLE FORMS**

8.1 Form No. FS-F-3465, "Materials Evaluation and Container Information - Wood"

8.2 Form No. FS-F-3464, "Materials Evaluation and Container Information - Metal"

8.3 Form No. FS-F-3472, "Evaluation and Container Information - Scrap Vehicle"

8.4 Form No. FS-F-3580, "Materials Evaluation and Container Information - Plastic, Rubber, Paper, Fiberglass, Rope"

FEMP

Reference MEF # 905

LOW-LEVEL RADIOACTIVE WASTE

MATERIALS EVALUATION AND CONTAINER INFORMATION - WOOD

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SECTION I

WASTE EVALUATION	YES	NO	N/A
1. Treated: a. Material free from creosote treatment			
2. Residues: a. Free from process or waste residues			
3. Stains: a. Stains cover less than 10% of wood surface or Stain covers more than 10% of wood surface caused by green salt, black oxide, white salt, or orange oxide			
4. Paint: a. Free from lead-based paint or Paint covers less than 10% of material			
5. Plastic Rubber: a. Material consists of less than 20% by volumes other materials and does not contain any oil, solid residues, or entrapped liquids (e.g. plastic or rubber parts hardware)			
6. Metal: a. Metal constitutes more than 10% by volume (if yes, then metals checklist (FS-F—3464) must also be used.)			

SECTION II - CONTAINER INFORMATION

1. MATERIAL GRAIN DESCRIPTION:

2. PACKAGING START DATE | PACKAGING FINISH DATE | 3. OPERATOR(S) SIGNATURE | DATE

4. CONTAINER NUMBER | 5. CONTAINER TYPE: ☐ S/L ☐ WHITE METAL BOX

6. 65 CARD NUMBER | 7. LOCATION PACKAGED:

8. * MEF NUMBER | 9. % COMBUSTIBLE

APPROVED BY: SUPERVISOR(S) SIGNATURE/DATE | APPROVED BY: QA SIGNATURE/DATE

* When materials are packaged that do not meet the criteria established in Section I, but have an approved MEF number, the MEF number and material must be recorded.

GENERATOR TO MAKE DISTRIBUTION:		
1	Original to Facilities and Material Evaluation	MS46
2	Copy to Waste Shipping	MS63
3	Copy to Environmental Compliance	MS65
4	Copy to Materials Control and Accountability	MS28

FS-F-3465 (REV. 4/7/92)

LLRW MATERIALS EVALUATION AND CONTAINER INFORMATION-WOOD
Form No. FS-F-3465
Figure 1

FEMP

Reference MEF # 1088

LOW-LEVEL RADIOACTIVE WASTE

MATERIALS EVALUATION AND CONTAINER INFORMATION - METAL

SECTION I

WASTE EVALUATION		YES	NO	N/A
1. Free from the following	a. Grease, oils			
	b. Solid residues			
	c. Entrapped liquids			
	d. Internal fluids			
2. Material tagged as drained				
3. Paint: Material free from lead-based paint or Paint covers less than 10% of materials or Materials greater than 1/16 inch thick				
4. Electrical Equipment:	a. Ballasts removed			
	b. Starter caps removed			
	c. Mercury switches removed			
	d. Dielectric fluid removed			
5. Plastic, Rubber:	a. Material consists of less than 20% other materials by volume and meets the criteria set in #1 (e.g. plastic, or rubber parts, hardware)			
6. Wood:	a. Constitutes more than 20% by volume (If yes, then wood checklist (FS-F-3465) must also be used.)			

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIG N DESCRIPTION

2. PACKAGING START DATE	PACKAGING FINISH DATE	3. OPERATOR(S) SIGNATURE	DATE
4. CONTAINER NUMBER		5. CONTAINER TYPE	
6. 86 CARD NUMBER		7. LOCATION PACKAGED	
8. * MEF NUMBER		9. % COMBUSTIBLE	
APPROVED BY: SUPERVISOR(S) SIGNATURE/DATE		APPROVED BY: QA SIGNATURE/DATE	

* When materials are packaged that do not meet the criteria established in Section I, but have an approved MEF number, the MEF number and material must be recorded.

GENERATOR TO MAKE DISTRIBUTION:		
1	Original to Facilities and Material Evaluation	MS46
2	Copy to Waste Shipping	MS63
3	Copy to Environmental Compliance	MS65
4	Copy to Materials Control and Accountability	MS28

FS-F-3464 (REV 4/7/92)

LLRW MATERIALS EVALUATION AND CONTAINER INFORMATION-METAL
Form No. FS-F-3464
Figure 2

Fernald Site

Reference MEF # 1230

LOW-LEVEL RADIOACTIVE WASTE

EVALUATION AND CONTAINER INFORMATION - SCRAP VEHICLE 6055

SECTION I

WASTE EVALUATION	YES	UNKNOWN	NO	N/A
1. Free from the following fluids: a. Anti-freeze				
b. Brake fluid				
c. Gasoline				
d. Transmission fluid				
e. Engine oil				
f. Power steering				
g. Differential fluid (rear end)				
h. Windshield Wiper Fluid				
2. Removed: a. Radios				
b. Distributor coils and amplifiers				
c. Alternators				
d. Electronic fuel injector circuit				
3. Fuel tank removed				
4. Propane tank removed				
5. Tires Deflated				
6. Tire valve stem removed				
7. Freon pumped/contained for recycling				
8. Auxiliary Hydraulic Unit removed or drained				
9. Oil filter removed				
10. Oil filter drained				
11. Oil filter replaced in vehicle or discarded and oil line capped				
12. Batteries removed				

SECTION II - CONTAINER INFORMATION

1. MATERIAL OR SHORT DESCRIPTION

2. PACKAGING START DATE | PACKAGING FINISH DATE | 3. OPERATOR'S SIGNATURE | DATE

4. CONTAINER NUMBER | 5. CONTAINER TYPE

6. 65 CARD NUMBER | 7. LOCATION PACKAGED

8. * MEF NUMBER | 9. % COMBUSTIBLE

GENERATOR TO MAKE DISTRIBUTION:		
1	Original to Facilities and Material Evaluation	MS46
2	Copy to Waste Shipping	MS63
3	Copy to Environmental Compliance	MS65
4	Copy to Materials Control and Accountability	MS28

APPROVED BY

SUPERVISOR'S SIGNATURE | DATE

* When materials are packaged that do not meet the criteria established in Section I, but have an approved MEF number, the MEF number and material must be recorded

-3472 (12/12/91)

LLRW MATERIALS EVALUATION AND CONTAINER INFORMATION-SCRAP VEHICLE
Form No. FS-F-3472
Figure 3

Reference MEF # 1539

LOW-LEVEL RADIOACTIVE WASTE
MATERIALS EVALUATION AND CONTAINER INFORMATION - PLASTIC,RUBBER,PAPER,FIBERGLASS,ROPE

SECTION I

WASTE EVALUATION		YES	UNKNOWN	NO	N A
1. Liquids:	Materials do not contain entrapped or internal liquids				
2. Residues:	Free from process or waste residues				
3. Stains:	Stains cover less than 10% of material surface or Stain covers more than 10% of material surface by green salt, black oxide, white salt, or orange oxide				
4. HWMU:	Material was not generated within the physical limits of a hazardous waste management unit (HWMU)				
5. SWMU:	Material was not generated within the physical limits of a solid waste management unit (SWMU) which had a known or suspected routine and systematic release of hazardous wastes or hazardous materials				
6. Containers:	Waste containers (i.e. plastic bottles) must be "empty" as defined by OAC 3745-51-07 in lieu of CFR 40 261.7				
7. Other:	Materials other than plastic, rubber, paper, fiberglass, rope, * wood and metal (see footnote) constitute less than 20% by volume				

* If metal and or wood constitutes more than 10% by volume then metal checklist (FS-F-3484) and/or wood checklist (FS-F-3485) must also be used. When materials are packaged that do not meet the criteria established in Section I, but have an approved MEF number, the MEF number must be recorded in Section II, question 8. If YES or N/A were checked for all of the above, the material is covered by MEFs listed above and should be handled as Low Level Radioactive non-hazardous waste. If not, contact FME. Radioactive characterization based on generation in a radiologically controlled area and can be changed based on a radiation survey of the material.

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION:

2. PACKAGING START DATE:	PACKAGING FINISH DATE:	3. OPERATOR(S) SIGNATURE:	DATE:
4. CONTAINER NUMBER:		5. CONTAINER TYPE: ___SIL ___WHITE METAL BOX ___OTHER:	
6. 65 CARD NUMBER:		7. LOCATION PACKAGED:	
8. * MEF NUMBER:		9. % COMBUSTIBLE:	
APPROVED BY:		APPROVED BY:	
SUPERVISOR(S) SIGNATURE / DATE		QA SIGNATURE / DATE	

FS-F-3580

GENERATOR TO MAKE DISTRIBUTION:		
1	Original to Facilities and Materials Evaluation	MS46
2	Copy to Waste Shipping	MS63
3	Copy to Environmental Compliance	MS65
4	Copy to Materials Control and Accountability	MS28

LOW-LEVEL RADIOACTIVE WASTE MATERIALS
EVALUATION AND CONTAINER INFORMATION - PLASTIC, RUBBER, PAPER, FIBERGLASS, ROPE
Figure 4

RECORD OF ISSUE/REVISIONS

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DATE	REV. NO.	DESCRIPTION AND AUTHORITY
06-26-92	0	Requirement for procedure Evaluating Low Level Radioactive Waste (LLRW) per Request No. P92-106, initiated by M. J. Krauss.
11-05-92	0	Reissue procedure to include the addition of plastic, rubber, paper, fiberglass and rope waste streams per Request No. P92-226, initiated by P. Philpot.
08-02-93	1	Revised to incorporate CIO C93-143 per Request No. P93-754, and to update the procedure format to current specifications.

CIO NO. C94-021 6055

Effective Date: 05-27-94

Expiration Date: 11-27-94

CHANGE IN OPERATION

REMEDIATION SUPPORT OPERATIONS DOCUMENT PROGRAM

JUL 1994

DOCUMENT NO.: N/A	AFFECTED DOCUMENT PAGE NO.: N/A	AREA AFFECTED: Waste Sampling
DIVISION: WPM	DEPARTMENT: WI	SECTION: WS

TITLE: Sampling Waste for Hazard Identification

(Signature on File)
AUTHORIZATION: M.F. Ramirez, Waste Sampling Management Manager

CHANGE:

1) This document supersedes SOP 20-C-805 dated 12-16-93. A new document for Sampling Waste for Hazard Identification follows:

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FILING INSTRUCTIONS: File in numerical order in front of the Procedure Record Book.	DOCUMENT PTR: J.A. Gnoose Jr.

1.0 PURPOSE

The purpose of this document is to establish the procedure for sampling waste materials contained in 5 to 10 gallon cans and 30, 55, 85 or 110 gallon drums.

2.0 APPLICABILITY

This procedure is applicable to taking samples of waste material contained within drums/cans to support waste characterization programs.

3.0 RESPONSIBILITIES

3.1 Supervisors shall be responsible for the following:

3.1.1 Contacting Industrial Hygiene and/or Radiological Control to determine if the Personal Protective Equipment (PPE) identified on the work permit is appropriate for the process being performed.

3.1.2 Issuing the required PPE to operators.

3.1.3 Ensuring that personnel are qualified per the established training requirements identified by the Department/Staff Manager.

3.1.4 Reviewing applicable Material Safety Data Sheets (MSDS) with operators.

3.1.5 Obtaining and maintaining all permits required for implementation of drum/can sampling activities.

3.1.6 Obtaining and maintaining all documents, policies and procedures applicable to drum/can sampling activities.

3.1.7 Obtaining specific drum/can storage location(s) from Materials Control & Accountability (MC&A).

3.1.8 Notifying MC&A prior to moving drums/cans.

3.1.9 Notifying the Transportation representative to move the drums/cans to a diked sampling area.

3.1.10 Notifying Radiological Control prior to moving drums/cans in and out of Radiological Zones.

3.2 Operators shall be responsible for the following:

3.2.1 Complying with this Standard Operating Procedure (SOP) and applicable documents/permits.

3.2.2 Wearing PPE as provided by the supervisor.

3.0 **RESPONSIBILITIES** (cont.)

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3.3 **Materials Control and Accountability (MC&A)** shall be responsible for the following:

3.3.1 Assigning a representative to support drum/can movement to, from and within the sampling area.

3.3.2 Providing material identification data.

3.4 **Environmental Safety and Health (ES&H)** shall be responsible for the following:

3.4.1 Monitoring vehicles and drums/cans entering and exiting Radiological Zones.

3.4.2 Issuing, reviewing and posting work permit requirements.

3.5 Environmental Programs (ENV) shall be responsible for:

3.5.1 Preparing, reviewing and distributing Project-Specific Sampling and Analysis Plans (PSAPs).

3.5.2 Performing statistical analysis on data received from on-site and off-site laboratories.

3.6 **Waste Characterization** shall be responsible for performing hazardous waste determinations and maintaining material evaluation files.

4.0 **DEFINITIONS**

4.1 Composite Sample - A sample collected for representation of large waste streams and prepared by combining equal portions of materials obtained from the same waste stream.

4.2 Concentrated Waste - Materials of physical form or characteristics which require non-typical sampling techniques, or contain contaminant concentrations at such a level that sample preservation is not required for sample integrity. Examples of solid-matrix concentrated wastes include paper, trash, metallic structures (sheets, pipes, beams), concrete, wood, etc. Examples of liquid-matrix concentrated wastes include oils solvents, and process liquids.

4.3 Contact Waste - Discarded materials generated during drum/can sampling activities (e.g., used PPE, rags, rinse water).

4.4 Container Blank - A sample used to determine quality and integrity of sample containers. Unpreserved sample containers are submitted to the laboratory. An extract from the container is prepared and analyzed for parameters of interest. Appropriate for Analytical Support Levels (ASLs) B, C, D, and E. (SCQ)

4.0 **DEFINITIONS** (cont.)

4.5 Field Duplicate - Two independent samples collected from the same source, analyzed separately and used to evaluate precision of analytical laboratory performance and sample collection techniques. Each duplicate sample is assigned an unique identification number and sent as blind samples to the same laboratory. Appropriate for ASLs A through E and required for ASLs, C and D. (SCQ and EPA-SW-846)

4.6 Equipment Rinsate Samples - A sample used to determine the effectiveness of decontamination procedures; prepared at the decontamination site by collecting a portion of the final rinse of the sampling equipment. Appropriate for ASLs A through E and required for ASLs, C and D. (SCQ)

4.7 Field Blank - A sample used to determine whether the sample collection process or conditions at the site have affected sample quality; prepared by pouring organic-free, distilled/deionized water into appropriate containers for each type of analysis to be conducted. Field blanks are specified for ASLs C and D and some ASL B and E analysis. (SCQ)

4.8 Low/Medium Concentration Liquid Samples - Liquids which contain contaminant concentrations at such levels that sample preservation is required for sample integrity. Examples include containerized purged groundwater, sump liquids, etc. and quality control (QC) samples.

4.9 Meniscus - The convex portion of liquid matrix samples extending above the rim of the sample container.

4.10 Preservative Blank - A sample used to determine the quality of sample preservatives. Prepared by the Sample Coordinator or Field Sampling Team in a controlled environment by pouring organic-free, distilled/deionized water into sample containers with specified preservative. Appropriate for ASLs B, C, D, and E. (SCQ)

4.11 Random Sample - A representative sample of waste material collected from a container chosen from a group of similar containers that had equal probabilities of being selected.

4.12 Sampling Event - Collection of sample(s) in accordance with a single PSAP for a specific project. (SCQ)

4.13 Sample Line(s) - A limited-access, diked area (size: approximately 10 feet by 20 feet) used during drum/can sampling activities. Each sample line contains equipment, supplies, storage cabinets, work benches, hoods and a temporary drum staging area (maximum capacity of four drums).

4.14 Sampling Round - Collection of samples in accordance with one or more PSAPs for a specific project during a specified time period for a similar purpose. (SCQ)

4.0 DEFINITIONS (cont.)

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4.15 Split Sample - A sample used to evaluate comparability of analytical data prepared by evenly distributing sample media between two or more sets of containers. Assigned the same identification number as the original sample. The original and the split sample are each shipped to different laboratory facilities for similar analysis. Appropriate for ASLs A through E and required for ASLs C and D. (SCQ)

4.16 Trip Blank - A sample used to determine whether conditions encountered during sample container shipment and handling have affected sample quality; prepared by the sample coordinator in a controlled environment by pouring organic-free, distilled/deionized water into a 40-mL volatile organic analysis vial and sealing it with a teflon-lined septum lid. Trip blanks are required when samples are collected for volatile organic analysis. (SCQ)

5.0 APPLICABLE DOCUMENTS

5.1 Drivers

5.1.1 FEMP Site-Wide CERCLA Quality Assurance Project Plan (SCQ).

5.1.2 DOE Order 5820.2A, "Radioactive Waste Management".

5.1.3 NVO-325, Rev. 1, Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements, June 1992.

5.1.4 Material Acceptance Process Manual, Envirocare Inc. of Utah.

5.1.5 Proposed Amended Consent Decree with OEPA.

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

5.1.7 RM-0012, "Quality Assurance Program Description"

5.2 References

5.2.1 EPA SW-846, Test Methods for Evaluating Solid Waste

5.2.2 RM-0005, "FEMP Lot Marking and Color Coding System"

5.2.3 SMS-93-290, Prototype Sampling and Analysis Plan for Containerized Wastes at the FEMP. (Site document number pending).

5.2.4 SOP 20-C-602, "Inspection and Operation of NILFISK Portable Vacuum Units"

5.2.5 SOP 20-C-909, "Portable Ventilation Unit Operation"

5.2.6 SOP 20-C-912, "Checking Scale Operation"

5.2.7 SSOP-0018, "Processing Site-Wide Analysis Request/Custody Record for Sample Control"

5.0 APPLICABLE DOCUMENTS (cont.)

5.2.8 SSOP-0035, "Satellite Accumulation Areas and Interim Containers for Hazardous Wastes"

5.2.9 M-107, "Transportation Requirements for Shipment of Samples to Off-Site Laboratories"

6.0 INDUSTRIAL HEALTH & SAFETY REQUIREMENTS

6.1 Portable ventilation devices shall be used per SOP 20-C-909 when collecting samples from drums/cans containing dry materials or volatile compounds.

6.2 Operators shall wear the appropriate respiratory protection devices issued by the supervisor and identified by ES&H.

6.3 Leather-palm gloves shall be worn when handling drums, locking rings, lids, sharp or abrasive material, or when using tools.

6.4 Safety glasses shall be worn unless a full face respirator is used.

6.5 Face shields, neoprene gloves, aprons, and chemical cover goggles shall be worn when taking samples of caustic material, acid slurries, or liquids.

6.6 Gloves shall be visually inspected for holes, rips and tears prior to use and after donning. Gloves exhibiting holes, rips or tears prior to entering the controlled area shall be discarded at the Plant 6 checkpoint area. Gloves that are used or torn during sampling shall be discarded in the appropriate container identified in Step 8.1.6.

6.7 Employees shall have reviewed, and be familiar with, the information contained in the MSDS for the chemical/hazardous materials that may be used or encountered.

6.8 Specified personal protective equipment (PPE), which are specified on work permits and this procedure, shall be worn before entering a sample area.

6.9 Personnel shall have access to communications devices and emergency response equipment.

6.10 Industrial Hygiene shall be contacted to measure volatile organic compounds for all drums/cans classified as containing organic-contaminated materials. Results of monitoring along with personal protective equipment requirements shall be reviewed with sampling personnel and posted at the Plant 6 control point and entrance to sample lines.

6.11 Fire and Safety Inspectors shall check for flammable vapors from all drums classified as containing organic-contaminated materials.

6.12 Flammable liquids identified by Fire and Safety shall only be sampled at the flammable liquid sampling line using explosion proof electrical equipment and non-sparking tools.

6.0 INDUSTRIAL HEALTH & SAFETY REQUIREMENTS (cont.)

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6.13 All persons will remain clear of aisle-ways while forklifts and handstackers are in use.

6.14 Personnel sampling miscellaneous material (MTC 137) shall wear an airline respirator.

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

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

7.0 GENERAL

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

7.2 Any deviation from the PSAP (See Figure 1) shall be initiated and approved through the use of a Variance Request (VR) form (See Figure 2) completed by Waste Sampling. The original VR form is retained in the Waste Sampling project file. A copy is retained at the drum sampling line(s) throughout the sampling event or sampling round. Approved deviations shall be noted in the "Sampling Log Book."

7.3 To prevent cross-contamination, only one drum/can per sampling line shall be opened at a time.

7.4 Volatile organic compounds (VOC) and combustible materials being sampled or staged shall be segregated from other materials. See Steps 6.10 through 6.12 for identification and sampling of organic-contaminated materials or flammable liquids.

7.0 GENERAL (cont.)

7.5 Collect ASL-specific Quality Control (QC) samples as specified in the PSAP (ASL B) or at the frequencies identified in Table 1 for ASLs C and D.

7.6 Collect samples from drums/cans in the following order:

7.6.1 Volatile Organic Analysis

7.6.2 Semi-Volatile Organic Analysis

7.6.3 Metals/Inorganics

7.6.4 Radionuclides

7.7 Initial and date custody tape section prior to sealing sample container.

NOTE: SMS will indicate on the PSAP the proper disposition of wastewater (rinsates) generated during the sampling event.

7.8 Rinsates generated during sampling of materials that are not F-listed wastes will be retained in a 55-gallon bung type drum. Rinsates generated during sampling of F-listed wastes will be contained in accordance with Step 8.1.2 and dispositioned in accordance with SSOP-0035.

7.9 For each sampling event, indicate the amount of wastewater (in gallons) placed in the 55-gallon drum on the Waste Sampling Decon Log (See Figure 8).

NOTE: Contact supervisor when drum storage capacity is obtained, for movement by RSO Transportation personnel.

7.10 Transport full wastewater drums with Waste Sampling Decon Log to general sump for disposal.

8.0 PROCEDURE

8.1 Preparation for Sampling

NOTE: The supervisor shall be contacted if there are questions pertaining to the PSAP.

8.1.1 Obtain the PSAP from the supervisor.

8.1.2 Obtain lot number from MC&A for 5-gallon cans designated for storage of wastewater and contact waste generated during sampling of D- or F-listed waste materials.

NOTE: Work permits and other associated permits are located at the control checkpoint.

8.1.3 Ensure that all required permits are posted and current.

8.0 **PROCEDURE** (cont.)

8.1.3.1 If permit(s) is/are not posted, or current, or if the permit is suspect, notify the supervisor.

NOTE: Scales shall be checked at the start of each operating shift or before the first use each day.

8.1.4 Check the scales to be used per SOP 20-C-912.

NOTE: VOC, flammable/combustible and corrosive material shall be moved to respectively designated area identified by the supervisor.

8.1.5 Using a handstacker or applicable equipment, move skids with drum/cans into the designated sampling or staging areas.

NOTE: Two separate five gallon cans shall be used for storage of liquid and solid F-listed contact wastes, respectively.

8.1.6 Prepare contact waste canisters (for cleaning sampling equipment and disposal of trash) as follows:

8.1.6.1 Determine tare weight for empty, clean, color-coded 5-gallon containers.

8.1.6.2 Stencil the containers with the tare weight and lot number (obtained in Step 8.1.2) per RM-0005.

8.1.6.3 Install plastic liners in the five gallon cans.

NOTE: The equipment to be used for sampling is identified in the PSAP.

8.1.7 Obtain sampling equipment that has a "Clean Equipment Tag" (Form FMPC-OPR-3128) attached (See Figure 7).

8.1.7.1 If clean equipment is not available, obtain dirty equipment and clean per Item 8.5.

NOTE: Contact supervisor if clean sample containers are not available. The supervisor contacts the Waste Sampling representative to obtain clean sample containers.

8.1.8 Obtain a box of clean, lidded sampling jars.

NOTE: The following step is applicable for sample containers used for inorganic and radiological analysis only when pre-cleaned bottles/jars cannot be obtained. Sample containers for organic compound analysis must be purchased pre-cleaned.

8.1.8.1 If the box of jars was not labeled, "Clean," process the jars per Step 8.5.2 and submit container blanks for inorganic and radiological constituent analysis.

8.0 **PROCEDURE** (cont.)

NOTE: Obtain tare weight for appropriate sample containers from list maintained at the sample line.

8.1.9 Complete the "Sample Label" to be used (See Figure 3), including the tare weight.

8.1.10 Fill out the applicable portions of a "Site-Wide Analysis Request/Custody Record" (Form FS-F-3361)(SWAR/CR) form (See Figure 4) per SSOP-0018.

8.1.11 Place an absorbent pad that is applicable for material to be sampled (water/oil) under the sample containers.

8.1.12 Using the Log Book Stamp, imprint the "Sample Log Book." (See Figure 5).

8.1.13 Fill out the log book with the information required by the stamp.

8.1.14 Obtain Trip Blanks from QC laboratory or from Waste Sampling representative.

8.1.14.1 Complete labels and affix to sample containers.

8.1.14.2 Seal with custody tape and tamper proof seal. (See Figure 6).

8.1.14.3 Place in a cooler with blue ice or refrigerator in close proximity to sampling line.

8.1.14.4 Proceed to Step 8.1.16.

8.1.15 If unable to obtain Trip Blanks per Step 8.1.14, prepare trip blank, if required by PSAP, as follows:

NOTE: Field verification of pH should be performed over the 5-gallon can used for collection of rinse waters.

8.1.15.1 Obtain clean 8-ounce glass jar. Fill with distilled/deionized water and add 4 drops of hydrochloric acid (HCl). Check pH by gently pouring liquid on a pH indicator strip. If pH is less than 2, proceed to Step 8.1.15.2. If pH is greater than 2, add one drop of HCl and repeat pH measurement. Continue until a pH <2 is reached.

8.1.15.2 Obtain three (3) clean 40-mL volatile organic analysis (VOA) vials.

8.1.15.3 Fill one 40-mL vial to overflowing with a visually apparent meniscus present above the vial rim and seal sample vial.

8.1.15.4 Visually check sample vial for air bubbles by inverting and sharply tapping against hand or thigh.

8.1.15.4.1 If air bubbles are present, unseal container and repeat Steps 8.1.15.2 through 8.1.15.4.

8.0 **PROCEDURE** (cont.)

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8.1.15.4.2 If air bubbles are not present, label sample vial, seal with custody tape, and place in cooler or refrigerator.

8.1.15.5 Repeat Steps 8.1.15.2 through 8.1.15.4 for remaining sample vials.

NOTE: Field blanks must be prepared prior to initiation of sampling event and must remain exposed to atmospheric conditions throughout duration of the sampling event. Contact Waste Sampling if conditions in proximity to sampling lines have changed to determine if additional field blanks are warranted.

8.1.16 Prepare field blanks for constituents identified in Section C of the PSAP as follows:

8.1.17 Place containers in close proximity to sampling line and leave uncapped throughout sampling event.

8.1.18 Proceed with sampling event.

8.1.19 Cap sample containers and process samples in accordance with Step 8.12 upon completion of sampling event.

8.2 Sampling

WARNING

Only non-sparking tools and explosion-proof equipment shall be used in the vicinity of flammable or combustible material sampling lines to prevent an explosion.

8.2.1 Remove the locking ring and drum lid from the drum to be sampled.

8.2.2 Visually inspect the waste material to be sampled to determine the physical characteristics (liquid, solid, dry, or moist).

NOTE: HEPA ventilation devices shall have current DOP Test Labels. DOP Test Labels must be unbroken and legible.

8.2.2.1 If the material is dry, use a HEPA filtered ventilation system and inspect and operate per SOP 20-C-602.

8.2.3 Check that the drum contents corresponds with the Material Type Code (MTC) on the drum and the PSAP.

NOTE: The supervisor shall inform Waste Sampling of discrepancies between reported and observed material types.

8.2.3.1 If the material does not match the material type code specified in the PSAP, notify the supervisor and complete a visual inspection form and record discrepancies in field logbook.

8.0 **PROCEDURE** (cont.)

NOTE: The following steps only apply when a given drum/can contains solid and liquid phases.

8.2.4 Determine total amount of material in drum/can and amount of solid/liquid phases as follows:

8.2.4.1 Indicate top of liquid surface at a point on the exterior of drum/can with a piece of tape.

8.2.4.2 Determine height, in inches, of tape marker from base of the drum/can using a measuring device (i.e.: ruler, yardstick or tape measure).

8.2.4.3 Determine the amount of liquid (in inches) in the drum using a Composite Liquid Waste Sampler (COLIWASA) and a measuring device.

8.2.4.4 Calculate amount of solid (in inches) by subtracting the amount of liquids (determined in Step 8.2.4.2) from the total amount of material.

8.2.4.5 Record the amount of liquid and solid phases in the "Sampling Log Book" and notify supervisor to contact Waste Sampling to determine if each phase must be sampled.

8.3 Collection of Solid Matrix Samples

8.3.1 For drums/cans with dry loose or semi-cohesive materials use a grain or pipe sampler as follows:

8.3.1.1 Insert grain or pipe sampler diagonally at a point near the side of the drum/can, through the center, to a point at the drum/can base directly opposite the entry point.

8.3.1.2 Rotate grain or pipe sampler twice until slot is facing upwards.

8.3.1.3 Withdraw grain or pipe sampler.

8.3.1.3.1 If samples for VOA and/or SVOA analysis are required, proceed with Step 8.3.1.4. If not, proceed with Step 8.3.1.5.

8.3.1.4 Collect VOA and SVOA samples as follows:

8.3.1.4.1 Use a stainless steel spatula to transfer sample material from the sampling device to appropriate sample containers as identified in COLUMN A of Section C of the PSAP. (See Figure 1)

8.3.1.4.2 Fill sample containers in such a manner to minimize potential void spaces.

8.3.1.4.3 Repeat Steps 8.3.1.1 through 8.3.1.4.1 until sample container is completely filled.

8.3.1.4.4 Handle and store samples in accordance with Step 8.11 of this procedure.

8.0 **PROCEDURE** (cont.)

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8.3.1.5 Collect samples for inorganic or radiological analysis as follows:

8.3.1.5.1 Transfer sample materials from sampling device to a clean stainless steel pan or bowl and process as follows:

8.3.1.5.1.1 Divide sample materials into four (4) equal portions.

8.3.1.5.1.2 Mix opposite quarters into two (2) halves.

8.3.1.5.1.3 Mix halves.

8.3.1.5.1.4 Repeat Steps 8.3.1.5.1.1 through 8.3.1.5.1.3.

8.3.1.5.2 Transfer materials to the appropriate sample containers identified in COLUMN A of Section C of the PSAP (See Figure 1).

8.3.1.5.3 Repeat Steps 8.3.1.1 through 8.3.1.3 and 8.3.1.5.1 through 8.3.1.5.2 until sample containers are completely full.

8.3.1.5.4 Handle and store sample in accordance with Step 8.11 of this procedure.

8.3.2 For drums/cans with moist or wet cohesive materials use a stainless steel hand auger or coring device as follows:

8.3.2.1 Insert sampling device diagonally at a point near the side of the drums/cans, through the center, to a point at the container base directly opposite the entry point.

8.3.2.2 Rotate sampling device twice.

8.3.2.3 Withdraw sampling device.

8.3.2.4 Transfer sample material from sampling device to appropriate sample containers identified in COLUMN A of Section C of the PSAP, in accordance with Steps 8.3.1.4 and 8.3.1.5 of this procedure.

8.3.3 For drums/cans with materials such as paper, trash, personal protective equipment, filters, pads, rags, and other miscellaneous debris, collect samples as follows:

8.3.3.1 Sort materials within the drum/can. Collect materials which exhibit evidence of discolorations or stains for analysis.

8.3.3.2 Use scissors, shears, utility knives or similar tools to cut materials. Transfer sample material to appropriate sample containers identified in COLUMN A of Section C of the PSAP, in accordance with Steps 8.3.1.4 and/or 8.3.1.5 of this procedure.

8.3.3.2.1 If drum/can contains materials that cannot be feasibly cut into small pieces, notify supervisor to contact Waste Sampling to determine the appropriate sampling approach.

8.0 **PROCEDURE** (cont.)

8.3.3.3 Complete visual inspection and document in Sample Logbook.

8.4 Collection of Liquid Matrix Samples

8.4.1 Use a clean, glass COLIWASA for collection of liquid waste samples.

8.4.1.1 Insert inner rod of glass COLIWASA inside sheath.

8.4.1.2 Lower glass COLIWASA vertically, keeping the ground glass end of the inner rod away from the hole in the sheath bottom, at a rate so that the liquid levels inside and outside the sample tube remain even.

8.4.1.3 Push inner rod downwards to close the sampling device when the drum/can base has been encountered.

8.4.1.4 Withdraw sampling device with one hand while decontaminating the outside surface with a clean, disposable cloth.

8.4.1.5 Pull inner rod upwards to transfer material to appropriate sample containers identified in COLUMN B or C of Section C of the PSAP in accordance with Step 8.12 and/or 8.13 of this procedure.

NOTE: Equipment decontamination shall be performed over a 5-gallon container. If the material sampled is an F- listed waste, the container must be marked with the appropriate 15-digit FEMP Lot Marking Code (Refer to Step 8.1.2).

8.5 Equipment Decontamination

8.5.1 Sampling equipment and associated devices used for sample transfer shall be decontaminated as follows:

8.5.1.1 Rinse equipment with potable (tap) or distilled water.

8.5.1.2 Clean equipment using a phosphate-free laboratory detergent and potable water solution and scrub brushes.

8.5.1.3 Rinse with potable (tap) or distilled water.

8.5.1.4 Rinse twice with organic-free, distilled/deionized water.

8.5.1.5 If sampling equipment exhibits signs of visible contamination, deliver to site decontamination facility or perform Step 8.5.2.

8.5.1.6 Inspect decontaminated equipment for signs of visible residual contamination (adhered particles) or stains, discolorations.

8.5.2 Decontaminate equipment that exhibits signs of visible contamination or stains/discolorations as follows:

8.5.2.1 Rinse with potable (tap) water.

8.0 PROCEDURE (cont.)

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8.5.2.2 Clean equipment with a phosphate-free laboratory detergent and potable water solution and scrub brushes.

8.5.2.3 Rinse with potable (tap) water.

8.5.2.4 Rinse with 0.02 normal hydrochloric or sulfuric acid.

8.5.2.5 Rinse with potable (tap) water.

8.5.2.6 Rinse with isopropyl alcohol.

8.5.2.7 Triple rinse with organic-free, distilled/deionized water.

8.5.3 Allow sampling equipment to air dry when feasible, or use a clean, lint-free disposable cloth to dry the sampling equipment; then store as follows:

8.5.3.1 Wrap equipment in aluminum foil with the shiny side facing outward if the equipment will be used for VOA or SVOA sample collection.

8.5.3.2 Wrap equipment in a plastic bag if the equipment will not be used for VOA or SVOA sample collection.

8.5.4 Complete a "Clean Equipment Tag", Form FMPC-OPR-3128 (See Figure 7).

8.5.5 Attach the tag to the decontaminated equipment.

8.5.6 Store sampling device as follows:

8.5.6.1 Place decontaminated sampling equipment in a clean protected area.

8.5.7 Process rinsate wastewater generated during sampling of F-listed wastes in accordance with SSOP-0035.

NOTE: Equipment rinsate samples should be collected at the frequency specified in the PSAP, either prior or subsequent to completion of the sampling event and MUST be collected prior to sampling materials of a differing waste stream (Material Type and Source Code).

8.6 Equipment Rinsate Blanks

8.6.1 Obtain sample containers as specified in COLUMN D of Section C of the PSAP (See Figure 1).

8.6.2 Hold stainless steel pan directly beneath the decontaminated sampling device.

8.6.3 Pour organic-free, distilled/deionized water over the decontaminated sampling equipment.

8.0 PROCEDURE (cont.)

8.6.4 Pour water from stainless steel pan to appropriate sample container.

8.6.5 Repeat Steps 8.6.2 through 8.6.4 until all sample containers are filled.

8.6.6 Process samples in accordance with Step 8.12.

8.7 Duplicate Samples

8.7.1 Collect two sets of samples, when specified by PSAP, from the designated drum/can in accordance with Steps 8.3 and/or 8.4 of this procedure.

8.7.2 Retain one (1) sample set as the "original sample" and assign a sample number as specified in the PSAP.

8.7.3 Retain the other sample set as the "duplicate sample" and assign an unique sample number as specified in the PSAP.

8.7.4 Process original and duplicate samples in accordance with Step 8.11, 8.12, or 8.13 depending on the matrix of the duplicate sample.

8.8 Split Samples

8.8.1 Obtain two sets of sample containers when specified by the PSAP, and collect sufficient sample material from the designated drum/can in accordance with Steps 8.3 and/or 8.4 of this procedure.

8.8.2 Distribute equal amounts of sample material to each set of sample containers.

NOTE: Solid material for inorganic and radiological analyses must be homogenized per Step 8.3.1.5.1. prior to filling of sample containers. Solid materials for organic analysis (VOAS and SVOAS) should not be homogenized, but split equally between sample container sets.

8.8.3 Assign the same sample number to the "original sample" and "split samples".

8.8.4 Process original and split samples in accordance with Step 8.11, 8.12, or 8.13 depending on the matrix of the split samples.

8.0 **PROCEDURE** (cont.)

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8.9 Container Blanks

NOTE 1: Container blanks are required if pre-used sample containers are cleaned and re-used per Step 8.5.2 or if vendor-supplied analytical data are not available.

NOTE 2: Container blanks are not required if vendor-supplied analytical data (i.e., Certificate of Analysis) are provided for each batch of sample containers used during the sampling round.

8.9.1 If vendor-supplied analytical data are supplied perform the following:

8.9.1.1 Submit a copy of analytical data to Waste Sampling for storage in the project file.

8.9.1.2 Document vendor-supplied container numbers (provided on a bar code label attached to sample container) in the Sampling Log Book.

8.9.1.3 Proceed to Step 8.11.

8.9.2 If vendor-supplied analytical data are not available, obtain a set of "clean" (unused) sample containers for metals and radionuclides analysis as specified in the PSAP.

8.9.3 Process empty "clean" sample containers in accordance with Step 8.11.

8.9.4 Indicate "Container Blank" in the remarks section of the SWAR/CR.

NOTE: Preservative blanks may be required if vendor-supplied assay data are not available.

8.10 Preservative Blanks

8.10.1 If vendor-supplied assay data are provided, document the preservative manufacturer and lot number (batch identifier) for the respective preservative used in the Sampling Book.

8.10.1.1 Submit a copy of assay data to Waste Sampling for storage in the project file.

8.10.1.2 Proceed to Step 8.11.

8.10.2 If vendor-supplied assay data are not available, obtain the following sample containers and preservatives when a preservative blank is specified in the PSAP.

8.10.2.1 For VOC analysis, obtain a clean 8-ounce glass jar, fill with deionized/distilled water, and add 4 drops of hydrochloric acid. Transfer acidified liquid to three clean 40-mL VOA vials with Teflon-lined septum lids.

8.0 PROCEDURE (cont.)

8.10.2.2 For metals and radiological analysis, collect one (1) one-liter polyethylene bottle and add 20 to 24 drops of nitric acid.

8.10.3 Pour organic-free, distilled/deionized water into the prepreserved sample containers identified in Steps 8.10.2.1 and 8.10.2.2.

8.10.4 Process samples in accordance with Step 8.12.

8.10.5 Indicate "Preservative Blank" in the remarks section of the SWAR/CR.

8.11 Solid-Matrix Concentrated Waste Sample Handling and Storage

8.11.1 Check cooler/refrigerator inner temperature with a thermometer (graded in units of 1°C) on a daily basis to ensure samples are preserved at 2-6°C.

8.11.1.1 Record cooler/refrigerator temperature in field logbook.

8.11.2 Handle and store solid-matrix samples and duplicate/split samples as follows:

8.11.2.1 Complete label and affix to sample container.

8.11.2.2 Seal with custody tape.

8.11.2.3 Place VOA, SVOA, and metals samples in a cooler with 'blue ice' or refrigerator in close proximity to the sampling line.

8.11.2.4 Place radiological samples in close proximity to the sampling line.

8.12 Low/Medium Concentration Liquid-Matrix Sample Handling and Storage

8.12.1 Check cooler/refrigerator inner temperature with a thermometer (graded in units of 1°C) on a daily basis to ensure samples are preserved at 2-6°C.

8.12.1.1 Record cooler/refrigerator temperature in sample logbook.

8.12.2 Transfer low/medium concentration liquid-matrix VOA samples, field blanks, equipment rinsate, and duplicate/splits from the temporary storage container (8-ounce glass jar or larger), as required, to three (3) 40-mL VOA vials in accordance with Steps 8.1.15.1 through 8.1.15.4 of this procedure.

8.12.2.1 Complete labels and affix to sample containers.

8.12.2.2 Seal with custody tape.

8.12.2.3 Place in a cooler with 'blue ice' or refrigerator in close proximity to sampling line.

8.0 **PROCEDURE** (cont.)

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8.12.3 Process low/medium concentration liquid-matrix SVOA samples, field blanks, equipment rinsates and duplicates/splits as follows:

8.12.3.1 Complete labels and affix to the sample container.

8.12.3.2 Seal with custody tape.

8.12.3.3 Place in a cooler with 'blue ice' or refrigerator in close proximity to the sampling line.

WARNING

Goggles, nitrile gloves, and an apron vest must be worn when working with acids to prevent possible serious burns.

8.12.4 Process low/medium concentration liquid-matrix samples, field blanks, equipment rinsates and duplicates/splits for metals and radiological analysis as follows:

8.12.4.1 Add one (1) milliliter (mL) or 20 to 24 drops of Nitric Acid (HNO_3) per 1,000 mL (1-liter) of sample using an acid ampule or dispensing bottle. Cap container and gently invert and rotate bottle to mix acid with sample material.

NOTE: For field blank and equipment rinsate samples Step 8.12.4.2 is not necessary, based on past experience.

8.12.4.2 Check pH by gently pouring the acidified sample onto an indicator strip, over a 5-gallon can used to collect rinsate wastewater, and comparing color codes.

8.12.4.2.1 If pH is greater than 2, add one drop of nitric acid (HNO_3) and repeat Steps 8.12.4.1 and 8.12.4.2. Repeat Steps 8.12.4.2.1 and Steps 8.12.4.1 and 8.12.4.2 until a pH of less than 2 is achieved.

8.12.4.3 Complete labels and affix to sample container.

8.12.4.4 Seal with custody tape.

8.12.4.5 Place samples for metals analysis in a cooler with 'blue ice' or refrigerator in close proximity to the sampling line.

8.12.4.6 Place radiological samples in a controlled storage area in close proximity to the sampling line.

8.12.5 Complete SWAR/CR in accordance with SSOP-0018.

8.12.6 Transport samples in coolers to the FEMP Sample Processing Laboratory (SPL) with the SWAR/CR and a copy of the PSAP.

8.0 **PROCEDURE** (cont.)

8.13 Liquid-Matrix Concentrated Waste Sample Handling and Storage

8.13.1 Check cooler/refrigerator inner temperature with a thermometer (graded in units of 1°C) on a daily basis to ensure samples are preserved at 2-6°C.

8.13.1.1 Record cooler/refrigerator temperature in sample logbook.

8.13.2 Process liquid matrix concentrated waste samples and duplicates/splits for VOA, SVOA, and metals analyses as follows:

8.13.2.1 Complete label and affix to sample container.

8.13.2.2 Seal with custody tape.

8.13.2.3 Place samples in a cooler with 'blue ice' or refrigerator in close proximity to the sampling line.

8.13.3 Process liquid matrix concentrated waste samples and duplicates/splits for inorganic and radiological analyses as follows:

8.13.3.1 Complete label and affix to sample container.

8.13.3.2 Seal with custody tape.

8.13.3.3 Place samples in a controlled storage area in close proximity to the sampling line.

8.14 Completion of Site-Wide Analysis Request/Custody Record (SWAR/CR)

8.14.1 Complete SWAR/CR in accordance with SSOP-0018, "Processing Site-Wide Analysis Request/Custody Record for Sample Control."

8.14.2 Complete "Remarks" section of SWAR/CR as follows:

8.14.2.1 List the Analytical Support Level (ASL) identifier (i.e., B. C, D, etc.).

8.14.2.2 List the relative amount of preservative (in weight %) used for sample preservation as follows:

8.14.2.2.1 Refer to Table 2, locate type of preservative and volume of sample container used.

8.14.2.2.1.1 If number of drops of preservative used is less than maximum number of drops allowed, indicate less than respective wt. % (e.g., <0.04 wt. % HCl <0.15 wt. % HNO_3, etc.).

8.14.2.2.1.2 If number of drops of preservative used is greater than maximum number of drops allowed, indicate greater than respective weight percent (e.g., >0.04 wt. % HCl, >0.015 wt. % HNO_3, etc.).

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9.0 **APPLICABLE FORMS**

9.1 FS-F-3361, "Site-Wide Analysis Request/Custody Record"

9.2 FMPC-OPR-3128, "Clean Equipment Tag"

9.3 NN, "Variance Request"

9.4 NN, "Waste Sampling Decon Log"

TABLE 1
FIELD QUALITY CONTROL SAMPLES

	ANALYTICAL SUPPORT LEVELS		
	B	C	D
INORGANICS, ORGANICS, and RADIONUCLIDES Field QC Samples			
Field blanks	A/S	1 per 20 or 1 per sampling event, whichever is more frequent	20 or 1 per sampling event, whichever is more frequent
Equipment rinsate blanks	A/S	1 per 20 or 1 per sampling event, whichever is more frequent	1 per 20 or 1 per sampling event, whichever is more frequent
Field duplicates	A/S	1 per 20 or 1 per sampling event, whichever is more frequent	1 per 20 or 1 per sampling event, whichever is more frequent
Preservative blanks	A/S	A/S	A/S
Container blanks	A/S	1 per QC lot of containers	I per QC lot of containers
Laboratory control samples	1 per analytical batch if applicable	1 per analytical batch if applicable	1 per analytical batch if applicable
Method blanks	1 per analytical batch of samples	1 per analytical batch of samples	1 per analytical batch of samples
Trip blanks (VOAs only)	A/S	1 per shipping container	1 per shipping container

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TABLE 2
PRESERVATIVE PARAMETERS FOR SAMPLES

Preservative = HCl (HYDROCHLORIC ACID)

Sample Container Size (in mL)	Maximum Wt. % of Preservative	Maximum Amount of Preservative (mL)	Maximum # of Drops of Preservative **
40	0.040	0.037	Less Than 1
120	0.040	0.110	2
250	0.040	0.229	5
500	0.040	0.458	11
1000	0.040	0.916	22
4000	0.040	3.665	88

Preservative = HNO3. (NITRIC ACID)

Sample Container Size (in mL)	Maximum Wt. % of Preservative	Maximum Amount of Preservative (mL)	Maximum # of Drops of Preservative **
40	0.150	0.061	1
120	0.150	0.182	4
250	0.150	0.380	9
500	0.150	0.760	18
1000	0.150	1.520	36
4000	0.150	6.079	145

Preservative = H2SO4 (SULFURIC ACID)

Sample Container Size (in mL)	Maximum Wt. % of Preservative	Maximum Amount of Preservative (mL)	Maximum # of Drops of Preservative **
40	0.350	0.076	1
120	0.350	0.228	5
250	0.350	0.476	11
500	0.350	0.951	22
1000	0.350	1.902	45
4000	0.350	7.609	182

Preservative = NaOH (SODIUM HYDROXIDE)

Sample Container Size (in mL)	Maximum Wt. % of Preservative	Maximum Amount of Preservative (mL)	Maximum # of Drops of Preservative **
40	0.080	0.042	1
120	0.080	0.125	3
250	0.080	0.261	6
500	0.080	0.523	13
1000	0.080	1.046	25
4000	0.080	4.183	100

Note: ** – Assumes that 24 drops of preservative = 1 mL of preservative

Drummed Waste Material
Project-Specific Sampling and Analysis Plan

Number: 1-
Date: 12-11-93
Page 1 of 5

A. Identifying Information

1) Project Name: 13-
2) Plan No.: 1-
3) Material Description/Matrix Code(s): 2-
4) Number of Drums in Sub-Waste Stream: 10-
5) Material Type: 3-
6) Source Code: 4-
7) Material Evaluation Form #: 5-
8) Sampling Location for Drums: 6-
9) Process Knowledge: 7-

B. Sampling Information

1) General: Samples taken will be contained in glass or polyethylene jars with teflon lined lids.
2) Preservation Method: See Analytical Requirements in Section C.
3) Holding Times: See Preservative and Holding Time Guidelines in Section G. Holding times and sample volume/container requirements for media-specific analyses not listed in the SCQ are provided by the FEMP laboratory facility.
4) Sample Technique: 8-
5) Number of Drums to be Sampled and Analyzed: x, see page 2.
6) Composite Samples: Yes (No)
7) Visual Inspection Performed?: Yes (No) (See attached Visual Inspection Form).
8) Field Contact: 14-
9) Send Results to:
10) Charge No./Project Manager: 15-
11) Required QA/QC Samples:

Field QC	Yes	No	Notes
Trip Blank	___	___	no volatile organic samples
Field Blank	___	___	1 per 20 samples or 1 per sampling event
Equipment Rinsate	___	___	1 per 20 samples or 1 per sampling event
Duplicate	___	___	1 per 20 samples or 1 per sampling event
Container Blank	___	X	analytical data supplied by supplier
Preserv. Blank	___	X	assay data supplied by supplier

Laboratory QC

Laboratory QC sample type and frequency requirements are provided in Appendix G of the SCQ.

Authorized Signature/Date Approved/Date

DRUMMED WASTE MATERIAL PSAP
Figure 1 (Sheet of 5)

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Drummed Waste Material
Project-Specific Sampling and Analysis Plan

Number: 1-
Date: 12-11-93
Page 2 of 5

Sampling Information

Start with Sample Number 9- for the first drum sample, then number consecutively until sampling is completed. The drum that is to be sampled in duplicate will be indicated with an asterisk (*). The duplicate samples will be given different sample numbers.

Sample Number	Sample Matrix	Inv. Number	Lot Number	Drum Number
9-				
1-				
1-				
1-				
1-				
1-				
1-				
1-				
1-				

Authorized Signature/Date Approved/Date

DRUMMED WASTE MATERIAL PSAP
Figure 1 (Sheet 2 of 5)

Drummed Waste Material
Project-Specific Sampling and Analysis Plan

Number: 1-
Date: 12-11-93
Page 3 of 5

C. Analytical Requirements

In order to satisfy waste characterization requirements the following analyses may be performed:

	COLUMN A		COLUMN B	
Analysis Requested (Analysis Code) ASL = Analytical Support Level VOA = Volatile Organics Analysis SVOA = Semi-Volatile Organics Analysis U,Th = Uranium, Thorium PFLT = Paint Filter Liquids Test	Solid Matrix Concentrated Waste Sample Container and Preservative/Unit Codes oz. = ounce P00, P01 = No preservative, Cool 4 deg. C U00, U04, U06, U07, U19 = ppm, mg/kg, ug/L, ug/g, pCi/g U99 = present/absent TLC = Teflon Lined Closure		Liquid Matrix Concentrated Waste Sample Container and Preservative/Unit Codes mL, L = milliliter, Liter P00 = no preservative needed U02, U06, U17, U18 = mg/L, ug/L, pCi/mL, pCi/L U35, U37 = pH units, degrees Fahrenheit TLS = Teflon Lined Septum	
Total VOAs (2411)* TCLP VOAs (2459)** ASL B	(3) x 4-oz. glass, TLC	P01/U04(total) U06(TCLP)	(1) x 250 mL glass jar, TLS	P01/U06
Total SVOAs (2470)* TCLP SVOAs (2471)** ASL B	(1) x 8-oz. amber glass, TLC	P01/U04(total) U06(TCLP)	(1) x 250 mL amber glass, TLC	P01/U06
Total Metals (2402)* TCLP Metals (2401)** ASL B	(1) x 8-oz. glass or polyethylene	P01/U04(total) U06(TCLP)	(1) x 250 mL glass, TLC	P01/U06
Flash Point (2434) pH (2435) ASL B	-----	---	(1) x 250 mL glass, TLC	P00/U37 P00/U35
Total U (2442) ASL B	(1) x 8-oz. glass or polyethylene	P00/U07(soil) U00(any other solids)	(1) x 120 mL glass or polyethylene	P00/U06
Isotopic U (2026-29) ASL B	(1) x 8-oz. glass or polyethylene	P00/U19	(1) x 250 mL glass or polyethylene	P00/U18
PFLT (2053) ASL B	(1) x 4-oz. glass or polyethylene	P00/U99	-----	---
Alpha-Beta (2005)	(1) x 4-oz. polyethylene	P00/U19	(1) x 120 mL polyethylene	P00/U17
Description of material (Color, appearance, consistency, etc.)				

Note: * - Perform analysis for liquid matrix concentrated waste samples.
** - For solid matrix samples only. Prepare sample extract, then conduct Total concentration screening analyses. If Total concentrations exceed 20 times the TCLP regulatory value, then analyze the sample extract.

DRUMMED WASTE MATERIAL PSAP
Figure 1 (Sheet 3 of 5)

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Drummed Waste Material
Project-Specific Sampling and Analysis Plan

Number: 1-
Date: 12-11-93
Page 4 of 5

C. Analytical Requirements (cont.)

	COLUMN C		COLUMN D	
Analyses Requested (Analysis Code) ASL = Analytical Support Level VOA = Volatile Organics Analysis SVOA = Semi-Volatile Organics Analysis U,Th = Uranium, Thorium PFLT = Paint Filter Liquid Test	Low to Medium Concentration Liquid Samples Container and Preservative/Unit Codes mL, L = milliliter, Liter P01, P09 = Cool 4 deg. C, HCl to pH < 2. P11 = HNO_3 to pH < 2 P13 = HNO_3 to pH < 2/cool 4 deg. C U06, U17, U18 = mg/L, ug/L, pCi/mL, pCi/L U35, U37 = pH units, degrees Fahrenheit TLS = Teflon Lined Septum TLC = Teflon Lined Closure		Quality Control Samples@ Container and Preservative/Unit Codes mL, L = milliliter, Liter P01, P09 = Cool 4 deg. C, HCl to pH < 2. P11 = HNO_3 to pH < 2 P13 = HNO_3 to pH < 2/cool 4 deg. C U06, U17, U18 = mg/L, pCi/mL, pCi/L U35, U37 = pH units, degrees Fahrenheit TLS = Teflon Lined Septum TLC = Teflon Lined Closure	
Total VOAs (2411) ASL B	(3) x 40 mL glass vials, TLS	P01 + P09/U06	(3) x 40 mL glass vials, TLS	P01 + P09/U06
Total SVOAs (2470) ASL B	(1) x 1 gallon jar amber glass, TLC	P01/U06	(1) x 1 gallon jar amber glass, TLC	P01/U06
Total Metals (2402) ASL B	(1) x 1 L jar, polyethylene	P13/U06	(1) x 1 L jar, polyethylene	P13/U06
Flash Point (2434) pH (2435) ASL B	(1) x 250 mL glass, TLC	P00/U37 P00/U35	-----	---
Total U (2442) ASL B	(1) x 1 L jar, glass or polyethylene	P11/U06	(1) x 1 L jar glass or polyethylene	P11/U06
Isotopic U (2026-29) ASL B	(1) x 1 L jar, glass or polyethylene	P11/U18	(1) x 1 L jar glass or polyethylene	P11/U18
PFLT (2053) ASL B	-----	---	-----	---
Alpha-Beta (2005)	(1) x 120 mL polyethylene	P11/U17	(1) x 120 mL polyethylene	P11/U17
Description of material (Color, appearance, consistency, etc.)				

Note: @ - Container and preservation/unit code requirements for trip blanks, field blanks, and equipment rinsates only. Container and preservation/unit code reqirements for duplicate or split samples are provided in Columns A, B, or C, depending on the matrix of the waste sample.

DRUMMED WASTE MATERIAL PSAP
Figure 1 (Sheet 4 of 5)

D. Sub-Waste Stream Description

The sub-waste stream consists of 10- drums in 11- lots. The material type of "3-" and the source code of "4-" indicate that this material is 7-

E. Safety Concerns

See SOP 20-C-805, Sections 6.0 to 6.14 for Health and Safety requirements.

F. Representative Sampling Procedure

12- drums were chosen at random, and are listed on page 2 of this form. If visual inspection indicates that the material has free liquid or is completely dry, then a P.F.L.T is not necessary. Record pertinent information in the Field Log Book for each drum sampled as specified in SOP 20-C-805, Section 7.2.13.

G. Preservative and Holding Time Guidelines

See Tables 6.1 and 6.2 of the "Prototype Sampling and Analysis Plan for Containerized Waste at the FEMP" and/or Table 6-1 "Sample Container and Preservation Requirements," of the Sitewide CERCLA Quality Assurance Project Plan (SCQ). Sample container, preservative, and holding time requirements for analytical parameters not provided in these tables have been obtained from federal or state of generation poilcies/directives, or from the FEMP or FEMP-contracted laboratory facility; and incorporated into this PSAP as permitted in Section 3.3.2 of the SCQ.

This form must be dated and signed by an authorized individual.

If this Sub-Waste Stream is sampled and analyzed according to the information on this form, the results generated will be in agreement with the sampling and analysis requirements of NVO-325 (Rev. 1), Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements; and the Fernald Environmental Management Project (FEMP) Sitewide CERCLA Quality Assurance Project Plan (SCQ).

Authorized Signature/Date Approved/Date

DRUMMED WASTE MATERIAL PSAP
Figure 1 (Sheet 5 of 5)

6055

VARIANCE REQUEST

VR No. ____

Page _ of _

Date _____

VARIANCE (Include Justification)

Variance:

Justification:

REQUESTED BY: _____ Date: _____

APPROVED BY: _____ Date: _____

Project Manager

_____

Quality Assurance

_____

SCQ Implementation

APPLICABLE DOCUMENT(S) AND SECTION NUMBER(S)

VARIANCE REQUEST
Figure 2

SAMPLE ID: XXXXXXXXXX

(barcode goes here)

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
SAMPLE ID : XXXXXXXXXX
(barcode goes here)

DATE SAMPLED _____ TIME SAMPLED _____

MATERIAL NAME / SAMPLE TYPE
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
PRESERVATIVES
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CONTAINER TYPE XXXXXXXXXXXXXXXX GROSS WEIGHT _____

COLLECTORS INITLS _____ TARE WEIGHT _____

CNT: _____

COC #: _____

SAMPLE ID: XXXXXXXXXX

(barcode goes here)

Label A

TEMP SAMPLE ID _____ X-REF SAMPLE ID _____

DATE SAMPLED _____ TIME SAMPLED _____

MATL NAME _____

SAMPLE TYPE _____

CONTAINER TYPE XXXXXXXXXXXXXXXXX GROSS WEIGHT _____

COLLECTORS INITLS _____ TARE WEIGHT _____

PRESERV: _____

CNT: _____

COC #: _____

Label B

SAMPLE LABELS
Figure 3

6055

FEMP
RSO ANALYTICAL

Form Number

SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD

Page ____ of ____

PROJECT:	FOR SAMPLE RELATED PROBLEMS, CONTACT:
☐ PLAN NO.: OR ☐ PROJECT NO.:	ORGANIZATION:
PROJECT MANAGER/ENGINEER:	NAME: PHONE:
SAMPLER: PHONE:	SAMPLER REMARKS:
CHARGE NUMBER: LOT MARKING CODE:	
SAMPLER SIGNATURE(S):	
SEND RESULTS TO:	

CHECK FOR: ☐ S R LAB ☐ BIO LAB ☐ WTP LAB

SAMPLE SOURCE, DESCRIPTION/IDENTIFICATION, ANALYSIS REGIMEN

ITEM NO.	[redacted]	CUSTOMER NUMBER	SAMPLE POINT	MATRIX CODE	COLLECTED DATE	COLLECTED TIME	CONTAINER/ VOLUME	COMPOSITE	GRAB	NO OF CONTAINERS	ANALYTES CODE - (UNITS CODE)	REMARKS
1												
2												
3												
4												
8												
9												
10												

ITEM/REASON	RELINQUISHED BY	RECEIVED BY	DATE	TIME	ITEM/REASON	RELINQUISHED BY	RECEIVED BY	DATE	TIME

NO.	DISTRIBUTION OF COPIES
1	LABORATORY
2	REQUESTER
3	SAMPLER

FS-F-3361 (REV 3/25/93)

SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD
Form No. FS-F-3361
Figure 4

PROJECT Sample Plan 144 — Notebook No. _____ — 29

Continued From Page _____

BLDG 71

DATE 7-30-91 LOCATION Isotopic Room SAMPLE NUMBER R144-7

SAMPLE PLAN 144 NUMBER AND VOLUME OF SAMPLES 2 Jars

MATERIAL Contaminated Rubbers Filter Cloth Bags 1-Quart Vials 2-QT, 1-20Z, 1-20Z

MATERIAL DESCRIPTION Glove - liquid NUMBER OF PHASES TWO

MATERIAL TYPE 027 SOURCE CODE 530 ANALYSIS REQUIRED Total VOAS TCLP Metals,

DRUM SAMPLED H097-530-0097-0987 DI#0 1-925 Alpha-Beta Total VOA Flash Point

TIME SAMPLED 1300 TYPE Composite (Grab) Darrell W. Hailey

SAMPLED BY F. Merrill - W. Daniel 7-30-91

Note: 12 inches total 9 inches in Water = 69% water

Note: Plastic Bottles, Metal Cans, Plastic, Trash Gloves

BLDG 71

DATE 7-31-91 LOCATION Isotopic Room SAMPLE NUMBER R144-18

SAMPLE PLAN 144 NUMBER AND VOLUME OF SAMPLES 2 Jars

MATERIAL Contaminated Rubbers Rags Filter Cloth Bags 5-40Z, 1-PT, 1-80Z

MATERIAL DESCRIPTION Plastic Bottles Metal Cans Plastic Trash Gloves (Solid) NUMBER OF PHASES TWO

MATERIAL TYPE 027 SOURCE CODE 530 ANALYSIS REQUIRED Total VOAS TCLP Metals

DRUM SAMPLED H097-530-0097-0987 DI#0 Total U, U-925 Alpha-Beta

TIME SAMPLED 0830 TYPE Composite (Grab) Darrell W. Hailey

SAMPLED BY F. Merrill 7-31-91

Continued on Page

Read and Understood By

R G Rice 7-31-91

Signed Date Signed Date

SAMPLE LOG BOOK
Figure 5

6055

If Seal is broken or package damaged check contents before signing receipt.

TAMPER PROOF SEAL
Figure 6

CLEANED BY: _____

DATE: _____

Cleaned according to SOP : _____

FMPC-OPR-3128 10/22/91

CLEAN EQUIPMENT TAG
Form No. FMPC-OPR-3128
Figure 7

6055

WASTE SAMPLING DECON LOG

DRUM#

	DATE SAMPLED	SAMPLE PLAN #	MEF #	DESCRIPTION OF SAMPLE MEDIA	GAL	BADGE	NAME
MON							
TUE							
WED							
THUR							
FRI							

DO NOT ADD DECON WATER GENERATED FROM F LISTED WASTE

WASTE SAMPLING DECON LOG
Figure 8

WASTE CHARACTERIZATION AND CERTIFICATION

Certification of waste identified as Waste Stream ONL0000000008 shall be made on the basis of **FERMCO's** characterization of the waste, which is based on process knowledge and sampling performed at the FEMP. Characterization is described in the **FERMCO** application to ship low level waste, which also includes the Waste Certification Program Plan (WCPP).

SEG Quality Assurance (QA) shall be responsible for ensuring that systems and procedures are in place and implemented to provide traceability during transport, receipt, storage, compaction, repackaging, and shipment of this waste.

SEG shall ensure that packages of waste presented for certification by **FERMCO** certifiers comply with NVO-325, Rev. 1 requirements for certification.

Quality Assurance hold points have been established, and are identified in the Waste Certification Hold Point Diagram (Figure 1) for the ONL00000000008 waste stream. Documented inspections and/or verifications will be performed at each hold point to prevent acceptance of nonconformances.

FERMCO Waste Certification Officials shall certify shipments of waste from **SEG** to the Nevada Test Site. Only shipments of waste meeting DOT (49 CFR), EPA (40 CFR), state of Tennessee, and NVO-325, Rev. 1 requirements shall be shipped.

FERMCO Waste Package Certifiers (WPCs), or Waste Certification Officials (WCOs), shall perform routine inspections and certify waste packages.

The **FERMCO** Chief WCO shall be responsible for defining and ensuring that requirements for certification are implemented.

QUALITY ASSURANCE REQUIREMENTS

1.0 ORGANIZATION

1.1 GENERAL DESCRIPTION

In accordance with contractual requirements, the **Scientific Ecology Group, Inc. (SEG)** will assume responsibility of shipment from the FEMP to their site at Oak Ridge, Tennessee. There, SEG will be contractually responsible to meet NVO-325 requirements in the treating (compacting), packaging, and shipment of the FERMCO waste to the Nevada Test Site. SEG organization charts are included as Figure 2.

There will be no change in the **FERMCO** organization. Responsibilities will remain unchanged from those listed in the WCPP, Appendix I in the current FEMP Application. The **FERMCO** organization at the FEMP will perform the duties listed in Sections 1.2.1 and 1.2.7 of this addendum. **FERMCO** will establish resident WPC and WCO at SEG to perform verification and certification work. The resident WCP or WCO will perform the **FERMCO** duties listed in Sections 1.2.2 through 1.2.6 of this addendum. These individuals will certify the waste packages and shipments to the Nevada Test Site. FERMCO WCO are ensured independence to withhold certification of any waste not meeting acceptance criteria.

SEG has a well established QA Department that reports directly to the President of SEG. SEG's QA Department is ensured independence, and they have no direct involvement in waste processing and shipping activities. The SEG quality assurance organization performs audits and surveillances of activities to ensure conformance.

SEG does not have a Quality Control Department. Routine inspections will be performed by organizations responsible for the work.

1.2 ORGANIZATION RESPONSIBILITIES

1.2.1 SEG's president is responsible for implementation of all parts of this WCPP applicable to SEG.

1.2.1 FERMCO is responsible for characterization and management of the Waste Stream ONL0000000008 at the FEMP.

- Materials Control & Accountability is responsible for maintaining and supplying inventory records for materials to be shipped to SEG.
- Sample and Waste Determination provides characterization documentation.
- Backlog & Disposition selects the waste from inventory and delivers it to the staging area for shipping to SEG.
- Quality Control verifies that the waste presented to SEG is characterized as acceptable for shipment, and that there are no associated unresolved Deviation Reports.
- Backlog & Disposition affixes the tamper indicating device (TID) to each package.

1.2.2 SEG is responsible for inspection, loading, and shipment of waste from the FEMP to SEG at Oak Ridge, Tennessee.

- Project Management examines each package to determine suitability for shipment, and checks that each has a related acceptable characterization for shipment.
- Project Management performs radiological surveys, loads the transport vehicles, prepares shipping paperwork, and ships the waste to SEG at Oak Ridge, Tennessee.

1.2.3 SEG is responsible for receipt and storage of waste received from the FEMP.

- Shipping/Receiving checks and accepts each waste shipment arriving at the SEG site.
- Central Volume Reduction Facility unloads and stages the waste for compaction.

TYPICAL

DOCUMENT CHANGE NOTICE

6055

DCN NO. 94-130		Sht 1 of 1
Doc. Title OP-2.2 Overpacking Operation		
Work Order No. N/A	Doc. No. OP-2.2	Old/New Rev. 3/4

#	Change Description	Change Justification	Known Impacts
	Insert a note prior to 7.3.1 that states "All overpack containers being loaded for shipment to the Nevada Test Site shall comply with the requirements of enclosure 9.3".	To ensure personnel are knowledgeable of the specific requirements for processing Fermco material.	None

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FOR INFORMATION ONLY

Originator (print name): Stan Cross

☐ Pending DCN (no sig. rq'd)

☒ Open DCN - when signed at the right, use this DCN as and interim Rev.___ of this document until Rev.___ is issued.

Sign and date (only for Open DCNs)

Preparer Stan Cross 4/6/94

Checker J.E. Hess 4/6/94

Mgr. [illegible] 4-6-94

QA (if rq'd) [illegible] 4/7/94

H&S (if rq'd) [illegible] 4-6-94

SEG
SCIENTIFIC ECOLOGY GROUP, INC.

6055

OP-2.2

Overpacking System

Scientific Ecology Group, Inc.
1560 Bear Creek Road
P.O. Box 2530
Oak Ridge, TN 37831-2530

PROPRIETARY INFORMATION

This document is the property of Scientific Ecology Group, Inc., and is furnished with the understanding that the information herein will be held in confidence and will not be duplicated, used, or disclosed either in whole or part without the written permission of Scientific Ecology Group, Inc.

Rev.	DCN No.	Originator	Reviewed By	Quality Assurance	Manager	Date
0	——	Robert Key	Paula Yarborough	——	Don Skvara	1/22/90
1	91-102	Richard Sackett	R.L. Brackett	Laticia Hodges	George Quinn	6/6/91
2	91-113	Richard Sackett	D.E. Hartje	Larry W. Harris	George Quinn	6/11/91
3	93-086 93-715	Steve Cross	Jane Quinn	[illegible]	R.L. Brackett	11/24/93
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☐ New Procedure ☐ Title Change ☐ Minor Revision ☑ General Revision ☐ Rewrite

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1. PURPOSE AND SCOPE

This procedure provides guidelines for the conduct of activities in the overpack area of the Central Volume Reduction Facility (CVRF). This is a general guidance procedure.

2. REFERENCES

2.1 Procedure HP 5.2, Dose Rate Measurement

2.2 Procedure HP 5.3, Contamination Measurements

2.3 Procedure OP 2.8, Press (Supercompactor) Operation

2.4 Procedure OP-4.3, Data Systems Waste Tracking

2.5 Procedure OP-4.14Q, Receipt Inspection of Containers

2.6 Procedure SEG/QA-17.1, Quality Assurance Records Management

3. RESPONSIBILITIES

3.1 The Shift Supervisor is responsible to the Plant Manager for the proper operation of the overpack area.

3.2 All personnel are responsible, as directed by supervision, for conducting process controls, checks, and verifications to meet Quality Assurance requirements and goals.

4. DEFINITIONS

4.1 *Grow back* - The amount of height increase after a puck leaves the press. Grow back is caused by the expansion of material in the container that has been compacted.

4.2 *Puck* - A compacted drum or box.

Overpack Container Interior Height Dimensions	
55-gal. drum	33 in.
79-gal. drum	37 in.
85-gal. drum	37.5 in.
89-gal. drum	41 in.
96-gal. drum	43.5 in.
49-in. overpack box	49 in.
B-12 (6 × 4 × 2 ft)	24 in.
B-25 (7.25 × 3.5 × 4 ft)	51 in.
B-88 (7.25 × 3.25 × 5 ft)	60 in.
Super Pack (4 × 3.25 × 5 ft)	60 in.

4.3 *49-in. overpack box* - This container is a 4 × 3 × 4-ft box that has 1-in. angle iron welded around the top to provide a sealing surface for the lid to mate to. The sealing surface gasket is 3/8-in.-thick pressure-sensitive, adhesive-backed Neoprene rubber.

4.4 *Super Pack* - This container is similar to the 49-in. overpack box except the dimensions are 4 × 3.25 × 5 ft.

4.5 *C-Zone* - Contaminated area where radiological work is being performed.

4.6 *Void space* - The unused volume of an overpack container; i.e., the area between the top of the last puck placed in a container and the lip of the container and the area between the puck and the container sides.

4.7 *WPQCR label* - Waste Package Quality Control Record that serves as a checklist for various quality verifications pertinent to the burial container (see Enclosure 9.1).

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5. SAFETY PRECAUTIONS

5.1 Ensure proper eye, ear, face, head, and footwear are worn by all personnel in the press room during overpack operations consistent with the environmental conditions present during operation.

5.2 Read and comply with the Radiation Work Permit issued by the Health Physics department for overpack area operations.

5.3 Keep hands away from puck and overpack container when placing pucks into the container. Keep clear of pucks being lifted and transported by the crane.

5.4 Ensure that the overpacking crane is completely suctioned to the puck before lifting.

5.5 Ensure that anyone working in the immediate vicinity is aware the overpacking crane is in operation.

5.6 Avoid walking on conveyor rollers to the extent possible. Never walk on moving rollers.

5.7 Report all injuries to the responsible supervisor immediately.

6. OVERVIEW

6.1 The overpack area consists of the press discharge conveyor, the hoist, and the overpack conveyor. The objective of the overpacking operation is that the optimum use of space in each overpack container is assured. It is important that overpack container space is efficiently used. It is equally important that sufficient information on the overpack operation is recorded so that material-tracking integrity is assured.

6.2 The accomplishment of these goals requires that the soil room personnel select the best available pucks by height that advantageously use the overpack space. Coordination between soil room personnel and the Press Room Clerk is also required to ensure that all pertinent information concerning the overpack operation is recorded.

6.2.1 See Reference 2.3, procedure OP-2.8, Press (Supercompactor) Operation, for operation of the Supercompactor.

6.2.2 See Reference 2.4, procedure OP-4.3, Data Systems Waste Tracking, for information required by the Press Room Clerk.

7. PROCEDURE

7.1 Equipment

N/A

7.2 Prerequisites

7.2.1 Properly sized empty overpack containers are placed in the soil room C-Zone. Overpack containers have previously been affixed with a unique number and WPQCR label. The size of these containers is dependent on the size of the innerpacks being compacted and may be of the following sizes:

a. 55-gal. drum

b. 79-gal. drum

c. 85-gal. drum

d. 89-gal. drum

e. 96-gal. drum

f. B-12 box

g. B-25 box

h. B-88 box

i. 49-in. overpack box

j. Super Pack

7.2.2 The overpack shall be inspected prior to loading to ensure any welded seams are defect free, no holes are present, and the gasket sealing surface (if required) is in good condition.

7.2.3 The Soil Room Material Handler shall then sign/stamp the section marked "Welds" on the WPQCR label.

7.3 Overpack Operation

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7.3.1 An empty overpack container is moved into place by the soil room fork truck operator. Prior to being placed in a C-Zone, the fork truck operators will put absorbent material in the bottom of the container to absorb any possible liquid.

NOTE

The minimum amount for drums is 3 scoops; for boxes, 5 scoops (1 scoop equals approximately 1 qt of absorbent material.

7.3.2 Press room personnel measure pucks on the overpack conveyor prior to being placed in an overpack. The pucks are selected based upon height to utilize as much space as possible in each overpack.

7.3.3 When the pucks are placed in the overpack, the innerpack number and height are recorded on the inside of the lid for drums and on the outside of boxes. If more than one client's waste is overpacked together, each client is noted on the overpack.

7.3.4 Using this method, the overpacking personnel are able to overpack several containers at the same time, providing more efficient use of overpack containers.

CAUTION

Pucks will rupture from time to time during compaction. The rupture usually occurs on the top or bottom of the puck. When this happens, the ruptured puck should be placed in the middle of the overpack, with the rupture facing downward.

7.3.5 Information for each puck is relayed to the Press Room Clerk. That information includes:

a. Innerpack barcode numbers of all innerpacks (pucks) going into an overpack.

b. Height of each innerpack.

c. Barcode number of the overpack being used.

7.3.6 When filled, overpack containers are removed from the C-Zone by fork truck. If the container is a box, go to Step 7.3.7; if the container is a drum, go to Step 7.3.8.

7.3.7 The following operations shall be performed for box overpacks:

a. As the box is removed and still suspended by the fork truck, place the box on the supportive stand beside the C-Zone in the soil room.

b. Health Physics personnel shall check the bottom of the container for both loose contamination and maximum dose rate per References 2.1 and 2.2 (procedures HP-5.2 and HP-5.3).

c. Remove the box from the supportive stand and place it on the soil room floor.

d. The Health Physics Technician shall complete the dose rate/contamination survey and sign/stamp the section marked "Dose/Contamination" on the WPQCR label.

e. The Soil Room Material Handler shall install the gasket material, lid, and—using a standard banding tool—band the lid to the box. At this time, the Material Handler shall sign/stamp the section marked "Gasket" on the WPQCR label.

NOTE

Gasket material is 3/8-in.-thick by 1-in.-wide pressure-sensitive, adhesive-backed Neoprene rubber.

f. Place the container on the scale and record the weight on Enclosure 9.2, Void Sheet.

NOTE

Enclosure 9.2 also lists overpack number, inches of void, dose rate, container size, and a space for comments. This information is turned in to the Control Room Clerk, where it is maintained on file. Personnel preparing Void Sheets include their name, shift, and date.

g. Remove the container from the soil room and take it to the appropriate location as defined by the current warehouse scheme.

7.3.8 The following operations shall be performed for drum overpacks:

a. As the drum is removed, the Material Handler shall elevate it using a fork truck and standard drum-gripping device.

b. Health Physics personnel shall check the bottom of the container for both loose contamination and maximum dose rate per References 2.1 and 2.2 (procedures HP-5.2 and HP-5.3).

c. Lower the container and place it on the soil room floor.

d. The Health Physics Technician shall complete the dose rate/ contamination survey and sign/stamp the section marked "Dose/ Contamination" on the WPQCR label.

e. The Soil Room Material Handler shall verify that the gasket is in place and shall secure the lid via the bolted drum ring and locknut. Upon completion, the Material Handler shall sign/stamp the section marked "Gasket" on the WPQCR label.

f. Place the container on the scale and record the weight on Enclosure 9.2.

g. Place four drum overpacks on a pallet and taken them to the warehouse.

8. RECORDS

Enclosure 9.2 is forwarded to the control room as a quality record. Quality records are maintained in accordance with Reference 2.6.

9. ENCLOSURES

9.1 Waste Package Quality Control Record

9.2 Void Sheet

9.3 Criteria for Nevada Test Site (NTS) Overpacks

ENCLOSURE 9.1
Waste Package Quality Control Record

SEG

WASTE PACKAGE QUALITY CONTROL RECORD

WELDS	**INSPECTED BY:**
GASKET	**INSTALLED BY:**
DOSE/ CONTAMINATION	**SURVEY:**
WASTE TRACKING	**APPROVAL:**
FINAL PACKAGE	**INSPECTION:**

SEG
SCIENTIFIC ECOLOGY GROUP, INC.
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ENCLOSURE 9.2
Void Sheet

NAME: _____ DATE: _____ SHIFT: _____

OVERPACK NO.	VOID	WEIGHT	mR/hr	OVERPACK SIZE	CONTENTS VERIFIED	ABSORBENT ADDED	OVERPACK CLOSURE	COMMENTS

ENCLOSURE 9.3
Criteria for Nevada Test Site (NTS) Overpacks

1. Prior to filling, SEG personnel shall perform an inspection of the empty overpack container and sign/stamp the WPQCR label.

   1.1 Each overpack container shall be inspected immediately prior to filling to verify the container condition and integrity.

   1.2 Dented areas shall be inspected to ensure that no visible cracks or holes are present. Particular attention must be used in inspecting dents to the drum gasket seating area, vertical seams, or bottom seams.

   If any of the above criteria is determined to be deficient, the overpack container shall be rejected and not used.

2. SEG personnel shall initial the space provided on the Void Sheet indicating that absorbent has been added (refer to Section 7.3.1 for amounts). Initials shall also be placed in the provided space verifying that the lid and ring have been applied and the bolt has been tightened.

3. If for any reason an overpack container is left unattended during the filling process, SEG personnel shall apply the lid and ring and engage the threads of the bolt into the ring. No waste other than the compacted FEMP (Fernald Environmental Management Project) pucks shall be placed in any overpack destined for NTS. This shall be indicated by SEG personnel initialing the contents verification space on the Void Sheet.

TYPICAL

DOCUMENT CHANGE NOTICE

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DCN NO. 94-100		Sht 1 of 1
Doc. Title OP-2.8 Press (Supercompactor) Operation		
Work Order No. N/A	Doc. No. OP-2.8	Old/New Rev. 4/5

#	Change Description	Change Justification	Known Impacts
	1) Section 7.5.1, delete the note concerning the split of drum weight in excess of 350 lbs. 2) Section 7.5.3, delete the caution concerning use of resin for overfill. 3) Delete 7.5.4, 7.5.5, and 7.5.6	These requirements were in place for Magthorium processing per Beatty Nevada Burial Site Acceptance criteria. These are no longer applicable.	None other than to accurately describe current methods of processing Magthorium.

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Originator (print name): Stan Cross

☐ Pending DCN (no sig. rq'd)

☑ Open DCN - when signed at the right, use this DCN as and interim Rev.____ of this document until Rev.____ is issued.

Sign and date (only for Open DCNs)

Preparer Stan Cross 3/2/94

Checker [illegible] 3/2/94

Mgr R. R. [illegible] 3-2-94

QA (if rq'd) J. David Lewis 3-2-94

H&S (if rq'd) [illegible] 3-2-94

SCIENTIFIC ECOLOGY GROUP INC

6055

OP-2.8

Press (Supercompactor) Operation

Scientific Ecology Group, Inc.
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PROPRIETARY INFORMATION

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Rev.	DCN No.	Originator	Reviewed By	Quality Assurance	Manager	Date
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1. PURPOSE AND SCOPE

This procedure provides guidelines for the operation of the Central Volume Reduction Facility (CVRF) press and its associated conveyors, lifts, and hoist that bring material to the press and remove compacted material from the press. This is a general guidance procedure.

2. REFERENCES

2.1 Procedure OP-2.1, Conveyor System

2.2 Procedure OP-2.2, Overpacking System

2.3 Procedure OP-3.10, Lockout/Tagout

2.4 Procedure OP-4.3, Data Systems Waste Tracking

2.5 Procedure OP-4.7, Container Pressure Testing

2.6 Procedure OP-6.8, Process Residue Sampling Procedure

2.7 Procedure SEG/QA-13.2, Control of CVRF Receipt, Storage, and Shipping

3. RESPONSIBILITIES

3.1 The Shift Supervisor reports to the Plant Manager and is responsible for the proper operation of the press, the observation of all safety precautions associated with press operations, and the proper conduct of personnel assigned.

3.2 All personnel are responsible, as directed by supervision, for conducting process controls, checks, and verifications as specified in Reference 2.7 to meet Quality Assurance requirements and goals.

4. DEFINITIONS

4.1 *Operator Interface Terminal (OIT)* - A General Electric video with the G.E. Line of programmable controllers.

4.2 *Overpack* - The container in which compacted D boxes or drums are packed for shipment to a burial site. Overpacks may be boxes or drums.

4.3 *Programmable controller* - An industrial computer designed for harsh environments; most use ladder logic programs.

4.4 *Supercompactor* – The SEG 5,000-ton press, which is called Supercompactor or Ultra-compactor in various literature.

4.5 *Daughter (D box)* or *innerpack (IP)* – A 4 × 4 × 3-ft box which has been loaded with material to be processed through the Supercompactor. See Paragraph 7.3.4.a.(2) for further detail.

4.6 *Genius hand-held monitor (HHM)* – A portable diagnostic and configuration tool used to perform movement of the Supercompactor by communicating directly with the G.E. Series Six programmable controller beyond the control capabilities of the OIT.

4.7 *Intermec 9560 Transaction Manager* – A programmable unit with 64k storage capacity that communicates with the waste tracking system through RS-232 communications.

5. SAFETY PRECAUTIONS

5.1 Ensure proper eye, ear, face, head, and footwear are worn by all personnel in proximity to operating conveyors, consistent with the environmental conditions present during operation.

5.2 Do not load more than one box at a time on the first and second lift conveyors. Two drums at a time may be loaded on the first lift conveyor.

5.3 Ensure all personnel working in the immediate vicinity are aware that conveyors are in operation.

5.4 Avoid walking on conveyor rollers to the extent possible. Walking on moving rollers is prohibited.

5.5 Read and comply with the Radiation Work Permit issued by the Health Physics department for area concerned.

5.6 When work is to be performed on the press baseplate, place jack stands on the baseplate and under the press mold assembly. Personnel are to avoid the area under the press mold and ram. Use "pushrods" whenever possible.

5.7 Report all injuries to the responsible supervisor immediately.

5.8 Ensure all equipment is secured as per tagout and lockout in Reference 2.3.

6. OVERVIEW

The press system consists of the following equipment:

6.1 Infeed

6.1.1 Infeed Conveyor

The infeed conveyor brings material to the scale. The material on the infeed conveyor may be in 30-, 52-, or 55-gal. drums or in 4 × 4 × 3-ft boxes. Drums from the warehouse are placed on a spur of the conveyor. Boxes are packed and pre-compacted at the shredder and sent to the press. Boxes may also be placed in the system on the conveyor spur.

6.1.2 Scale

Incoming material is weighed at the scale. This information, along with the container number, date/time, operator, type of container, customer number, and dose rate (for boxes) is entered into the Intermec. This system electronically transmits the information to the local area network and is available to any mode on the network. A printout is generated and sent to a serial printer in the soil room, with a duplicate printout being sent to a local parallel printer in the control room. In the unlikely event of a system failure, this information shall be recorded on Enclosure 9.3. The Scale Room Sheet shall then taken by the Scale Room Operator to the Press Control Room Clerk.

6.1.3 Accumulator Conveyor

The accumulator conveyor moves the incoming material from the scale to the first lift.

6.1.4 First Lift

The first lift raises boxes or drums from the infeed conveyor to the overhead conveyor.

6.1.5 Overhead Conveyor

The overhead conveyor moves boxes or drums to the second lift. The overhead conveyor is necessary to physically clear the press loader. The boxes and drums enter the press room on this conveyor.

6.1.6 Second Lift

The second lift lowers material to the press level of the press baseplate. The lift will not raise if the loader is in the extended position.

6.2 Press

6.2.1 Loader

The loader moves boxes or drums from the second lift onto the press baseplate. The stroke of the loader and the construction of the loader head act to center the boxes or drums on the press baseplate. The loader will not extend if the second lift is raised.

6.2.2 Press

The press compacts boxes or drums. The height of the compacted boxes and drums is dependent on the density of the material in the container. Different press configurations are used to compact various containers. In the box mode, the mold only lowers around the box to be compacted. In the drum mode, the mold and saddle assembly lowers around the drum. The drum/box mode change is made from the press control room at OIT #1.

6.2.3 Unloader

The unloader moves compacted boxes and drums from the press baseplate to the discharge conveyor. The unloader also helps center incoming containers on the press table.

6.3 Discharge

6.3.1 Discharge Conveyor

The discharge conveyor moves the compacted boxes and drums from the press to the soil room.

6.3.2 Hoist

The hoist is a device capable of picking up boxes and drums, by vacuum lift, from the discharge conveyor and placing them into overpack containers located in the soil room.

6.4 Control

6.4.1 G.E. Series Six Programmable Controller

G.E. Series Six programmable controller controls the press and the overpack crane. It has a battery backup capability to sustain memory during power losses of short duration. The Series Six programmable controller uses programs that are written using a relay schematic type notation and are referred to as ladder logic. The ladder logic programming for the press are on 5.25-in. diskettes, which may be loaded into an IBM PC/XT computer. The programs may then be transferred to the Series Six programmable controller in case of memory loss. Program portions may be sequenced using a hand-held keypad.

6.4.2 G.E. Series Three Programmable Controller

G.E. Series Three programmable controller controls the discharge conveyor. As with the Series Six, it has a battery backup and uses ladder logic programming, but lost memory must be reentered on a hand-held keypad.

6.4.3 G.E. Series One Programmable Controller

G.E. Series One programmable controller controls the infeed conveyor from the shredder to press room. As with the other programmable controllers, it has a battery backup and uses ladder logic programming, but lost memory must be reentered on a hand-held keypad.

6.4.4 Reprogramming

Reprogramming the Series Six controller is a relatively quick and easy process. Reprogramming the Series One and Series Three controllers is much more complicated and time-consuming. Refer to the appropriate G.E. user guide.

6.4.5 G.E. Operator Interface Terminals (Two)

a. OIT #1 provides operator interaction, through G.E. Series Six programmable controller, with the press. It also displays system status for the press. Box or drum mode is established on OIT #1.

b. OIT #2 provides backup operator interaction, through G.E. Series Six programmable controller, with the press. OIT #1 and OIT #2 are interchangeable.

6.5 Video Monitors

6.5.1 Video cameras are located in various positions around the plant processing areas. These cameras are connected to eight monitors located in the press control room. Each video monitor is capable of displaying up to four channels and has the following operator controls: VCR, AUTO, MANUAL 1 2 3 4, POWER, VOLUME, BRIGHT, and CONTRAST.

6.5.2 In automatic mode the monitor sequentially scans all four channels. When a specific channel is selected, by pressing the desired channel pushbutton, the monitor goes into manual mode and displays the selected channel until changed. The VCR pushbutton and volume control are not used. All other controls are self-explanatory.

6.6 Press Operation

6.6.1 Automatic Operation

The press is considered to be in automatic operation when the press and its associated conveyors and lifts are being controlled by the IBM PC/XT through the G.E. Series Six, Series Three, or Series One programmable controllers.

6.6.2 Manual Operation

The press is considered to be in manual operation when the press and its associated conveyors and lifts are being controlled by the operator using the G.E. Series programmable controllers.

7. PROCEDURE

7.1 Equipment

N/A

7.2 Prerequisites

A preoperational inspection shall be performed by overpack personnel and the Control Room Operator each time the press and its associated equipment is operated. This inspection includes the following:

7.2.1 Verify that an air sample of the press room has been started by Health Physics personnel at the beginning of the day.

7.2.2 Inspect cleanliness of press, conveyors, press room, and press control room. Perform housekeeping as necessary. Ensure all rotating equipment is free of any foreign objects that would hamper operation.

7.2.3 Visually inspect the press and all associated equipment. Report any suspected problems to maintenance and plant supervision.

7.2.4 Wipe the press columns with clean, dry rags. Then wipe down the columns again with additional clean rags and *spray columns with silicone spray*.

7.2.5 Verify that the press hydraulic oil-level check has been performed by maintenance personnel at the start of the day. A warning message will appear on Operator Interface Terminal No. 1 if hydraulic oil level or temperature goes beyond safe operating limits.

7.2.6 Inspect liquid level of the press sump. If liquid level exceeds three quarters of the sump depth, refer to Step 7.3.6 for instructions on removal of sump liquids.

7.2.7 Verify that press lock pins have been lubricated on a weekly basis. As the pins are lubricated, they should be cycled to assure proper operation.

7.2.8 The lead technician or designee shall complete the inspection checklist (Enclosure 9.2). It shall be kept on file in the press control room.

7.3 General Operation

7.3.1 Containers to be compacted are entered into the press system from the following sources:

a. From the shredder in daughter boxes (D boxes)

b. From the warehouse in drums (30, 52, and 55 gal.)

c. From the warehouse in daughter boxes

7.3.2 Each container is labeled with an SEG control number as it is unloaded at the warehouse. A matching label bearing the same number is placed on the shipping manifest.

7.3.3 Containers are placed on the infeed conveyor by forklift. Once on the conveyor, each container is weighed. The weight, type of container, and dose rate (on boxes) are entered into the Intermec. That information is transmitted to the clerk in the press control room.

7.3.4 Containers are defined as follows:

a. Boxes

(1) *Parent box* - A box of waste as it is received from the customer. It may be a Sealand container or a B-12 box, B-25 box, B-88 box, or 4 × 4 × 3-ft box.

(2) *D box (Daughter box)* - A box of material that has been run through the shredder or created while unloading a Sealand container. Daughter boxes go directly to the press or to the warehouse for storage until the press begins compacting boxes.

b. Drums

(1) 30-, 52-, and 55-gal. drums may be received into the system for compaction. They are generally filled at the customer's site.

(2) 55-, 79-, 85-, 89-, and 96-gal. drums are used as overpack containers. Drums received from customers are placed into these slightly larger drums after being compacted.

7.3.5 Height Versus Pressure

CAUTION

A height-versus-pressure chart is posted in the control room. Failure to adhere to system specifications listed on this chart could result in damage to the press mold. See Enclosure 9.1 for maximum oil pressure data.

Charts, located in the control room, are used to determine the hydraulic pressure used to compact various boxes and drums. The charts are listed by customer and container and are generated from past runs of material from that customer. The charts are formatted in a compacted box or drum height in inches versus hydraulic pressure in pounds per square inch. Operating pressure is selected from the chart as the pressure versus height curve approaches linearity. The determination of the hydraulic pressure to be used is called pressure testing. The maximum hydraulic pressure used is 5,000 pounds per square inch (psi) when compacting boxes and 3,500 psi when compacting drums.

7.3.6 Liquids present in containers during compaction will drain to a sump area beneath the press baseplate. The contents of the sump are pumped periodically into 55-gal. drums. After filling, drums are to be composited and sampled in accordance with Reference 2.6. Upon completion of radiological and TCLP analysis, drums shall be dispositioned according to their activity levels and/or hazardous waste contents for final processing.

7.3.7 This procedure provides instructions to move a container (either box or drum) from the infeed conveyor as it enters the press room to the discharge conveyor. The container is lifted from the discharge conveyor, by vacuum hoist, into the soil room in accordance with Reference 2.2.

a. Simultaneously press the following pushbuttons on the Infeed Conveyor Control Panel:

- JOG ACCUMULATOR
- RELEASE ACCUMULATION ZONE
- JOG FIRST LIFT CONVEYOR

This places the container on the first lift.

b. Raise the first lift by holding the first LIFT three-position switch in the up position. Stop lift when height is equal to overhead conveyor.

c. Simultaneously press the following pushbuttons:

- JOG FIRST LIFT CONVEYOR
- JOG OVERHEAD CONVEYOR

This places one box or drum on the overhead conveyor. The overpacking personnel punch holes in the incoming drums as they sit on the overhead conveyor. This is done to relieve the internal drum pressure and to allow liquids to drain from the drums as they are being compacted.

d. Press the JOG OVERHEAD CONVEYOR pushbutton to move the container to the press end of the overhead conveyor.

NOTE

By observing position of containers on overhead conveyor, it is possible to fill this conveyor with material to be processed.

e. Raise the second lift by placing the LIFT three-position switch in the up position. Stop the lift when its height is equal to the overhead conveyor.

f. Press the following pushbutton:

- JOG OVERHEAD CONVEYOR

This places the container on the second lift.

g. Lower the second lift by placing the second LIFT three-position switch in the down position.

NOTE

The second lift will not raise if the loader ram is extended. The ram will not extend if the second lift is up.

The container is now in a position to be loaded onto the press base plate.

7.3.8 Operator Interface Terminal No. 1 (OIT #1)

a. Press F8 (LOAD) pushbutton on OIT #1.

When F8 is pressed, the loader ram extends to push the container onto the press baseplate. The loader then retracts, and the unloader ram extends to center the container under the press punch. The unloader ram then retracts.

b. Press F7 (COMPRESS) pushbutton.

The press mold and the saddle assembly will lower around the container if it is a drum. The mold only will lower around boxes. The press cycles through a compacting operation. When compacting is completed and the press raises, the unloader ram will automatically extend to push the container off the press baseplate onto the discharge conveyor.

c. The F9 (STRIPPER) pushbutton controls the press strippers. The strippers are used to lift the mold when a compacted container is caught in the press mold. The two stripper cylinders are housed in the press baseplate and, when activated, raise upward against the mold and saddle assembly as the press punch is exerting a force downward. This action acts to free the trapped container. The strippers have a 12-in. upward stroke.

d. F6 (UNLOAD) pushbutton on OIT #1 may be used if problems occur in moving the container off the press baseplate. The unload ram extends, pushing the compacted container off the press baseplate and onto the discharge infeed lift.

NOTE

When compacting, the strippers may be activated as needed and turned off when not required.

e. The container has now been compacted and placed on the discharge conveyor.

f. The discharge conveyor will transport the compacted container to the soil room for overpacking. The compacted containers travel to the end of the discharge conveyor. Upon reaching this point, a short (6-ft) section of conveyor is controlled by overpack personnel. The container will proceed when called by the soil room or trip a limit switch stopping a 4-ft section of the discharge conveyor. As long as the conveyor section in the soil room is off, containers will continue to stage automatically every 4 ft until line is full.

7.4 Press Personnel

The press personnel for a normal operating situation consist of:

7.4.1 One control room operator

7.4.2 Two overpack personnel

7.4.3 Three fork truck operators

7.4.4 One clerk

7.4.5 One HP Technician

7.5 MagThorium Processing

> NOTE
>
> Process MagThorium drums in compliance with Sections 7.2 and 7.3.

7.5.1 Load drum containers on press infeed line and transfer to Supercompactor.

> NOTE
>
> The average weight of each drum should be 250 lb. If a single drum weighs more than 350 lb, it should be split into two drums, distributing the weight evenly.

7.5.2 Initiate the compaction cycle, with the Ram Stroke I set at 40% stroke and the Ram Stroke II set at 50% stroke. The hydraulic pressure should not exceed 1,500 psi.

7.5.3 Unload the drum from the Supercompactor and transport to the soil room.

WARNING

In case of a fire, place a sheet of metal (3 ft × 3 ft × ¼ in.) on the rollers up against the base of the press. Unloaded the drum onto the piece of metal. Cover the MgTh drum with fire retardant and place an empty 89- gal. drum over the top of the MgTh drum. This process will support smothering the fire.

CAUTION

Dry bead resin or Powdex resin should not be used for overfill material when processing MgTh drums.

7.5.4 Place nominal 2 in. of overfill material in the bottom of a 79- or 89-gal. overpack container prior to adding MgTh drums.

7.5.5 Add MgTh drums into the overpacks until the container is full, leaving at least a 2-in. void at the top of the overpack.

7.5.6 Add overfill material to the overpacks to fill the annulus space around the innerpacks and all remaining void space in the overpack container.

7.6 Press Room Personnel

7.6.1 The Press Control Room Operator is responsible for the operation of the conveyors, lifts, and the press.

7.6.2 Overpack personnel are responsible for the orderly and safe movement of material through the press room. Other duties of overpack personnel include puncturing drums as they enter the press room on the overhead conveyor, monitoring the press sump, and pumping excess liquids into 55-gal. drums. The relaying of container numbers and heights to the Press Room Clerk, with the number of the overpack container into which they go, is also done by overpack personnel in the soil room.

7.6.3 The Clerk tracks containers through the press room by recording the weight of overpack containers, along with height and weight of compressed containers, and noting which compressed containers are placed in which overpack containers in accordance with Reference 2.2.

7.7 Drum Sleeve Changes

7.7.1 Two different drum sleeves are used on the press. The selection of the drum sleeve to be used depends on the size of the drums to be compacted. One drum sleeve accommodates 52-gal. drums; the other, 55-gal. drums. When a drum sleeve is changed, the wear plate on the press punch must be changed also. Either drum sleeve and wear plate may be used to compact 30-gal. drums.

7.7.2 A drum sleeve change requires the cooperative effort of press operators and maintenance personnel. The press operator is responsible for making the press moves required, as described below, and for the overall safety aspects of the drum sleeve change. Maintenance personnel are responsible for the physical removal of the installed sleeve and the installation of the replacement sleeve. Clear and concise communications throughout this operation cannot be overemphasized.

7.7.3 When a sleeve change or mode change (drum to box) is required, clean the press according to current maintenance directives.

7.7.4 When a sleeve change becomes necessary, perform the following steps:

a. Place the press in the drum mode.

b. Place the press in the raised position.

c. Shut the system down.

d. Place jack stands on the press baseplate and under the press mold.

e. Change the wear plate bolted to the bottom side on the press punch.

f. Remove the jack stands.

g. Turn the system on.

h. Move the ram and mold down until it rests on the press baseplate, press fully lowered.

i. Release the saddle assembly that is attached to the drum sleeve by retracting the two pins which go through the mold and into the saddle assembly.

j. With the G.E. Series Six keypad, force block 6 inputs 105 through 112 to a mold-free, ram-free condition. This is an invalid condition in the Series Six ladder logic and should only be attempted during a sleeve change operation.

NOTE

There are two valid conditions in the press ladder logic: In the box mode, the saddle assembly is attached to the ram and the mold is free. In the drum mode, the saddle assembly is attached to the mold and the ram is free.

k. Lift the mold. The saddle assembly and drum sleeve will be left sitting on the press baseplate. This step allows access to the drum sleeve to the saddle assembly pins.

l. Remove the four pins that attach the saddle assembly to the drum sleeve.

m. Lower the mold and replace the two pins into the saddle assembly.

n. Lift the mold and saddle assembly. The drum sleeve will be left sitting on the press baseplate.

o. Mark the drum sleeve on one corner with a soap stone. This mark will be used to position the drum sleeve when it is next put into place.

p. Move the drum sleeve onto the forks of a forklift using the loader ram and set aside.

q. Put the replacement drum sleeve against the press baseplate with the forklift. The forks must be level with the press baseplate surface.

r. Attach a suitable strap around the drum sleeve and to the loader ram. Pull the drum sleeve onto the press baseplate with the loader ram. Ensure that the sleeve locking-pin accesses in the drum sleeve align with the sleeve locking-pin accesses in the saddle assembly.

s. Remove the strap.

t. Position the drum sleeve with the loader and unloader rams using the marks on the drum sleeve that were made when the sleeve was removed.

u. Lower the mold and saddle assembly around the replacement sleeve.

v. Remove the two pins that attach the mold and saddle assembly.

w. Raise the mold. This will leave the saddle assembly and replacement sleeve sitting on the press baseplate.

x. Replace the four pins that attach the saddle assembly to the drum sleeve.

y. Lower the mold.

z. Replace the two pins that attach the mold and saddle assembly.

8. RECORDS

8.1 A daily log is kept in the press control room. Entries with occurring times are made as follows:

8.1.1 Mode changes - drum or box

8.1.2 Sleeve changes - 52- or 55-gal. drums

8.1.3 Origin (customer) of material being compacted

8.1.4 Hourly entries of the material being processed

8.1.5 Hourly entries of the location of material being processed

8.1.6 Unusual occurrences

8.2 Record keeping pertaining to the tracking of containers being compacted and the overpack containers used is the responsibility of the press room clerk, and procedures are listed in Reference 2.4.

8.3 Inspection checklists are kept on file in the press control room.

9. ENCLOSURES

9.1 Hydraulic Oil Pressure Safe Operating Envelopes

9.2 Press Operation Inspection Form

9.3 Scale Room Sheet

ENCLOSURE 9.1
Hydraulic Oil Pressure Safe Operating Envelopes

Box Height (inches)	Maximum Oil Pressure (kpsi)
12.0	5.0
12.4	4.0
24.0	3.0
36.0	2.3
48.0	2.0

Box Maximum Oil Pressures for Desired Drum Height

Compacting Pressure (Kpsi)	Oil Pressure (kpsi)
8.1	2.5
9.7	3.0
10.3	3.2

Compacting Pressure Vs. Oil Pressure for 55-Gal. Drums

Compacting Pressure (Kpsi)	Oil Pressure (kpsi)
9.7	2.5
11.5	3.0
12.3	3.2

Compacting Pressure Vs. Oil Pressure for 52-Gal. Drums

ENCLOSURE 9.2
Press Operation Inspection Form
(Page 1 of 3)

Date: _____ Inspector: _____ Shift: _____

Area Inspected	Status	Initials
Hydraulic Equipment 1. Oil level 2. Main pump 3. Circulation pump ○ Glycol system 4. Pilot pump 5. Auxiliary pump		
Mold Cylinders 1. Operation 2. Hydraulic leaks		
Jack Cylinders 1. Operation 2. Hydraulic leaks		
Unloader/Loader 1. Operation 2. Hydraulic leaks 3. Tempasonics		
Saddle Assembly Pins 1. Configuration 2. Hydraulic leaks		
Main Ram 1. Operation 2. Hydraulic leaks		

COMMENTS:

ENCLOSURE 9.2
Press Operation Inspection Form
(Page 2 of 3)

Area Inspected	Status	Initials
Conveyors 1. Entry conveyor ○ Operation ○ Missing rollers 2. Lift tables ○ Operation ○ Hydraulic level ○ Limit switches 3. Exit conveyor ○ Operation ○ Missing rollers 4. Emergency stop		
Scale Room 1. Scale 2. Conveyors 3. Transfer chains 4. Control panel		
Series Six Programmable Controller 1. Operation 2. Communication Error 3. OIT 4. HHM		
Sump Liquid level		

COMMENTS:

ENCLOSURE 9.2
Press Operation Inspection Form
(Page 3 of 3)

Area Inspected	Status	Initials
Soil Room 1. Scale 2. Vacuum system o Vacuum pump o Suction cup		
General Area 1. Housekeeping 2. Spills		

COMMENTS:

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ENCLOSURE 9.3
Scale Room Sheet

Customer: _____ Date: _____

Manifest No.: _____

Type: _____ Signature: _____

IP No.	Weight	Dose	Containers	Comments

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ENCLOSURE 3.2
DOCUMENT CHANGE NOTICE

DOCUMENT CHANGE NOTICE		DCN 94-132	Sht 1 of 1
	Ref.EWR No.	Doc. No. OP-4.2	Old/New Rev. 3/4

#	Change Description	Change Justification	Known Impacts
	1. Add F. to section 8.3.1 to read as follows: F. In addition to the requirements of this section, Enclosure 3.3 shall be followed for inspection of FEMP drummed residues.	To ensure plant personnel comply with specific FERMCO requirements.	UNCONTROLLED COPY FOR INFORMATION ONLY

* Signature required here only if DCN is an open DCN, otherwise, "NR"

Change Prepared by/Date	Change Checked by/Date	Engr.Mgmt/Date
[illegible] 4-8-94	[illegible] 4-8-94	
H&S/Date	QA (if req'd)/Date	Approved by/Date
		[illegible] 4-8-94

DOCUMENT CHANGE NOTICE

DCN NO. 93-592

Sht 1 of 1

Doc. Title Radioactive Material Receipt

Work Order No. N/A | Doc. No. OP-4.2 | Old/New Rev. 3/4

#	Change Description	Change Justification	Known Impacts
1	Add Reference 2.7:OP-4.4Q Radioactive Material Shipment.		
2	Add to section 8.3.3 as follows: ...with the manifest. Non-conforming materials identified during processing will be identified in accordance with OP-7.2, Paragraph 8.4, Note 2. Any un-acceptable material will be returned to the customer using guidelines set forth in Reference 2.7 of OP-4.2, as well as, any other pertinent shipping requirements as set forth in Reference 2.3 of OP-4.2. "Discrepancies will normally be reported..."	To comply with audit requirements.	To further assure license compliance.
3	Add Reference 2.8: OP-7.2, Sorting Area Start Up Procedure		

Originator (print name):

This is a:

Pending DCN (no sig. rq'd)

✓ Open DCN - when signed at the right, use this DCN as an interim Rev. ___ of this document until Rev. ___ is issued.

Sign and date (only for Open DCNs)

Preparer [signature] 9/2/93

Checker [signature] 9/2/93

Mgr John E. Hess 9/2/93

QA (if rq'd) Larry W. Harris 9/3/93

H&S (if rq'd) [signature] 9/2/93

To West H

ENCLOSURE 3.2
DOCUMENT CHANGE NOTICE

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DOCUMENT CHANGE NOTICE OP 4.2 RADIOACTIVE MATERIAL RECEIPT		DCN 93-232	Sht 1 of 1
	Ref.EWR No.	Doc. No. OP-4.2	Old/New Rev. 3/4

#	Change Description	Change Justification	Known Impacts
1.	ADD TO THE "*" NOTE FOLLOWING 8.2.2 N. THE QUANTITIES OF U-235,U-233 AND Pu, IN GRAMS WILL BE NOTED IN A HAND WRITTEN OR COMPUTER LOG. THIS DATA WILL REFLECT ALL INCOMING AND OUT-GOING CHANGES IN THESE ISO-TOPES. THE LOG WILL BE UPDATED ON A SHIPMENT BASIS. ANY DISCREPANCIES BETWEEN THE LOG AND INVENTORY REPORTS WILL BE REPORTED TO THE RSO AND VICE PRESIDENT, REGULATORY SERVICES.	A LOG IS BEING USED TO ASSURE LICENSE COMPLIANCE DUE TO THE FACT THAT AN INVENTORY BY DATA SYSTEMS ON A DAILY BASIS IS NOT PRACTICAL. THIS LOG NEEDS TO BE SPECIFICALLY REQUIRED BY PROCEDURE.	ADDITIONAL RSO AUDIT ITEM TO ASSURE LICENSE COMPLIANCE.

* Signature required here only if DCN is an open DCN, otherwise, "NR"

Change Prepared by/Date	Change Checked by/Date	Engr.Mgmt/Date
W.M. HIPSHER, W M Hipsher 5-3-93	J.HESS, J.E. Hess 5-3-93	NA
H&S/Date	**QA (if req'd)/Date**	**Approved by/Date**
.M. HIPSHER, W M Hipsher 5-3-93	Patricia Hodges 5-11-93	W.M. HIPSHER, W M Hipsher 5-3-93

TYPICAL

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DOCUMENT CHANGE NOTICE

DCN NO. 93-040		Sht 1 of 2
Doc. Title OP-4.2 "RADIOACTIVE MATERIAL RECEIPT		
Work Order No. N/A	Doc. No. op-4.2	Old/New Rev. 3/4

#	Change Description	Change Justification	Known Impacts
1	ADD ENCLOSURE 3.3	TO ADDRESS SITE SPECIFIC REQUIREMENTS FOR FERNALD DRUM PROJECT	NONE, OTHER THAN PROVIDING SITE SPECIFIC INFORMATION.
2	ADD DEFINITION FOR - FEMP (FERNALD ENVIRONMENTAL MANAGEMENT PROJECT)		

Originator (print name): Stan Cross

☐ Pending DCN (no sig. rq'd)

☑ Open DCN - when signed at the right, use this DCN as and interim Rev. 4 of this document until Rev. 4 is issued.

Sign and date (only for Open DCNs)

Preparer Stan Cross 2/17/93

Checker G. Hess 2/17/93

Mgr R. L. Sanders 2-17-93

QA (if rq'd) L.D. Campbell 2-17-93

H&S (if rq'd) Jim Lapastro 2/17/93

TITLE: RADIOACTIVE MATERIAL RECEIPT NUMBER: OP-4.2

ENCLOSURE 3.3

ACCEPTANCE AND INSPECTION CRITERIA FOR FEMP DRUMMED RESIDUES

1. This enclosure provides guidance necessary for determining acceptance criteria for the examination and removal of overpacked drums received from the FEMP for compaction.

2. Drums received from the FEMP in an overpacked condition will be transported to an area of the plant authorized to open waste containers.

3. Upon arrival, a pre-determined number of drums will be placed in the respective area and prepared for opening. Personnel will open the overpack drums visually inspecting the integrity of the internal container with a flashlight.

4. The objective of the initial inspection is to determine the condition of the internal container. Deficient areas would include a container breach, visible liquid/materials leaking from the internal container, or the internal container is determined to be in a deteriorated condition that would not allow removal from the overpack for compaction.

5. If the initial inspection reveals any of the above conditions, a Nonconformance Report (NCR) will be issued. The lid on the overpack will be re-installed and the container will be placed on hold pending evaluation.

6. Contingent upon the container satisfying the requirements of a strong tight container, (utilizing a forklift), personnel will attach a standard drum sling and raise the container four to five inches. Another visual inspection will take place before proceeding to determine the condition of the container bottom to confirm its integrity.

7. Providing that the containers meet the ~~identified~~ ACCEPTANCE criteria, they will be removed. Following removal, the inner container will receive a duplicate barcode that reflects the original barcode applied to the overpack. The inner containers will then be staged for compaction. KDC 2/17/93

8. If at any time a spill should occur, personnel will utilize Health Physics standard procedure, HP-4.5, "Spill of Radioactive Material". If such a condition were to occur, extreme care will be taken to ensure and maintain the identity of the FEMP waste to prevent mixture with SEG generated waste.

SCIENTIFIC ECOLOGY GROUP, INC. P.O. BOX 2530 1560 BEAR CREEK ROAD OAK RIDGE, TN 37831-2530	NUMBER OP-4.2 **6055**

TITLE

RADIOACTIVE MATERIAL RECEIPT

PROPRIETARY INFORMATION

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REV	DATE	PREPARED BY	CHECKED BY	QUALITY ASSURANCE	MANAGER	DCN
3	8/27/90	D.E. [illegible]	8/27/90 R.Z. [illegible]	Patricia Adkins	8-28-90 W.M. [illegible]	

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1. PURPOSE

The purpose of this procedure is to provide guidelines for the receipt of radioactive materials at SEG. These guidelines provide the necessary requirements to satisfy SEG's radioactive materials license, Department of Transportation (DOT) requirements, SEG's radiological control program, SEG's Quality Assurance Program and the facility operations requirements. This is a General Guidance Procedure.

2. REFERENCES

2.1 SEG Radioactive Materials License number R-73008-E94.

2.2 Procedure HP-5.2 Q, Radiation Surveys.

2.3 Department of Transportation (DOT) Regulations, 49 CFR.

2.4 Nuclear Regulatory Commission (NRC) Regulations, 10 CFR 61.

2.5 Procedure HP-5.3 Q, Surface Contamination Measurement.

2.6 Procedure OP-4.10 Manifest Routing.

3. ENCLOSURES

3.1 Advance Notification Form

3.2 Manifest and Shipment Evaluation

4. RESPONSIBILITIES

4.1 All personnel involved in the receipt of radioactive material or with processing the documentation generated by such receipt are responsible to the Plant Manager and the Director of Regulatory & Technical Services for compliance with this procedure.

4.2 Management responsibilities as related to radioactive material receipt are as follows:

4.2.1 Production Manager. The CVRF Plant Manager and Plant Health Physics Supervisor report to the Production Manager. The Production Manager is responsible for receipt of radioactive materials in accordance with these guidelines.

4.2.2 Plant Manager. The Plant Manager reports to the Production Manager. He is responsible for the receipt, movement, processing and storage of radioactive materials received at SEG.

4.2.3 Director of Regulatory & Technical Services (RTS). The Director of Regulatory & Technical Services is responsible for interfacing with SEG customers to assist them in determining which radioactive materials are acceptable for receipt by SEG, advising customers concerning proper shipping and packaging methods and pre-approving radioactive material shipments prior to delivery at the CVRF.

4.2.4 Warehouse Foreman. The Warehouse Foreman is responsible to the Plant Manager for the unloading inspection and warehousing of radioactive materials.

4.2.5 Supervisor of Shipping and Receiving. The Supervisor of Shipping and Receiving is responsible for specific activities delineated in writing by the Director of Regulatory & Technical Services.

5. DEFINITIONS

None.

6. SAFETY PRECAUTIONS

6.1 Read and comply with the Radiation Work Permit (RWP) issued by the Health Physics Department for the receipt of radioactive material.

6.2 Ensure that proper eye, ear, face, head, and footwear is worn by all personnel receiving radioactive material consistent with the operational and environmental conditions present.

6.3 All injuries will be reported to the responsible supervisor immediately.

6.4 When opening the rear door of a trailer or Sea/Land container the potential exists that packages not properly braced may fall from the trailer or container.

6.5 Normally all radioactive materials packages will be handled by mechanical means to reduce exposures and injuries.

6.6 When working around forklifts and lifting gear, all individuals involved in the unloading should wear steel-toed footwear and be alert to the movement of the forklifts and other equipment.

6.7 When handling radioactive materials, individuals should be aware of the radiation dose rates expected to maintain exposures as low as reasonably achievable (ALARA).

6.8 Comply with all current safety precautions.

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7. DESCRIPTION

None.

8. PROCEDURE

8.1 Pre-receipt approval. To assure that radioactive materials shipped to SEG meet acceptance criteria and can be processed or subsequently buried, each shipment will be pre-approved by the Director of Regulatory & Technical Services or a designated individual. Pre-receipt approval criteria and requirements are as follows:

8.1.1 The shipper will provide SEG with sufficient shipment data via telephone or a copy of the shipment manifest for evaluation of the radioactive material.

8.1.2 The radioactive shipment will be reviewed to ascertain that license possession limits of reference 2.1 are not exceeded.

8.1.3 Waste form and physical descriptions will be reviewed to assure that the material is compatible with SEG processes, contract acceptance criteria, or can be shipped directly to a burial site without processing.

8.1.4 As a result of this review, the customer will be advised of materials that are not acceptable or other recommendations and pre-receipt approval given verbally.

8.1.5 Based on the customer supplied information and expected delivery date of the shipment, an Advance Notification Form (Enclosure 3.1) will be generated as directed by the Director of Regulatory & Technical Services and forwarded to the Warehouse Foreman, Plant Manager and others as necessary.

8.1.6 The Warehouse Foreman will review all Advance Notification forms daily, ensure that adequate space and personnel are available for receipt of the radioactive materials, and establish a manifest log for each incoming shipment.

8.2 Shipment receipt. Requirements for shipment receipt are as follows:

8.2.1 Transportation surveys, in accordance with Reference 2.2, will be performed and recorded on all transportation vehicles delivering

radioactive materials. The HP Technician or qualified individual performing the receipt survey shall sign and date the manifest acknowledging receipt. The manifest, accompanying documentation and receipt survey will be forwarded to the Director of Regulatory and Technical Services or other designated individual for review prior to unloading the shipment in accordance with reference 2.6.

8.2.2 Personnel, designated by the Director of Regulatory & Technical Services, will review the shipping papers to determine if the activities present in the shipment can be received without exceeding the license administrative possession limits for radioactive materials. These administrative limits are as follows:

a.	Mixed activation and fission products with atomic numbers 3 - 83 inclusive.	180 curies
b.	Hydrogen 3 (H-3)	300 curies
c.	Carbon 14 (C-14)	100 curies
d.	Radium 226 (Ra-226)	5 curies (or 5 grams)
e.	Thorium 232 (Th-232)	10 curie
f.	Uranium 238 (U-238)	100 curies
g.	Uranium 233 (U-233)	200 grams*
h.	Uranium 235 (U-235)	350 grams*
i.	Plutonium (Pu)	200 grams*
j.	Americium 241 (Am-241)	225 curies
k.	Transuranic other than those above.	1 curie
l.	Radioactive materials with atomic numbers 84-91	1 curie
m.	Polonium 210 (Po-210)	10 curies

n. Uranium (other that U-233 and U-235) 1 curie 6055

* For each kind of special nuclear material, determine the ratio between the quantity of that special nuclear material and the quantity specified here for the same kind of special nuclear material. The sums of such ratios for all kinds of special nuclear material in combination shall not exceed "1" (i.e., unity).

NOTE

If any of the above administrative limits are exceeded, inform the Plant Manager, Corporate Radiation Safety Officer, Director of Regulatory and Technical Services and do not accept the shipment.

8.2.3 The shipping papers will be reviewed by the Director of Regulatory and Technical Services or other designated individual to determine to the extent practicable:

a. That all generators have current burial permits, transport permits, and generator numbers as appropriate.

b. Expected package radiation dose rates.

c. Types of containers and expected weights.

d. Presence of a Bill of Lading, shipment manifest, and "exclusive use" paperwork, if needed.

e. Packages exceeding DOT Type A package limits in Section 173.435 of Reference 2.3.

f. Packages exceeding NRC Class A concentration limits in Section 61.55 of Reference 2.4.

g. Waste forms are appropriate for receipt and processing.

8.2.4 If any discrepancies are identified in the shipping paper review, receiving inspection, or surveys, immediately record the discrepancy on the "Manifest and Shipment Evaluation" (Enclosure 3.2) and contact the Plant Manager

and Plant Health Physics Supervisor (HP Supervisor). Do not accept or unload the shipment until the discrepancies are resolved.

8.2.5 A copy of the manifest for the incoming shipment will be provided to the Plant Manager after receipt.

8.3 Shipment unloading and inspection. Proper unloading and subsequent handling of radioactive materials is critical to the proper operation of the facility. Each individual involved with these tasks is a key part of the programs to control radioactive materials, radiation exposure, and the quality of the product produced at SEG. In performing this key role, each individual must continually consider the effects of his or her actions on their exposure when handling radioactive materials. In addition, each time the material is handled, the quality of the packaging, marking, and overall product should be evaluated as part of the handling process. This section outlines requirements and guidance necessary when unloading radioactive materials.

8.3.1 Shipment Inspection. During the unloading of the shipment, each package will be inspected, surveyed, and inventoried to determine that the radioactive materials are properly contained and acceptable for storage and processing. The following inspections, checks, and data collection will be performed:

a. Each package will be inspected for visible loss of contents and or damage which may indicate improper integrity. Packages found to have improper integrity will be overpacked, if necessary, and reported to the CVRF Plant Manager and Plant HP Supervisor. Record the discrepancy on Enclosure 3.2.

b. Each package will be weighed when unloaded, except for drums. Drums will be weighed just prior to compaction. The SEG weight for boxes will be recorded and forwarded with the manifest in accordance with Reference 2.6. The SEG box weight will be entered in the computerized waste data system.

c. Each package will be marked with a unique SEG inventory control number. This number will be added to the manifest for the corresponding package. In this fashion each package will be assigned an SEG number. Any discrepancies in the

delivered quantity of packages and the quantity reported in the manifest will be recorded on Enclosure 3.2.

d. Random contamination and radiation surveys will be conducted on packages in accordance with references 2.2 and 2.5. Contact radiation dose rates greater than two times those reported on the manifests will be noted on Enclosure 3.2. Removable contamination surveys indicating greater than 1000 dpm/100 cm^2 beta/gamma or 200 dpm/100 cm^2 alpha, will be reported on Enclosure 3.2 and reported to the Plant Manager and Plant HP Supervisor.

e. If the warehouse foreman has not been provided with contractually agreed package volume, he must determine the volume of each package and report discrepancies on enclosure 3.2. Standard package volumes and volume determination methods are as follows:

Package Size	(cubic volume feet)
05 gallon drum	0.85
30 gallon drum	4.0
52 gallon drum	7.1
55 gallon drum	7.5
79 gallon drum	10.8
85 gallon drum	11.3
89 gallon drum	12.1

Boxes. Measure all boxes. Include measurements of skids, external bracework, etc., in the total gross measurement of the box. In the case of bulging boxes, take the measurements at the bulge.

Cylinders. Base cylinder measurement on the maximum outside diameter and the maximum planar height.

Odd-shaped packages. Volume determinations for odd-shaped packages will normally be agreed upon in advance between the client and

SEG. Where no prior arrangements have been made, the warehouse foreman will make the volume determination based upon the closest geometrical form or combination of geometrical forms and the maximum dimensions for each part of the form.

8.3.2 If Enclosure 3.2 has been used to record any anomaly forward Enclosure 3.2 to the Director of Regulatory and Technical Services or designated individual.

8.3.3 Any discrepancies found after the initial receipt and inspection of the incoming material need not be listed on Enclosure 3.2. These discrepancies and corrective actions should be recorded and filed with the manifest. Discrepancies will normally be reported to the shipper if applicable.

8.3.4 Material Storage. The Warehouse Foreman will designate the storage location for each package.

8.4 Shipment documentation and acknowledgement. Guidelines for documentation and acknowledgement of shipments are as follows:

8.4.1 The shipping papers (Manifest, Bill of Lading, as applicable), Vehicle Receipt/Release Surveys, Package Contamination Surveys, and Enclosure 3.2 will be routed in accordance with Reference 2.6.

8.4.2 The Data Systems Input Clerk will input the manifest package data into the computerized data system. The manifest corrections in Enclosure 3.2 will be used to input corrections to the manifest data system.

8.4.3 The Administrative Assistant for Regulatory and Technical Services will prepare a Receipt Acknowledgement Letter using the shipment manifest and Enclosure 3.2. The receipt acknowledgement letter will be signed by the Directory of Regulatory and Technical Services or other designated individual.

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9. RECORDS

9.1 The following records will be retained, by customer, for each radioactive material shipment:

1. Advance Notification Form (Enclosure 3.1)

2. Manifest

3. Manifest and Shipment Evaluation, if applicable (Enclosure 3.2)

4. SEG Vehicle Receipt and Release Survey

5. Receipt Acknowledgement Letter.

6. SEG Box Weights

9.2 "Quality Records will be maintained in accordance with SEG/QA 17.1, Quality records Maintenance Program".

ENCLOSURE 3.1

ADVANCE NOTIFICATION FORM

I. Client _____ Manifest\Shipment No._____

Scheduled Date of Arrival _____ SEG Shipment Number_____

Carrier _____ **FLATBED** **VAN** **RAGTOP** **OTHER**_____

II. Package Types and Quantities

NUMBER	CONTAINER TYPE	ISOTOPE	ACTIVITY
_____	30 gallon drums	U-235	_____
_____	55 gallon drums	U-233	_____
_____	Metal bins(____ft.^{3})	U-238	_____
_____	Wood boxes(____ft.^{3})	Pu	_____
_____	20' Sealands	Am-241	_____
_____	40' Sealands	Ra	_____
_____	Other_____	Sr90	_____

Maximum on contact radiation level (mRem/hr) _____

Total activity_____ mci / Maximum container weight_____

--Drums and/or boxes in shipment? **YES** **NO**
--Is activity distributed by weight? **YES** **NO**
--If NO, is separate isotopic enclosed? **YES** **NO**
--Is waste incineratable? **YES** **NO**

III. Waste Types:

Asbestos_____
Ash_____
Atomizer_____
Bead Resin_____
Blasting Grit_____
Building Rubble_____
CaF_2 _____
Cloth_____
Concrete_____
Glass_____
HEPA Filters_____
Liquid Filters___: Are filters segregated? **YES** **NO**
Are separate isotopics enclosed? **YES** **NO**

Hot Particles_____
Mag. Fluoride_____
Metal_____
Oil-Soaked Rags_____
Paper_____
Plastic_____
Powdex Resin_____
Rubber_____
Soil/Sand_____
Wood_____
Class A_____B_____C____

C O M M E N T S

IV. Burial Site SC_____ NV_____ WA_____

Special Processing: _____

Date to be shipped/buried:_____ Mix with other compact generators? **YES** **NO**

Page 2: Not Applicable_____ Attached_____

_____ Prepared By

_____ Date

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ENCLOSURE 3.1 (CONT.)

ADVANCE NOTIFICATION

CLIENT_____

The individual taking the information shall ask the client if any of the following materials are present; if so, the material must be accepted by an authorized individual (Don Hartje or Walt Hipsher).

Indicate if Present:		Approval:
_____	Sources (4)	_____
_____	Oil (5)	_____
_____	Oily Material (e.g., rags) (5)	_____
_____	Liquids (e.g., mop head, bulk) (6)	_____
_____	Lead	_____
_____	Radium	_____
_____	Filters (not HEPA) (3, 8)	_____
_____	Class B or C (4)	_____
_____	Chelates	_____
_____	Resin (8)	_____

If the client has any of the above materials, the following will be completed.

1. Determine that SEG can process the material for receipt at the appropriate burial site.

2. Determine that pricing has been established with the client.

3. Filters (non-HEPA) cannot have greater than 0.2 micro mci/cc.

4. No Class B or C or sources accepted without approval of the Director of Regulatory and Technical Services.

5. Oil shipments must be accompanied by an analysis or certification showing that PCB's are <2 ppm, total organic halogens are <1000 ppm, no listed hazardous wastes are present and the material passes the EP Tox test.

6. Liquid (other than oil) shipments must be accompanied by a certification that the liquid contains no hazardous waste, has a ph >5 and <9, contains no organics and is not flammable.

7. Resin cannot have greater than 9.25 mci/cc activity.

8. Filters and resins must have a complete isotopic that identifies the isotopes and each isotope's activity and total filter volume.

9. After the acceptability of the material has been established, the individual accepting the material will discuss the acceptability with the client, any additional requirements, and initial above.

ENCLOSURE 3.2

Manifest and Shipment Evaluation (Page 2 of 2)

I. GENERATOR/BROKER MANIFEST NUMBER _____

DATE OF RECEIPT _____

II. (1) SHIPMENT EVALUATION ( ) NONE

A.

B.

C.

D.

E.

(2) SHIPMENT CORRECTIVE ACTIONS ( ) NONE

A.

B.

C.

D.

E.

Manifest and Shipment Evaluation (Page 2 of 2)

III. (1) MANIFEST EVALUATION ( ) NONE

A.

B.

C.

ENCLOSURE 3.2 (CONT.)

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D.

E.

(2) MANIFEST DATA INPUT CORRECTIONS ( ) NONE

A. ENTERED _____

B. ENTERED _____

C. ENTERED _____

D. ENTERED _____

E. ENTERED _____

IV. ACKNOWLEDGEMENT LETTER INPUT

A. Date Sent _____

B. Corrections Acknowledged _____

C. Follow-up Actions Required _____

DOCUMENT CHANGE NOTICE

DCN NO. 93-083 | Sht 1 of 8

Doc. Title DATA SYSTEMS WASTE TRACKING

Work Order No. | Doc. No. OP-4.3 | Old/New Rev. 0/1

#	Change Description	Change Justification	Known Impacts
1	REPLACE 2.3 BEATTY BURIAL FACILITY LICENSE ISSUED BY STATE OF NEVADA, LICENSE NUMBER 13-11-0043-02. WITH NEVADA TEST SITE DEFENSE WASTE ACCEPTANCE CRITERIA, CERTIFICATION AND TRANSFER REQUIREMENTS, NVO-325 (REV-1).	BEATTY NEVADA (USE) CLOSED. UPDATING PROCEDURES WITH CURRENT PRACTICES. UPDATING FOR NTS PROJECT.	
2	REPLACE 3.33 BEATTY CERTIFICATION (ENCLOSURE 3.33) WITH 3.33 NEVADA TEST SITE SHIPMENT CHECKLIST. (NEW ENCLOSURE)		
4	BURIAL GROUNDS; DELETE BEATTY SITE ADD NEVADA TEST SITE AND HANFORD SITE. Page 7.		
5	US ECOLOGY GENERATOR NUMBER; Page 16. DELETE BEATTY, NEVADA		UNCONTROLLED COPY FOR INFORMATION ONLY

Originator (print name):

This is a:

☐ Pending DCN (no sig. rq'd)

☒ Open DCN - when signed at the right, use this DCN as an interim Rev. ___ of this document until Rev. ___ is issued.

Sign and date (only for Open DCNs)

Preparer [signature] 04/15/93

Checker [signature] 04/15/93

Mgr [signature] 4/15/93

QA (if rq'd) [signature] 4/15/93

H&S (if rq'd) N/A

ENCLOSURE 3.33

SCIENTIFIC ECOLOGY GROUP, INC.
1560 Bear Creek Rd.
Oak Ridge, TN 37831-2530
(615) 481-0222

NEVADA TEST SITE SHIPMENT CHECKLIST

SHIPMENT # _____

_____ A. Enclosure 2 - Vehicle Release Survey

_____ B. Enclosure 3.5 - Shipment release Checklist

_____ C. Enclosure 4 - Exclusive Use Instructions

_____ D. Enclosure 7 - In-Route Shipment Checklist

_____ E. Enclosure 8 - Emergency response Procedure

_____ F. Package Survey Form

_____ G. Package Leak Test

_____ H. Driver's Checklist

_____ I. Straight Bill of Lading - Short Form (Original & 1 Copy)

_____ J. Package Storage & Disposal Data

_____ K. Manifest

_____ L. R.Q. Report

_____ M. Hazardous Waste Certification

_____ N. Abbreviation List

_____ O. DOE / NRC Form 741

_____ P. Nevada Highway Patrol Notification

_____ Q. Routing Map

DOCUMENT CHANGE NOTICE

DCN NO. 98-083

Sht 3 of 8

Doc. Title DATA SYSTEMS WASTE TRACKING

Work Order No.

Doc. No. OP-4.3

Old/New Rev. 0/1

#	Change Description	Change Justification	Known Impacts
6	UPDATE RADIOACTIVE MATERIAL SHIPMENT RELEASE CHECKLIST WITH THE ATTACHED REVISED CHECKLIST (4PAGES). ENCLOSURE 3.24	BEATTY NEVADA (USE) CLOSED. UPDATING PROCEDURES WITH CURRENT PRACTICES. UPDATING FOR NTS PROJECT.	
7	REPLACE PAGE 59 VOID SHEET WITH THE ATTACHED VOID SHEET (ENCLOSURE 3.10)		

Originator (print name):

This is a:

☐ Pending DCN (no sig. rq'd)

☒ Open DCN - when signed at the right, use this DCN as an interim Rev. ___ of this document until Rev. ___ is issued.

Sign and date (only for Open DCNs)

Preparer Denisa Bice 04/15/93

Checker J. Joan Huffman 04/15/93

Mgr J.E. Hess 4/15/93

QA (if rq'd) L.D. Campbell 4/15/93

H&S (if rq'd) N/A

ENCLOSURE 3.24

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RADIOACTIVE MATERIAL SHIPMENT RELEASE CHECKLIST

Shipment Number_____ Shipment Date:_____

Consignee:_____

I. PACKAGE CHECKLIST INITIALS

1. Packages are closed properly by use of clips, welds, rivets, self-tapping, screws or bolted, locking rings as appropriate. _____

2. Vent caps if utilized are secure, caulked and the fibrous membrane is intact. _____

3. Packages do not show evidence of leakage or damage which could affect integrity. _____

4. Each package is marked "RADIOACTIVE-LSA", two opposite sides for bins, one marking for drums. _____

5. Each package consigned to the Richland, Washington burial facility is marked "CLASS A-UNSTABLE" within six inches of the "RADIOACTIVE-LSA" marking(s). _____

6. Each package consigned to the Barnwell S. C. burial facility is marked "CLASS A-UNSTABLE" on top of the package. _____

7. Each package gross weight is clearly marked on the bins, optional for drums. **Note: All packages shipped to the Nevada Test Site must have their weights in pounds and kilo-grams clearly marked on the package.** _____

8. The color of the markings contrast with the marking background. _____

9. The unique SEG bar code identification number is on each package and corresponds with the manifest. _____

10. Package surveys indicate that less than 1000 dpm/100 cm beta/gamma and/or less than 20 dpm/100 cm alpha removable contamination is present. _____

11. All packages are less than 1000 mrem/hr dose rate. **Note: Nevada Test Site packages must be less than 200 mrem/hr dose rate.** _____

ENCLOSURE 3.24

12. All Nevada Test Site packages have a completed packaging certification (NV-211). _____

II. VEHICLE CHECKLIST — INITIALS

1. If any package has a dose rate of 200 mrem/hr or greater a closed vehicle is required. _____

2. Placards attached to vehicle such that one is visible from the front of the tractor, each side of the trailer and back of the trailer. _____

3. Extra placards provided to driver if placards applied that are not permanent. _____

4. Packages loaded to evenly distribute load on axles as prescribed by driver. _____

5. Load braced as to prevent shifting and reviewed by driver as adequate. _____

6. The vehicle radiation survey indicates that the maximum dose rate does not exceed: _____

   Vehicle on contact of 200 mrem/hr

   Two meter reading of 10 mrem/hr

   Cab (sleeper if equipped) 2 mrem/hr

7. For Nevada Test Site shipments, the van has been sealed with a "seal" with a unique number or SEG symbol. _____

III. DRIVER CHECKLIST — INITIALS

1. The driver has been instructed concerning the radioactive material shipment, the "exclusive use" requirements and signed the "exclusive use" instructions. _____

2. The "vehicle condition checklist" has been completed by the driver and all unsatisfactory conditions corrected. _____

3. The driver has signed the "Bill of Lading". _____

4. Driver has signed the shipment certification. _____

ENCLOSURE 3.24

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5. As appropriate, the following documents have been included with the shipping papers and provided to the driver: (mark appropriate listing):

a. Shipment to the Richland, Washington Burial Facility

_____US Ecology "Radioactive Waste Shipment and Disposal Manifest"
_____Generator Breakdown
_____Bill of Lading
_____Exclusive Use Instructions
_____DSHS LLRW Shipment Certification
_____Vehicle Release Survey
_____Volume by Generator Breakdown
_____RQ List
_____Emergency Response Procedures
_____Volume Allocation Authorizations
_____741 Form
_____Emergency Procedures
_____Other (specify)_____

b. Shipment to the Nevada Test Site Burial Facility

_____Radioactive Waste Shipment Manifest
_____Bill of Lading
_____Exclusive Use Instructions
_____Hazardous Waste Certification
_____LLRW Shipment Certification
_____Vehicle Release Survey
_____741 Form
_____Emergency Procedures
_____RQ List
_____Other (specify)_____

c. Shipment to the Barnwell, S. C. Burial Facility

_____CNSI Radioactive Shipment Manifest Form
_____Generator Breakdown
_____Bill of Lading
_____Exclusive Use Instructions
_____Radioactive Waste Shipment Certification Form (DHEC 803)
_____Radioactive Waste Shipment Prior Notification Form (DHEC 802)
_____Isotopic Analysis for Filters and Resins
_____Vehicle Release Survey
_____Volume Allocation Authorizations
_____741 Form

ENCLOSURE 3.24

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_____Emergency Procedures
_____RQ List
_____Other (specify)_____

IV. CONSIGNEE LICENSE VERIFICATION AND SHIPMENT NOTIFICATION

		INITIALS
1.	Confirm that consignee license is in the possession of SEG and receipt of the isotopes, activities and forms are compatible with that license.	_____
2.	For shipments to the Barnwell, S. C. Burial Facility, DHEC and CNSI shall be notified just prior to release of the shipment of any changes in the Prior Notification Form (DHEC 802).	_____
3.	For shipments to the Richland, Washington Burial Facility the appropriate facility will be contacted at release of the shipment and informed of the expected arrival date.	_____
.	For shipments to the Nevada Test Site, REECo will be contacted with the appropriate shipment information.	_____
5.	A copy of the shipment manifest has been mailed to the appropriate burial facility.	_____

Completed By_____

Date_____

Reviewed By_____

Date _____

6055

NUMBER: OP-4.3
TITLE: DATA SYSTEMS WASTE TRACKING

REVISION: 0.0
DATE: 12-11-89

Enclosure 3.10

VOID SHEET

Name:_____ Date:_____ Shift:_____

Overpack	Vd	Wt	mR	Op Size	Contents Verified	Absorbent Added	Overpack Closure	Com.

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DOCUMENT CHANGE NOTICE

DCN NO. 93-191 | Sht 1 of 2

Doc. Title Data Systems Waste Tracking

Work Order No. | Doc. No. OP-4.3 | Old/New Rev. C/1

#	Change Description	Change Justification	Known Impacts
1	Discard last page of DCN 93-083, void sheet. Replace Enclosure 3.10 Void Sheet with newly revised Void Sheet.	Revised Enclosure 3.10 Void Sheet.	

Originator (print name):

This is a:

☐ Pending DCN (no sig. rq'd)

☒ Open DCN - when signed at the right, use this DCN as an interim Rev. ___ of this document until Rev. ___ is issued.

Sign and date (only for Open DCNs)

Preparer Teresa Bee 04/22/93

Checker J. Joey Huffman 4/22/93

Mgr J. E. Hess 4/22/93

QA (if rq'd) Larry W. Harris 4/23/93

H&S (if rq'd) _____ _____

TITLE: DATA SYSTEMS WASTE TRACKING REVISION: 0.0

6055

Enclosure 3.10

VOID SHEET

(EXAMPLE)

Name:_____ Date:_____ Shift:_____

Overpack	Vd	Wt	mR	Op Size	Contents Verified	Absorbent Added	Overpack Closure	Com.

Scientific Ecology Group, Inc.	Check One ( ) Plan (X) DWP
	Number OP-4.3
Title: DATA SYSTEMS WASTE TRACKING	Rev. Number Date 0 12-11-89
	Effective Date 12-13-89
	Site SEG
	Page 1 of 102

Submitted By: Deborah Steffey Date 12-12-89

Review Complete: Paula D. Yarborough Date 12-13-89

Approved By: Donald E. Shuma Date 12/13/89

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FOR INFORMATION ONLY

PROCEDURE CHANGE RECORD

TITLE: DATA SYSTEMS WASTE TRACKING

PROCEDURE NUMBER: OP-4.3

REVISION NUMBER: 0

EFFECTIVE DATE: 12-13-89

PARAGRAPH AND PAGE AFFECTED	DATE ENTERED	SIGNATURE
NEW PROCEDURE	12-11-89	B. Yarborough

1. PURPOSE

This procedure provides guidance for the tracking of all radioactive material from receipt, through processing and to final disposition which includes: data entry of all received radioactive waste shipments, and generation of shipment paperwork for radioactive waste shipments to a low-level radioactive waste (LLRW) burial facility.

2. REFERENCES

2.1 Barnwell Burial Facility License issued by the state of South Carolina, license number 097 and license number 12-13536-01 issued by the Nuclear Regulatory Commission (NRC).

2.2 Richland Burial Facility License issued by the state of Washington, license number WN-I019-2 and license number 16-19204-01 issued by the NRC.

2.3 Beatty Burial Facility License issued by the state of Nevada, license number 13-11-0043-02.

2.4 Nuclear Regulatory Commission (NRC) Regulations 10CFR61.

2.5 Chem-Nuclear Systems, Inc. (CNSI) "Site Disposal Criteria", Document No. S20-AD-010.

2.6 US Ecology "Radioactive Waste Shipment and Disposal Manifest".

2.7 CNSI "Radioactive Shipment Manifest Form", No. CNS/SEG-01.

2.8 SEG Procedure OP-4.17, Container Volume Calculations.

2.9 SEG Procedure OP-4.4, Radioactive Material Shipment.

2.10 SEG Procedure OP-4.2, Radioactive Material Receipt.

2.11 SEG Procedure OP-4.10, Manifest Routing.

2.12 SEG Data Systems Guidance Handbook.

2.13 SEG Procedure OP-2.23Q Oil Burning

3. ENCLOSURE

3.1 Activity Inventory

3.2 Box Overpack Material Transfer

3.3 Drum Overpack Material Transfer

3.4 Material Transfer for Sea/Land

3.5 Manifest Distribution Form

3.6 Box Shred/Sort Transaction

3.7 Production Report

3.8 Grit Report

3.9 Weight Sheet

3.10 Void Sheet

3.11 Daily Overpack Log

3.12 Sealand Contents Form

3.13 Grit Material Transfer Form

3.14 Receipt Manifest Checklist

3.15 Standard Container Volumes Memo

3.16 Percentage Breakdown for Radionuclides

3.17 Manifest Log

3.18 Daily Processing Overpack

3.19 Cement Material Transfer

3.20 SEG Isotopic Analysis

3.21 Package Survey Form.

3.22 Package Test Form.

3.23 Shipment Survey Form (Empty and Full).

3.24 Radioactive Material Shipment Release Checklist.

3.25 Scheduled Shipments Report

3.26 DHEC 802 "Prior Notification".

3.27 CNSI "Radioactive Shipment Manifest Form", No. CNS/SEG-01.

3.28 US Ecology "Radioactive Waste Shipment and Disposal Manifest".

3.29 Manifest Breakdown.

3.30 Outgoing Isotopic Analysis

3.31 Radioactive Material Shipment Exclusive Use Instructions.

3.32 DHEC 803 "Radioactive Waste Shipment Certification Form".

3.33 Beatty Certification

3.34 Richland Certification

3.35 Final In-Route Shipment Inspection Check List.

3.36 Driver's Checklist for Barnwell

3.37 Bill of Lading.

3.38 Shipment Log

3.39 Volume Allocation Log

3.40 Advance Notification Form

3.41 Manifest & Shipment Evaluation Form

4. RESPONSIBILITIES

4.1 Manager of Data Systems is responsible for assuring all incoming and outgoing shipment records and waste accountability through various SEG processes is accomplished in accordance with this procedure.

4.2 Data Systems Personnel are responsible for data entry and tracking of all incoming and outgoing shipments.

4.3 The Supervisor of Data Systems Shipping is responsible for;
-Reviewing all Outgoing Radioactive Waste Shipment Paperwork;
-Scheduling all SEG processed radioactive waste shipments for burial;
-Reporting the Buried Waste quarterly;
-Creating and maintaining files for all outgoing Radioactive Waste Shipments;
-Data Entry into Revelations and WMG Manifest Printing for all outgoing shipments;
-Notifying the Manager of Data Systems when outgoing shipments have any discrepancies;

4.4 Supervisor of Data Systems Receiving is responsible for:
-Reviewing all Received Radioactive Waste Shipment Paperwork;
-Creating and maintaining files for all received Radioactive Waste Shipments;
-Data Entry into Revelations of all received radioactive material;
-Maintain the Activity Inventory (Enclosure 3.1);
-Notifying the Manager of Data Systems when material is received without sufficient activity or description information or without valid burial permits;
-Providing monthly reports to customers, notifying them of the status of their material at SEG;

4.5 Supervisor of Data Systems Control Room is responsible for:
-Analysis of all plant processing records;
-Data Entry of daily processing records;
-Data Entry of SEG generated waste;
-Data Entry of waste and liquid analysis;
-Creating of daily overpack material transfer sheets (Enclosure 3.2 and 3.3), sealand distribution forms (Enclosure 3.4), manifest distribution form (Enclosure 3.5), and box shred/sort transactions (Enclosure 3.6);
-Data Entry of all cement;
-Production Report (Enclosure 3.7) weekly;
-Grit Report (Enclosure 3.8) weekly;

5. <u>DEFINITIONS</u>

Activity: See LSA (Low Specific Activity).

Activity Inventory:	A list of all radionuclides, broken down into SEG's license categories,and the number of millicuries of each, that is on site. This report is furnished on a weekly basis and used to ensure that SEG personnel only receive shipments of radioactive material that are within our license limits.
Barcode:	Is a SEG unique number assigned by SEG personnel to all packages received and/or created at SEG.
Broker:	At SEG, an individual, or company, that collects radioactive waste from multiple generators and then consolidates it into one shipment to SEG. In this case, the broker is the customer, but not the generator, of the material shipped to SEG.
Burial Grounds:	Areas designated for storage of packaged radioactive wastes. The three commercial burial sites used by SEG are Barnwell, South Carolina, Beatty, Nevada, and Richland, Washington.
Buried Waste:	Entry of cuft., activity, and date shipped for a given shipment by generator, this information is used for the buried waste reports.
Complete Overpack Log:	Log in which all complete overpack material transfer sheets are kept.

Customer:	At SEG, the person, or company that sends radioactive material to SEG. This may, or may not, be the generator of the material.
Curie (Ci):	A unit used in measuring radioactivity. A curie is equivalent to 2.2 trillion (10E+12) radioactive desintegrations per minute (DPM).
CVRF:	Central Volume Reduction Facility.
D-Box:	Daughter Box. A container of material that is created when one package is emptied into another container or several containers. This occurs when material is processed through the shredder or when a sealand container is emptied.
Daily Overpack Log:	The following information is logged for all compacted material for Innerpacks on line: Customer Name, Manifest Number, Innerpacks Numbers, mR/Hr, Weight of Innerpacks. Overpack Information: Overpack Number, Top Hat Height if Box, Innerpack Number, Innerpack Customer Name, Innerpack Manifest Number, Innerpack Weight, Innerpack Height, Innerpack mR/Hr, Overpack at Scale, Overpack Void Inches, Overpack Final Weight, Overpack mR/Hr, Comments.
Daily Processing Overpack Report:	Report for all Overpacks entered into Revelations Pressing File.

DAW:	Dry Active Waste, a generic term used to describe much of the material received at SEG.
Disintegration:	The transformation of the nucleus of an atom from one element to another, characterized by a definite half-life and the emission of particles or radiation.
Disposal:	The disposition of materials.
DPM:	Disintegrations Per Minute. The number of nuclear transformations occurring per minute that result in radiation.
Generator:	Any person, or group of persons, whose act or process produces radioactive waste.
Generator Break Down:	A report of the volume in ft^3 and activity in mCi per generator on a given shipment.
Grit:	Term used to describe radioactive material that is used to fill void spaces in overpack containers. This material can be made up of sandblasting residue, soil, shredded plastic or metal, or any other dry flowable substance.
Grit Report:	A weekly report of the grit process with date processed, customer name, manifest number, grit weight, grit volume, and comments.
Half-Life, Radioactive:	The time in which half the atoms of a particular radioactive substance

	disintegrate to another nuclear form. Each radionuclide has a unique half-life. Measured half-lives vary for different nuclides range from millionths of a second to billions of years.
Innerpack:	A container, complete in itself, that is placed within an outer container(called an overpack).
Isotope:	Any one of the different types of an element. An isotope may or may not be radioactive. See nuclide and radionuclides.
Isotope Break Down:	A report of volume in ft^3 and activity in mCi per generator by isotope on a given shipment.
Isotopic Analysis:	A report of the nuclide content of a sampled package usually reported by radionuclide in units of Microcurie (µCi) per Cubic Centimeter (cc).
License:	The radioactive materials license issued by the State of Tennessee authorizing SEG to process and handle radioactive material.
Licensed Material:	Nuclear source material, special nuclear material, or nuclear by-product material received, possessed, used, or transferred under a licence issued by the Nuclear Regulatory Commission.
Log Report:	Hard copy of customer/manifest break down by shipment.

LSA:	Low Specific Activity. Material in which the activity is uniformly distributed and in which the estimated average concentration does not exceed specified limits.
Manifest Break Down:	A report of activity in millicuries (mCi) and volume in cubic feet (ft^3) by manifest number.
Manifest Summary:	A summary of all received manifest and includes Manifest Number, Customer Number, Date Received, Total Containers, Total Volume, Total Weight, Total Activity, Total SNM, Total SM, Manifest Notes, Customer Name Density, Total Volume Buried, Total Activity Buried, Site, Date Complete, Estimate to Process, Estimate to Bury, Salvage/Decon, Salvage/Decon Activity, Shipment Number, Date Shipped, Volume Buried, Activity Buried, SNM Buried, SM Buried.
Microcurie (uCi):	A unit used to measure radioactivity. A microcurie (uCi) is 2.2 million (10E+06) radioactive DPM. One microcurie = 0.001 millicurie.
Millicurie (mCi):	A unit used to measure radioactivity. A millicurie (mCi) is 2.2 billion (10E+09) radioactive DPM. One millicurie = 0.001 Curie.
NRC:	Nuclear Regulatory Commission.
Nuclide:	Any one of the approximately 1800 isotopes of all the

	elements, whether radioactive or not. See radionuclide and isotope.
Nuclide/OP Report:	A report of activity in mCi per isotope and volume in ft^3 for each overpack.
Overpack:	Secondary or additional external containment or cushioning for packaged materials. At SEG, the outer box or drum that contains the processed material.
Overpack Generator Report:	A report of activity in mCi per isotope and volume in ft^3 by generator for each overpack.
Overpack Material Transfer Forms:	Documentation of innerpack barcodes, compacted height, innerpack inches for a given overpack.
Overpack Report:	Print out of the following information - customer number, manifest number, waste description, weight, compacted height, volume in ft^3, nuclides, activity in mCi, special nuclear material (grams), source material (pounds) by innerpack barcode. The overpack weight and volume is listed also.
"P" (Parent) Container:	A container of waste, usually received directly from the customer, that will go through various methods of processing, then be placed in one, or several, innerpacks.
Package:	The packaging plus the contents of radioactive material.

Packaging:	The assembly of radioactive material in one or many containers and other components necessary to assure compliance with prescribed regulations. At SEG, the innerpack and overpack containers.
Pressing File	Data Entry on a given Innerpack: Barcode, Innerpack Weight, Innerpack Compacted Height, Overpack Number, Void Space of Overpack, Overpack Weight, Overpack Volume, Overpack Date, Notes, Burial Site, Innerpack Volume.
Production Report:	A report of the number of drums and/or boxes compacted, number of sealands and/or parents emptied and number of D-Boxes filled per hour.
Quality Assurance:	The systemic actions necessary to provide adequate confidence that a material , component, system, process, or facility performs satisfactorily, or as planned, in service.
Radiation:	The energy propagated through space or through a material medium. For example, energy in the form of alpha, beta, and gamma emissions from radioactive nuclei.
RAM (Radioactive Material):	Any solid, liquid, or gas that spontaneously gives off ionizing radiation, and has a specific activity greater than 0.002 microcuries per gram.
Radionuclide:	Any one of the radioactive nuclides.

Regulations:	Any of the states or federal requirements which are applicable to SEG.
Regulatory Guides:	Guides issued by the NRC, to describe and make available, methods acceptable to the NRC, for implementing specific parts of the NRC regulations.
RSO (Radiation Safety Officer):	The health physicist in charge of radiation safety at SEG. Wherever reference is made to the RSO, the phrase "or qualified designee" is implicitly implied.
SEG Waste:	Radioactive material generated by SEG while processing radioactive material of others.
Select Shipment:	A computer process allowing selection of overpacks for a shipment. It marks overpacks with status of loaded (L) or shipped (S).
Shielding:	Any material used to stop radiation. Alpha radiation is usually stopped by the outer dead layers of skin of a few inches of air. A piece of paper or a few tens of feet of air will stop most beta radiation. Depending on the energy of gamma radiation, several inches of any heavy metal such as lead or several feet of less dense material such as water or concrete can effectively stop most gamma rays.
Shipment Log:	Log of all outgoing shipments by customer name by manifest.

Shipping File:	Directory in Revelations, contains the following: Select Shipment, Manifest Break Down, Overpack Generator Report, Nuclide/OP Report, Volume Report, Log Report, Overpack Report, Generator Break Down, Isotope Break Down, TMI Nuclide/OP Report, Shipping Log, Waste Description Shipped.
Shipping Log:	A computer program for entru of shipment by manifest. Data is entered after the shipment has been released and is placed into Manifest Summary File.
Site Use Number:	A burial permit number, issued by the state of Washington, which must be obtained by a processor or generator of radioactive waste that is to be buried at the Richland, Washington burial site. This permit number expires one year from date of issue.
Solidification:	Conversion of radioactive gases or liquids to dry, stable solids.
Source Material(SM):	Uranium 238, 234, thorium, and any other material as defined in 10 CFR 51 by the NRC.
Special Nuclear Material (SNM):	Plutonium, uranium enriched in the isotopes 233 or 235, and any other material as defined in 10 CFR 51 by the NRC.
Sum of Fractions Rule:	A classification method of wastes with more than one radionuclide. It is necessary to determine the sum of

	fractions by dividing each nuclides activity or concentration, as appropriate, by the appropriate limit and adding the resulting values. The sum of fractions must be no greater than 1.0 in order to satisfy the classification limit being checked. Also called the Unity Equation.
TMI Nuclide/OP Report:	A report of volume in ft^3 and activity in mCi per isotope, percentage break down for class.
Transport Permit Number:	A permit number, issued by the state of South Carolina, which must be obtained by a processor or generator of radioactive material that will be transported into or within the state of South Carolina. The processor or generator of any waste material that is to be buried at Barnwell, South Carolina must obtain this permit so that their waste can be transported to the burial site. This permit expires at the end of each calendar year.
Unity Equation:	See Sum of Fractions Rule.
US Ecology Generator	NAmberidentification number, issued by US Ecology, which must be obtained by a Processor or Generator of radioactive waste that will be disposed of at either of the burial sites operated by US Ecology (Beatty, Nevada or Richland, Washington).
Volume Allocation Log:	File in which all power plant volumes shipped are logged.

Volume Report:	Break down of volume in ft^3 by generator for a shipment.
Waste Description Shipped:	Waste stream entry of material shipped, i.e.. DAW, asbestos, overfill, resin. Data sorted per generator manifest; stored in Manifest Summary File.

6. SAFETY PRECAUTIONS

None

7. DESCRIPTION

None

8. PROCEDURE

8.1 DATA SYSTEMS CONTROL ROOM

8.1.1 The following information is given to the Control Room Clerk by Operation Personnel on a Weight Sheet (Enclosure 3.9):

A. Customer Name and Manifest Number
B. Date
C. Innerpack Barcodes on Line
D. Weight of Innerpack
E. For Box Innerpacks the mR/hr reading is listed

8.1.2 The following information is given to the Control Room Clerk by two way radio:

A. Overpack Barcode
B. Overpack Size and Type
C. Innerpack Barcodes
D. Innerpack Heights in inches by half inch increments
E. Void Space
F. Top Hat information if the Overpack is a Box

8.1.3 Void Sheets (Enclosure 3.10) are provided to the Control Room Clerk by Operation Personnel with the following information:

A. Overpack Number
B. Size of Container
C. Overpack Weight
D. Overpack Dose mR/hr
E. Void Space
F. Top Hat inches if Box
G. Comments

8.1.4 The Control Room Clerk will then log the information from the weight sheet and void sheet (Enclosure 3.9 and 3.10) into the Daily Overpack Log (Enclosure 3.11) and on the Overpack Material Transfer Sheets (Enclosure 3.2 or 3.3).

8.1.5 As parent boxes are processed through the shredder, The following information is provided to the Control Room Clerk by two way radio:

A. Parent Barcode
B. Parent Full and Empty Weight
C. Innerpack Barcode that receive material from this parent
D. Innerpack Full and Empty Weights
E. Description of Material in each Innerpack

8.1.6 The Control Room Clerk then confirms that all waste weight is accounted for.

8.1.7 Sealand containers are emptied in the Sealand Room. The following information is provided to the Control Room Clerk on a Sealand Contents Form (Enclosure 3.12):

A. Parent Barcode
B. Parent Full and Empty Weight
C. Innerpack Barcode that receive material from this parent
D. Innerpack Full and Empty Weight
E. Description of Material in each Innerpack

8.1.8 The Control Room Clerk will then log the information on either the Manifest Distribution Form (Enclosure 3.5) or Material Transfer for Sea/Land (Enclosure 3.4), and the Box Shred/Sort Sheet Forms (Enclosure 3.6).

8.1.9 If overfill material is added to a container the information is given to the Control Room Clerk and is recorded on the Grit Material Transfer Form (Enclosure 3.13).

8.2 DATA SYSTEM RECEIVING

8.2.1 All original barcoded manifests will be delivered to the Manager of Data Systems (Reference OP-4.10).

8.2.2 A pre-entry review of the manifest will be done by the manager of data systems or a data systems supervisor. This review is to ensure that the correct manifest number is being used in the data base to identify the shipment and that all necessary information has been provided by the generator for data entry. The following information is verified on the Receipt Manifest Checklist (Enclosure 3.14):

-Manifest Number, Volume, Activity, Source Material, Special Nuclear Material, Date Received, Customer Name on Customer Manifest are compared with Manifest Summary Printout;
-Unit of Activity (Curies, Millicuries, Other);
-Percent Abundance Breakdown, if applicable;
-Any information on Chelates;
-The presence of Radium in the material if any;
-Description of required special processing or tracking;
-Liquid analysis when applicable.

8.2.3 After review, the manifest is given to a Data Systems Receiving Clerk who enters he manifest into Revelations per barcode.

8.2.4 Manifest entry is done in SEG Waste Tracking under the Manifest Menu in Detailed Manifest Entry. Once in the Detailed Manifest Entry screen, the user is given the option of Detailed (D) or Percent (P) Package Nuclide Break Down.

8.2.4.A If the package activity has been provided in millicuries per radionuclide, the (D) option is selected.

8.2.4.B If the package activity has been provided as the total number of millicuries with a list of the radionuclides

and what percentage of the total each represents, the (P) option is selected.

8.2.5 The Data Entry Screen below shows the information entered for each package.

BARCODE_____ DESCRIPTION_____

ITEM.NO_____
WEIGHT_____
CONT.VOL_____ RN_____ ACT_____
GEN.NO_____
MAN.NO_____
DATE.REC
CUST.NAME
MAN.NOTES
MAN.SITE

SUM.ACT

NOTES_____
SITE_____ (Enter Site if this barcode must be different from MAN.SITE)

A. BARCODE: SEG identification number placed on customers manifest when shipment is unloaded.
B. ITEM.NO: Identification number assigned by the customer for each package.
C. WEIGHT: Customer weight listed on manifest for drums; SEG weight, listed on weight sheet, if package is a box or a sealand container.
D. CONT.VOL: Package volume. Reference Standard Container Volumes, LA/kp MEMO-89-12 (Enclosure 3.15).
E. GEN.NO: SEG assigned number for generator(s) of the package.
F. MAN.NO: Manifest Number the package was received with.
G. DATE.REC, CUST.NAME, MAN.NOTES, MAN.SITE: No data entry necessary; (These fields are fed from the Manifest Summary file when the MAN.NO is entered).
H. NOTES: Any specific instructions for processing or activity distribution for this package.
I. SITE: Burial Site for this package if the man.site is mixed.
J. DESCRIPTION: Physical description of the material in the package.

K. RN: Radionuclides in the package.
L. ACT: Activity in millicuries per radionuclide.
M. SUM.ACT: Total millicuries (calculated).

8.2.5.A If the Activity has been provided per radionuclide, this information is entered directly from the manifest. F9 (save).

8.2.5.B If the Activity has been provided as a total, with the radionuclides and their percents, you must first ensure that 100% of the activity has been accounted for. To do so, add the percents supplied by the generator. If they equal less than 100, subtract that number from 100. Multiply this difference by each of the provided percents. Add each product to the original percents, adjusting when necessary, until your percents total 100.

Next, enter the radionuclides with their percents and the total activity for the package. (Print the screen showing all of the radionuclides and percentages for QC purposes). F9 (save), and the computer will calculate the number of millicuries per radionuclide. (See Enclosure 3.16.)

8.2.6 When a received shipment will not be unloaded immediately, a copy of the unbarcoded manifest is provided to Data Systems for manual entry into the activity inventory file.

8.2.7 Processing Records,or daily work, created by Data Systems Control Room Clerks will be turned over to the Receiving Supervisor of Data Systems at the end of each shift.

8.2.8 The Daily Work is sorted into various categories, based on the type of processing report that it is, then sorted by Manifest within each category.

8.2.9 Prior to Data Entry, the Manifest Log (Enclosure 3.17) must be checked to ensure that the processed manifest and any prior processing for that manifest has been entered into Revelations and QC'd.

8.2.10 Data Entry of the Processing Records is done in SEG Waste Tracking in Process Entry under the following categories;

8.2.11 Sealand Distribution Forms (Enclosure 3.4) and Manifest Distribution Forms (Enclosure 3.5) are entered in the **Daughter Bk Dn** Data Entry screen shown below.

PARENT BARCODE_____ PARENT DESCRIPTIONS

OP.NO STOP if OP.NO is Present!

WASTE WT_____

DGT BARCODE DGT WST WT BOX VOL DESCRIPTION

A. PARENT BARCODE: Barcode of the package (parent) that is emptied to create the new packages (daughters).
B. PARENT DESCRIPTIONS: A list of the contents in the package, as reported by the customer, for comparison to what the shredder operator, or other SEG personnel emptying the package, identifies as the contents.
C. OP.NO: (Stop if OP.No is present) An aid designed to alert the user if this barcode has already been placed into an overpack. If an overpack number appears on the screen, no data entry may be done with this package until a Data Systems Supervisor approves it.
D. WASTE WT: The weight of the waste that was removed from the parent container and placed into the newly created containers. This is calculated prior to data entry by adding together the waste weight placed in each package from the parent and compared to the full package weight - the empty package weight of the parent to ensure that all material has been accounted for.
E. DGT BARCODE: Barcode of the container with material in it from the parent.
F. DGT WST WT: Weight of the material placed in this package from this parent.
G. BOX VOL: Volume(cuft) of the daughter container.
H. DESCRIPTION: Description of the material in this daughter as reported by the processing personnel. If the daughter package has all of the same contents as the parent, the user has the option to default to the parent description. If the daughter package does not contain all of the same material as the parent, or has material not documented by the generator as a description for that parent, the user must use the F2 option which will list all descriptions by the two letter abbreviation used in the SEG data base. The user is able to select all descriptions for the daughter by hitting the ENTER key when the cursor is on the desired description, then

using the directional keys to move through the list of options. When all selections are complete, hit F9 to save the selections desired. the cursor will return to the daughter barcode.

8.2.12 When the operator has completed all data entry for a parent, hitting the F9 key will result in the program doing all of the calculations, based on a weight percentage, to establish the identity of the new daughter packages. When the computer has completed this operation, a message on the screen will read, "Update of Daughters from Parent # _____ is Complete..Press any key to continue.." The operator then returns to the main menu, goes into the REPORT menu and prints out a **QC DAUGHTER REPORT** and a **DETAILED DAUGHTER REPORT** for QC purposes.

8.2.13 When the report has been QC'd, the original (parent) container(s) is deleted from the manifest file to prevent duplication of activity and volume for that customer.

8.2.14 All Overpack Material Transfers are entered in the **Press Entry** Data Entry Screen shown below.

PRESS ENTRY

Be Sure Manifest Entry
and/or Daughter
Entries have been QC'd

BARCODE_____	WEIGHT	
MAN.NO		
CUST.NAME.NO		
IP.WT_____	DATE.ENTERED	
COMP.HGT_____	MAN.NOTES	MAN.SITE
OP.NO_____		
VOID SPACE_____	OP.NOTES	
OP.WT_____		
OP.VOL_____	BCD.STATUS	
OP.DATE_____	OP.STATUS	SHIP.NO
NOTES_____	SITE_____	
	IP.VOL_____	

A. BE SURE MANIFEST ENTRY AND/OR DAUGHTER ENTRIES HAVE BEEN QC'D: A visual aid designed to remind the user that the Manifest Log must be checked prior to data entry.

B. BARCODE: The identification number assigned to the innerpack that is being placed into an overpack.

C. WEIGHT, MAN.NO, CUST.NAME.NO, MAN.NOTES, MAN.SITE, BCD.STATUS and SITE: Will be displayed on the screen when the Barcode is entered to allow the user to check the manual record that data entry is done from.

D. IP.WT: SEG weight of the innerpack.

E. COMP.HGT: Compacted height(inches), in half inch increments, of the processed innerpack.

F. OP.NO: The identification number assigned by SEG to the overpack that each innerpack is placed into. The program will allow the user to use a default option if the innerpack is being placed into the same overpack as the previous innerpack.

G. OP.NOTES, OP.STATUS, and SHIP.NO: Will be displayed on the screen if any information is available. If an "L" or "S" status appears by OP.STATUS, the operator should consult a Data Systems Supervisor prior to entering any further information on this package.

H. VOID.SPACE: The number of inches, in half inch increments, of void space in the overpack after the innerpacks have been placed into it. Default option is available.

I. OP.WT: Weight, in pounds, of the overpack once all innerpacks have been placed into it. Default option is available.

J. OP.VOL: Volume of the overpack. Standard package volumes are used at this point since the final outer dimensions of the overpack are not available. See interoffice memo "STANDARD CONTAINER VOLUMES", (Enclosure 3.15). Default option is available.

K. OP.DATE: Date the innerpack was placed into the overpack. Default option is available.

L. NOTES: Any notes associated with this innerpack as it was processed.

M. IP.VOL: Volume(cubic feet) in the overpack that belongs to this innerpack. This is not a required entry and is usually not filled in until the overpack has been loaded on a shipment.

A Daily Processing Overpack Log (Enclosure 3.18) is printed and verified.

8.2.15 Grit Material Transfer Forms are entered in the Grit Fill Data Entry Screen similar to the one shown below.

Grit Fill

```
GRIT BARCODE_____ : OVRPCK BCD WT OF GRIT IP.VOL DESC
WASTE WEIGHT_____ :
GRIT STATUS       :
GRIT DESCRIPTION  :
                  :
                  :
                  :
```

A: GRIT BARCODE: Identification number assigned to the material that is used as overfill.

B: WASTE WEIGHT: Weight of the material that is removed from the grit package and placed into other containers. This is calculated by adding together all weight removed from the parent, then comparing that number to the full weight minus (-) the empty weight of the grit container, to assure that all material is accounted for.

C. GRIT STATUS: Appears on the screen when the grit barcode is entered. If the status that appears is a "P" the user knows that some material has already been used from this parent, so only remaining weight will be accounted for.

D. GRIT DESCRIPTION: Appears on the screen when the grit barcode is entered. This is the description that was supplied by the generator.

E. OVRPCK BCD: The identification number of the overpack(s) that material from this grit parent was placed into.

F. WT OF GRIT: The weight, in pounds, placed from this parent into each overpack.

G. IP.VOL: The volume, in cubic feet, that is placed from this grit parent into each overpack. See Procedure OP-4.17, Container Volume Calculations and Standard Container Volumes Memo (Enclosure 3.15)

H. DESCRIPTION: Description of the material used as grit. If the description supplied by SEG Operations personnel matches that supplied by the generator (Displayed on the screen under GRIT DESCRIPTION), the user has the option to default to that description. If the description provided by SEG personnel does not match that given by the generator, SEG's description will be used. The user hits the F2 option, which displays the various descriptions and their two-letter abbreviations. With the cursor located on the desired description, the enter key is hit. The operator uses

the directional keys to move through the list of descriptions available, and when all appropriate selections have been entered, the F9 key is hit to save the descriptions selected and return the user to the Grit Fill data entry screen.

8.2.16 CEMENT ENTRY

When Cement has been added to a package the volume is calculated based on the weight of the cement. The weight of the package before cement is added is subtracted from the final weight of the package listed on the Cement Material Transfer (Enclosure 3.19), and is divided by either 109 lbs/cuft for Resin material or 130 lbs/cuft for soil. Cement is written on the front of the box overpack material transfer sheet, (Enclosure 3.3) in the section for grit, along with the weight of the cement and the volume and date that the cement was added to the overpack.

An Isotopic Analysis (Enclosure 3.20) from SEG's lab is entered into the Liquid/Grit Waste Char for Liquid and Resin if applicable. The following information is entered:

BARCODE_____
GEN.NO_____
GEN.NAME
MAN.NO
DESCRIPTION_____
ANLYS DATE_____
SAMPLE NO_____

NUCLIDE	ACTIVITY (uCi/g)
_____	_____
_____	_____
_____	_____
_____	_____
	SUM.ACT _____

Then the weights on the cement sheet are totaled for each barcode emptied into the cement. The percents are multiplied by the total volume of the cement and given

to each barcode. The following information is entered into the Cementing file.

PARENT BCD_____ OP.NUMBER_____
WASTE WGHT_____ POUR.DATE_____
MAN.NO

----------OVERPACK INFORMATION----------
(SHIFT F1 FOR MORE INFO)

CURRENT INFO ON PARENT BCD
WITH OP.NO

WEIGHT POUR.DATE
DESC

NUCLIDE ACTIVITY
(in mCi)

8.2.17 IP.VOL.ENTRY

Once cement has been entered the volume for each barcode is entered into the IP.VOL.ENTRY. This entry is also used to change volumes and waste descriptions of innerpacks for shipments.

8.2.18 BURNED OIL ENTRY

The process of giving a barcode a burned status (See Reference 2.13 SEG Procedure OP-2.23Q Oil Burning).

8.3 <u>PROCEDURE DATA SYSTEMS SHIPPING</u>

8.3.1 Prior to creating the paperwork for an outgoing waste shipment, the overpacks are identified and loaded on a truck. The Package Survey Form (Enclosure 3.21), Package Test Form (Enclosure 3.22), Shipment Empty Survey Form (Enclosure 3.23), and Shipment Release Checklist (Enclosure 3.24), are provided to the Supervisor of Data Systems Shipping by the Warehouse Supervisor.

8.3.2 The Supervisor of Data Systems Shipping enters the following data into the Revelations Transportation file, under Waste Shipment Schedule: Shipment Number, Transportation Trailer Number, Carrier, Equipment (van or flat bed), Container Type, Date Loaded, Date

Scheduled to Ship, Burial Site and purchase order number which is obtained from the Procurement Department. A Shipment Schedule (Enclosure 3.25) is then printed out and distributed to: Data Systems, Supervisor of Shipping and Receiving, Plant Manager, Warehouse Supervisor, Manager of Data Systems Shipping Health Physics, Director of Regulatory and Technical Services, Executive Vice President, Purchasing Manager, Financial Manager, Shipping and Receiving Personnel.

8.3.3 Once the shipment has been scheduled, it is assigned to a Data Systems Clerk. This person locates each original Overpack Material Transfer form (Enclosure 3.2 or 3.3) in the Complete Overpack Log that is listed on the Package Survey form (Enclosure 3.21).

8.3.4 Once all Overpack Material Transfer forms have been pulled, the container volume calculations are done according to procedure OP-4.17. The calculated volumes are then entered to the Pressing File in the Process Entry Menu.

8.3.5 If the shipment is box overpacks, the Box Shred/Sort Transaction forms (Enclosure 3.6) are pulled for each innerpack. The weight of each innerpack listed on the Overpack Material Transfer form is compared to the full weight on the Box Shred/Sort Transaction form. In the bottom right hand corner, the final innerpack weight is written in, marked "complete" and initialed.

8.3.6 The overpack barcodes are listed in the Select Shipment File in the shipping menu and are marked loaded.

8.3.7 Once a shipment is completely identified in Revelations, an Overpack Report is printed. Every innerpack in each overpack on the printout is verified with the original Overpack Material Transfer forms. After each overpack has been verified, the Overpack Generator Report and Isotope Break Down Report are printed.

8.3.8 The Overpack Generator Report and the Overpack Report are attached to each Overpack Material Transfer form. Weights and descriptions per generator and rad readings are written on the Overpack Generator Report for use during generation of shipment paperwork.

8.3.9 For a Barnwell shipment, a DHEC 802 "Prior notification" (Enclosure 3.26) is done from the Isotope Break Down Report. The shipment is scheduled with Chem-Nuclear Systems and a shipment identification number is assigned. The shipment must be scheduled a minimum of seventy two hours prior to shipment arrival in the state of South Carolina.

8.3.10 For a US Ecology shipment (Beatty or Richland), a letter is sent to Chem-Nuclear Systems per contract agreement.

8.3.11 The shipment is then entered into the SEG Manifest Printing Program (WMG).

The Manifest Printing Program is designed to allow entry of manifest data and print manifests for the Chem Nuclear and US Ecology burial sites.

8.3.11.A Program Database Files.

The program database consists of: a nuclide library, a customer library, the SEG specific shipping paper information files, and the shipment inventory files.

The nuclide library consists of 2 files, SEGLIB.DAT and LIMIT.DAT. The first file, SEGLIB.DAT contains an alphabetical list of nuclides with a maximum of 300 nuclides. The LIMIT.DAT file contains the Table 1 and Table 2 limits for the 10 CRF 20 listed nuclides, and is not user modifiable.

The Customer library, CUSDAT.DAT, is a user defined file containing information regarding each generator which is used to produce manifests. This file is used by the manifest program to sort waste by generator and to print the generator's name, address, and generator permit number on manifests. Each generator is uniquely identified by a 3 digit number assigned by SEG when the generator data is loaded.

The shipping information files, CNSI.DAT and USEI.DAT contain the SEG specific data for Chem Nuclear (Enclosure 3.27) and US Ecology (Enclosure 3.28) Manifests, respectively. This data includes the names and addresses for SEG, SEG's billing office, and SEG's normal waste carrier. This data may be changed at any time.

The shipment inventory files contain the overpack information for creation of the manifests. Each file stores 1 complete manifest. The file is identified by the 5 digit SEG shipment number in its filename, i.e., #####.DAT. Each file contains the data required to print all of the continuation sheet data on a manifest. The files are not modified by the manifest printing, and therefore the same manifest may be retrieved again as required.

8.3.11.B Program Operations.

The manifest program is stored as the file SEG.EXE, and may be run simply by entering SEG at the computer's DOS prompt. The main Menu of the manifest program allows the user to execute modules that:

(1) Enter data into the shipment files.
(2) Enter/Edit the generator data file.
(3) Enter/Edit the shipping paper information files.
(4) Print/Create Shipping Manifest Paperwork.

The main menu appears as shown below:

Welcome to the SEG Program, Version 1.0

Copyright (c) 1988 WMG, Inc.

All Right Reserved.

1. Enter Shipment Overpack Information.
2. Edit Customer Data File.
3. Edit Shipping Paper Information.
4. Create Shipping Papers.
5. Exit this Program.

Enter Option:

Select the operation required by entering the menu choice number. The operation of each of the modules is detailed in the following sections.

1. Entry of Shipment Overpack Information.

The module allows the entry of overpacks into the shipment inventory files. Before the main menu above is removed from the screen, the user is prompted to

enter the shipment ID number to be used in the data entry operation.

Enter SEG Shipment Number:

If the data file is not present the program warns the user that this is a new file, and asks the user if the program should proceed. If so, the file is created and the program proceeds. Otherwise, the file is not created and the program returns to the main menu.

New Shipment file. Proceed?

If the file is present, the program tests to determine if another process has locked the file. If so, the program warns the user that the file is locked and cannot be accessed at this time. The program will then return to the main menu.

This Shipment file is currently locked.
Try again later.Press any key...

If the file is present and is not locked, the program warns the user that the data entered will be appended to the existing file, and asks the user if the program should proceed. If so, the file is opened and the program proceeds. Otherwise, the file is closed and the program returns to the main menu.

Appending to existing Shipment. Proceed?

After a new or existing file is opened, the overpack data entry proceeds. The program allows the user to enter the basic information describing the next overpack to be entered into the shipment. The data entry screen below shows the current shipment ID, the number of overpacks already in the file, and basic directions for data entry.

Overpack Information: Shipment Information:

OP Barcode Number: _____ Shipment ID Number:

Surface Dose (mrem/hr): _____ Number of OP:

3 Foot Dose (mrem/hr): _____

Container Type (1, 2, 3, 4): ____

(1 = Drum, 2 = Box, 3 = Pallet, 4 = Liner)

The underlined sections in the Overpack Information segment of the previous screen are data entry fields that allow the user to enter the overpack data. The user can move from field to field, and move or edit within each field, by the use of standard editing keys, such as, up, down, left, right, insert, delete, tab and backtab. Similar data entry methods are used in the following sections as well.

The query shown near the bottom of the screen appears only after the user hits the ENTER key after editing the last field (Container Type, in this case). Striking the ESC key at any point will allow the user to exit this module, with a confirming query to prevent inadvertent exits.

The program will trap data entry errors such as a missing overpack ID, or selecting a Container Type other than 1, 2, 3, or 4. An appropriate warning is displayed, and the cursor is positioned in the field containing the erroneous entry.

After successful entry of the overpack information, the user enters the generator information for each generator in the overpack. There are 2 basic screens for the entry of generator data. The first allows entry of the volumes allocated to each of the 10 waste forms defined for the SEG system (Each of the waste forms will be listed separately on the Broker/Processor Form).

The volume data entry screen operates in the same manner as the overpack data entry screen. After entry of the volumes, if the user entered a volume for the

compacted waste form, then a small data entry screen appears allowing the user to check off the types of compacted waste represented, and to enter a description if none of the pre-defined types apply.

Generator Number:Shipment Information

Weight This Generator:

Volume by Waste Form(s):Shipment ID Number:

1. Compacted :Number of Overpacks:
2. Non-compacted Soil:
3. Non-compacted Metal:
4. Liquid Solidified:
5. Soil in Cement:
6. Compacted Liquid Filters :
7. Compacted Air Filters:
8. Compacted Dewatered Resin:
9. Resin Solidified in Cement:
10. Charcoal Air Filter Media :

Check any description that applies to the compacted waste for this generator.

Plastic	: N	Cloth:	N
Rubber	: N	Glass:	N
Wood	: N	Asbestos:	N
Metal	: N	Insulation:	N
Paper	: N	Atomizer:	N
Other	: _____		

The window appears with all choices initially set to N. If any apply to this waste, type a Y for the description. After the volume data is entered, the nuclide data is entered for this generator. The following screen allows entry of up to 30 nuclides for each generator.

Nuclide ContentSNM (Gms) NuclideContentSNM (Gms)
(mCi) or SM (lbs) (mCi) or SM (lbs)

To enter nuclide data, just type in the name of the nuclide. Capitalization does not affect the search at all. If the name is found in the nuclide library, the program prompts for the millicurie content. Otherwise, the program warns that the nuclide cannot be found as entered.

For the nuclides Pu-238, Pu-239, Pu239/40, Pu-240, Pu-241, Pu-242, U-233, U-234, U-235, U-236, U-238, and Th-232 the program calculates and displays the grams of Special Nuclear Material, and kilograms and pounds of Source Material, based on the millicurie content. The program allows the user to enter a revised value for those cases when a generator supplied number must be used. The SNM grams is calculated with the Activity/Gram values in the nuclide library.

To correct the entry of a nuclide's data, simply enter the nuclide information over again. When a nuclide name is entered for the second time, the program asks if the name should be changed. This allows the correction of an in-correctly entered nuclide name. If the name is to be changed, respond positively, and the next prompt will be for the nuclide name. In either case, the rest of the nuclide data is then entered. The new data will replace the old in the same screen position as the nuclide already occupies. To delete a nuclide entered in error, simply enter a millicurie content of nothing.

The nuclide data entry is ended by entering nothing at the nuclide name prompt. The program asks the user to verify that the nuclide data is complete for this generator. If the response is negative, the user may continue nuclide data entry. Otherwise the program asks a series of continuation queries.

The first query, "Do you want to save this generator data?", requires a positive response for the generator data just entered to be saved. Otherwise, the generator record just entered will not be added to the current overpack.

The next query, "Do you want to enter another generator?", allows the user to add another generator record to the current overpack. A positive response will cause the program to return to the first data entry screen for the next generator's data to be entered. A negative response will cause the program to continue to the next query.

The third query asks the user if the overpack is to be saved to the shipment file. A positive response saves

the overpack record. A negative response will cause the overpack record to be abandoned, and the shipment file will appear unchanged.
Finally, the program asks the user if there are any more overpacks to be entered. A positive response returns the user to the initial overpack data entry screen. A negative response returns the user to the main menu.

The individual overpacks in a shipment may be entered at any time, even after the shipping paper module has been run. However, when an overpack is entered, all of the generator records must be entered at once. If the user enters an overpack number that is already in the shipment file, the manifest module will simply print out 2 overpacks with the same ID numbers.

8.3.11.C Edit Customer Data File

This module allows the entry and maintenance of a database of generators. The data in this file appears on the manifest papers created later with this program.

This module has 2 major options, selected by the menu shown below:

Edit Customer Data File.

1 ... Enter Data for New Customer.
2 ... Revise Data for Existing Customer.
3 ... Return to Main Menu.

Enter Selection (1-3 only):

The first option adds a new record to the data file and allows the entry of all data required for a generator. The second allows editing of the data already entered for a specific generator.

After selection of the first option, the program will prompt for the following data, one line at a time.

ENTER CUSTOMER ID # :
ENTER CUSTOMER NAME:
ENTER CUSTOMER STREET ADDRESS:
ENTER CITY:

ENTER STATE:
ENTER ZIP CODE:
ENTER PHONE NUMBER:
ENTER US ECOLOGY GENERATOR NUMBER:
ENTER TRANSPORTATION PERMIT NUMBER:
ENTER SITE USAGE PERMIT NUMBER:

The previous fields are used in the program manifest module as follows:

CUSTOMER ID #Unique 3 digit ID Number
CUSTOMER NAME Used on the manifest
CUSTOMER STREET ADDRESS "
CITY "
STATE "
ZIP CODE "
PHONE NUMBER "
US ECOLOGY GEN # US Ecology manifests
TRANS PERMIT #CNSI manifests
SITE USAGE PERMIT # US Ecology manifests

After entry of each parameter, the program displays the generator record and asks if a hard copy of the entered data is required. A positive response prints the record. The program will then return to the previous menu.

Selection of the second module allows the editing of this data, for a specific generator. The generators in the file are listed on the screen by a sequential number and the name of the generator.

SEG CUSTOMER LIST.PAGE 1 OF 1

1. Waste Generating Corp.2. Bayside Hospital
3. University of New York4. EDO Corp.
5. Power Authority of New Jersey

SELECT CUSTOMER BY NUMBER
HIT <ENTER> FOR NEXT PAGE, -1 TO QUIT

The screen will display up to 30 generators per "page". The desired generator may be selected by its sequential number (1 - 5 here). If the upper part of the screen indicates that more than 1 page is available, hitting the ENTER key will display subsequent pages. To exit this module, enter -1 at this prompt.

After a valid generator number is entered, the current data for the generator is displayed, in a form similar to the following.

Customer Data 6055

1. Customer Number: 405
2. Name : Power Authority
3. Address: 1903 Main St.
4. City : Ottawa
5. State : NJ
6. Zip : 10365
7. Phone No. : (609) 555-1212
8. US Ecology Generator Number: NJR 00-000-0000
9. Transfer Permit:
10. Usage Permit:

The program asks if a hard copy of the above is needed. A positive response prints the data as shown.

The program then asks if the data above needs to be edited. With a positive response the program asks for the parameter number to be edited. Enter the number (1 - 10) to edit, or enter 0 to edit each parameter sequentially. The program will prompt for entry of replacement data as needed. To complete the editing phase, enter a -1 at the parameter prompt. The program will re-display the new data, return to the prior hard copy query, and cause the program to continue to the next prompt, if applicable. If the data has been edit, the program asks if the new data for this generator is to be saved to the data file. A positive response saves the new generator record. A negative response will allow the module to exit without modification of the generator record. The program then returns to the previous menu.

8.3.11.D Edit Shipping Paper Information

This module allows the entry and maintenance of the SEG specific manifest data files, for the CNSI manifests and the US Ecology manifests. The data in these files appears on the manifest papers created later with this program.

After selection of this module the following menu appears to allow selection of the CNSI data file, the

US Ecology data file, or a return to the main menu.

This Program Updates Shipment Manifest Paper Data.

1. Update US Ecology Shipping Paper Data.
2. Update Chem Nuclear Shipping Paper Data.
3. Return to Main Menu

Select option (1-3) :

Selection of the first 2 options will cause the program to display the data stored in the appropriate file. Except for the names and number of parameters, the editing method for each is the same. Each case is shown below.

For the US Ecology data file, the data display is similar to the following:

Current US Ecology Shipping Paper Data:

Customer Data

1. Name : SCIENTIFIC ECOLOGY GROUP
2. Address : P.O. BOX 2530
: 1560 BEAR CREEK ROAD
3. City, State, Zip : OAK RIDGE , TN 37830
4. Contact :
5. Contact's Phone : (615) 481-0222
6. Generator # : TNR-99-002-2840
7. User Permit # : Q450
8. Bill Charges to : SAME
9. Name : SCIENTIFIC ECOLOGY GROUP
10. Address : P.O. BOX 2530
11. City, State, Zip : OAK RIDGE , TN 37830
12. Purchase Order # :

Carrier Data

13. Name :
14. Address :
15. City, State, Zip :
16. Phone :
17. EPA # :

For the CNSI data file...

6055

Current Chem Nuclear Shipping Paper Data:

Company Data

1. Name : SCIENTIFIC ECOLOGY GROUP
2. Address : P.O. BOX 2530
: 1560 BEAR CREEK ROAD
3. Phone No. : (615) 481-0222
4. Plant Contact :

Carrier Data

5. Carrier Name :
6. Carrier Address :

7. Carrier Phone No. :
8. Title of RSR Certifier :

The program asks if a hard copy of the above is needed. A positive response prints the data as shown.

The program then asks if the data above needs to be edited. With a positive response the program asks for the parameter number to be edited. Enter the number (1 - 17 or 1 - 9) to edit, or enter 0 to edit each parameter sequentially. The program will prompt for entry of replacement data as needed. To complete the editing phase, enter a -1 at the parameter prompt. The program will re-display the new data, returning to the prior hard copy query, followed by the editing query again. A negative response to the editing query causes the program to continue to the next prompt, if applicable.

If the data has been edited, the program asks if the new data for this disposal site is to be saved to the data file. A positive response saves the new record. A negative response will allow the module to exit without modification of the record. The program then returns to the previous menu.

8.3.11.E Create Shipping Papers

This module creates the manifest papers for a shipment from the data stored in the overpack inventory file and user inputs. Before the main menu above is removed

from the screen, the user is prompted to enter the shipment ID number to be used in the data entry operation.

Enter SEG Shipment Number:

If the data file is not present the program warns the user that the field is not present and the program returns to the main menu.

Shipment file not present. Press any key...

If the file is present, the program tests to determine if another process has locked the file. If so, the program warns the user that the file is locked and cannot be accessed at this time. The program will then return to the main menu.

This Shipment file is currently locked.
Try again later. Press any key...

If the file is present and is not locked, the program notifies the user and asks the user if the program should proceed. If so, the file is opened and the program proceeds. Otherwise, the file is closed and the program returns to the main menu.

Shipment file Ready. Proceed?

The program will proceed by asking the user for any information currently required that is not present in the inventory file.

The first query involves selection of the printer type being used. The default is for the printer selected the last time the program was run, and may be selected by hitting ENTER. The printer must be set to 20 characters per inch (CPI) to print the Barnwell manifest, and 17 CPI for the US Ecology manifest. If the printer in use is not compatible with the Epson series or the Okidata 92 series, a custom printer can be defined as long as the required printer control codes are known..

PRINTER CURRENTLY SELECTED : EPSON PRINTER

1. EPSON PRINTERS
2. OKIDATA PRINTERS

3. OTHER (MUST SPECIFY PRINTER CONTROL CODES)

SELECT A PRINTER , OR HIT ENTER FOR CURRENT PRINTER

The manifest program next asks for the shipment date. This date is used on the cover sheet of the manifest. Note that the manifest program currently does NOT perform decay calculations. The system date can be obtain from the computers internal clock by hitting ENTER when the date is requested. Whether the date is entered or the internal date is used, the user may re-enter the date, as shown.

ENTER DATE OF SHIPMENT AS MMDDYY
(HIT <ENTER> FOR TODAY'S DATE.)
THE SHIPMENT DATE IS: 1-10-89

IS THIS CORRECT ? Y/N

Enter a negative response if the date is not the desired shipment date, and the program will prompt for date entry again.

After the date of shipment is selected, the user must select the destination for the shipment.

SELECT THE SHIPMENT DESTINATION FROM THE LIST BELOW:

1 ... BARNWELL,SC
2 ... RICHLAND,WA
3 ... BEATTY,NV

ENTER NUMBER OF DESTINATION

ENTER SHIPMENT ID NUMBER FOR THIS SHIPMENT:

The ID number corresponding to the burial site for this shipment. If the shipment is destined for Barnwell, the program also will ask for the Shipment ID number for the shipment. This is the number assigned by Barnwell for your shipment, formerly known as the volume allocation number.

Next, the program asks if a copy of the manifest should be saved to a file. The manifest is always sent to the printer, but in addition to the printed output, a disk file named MANIFEST.TXT may be created. This file stores the same data as is printed, less the printer control codes, and may be edited if desired for re-prints. If the manifest text file is already present, the program also asks whether the current manifest should be appended to the current file, or whether the current file should be overwritten by the new manifest.

DO YOU WANT A COPY OF THE MANIFEST TO BE SAVED TO A FILE ? Y/N

A FILE COPY OF A PREVIOUS MANIFEST IS PRESENT

1.ERASE OLD MANIFEST.TXT FILE
2.APPEND NEW MANIFEST TO OLD MANIFEST.TXT FILE.

ENTER 1 OR 2 :

After this preliminary data is entered, the program will read the selected manifest data file and scan the overpacks in it. This allows the program to perform quick searches of this file later.

For each overpack, the radiation levels entered during initial data entry are displayed for re-confirmation.

CURRENT RADIATION LEVELS (MREM/HR) FOR OVERPACK: 12345

CONTAINER SURFACE: 25.0
1 METER DISTANCE : 5.0

ARE THESE CORRECT ? Y/N

Enter a negative response if the radiation levels are to be changed. The program will prompt for the entry of each radiation level, and then re-display them as above with the new levels. This operation is repeated for each overpack in the manifest.

The program next performs NRC and DOT classifications for each overpack in the manifest. The overpack ID

number is listed for each package as it is being classified.

CLASSIFYING PACKAGE NUMBER : 12345

The final data required for each overpack is for CNSI manifests, the contamination level. The contamination level is not entered for US Ecology manifests.

ENTER SURFACE CONTAMINATION LEVELS IN
DPM PER 100 CM^2 (UP TO 10 CHARACTERS)
ENTER AS "ALPHA"/"BETA-GAMMA" <20/<1000

IS THE ABOVE INFORMATION THE SAME FOR ALL PACKAGES? Y/N

To use the entered surface contamination data, as the entries for ALL overpacks in the shipment, respond positively to the above query. Otherwise, the entries will have to be made for each overpack in the shipment.

At this point the program will begin to print the continuation sheets for the manifest. If the US Ecology manifest is selected, the program will first print a "dummy" continuation sheet for alignment purposes. The program will ask if the printout is properly aligned on the page. Examine the first printed sheet to determine if adjustment is required. If so, respond negatively and adjust the paper in the printer. The program will wait for the ENTER to be hit, and then re-print the test page. Repeat the above steps until the printout in aligned in the US Ecology form.

Upon completion of printing the manifest continuation sheets, the cover sheet is printed. For the US Ecology forms, this will require a paper change. The program reminds the user to change the paper, and will wait for the ENTER key to be struck before proceeding.

Both manifests formats require the user to choose whether to use the standard carrier, or not. A positive response will cause the program to use the carrier data stored in the shipping information files. Otherwise, the carrier will be left blank to be filled in by hand.

The CNSI manifest requires more data to be input for the cover sheet. In sequence, the program asks for the following inputs as shown:

ENTER PALLET VOLUME IN FT^3.
IF NONE ENTER ZERO:

ENTER SOLIDIFICATION AGENT:

ENTER THE NUMBER AND TYPE OF CONTAINERS:

ENTER THE WASTE DESCRIPTION:

ENTER THE PHYSICAL FORM:

ENTER THE CHEMICAL FORM:

ENTER THE NAME AND % OF ANY CHELATING AGENTS:

ENTER MINIMUM FILL % FOR STABILIZATION PROCESS.

(HIT <ENTER> FOR DEFAULT OF "N/A"):

The manifest cover sheets will be finished at this point. If the US Ecology manifest is selected, the program will ask if another copy of the manifest is needed. If the paper was not aligned correctly for the cover sheet printout, respond positively. Move the paper as needed, and press ENTER when the printer is ready again. This may be repeated as many times as needed.

After the cover of the manifest is printed, the "Generator Volume and Activity Record" (Broker/Processor Form) will be printed if the CNSI manifest is selected. Otherwise, the US Ecology "Manifest Index & Regional Compact Tabulation" form will be printed. Neither of these forms require input from the user.

This completes the manifest printing and the program will return to the main menu.

8.3.12 After the manifest is printed out, it is compared to the shipment totals from Revelations for any data entry

error. The Manifest breakdown (Enclosure 3.29) is printed out and checked against the shipment manifest.

8.3.13 An Isotopic Analysis (Enclosure 3.30) must be done if the shipment has any of the following waste forms: Liquid Filters or Resin.

8.3.14 The Exclusive Use Instructions (Enclosure 3.31), Shipment Release Checklist (Enclosure 3.24), Certification (Enclosure 3.32, 3.33, or 3.34), In-Route Checklist (Enclosure 3.35), Drivers Checklist (Enclosure 3.36), and Bill of Lading (Enclosure 3.37) (for US Ecology Shipments only) are filled in with date of departure, date of arrival, carrier, etc. Volume Allocation Authorizations for power plants in the shipment are included with the shipment paperwork.

8.3.15 When complete, the shipment paperwork is given to the Supervisor of Data Systems Shipping who checks the shipment and releases it to the Supervisor of Receiving and Shipping.

8.3.16 After the shipment is released, a Data Systems Shipping Clerk will contact the burial site to let them know the shipment arrival date and any prior notification update, if applicable.

8.3.17 The final steps to a shipment are: to log the shipment in the shipment log (Enclosure 3.39), and the volume allocation log (Enclosure 3.40); mark the shipment (S) for shipped in the select shipment; enter the shipment in the manifest summary, and buried waste. The following is then filed in numerical order by shipment number: The Manifest, Package Survey Form, Package Test Form, Shipment Empty and Full Survey Form, Driver's Checklist, Bill of Lading, Final In-Route Shipment Inspection Check List, Exclusive Use Instructions, Shipment Release Checklist, Prio Notification, Certification Form, Manifest Breakdown, Isotopic Analysis (if applicaible), Volume Allocation Authorization.

9. RECORDS FOR DATA SYSTEMS

All outgoing shipment paperwork is filed in numerical order by shipment number, with the following documents: Shipment Manifest, Package Survey Form, Package Test Form, Shipment

Survey Form, Driver's Checklist, Final In-Route Shipment Inspection Check List, Exclusive Use Instructions, Shipment Release Checklist, Manifest Breakdown, Scheduled Shipments Report, Isotopic Analysis, Box Overpack Material Transfer or Drum Overpack Material Transfer, Box Shred/Sort Transaction if Box Shipment, DHEC 802 "Prior Notification" and DHEC 803 "Radioactive Waste Shipment Certification for Chem-Nuclear shipments, and Bill of Lading for US Ecology shipment.

All received shipment paperwork is filed in alphabetical order by customer name by manifest number with the following documents: Original Manifest with Barcodes, Advance Notification Form, Acknowledgement Letter, Bill of Lading, Manifest and Shipment Evaluation Form, Receipt and Release Survey Forms, Support Documents, Other Correspondence, and Shipment Checklist.

All Sealand or Manifest Distribution Forms with attached Box Shred/Sort Sheets Forms are filed in alphabetical order by customer name by manifest number. Note: Box Shred/Sort Sheets are pull when shipped and attached to the box overpack material transfer sheets.

Logs that are kept are: Shipment Log, Volume Allocations Log, Manifest Log, Overpack Log, Daily Overpack Log, Activity Inventory Log, Production Reports, Grit Reports.

Enclosure 3.1 - Activity Inventory

THE SCIENTIFIC ECOLOGY GROUP
INVENTORY REPORT 9-8-88

	H-3	C-14	Po-210	Ra-226	Th-232	U-238	PU-238	PU-239	PU-240
INVENTORY TOTAL (aCi)>	75064.3533	4101.7355	23.2236	6.6034	547.9365	1955.8447	3.5537	25.9342	4.6696
CONVERSION TO GRAMS>							0.000208126	0.4157472	0.0206863
CONVERSION TO CURIES>	75.064	4.102	0.023	0.007	0.548	1.956			
LIMIT (CURIES)>	300.0 ci	100.0 ci	10.0 ci	5.0 ci	10.0 ci	100.0 ci			200 grams
								TOTAL -	0.4363301

PU-241	AM-241	U-233	U-235	U OTHER	AT. MUB. 3-83	TOTAL ACTIVITY
159.9336	47.8105	0.0010	0.7105	366.4437	63093.7591	194025.0301
0.002		0.009	331.8035			
	0.048	0.000		0.366	63.094	194.025
	225.0 ci	200 grams	350 grams	1.0 ci	180.000	

DH

cc: SUE H. \ WALT H. \ DON H. \ DON S.
JIM M \ STEVE N. \ HP'S

Enclosure 3.1 - Activity Inventory

THE SCIENTIFIC ECOLOGY GROUP
INVENTORY REPORT 9-8-89 INCOMING

MANIFEST # NUMBER	H-3	C-14	Po-210	Ra-226	Th-232	U-238	PU-238	PU-239	PU-240
TOTAL	261995.7420	15149.1893	13.4641	12.1142	1340.1610	49035.3757	12.0887	51.4924	15.8195
								+	2.4000
									17.8195

+ PU - ALL > 1726.1046
PU - ALL > 1724.1046

PU-241	AM-241	U-233	U-235	AT. NUB. 3-83	TOTAL ACTIVITY
1644.7040	85.6086	0.0010	107.6634	495010.8364	824464.2603

13.3820 AT.WT. <238
316.8298 AT.NO. 84-91
366.4437 U-OTHER
0.7195 U-235

825161.6353 SUB-TOTAL
107.6634 U-235

825053.9719 TOTAL

Fnclosure 3.1 - Activity Inventory

THE SCIENTIFIC ECOLOGY GROUP INVENTORY OF RADIOACTIVE MATERIALS 9-8-89

PAGE TOTALS	ACTIVITY	H-3	C-14	Po-210	Ra-226	Th-232	U-232	PU-ALL
ACTINV	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2AINV	2521.405	30.958	3.052	0.000	0.000	0.000	0.000	0.000
3AINV	33.740	25.851	1.818	0.000	0.619	0.000	0.000	0.000
4AINV	692.333	0.050	4.114	6.550	0.204	0.330	0.150	0.000
5AINV	700.666	59.173	4.836	14.890	0.000	0.000	84.680	0.000
6AINV	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7AINV	7.298	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8AINV	181.524	47.817	3.595	0.000	4.954	0.000	0.000	0.000
9AINV	238.910	78.879	2.785	0.000	0.000	0.000	2.460	0.000
10AINV	825053.9719	261985.742	15149.169	13.4641	12.1142	1340.161	49035.376	1724.1046
11AINV	16.622	12.306	0.306	0.000	0.000	0.500	0.000	0.000
12AINV	166.138	73.758	4.66	0	0	0	12.567	0
13AINV	63.5278	14.871	0.1	0	0	0	0	2.0000
14AINV	297.94	132.302	98.116	0	0	0	0	0
15AINV	540.307	313.747	46.544	0	0	0	0	0
16AINV	7.194	0	0	0	0	0	3.5	0
17AINV	0	0	0	0	0	0	0	0
18AINV	1.058	0.053	0.002	0	0	0	0	0
19AINV	112.415	1.064	0	0	0	0	0	0
20AINV	0	0	0	0	0	0	0	0
21AINV	0	0	0	0	0	0	0	0
22AINV	0	0	0	0	0	0	0	0
TOTALS	829672.111	262329.405	15174.506	34.904	17.891	1340.991	49135.233	1726.105
ACTIVITY IN CURIES	829.672	262.329	15.175	0.035	0.018	1.341	49.135	1.726
LIMIT		300.0 ci	100.0 ci	10.0 ci	5.0 ci	1.0 ci	10.0 ci	200 gas

Enclosure 3.1 - Activity Inventory

AM-241	AT WT >238	AT NUB 84-91	AT NUB 3-83	U OTHER	U-233 GRAM	U-233 ACTIVITY	U-235 GRAM	U-235 ACTIVITY	TOTAL
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	2497.395	0.000	0.000	0.000	0.000	0.000	2521.405
0.000	0.000	0.000	5.506	0.000	0.000	0.000	0.000	0.000	33.794
0.000	0.000	0.000	676.940	0.000	0.000	0.000	0.000	0.000	688.338
0.000	0.000	0.000	537.029	0.008	0.000	0.000	0.000	0.000	700.656
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	7.268	0.000	0.000	0.000	0.000	0.000	7.268
0.000	0.000	0.000	125.157	0.000	0.000	0.000	0.000	0.000	181.524
0.000	0.000	0.918	154.967	0.000	0.000	0.000	0.000	0.000	239.109
85.6086	13.382	316.8293	495010.8364	366.4437	0	0.001	0	0.7195	325053.9719
0.000	0.000	0.000	3.510	0.000	0.000	0.000	0.000	0.000	15.622
0	0	0	75.153	0	0	0	0	0	166.138
43.3208	0	0	3.236	0	0	0	0	0	63.5278
0	0	0	67.522	0	0	0	0	0	297.94
0	0	0	180.016	0	0	0	0	0	540.307
0	0	0	3.694	0	0	0	0	0	7.194
0	0	0	0	0	0	0	0	0	0
0	0	0	1.003	0	0	0	0	0	1.058
0	0	0	111.441	0	0	0	0	0	112.505
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
128.929	13.382	316.848	499086.997	354.7412	0.000	0.001	0.000	0.720	829672.3635
0.129	0.013	0.317	499.087	0.355		0.000		0.001	829.672
225.0 ci	1.0 ci	1.0 ci	100.0 ci	1.0 ci	200 gas		350 gas		

6055

Enclosure 3.2 - BOX OVERPACK MATERIAL TRANSFER

BARCODE NO. _____

_____ lbs.	_____ lbs.	_____ lbs.	_____ lbs.	_____ lbs.
_____ mR/hr.	_____ mR/hr.	_____ mR/hr.	_____ mR/hr.	_____ mR/hr.

Barcode No. _____

Weight _____

mR/hr. _____

Customer _____

Date _____

Comments: _____

Grit Drum # _____ _____

Lbs. added _____ _____

Volume _____ _____

Date _____

Final Weight: _____ lbs.

☐ Complete

_____ Initials

000279

Enclosure 3.3 - Drum Overpack Material Transfer Form

MATERIAL TRANSFER

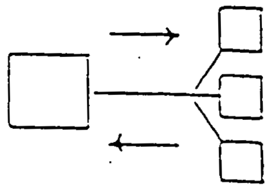
DATE: ____________

BARCODE NO.: ____________

TIME: ____________

CONTAINER DESCRIPTION: ____________

EMPTY CONTAINER WEIGHT: ____________
WASTE WEIGHT: ____________
TOTAL WEIGHT: ____________



CIRCLE ONE ARROW

BAR CODE NUMBER	TRANSACTION (lb.)	COMMENTS

COMMENTS: ____________

Company ____________ Page ____ of ____

6055

Enclosure 3.4 - MATERIAL TRANSFER FOR SEA/LAND

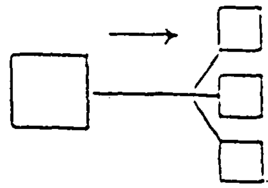
DATE: ____________

TIME: ____________

CONTAINER DESCRIPTION: SEA/LAND

EMPTY CONTAINER WEIGHT: ____________
WASTE WEIGHT: ____________
TOTAL WEIGHT: ____________

BARCODE NO.: ____________



CIRCLE ONE ARROW

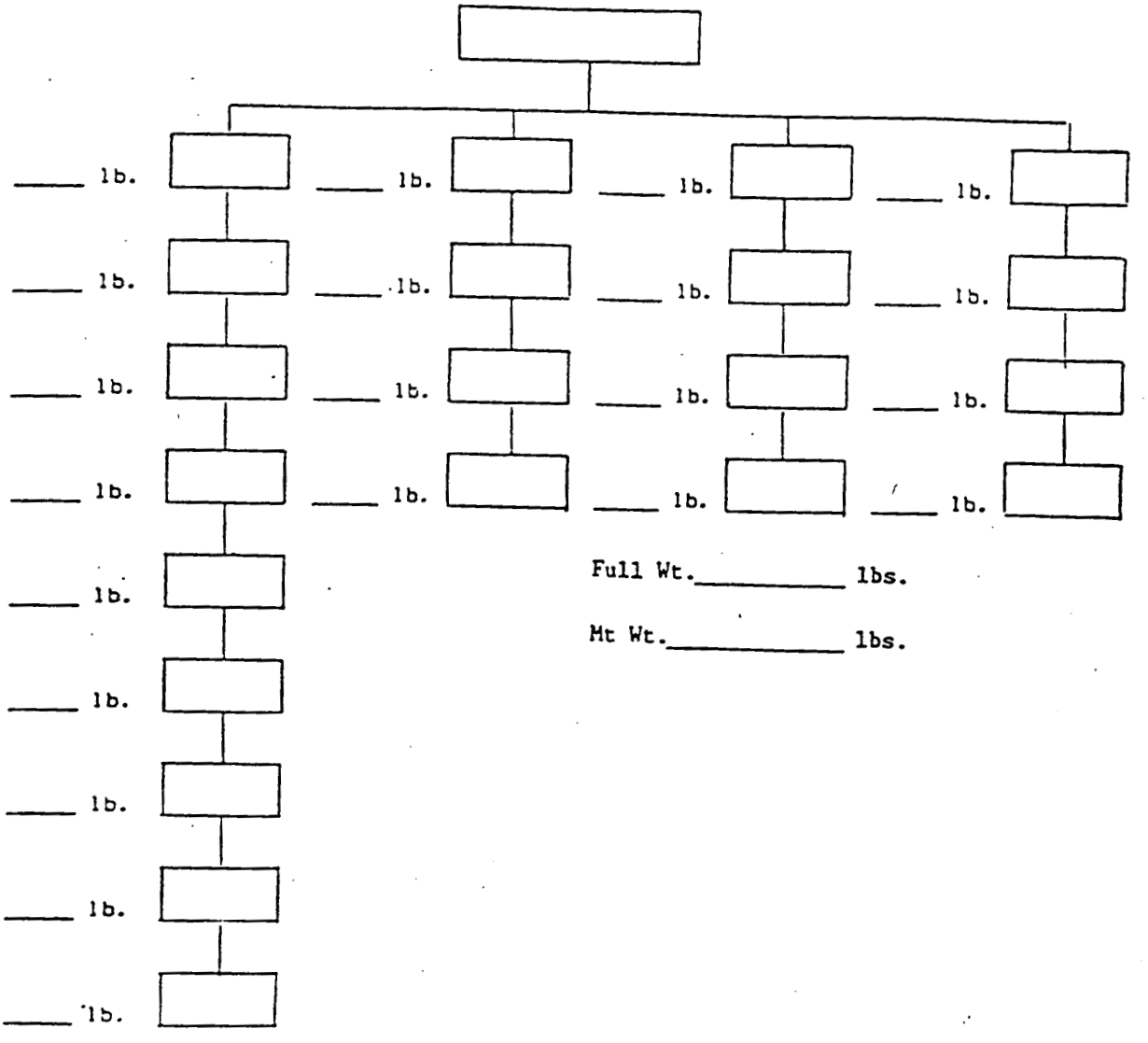
BAR CODE NUMBER	EMPTY WEIGHT	FULL WEIGHT	mR/hr	COMMENTS

COMMENTS: ____

COMPANY NAME: ____________ PAGE ___ OF ___

Enclosure 3.5 - MANIFEST DISTRIBUTION FORM

MANIFEST: _____



Customer: _____

Date: _____

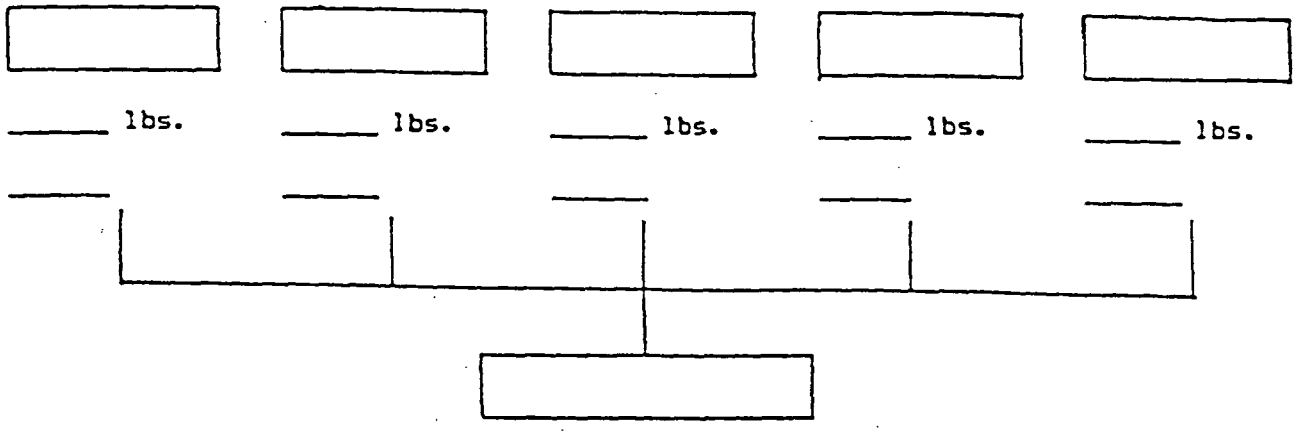
Initials: _____

NUMBER: OP-4.3
TITLE: DATA SYSTEMS WASTE TRACKING

REVISION: 0.0
DATE: 12-11-89

Enclosure 3.6 - BOX SHRED/SORT TRANSACTIONS

BARCODE NO: _____



Empty Weight _____

Full Weight _____

mR/hr. _____

Customer _____

Date _____

Comments: _____

CONTENTS FROM SHREDDER

__Asbestos
__Cloth
__Insulation
__Metal
__Mopheads
__Oil Dry
__Plastic
__Filters_____
__Rubber
__Wood
__Other_____
__Paper

Final Weight: _____ lbs.

☐ Complete

_____ Initials

Enclosure 3.7 - Production Report

SEG DAILY PRODUCTION RECORD

DATE _____

	PRESS OPERATIONS		SHREDDER OPERATIONS		OTHER OPERATIONS		
TIME	DRUMS COMPACTED	BOXES COMPACTED	B-25'S EMPTY	IP FILLED	DESCRIBE CONTAINER	IP FILLED	CLERK
12 to 1 AM							
1 TO 2 AM							
2 TO 3 AM							
3 TO 4 AM							
4 TO 5 AM							
5 TO 6 AM							
6 TO 7 AM							
7 TO 8 AM							
8 TO 9 AM							
9 TO 10 AM							
10 TO 11 AM							
11 TO 12 AM							
12 TO 1 PM							
1 TO 2 PM							
2 TO 3 PM							
3 TO 4 PM							
4 TO 5 PM							
5 TO 6 PM							
6 TO 7 PM							
7 TO 8 PM							
8 TO 9 PM							
9 TO 10 PM							
10 TO 11 PM							
11 TO 12 PM							
TOTALS							

APPROVALS

STAN CROSS
SHREDDER OPERATIONS ----------DATE----------

ROBERT KEY
PRESS OPERATIONS ----------DATE----------

R.L. BRACKET
PROD COORDINATION ----------DATE----------

DON SKVARA
VICE PRESIDENT ----------DATE----------

Enclosure 3.8 Grit Report

6055

WEEKLY GRIT REPORT

WEEK ENDING_____

DATE	CUSTOMER NAME	MANIFEST NUMBER	GRIT WEIGHT	GRIT VOLUME	COMMENTS

CC: DATA SYSTEMS, R.L. BRACKETT, KAREN CUTCHER

Enclosure 3.9 - Weight Sheet

CUSTOMER_____ DATE_____
MANIFEST #_____ SIGNATURE_____

IP #	WEIGHT	DOSE	TYPE CONTAINERS	COMMENTS

NUMBER: OP-4.3
TITLE: DATA SYSTEMS WASTE TRACKING

REVISION: 0.0
DATE: 12-11-89

NAME: _____

DATE: _____

Shift: _____

Enclosure 3.10 - Void Sheet

Overpack	Void	Weight	Mr/Hr	79-D	89-D	96-D	45-Box	Asbestos Label	Comments

Enclosure 3.11 - Daily Overpack Log

DATE _____

DAILY BOX OVERPACK LOG

PAGE _____

CUSTOMER	MANIFEST NUMBER	IP'S on LINE	mR/Hr	WT	OVER PACK NUMBER	TOP HAT HT	INNER PACK NUMBER	IP CUSTOMER NAME	IP MANIFEST NUMBER	IP WT	IP HT	IP mR/Hr	OPWT @ SCALE	OP VOID INCHES	OP FINAL WT	OP mR/Hr	LOGGED

000288

6055

Enclosure 3.12 - SEA/LAND CONTENTS FORM

NAME: _____

DATE: _____

CUSTOMER: _____

FULL WT. _____

MANIFEST # _____

EMPTY WT. _____

SEA/LAND BARCODE # _____

SEA/LAND IS:(CHECK ONE)

TOP LOADING _____

END LOADING _____

METAL WT. _____

ASBESTOS WT. _____

ASBESTOS CU. FT. _____

DRUM #'S & SIZE _____

SALVAGE BOXES _____
(HOW MANY, TYPE AND WT.)

SALVAGE MATERIAL _____
(IN WHAT FORM AND WT.)

LEAD WT. _____
(IN WHAT FORM & ESTIMATED CUBIC FT.)

SEPARATE WEIGHTS FOR LEADS ACCORDING TO FORM

PIGS WT. _____

SHEETS _____

BRICKS _____

Enclosure 3.13 - Grit Material Transfer

MATERIAL TRANSFER

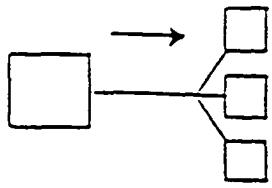
GRIT BOOK _____

DATE: _____

BARCODE NO.: _____

TIME: _____

CONTAINER DESCRIPTION: _____



EMPTY CONTAINER WEIGHT: _____
WASTE WEIGHT: _____
TOTAL WEIGHT: _____

CIRCLE ONE ARROW

BAR CODE NUMBER	TRANSACTION (lb.)	COMMENTS

COMMENTS: _____

_____

_____

_____

COMPANY NAME: _____

Enclosure 3.14 - INITIAL MANIFEST RECEIPT CHECKLIST

MANIFEST NUMBER:_____

COMPARE WITH MANIFEST SUMMARY PRINT OUT:_____

DATE RECEIVED IN DATA SYSTEMS:_____

ACTIVITY:

CHECK UNIT; ___Curies(Ci), ___Millicuries(mCi), _____OTHER

CHECK FOR PERCENT ABUNDANCE BREAKDOWN, IF APPLICABLE:_____

CHECK FOR RADIUM:_____

COMMENTS:_____

CHELATES:

TYPE/PERCENT:_____

DESCRIPTION:

CHECK FOR: ASBESTOS(CUFT)_____

ASH_____

CHELATES_____

FILTERS, WHAT KIND_____

LEAD_____

LIQUID_____

OIL_____

LIQUID ANALYSIS:_____

COMMENTS:_____

_____

REVIEWED BY:_____ DATA ENTRY CHECKED:_____

DATE:_____ DATE, IF APPLICABLE:_____

Enclosure 3.15 - Standard Container Volume Memo

SCIENTIFIC ECOLOGY GROUP, INC.
INTEROFFICE MEMO

DATE: March 27, 1989

TO: Distribution

FROM: Laticia Adkins LA

SUBJECT: STANDARD CONTAINER VOLUMES

The following container volumes are most commonly used for incoming waste shipments at SEG. These volumes will be used by Accounting to determine billing for the client, and by waste processing personnel to complete appropriate processing documentation. Any exception to these volumes will be identified on an Order Entry/Process Authorization for each specific client.

STANDARD CONTAINER VOLUMES

CONTAINER	VOLUME
B-25*	92 cu. ft.
B-88*	97 cu. ft.
55 Gal. Drum	7.5 cu. ft.
Other Drums	Ratio of 55 Gal. Drum
Sea Land (20 ft) (inside)	1040 cu. ft.
Sea Land (20 ft) (outside)	1280 cu. ft.
Sea Land (40 ft) (inside)	2080 cu. ft.
Sea Land (40 ft) (outside)	2560 cu. ft.

NOTE: Add four cu.ft. if permanent legs are attached. Volumes for boxes are typical and are considered to be minimum values. Whenclient manifest indicates higher values, those volumes are to be applicable.

If you have any questions, contact Jay Pride (ext. 13) or Gary Lester (ext. 24)

Approved: G. R. Lester
Marketing Manager

LA/kp
MEMO-89-112

Distribution:

R.L. Brackett	Don Hartje
Don Skvara	Laticia Adkins
Glenda Owens	Sue Hawkins
Walt Hipsher	Doug Engle

6055

Enclosure 3.16 - Percentage Breakdown for Radionuclides

Manifest Entry for Packages with
Percent of Radionuclides in Packages

BARCODE_____
ITEM.NO_____
WEIGHT_____
CONT.VOL_____
GEN.NO_____
MAN.NO_____

DATE.REC
CUST.NAME
MAN.NOTES

MAN.SITE

NOTES
SITE_____

NUC.PCNT.ENTRY115

NUCLIDE	PERCENT
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
TOTAL (Must = 100%)	_____

Enclosure 3.17- Manifest Log

1989 MANIFEST LOG

CUSTOMER NAME	MANIFEST NUMBER	DATE RECEIVED SHIPMENT / MANIFEST	MANIFEST ENTRY DATE / INITIAL	MANIFEST QC DATE / INITIAL	D-BOX ENTRY DATE / INITIAL	D-BOX QC DATE / INITIAL	M F D F	COMMENTS

6055

Enclosure 3.18 - Daily Processing Overpack Report

Page 1 Daily Processing - Overpack Report : 13 OCT 1989
Process Dates 10/09/89

Overpack Number	Overpack Date	OP Wt	Barcode.....	IP Wt (lbs)	OP Vol	Comp. Void. Hilini	Space	Cust No.	Customer.....	Manifest Number...	Gen. No.	Generator.....	St.	Regional..... Compact	Permit Numbers.....	Formal Site	Notes.....
143788	10/09/89	3150	133538	935	45.0	21.5	0	154	CP&L/BRUNSWICK	154-89-161	154	CP&L/BRUNSWICK	NC	SOUTHEAST	Trans Path: 0241-32-69-I	CNSI	IN
143788	10/09/89	3150	133541	852	45.0	19.5	0	154	CP&L/BRUNSWICK	154-89-161	154	CP&L/BRUNSWICK	NC	SOUTHEAST	Trans Path: 0241-32-69-I	CNSI	IN
143788	10/09/89	3150	133824	942	45.0	14.5	0	154	CP&L/BRUNSWICK	154-89-161	154	CP&L/BRUNSWICK	NC	SOUTHEAST	Trans Path: 0241-32-69-I	CNSI	IN
				2729		55.5											
Total																	
143841	10/09/89	584	133472	155	10.0	11.5	0	76	NFS	76-IOMH-IIB-87	76	NFS	IN	SOUTHEAST	Trans Path: 0230-41-89-I	CNSI	
143841	10/09/89	584	133473	233	10.0	13.5	0	76	NFS	76-IOMH-IIB-87	76	NFS	IN	SOUTHEAST	Trans Path: 0230-41-89-I	CNSI	
143841	10/09/89	584	133521	154	10.0	11.5	0	76	NFS	76-IOMH-IIB-87	76	NFS	IN	SOUTHEAST	Trans Path: 0230-41-89-I	CNSI	
				542		36.5											
Total																	
143844	10/09/89	1022	133480	194	13.1	12	0	76	NFS	76-IOMH-IIB-87	76	NFS	IN	SOUTHEAST	Trans Path: 0230-41-89-I	CNSI	
143844	10/09/89	1022	133511	181	13.1	13	0	76	NFS	76-IOMH-IIB-87	76	NFS	IN	SOUTHEAST	Trans Path: 0230-41-89-I	CNSI	
143844	10/09/89	1022	133513	252	13.1	6.5	0	76	NFS	76-IOMH-IIB-87	76	NFS	IN	SOUTHEAST	Trans Path: 0230-41-89-I	CNSI	
143844	10/09/89	1022	133520	265	13.1	8.5	0	76	NFS	76-IOMH-IIB-87	76	NFS	IN	SOUTHEAST	Trans Path: 0230-41-89-I	CNSI	
143844			6103246143844	74				155	GPU/SAXTON	88-SHS-023	155	GPU/SAXTON	PA	APPALACHIAN	Trans Path: 0393-37-89-I	CNSI	
															Generator #: PAR 99-022-71		
															Site Use#: 4590 -		
				966		40											
Total																	
143849	10/09/89	760	133476	177	10.0	10	1	76	NFS	76-IOMH-IIB-87	76	NFS	IN	SOUTHEAST	Trans Path: 0230-41-89-I	CNSI	
143849	10/09/89	760	133478	171	10.0	6	1	76	NFS	76-IOMH-IIB-87	76	NFS	IN	SOUTHEAST	Trans Path: 0230-41-89-I	CNSI	
143849	10/09/89	760	133514	211	10.0	15	1	76	NFS	76-IOMH-IIB-87	76	NFS	IN	SOUTHEAST	Trans Path: 0230-41-89-I	CNSI	
143849	10/09/89	760	133515	134	10.0	5	1	76	NFS	76-IOMH-IIB-87	76	NFS	IN	SOUTHEAST	Trans Path: 0230-41-89-I	CNSI	
				713		36											
Total																	
143850	10/09/89	746	133307	307	10.0	20	0	239	CECO/QUAD CITIES	239-B-89-11	239	CECO/QUAD CITIES	IL	CENTRAL MIDWEST	Trans Path: 0015-12-89-I	CNSI	
															Generator #: ILR 99-288-52		
143850	10/09/89	746	133516	222	10.0	14	0	76	NFS	76-IOMH-IIB-87	76	NFS	IN	SOUTHEAST	Trans Path: 0230-41-89-I	CNSI	
143850			6103246143850	110				155	GPU/SAXTON	88-SHS-023	155	GPU/SAXTON	PA	APPALACHIAN	Trans Path: 0393-37-89-I	CNSI	
															Generator #: PAR 99-022-71		
															Site Use#: 4590 -		
				719		34											
Total																	
143851	10/09/89	866	133482	141	10.0	10	1	76	NFS	76-IOMH-IIB-87	76	NFS	IN	SOUTHEAST	Trans Path: 0230-41-89-I	CNSI	
143851	10/09/89	866	133497	82	10.0	3	1	76	NFS	76-IOMH-IIB-87	76	NFS	IN	SOUTHEAST	Trans Path: 0230-41-89-I	CNSI	
143851	10/09/89	866	133502	206	10.0	11	1	76	NFS	76-IOMH-IIB-87	76	NFS	IN	SOUTHEAST	Trans Path: 0230-41-89-I	CNSI	
143851	10/09/89	866	133504	184	10.0	6.5	1	76	NFS	76-IOMH-IIB-87	76	NFS	IN	SOUTHEAST	Trans Path: 0230-41-89-I	CNSI	
143851	10/09/89	866	133517	204	10.0	5.5	1	76	NFS	76-IOMH-IIB-87	76	NFS	IN	SOUTHEAST	Trans Path: 0230-41-89-I	CNSI	
				817		36											
Total																	
143852	10/09/89	960	133413	577	10.0	15	0	239	CECO/QUAD CITIES	239-B-89-11	239	CECO/QUAD CITIES	IL	CENTRAL MIDWEST	Trans Path: 0015-12-89-I		
															Generator #: ILR 99-288-52		
143852	10/09/89	960	133428	589	10.0	16	0	239	CECO/QUAD CITIES	239-B-89-11	239	CECO/QUAD CITIES	IL	CENTRAL MIDWEST	Trans Path: 0015-12-89-I		
															Generator #: ILR 99-288-52		
143852	10/09/89	960	133429	133	10.0	6	0	239	CECO/QUAD CITIES	239-B-89-11	239	CECO/QUAD CITIES	IL	CENTRAL MIDWEST	Trans Path: 0015-12-89-I		
															Generator #: ILR 99-288-52		
				-----		------											

NUMBER: OP-4.3
TITLE: DATA SYSTEMS WASTE TRACKING

REVISION: 0.0
DATE: 12-11-89

Enclosure 3.19 - Cement Material Transfer

SOLIDIFICATION

PAGE NO: _____
DATE: _____
POUR DATE: _____

CLIENT _____ MATERIAL WEIGHT					WATER-LIQUID WASTE			CEMENT WEIGHT		TOTAL WT. ADDED
B/C	START WEIGHT	END WEIGHT	MT Y	N	B/C	CUSTOMER	WEIGHT	# SACKS	WEIGHT	

MISC. INFORMATION

17H DRUM: NEW_____ USED_____
B-25:_____ B-12:_____ OP BOX:_____

THIS INFORMATION PROVIDED BY_____

CUSTOMER	BOX/ DRUM	BARCODE	INCOMING MT WT	TOTAL WT ADDED	FINAL WT ADDED	EST CUFT ADDED	COMMENTS

000296

Enclosure 3.20 SEG Isotopic Analysis

6055

EG&G ORTEC (1)AN1-AN2 I2.04.10 13-SEP-89 10:01:46 Page 1

SPECTRUM	ACQUISITION STARTED	LIVE	REAL
8912770.SPC	13-SEP-89 09:23:00.00	1800	1804

SAMPLE
Sludge Sample / CVRF Drum in Soil Room
09/05/89 237 ml of 500 ml (BC# 121745)

DETECTOR SYSTEM
EG&G Ortec GMX-13190 / SV-GMX/DWR-30
Serial #: 26-N-1638B

CALIBRATION
500 ml Marinelli Beaker
Mixed Gamma Calibration

FIRST LIBRARY FILE \A53\500MIX.LIB PBC
START 20 STOP 4000 SENS(%) 30.0 MULTIPLIER .1141350E-06

NUCLIDE	TIME OF COUNT ACTIVITY uCi/ml	PERCENT UNCERTAINTY COUNTING 1 S
CR-51	< 3.5E-06	
MN-54	< 8.5E-07	
CO-57	< 1.4E-07	
CO-60	5.595E-05	1.6
ZN-65	< 2.1E-06	
ZR-95	< 1.6E-06	
AG-110M	< 8.4E-07	
CD-109	< 3.5E-06	
SB-125	9.132E-06	6.1
I-131	< 3.4E-07	
CS-134	2.622E-06	8.3
CS-137	1.715E-05	2.7
CE-144	< 1.4E-06	
RN-220	< 6.9E-07	
RA-226	< 7.1E-06	
TH-232	< 2.7E-06	
U-235	< 4.0E-07	
U-238	4.230E-06	26.0
AM-241	< 4.3E-07	

TOTAL ACTIVITY: .890819E-04

CC: R.L. Brackett
S. Hawkins
S. Norris
W. Hipshe.
Lab File

R. McCallister
9/13/89

PAGE ____ OF ____

Enclosure 3.21 - PACKAGE SURVEY FORM FOR RADIOACTIVE MATERIAL SHIPMENTS

BARCODE	WT	DIMENTIONS	SURFACE DOSE RATE - MR/HR	MR/HR @ 1 METER	CONTAMINATION LEVELS $\beta\gamma$ DPM/100CM^2	α DPM/100CM^2

DATE _____ TIME _____ SHIPMENT NO. _____

INST.USED _____ SERIAL# _____
INST.USED _____ SERIAL# _____

COMMENTS: _____

TECHNICIAN: _____

000298

REVIEWED BY: _____

Enclosure 3.22 - PACKAGE TEST FORM

Shipment No._____ Date:_____

Burial Site:_____ Package Bar Code:_____

I. TEST DATA

1. Package Type

- ☐ Drum
- ☐ CP Box ☐ B-12
- ☐ B-25 ☐ B-88
- ☐ Other_____

2. Test Type

- ☐ Dye Penetrant
- ☐ Hydrostatic (Pressure_____)
- ☐ Air Pressure Test (Pressure_____)
- ☐ Liquid Test, Hole Drilled
- ☐ Liquid Siphon Test
- ☐ Other_____

II. TEST RESULTS

- ☐ No Liquid _____CC.
- ☐ Liquid Found-Describe:

_____

_____

_____

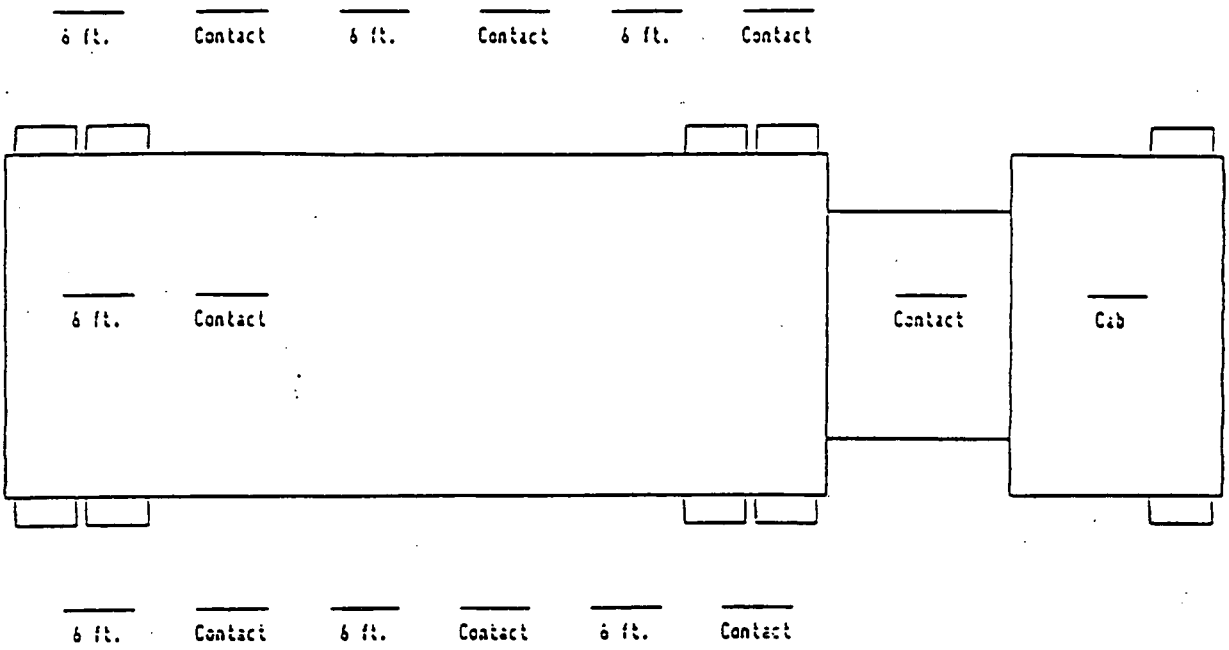
III. PACKAGE CLOSED

- ☐ Welded
- ☐ Drum Sealed & Bolted
- ☐ Other_____ _____CC

Conducted By:_____ Date:_____

Reviewed By:_____ Date:_____

Enclosure 3.23 - SHIPMENT SURVEY FORM



DOSE RATE UNDER TRAILER: _____ ALL DOSE RATES IN mR/hr UNLESS OTHERWISE NOTED.

DATE: _____ TIME: _____ SHIPMENT #: _____ TRACTOR: _____ TRAILER: _____ JOB: _____

INCOMING: FULL EMPTY (CIRCLE ONE) OUTGOING: FULL EMPTY (CIRCLE ONE) COMPANY NAME: _____

SWIPE # USED: _____ DOSE RATE INST: _____ SERIAL #: _____ CONTAMINATION INST (BETA/GAMMA): _____ SERIAL #: _____

CONTAMINATION INST (ALPHA): _____ SERIAL #: _____ TRAILER: OPEN FLATBED CLOSED VAN (CIRCLE ONE)

SMEAR RESULTS (A CIRCLED NUMBER ON THE ABOVE DRAWING INDICATES SWIPED LOCATION)

LOC	DPM/100 CM ^{2} BETA/GAMMA	ALPHA	LOC	DPM/100 CM ^{2} BETA/GAMMA	ALPHA	LOC	DPM/100 CM ^{2} BETA/GAMMA	ALPHA
1			6			11		
2			7			12		
3			8			13		
4			9					
5			10					

HP TECHNICIAN: _____ REVIEWED BY: _____

REMARKS: PERFORMED A CONTAMINATION SURVEY OF THE TRAILER BED VIA DIRECT FRISK. ALL FIXED CONTAMINATION LEVELS ARE _____ DPM/100CM^2 BETA/GAMMA.

_____
INITIALS

Enclosure 3.24 - Radioactive Material Shipment Release Checklist

Shipment Number_____ Shipment Date:_____
Consignee_____

I. PACKAGE CHECKLIST	INITIALS
1. Packages are closed properly by use of clips, welds, rivets self-tapping screws or bolted locking rings as appropriate.	_____
2. Packages do not show evidence of leakage or damage which could affect integrity.	_____
3. Each package is marked "RADIOACTIVE-LSA", two opposite sides for bins, one marking for drums.	_____
4. Each package consigned to the Richland, Washington or Beatty, Nevada burial facility is marked "CLASS A-UNSTABLE" within six inches of the "RADIOACTIVE-LSA" marking(s).	_____
5. Each package consigned to the Barnwell S.C. burial facility is marked "CLASS A-UNSTABLE" on top of the package.	_____
6. Each package gross weight is clearly marked on the bins, optional for drums.	_____
7. The color of the markings contrast with the marking background.	_____
8. The unique SEG bar code identification number is on each package and corresponds with the manifest.	_____
9. Package surveys indicate that less than 1000 dpm/100 cm^2 beta/gamma and/or less than 20 dpm/100 cm^2 alpha removable contamination is present.	_____
10. All packages are less than 1000 mrem/hr dose rate.	_____

Enclosure 3.24

II. VEHICLE CHECKLIST — INITIALS

1. If any package has a dose rate of 200 mrem/hr or greater a closed vehicle is required. _____

2. Placards attached to vehicle such that one is visible from the front of the tractor, each side of the trailer and back of the trailer. _____

3. Extra placards provided to driver if placards applied that are not permanent. _____

4. Packages loaded to evenly distribute load on axles as prescribed by driver. _____

5. Load braced as to prevent shifting and reviewed by driver as adequate. _____

6. The vehicle radiation survey indicates that the maximum dose rate does not exceed: _____

   Vehicle on contact of 200 mrem/hr
   Two meter reading of 10 mrem/hr
   Cab (sleeper if equipped) 2 mrem/hr

7. For van shipments, the van has been sealed with a "lead seal" or other seal with a unique number or SEG symbol.(optional) _____

III. DRIVER CHECKLIST

1. The driver has been instructed concerning the radioactive material shipment, the "exclusive use" requirements and signed the "exclusive use" instructions. _____

2. The "vehicle condition checklist" has been completed by the driver and all unsatisfactory conditions corrected. _____

3. The driver has signed the "Bill of Lading". _____

4. Driver has signed the shipment certification. _____

Enclosure 3.24

5. As appropriate, the following documents have been included with the shipping papers and provided to the driver: (mark appropriate listing)

a. Shipment to the Richland, Washington Burial Facility

INITIAL

_____US Ecology "Radioactive Waste Shipment and Disposal Manifest"
_____Generator Breakdown
_____Bill of Lading
_____Exclusive Use Instructions
_____DSHS LLRW Shipment Certification
_____Vehicle Release Survey
_____Volume Allocation Authorizations
_____741 Form
_____Other (specify)_____
_____

b. Shipment to the Beatty, Nevada Burial Facility

_____US Ecology "Radioactive Waste Shipment and Disposal Manifest"
_____Generator Breakdown
_____Bill of Lading
_____Exclusive Use Instructions
_____Special Nuclear Material Certification
_____LLRW Shipment Certification
_____Vehicle Release Survey
_____Volume Allocation Authorizations
_____741 Form
_____Other (specify)_____

c. Shipment to the Barnwell, S.C. Burial Facility

_____CNSI Radioactive Shipment Manifest Form
_____Generator Breakdown
_____Bill of Lading
_____Exclusive Use Instructions
_____Radioactive Waste Shipment Certification Form (DHEC803)
_____Radioactive Waste Shipment Prior Notification Form (DHEC802)
_____Isotopic analysis for filters and resins
_____Vehicle Release Survey
_____Volume Allocation Authorizations
_____741 Form
_____Other (specify)_____

Enclosure 3.24

IV. CONSIGNEE LICENSE VERIFICATION AND SHIPMENT NOTIFICATION

1. Confirm that consignee license is in the possession of SEG and receipt of the isotopes, activities and forms are compatible with that license. _____

2. For shipments to the Barnwell, S.C. Burial Facility, DHEC and CNSI shall be notified just prior to release of the shipment of any changes in the Prior Notification Form (DHEC 802). _____

3. For shipments to the Beatty, Nevada or Richland, Washington burial facility the appropriate facility will be contacted at release of the shipment and informed of the expected arrival date. _____

4. A copy of the shipment manifest has been mailed to the appropriate burial facility. _____

Enclosure 3.25 - Scheduled Shipment Report

Shipment Number	Date Sched to Ship	Date... Loaded	Trailer... Number	Carrier...	Equipment.	Container. Type	Consigned.....	PO_Number.	Contents.....	...
90775		05/30/89	0067	METLER	FLAT	BOXES	BARNWELL	4965	NEU	
90901		06/03/89	3263	METLER	VAN	BOXES	BARNWELL	4929	NEU	1
90806		06/06/89	3439	METLER	VAN	BOXES	BARNWELL	4927	NEU	1
										1
***										---
										3
90804	06/12/89	06/05/89	3652	METLER	VAN	BOXES	BARNWELL	4995		1
90808	06/12/89	06/03/89	3237	METLER	VAN	BOXES	BARNWELL	5013		1
90810	06/12/89	06/08/89	3249	METLER	VAN	MIXED	BARNWELL	5015		1
90811	06/12/89	06/08/89	3320	METLER	VAN	BOXES	BARNWELL	5016		1
***										---
										4
90401	06/13/89	05/22/89	3610	METLER	VAN	BOXES	BARNWELL	4491		1
90800	06/13/89	06/02/89	224959	HITTMAN	VAN	DRUMS	BEATTY	4988		1
90807	06/13/89	06/07/89	3318	METLER	VAN	BOXES	BARNWELL	5018		1
***										---
										3
90813	06/14/89	06/09/89	3300	METLER	VAN	BOXES	BARNWELL	5034		1
90814	06/14/89	06/10/89	3117	METLER	VAN	DRUMS	BARNWELL	5035		1
***										---
										2
90809	06/15/89	06/09/89	3611	METLER	VAN	DRUMS	BEATTY	5014		1
90812	06/15/89	06/08/89	8004	ST. JOSEPH	VAN	DRUMS	BEATTY	5017		1
90816	06/15/89		0	HITTMAN	FLAT	MIXED	BARNWELL	5036		1
***										---
										3
90815	06/16/89	06/12/89	3647	METLER	VAN	DRUMS	BARNWELL	5037		1
90851	06/16/89	06/13/89	3111	METLER	VAN	BOXES	BARNWELL	5038		1
90852	06/16/89	06/13/89	360392	HITTMAN	FLAT	BOXES	BARNWELL	5039		1
***										---
										3
										====
TOTAL										18

Enclosure 3.26 - DHEC 802 "Prior Notification"

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
Radioactive Waste Shipment Prior Notification and Manifest Form

[Failure to Complete ALL Entries Will Result in Return of Form and Constitute Noncompliance.]

See Reverse Side for Instructions

Name and Address of Shipper/Generator:	2. Person Responsible for Waste Shipment: a) Name: b) Title: c) Telephone:( )
3. Radioactive Waste Transport Permit No.	4. Shipment Identification No.:
5. Location from which waste will be shipped:	6. Name and Address of Consignee:
7. Scheduled Date of Departure of Shipment:	8. Estimated Date of Arrival of Shipment:

9. Carrier:	10. Trailer No. & Owner: (if avail.)	11. Type Transport Vehicle:

12. Routes shipment will follow in State of South Carolina (Be Specific):

13. Type Package or Cask Model No.:	14. Type Container in Cask:	15. Package or Cask Spec.:

16. Complete Waste Description (Be Specific):

17. Physical & Chemical Form:	18. Total No. of Packages:	19. Prominent Radionuclides:

20. Total Curies:	21. Waste Class & Stability:	22. Total Cubic Feet:
23. DOT Sub Type:	24. DOT Class. & Hazard Class UN No.:	25. Hwy. Route Controlled: (Large Quantity) [ ] Yes [ ] No

CERTIFICATION

I hereby certify on behalf of the above-named shipper/generator to the South Carolina Department of Health and Environmental Control that the information provided herein is complete and correct to the best of my knowledge; and that the shipper/generator has complied with all the provisions as required by Act No. 429 of 1980, the South Carolina Radioactive Waste Transportation and Disposal Act, and Department Regulation 61-83.

Date _____ _____
Typed Name

_____
Signature of Consignor's Authorized Representative

CONSIGNEE ACKNOWLEDGEMENT

This acknowledges to the South Carolina Department of Health and Environmental Control that the above-described radioactive waste shipment was received.

_____ _____
Date of Delivery Signature of Consignee's Authorized Representative

Enclosure 3.26 - DHEC 802 "Prior Notification"

S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL

BROKER\PROCESSOR ADDENDUM TO DHEC FORM 802
GENERATOR VOLUME AND ACTIVITY RECORD

SHIPPER Scientific Ecology Group

SHIPMENT I.D. NO. _____

WASTE GENERATOR LOCATION/STATE	PERMIT NUMBER	WASTE DESCRIP.	PROMINENT NUCLIDES	TOTAL ACTIVITY	WASTE CLASS	NO. OF PACKAGES (see note)	WASTE VOLUME

NOTE: If number of packages is less than one and waste is contained in a package with another generator's waste, leave "No. of Packages" blank, but indicate the waste volume.

Enclosure 3.27 - CNSI " Radioactive Shipment Manifest Form"

(1)GENERATOR NAME:SCIENTIFIC ECOLOGY GROUP
ADDRESS:PO 2530,1560 BEAR CRK.RD
CITY:OAK RIDGE, TN 37830
CONTACT:DONALD HARTJE
PHONE:(615)481-0222

BARNWELL WASTE MANAGEMENT FACILITY
OPERATED BY: CHEM-NUCLEAR SYSTEMS, INC.
P.O. BOX 726, BARNWELL, SOUTH CAROLINA 29812
(803)259-1781

RADIOACTIVE SHIPMENT MANIFEST FORM
(3) RADIOACTIVE WASTE TRANSPORTATION PERMIT NO.
0272-41-89-I

(5)CARRIER:
ADDRESS:
CITY:
TELEPHONE:
SHIPPING DATE: 7/13/89
SHIPMENT TYPE:VAR
SHIPMENT SURFACE EXPOSURE: mR/HR
CASK IDENTIFICATION NO Not Applicable
SHIPMENT NO.: 12345
LINER TYPE: Not Applicable
LINER SERIAL NO: Not Applicable
DRIVER SIGNATURE/DATE:

(2)CONSIGNED TO:
CHEM-NUCLEAR SYSTEMS, INC.
P.O. BOX 726; OSBORN ROAD
BARNWELL, SOUTH CAROLINA 29812

(4) USE THIS NUMBER ON ALL CONTINUATION PAGES
SHIPMENT ID NUMBER: 0789-000
PAGE 1 OF 2

PURCHASE ORDER NUMBER:

(6)TOTAL FOR EACH CLASS No. PKGS	WEIGHT (LBS)	PROPER SHIPPING NAME & HAZARD CLASS (PER 49 CFR 172.101)	ID. No.	RPT-ABLE QTY	(7) SHIPMENT TOTALS DISP. VOLUME CU.FT.	TOTAL VOLUME CU.FT.	TOTAL PALLET VOLUME	No.OF PKGS.	ACTIVITY(10CFR20.311) MILLICURIES ALL ISOTOPES	TRITIUM	C-14	TC-99	I-129	SOURCE (LBS)
		RADIOACTIVE MATERIAL, EMPTY PACKAGES	UN2908		10.8	.0		1	2.6025	1.000000	0.100000	0	0	NONE
		RADIOACTIVE MATERIAL, FISSILE, N.O.S.	UN2918											
1	892.0	RADIOACTIVE MATERIAL, LSA, N.O.S.	UN2912											
		RADIOACTIVE MATERIAL, N.O.S.	UN2982											
		RADIOACTIVE MATERIAL, LIMITED QUANTITY, N.O.S.	UN2910											
		RADIOACTIVE MATERIAL, SPECIAL FORM, N.O.S	UN2974											
		RADIOACTIVE MATERIAL, INSTRUMENTS AND ARTICLES	UN2911											
		OTHER (SPECIFY)												

(9) MINIMUM FILL % FOR STABILIZATION PROCESS: N/A

(10) SOLIDIFICATION AGENT: NONE

(11) NUMBER AND TYPE OF CONTAINERS: 1 DRUM

(8) ISOTOPE	TOTAL SHM GRAMS	NO. PACKAGES
U-233	0	0
U-235	0	0
TOTAL	NONE	0

TRUCK NUMBER:
TRAILER NUMBER:
REPORTABLE QTY.:

(12) WASTE DESCRIPTION: COMPACTED PLASTIC, RUBBER, METAL, PAPER, GLASS, AIR FILTERS

(13) PHYSICAL FORM SOLID

(14) CHEMICAL FORM METAL OXIDES

(15) NAME AND % OF CHELATING AGENTS: NO CHELATES

(16) WASTE FORM CLASS: [X]AU [ ]AS [ ]B [ ]C

(17)[X]YES [ ]NO THIS VEHICLE IS CONSIGNED EXCLUSIVE USE.LOADING AND UNLOADING MUST BE ACCOMPLISHED BY CONSIGNOR OR CONSIGNEE, OR HIS/HER DESIGNATED AGENT. PLACARDS APPLIED.

(18)IMPORTANT:"THIS IS TO CERTIFY THAT THE ABOVE NAMED MATERIALS ARE PROPERLY CLASSIFIED, DESCRIBED, PACKAGED, MARKED, AND LABELED, AND ARE IN PROPER CONDITION FOR TRANSPORTATION ACCORDING TO THE APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION."

SIGNATURE:
COMPANY: DATE:

(19)"CERTIFICATION IS HEREBY MADE TO THE SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL THAT THIS SHIPMENT OF LOW-LEVEL RADIOACTIVE WASTE HAS BEEN INSPECTED IN ACCORDANCE WITH THE REQUIREMENTS OF SOUTH CAROLINA RADIOACTIVE MATERIAL LICENSE NO. 097 AS AMENDED, AND THE NUCLEAR REGULATORY COMMISSION'S LICENSE NO. 12-13536-01 AS AMENDED,AND THE EFFECTIVE BARNWELL SITE DISPOSAL CRITERIA WITHIN 48 HOURS PRIOR TO SHIPMENT, AND FURTHER CERTIFICATION IS MADE THAT THE INSPECTION REVEALED NO ITEMS OF NON-COMPLIANCE WITH ALL APPLICABLE LAWS, RULES, AND REGULATIONS."

DATE: SIGNATURE:
TITLE AND ORGANIZATION:
TELEPHONE NO.:

CNSI USE ONLY

[ ] THIS MATERIAL MEETS ALL LICENSE REQUIREMENTS.
[ ] THIS MATERIAL WAS DISPOSED OF IN ACCORDANCE WITH LICENSE.
[ ] DISCREPANCY:

AUTHORIZED SIGNATURE:
TITLE: DATE:

FORM No. CNS/SIG-01 (4-89)

ARRIVAL DATE: ARRIVAL SURVEY NO.:
DATE/TIME BURIED: R.P. INITIAL:
TRENCH NO: LOCATION CODE:
TRENCH NO: LOCATION CODE:
WASTE CLASS CODE:
PERSONNEL EXPOSURE:

Enclosure 3.27 - CNSI "Radioactive Shipment Manifest Form"

GENERATOR VOLUME AND ACTIVITY FORM
(BROKER/PROCESSOR FORM)

(1) SHIPPER: SCIENTIFIC ECOLOGY GROUP INC.

(2) SHIPMENT ID NO. 0789-000

WASTE GENERATOR CITY AND STATE	PERMIT NUMBER	WASTE DESCRIPTION & PERCENT	WASTE VOLUME (CU.FT.)	NUCLIDE	NUCLIDE ACTIVITY (mCi)	TOTAL ACTIVITY (mCi)	CLASS	TOTAL WEIGHT (LBS)	SNM U-233 & U235 (GMS)	SOURCE POUNDS (LBS)	CONTAINER TYPE	WCC CODE CNSI USE ONLY
(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
SRG	0272-41-89-I	COMPACTED DAM CONSISTING OF	10.8	C-14	0.1000	2.6025	AU	892.0	NONE	NONE	METAL DRUM	
P.O. BOX 2530		PLASTIC ,RUBBER ,METAL ,		Cs-137	0.4000							
OAK RIDGE		PAPER ,GLASS 74.1%		H-3	1.0000							
TN, 37830		COMPACTED AIR FILTERS 25.9%		Mn-54	1.1025							

Enclosure 3.27 - CNSI "Radioactive Shipment Manifest Form"

BARNWELL WASTE MANAGEMENT FACILITY
OPERATED BY: CHEM NUCLEAR SYSTEMS,INC.

GENERATOR NAME SCIENTIFIC ECOLOGY GROUP

USE THIS NUMBER ON ALL CONTINUATION PAGES

SHIPMENT ID NUMBER 0789-000

PAGE 2 OF _

CONTINUATION SHEET

(20) ITEM NO.	(20B) GENERATOR PERMIT NO.	(21) RAD. NUC. EACH CONT.	(22) ACT. EACH NUC. (MCI)	(23) ACT. EACH CONT. (MCI)	(24) PHYS. FORM	(25) CHEM. FORM & NAME & % CHELATING AGENT	(26) WASTE DESCRIPTION	(27) WASTE FORM CLASS	(28) SEM (GMS)	(29) SOURCE MAT. (LBS)	(30) DISP. CONT. WT. (LBS)	(31) DISP. CONT. VOL. (CU-FT)	(32) DISP. CONT. TYPE	(33) RAD. CONT. SURF. (%)mR/HR ( )R/HR	LEVEL (T.I.) 1M mR/HR	(34) CONTAM. CONT. SURF. (DPM/100SQ-CM) AL	B-G	(35) FISS CLASS	(36) LABELS MARKS USED RADIO-ACTIVE
12345	0272-41-89-I	Mn-54	1.1025	2.6025	SOLID	METAL OXIDES NO CHELATES	COMPACTED PLASTIC METAL .PAPER .GLASS COMPACTED AIR FILTERS .RUBBER	.AU			892.	10.8	METAL DRUM	1.0	1.0	<20/<1000		N/A	LSA
		H-3	1.0000																
		Cs-137	0.4000																
		C-14	0.1000																
				2.6025		PAGE TOTALS			NONE	NONE	892.	10.8							

FORM NO.: CNS/SIG-01
(4-89)

6055

Enclosure 3.28 - US Ecology "Radioactive Waste Shipment and Disposal"

WASTE COLLECTOR/PROCESSOR US ECOLOGY NUMBER

(1) PROPER NAME: SCIENTIFIC ECOLOGY GROUP
ADDRESS: 1560 BEAR CREEK ROAD
P.O. BOX 2530
CITY: OAK RIDGE STATE: TN ZIP: 37830
CONTACT: DONALD R. BARTON PHONE: (615)481-0222
USER PERMIT #: 0450 SHIPMENT #: 12345

(2) BILL DISPOSAL CHARGES TO: SAME
NAME: SCIENTIFIC ECOLOGY GROUP
ADDRESS: P.O. BOX 2530
CITY: OAK RIDGE STATE: TN PURCHASE ORDER #: 5018

REV. 5/87
US Ecology Nuclear — US Ecology, Inc. an American Ecology company

CONSOLIDATED SHIPMENT MANIFEST
FOR WASTE COLLECTORS & WASTE PROCESSORS
AS DESCRIBED IN 10 CFR 20.311 (a) & (f)

CONSIGNED TO: (3)
☐ US ECOLOGY, Inc. P.O. Box 638 Hanford Reservation Richland, WA 99352 Phone 509-377-2411
☒ US ECOLOGY, Inc. P.O. Box 578 Hwy 95, 12 miles South of Beatty, NV 89003 Phone 702-553-2203

(4) CARRIER:
CARRIER EPA # (if any): ___-___-___
SHIPPING DATE: 7/13/89
ADDRESS:
CITY: STATE: ZIP:
PHONE:
CASK TYPE: NOT APPLICABLE CASK SURFACE EXPOSURE RATE: NOT APPLICABLE mR/hr

PAGE 1 OF ___ USE THIS NO. ON ALL CONTINUATION PAGES → 12712

(5A) WASTE COLLECTOR CERTIFICATION

NOT APPLICABLE

(5B) WASTE PROCESSOR CERTIFICATION

(6)

TOTAL FOR EACH CLASS # OF PACKAGES	WEIGHT (Pounds)	REPORTABLE QUANTITY NAME (if any)	PROPER SHIPPING NAME & HAZARD CLASS (PER 49 CFR 172.101)	ID NUMBER
1	892.0		Radioactive Material, Rare, n.o.s. — Radioactive Material	UN2918
			Radioactive Material, low specific activity, n.o.s. — Radioactive Material	UN2912
			Radioactive Material, n.o.s. — Radioactive Material	UN2982
			Radioactive Material, limited quantity, n.o.s. — Radioactive Material	UN2910
			Radioactive Material, special form, n.o.s. — Radioactive Material	UN2974
			Radioactive Material, instruments and articles — Radioactive Material	UN2911
			Uranyl Acetate (NO-5000/2270) — Radioactive Material	NA9180

(7) SHIPMENT TOTALS (DO NOT WRITE IN SHADED AREAS)

VOLUME (cu ft)	TOTAL # OF PACKAGES	SOURCE MATERIAL (kgs)	SPECIAL NUCLEAR MATERIAL (grams) U 233	U 235	PLUTONIUM	TOTAL
10.0	1	NONE	NONE	NONE	NONE	NONE

ACTIVITY

ACTIVITY TOTALS:	TRITIUM	C-14	Tc-99	I-129	ALL ISOTOPES
☐ Curies					
Microcuries ☒ (10CFR20.311)	1.0000	.1000	NONE	NONE	1.5975

TERMS AND CONDITIONS

A. TITLE: Upon inspection and acceptance at the disposal site by US Ecology and all appropriate regulatory authorities, title to the Waste which conforms to Company's representations herein shall thereupon transfer from the Customer and be vested in US Ecology.

B. WASTE PRODUCTS: Customer represents and warrants that data set forth in this Radioactive Waste Shipment & Disposal Manifest is true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and the designated facility license.

C. INDEMNIFICATION: Customer agrees to indemnify US Ecology, its officers, employees and agents against all loss and liability whatsoever if such loss or liability results from the failure of the waste to conform in all material respects to the data supplied on the Radioactive Waste Shipment & Disposal Manifest or this shipment to fail to meet the standards prescribed by the Department of Transportation or any other governmental agency having jurisdiction over such matters.

FOR US ECOLOGY'S USE ONLY

TYPE OF CONTAINER	CONTAINER VOLUME CU FT.	# OF PACKS	CU FT PER CONTAINER TYPE
DRUMS			
OVERPACK			
55	7.30		
30	4.01		
5	0.67		
OTHER			
BOXES			
1st SIZE			
2nd SIZE			
3rd SIZE			
CASK LINERS			
OTHER			
OTHER			
SHIPMENT TOTALS			

LOAD EVALUATION

CHECK ALL THAT APPLY TO THIS LOAD. DESCRIBE WHEN DIFFERENCES IN COMMENT SECTION

☐ Manifest Waste Description Inadequate
☐ Contamination or Leakage Detected
☐ Unexpected Exposure Rates Detected
☐ No Variations Detected on the Load
☐ Packing Inadequate
☐ Labels, Markings etc. Inadequate
☐ Container Integrity Inadequate
☐ Other

DESCRIBE THE EXTENT OF ANY VIOLATION CHECKED ABOVE AND THE REMEDIAL ACTION TAKEN

☐ CHECK HERE IF A SUPPLEMENTAL REPORT IS ATTACHED

BURIAL DATA

CONTAINER SEPARATION ☐, ☐, ☐
(Code of the units to be used)
CODE 1 for Sort (Sort) ___ % of volume (Sort) ___
10% between weight sensitivity (Class) ___
10% nuclide Chemical Separated Only ___%
Other ___ 0 No requirement ___ 0

WASTE CATEGORY	NUCLIDE	CURIES	GRAMS	CURIE
DEPTH IN FEET				

Date Received:
Date Disposed:
Branch No.:
☐ This material meets licensed limits
☐ This material was disposed of in accordance with license
AUTHORIZED INITIALS:

US ECOLOGY INVOICE #: ___-___
US ECOLOGY CUSTOMER #: ___-___ (Must agree with Agent named in Block 3)
US ECOLOGY INVOICE DATE: MO. DY. YR.
DISCREPANCY CODE(S):

BATES #

CONSIGNEE ORIGINAL COPY
(MUST ACCOMPANY WASTE IN TRANSIT)

000311

Enclosure 3.28 - US Ecology "Radioactive Waste Shipment and Disposal"

WASTE COLLECTOR/PROCESSOR USECOLOGY NUMBER: 1 0 0 - 0 0 2 - 2 0 0 0
SCIENTIFIC ECOLOGY GROUP
WASTE COLLECTOR/PROCESSOR NAME

USEcology Nuclear
USEcology, Inc.
an American Ecology company

REV. 9/87

Manifest Index & Regional Compact Tabulation

FOR WASTE COLLECTORS & WASTE PROCESSORS AS DESCRIBED IN 10 CFR 20.311 (e) & (f)

List all original "PROCESSED WASTE" generators (if any) before "COLLECTED WASTE" generators:

SHIPPING DATE: 1/13/89 MANIFEST NO: 12712
SHIPMENT NO: 12345 PAGE 1 OF

SEQUENCE #	WASTE CODE (See Below)	USECOLOGY GENERATOR NUMBER	MANIFEST NUMBER	SITE USE PERIOD #	GENERATOR NAME	STATE	ORIGINATING COMPACT REGION	ACTIVITY (MILLICURIES)	VOLUME (CUBIC FEET)	HOST STATE SURCHARGE (DOLLARS)
1	P	1 0 0 - 0 0 2 - 2 0 0 5	12712	0150	SIG	TX		2.0025	10.00	210.00
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
							TOTALS:	2.0025	10.00	210.00

WASTE CODES (See 10 CFR 20.311 (e) and (f) for further description)
P = Processed Waste
C = Collected Waste
NOTE: Do not mix Waste Codes on the same line. Generators with both "P" and "C" waste should be listed twice with separate totals.

CONSIGNEE ORIGINAL COPY
(MUST ACCOMPANY WASTE IN TRANSIT)

TITLE: DATA SYSTEMS WASTE TRACKING

DATE: 12-11-89

Enclosure 3.28 - US Ecology "Radioactive Waste Shipment and Disposal" 6055

US Ecology

PROCESSED WASTE CONTINUATION SHEET (ONE DISPOSABLE CONTAINER PER PAGE)

WASTE PROCESSOR NAME: SCIENTIFIC ECOLOGY GROUP

WASTE PROCESSOR ID: [ ][ ][ ][ ][ ]-[ ][ ][ ]-[ ][ ][ ][ ]

CONTAINER # ..... 12345 ☐ CHECK HERE IF THIS CONTAINER IS CONTINUED FROM PREVIOUS PAGE

CONTAINER TYPE .. DRUM

PHYSICAL FORM .... SOLID ☐ CHECK IF < 1% CHELATE BY WEIGHT (IF NOT GIVE %)

—NO CHELATES—

CONTAINER TOTALS		CORRECTIONS
VOLUME:	10.0 CUBIC FEET	
WEIGHT:	837 POUNDS	
ACTIVITY:	2.6025 MILLICURIES / CURIES	
TOTAL SNM:	0 GRAMS	
TOTAL U-233:	0 GRAMS	
TOTAL U-235:	0 GRAMS	
TOTAL PU:	0 GRAMS	
TOTAL SOURCE:	0 KILOGRAMS	

CONTAINER CHARACTERISTICS		CORRECTIONS
WASTE FORM CLASS	1	
STABILITY CLASS (See Note #3)	1	
DISPOSAL CONTAINER SURFACE	1.0 mR/hr	mR/hr
DISPOSAL CONTAINER AT 1 METER	1.0 mR/hr	mR/hr
TRANSPORT INDEX	1.0	
FISSILE CLASS	NONE	
D.O.T. LABEL	LSA	

MANIFEST # _____

PAGE 1 OF _____

NOTE #3 - NRC Stability Class Code: S - Stable; U - Unstable

US ECOLOGY GENERATOR NO. (USE THE GENERATORS NUMBER HAVE ALREADY BEEN ASSIGNED TO THE CONTAINER PREVIOUSLY ADDED)	GENERATOR NAME	VOLUME (INDICATE PARTIAL VOLUME FOR EACH GENERATOR) CUBIC FT.	WASTE DESCRIPTION (See Note #1)	SOLVENT, SOLIDIFICATION STABILIZATION MEDIA (See Note #2)	Chemical Form Chelating Agent (10CFR20 311)	Check Below IF C. 61.55 Chelating Agent by Weight	Radionuclide (10CFR20 311)	Activity ☐ Curies ☒ Millicuries (10CFR20 311)	Special Nuclear Material Grams	Source Material (Kilograms)
TRU 99-002-2010	SEG	10.0	21	98	PLASTIC, RUBBER, METAL	-0-	Mn-54	1.1025	NONE	NONE
			23	98	PAPER, GLASS		H-3	1.0000		
					COMPACTED AIR FILTERS		Co-137	0.1000		
							C-14	0.1000		
		10.0	PAGE TOTALS					2.6025	NONE	NONE

REVISED 10-16-89

*USE OF OTHER AS A DESCRIPTION MUST INCLUDE A WRITTEN AND SIGNED EXPLANATION ATTACHED TO THIS MANIFEST.

NOTE #1 - Approximate Codes. Choose up to THREE. Select those which are predominant by volume. Use the new SEG & Contaminants.

CODE (Solids)	CODE (Liquids)	CODE (Sludges)
1 Laboratory Debris	1 Solvent Mixture	1 Sludge
2 Contaminated Dry Solid Waste	2 Solvent Mixture	2 Sludge
3 Non Combustible Dry Solid Waste	3 Solvent Mixture Aqueous	3 Sludge
4 Contaminated Paper Waste	4 Solvent Mixture Aqueous	4 Sludge
5 Non Contaminated Paper Waste	5 Solvent Mixture Aqueous	5 Sludge
6 Contaminated Rubber Waste	6 Aqueous Liquids in Water or Solvent	6 Sludge
7 Contaminated Plastic	7 Aqueous Liquids in Water or Solvent	7 Sludge
8 Contaminated Metal	8 Contaminated Oil	8 Sludge
9 Contaminated Glass	9 Contaminated Oil	9 Sludge
10 Dry Sand		10 Oil
		99 Other*

NOTE #2 - Solidification Stabilization Media Codes CODE 98 = "NONE REQUIRED". Choose up to THREE. Select those which are predominant by volume. See Attached sheet for definitions on each media.

CODE (Solids)	CODE (Liquids)	CODE (Sludges)
0 Solid Oil	0 Solid T Sorb	00 Organic HP500
1 Cement	0 Solid T Oil	01 Portland
2 Fiber Glass	00 Oxidizer	02 Portland B
Adsorbent	01 Solid & Sorb	03 Aquasol
3 Hi Oil	02 Chemical 30	04 Aquasol B
20 Perlite	03 Chemical 50	05 Solid T Sol
21 Perlite B	04 Chemical 3000	06 Other Sorbent*
4 Inorganic Oil	05 Organic HP500	
	06 Organic Oxidizer	

CODE (Solidification)	CODE (Solidification)
24 Amsco Absorbent (Liquids)	30 Vermiculite
25 Aquasol 1 and 6	31 Vermiculite B
26 Aquasol (ATT 6 Waste Clean)	32 Solid T Sol
27 Chem Nuclear Cement	33 Other Solidification Media*
28 Cement (Portland)	
29 Dolomite Cement Media	
30 Fiber Media	
31 Fiber Sorbent	

CODE (Solidification)	CODE (Solidification)
10 Amsco (General Chemical)	40 Un Solidified Concrete
40 Diatomite Sorbent (ATT 5 Waste Clean)	41 Short Equipment Cement
41 Chem Nuclear Cement	42 Vermiculite Portland Cement
42 Cement (Type 1)	43 Other Solidification Media*
43 Bar Media (Wrap Fiber Bonding)	
44 Cementone RJ 3 Dynamic Cement	

CONSIGNEE ORIGINAL COPY (MUST ACCOMPANY WASTE IN TRANSIT)

000313

Enclosure 3.29 Manifest Breakdown

PAGE 1 Manifest Break Down for Shipment #: 90065 12:43:09 22 JUN 1989

Date Shipped: _____

Customer Name	Cust #	Manifest #	Date Rec	IP Vol.. (CuFt)	Activity.. mCi	..Account... Number	Job Code	SEG.... Job #	Transport. Cost	Burial. Cost
BALTIMORE GAS & ELECTRIC CO./CALVERT CLIFFS	606	606-89-20	03/22/89	254.4	651.8041					
GPU NUCLEAR CORPORATION/ SAXTON	155	88-SNS-022	04/14/88	1.2	.0115					
MANUFACTURING SCIENCES CORP.	354	MSC-W8901	01/20/89	3	.31					
PUBLIC SERVICE ELECTRIC & GAS/HOPE CREEK	593	593-89-04	03/08/89	8.9	1.4404					
PUBLIC SERVICE ELECTRIC & GAS/SALEM	590	590-89-17	04/08/89	254.3	221.4361					
SHIPMENT TOTAL				521.8	875.0021					

Grams of SNM _____ Code Above Manifest(s) with (1)

Pallet Volume _____ Code Above Manifest(s) with (2)

Cu.Ft. 200 mR/Hr _____ Code Above Manifest(s) with (3) - Beatty Only

Enclosure 3.28 - US Ecology "Radioactive Waste Shipment and Disposal" 6055

US Ecology

PROCESSED WASTE CONTINUATION SHEET (ONE DISPOSABLE CONTAINER PER PAGE)

WASTE PROCESSOR NAME: SCIENTIFIC ECOLOGY GROUP

WASTE PROCESSOR I.D.: [illegible]

CONTAINER #: 12315 ☐ CHECK HERE IF THIS CONTAINER IS CONTINUED FROM PREVIOUS PAGE

CONTAINER TYPE: DRUM

PHYSICAL FORM: SOLID ☐ CHECK IF < 1% CHELATE BY WEIGHT OR NOT ONE %

—NO CHELATES—

CONTAINER TOTALS		CORRECTIONS
VOLUME:	10.8 CUBIC FEET	
WEIGHT:	492 POUNDS	
ACTIVITY:	2.6025 ☒ MILLICURIES ☐ CURIES	
TOTAL SNM:	0 GRAMS	
TOTAL U-233:	0 GRAMS	
TOTAL U-235:	0 GRAMS	
TOTAL PU:	0 GRAMS	
TOTAL SOURCE:	0 KILOGRAMS	

CONTAINER CHARACTERISTICS		CORRECTIONS
WASTE FORM CLASS	A	
STABILITY CLASS (See Note #3)	U	
DISPOSAL CONTAINER SURFACE	1.0 mR/hr	mR/hr
DISPOSAL CONTAINER AT 1 METER	1.0 mR/hr	mR/hr
TRANSPORT INDEX	1.0	
FISSILE CLASS	NONE	
D.O.T. LABEL	LSA	

MANIFEST # ______

PAGE 1 OF ______

NOTE #3 - NRC Stability Class Code: S - Stable; U - Unstable

US ECOLOGY GENERATOR NO. (LIST ALL GENERATORS WHICH HAVE CONTRIBUTED TO THE CONTAINER DETAILED ABOVE)	GENERATOR NAME	VOLUME (INDICATE PARTIAL VOLUME FOR EACH GENERATOR) CUBIC FT.	WASTE DESCRIPTION (See Note #1)	SORBENT, SOLIDIFICATION, STABILIZATION MEDIA (See Note #2)	Chemical Form / Chelating Agent (10CFR20.311)	Check Below if C.01% Chelating Agent by Weight	Radionuclide (10CFR20.311)	Activity ☐ Curies ☒ Millicuries (10CFR20.311)	Special Nuclear Material (Grams)	Source Material (Kilograms)
TXR 99-002-2810	SEG	10.8	21	98	PLASTIC, RUBBER, METAL		Mn-54	1.1025	NONE	NONE
			23	98	PAPER, GLASS		H-3	1.0000		
					COMPACTED AIR FILTERS		Cs-137	0.4000		
							C-14	0.1000		
PAGE TOTALS		10.8						2.6025	NONE	NONE

NOTE #1 - Use of "Other" as a description must include a written and signed explanation attached to this manifest.

NOTE #2 - [illegible]

REVISED 10-10-88

CONSIGNEE ORIGINAL COPY (MUST ACCOMPANY WASTE IN TRANSIT)

Enclosure 3.29 Manifest Breakdown

PAGE 1 Manifest Break Down for Shipment #: 90865 12:43:09 22 JUN 1989

Date Shipped: _____

Customer Name	Cust #	Manifest #	Date Rec	IP Vol.. (CuFt)	Activity.. mCi	..Account... Number	Job Code	SEG.... Job #	Transport. Cost	Burial. Cost
BALTIMORE GAS & ELECTRIC CO./CALVERT CLIFFS	606	606-89-20	03/22/89	254.4	651.8041					
GPU NUCLEAR CORPORATION/ SAXTON	155	88-SNS-022	04/14/88	1.2	.0115					
MANUFACTURING SCIENCES CORP.	354	MSC-W8901	01/20/89	3	.31					
PUBLIC SERVICE ELECTRIC & GAS/HOPE CREEK	593	593-89-04	03/08/89	8.9	1.4404					
PUBLIC SERVICE ELECTRIC & GAS/SALEM	590	590-89-17	04/06/89	254.3	221.4361					
SHIPMENT TOTAL				521.8	875.0021					

Grams of SNM _____ Code Above Manifest(s) with (1)

Pallet Volume _____ Code Above Manifest(s) with (2)

Cu.Ft. 200 mR/Hr _____ Code Above Manifest(s) with (3) - Beatty Only

Enclosure 3.30 - Outgoing Isotopic Analysis

Isotopic Analysis
for Shipment: 70947

Container : 68706 Total Curies :0.0001561

VOL. CUFT. : 13.5 Description :LIQUID SOLIDIFIED IN CEMENT
SOIL IN CEMENT

cc : 382284.6463159

Isotopes	uCi/cc
AG-110M	0.0000028774
CO-57	0.0000005232
CO-58	0.0000936475
CO-60	0.0001174517
CS-134	0.0000188341
CS-137	0.0001179749
MN-54	0.0000078476
SB-125	0.0000138640
U-238	0.0000149104
RA-226	0.0000175262
H-3	0.0000028774
	0.0000000000
	0.0000000000
	0.0000000000
	0.0000000000
	0.0000000000
TOTAL -	0.0004083345

Enclosure 3.31 - Radioactive Material Shipment Exclusive Use Instructions

SHIPPER: The Scientific Ecology Group, Inc. (SEG)

SHIPMENT NUMBER: _____ DATE _____

SHIP TO: _____ (CONSIGNEE)

_____

_____

_____

TELEPHONE: _____

1. This shipment of radioactive material has been designated by SEG as an "exclusive use" shipment for delivery to and unloading by _____ (CONSIGNEE).

2. As an "exclusive use" shipment no loading, unloading, or shifting of lading shall be performed while in transit without the permission of SEG.

3. Do not move the 5th wheel from the original position at release from SEG or change tractors without notifying SEG.

4. If deviations to the below prescribed routing or arrival date are necessary contact SEG:

   Scheduled arrival date: _____
   Routing:

5. Placards have been applied on the transportation conveyance as follows:

   _____ 4 Placards on van or flatbed

   _____ 4 Placards on van or flatbed with a 5th on front of the tractor

   _____ 3 Placards applied to sides and back of van or flatbed and the 4th on front of the tractor

Enclosure 3.31

_____ Extra placards have been supplied to driver.

6. The carrier is responsible for maintaining the placarding prescribed above. Placards shall be replaced if any are lost or damaged.

7. Seals have been attached to the following locations:

_____

_____

_____

8. In the case of emergencies or the need to contact SEG concerning any of these requirements, contact SEG as follows:

8:00 a.m. - 5:00 p.m. Monday - Friday	(615)481-0222
Supervisor Shipping and Receiving, Don Hartje	Office (615)481-0222 Home [redacted]
Director Regulatory and Technical Services, Walt Hipsher	Office (615)481-0222 Home [redacted]
Plant Manager, R.L. Brackett	Office (615)481-0222 Home [redacted]

During regular business hours, call the SEG administrative offices. At other times, call the persons listed above in the order listed. When you reach one of these people, they will give you further instructions.

I have read and understand the requirements of these "exclusive use" instructions.

Driver's Signature _____

Company _____

Date _____

WMH/as

HP-86

Enclosure 3.32 DHEC 803 "Radioactive Waste Shipment Certification Form"

Form RHA-CT
(5/80)

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
Radioactive Waste Shipment Certification Form

General Instructions and Information: This is a two part form to be used by shippers and carriers of radioactive waste. The certifications contained herein satisfy the requirements of Section 13-7-150, of Act No. 499 of 1980, the South Carolina Radioactive Waste Transportation and Disposal Act. This certification along with a copy of the prior notification form shall accompany each shipment of radioactive waste into and within the State of South Carolina. The shipper is to complete his portion of the form and present it to the carrier as part of the shipping documents. Upon receipt, the carrier shall complete his portion of the form. Upon delivery of the shipment to the consignee, a copy of this certification form, and a copy of the Prior Notification and Manifest form with the consignee acknowledgement, shall be returned to the Department.

Part I: Shipper's Certificate of Compliance

1. Name of Shipper and Address:	2. Shipment Identification No.
Telephone No. ( )	3. Transport Permit No.

In compliance with Act No. 499 of 1980, the South Carolina Radioactive Waste Transportation and Disposal Act, I hereby certify on behalf of the above-named shipper to the South Carolina Department of Health and Environmental Control that the above-named shipper has complied with all provisions of Act No. 499 of 1980, and all applicable laws and administrative rules and regulations, both State and Federal, regarding the packaging, transportation, storage, disposal and delivery of such wastes. I further certify that this shipment of radioactive waste has been inspected within 48 hours of the time of departure and that no items of non-compliance with applicable laws, rules or regulations were found.

Date_____

Typed Name and Title of Agent of Shipper Signature

Part II: Carrier's Certification

1. Name of Carrier and Address:	2. Shipment Identification No.
Telephone No. ( )	3. Transport Trailer No.
4. Scheduled Date of Departure of Shipment:	5. Estimated Date of Arrival of Shipment:

Certification is hereby made to the South Carolina Department of Health and Environmental Control that: (a) the shipper has provided the carrier with a copy of the shipment manifest, the certificate of compliance, and the routing instructions; (b) the shipment of radioactive waste has been properly placarded for transport according to applicable U.S. Department of Transportation Regulations; (c) all shipping papers originated or reproduced by the carrier have been properly executed; (d) the transport vehicle has been inspected according to applicable State and Federal regulations within the prescribed intervals and that all safety and operational components are in good working order and meet the requirements of regulations; (e) all drivers who will operate the vehicle within the State of South Carolina are qualified to transport hazardous materials as specified by applicable U.S. Department of Transportation regulations; (f) the Department shall be immediately notified of any variance, occuring after departure, from the shipper's notification of primary routes in South Carolina and estimated date of arrival; (g) all applicable laws and administrative rules and regulations, both State and Federal, regarding the transportation of radioactive wastes will be complied with.

Date_____

Typed or Printed Name and Title Signature

Enclosure 3.33 - Beatty Certification

CERTIFICATION

THIS IS TO CERTIFY THAT I HAVE READ AND UNDERSTAND THE REQUIREMENTS OF LICENSE #13-11-0043-02 ISSUED TO US ECOLOGY BY THE NEVADA DEPARTMENT OF HUMAN RESOURCES FOR THE RECEIPT AND DISPOSAL OR RADIOACTIVE MATERIALS AT BEATTY NEVADA, AS DESCRIBED IN PARAGRAPHS 5.1.1.3; 5.1.1.4; 5.1.1.5; 5.1.1.6 AND 5.4.6.1 OF THE US ECOLOGY SITE OPERATIONS MANUAL, AND I FURTHER CERTIFY THAT THE MATERIALS IN THIS SHIPMENT ARE IN CONFORMITY WITH THOSE REQUIREMENTS:

Scientific Ecology Group
COMPANY

AUTHORIZED SIGNATURE

TITLE

DATE

SHIPMENT = _____

Enclosure 3.34 - Richland Certification

SCIENTIFIC ECOLOGY GROUP, INC.

Certification is hereby given to the U.S. Nuclear Regulatory Commission that this shipment of low-level radioactive waste has been inspected in accordance with the requirements of U.S. NRC License No. 16-19204-01, as amended, within 48 hours prior to shipment; and further certification is made that the inspection revealed no items of noncompliance with all applicable laws, rules, regulations, and license conditions.

Date: _____ By: _____

Title and Organization: _____

Address and Telephone: _____

Enclosure 3.35 - Final In- Route Shipment Inspection Check List

Shipment_____ Date Shipped_____

This checklist is to be completed by the driver when the final shipment inspection is conducted before arrival at the Burial Site. This checklist must be returned to SEG with the transportation invoice.

Inspection Date_____ Location_____

Driver's Name_____ Signature_____

	SAT	UNSAT
1. Shoring Inspected - Load Locks secure all shoring in place and snugly against the package	_____	_____
2. Packages checked to ensure that:		
Drums		
a. Drums rings are not loose		
b. Drum ring bolts are tight	_____	_____
Boxes		
a. Rivets are properly installed and caulked	_____	_____
3. Placards are still applied to four sides of the trailer and , if applied, the front bumper of the tractor	_____	_____
4. No package markings (Radioactive LSA) have fallen off	_____	_____
5. No visible package damage	_____	_____
6. Seal #_____applied to the trailer rear door (optional)	_____	_____

2700

Enclosure 3.35

This shipment must not enter the Burial Site one of the following SEG staff members is contacted.

Don Hartje 8 a.m. - 5 p.m. Office 615-481-0222
After normal business hours: Home [redacted]

Walt Hipsher 8 a.m. - 5 p.m. Office 615-481-0222
After normal business hours: Home
Pager # [redacted]

SEG Staff member contacted Date_____ Time_____

_____

SHIPMENT #_____

Enclosure 3.36 -

DRIVER'S CHECKLIST FOR BARNWELL

---------- Shipment Manifest

---------- Prior Notification

---------- Generator Breakdown

_____ Exclusive Use Instructions

_____ Volume Allocation Authorization

_____ Shipment Certification

_____ DOE\NRC Form 741

_____ Survey

_____ Bill of Lading

_____ Other _____

Enclosure 3.37 - Bill of Lading

QUILL® FORM

This is to certify that the below named materials are properly classified described packaged marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation

STRAIGHT BILL OF LADING—SHORT FORM

ORIGINAL—NOT NEGOTIABLE

Shipper's No.

(Name of Carrier) (SCAC) Carrier's No.

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading,

at OAK RIDGE, TN 37830 19 From SCIENTIFIC ECOLOGY GROUP, INC.

the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western and Illinois Freight Classifications in effect on the date hereof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.

Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

Consigned to _____
(Mail or street address of consignee — For purposes of notification only.)

Destination _____ State _____ County _____ Delivery Address ★ _____
(★ To be filled in only when shipper desires and governing tariffs provide for delivery thereat.)

Route _____

Delivering Carrier _____ Car or Vehicle Initials _____ No. _____

No. Packages	* HM	Kind of Package, Description of Articles, Special Marks, and Exceptions	*WEIGHT (Subject to Corrections)	Class or Rate	Check Column

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

If charges are to be prepaid, write or stamp here, "To be Prepaid."

Rec'd $ _____ to apply in prepayment of the charges on the property described hereon.

Agent or Cashier

Per _____
(The signature here acknowledges only the amount prepaid.)

Charges Advanced:

$ _____

*If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."
NOTE—Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

per

* The labels used for the shipments conform to the specifications set forth in the box maker's certificate thereon, and all other requirements of the Consolidated Freight Classifications.

*Shipper's imprint in lieu of stamp, not a part of bill of lading approved by the Interstate Commerce Commission

SCIENTIFIC ECOLOGY GROUP, INC. Shipper, Per _____ _____ Agent, Per _____

Permanent post-office address of shipper: P.O. BOX 2530 - 1560 BEAR CREEK RD. - OAK RIDGE, TN 37830

*Mark with "X" to designate Hazardous Material as defined in Title 49 of the Code of Federal Regulations.

QUILL FORM OBT A DISTRIBUTED BY QUILL CORPORATION • 100 S. SCHELTER ROAD • LINCOLNSHIRE, ILLINOIS 60069

Enclosure 3.38 - Shipment Log

6055

SHIPMENT LOG

SHIPMENT NUMBER	DATE SHIPPED	BEATTY BARNWELL RICHLAND	CUSTOMER NAME	CUSTOMER MANIFEST NUMBER	VOLUME BURIED PER MANF.	ACTIVITY BURIED PER MANF.	TOTAL VOLUME BURIED	TOTAL ACTIVITY BURIED	TOTAL WEIGHT	79 GAL.	89 GAL.	96 GAL.	BOXES	COMMENTS

Enclosure 3.39 - VOLUME ALLOCATION LOG FOR POWER PLANTS

CUSTOMER -

Shipment Number	Date Shipped	Shipment Volume	Total Volume Shipped to Date	Total Volume Shipped Monthly
PAGE	TOTAL			

Enclosure 3.40 - ADVANCE NOTIFICATION FORM

Manifest\Shipment No. _____

I. 1. Client _____

2. Scheduled Date of Arrival _____

3. Carrier _____ Equipment _____

4. SEG Shipment Number _____

II. 1. Package Types and Quantities

NUMBER	CONTAINER TYPE	ISOTOPE	ACTIVITY
_____	30 gallon drums	U-235	_____
_____	55 gallon drums	U-233	_____
_____	Metal bins(____ft.^{3})	U-238	_____
_____	Wood boxes(____ft.^{3})	Pu	_____
_____	20' Sealands	Am-241	_____
_____	40' Sealands	Ra	_____
_____	Other _____	Sr90	_____

Orig: (H. Osborne)
W. Hipsher
Copy: R. Brackett
S. Cross
D. Engle
D. Hartje
S. Hawkins
H.P.-Shpg.
R. Key
S. Morris
G. Owens
J. Pride
D. Skvara

2. Maximum on contact radiation level (mRem/hr) _____

3. Maximum container weight _____

4. Total activity _____ mci

III. Waste Types:

Asbestos_____
Ash_____
Atomizer_____
Bead Resin_____
Blasting Grit_____
Building Rubble_____
CaF_2 _____
Cloth_____
Concrete_____
HEPA_____
Hot Particles____

Mag. Fluoride_____
Metal_____
Oil-Soaked Rags_____
Paper_____
Plastic_____
Powdex Resin_____
Rubber_____
Soil/Sand_____
Wood_____
Other_____
Class A_____B____C____

COMMENTS

IV. Misc.

1. Burial Site WC_____ NV_____ WA_____

2. Special Processing:
Date to be shipped/buried _____
Can be mixed with other compact generators? _____
Other: _____

3. Page 2: Not Applicable____ Attached____

000329

Enclosure 3.40 - ADVANCE NOTIFICATION

CLIENT_____

The individual taking the information shall ask the client if any of the following materials are present; if so, the material must be accepted by an authorized individual (Don Hartje or Walt Hipsher).

Indicate if Present:	Approval:
_____ Sources (4)	_____
_____ Oil (5)	_____
_____ Oily Material (e.g., rags) (5)	_____
_____ Liquids (e.g., mop head, bulk) (6)	_____
_____ Lead	_____
_____ Radium	_____
_____ Filters (not HEPA) (3, 8)	_____
_____ Class B or C (4)	_____
_____ Chelates	_____
_____ Resin (8)	_____

If the client has any of the above materials, the following will be completed.

1. Determine that SEG can process the material for receipt at the appropriate burial site.

2. Determine that pricing has been established with the client.

3. Filters (non-HEPA) cannot have greater than 0.2 microci/cc.

4. No Class B or C or sources accepted without approval of the Director of Regulatory and Technical Services.

5. Oil shipments must be accompanied by any analysis or certification showing that PCB's are <2 ppm, total organic halogens are <1000 ppm, no listed hazardous wastes are present and the material passes the EP Tox test.

6. Liquid (other than oil) shipments must be accompanied by a certification that the liquid contains no hazardous waste, has a ph >5 and <9, contains no organics and is not flammable.

7. Resin cannot have greater than 7.25 mci/cc activity.

8. Filters and resins must have a complete isotopic that identifies the isotopes and each isotope's activity and total filter volume.

9. After the acceptability of the material has been established, the individual accepting the material will discuss the acceptability with the client, any additional requirements, and initial above.

Enclosure 3.41 - MANIFEST AND SHIPMENT EVALUATION
(PAGE 1 OF 2)

I. GENERATOR/BROKER

MANIFEST NUMBER _____

DATE OF RECEIPT _____

II. (1) SHIPMENT EVALUATION ( ) NONE

A.

B.

C.

D.

E.

(2) SHIPMENT CORRECTIVE ACTIONS ( ) NONE

A.

B.

C.

D.

E.

Enclosure 3.41 - MANIFEST AND SHIPMENT EVALUATION
(PAGE 2 OF 2)

III. (1) MANIFEST EVALUATION ( ) NONE

A.

B.

C.

D.

E.

(2) MANIFEST DATA INPUT CORRECTIONS ( ) NONE

A. ENTERED_____

B. ENTERED_____

C. ENTERED_____

D. ENTERED_____

E. ENTERED_____

IV. ACKNOWLEDGEMENT LETTER

A. DATE SENT _____

B. CORRECTIONS ACKNOWLEDGED _____

C. FOLLOW-UP ACTIONS REQUIRED

000332

Next 66 Pages Redacted

Contains Proprietary Information

6055

DOCUMENT CHANGE NOTICE

DCN NO. 92-105 | Sht 1 of 2

Doc. Title ~~Supplier Evaluation~~ Approved Supplier List

Work Order No. | Doc. No. SEG/QA-7.3 | Old/New Rev. 0/1

#	Change Description	Change Justification	Known Impacts
	See Attachment	To provide instruction for adding a supplier to the Approved Suppliers List with interim approval status.	None

UNCONTROLLED COPY
FOR INFORMATION ONLY

Originator (print name):

This is a:

☐ Pending DCN (no sig. rq'd)

☒ Open DCN - when signed at the right, use this DCN as an interim Rev. ___ of this document until Rev. ___ is issued.

Sign and date (only for Open DCNs).

Preparer Patricia Hodges 3-17-92

Checker Scott K Denton 3-17-92

Mgr H.W. Arnwsmith 3/22/92

QA (if rq'd) [illegible] 3-17-92

H&S (if rq'd) NA

Change Description

Add a new para. 8.5 as follows and renumber existing para. 8.5 to para. 8.6.

If a supplier can not meet the full requirements for addition to the ASL, it may be added as being interimly approved if it meets a condition such as the following:

1. The supplier is currently listed on the ASL but not for the specific product or service the supplier was approved to provide. However, if the supplier has been previously audited to furnish the requested product or service and did not fully qualify, interim approval should not be granted.

2. The supplier has previously successfully provided the product or services to be provided but has never been included on the ASL.

3. A supplier of a specific product or service has been listed on an ASL maintained by a nuclear utility, NSSS supplier or a nuclear fuels supplier and SEG has reviewed their evaluation or audit report.

If a supplier is granted interim approval status, a full evaluation will be scheduled at the earliest possible time.

6055

DOCUMENT CHANGE NOTICE

DCN NO. 92-064 | Sht 1 of 1

Doc. Title QA-7.2, Approved Supplier List

Work Order No. | Doc. No. SEG/QA 7.2 | Old/New Rev. 0/1

#	Change Description	Change Justification	Known Impacts
8.3	Change first sentence to READ: Suppliers of Code materials, components or services holding a current ASME Certificate of Authorization shall be placed on the SEG ASL ~~upon~~ after ~~successfully~~ an SEG QA audit or evaluation of the suppliers implementation of the applicable ASME Code requirements.	Comply with NRC directive IN-86-21.	None

Originator (print name):

This is a:

☐ Pending DCN (no sig. rq'd)

☒ Open DCN - when signed at the right, use this DCN as an interim Rev. 0 of this document until Rev. 1 is issued.

Sign and date (only for Open DCNs)

Preparer Patricia Hodges 2-4-92

Checker Scott K Dentz 2/4/92

Mgr H.W. Arnowitt 2/14/92

QA (if rq'd) Dale Hedges 2-18-92

H&S (if rq'd) N/A

DOCUMENT CHANGE NOTICE

Approved Supplier List

DCN 91-211 Sht 1 of 3

Ref. EWR No.	Doc. No. SEG/QA 7.2	Old/New Rev. 0/1

#	Change Description	Change Justification	Known Impacts
1	Add TP 3.1 Approved Suppliers List Database Entry Form	Form In Current Use	
2.	TP 4.4 Delete Last Sentence	Sentence Is Redundent	
3.	TP 8.1 Add "Per SEG/QA 7.3" After The Word "Evaluated" In Third Line of Text	To Advise of Procedure For Conducting An Evaluation	None
4.	TP 8.1 Add "And Inspection" After "Surveillence" In First Line of Text on Page 5	Inspection Reports Should Also Be Considered	
5.	TP 8.2 Delete Paragraph	Information Is Included In SEG/QA 18.1	
6.	TP 8.3 Change Lines To Read "Triannually" Insted of "Annually".	Suppliers Are Evaluated Annually And Audited Every Three Years As A Minimum	
7.	Include TP 8.3 From SEG/QA 7.3 In This Procedure Omiting Reference To TP 2.1	Contents of ASL Should Be In ASL Procedure	

* Signature required here only if DCN is an open DCN, otherwise, "NR"

Change Prepared by/Date	Change Checked by/Date	Engr. Mgmt/Date
[illegible] 7-24-91	Patricia Hodge 9-13-91	NA
QS/Date	QA (if req'd)/Date	Approved by/Date
N/A	Patricia Hodge 9-13-91	H.W. Crowson 9/26/91

DOCUMENT CHANGE NOTICE

DCN

Sht 2 of 3

Approved Supplier List

Ref. EWR No.	Doc. No. SEG/QA 7.2	Old/New Rev. 0/1

#	Change Description	Change Justification	Known Impacts
8.	TP 8.5 Add the following to end of paragraph: Suppliers shall be placed on the ASL using data provided by the approved suppliers list data base entry form (Enclosure 3.1)	To state current practice	
9	TP 9. Add 9.2 Approved Suppliers List Database Entry Form (Attachment A.)	Adds form to procedure	

* Signature required here only if DCN is an open DCN, otherwise, "NR"

Change Prepared by/Date	Change Checked by/Date	Engr. Mgmt/Date
.&S/Date	QA (if req'd)/Date	Approved by/Date

SEG/QA 7.2
ATTACHMENT A

6055

SEG-QA APPROVED
SUPPLIERS LIST DATABASE
ENTRY FORM

DATE_____

__ Initial Listing __ Revision/Changes __ Annual Evaluation
__ Deletion from ASL __ Reinstatement

INSTRUCTIONS: Fill in information for all fields marked "M" (Mandatory); fields marked "O" are optional information that are to be completed as applicable for a specific supplier.

(M) Level _____

(M) Category _____

(M) Supplier ASL #_____

(M) Supplier Name _____

(M) Supplier Street _____

(M) City _____ State _____ Zip _____

(M) Quality Contact _____ Title _____

(O) Telephone _____

(M) Date Qualified _____

(M) Date of Last Audit _____

(M) Date of Last Review _____

(M) Approval Source _____

(M) Open Findings (Y/N) _____

(M) QA Manual Date _____

(O) Expiration Date ASME Certificates of Authorization _____

(M) Qualified To: _____
_____

(M) Restrictions: (Y/N) _____ Specify Restrictions (if any) _____
_____

(M) Commodity Code(s) _____

(O) Quality Rating _____%

(O) Number of Shipments Received _____

Scientific Ecology Group, Inc. 1560 Bear Creek Road Oak Ridge, Tennessee 37830	NUMBER SEG/QA 7.2
	REVISION NUMBER 0

Title:

APPROVED SUPPLIER LIST

Submitted:	Patrick A Walsh	Date	7-3-90
Reviewed:	Patricia Ackerbo	Date	7-3-90
QA:	James L. Mooney	Date	7-3-90
Approved:	H.W. Arnowsmith	Date	7-3-90

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TITLE: APPROVED SUPPLIER LIST

NUMBER: SEG/QA 7.2
REVISION: 0

1. POLICY

It is SEG's policy to maintain an Approved Supplier List (ASL) which shall be used for the procurement of Level 1 and/or Level 2 materials and services.

2. SCOPE

This procedure applies to SEG Level 1 or Level 2 materials or services which are quality related.

3. ENCLOSURES

None

4. DEFINITIONS

4.1 Approved Supplier - A supplier that meets quality assurance, technical, manufacturing capability, procurement, and related requirements and standards, as appropriate, for products or services procured from the supplier.

4.2 Survey - A planned activity, conducted as necessary, to determine the ability of a potential supplier to meet requirements in the applicable areas of engineering expertise, manufacturing capability, quality assurance program, management organization, financial resources and delivery performance.

4.3 Audit - A documented activity performed in accordance with written procedures or checklists to verify, by examination and evaluation of objective evidence, that applicable elements of supplier quality assurance programs have been developed, documented and effectively implemented in accordance with specified documents.

4.4 Evaluation - The act of assessing and documenting the acceptability of a supplier quality system. Evaluations are documented.

5. REFERENCES

5.1 SEG QA Program SEG\QA-100

5.2 SEG Operating Procedure QA 18.1, Audit Program

6. RESPONSIBILITIES

6.1 The Quality Assurance organization is responsible for the following;

6.1.1 Preparing plans and schedules for supplier audits and surveys.

6.1.2 Assuming the lead role in developing, documenting, and performing the quality assurance aspects of surveys or audits, and performing evaluations of supplier's quality systems.

6.1.3 Reviewing audit reports received from the Joint Supplier Audit Program, or other ESBU entities, evaluating the results, and documenting the acceptability of supplier's quality programs for SEG procurement.

6.1.4 Preparing the Approved Supplier List and maintaining data to support current supplier status.

6.1.5 Verifying that procurement is made from suppliers who have been evaluated and approved, when required, or that suitable controls have been provided, and that any ASL contingencies are included on purchase requisitions.

6.1.6 Planning, initiating, and participating in supplier audits in accordance with established procedures.

7. DISCUSSION

None

8. PROCEDURE

8.1 Suppliers of Level 1 (safety related) or Level II materials, equipment, parts and/or services shall be evaluated every twelve calender months by Quality Assurance to ensure that capabilities are maintained. Level 1 active suppliers shall be audited at least every three years. A decision to audit shall be based on a supplier's performance history, supplier organizational

stability, surviellence report data, and active order status. If a supplier is inactive, a decision to reevaluate may be postponed until further purchasing actions are proposed. A formal evaluation report shall be issued by the QA Manager.

Scheduled and random audits of suppliers shall be conducted by Quality Assurance in accordance with establised procedures. For vendors of safety related materials, an initial full eighteen criteria audit shall be performed prior to their placement onto the SEG ASL.

8.2 Audits of suppliers shall be performed in accordance with written checklists which contain the applicable criteria commonly associated with such programs. Sufficient objective evidence shall be collected during the audit. The QA Manager shall review and approve all audits on which the basis of approval will place vendors onto the SEG ASL. The QA Manager shall approve the degree of scope and depth of the audit to assure quality procurements. Insufficient objective evidence, or other deficiencies shall be grounds for rejection of audit reports. Audits performed by SEG personnel to be used by other ESBU entities shall also be reviewed by the SEG QA Manager to ensure sufficient scope, depth, and objective evidence collection. All such reviews shall be documented.

8.3 Suppliers of Code materials, components or services holding a current ASME "N" type Certificate of Authorization, or ASME Quality Systems Certificate, may be placed onto the SEG ASL without formal audit or survey. The ASME generated certificate shall be reviewed by the SEG QA Manager, and review results documented. These suppliers shall be evaluated annually. Copies of the Certificate shall be placed in the supplier's audit file along with review documents.

Suppliers providing Code materials, components, or services which require compliance with ASME Code Section III, Division I, and who do not hold an ASME Certificate of Authorization, must be audited for inclusion in the SEG ASL. They shall be audited annually or prior to purchase order placement if no items or services have been purchased during the preceeding twelve month period.

8.4 The ASL shall be issued periodically by Quality Assurance and include as a minimum the following attributes:

8.4.1 The supplier's name, location, and telephone number.

8.4.2 Evaluation/audit and reevalution/reaudit dates.

8.4.3 Specific product form, type, or service that the supplier is qualified to furnish.

8.4.4 ASME Quality System Certificate, Certificate of Authorization number, expiration date, or quality program when applicable.

8.5 For each audit performed to place a supplier onto the SEG ASL, SEG QA shall maintain an audit file. The file shall include the results of evaluations, surveys, audits, QA Manager reviews, or other supporting document sufficient to provide objective evidence to indicate adequate review of supplier programs or performance. Such files may be maintained by other ESBU entities when those entities have performed audits, surveys, or evaluations. Such entities may forward to SEG only pertinant portions of their files sufficient to allow SEG QA to make informed decisions regarding placement of suppliers onto the SEG ASL.

9. RECORDS

9.1 SEG ASL Vendor Audit File

9.2 SEG ASL

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DOCUMENT CHANGE NOTICE

DCN NO. 92-455 | Sht 1 of 1

Doc. Title INSPECTION

Work Order No. | Doc. No. SEG/GA-10.1 KDC 10/5/92 | Old/New Rev. 1/2

#	Change Description	Change Justification	Known Impacts
	ADD: PARA 7.10 THE USE OF INSPECTION STAMPS IS CONTROLLED BY RECEIPT RECORDS SIGNED BY THE INSPECTORS AND MAINTAINED IN THE QA DEPT. FILES. TERMINATING OR TRANSFERRED INSPECTORS ARE REQUIRED TO RETURN ANY INSPECTOR STAMPS. ~~AND~~ KDC 10/2/92 LOST OR UNRETURNED STAMPS ARE LISTED AS "INACTIVE" IN THE QA DEPT. FILES.	NEED FOR ACCOUNTABILITY OF INSPECTOR STAMPS	ESTABLISH INSPECTOR STAMP ISSUE FILE

UNCONTROLLED COPY
FOR INFORMATION ONLY

Originator (print name): KENNETH D. CAMPBELL

This is a:

☐ Pending DCN (no sig. rq'd)

☒ Open DCN - when signed at the right, use this DCN as an interim Rev. ___ of this document until Rev. ___ is issued.

Sign and date (only for Open DCNs)

Preparer [signature] 28/2/92

Checker [signature] 10/2/92

Mgr [signature] 10/2/92

QA (if rq'd) [signature] 10-2-92

H&S (if rq'd) _____ _____

DOCUMENT CHANGE NOTICE

DCN NO. 92-106 | Sht 1 of 1

Doc. Title INSPECTION

Work Order No. | Doc. No. QA 10.1 | Old/New Rev. 1/2

#	Change Description	Change Justification	Known Impacts
1.	Change Section 9.1.6 to state that: "For procured components, parts, or structures which require a QA Receipt Inspection a QA Department representative must sign the shipping document (eg Bill of Ladding) prior to payment to document acceptance of the product."	Reflect actual practice	NONE

Originator (print name):

This is a:

☐ Pending DCN (no sig. rq'd)

☒ Open DCN - when signed at the right, use this DCN as an interim Rev. ___ of this document until Rev. ___ is issued.

Sign and date (only for Open DCNs)

Preparer Scott K Denton 3/17/92

Checker Patricia Dodson 3/17/92

Mgr H.W. Arrowsmith 3/22/92

QA (if rq'd) Dale Helgen 3-17-92

H&S (if rq'd) NA

DOCUMENT CHANGE NOTICE

DCN NO. 92-356 | Sht 1 of 2

Doc. Title QA-10.1 Inspection

Work Order No. | Doc. No. QA-10.1 | Old/New Rev. 1/2

#	Change Description	Change Justification	Known Impacts
	Change 1st sentance of Sect 7.5 to read as follows: when an item has passed a receipt inspection, a QA Status Tag (Enclosure 3.1) or a Container Fabrication Quality Control Record (Enclosure 3.5) is attached to the item.	to add the "Container Fabrication Quality Control Record" form to QA-10.1.	None
	Change paragraph 9.1.4 to read as follows (beginning mid sentance): the Quality Assurance Inspector shall attach a QA Status Tag (Enclosure 3.1) or a Container Fabrication Quality Control Record (Enclosure 3.5) on the inspected items. A QA Accept Tag should be used if the item...	to add the "Container Fabrication Quality Control Record" Form to QA-10.1	None

Originator (print name): Larry W. Harris

This is a:

- [ ] Pending DCN (no sig. rq'd)
- [x] Open DCN - when signed at the right, use this DCN as an interim Rev. 1 of this document until Rev. 2 is issued.

Sign and date (only for Open DCNs)

Preparer Larry W. Harris 8/17/92

Checker Patricia Hodges 8-17-92

Mgr [illegible] 8-18-92

H.W. Overhomb 8/23/92

QA (if rq'd)

H&S (if rq'd) N/A

ENCLOSURE 3.5

SCIENTIFIC ECOLOGY GROUP, INC.

"The World Leader in Radwaste Processing and Management"

CONTAINER FABRICATION QUALITY CONTROL RECORD

RECEIPT	QA Inspected By: QA Container Serial Number: QA Container Dimensions: Hgt. ___ Dia. ___
GASKET	Inspected By:
MANWAY LID	Torqued: Ft. Lb.: _____ at _____ In.
UNDERDRAIN	Work Order Number: _____ Installed By: Inspected By: QA Verification on Installation By:
BASKET	Installed By: Measurements: Hgt. _____ Dia _____ Inspected By:
RELEASE	Container Fabrication By: Security Seal Applied By: Release Inspection By: QA Overall Dimensions: Hgt. ___ Dia. ___ QA Release By:

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DOCUMENT CHANGE NOTICE	DCN NO. 94-163	Sht 1 of 2

Doc. Title Inspection

Work Order No.	Doc. No. SEG QA 10.1	Old/New Rev 1/2

#	Change Description	Change Justification	Known Impacts
1.	Para. 8.1, ADD to end of paragraph. "Planning is performed for routine procurements as well as unique, complex procurements or Projects."	Provide clarification on inspection planning methodology.	None
2.	Insert Para. 8.1.1. "Routine inspection planning is performed by QA for ongoing procurements such as metal containers, liners, HICs, or services such as NDE, calibration, or ASME welding. When a purchase requisition is received for review by QA, an inspection checklist is developed identifying critical attributes and acceptance criteria. The checklist may be reviewed by other cognizant persons for adequacy."		

Originator (print name): LATICIA HODGES Date: 5/19/94

This is a(n):

☐ Pending DCN (no signature required)

☒ Open DCN - when signed at the right, use this DCN as an interim Rev 1 of this Document until Rev 2 is issued.

Sign and date (only for Open DCN's

Prepared by Laticia Hodges 5-19-94

Checked by Larry W. Harris 5/19/94

Manager [illegible] 5-19-94

QA (if required) Laticia Hodges 5-19-94

H&S (if required) _____ _____

6055

DOCUMENT CHANGE NOTICE	DCN NO. 94-163	Sht 2 of 2

Doc. Title Inspection

Work Order No.	Doc. No. QA 10.1	Old/New Rev 1 / 2

#	Change Description	Change Justification	Known Impacts
3.	Para. 8.2 Add as first sentence in Paragraph. "For complex procurements or projects, inspection planning is coordinated between QA and the Project Manager."		

Originator (print name): Date:

This is a(n):

☐ Pending DCN (no signature required)

☐ Open DCN - when signed at the right, use this DCN as an interim Rev ____ of this Document until Rev ____ is issued.

Sign and date (only for Open DCN's

Prepared by _____ _____

Checked by _____ _____

Manager _____ _____

QA (if required) _____ _____

H&S (if required) _____ _____

6055

DOCUMENT CHANGE NOTICE	DCN NO. 94-181	Sht 1 of 2

Doc. Title INSPECTION

Work Order No.	Doc. No. QA-10.1	Old/New Rev 1/2

#	Change Description	Change Justification	Known Impacts
	Substitute attached Inspection Record for present Enclosure 3.4 Inspection Record.	To document serial number and calibration due date of Measuring and Test Equipment used to perform quality Related Work.	None.

Originator (print name): LARRY W. HARRIS Date: 5/12/94

This is a(n):

☐ Pending DCN (no signature required)

☑ Open DCN - when signed at the right, use this DCN as an interim Rev 1 of this Document until Rev 2 is issued.

Sign and date (only for Open DCN's

Prepared by Larry W. Harris 5/12/94

Checked by Patricia Hodges 5/12/94

Manager [illegible] 5-12-94

QA (if required) Patricia Hodges 5-31-94

H&S (if required) _____ _____

DCN 94-181
Pg. 2

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SCIENTIFIC ECOLOGY GROUP, INC.

QUALITY ASSURANCE INSPECTION RECORD

ITEM/DESCRIPTION _____

PART/SERIAL NO. _____

INSPECTION TYPE: RECEIVING____ IN-PROCESS ____ SURVEILLANCE _____
OTHER _____ FABRICATION-RELEASE ____ SHIPMENT-RELEASE _____
SUPPLIER _____ PURCHASE ORDER NO. _____
PROCEDURE/REV. _____ WORK ORDER NO. _____

AREA EXAMINED/CRITERIA: **RESULTS:**

MEASURING & TEST EQUIPMENT USED:

Type	Serial Number	Calibration Due Date

DISPOSITION:

NCR NO. _____ INSPECTOR _____ DATE _____
ACCEPTED _____ INSPECTOR _____ DATE _____
RELEASED _____ INSPECTOR _____ DATE _____
OTHER _____ INSPECTOR _____ DATE _____
REVIEWED _____ INSPECTOR _____ DATE _____

DOCUMENT CHANGE NOTICE

6055

DCN NO. 93-379		Sht 1 of 2
Doc. Title QA-10.1 Inspection		
Work Order No.	Doc. No. QA-10.1, DCN	Old/New Rev. 1/2

#	Change Description	Change Justification 92-356	Known Impacts
	Replace enclosure 3.5 sent with DCN 92-356 with new smaller-sized enclosure 3.5 (see attached), "Container Fabrication Quality Control Record."	Added additional inspection points as agreed and documented on NCR-93-027	NONE

Originator (print name and date): LARRY W. HARRIS 7/14/93

☐ Pending DCN (no sig. rq'd)

☑ Open DCN - when signed at the right, use this DCN as and interim Rev. 2 of this document until Rev. 2 is issued.

Sign and date (only for Open DCNs)

Preparer Larry W. Harris 7/14/93

Checker Patricia Hodges 7/14/93

Mgr H.W. Brownsmith 7/16/93

QA (if rq'd) Patricia Hodges 7/14/93

H&S (if rq'd) 000419

Enclosure 3.5 6055

SCIENTIFIC ECOLOGY GROUP, INC.

"The World Leader in Radwaste Processing and Management"

CONTAINER FABRICATION QUALITY CONTROL RECORD

RECEIPT	QA Inspected by: QA Container Serial Number: QA Container Diameter:
GASKET	← Inspected By:
UNDERDRAIN	← Installed By: ← Inspected By:
BASKET	← Installed By: ← Diameter Measurement: ← Inspected By:
RELEASE	← Container Fabrication By: ← Release Inspection By: ← QA Release By:

Next 14 Pages Redacted

Contains Proprietary Information

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DOCUMENT CHANGE NOTICE	DCN NO. 94-127	Sht 1 of 1

Doc. Title Nonconformance Reporting

Work Order No.	Doc. No. SEG/QA 15.1	Old/New Rev 1/2

#	Change Description	Change Justification	Known Impacts
1.	Para. 6.14 Revise to read as follows: "Corrective action shall be completed within 30 days. When corrective action becomes delinquent, the Vice-President, QA shall contact the responsible Vice-President or other appropriate top-level Manager for action or to determine a reasonable time period for completion. In the event that corrective action is not completed within a reasonable time, the President of SEG shall take appropriate action."	To specify time limit for completing NCRs in a timely manner.	None

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Originator (print name): Date:

This is a(n):

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☐ Open DCN - when signed at the right, use this DCN as an interim Rev 1 of this Document until Rev 2 is issued.

Sign and date (only for Open DCN's

Prepared by Patricia Vodges 3-31-94

Checked by Carl J Ross

Manager H.W. Aronowitz 4/5/94

QA (if required) Dale Hedges 3-31-94

H&S (if required)

Next 10 Pages Redacted

Contains Proprietary Information

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT CORPORATION		DOCUMENT NUMBER: QP-12.08
QUALITY ASSURANCE PROCEDURE	SUBJECT: CERTIFICATION OF COMPACTED LOW LEVEL WASTE FOR SHIPMENT FROM SEG TO NTS	REVISION: 2
		Page 1 of 47
	AUTHORIZED: (Director, Quality Assurance) L. D. Albertsothy	Effective Date: 06/21/94

1.0 SCOPE

This procedure provides instructions and requirements for verification and certification of waste for shipment from Scientific Ecology Group, Inc., Oak Ridge, Tennessee to the Nevada Test Site. Certification of packages and shipments is dependent on DOE/NV approval of the application to ship the waste stream.

2.0 PROCEDURE

NOTE: For List of Definitions see ATTACHMENT A.
For List of Acronyms see ATTACHMENT B.
For List of Prohibited Materials see ATTACHMENT C.

2.1 Transfer of Custody at the FEMP from FERMCO to the Subcontractor

WASTE PACKAGE CERTIFIER (WPC) (AT THE FEMP) SHALL:

2.1.1 Obtain characterization documentation for each shipment from the Backlog and Disposition Group (formerly Waste Shipping).

2.1.2 Verify that characterization documentation received is acceptable to support shipment of all packages in the shipment. Documents to be valid require signature of a representative of Waste Characterization (formerly Facilities & Material Evaluation).

2.1.3 Verify that packages being shipped are identifiable to the waste characterization data.

2.1.4 Verify there are no open Deviation Reports for packages being shipped.

2.1.5 Sign a statement of compliance that attests that requirements of Items 2.1.1 through 2.1.4 have been met. Forward the document to the Waste Certification Department.

WASTE CERTIFICATION OFFICIAL (WCO) (AT THE FEMP) SHALL:

2.1.6 Review the shipment package to ensure Items 2.1.1 through 2.1.5 have been satisfactorily performed by the WPC.

2.1.7 Review the characterization data to determine acceptability and applicability to the packages being shipped.

2.1.8 Sign the "Documentation of Verification for Shipment of Waste Stream ONL0000000008 from FERMCO to SEG" form (ATTACHMENT D) received from the WCO to signify acceptance, and forward the entire package to the WCO at the subcontractor's site. Maintain a copy of the package for the Quality Certification file at the FEMP.

2.2 Procurement of Containers

WCO SHALL:

2.2.1 Obtain copies of the subcontractor's container purchase and inspection records for containers that are to be used in packaging waste.

2.2.2 Verify that containers procured by the subcontractor for packaging are obtained from a supplier on the subcontractor's approved supplier list.

WPC or WCO SHALL:

2.2.3 Prior to use, verify in writing that a selected number of the containers can be traced to the supplier identified in Item 2.2.2 above.

2.3 Verification and Overview of Receipt of Waste at Subcontractor's Site (Waste Stream ONL0000000008)

WPC or WCO SHALL:

2.3.1 Receive the shipment package referenced in Item 2.1.8 and maintain each separately in the certification file.

2.3.2 Obtain a copy for the "Waste Package Survey Report" (ATTACHMENT E) and verify that the subcontractor barcode number and FEMP container inventory number listed correspond with containers off loaded.

2.3.3 Verify the presence of a tamper indicating device on all containers off loaded

NOTE: If a tamper indicating device is broken or not securely attached, a reexamination of the contents may be required to verify that the load has not been disturbed.

2.3.4 Verify that the waste inventory number verified on the waste package survey report are traceable to the FEMP characterization documentation.

2.3.5 Enter accepted receiving information on the "Package Receipt and Acceptance Log" (ATTACHMENT F). List any deviations or nonconforming material received.

2.3.6 Sign and date "Verification of Manifest and Characterization" form (ATTACHMENT G).

2.3.7 Combine all receiving information and file under SEG manifest number.

2.4 Overview of Removal of Inner Container(s) from Overpacks (Waste Stream ONL0000000008)

WPC or WCO SHALL:

Verify and document the following:

2.4.1 That the exterior containers are identified with the subcontractor's barcode.

2.4.2 That the material being handled is sufficiently isolated and identified to prevent inadvertent misidentification or mixing with other materials.

2.4.3 The placement of subcontractor's barcode label on inner container.

2.4.4 The application of a Tamper Indicating Device (TID) to each innerpack removed.

2.5 Overview of Storage and Handling of Waste and Waste Containers

WPC or WCO SHALL:

At the beginning of each shift worked, randomly check the storage and handling of FERMCO waste. Check that:

2.5.1 Waste is identified and segregated from other materials.

2.5.2 Any spilled waste is accounted for, repackaged, and properly identified.

2.5.3 Waste coming in contact with contaminants is accounted for, repackaged, properly identified, and segregated.

NOTE: If FERMCO retains ownership of any contaminated waste, issue a deviation report and affix a QA/QC hold tag (Per SSOP-1020) to the affected material.

2.5.4 Waste is handled and stored in a safe manner. Report unsafe conditions to the subcontractor immediate supervisor and FERMCO supervisor for evaluation and resolution.

2.6 Receipt of Material from Metal Melt

Waste Stream ONL0000000009 consists of oxides and debris, slag generated from the metal melt process, and metal not amenable to melting.

NOTE: Waste Certification activities commence when characterization by FERMCO Waste Characterization has been completed. Material must be determined to be RCRA nonhazardous by FERMCO Waste Characterization and so documented by MEF or letter. Approved innerpacks will proceed to the compaction operation for volume reduction and follow the same path as waste stream ONL0000000008 with any exceptions noted.

2.6.1 Verify waste is identified and segregated.

2.6.2 Review the documentation from receipt of metal to the storage of the innerpack printout of data provided by SEG Data Systems.

2.6.3 Verify barcode label on innerpack is on printout provided by SEG Data Systems.

2.6.4 Verify innerpack is RCRA nonhazardous list provided by Waste Characterization.

2.6.5 Observe the receipt of the material generated at the metal melt operation in the compaction area.

2.6.6 Read and record the barcode label on the container.

2.6.5 Verify the innerpack is weighed.

2.6.6 Verify the lid has been welded to the container.

2.7 Compaction and Packaging of the Compacted Waste

WPC or WCO SHALL:

2.7.1 Prior to compaction of FEMP waste, verify that the press area was either last used for the same waste stream of FERMCO waste, or that the press has been thoroughly cleaned.

2.7.2 While in the packaging area, do the following for each waste package filled:

2.7.2.1 That containers used for packaging are either 83/85 gallon drums originally received with the waste shipped from FERMCO, or new 89 gallon drums procured by the subcontractor that are traceable to an approved supplier. If metal boxes are being used as overpacks, verify that the overpack box is a FERMCO approved container that is approved for shipment to NTS.

2.7.2.2 That identities of parent drums or boxes being packaged are correctly recorded and identified with the receiving daughter drum or box.

2.7.2.3 Verify waste absorbent is added to each package.

2.7.2.4 Verify through visual examination that gaskets in lids are undamaged, and not deteriorated.

2.7.2.5 Verify by visual examination that only pucks, innerpacks, and absorbent are packaged (no free liquids or other prohibited materials).

2.7.2.6 Verify space in package is utilized to the extent practicable.

2.7.2.7 Verify that each unclosed waste package left unattended during breaks or off shifts is temporarily closed, and witness the attachment of a TID.

2.7.2.8 Verify closure by the attachment of a TID stamped or initialed by the WPC or WCO in attendance.

2.7.2.9 Obtain copy of subcontractor's "Box or Drum Overpack Material Transfer" record (ATTACHMENT H) and verify against "Quality Verification Form" (ATTACHMENT I). Maintain for shipment certification file.

2.8 Certification of Waste Package

WPC or WCO SHALL:

2.8.1 Prior to examination, verify that each waste package has been surveyed for radiological contamination and that results do not exceed 1000 dpm/100 cm^2 beta-gamma or 20 dpm/1000 cm^2 alpha.

2.8.2 Verify that a "Waste Package Quality Control Record Sticker" (ATTACHMENT J) is on the container and that at least the last three blocks have been stamped or initialed by the subcontractor.

2.8.3 Verify secure closure of each package by checking that:

- Bolt rings on drums appear to be well seated and tight, and the lock nut is snugged tight.
- That a calibrated torque wrench is being used to torque the bolt ring closure to 45 ± 5 foot pounds.
- All box lids are bolted tightly with all bolts and washers in place. Boxes having clips in addition to bolts have the clips securely locked in place.

2.8.4 Verify that the gross weight of each package does not exceed the following capacity limits:

- Maximum gross weight for drums is 1200 pounds (544.3 kilograms).
- Maximum gross weight for each box must not exceed 9000 pounds (4082 kilograms) nor the design weight capacity of the box.

2.8.5 Verify that markings and other required information are correctly placed on each package as follows:

- All lettering shall be 1/2-inch or larger.
- On drums, information shall be placed on the top of each drum, and also on the side, as near to the top as practicable.
- On boxes, information is to appear on opposite sides near the top of the box, but may also appear on top of the box.

- Marking shall conform to 49 CFR 172 Subparts D & E requirements, and shall appear in grouped patterns against a contrasting background.

- Each package shall have a "Radioactive - LSA" marking on the top or side, or both.

- Each package containing 0.052 curies of uranium, or more, shall be marked "RQ" on the top or side, or both. The "RQ" shall be in close proximity to the "Radioactive - LSA" marking.

- Each package shall be marked with the gross weight in pounds and kilograms.

- Each package shall have a bar code label which contains the 8-digit shipment number (e.g. WML93204), a 6-digit package identification number unique to each package, and the 13-digit waste stream number. Using a barcode reader, check 10% of the packages, or more, to ensure barcoding is correct.

NOTE: The shipment number consists of the three alpha digits "WML", two numeric digits indicating the last two numbers of the fiscal year (e.g. 93), and three numeric digits indicating a shipment sequence number within that fiscal year. Neither the shipment number, the Waste Stream number, or the package identification number is to contain hyphens or gaps between digits.

2.8.6 Verify that each package is in acceptable physical condition, and is not overly unsightly in appearance. Examination criteria shall include holes, signs of leaking, dents affecting container integrity, sharp creases, flaking rust, and bulges.

2.8.7 Verify erroneous markings (incorrect or misleading information) are obliterated prior to acceptance for certification.

2.8.8 Verify that the contents of each waste package is acceptable for shipment to NTS by checking records of compaction against listings of acceptable materials for compaction.

NOTE: The resident WCO maintains a file of the wastes acceptable for compaction, along with supporting documentation, which is also available to the Waste Package Certifiers.

2.8.9 Verify that there are no unresolved Deviation Reports written against the waste package or material contained therein. Reference file maintained by WCO.

2.8.10 Verify there are no hold tags on the container.

2.8.11 Verify that radiation surveys have been taken and that results for each package do not exceed 200 mrem/hr at contact.

2.8.12 Verify there is a TID (nylon cable tie) on each package certified. For drums, attach the TID around the retainer ring bolt flanges back of the bolt head and nut, and snug securely. For boxes it may be necessary to install two TID's to provide adequate detection of tampering. In either case, the certifier of each package shall stamp the tab on each TID with their inspection stamp, or as an alternative, shall initial the tag with a permanent marker.

NOTE: If package is opened for inspection or any other reason, the TID must be replaced.

2.8.13 From the "Drum Overpack Material Transfer" (ATTACHMENT F) and the "Quality Verification Form" (ATTACHMENT I) enter record of compaction and acceptance on the "Package Receipt and Acceptance Log" (ATTACHMENT F).

2.9 <u>Verification of Loading of Vehicle for Shipment</u>

WPC or WCO SHALL:

2.9.1 Prior to loading of vehicle:

a. Verify that radiological survey results for the empty trailer are no greater than 1000 dpm/100 cm^2 beta-gamma and 20 dpm/100 cm^2 alpha removable contamination, and no greater than 0.1 mrem/hr radiation level on accessible areas.

b. Verify that an examination of the general condition of the transport vehicle was performed by the subcontractor.

c. Examine the empty trailer to verify there are no:

1. liquid or oily substances on interior surfaces

2. holes

3. evidence of leaks causing pooling of water on floor surfaces.

4. rotted or unsound flooring

5. structural damage

6. closure mechanism deficiencies.

d. Examine the tires on the trailer per the following acceptance criteria:

1. Tread minimum of 3/32-inch

2. No tread separation

3. No exposed fabric (e.g. result of peeled, abraded, or worn off rubber)

4. No punctures

5. No significant bulging

6. No obvious deflation

2.9.2 Loading the vehicle

a. Verify that the shipment number and package numbers agree with the "Package Storage & Disposal Data Report" already approved and signed by a WCO. Also, record the trailer number being loaded.

b. Verify that waste packages are not significantly damaged in loading.

c. Verify that the loaded packages are at least blocked and/or braced to prevent movement during shipment.

d. Take a minimum of two, and a maximum of four, pictures to show that the shipment is loaded correctly and containers appear undamaged. The shipment number, trailer number, date, and photographer's signature shall be written on each photograph.

e. When vehicle is left unattended, verify that the rear doors are closed and sealed with a tamper indicating device. Otherwise, the interior of the vehicle and contents will need to be verified as undisturbed.

f. Once loaded, affix a TID on the rear doors.

2.9.3 After shipment paperwork is approved, break the TID and open and enter the trailer. Sign and date an "NV-211, Package Certification Sticker" (ATTACHMENT K) and affix it to the top of each waste package meeting the above waste acceptance criteria. Make sure the NV-211 wording is correct. Also, the "TITLE" line must show "Waste Package Certifier" or Waste Certification Official" as applicable, and the "ORGANIZATION" line must show "FEMP".

2.9.4 Maintain a record of packages certified, and provide copies and supporting information to the WCO for the certification files.

2.9.5 Maintain continuously updated files on nonconformances, for reference and tracking purposes.

WCO SHALL:

2.9.6 Review package certification data, and place in file for use at time of shipment. This includes:

a. Package Storage and Disposal Data Sheets
b. RCRA Characterization
c. All checklists or inspection sheets generated during operation verification
d. Receiving Documentation
e. Package Radiation Surveys

2.9.7. Complete the "Statement of Compliance" (ATTACHMENT L) certifying that steps 2.9.2 through 2.9.6 have been completed.

2.10 Outgoing Vehicle Check

WPC or WCO SHALL:

2.10.1 Verify radioactive placards are displayed on all four sides of the van used for transport.

2.10.2 Verify a numbered TID (seal) is securely on the rear closure mechanism, and that the number agrees with that on the Bill of Lading. Check the number against the number recorded upon completion of loading.

2.10.3 Take pictures of the loaded, sealed, and placarded vehicle from two opposite angles to show vehicle and placarding. Also take a picture of the seal with the trailer number included. The shipment number, trailer number, TID (seal) number, date, and photographer's signature shall be written on each photograph.

2.10.4 Verify that the following are operational on the vehicle/trailer: [A completed "SEG Vehicle Condition Checklist" (ATTACHMENT M) can be accepted as documentation that this was done]

a. headlights

b. turn signals

c. brake lights

d. horn

e. Tire condition, per section 2.8.1 (d.) of this procedure. (Tread depth of tires on tractor shall be no less than 4/32".)

2.11 Verification and Disposition of "Package Storage & Disposal Data Report"

WCO SHALL:

Complete the SEG Shipment Verification Form (ATTACHMENT N)

2.11.1 Check the "Package Storage & Disposal Data Report"

a. To the extent practicable, verify all data entries are correct.

b. Appropriate preparer's signature.

c. No unusual values or arrangement which indicates a computer program error.

d. Waste Stream ID Number present & agrees with Waste Material Description.

e. Nuclide Category is correct. (Should be "2" for Uranium/Thorium.

f. Container Type Code listed & agrees with Package Description. (109 = S/L, 121 = TL WMB, 124 = 85D, 102 = 55D, 119 = 7A WMB "most common size" etc. . .)

g. Proper Waste Code is entered. (BW = biological waste, CE = contaminated equipment., DD = decontamination debris, DS = dry solid, SS = solidified sludge, NC = not classified.)

h. Verify packaging is either 83, 85, or 89 gallon drums, or boxes that are approved for shipment to NTS.

i. Verify all drum gross weights are ≤1200 pounds (≤544,3 kilograms).

j. Verify gross weights of boxes are ≤9000 pound (≤4082 kilograms), and do not exceed weight capacity limits of the container. Weight limit for Electropanel box is 6000 lbs.

k. Verify that all radiation surveys at surface are ≤200 mRem/hr.

l. Verify that all packages listed were certified in accordance with the WCPP and this procedure.

2.11.2 Approve report by signing and dating.

2.11.3 Make three copies of report. Retain one copy in file. The original and one copy is to be sent with the shipment. The remaining copy is for the subcontractor's files.

2.12 Verification of Shipment Records

WCO SHALL:

Obtain copies of the following records for each shipment and verify to extent practicable that they are complete and accurate:

a. Bill of Lading

b. Vehicle Condition Checklist

c. Radioactive Material Shipment Release Checklist

d. Package Radiation and Contamination Surveys

e. Vehicle Radiation and Contamination Release Surveys

f. Certification Statement

2.13 Certification of Shipment

WCO SHALL:

2.13.1 Verify that the requirements of this procedure have been met as pertaining to the shipment being certified.

2.13.2 Perform an acceptability check of the records that are to be maintained as required by Paragraph 2.15.1 of this procedure.

2.13.3 Verify that the Bill of Lading, manifest and/or tally sheet, "Package Storage & Disposal Data Report", and the "FEMP Certification Statement" (ATTACHMENT O) are sent with each shipment, and that driver's instructions have been given to the driver.

2.13.4 Complete and sign the "FEMP Certification Statement." In entry for seal number, list current seal (TID) number on outgoing trailer, and note that seals will be changed in route by driver each time load is inspected.

2.13.5 Send original of the "FEMP Certification Statement" with shipment, file one copy, and give one copy to the subcontractor.

2.14 Verification and Transmittal of Electronic Data to NTS

CHIEF WASTE CERTIFICATION OFFICIAL (CWCO) SHALL ENSURE ELECTRONIC DATA TRANSMITTED TO NTS IS CHECKED:

Electronic data for each shipment will be transmitted at the FEMP in accordance with the REECo/WMD "Low-Level Waste Information System Data Transmission Guide." A printout of the data being transmitted shall, as a minimum, be spot checked by Quality Certification.

2.15 Reporting and Handling Discrepancies

WPC & WCO SHALL:

NOTE: Current FERMCO procedure for "Deviation and Corrective Action Reporting" is SSOP-0023.

2.15.1 Report discrepancy to the subcontractor for review and confirmation of error.

2.15.2 If a discrepancy is not readily resolved, attach a FERMCO QA/QC release tag (Per SSOP-1020) to the affected material and issue a Deviation Report (DR).

2.15.3 Place copy of DR and subsequent updates in Waste Certification File maintained by WCO.

WCO SHALL:

2.15.4 Transmit to FERMCO, by means of facsimile, copies of DRs and CARs at each stage of completion.

2.15.5 Maintain liaison with subcontractor in the disposition of nonconforming materials, and in the development of corrective action.

2.16 Quality Assurance Records

WCO SHALL:

2.16.1 The following records pertinent to certification for shipment shall, as a minimum, be maintained in file for each waste shipment certified:

a. Package Storage & Disposal Data Report.

b. All surveillances, checklists, and/or inspection reports pertinent to individual shipments used as a basis for certification.

c. QA checklists and/or inspection reports

NOTE: QC records shall be maintained in a project file specifically for reference and shall not be part of the shipment file.

d. Vehicle Condition Checklist.

e. Radioactive Waste Shipment and Disposal Manifest.

f. Uniform Hazardous Waste Manifest and/or Bill of Lading.

g. Exclusive Use Instructions.

h. Package Radiation and Contamination Surveys.

i. FEMP Certification Statement.

j. Nuclear Materials Transaction Report (741 Form).

k. FERMCO Nuclear Materials Shipping Order (if generated).

l. FERMCO RCRA (non-hazardous and NVO-325 compliance characterization determination), or documentation that directly references the characterization documentation.

m. Subcontractor's Shipment Release Checklist.

n. Documentation verification sheets signed by FERMCO WCO and WPC.

2.16.2 Quality Assurance Records not included in the above, shall be maintained in a project file. Types of records to be maintained are as follows:

a. Records of audits of the waste certification program.

b. Records of surveillances performed as part of the certification program.

c. Logs containing certification data.

d. Checklists used to monitor activities.

e. Records of nonconformances.

f. FERMCO statements verifying completion of outstanding deviation reports (applicable to shipments leaving the FEMP).

g. FERMCO statements verifying completion of waste characterization (applicable to shipments leaving the FEMP)

h. Subcontractor's Waste Package Survey Report for waste packages shipped from the FEMP to the subcontractor's site.

2.16.3 Copy records weekly and send originals to FERMCO Quality Certification. Maintain copies at the subcontractor's site for a maximum of 90 days.

NOTE: Weekly transfers of records to FERMCO shall be considered delinquent if not received at the FEMP within 10 working days from the required copying date.

3.0 REFERENCES

3.1 NVO-325, Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements.

3.2 DOE Order 5700.6C, Quality Assurance.

3.3 DOE Order 5820.2A, Radioactive Waste Shipment.

3.4 SSOP-0023, Deviation and Corrective Action Reporting.

3.5 SSOP-0020, QA/QC Tagging

4.0 ATTACHMENTS

4.1 ATTACHMENT A - Definitions

4.2 ATTACHMENT B - Acronyms

4.3 ATTACHMENT C - Prohibited Materials List

4.4 ATTACHMENT D - Documentation of Verification for Shipment of Waste Stream ONL0000000008 from FERMCO to SEG, QA\QC-930419-1 Rev. 0

4.5 ATTACHMENT E - SEG Waste Package Survey Report, EXHIBIT

4.6 ATTACHMENT F - Package Receipt & Acceptance Log, QP-940207-1 Rev. 0 (2/7-94)

4.7 ATTACHMENT G - Verification of Manifest and Characterization, QA\QC 9304201-1 Rev. 0

4.8 ATTACHMENT H - Box or Drum Overpack Material Transfer, EXHIBIT

4.9 ATTACHMENT I - Quality Verification Form, QP-940425-1 Rev. 0 (05/19/94), QP-940425-2 Rev. 0 (05/19/94), QP-940425-3 Rev. 0 (05/19/94), QP-940425-4 Rev. 0 (05/19/94), QP-940425-5 Rev. 0 (05/19/94), QP-940425-6 Rev. 0 (05/19/94)

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4.10 ATTACHMENT J - SEG Waste Package Quality Control Record Sticker, EXHIBIT

4.11 ATTACHMENT K - NV-211, Packaging Certification Sticker, FS-F-234-1 (Rev 8/3/93)

4.12 ATTACHMENT L - Statement of Compliance, QA/QC-930818-1 Rev. 0

4.13 ATTACHMENT M - SEG Vehicle Condition Checklist, QP/4.1-4.10

4.14 ATTACHMENT N - SEG Shipment Verification, QP-940208 Rev. 1 (05/19/94)

4.15 ATTACHMENT O - FEMP Certification Statement, ECQ-900914 Rev.4 (11/23/92)

DEFINITIONS

Application - For the purpose of this procedure, the document that contains the request to ship FEMP Low Level Waste to the Nevada Test Site. It contains Generator Information, Waste Characterization Program, Waste Stream Information, Waste Certification Program Plan, Exemption Requests, and Procedures and Supporting Documentation.

Certification - The process of determining, verifying, and attesting in writing that Waste Acceptance Criteria (WAC) have been met.

Certified - Identification, in writing, that personnel or items have complied with a specific set of criteria, including a signature of a responsible party.

Chief Waste Certification Official - A designated FERMCO Waste Certification Official having overview authority over Waste Package Certifiers and alternate (all other) Waste Certification Officials.

Daughter Container/Package - A package that contains one or more compacted containers of waste.

Free Liquid - Liquids which readily separate from the solid portion of a waste under ambient temperature and pressure conditions.

Low Level Waste - All radioactive waste not classified as high-level waste, spent nuclear fuel, TRU waste, uranium mill tailings, MW or 11e(2) by-product material as defined in DOE Order 5820.2a. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium, may be classified as LLW, provided the concentrations of TRU is less than 100 nanocuries per gram.

Nevada Test Site - A government owned facility approximately 65 miles northwest of Las Vegas, Nevada, which receives and disposes of low level Department of Defense waste on site.

NV-211 Sticker - A sticker applied to waste packages to provide highly visible confirmation that the waste is certified as meeting all Nevada Test Site waste acceptance criteria. As required by NVO-325, the sticker must be dated and signed by either a Waste Package Certifier or Waste Certification Official.

DEFINITIONS

Overview - The act of randomly monitoring work activities and examining documentation to ascertain compliance with program requirements.

Package - The packaging together with its contents.

Packaging - The assembly of components necessary to ensure compliance with U.S. Department of Transportation (DOT), EPA, and U.S. Department of Energy Nevada Operations Office (DOE/NV) requirements (see Title 49 CFR 173.403(u)). It does not include radioactive or hazardous components of the waste.

Parent Container/Package - A container of waste that will be compacted and packaged into another container along with other compacted containers of waste.

Qualified - Having complied with the specific requirements or precedent conditions.

Radioactive Waste - Solid, liquid, or gaseous material that contains radioactive nuclides regulated under the Atomic Energy Action of 1954, as amended, and of negligible economic value considering costs of recovery.

Solid Waste - Waste material that is an essentially dry, solid form. The waste stream may include well-drained container or liquids which have been entrapped or otherwise solidified so that they will retain their solid form without the presence of free liquids during handling, transportation, storage, or disposal. Viscous waste materials is determined to be a solid by testing in accordance with American Society for Testing Materials Standard D 4359, "Standard Test Method for Determining Whether a Material is a Liquid or a Solid."

Tamper Indicating Devices - Devices that may be used on containers, and because of their uniqueness in design or structure, reveal violations of containment integrity. Tamper indicating devices include seals, mechanisms, containers, and enclosures.

Verification - The process of witnessing activities and examining records to document correctness.

DEFINITIONS

Waste Package Certifier - A FERMCO employee who has been trained, qualified by Quality Assurance, and approved by DOE/NV to certify waste packages for shipment to the Nevada Test Site.

Waste Certification Official - A FERMCO employee who has been trained, qualified by Quality Assurance, and approved by DOE/NV to certify waste packages and shipments of waste to the Nevada Test Site.

Waste Certification Program Plan - A plan that is appended to the application to ship waste to the Nevada Test Site that defines the program for certification of waste. The requirements for the plan can be found in NVO-325 and DOE Order 5820.2A.

Waste Stream - Waste which is categorized by a similar characterization process and/or point of generation.

Waste Stream Identification Number - A unique two-part, 13-character alphanumeric code which identifies the generator's organization and waste stream number.

Waste Stream ONL0000000008 - Low Level Waste defined and listed in the FEMP Application to Ship Waste to the Nevada Test Site, Revision 4.2, Addendum I, dated February 1993. This waste stream is comprised of a portion of the FEMP residue wastes which is being compacted at a subcontractor's facility. It includes both low and high grade residues, and objects contaminated with low and/or high grade residues.

Waste Stream ONL0000000009 - Low Level Waste defined and listed in the FEMP Application to Ship Waste to the Nevada Test Site, Revision 4.2, Addendum I, dated June 1993. This waste is comprised of the metal melt waste as rust oxides and other debris which was separated and collected before melting, refractory brick, metal not amenable to melting, and the slag, which consists of metal oxides and other impurities in the scrap metal. Both the separated oxides and the slag are packed together in overpack boxes for shipment to the NTS.

ACRONYMS

ALARA	As Low as Reasonably Achievable
CFR	Code of Federal Regulations
CWCO	Chief Waste Certification Official
DOE	U.S. Department of Energy
DOD	U.S. Department of Defense
DOE/NV	U.S. Department of Energy/Nevada Field Office
EPA	U.S. Environmental Protection Agency
ETA	Estimated Time of Arrival
FEMP	Fernald Environmental Management Project
FERMCO	Fernald Environmental Restoration Management Corporation
LLW	Low-Level Waste
NTS	Nevada Test Site
NVO-325	Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements.
PCB	Polychlorinated Biphenyls
QA	Quality Assurance
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
SEG	Scientific Ecology Group, Inc.
WAC	Nevada Test Site Waste Acceptance Criteria
WCO	Waste Certification Official
WPC	Waste Package Certifier

PROHIBITED MATERIALS LIST

MATERIAL	LIMIT/EXPLANATION
Transuranics	Limit: <100 nanocuries/gram. Acceptability of waste stream determined during characterization.
Hazardous Waste	Limit: Per Title 40 CFR 261 and Ohio Administrative Code 3745-54. No corrosives (acids with pH ≤2 and caustic materials with Ph ≥12). No ignitables (e.g. metal powders). No reactive materials (metal fines, explosives). No toxic materials (e.g. pesticides, poisons, certain metals. No leachable listed metals (e.g. arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, and cyanide). NOTES: Lead can be found in hammer heads, scale weights, flashing materials, and counter weights. Watch for barium as barium chloride salts or barium chloride contaminated materials. Only "Rayovac" dry cell batteries are acceptable (other batteries contain unacceptable quantities of metals such as cadmium, lead, & mercury). Mercury is frequently found in instruments, electrical switches (including thermostats), and fluorescent lamp tubes. Silver can be found in photographic developer fluids, solder, and electrical contacts.

PROHIBITED MATERIALS LIST (Cont'd)

Hazardous Waste (cont'd)	No solvents Some examples include WD-40, adhesives, liquid paints, paint thinners, paint removers, or materials contaminated with solvents (e.g. rags saturated with solvents). NOTE: If a strong smell of solvents is present, call Health & Safety for verification.
Free Liquids	Limit: Except for entrapped or residual liquids in well drained containers (0.5% of total volume maximum), no liquids including any that might separate from the waste under ambient temperature and pressure conditions (e.g. ice, excessive evaporation and condensation). Condensation in plastic bags and waste packages shall be considered entrapped liquids. Individual trash bales which are wet shall be excluded from shipment. Slightly soggy bales that occasionally drip should be limited to 30% to prevent excessive condensation within the container.
Particulates	Limit: Wastes packaged in unlined metal drums or ISO containers must contain no more than 1% weight of <10-micrometer particles or 15% weight of <200-micrometer particles. Some examples of fine particulates are black oxide, orange oxide, green salt, sump cakes, milled magnesium fluoride, dust collector residues, floor and pad sweepings, and soils.

PROHIBITED MATERIALS LIST (Cont'd)

Compressed gases	Limit: Defined by Title 49, CFR 173.300. However, all containers designed for compression, shall be assumed to exceed limit unless valve mechanism is removed, or in the case of aerosol cans, the can has an obvious puncture. Some examples of compressed gas containers include LP gas containers, oxygen containers, and aerosol cans. Typical aerosol cans may have containing paint, adhesives, cleaning and deodorizing agents, and personal care items.
Stabilization	Limit: Waste minimization shall be attained to the extent practicable by size reduction and efficient packaging.
Etiologic Agents	Limit: None allowed. Pathogens, infectious wastes or other etiologic agents. Potential source of this prohibited waste would be from Medical. Example include band aids, tongue blades, syringes, cotton balls or other materials stained with blood or other body materials, and outdated pharmaceuticals.
Chelating Agents:	Limit: No greater than 1% by weight. Chelating or complexing agents. Chelating agents form coordination compounds by offering two or more chemical bonds (through ligands) to a central metal ion. The most common chelating agent is EDTA. Other common chelating agents are aminopolyacteic acids. Excess chemicals from the on-site laboratory are the primary potential source. Wastes are to be evaluated for containment of chelating agents by Waste Characterization. Any exceeding the limit are identified on the MEF or RD/RC letter for exclusion from NTS shipments.

PROHIBITED MATERIALS LIST (Cont'd)

Polychlorinated Biphenyls	Limit: None allowed unless the concentration meets the municipal solid waste disposal limits. Reference 40 CFR 761.60. Commonly called PCB's. Frequently found in capacitors and transformers. Light ballasts that are PCB free will be marked as such. Materials contaminated with PCBs may show signs of an oily residue. If PCB's are suspected, contact Waste Characterization.
Explosives and pyrophorics	Limit: None allowed. Other than the commonly known explosives, laboratory hoods, bottles, and containers may contain small quantities of picric acid crystals which are highly explosive. Check labels on containers and RCRA evaluation results. Pyrophoric (self igniting) materials are commonly found in porous (spongy) uranium metals, and uranium fines such as fines from turnings and residue from grinding. Also prohibited are most all metal powders.

NOTE: This list was developed as an aid in identifying and recognizing prohibited materials. It is not to be used in lieu of NVO-325 waste acceptance criteria, or 40 CFR and 49 CFR requirements. Examples given are typical and are not intended to be all inclusive.

ATTACHMENT D
Page 1 of 1

DOCUMENTATION OF VERIFICATION
FOR
SHIPMENT OF WASTE STREAM ONL0000000008 FROM FERMCO TO SEG
EXHIBIT

DATE OF VERIFICATION: _____

SHIPMENT IDENTIFICATION: _____

I have checked to verify there are no open deviations (Deviation Reports) for the packages being shipped.

I have received waste characterization documentation for the identified shipment that is dated and signed by an authorized representative of the Waste Characterization Section of FERMCO to SEG at Oak Ridge, Tennessee.

_____ _____
Waste Package Certifier Date

I have reviewed the shipment package and included characterization data, and determined that is acceptable to support shipment to SEG.

_____ _____
Waste Certification Official Date

Form No. QA/QC-93041 , Rev. 0

ATTACHMENT E
Page 1 of 1

WASTE PACKAGE SURVEY REPORT
EXHIBIT

BARCODE #	ITEM #	CONTAINER TYPE	FIXED α	DOSE RATE	REMOVABLE CONTAM. α	β/γ

ATTACHMENT F
Page 1 of 1

PACKAGE RECEIPT & ACCEPTANCE LOG

PACKAGE RECEIPT AND ACCEPTANCE LOG

Bar Code No. Compacted = x Received = Entered (NC = Nonconformance)

BAR CODE SERIES:									

INSTRUCTIONS:
1. In heading of each section show bar code sub series (e.g. 511-520)
2. When drum is received at subcontractor's site, enter last three digits of individual drum bar code number under applicable subseries.
3. Enter "x" when drum is compacted.
4. Enter a "NC" for each nonconformance.

QP - 940207-1.Rev 0 (2/7/94)

VERIFICATION OF MANIFEST AND CHARACTERIZATION

VERIFICATION OF MANIFEST AND CHARACTERIZATION
I have examined the manifest for Shipment Number _____, and have verified that the packages identified thereon are traceable to characterization data that was checked and approved by Waste Certification Official who, based on independent checking and confirmation of previous verification, has signed to affirm that the characterization was satisfactory for shipment. _____ Date:_____ Waste Certification Official

QA/QC930420-1,Rev.0

ATTACHMENT H
Page 1 of 1

BOX OR DRUM OVERPACK MATERIAL TRANSFER

PAGE NO.

DRUM OVERPACK MATERIAL TRANSFER

DATE:
VOID:
mR/Hr:
WEIGHT:

OR BARCODE:
OP VOLUME: _____
CNTR TYPE: -

DATA SYSTEMS							
IP BARCODE	MANIFEST	CUSTOMER	WT	mR/Hr	HT	VOL	COMMENTS
		FERNCO					
		FERNCO					

DATA SYSTEMS						ACCOUNTING				
GRIT CONT.	CUSTOMER	MANIFEST	WT	VOL	DATE	CUSTOMER/MANIFEST	IP	OP	IN	WT

FINAL WT: _____ PAGE 1 OF ____

QUALITY VERIFICATION FORM

QUALITY VERIFICATION FORM

SEG1

1. Source [ ] 2. Receiving [ ] 3. Construction/Remediation [x] 4. Quality Level III

5. Item/Title/Description: Overview of storage and handling

6 . Project:Certification of waste at SEG 7. Dwg./Spec. No.

8. P/O [ ] Subcontract [ ] MJR [ ] Job [ ] EA [ ] W.O. # none Rev. ___

9. Prepared By: J.C.McDonald Date: 10. Reviewed By:Art Craig Date:

11. Approved By: Bonnie Spencer Date:

12. Char. No.	13. Inspection Characteristic	14. Insp. Status	15. General Remarks
A.	DRUMS		
1.	Verify waste received is identified and segregated from other waste. (Per QP 12.08 Section 2.4.2)		Checked in reference to QP-12.08
2.	Verify the subcontractors Barcode on the exterior container. (Per QP 12.08 Section 2.4.1)		Container No.
3.	Verify that innerpacks are accounted for and segregated to prevent misidentification or mixing with other materials. (Per QP 12.08 Section 2.5.1)		
4.	Verify that each waste container, unloaded, has a tamper indicating devise affixed, and no evidence of tampering. (Per QP 12.08 Section 2.4.4)		
5.	Verify subcontractor applies bar code label to inner containers. (Per QP 12.08 Section 2.4.3)		
6.	Verify any spilled waste is accounted for, repackaged, and properly identified in accordance with QP 12.08 Section 2.5.2)		
7.	Is there any nonconforming conditions identified. If so attach DR tag to drum and place copy of DR in Certification file.		
B.	INNERPACKS		
1.	Verify waste is identified and segregated. (Per QP-12.08 Section 2.6.1)		
2.	Verify barcode is listed on printout of data provided by SEG Data Systems. (Per QP-12.08 Section 2.6.3)		

16. Review/Completion

Quality Evaluator Date

Page 1 of 2

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QUALITY VERIFICATION FORM
EXHIBIT

QUALITY VERIFICATION FORM
(CONTINUATION SHEET)

SEG1

12. Char. No.	13. Inspection Characteristic	14. Insp. Status	15. General Remarks
B.	INNERPACKS		
3.	Record barcode label on innerpack. (Per QP-12.08 Section 2.6.6)		
4.	Verify innerpack is approved for shipment to NTS by Waste Characterization. (Per QP-12.08 Section 2.6.4)		
5.	Verify lid is welded to innerpack. (Per QP-12.08 Section 2.6.7)		
6.	Verify innerpack is weighed. (Per QP-12.08 Section 2.6.8)		1st shift _____ 2nd shift _____ 3rd shift _____

16. Review/Completion

_____ _____
Quality Evaluator Date

Page 2 of 2

QP940425-1, Rev.1 (05/19/94)

QUALITY VERIFICATION FORM
EXHIBIT

QUALITY VERIFICATION FORM

SEG2

1. Source [ ] 2. Receiving [ ] 3. Construction/Remediation [x] 4. Quality Level III

5. Item/Title/Description: Overview of compaction

6. Project: Certification of waste at SEG 7. Dwg./Spec. No.

8. P/O [ ] Subcontract [ ] MJR [ ] Job [ ] EA [ ] W.O. # none Rev. ____

9. Prepared By: J.C.McDonald Date: 10. Reviewed By: Art Craig Date:

11. Approved By: Bonnie Spencer Date:

12. Char. No.	13. Inspection Characteristic	14. Insp. Status	15. General Remarks
1.	Prior to compaction of FEMP waste, verify if the press area was either last used for FEMP waste, or that the press has been thoroughly cleaned. (Per QP 12.08 Section 2.7.1)		Checked in reference to QP 12.08
2.	A. Verify 83/85 gallon drums used for packaging were originally received with the waste shipped from (FERMCO). If 89 gallon drums are used, refer to Reference file maintained by "WCO" approved suppliers. (Per QP 12.08 Section 2.7.2.1) (drummed waste only) B. Verify that overpack boxes used for packaging innerpacks are FERMCO approved for shipment to NTS. Refer to reference file maintained by "WCO" approved suppliers. (Per QP-12.08 Section 2.7.2.1)		Overpack # Overpack # _____ _____ Puck/Innerpack # Puck/Innerpack # _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____
3.	A. Verify Parent drums being packaged are correctly recorded, and identified with receiving daughter drum. (Per QP 12.08 Section 2.7.2.2) B. Verify that waste packaged in WMB's is correctly recorded (Per QP 12.08 Section 2.7.2.2)		Overpack # Overpack # _____ _____ Puck/Innerpack # Puck/Innerpack # _____ _____ _____ _____ _____ _____
4.	Verify absorbent is added and record by type and amount. (Per QP 12.08 Sec. 2.7.2.3) Absorbent type_____ Absorbent amount_____		_____ _____ _____ _____ _____ _____ _____ _____ _____ _____
5.	Verify lid and gaskets are in place and are undamaged and not deteriorated. (Per QP 12.08 Section 2.7.2.4)		1st shift _____ 2nd shift _____ 3rd shift _____
6.	Verify the absence of free liquids. (Per QP 12.08 Section 2.7.2.5)		

16. Review/Completion

_____ _____
Quality Evaluator Date

Page 1 of 2

QP 940425-2, Rev.1 (05/19/94)

QUALITY VERIFICATION FORM
EXHIBIT

QUALITY ASSURANCE VERIFICATION FORM
(CONTINUATION SHEET)

SEG2

12. Char. No.	13. Inspection Characteristic	14. Insp. Status	15. General Remarks
7.	Verify package is being filled as full as allowable by volume or weight. (Per QP 12.08 Section 2.7.2.6)		
8.	Verify temporary closure of waste packages when left unattended. (Per QP 12.08 Sec 2.7.2.7)		
9.	Verify attachment of a stamped or initialed TID to waste package at final closure. (Per QP 12.08 Sec. 2.7.2.8)		
10.	Verify no prohibited materials are present per QP 12.08 attachment C.		
11.	Is there any nonconforming conditions identified if so attach DR tag to drum and place copy of DR in Certification file.		

16. Review/Completion

Quality Evaluator _____ Date _____

QUALITY VERIFICATION FORM
EXHIBIT

SEG3

QUALITY VERIFICATION FORM

1. Source [ ] 2. Receiving [ ] 3. Construction/Remediation [x] 4. Quality Level III

5. Item/Title/Description: Certification of waste package

6. Project:Certification of waste at SEG 7. Dwg./Spec. No.

8. P/O [ ] Subcontract [ ] MJR [ ] Job [ ] EA [ ] W.O. # none Rev. ___

9. Prepared By: J.C.McDonald Date: 10. Reviewed By:Art Craig Date:

11. Approved By: Bonnie Spencer Date:

12. Char. No.	13. Inspection Characteristic	14. Insp. Status	15. General Remarks
1.	Verify Radiation Surveys on each container. (Per QP 12.08 Section 2.8.1 and 2.8.11)		Checked in reference to QP-12.08
2.	Verify waste Package Quality Control Record sticker is on each container and stamped or initialed. (Per QP 12.08 Section 2.8.2)		
3.	Verify Bolt Ring closure on each drum is seated and locknut has been tightened. (torqued to 45 + 5 ft lbs with calibrated torqued wrench.)(Per QP 12.08 Section 2.8.3)		
4.	Verify all box lids are bolted tightly with all bolts and washers in place (boxes having clips in addition to bolts have clips locked in place). (Per QP 12.08 Sec. 2.8.3)		
5.	Verify gross weight does not exceed container limits. (Per QP 12.08 Section 2.8.4)		
6.	Verify proper markings on side and top of each drum or opposite sides and top of boxes per 49CFR 172 subparts D & E. (Per QP 12.08 Section 2.8.5) A. Radioactive - LSA Top & Side B. Curies of Uranium 0.052 should be RQ C. Gross weight in pounds and kilograms D. Barcode label present top & side E. Waste stream number F. Shipment number		
7.	Verify physical condition of each container. (Per QP 12.08 Section 2.8.6)		
8.	Verify no erroneous markings on container. (Per QP 12.08 Section 2.8.7)		
9.	Verify Parent containers have no hold or nonconforming tags on containers or unresolved Deviation Reports written against package or material. (Per QP 12.08 Section 2.8.9 and 2.8.10)		
10.	Verify a nylon cable tie (Tamper indicating device) is applied to each container (Per QP 12.08 Sec. 2.8.12) and put stamp or initial the tab.		

16. Review/Completion

_____ _____
Quality Evaluator Date

Page 1 of 1

QP 940425, Rev.1 (05/19/94)

QUALITY VERIFICATION FORM
EXHIBIT

QUALITY VERIFICATION FORM

SEG4

1. Source [ ] 2. Receiving [ ] 3. Construction/Remediation [x] 4. Quality Level III

5. Item/Title/Description: Verification of vehicle to be used for shipment

6 . Project:Certification of waste at SEG 7. Dwg./Spec. No.

8. P/O [ ] Subcontract [ ] MJR [ ] Job [ ] EA [ ] W.O. # none Rev. ___

9. Prepared By: J.C.McDonald Date: 10. Reviewed By:Art Craig Date:

11. Approved By: Bonnie Spencer Date:

12. Char. No.	13. Inspection Characteristic	14. Insp. Status	15. General Remarks
1.	Verify Radiological survey on trailer. (Per QP 12.08 Section 2.9.1A)		Checked in reference to QP-12.08
2.	Verify general condition of transport trailer. (Per QP 12.08 Section 2.9.1.B)		
3.	Verify the acceptability of the empty trailer for loading. (Per QP 12.08 Section 2.9.1.C) A. No liquid or oily substances on interior B. No hole inside of trailer C. Floor sound and not rotted D. No structural damage E. Doors in good shape		1st shift _____ 2nd shift _____ 3rd shift _____
4.	Examine tires per acceptance criteria. (Per QP 12.08 Section 2.9.1.D) A. Tread minimum 3/16 inch B. Tread separation C. No exported fabric or worn rubber D. No punctures E. No significant bulging F. No obvious deflation of tires		

16. Review/Completion

_____ _____
Quality Evaluator Date

Page 1 of 1

QP 940425, Rev.1 (05/19/94)

QUALITY VERIFICATION FORM
EXHIBIT

QUALITY VERIFICATION FORM

SEG5

1. Source | |	2. Receiving | |	3. Construction/Remediation |x|	4. Quality Level _|||_
5. Item/Title/Description: Loading the vehicle			
6 . Project:Certification of waste at SEG		7. Dwg./Spec. No.	
8. P/O | | Subcontract | | MJR | | Job | | EA | |		W.O. # none	Rev. ____
9. Prepared By: J.C.McDonald Date:		10. Reviewed By:Art Craig	Date:
11. Approved By: Bonnie Spencer		Date:	

12. Char. No.	13. Inspection Characteristic	14. Insp. Status	15. General Remarks
1.	Verify that the shipment numbers and package numbers agree with the Package Storage and Disposal Data Report.		Checked in reference to QP-12.08 Section 2.9.2
2.	Verify trailer number: _____		
3.	Verify shipment number: _____		
4.	Verify package numbers of each container loaded.		
5.	Verify containers are not significantly damaged in loading.		
6.	Verify containers are Blocked or Braced to prevent movement.		1st shift _____ 2nd shift _____ 3rd shift _____
7.	Take a minimum of two pictures of shipment. A. Trailer number B. Date C. Signature on each picture		
8.	Seal with tamper indicating device when vehicle is unattended for more than four hours. Seal #_____		

16. Review/Completion

_____ _____
Quality Evaluator Date

Page _1_ of _1_

QP 940425, Rev.1 (05/19/94)

ATTACHMENT I
Page 8 of 8

QUALITY VERIFICATION FORM
EXHIBIT

QUALITY VERIFICATION FORM

SEG6

1. Source | | 2. Receiving | | 3. Construction/Remediation |x| 4. Quality Level __III__

5. Item/Title/Description: Outgoing vehicle check

6 . Project:Certification of waste at SEG 7. Dwg./Spec. No.

8. P/O | | Subcontract | | MJR | | Job | | EA | | W.O. # none Rev. ____

9. Prepared By: J.C.McDonald Date: 10. Reviewed By:Art Craig Date:

11. Approved By: Bonnie Spencer Date:

12. Char. No.	13. Inspection Characteristic	14. Insp. Status	15. General Remarks
1.	Verify the application of completed NV-211 label to each container.		
2.	Verify four Radioactive placards displayed(One on each side of the trailer).		Checked in reference to QP-12.08
3.	Verify DOT seal is secured on the rear door. Seal #_____		
4.	Take picture of loaded vehicle from two opposite angles to show placards.		
5.	Take picture of the Seal with the Trailer Number included.		
6.	Verify that the following on the vehicle/trailer are operational: A. Headlights B. Turn signals C. Brake lights D. Horn E. Tire condition		1st shift _____ 2nd shift _____ 3rd shift _____
7.	Verify "Package Storage & Disposal Data Report".		

16. Review/Completion

_____ _____
Quality Evaluator Date

Page 1 of 1

QP 940425, Rev.1 (05/19/94)

ATTACHMENT J
Page 1 of 1

SEG WASTE PACKAGING QUALITY CONTROL RECORD STICKER
EXHIBIT

SEG

WASTE PACKAGE QUALITY CONTROL RECORD

WELDS	INSPECTED BY:
GASKET	INSTALLED BY:
DOSE/ CONTAMINATION	SURVEY:
WASTE TRACKING	APPROVAL:
FINAL PACKAGE	INSPECTION:

ATTACHMENT K
Page 1 of 1

NV-211 PACKAGING CERTIFICATION STICKER
EXHIBIT

NV-211
1/27/89

PACKAGING CERTIFICATION

U.S.
DOE

This certifies that this container and its contents are in acceptable condition for transportation and waste disposal according to DOT (49 CFR), EPA (40 CFR), and DOE/NV (NVO-325) requirements.

DATE: _____

CERTIFIED BY: _____

TITLE: WASTE CERTIFICATION OFFICIAL

ORGANIZATION: FEMP

FS-F-234-1 (REV. 6/3/93)

NV-211
1/27/89

PACKAGING CERTIFICATION

U.S.
DOE

This certifies that this container and its contents are in acceptable condition for transportation and waste disposal according to DOT (49 CFR), EPA (40 CFR), and DOE/NV (NVO-325) requirements.

DATE: _____

CERTIFIED BY: _____

TITLE: PACKAGE CERTIFIER

ORGANIZATION: FEMP

FS-F-234-1 (REV. 6/3/93)

STATEMENT OF COMPLIANCE

STATEMENT OF COMPLIANCE

I have checked all packages in Shipment No. WML94_____ to certify that each has an NV-211 label dated with a current date, and signed by either a Package Certifier or a Waste Certification Official. I fully understand the importance of the NV-211 label, and have performed this check with the utmost care to preclude any error on my part.

Caution: Sign this statement only when certain that you have performed the verification check thoroughly and accurately. If you were interrupted while checking NV-211 labels in this shipment, you are required to recheck the entire shipment prior to signing this statement.

Certified By: _____ Date: _____/_____/_____
Waste Certification Official

ATTACHMENT M
Page 1 of 1

VEHICLE CONDITION CHECKLIST
EXHIBIT

SHIPMENT NUMBER: _____ SHIPMENT DATE: _____
CARRIER: _____ DRIVER'S NAME: _____
TRACTOR NUMBER: _____ TRAILER NUMBER: _____

TRAILER TYPE: VAN, OPEN TOP VAN, FLATBED, OTHER _____

INSPECTION CHECKLIST
EXHIBIT

INSPECTION CHECKS	SAT	UNSAT
1. Front tire tread: at least 4/32" thread (no recaps)	____	____
2. Other tire tread: at least 3/32" tread	____	____
3. Service brakes: Good Condition and properly attached?	____	____
4. Parking brakes: Operational and on while loading	____	____
5. Steering mechanism: Demonstrated operational	____	____
6. Headlights and front reflectors: Clean and operational	____	____
7. Windshield wipers: Demonstrated operational	____	____
8. Rear vision mirrors:	____	____
9. Horn: Demonstrated operational	____	____
10. Fire extinguishers: Fully charged	____	____
11. Trailer frame and headboard: Free of visual effect defects	____	____
12. Load tiedowns: Adequate number for loads and in good condition	____	____
13. Emergency kit: Extra placards, Rad rope, Pc's	____	____
14. Brake lights: Demonstrated operational	____	____
15. Turn signals: Demonstrated operational	____	____
16. Reflectors: At proper locations on trailer	____	____
17. Spare tire: At least 4/32" thread	____	____

Inspected By: _____ _____
Driver's signature SEG Representative

SEG SHIPMENT VERIFICATION

SEG SHIPMENT VERIFICATION

Date _____ Time _____

Shipment No. WML-_____ Trailer No. _____ No./Type Container _____

1. **Storage & Disposal Data Sheet:**
   A. Material Description _____
   B. Signed _____ Shipment No. WML-_____
   C. No unusual values or arrangement which indicates a computer program error. _____
   D. Packaging is approved drums or steel boxes _____
   E. Gross weights for all drums ≤ 1200 lbs. _____
   F. Gross weights for boxes are ≤ 9000 lbs. _____
   G. Verify that all radiation surveys at surface are ≤ 200 mRem/hr. _____
   H. Verify that all radiation surveys at 1 METER are < 200 mRem/hr. _____
   I. Verify all packages listed were certified according to WCPP _____
   J. Verify the Nuclide Category is correct. _____
   K. Verify Container Type Code is correct. _____
   L. Verify the proper Waste Code is entered. _____

2. **Continuation Sheet for each package is present and was checked against the Package Storage and Disposal Data Sheet.** _____

3. **Bill of Lading:**
   B/L No. _____ Trailer No. _____ Seal No.FA/WMCO _____
   ETA: _____

Number of containers:			Type Container	Gross Wt.	Net Wt.
LSA	RQ	_____	_____	_____	_____
	NON-RQ	_____	_____	_____	_____
LQ	RQ	_____	_____	_____	_____
	NON-RQ	_____	_____	_____	_____
Totals		_____		_____	_____

_____ Remainder of information of Bill of Lading checked.

4. **Radiation Monitoring Sheet For:**
   A. Trailer Empty _____ Trailer ID _____
   B. Trailer Loaded _____ Trailer ID _____
   C. Loaded Vehicle Radiological Survey _____ Trailer ID _____

ATTACHMENT N
Page 2 of 2

SEG SHIPMENT VERIFICATION

5. Package Survey Report present. _____

6. REECO envelope contains:
   A. Original Waste Certification Statement _____
   B. Original Package Storage & Disposal Data Sheet _____
   C. Original Statement of Compliance _____
   D. Bill of Lading _____
   E. Hazardous Material Manifest _____

7. Driver's Envelope contains:
   A. Manifest _____
   B. Bill of Lading _____
   C. Seal _____
   D. Emergency Response Information _____

8. Driver Instructions Complete. _____

9. Waste Certification Checklist present, signed and in agreement with other documentation:
   A. _____ Waste Certification Preliminary Trailer Checklist
   B. _____ Waste Certification Final Trailer/Vehicle Checklist
   C. _____ Statement of Compliance

Package Storage & Disposal Data Sheet signed by Certification Official _____

Shipment released on _____ at _____ AM/PM

Signed _____

List Nonconformances found: _____

_____

_____

Comments: _____

_____

_____

FEMP CERTIFICATION STATEMENT
EXHIBIT

CERTIFICATION STATEMENT

LOW-LEVEL WASTE SHIPMENT FROM FEMP TO NEVADA TEST SITE

Bill of Lading No. _____	Seal Number(s) _____
Trailer No. _____	_____

I certify that the containers in Shipment No. WML _____ as listed on the attached Package Storage & Disposal Data report do not contain hazardous waste as defined in Title 40 CFR 261 or OAC 3745-54 hazardous waste regulations:

(1) according to the results of tests performed in accordance with the requirements as specified in Subpart C of Title 40 CFR 261; and/or

(2) according to the supporting documentation provided to me about the materials and processes that produced the waste.

To the best of my knowledge, I believe the information I have submitted is true, accurate, and complete.

_____
FEMP Waste Certification Official

Date: _____

Quality Certification Form
ECB-900914-1, Rev. 4 (11/23/92)

WASTE CERTIFICATION PROGRAM PLAN

FOR

LOW LEVEL WASTE CHARACTERIZATION AND CERTIFICATION

Appendix III

June, 1993

Revised March, 1994

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT CORPORATION

P. O. Box 398704

Cincinnati, Ohio 45239-8704

PURPOSE OF WASTE CERTIFICATION PROGRAM PLAN APPENDIX III

The purpose of this appendix is to describe the plan to be used by the Fernald Environmental Restoration Management Corporation (FERMCO) to certify FEMP Waste Stream ONL0000000009 meets all the requirements of NVO-325 (Rev.1) for storage and disposal at the Nevada Test Site (NTS). This FEMP waste, currently exists as scrap metal piles being packaged in boxes for shipment to Scientific Ecology Group, Incorporated (SEG) for treatment. The treatment of the scrap metal involves separating the oxides, metal not amenable to melting, and debris from the metal; size reducing; melting the metal, skimming/cooling the slag, and sampling. The metal melt waste is the slag, which contains a majority of the contamination; the initially separated metal oxides; metal not amenable to melting, and debris . Where practical, the metal melt wastes shall be treated to reduce volume. They are innerpackaged separately, overpacked together at SEG, and shipped to the NTS subject to FERMCO certification.

This appendix, in conjunction with the "Waste Certification Program Plan for Low Level Waste Characterization and Certification," Revision 7, June, 1993, shall be followed by FERMCO and SEG to comply with NVO-325, Rev. 1 requirements.

WASTE CHARACTERIZATION AND CERTIFICATION

Characterization of waste identified as Waste Stream ONL0000000009 material shall be made on the basis of FERMCO's characterization of the scrap metal, which is based on process knowledge and sampling and analysis performed at the FEMP. Final characterization is based on SEG's and FERMCO's sampling and analysis of the slag and metal oxides. Characterization is described in the FERMCO application to ship low level waste. The application also includes the Waste Certification Program Plan (WCPP).

SEG Quality Assurance (QA) shall be responsible for ensuring that systems and procedures are in place and implemented to provide traceability during transport, receipt, storage, compaction, repackaging, and shipment of this waste.

SEG shall ensure that packages of waste presented for certification to **FERMCO** certifiers comply with NVO-325 (Rev. 1) requirements.

Quality Assurance hold points have been established, and are identified in the Waste Certification Hold Point Diagram (Figure 1) for the ONL0000000009 waste stream. Documented inspections and/or verifications shall be performed at each hold point to prevent acceptance of nonconformances.

FERMCO Waste Certification Officials shall certify shipments of waste from **SEG** to the Nevada Test Site. Only shipments of waste meeting DOT (49 CFR), EPA (40 CFR), State of Tennessee, and NVO-325 (Rev. 1) requirements shall be shipped.

FERMCO Waste Package Certifiers (WPCs), or Waste Certification Officials (WCOs), shall perform routine inspections and certify waste packages.

The **FERMCO** Chief WCO shall be responsible for defining and ensuring that requirements for certification are implemented.

QUALITY ASSURANCE REQUIREMENTS

1.0 ORGANIZATION

1.1 GENERAL DESCRIPTION

In accordance with contractual requirements, the **Scientific Ecology Group, Inc. (SEG)** will assume responsibility of shipment from the FEMP to their site at Oak Ridge, Tennessee. There, **SEG** will be contractually responsible to meet NVO-325 (Rev. 1) requirements in the treating (separating oxides, melting, separating the slag, cooling, and any compacting), packaging, and shipping the FERMCO waste to the Nevada Test Site. SEG organization charts are included as Figure 2 (included in Appendix II).

There will be no change in the FERMCO organization. Responsibilities will remain unchanged from those listed in the WCPP, Appendix I in the current FEMP Application. The **FERMCO** organization at the FEMP will perform the duties listed in Sections 1.2.2 and 1.2.7 of this appendix. **FERMCO** will establish resident WPC and WCO at SEG to perform verification and certification activities. The resident WPC or WCO will perform the

FERMCO duties listed in Sections 1.2.2 through 1.2.6 of this appendix. These individuals will certify waste packages and shipments to the Nevada Test Site. The FERMCO WCO is ensured independence to withhold certification of any waste not meeting acceptance criteria.

SEG has a well established QA Department that reports directly to the President of SEG. SEG's QA Department is ensured independence, and has no direct involvement in waste processing and shipping activities. The SEG quality assurance organization performs audits and surveillance of activities to ensure conformance.

SEG does not have a Quality Control Department. Routine inspections will be performed by peer inspection within the organization responsible for the work.

1.2 ORGANIZATION RESPONSIBILITIES

1.2.1 SEG's president is responsible for implementation of all parts of this WCPP applicable to SEG.

1.2.2 FERMCO is responsible for characterization and management of the Waste Stream ONL0000000009 at the FEMP.

- Materials Control & Accountability is responsible for maintaining and supplying inventory records for materials to be shipped to SEG.
- Waste Characterization (WC) provides characterization documentation.

1.2.3 SEG is responsible for inspecting and loading the scrap metal and shipping it from the FEMP to SEG at Oak Ridge, Tennessee.

- Project Management examines each package to determine suitability for shipment, and that each has a related acceptable characterization for shipment.
- Project Management performs radiological surveys, loads the transport vehicles, prepares shipping paperwork, and ships the scrap metal to SEG at Oak Ridge, Tennessee.

1.2.4 SEG is responsible for receipt and storage of the scrap metal received from the FEMP.

- Shipping/Receiving checks and accepts each scrap metal shipment arriving at the SEG site.
- The Metal Melt Facility unloads and stages the scrap metal for treatment.

1.2.5 **SEG** is responsible for separating the loose oxides, size reducing material, melting the scrap metal, cooling/sampling, compacting (where practical), packaging, storing, and shipping the loose oxide, and slag waste to NTS.

- The Metal Melt Facility determines suitability for treatment, separates oxides et. al, defines melting parameters, melts the scrap metal, and separates the slag.
- The Central Volume Reduction Facility (CVRF) defines the compaction method, compacts the waste, inspects containers used for packaging, packages, maintains storage, and loads transport vehicles for shipment.
- Data Systems maintains computerized tracking and reporting.
- Shipping/Receiving ships the loaded vehicle to NTS.
- Health Physics performs radiological surveys of waste packages prior to shipment, and surveys the transport vehicle.
- Health Physics calibrates radiological instruments used for radiological surveys.

1.2.6 **FERMCO** is responsible for quality overview of the metal melt process records, compaction records, certification of waste packages, and certification of shipments.

- Quality Certification provides overview of SEG activities, verification activities, documentation, and certifies shipments of waste to the Nevada Test Site.

1.2.7 **FERMCO** QA is responsible for conducting QA audits, surveillance, and operations reviews for FERMCO.

1.2.8 **SEG** QA is responsible for performing QA audits, surveillance, appraisals, and reviews to ensure compliance with responsibilities identified in this WCPP and other applicable plans and procedures.

2.0 QUALITY ASSURANCE PROGRAM

There is no change in the FERMCO QA Program RM-0012. This is supplemented by the QA Program for waste stream OLN0000000009 as described in this WCPP.

SEG's QA Program is described in their QA Plan SEG/QA-100.

3.0 DESIGN CONTROL

The design of the certification program will remain essentially unchanged. However, some change in verification inspections will be made commensurate with work activities at SEG.

The waste treatment operation at SEG is a design control concern since it changes the physical form and the relative composition of the waste. The separation of the metal oxides et. al. from the scrap metal to be melted creates two sub-waste streams.

The loose metal oxide et. al. which was separated from the metal during unloading, is placed in an inner pack container to which compaction is the only additional treatment expected. The composition, however, may be different than that of the scrap metal characterized at the FEMP.

The scrap metal, with its loose oxides et. al. separated, will be melted. The resulting waste is the slag which was collected while melted and subsequently cooled. The slag composition will be different than the scrap metal and will consist of mostly metal oxides that contain a majority of the radioactive contamination.

NOTE: Metal not amenable to melting, such as aluminum, will be size reduced, packed in containers,a unique barcode label affixed, container sealed, and stored for future compaction.

The metal oxide material and the slag material will be characterized separately. The overpack containers shipped to NTS will contain inner packs of slag, oxides, and metal not amenable to melting. The characterization of the shipped containers will be a weighted composite of the individual characterization of each inner pack container.

Inventory control and material traceability at SEG is a design concern. FERMCO will audit this prior to start of work to ensure all changes in design impacting the certification program are controlled and approved. Changes having significant negative impact will require changes to this WCPP in accordance with controlled procedures.

Procurement of containers, weighing devices, and radiological equipment by SEG will be subject to design control to the extent necessary.

4.0 PROCUREMENT DOCUMENT CONTROL

The only identified routine procurement of significance by SEG will be for waste containers, which will be used as strong tight containers for the shipment of waste. The SEG procedure relating to procurement control is SEG/QA-4.1, "Quality Assurance Procedure Procurement Control."

5.0 INSTRUCTIONS, PROCEDURES, DRAWINGS

SEG will use their procedures for receiving, melting, separating, cooling, compacting, overpacking, tracking, and shipping of low level radioactive waste. These procedures, which are controlled, contain quantitative and qualitative acceptance criteria. A list of SEG procedures is included in Table I.

FERMCO procedures will be used in the certification of waste packages and shipments. With the exception of one new certification procedure specifically applicable to certification at SEG, there is no change in FERMCO procedures. The certification procedure is QP-12.08, "Certification of Compacted Low Level Waste for Shipment from SEG to NTS."

6.0 DOCUMENT CONTROL

SEG will control authorization, preparation, review and approval, distribution, recall, and update of documents important to certification. Updated documents and procedures pertinent to certification will be provided to the FERMCO WCO for the certification file.

7.0 CONTROL OF PURCHASED ITEMS AND SERVICES

SEG's procedure for control of purchased items and services is SEG/QA-4.1, "Quality Assurance Procedure Procurement Control."

Purchases of materials, items, or systems important to certification will be controlled by carefully prepared requisitions and purchase orders. Controls will be in place to ensure that items and services meet acceptance requirements prior to use. Any packaging procured will be designated for use as "strong tight" and meet NVO-325 (Rev. 1) criteria. If the packaging is supplied by FERMCO, there will be no requirement that SEG conduct vendor or receiving inspections. However, in all instances, documentation of container inspection prior to use will be required (SEG/OP-2.2).

8.0 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS, AND COMPONENTS

Waste Stream ONL0000000009 is well defined. It is isolated as a scrap metal pile and stored at the FEMP. This identification directly correlates with waste characterization data retained in the respective waste characterization files.

Upon filling boxes of scrap metal, SEG will affix one of their unique barcodes to each box for tracking purposes. The SEG barcode provides traceability for each box and is controlled by SEG Data System Waste Tracking, Procedure QA-4.3.

SEG will use "strong tight" containers to package the scrap metal. Any new packaging procured by SEG will be traceable to the supplier. Verification will be documented that these boxes are empty and in acceptable condition prior to reuse. All reused containers will have an affixed barcode number to provide control and traceability.

SEG will receive and store boxes of scrap metal at their site in a manner that eliminates any significant risk of mixing with SEG's, or another customer's waste. Prior to treatment, the box of scrap metal will be emptied on a pad within the confines of the Metal Melt facility allowing the metal oxides (rust) to fall off the scrap metal onto the concrete pad. SEG will maintain documentation that the pad is clean prior to dumping any FEMP waste. Scrap metal unable to be size reduced at the FEMP is now cut into pieces amenable to the SEG induction furnace. The metal is temporarily stored in a bin or immediately moved to the furnace for melting. The loose oxides et. al. are collected in an innerpack box. The old barcode on the box of scrap metal will be removed or obliterated.

The oxides et. al. will be placed in an innerpack container and weighed. The box will have a new unique barcode label affixed, be welded closed, be stored in a designated ISO container for FERMCO waste, and be compacted where practicable. The barcode will allow the oxide material to be traced to the FEMP scrap metal.

The slag will be collected into containers, weighed, allowed to cool, a unique barcode label affixed. Samples will be taken, the box welded closed, stored in an ISO container designated as FERMCO material, and compacted (where practical). These containers will be packed along with the boxes of oxides for shipment to the NTS.

SEG will be packaging the slag waste and oxide boxes (may be compacted) into standard 4x4x7 foot metal boxes procured by SEG under their procurement system. (The boxes will comply with NVO-325 (Rev. 1) requirements.) These boxes will also be assigned a unique barcode number for tracking.

SEG will compact the slag (where practical) in the containment box with the barcode affixed. Their experience is that the bar code remains affixed during compaction, and is fully readable for packaging identity after compaction.

SEG will maintain records of packaging activity that identifies the contents of each waste package. Barcode information from the multiple compacted boxes will be linked to the barcode on the waste package.

SEG will supply FERMCO WPCs and WCOs copies of all records documenting control and traceability.

FERMCO will maintain the certification files. Any records pertaining exclusively to individual packages or a shipment will become part of the respective shipment certification file. Other records of a more general nature will become part of the certification file maintained for the project.

A FERMCO WCO or WPC will verify cleaning of the compactor unit prior to compaction of any FERMCO waste to ensure no cross contamination of FEMP material with other generators' materials.

FERMCO will implement and maintain a Chain-of-Custody policy for FERMCO samples of metal oxides and slag.

9.0 CONTROL OF PROCESSES

The processes for transport of Waste Stream ONL0000000009 to SEG, for receipt, treatment, packaging, and shipment to NTS will all be controlled by SEG procedures listed in Table I. Procedures and/or technical manuals will be used to control processes such as testing and calibration of radiological instruments and scales. Sampling and analysis is anticipated.

A Waste Certification Hold Point Diagram (Figure 1), with illustration of the process flow, is included in this application to ship Waste Stream ONL0000000009.

Waste characterization of the scrap metal is provided by FERMCO based on process knowledge using FERMCO procedure SSOP-0002 which uses Material Evaluation Forms and metal checklists for packaged material to be forwarded to SEG for processing. (QS1 on flow chart.) This characterization process successfully screens material to preclude items which could possibly be RCRA hazardous.

The process for certification of waste will remain essentially unchanged except for customizing certification checklists and evaluation plans to SEG operations and using SEG records for certification. Hold Point controls have been established as shown on the Certification Hold Point Diagram in Figure 1 of this appendix. Certification and process controls identified with respective hold points and controlling procedures are as follows:

9.1 Hold Point Quality QS1 - SEG/OP-4.2

SEG shall verify that characterization data are in order for the shipment of waste to SEG. Packages are inspected to determine acceptability for taking custody and shipping to SEG.

9.2 Hold Point QS2 - SEG/OP-4.2

SEG shall measure the radioactivity levels of the containers upon receipt. SEG shall not store or process packages exceeding radiological control limits without administrative controls, or other acceptable means, to eliminate the increased risk to personnel.

9.3 Hold Point QS3 - SEG/OP-2.2 and SEG/OP-4.3

SEG shall perform receiving inspections for any new packaging used.

9.4 Hold Point QF1 - FEMP/QP-7.01 and QP-12.08, Section 2.5

FERMCO Quality Assurance may perform surveillance to verify that SEG has cleaned the pad (metal, loose oxides, debris removal) and the furnace deck prior to start up of FERMCO material following oxide separation, or melting, of any other waste. The WCO or WPC shall be vigilant in the prevention of cross contamination of FERMCO waste with any other source.

9.5 Hold Point QF2 - FERMCO/QP-12.08, Section 2.6.1/Workplan for Treatment

FERMCO Waste Characterization shall route the results of sampling and analysis for release of containers to resident WCO at SEG for Certification use.

The WCO shall review documentation provided by FERMCO Waste Characterization to ensure that all slag and oxides are RCRA nonhazardous prior to the transfer of material to the CVRF.

Material failing TCLP analysis for heavy metals will be segregated from compactable innerpacks for stabilization processing. Specified containers will be transferred to the CVRF for treatment.

During the stabilization process the FERMCO WCO or WPC shall:

- Verify that waste container was identified by barcode as requiring stabilization (such as using SEG Procedure OP 4.12).
- Overview the stabilization process, sampling, and pour into new container.
- Verify temporary closure and affix a Tamper Indicating Device (TID) to each unclosed waste package left unattended during breaks or off shifts.

9.6 Hold Point QF3 - FEMP/QP-12.08, Section 2.7.2

During the compaction process FERMCO WPC or WCO shall:

- Verify that waste container was pre-inspected.
- Verify that absorbent was added to the waste package if needed.
- Verify temporary closure and affix a Tamper Indicating Device (TID) to each unclosed waste package left unattended during breaks or off shifts. The WPC or WCO shall verify closure, and attach or witness attachment of a TID to each filled package.

Visually examine the contents and interior of each package to verify there are no prohibited items therein.

The TID, either stamped or initialed by the WPC or WCO shall provide permanent closure and SEG authorization to move the package from the area.

9.7 Hold Point QF4 - FEMP/QP-12.08, Section 2.9.6

FERMCO Waste Certification Official shall:

Review sampling and analysis results of each sampled container and verify that the materials overpacked have been characterized as acceptable for shipment, and that all nonconformances affecting waste certification have been closed.

9.8 Hold Point QF5 - FEMP/QP-12.08, Section 2.11

FERMCO WCO shall review and approve the "Package Storage & Disposal Data" report. Approval shall require validation, and verification, that data presented meets waste acceptance requirements. The characterization for each box to be shipped is the weighted average of the individual inner pack boxes contained in the shipment box.

9.9 Hold Point QF6 - FEMP/QP-12.08, Section 2.8

FERMCO WPC or WCO shall:

- Verify that the TID affixed by a WPC or WCO is still on the package.
- Verify contents of each waste package is traceable to an acceptable waste characterization.
- Inspect waste packages to ensure physical condition, markings, and labeling meet Title 49 CFR 172 Subparts D and E [with exceptions noted in Title 173.425 (b) and (c)], and NVO-325 (Rev. 1) requirements.
- Verify that each package is listed on an applicable Package Storage & Disposal Data Report (PSDD) signed by a WCO, and that all information on the package agrees with the PSDD report and associated documentation.
- Verify appropriate disposition of all nonconformances impacting the waste package being certified.
- Verify the NV-211 label is signed and dated prior to applying it to the respective package.
- Affix a signed and dated NV-211 sticker on each acceptable package.

9.10 Hold Point QS4 - SEG/OP-4.4Q

For each incoming transport vehicle to be used to transport waste to NTS, SEG shall:

- Make a visual inspection of the transport van.
- Make radiological checks.

9.11 Hold Point QS5 - SEG/OP-4.4Q

SEG shall:

- Perform a visual inspection of each outgoing shipment.
- Perform radiological checks of the transport vehicle to verify compliance with 49 CFR 173.411, 173.421, and 173.425 requirements.

9.12 Hold Point QF7 - FEMP/QP-12.08, Section 2.9

FERMCO WPC or WCO shall:

- Verify that an NV-211 sticker dated and signed by an authorized FERMCO WPC or WCO is securely affixed to each accepted waste package.
- Verify that SEG has inspected the trailer.
- Verify that SEG's radiological checks on the transport van have been made and are within acceptable limits.
- Verify that waste packages loaded for shipment are those listed on the respective "Package Storage & Disposal Data" report, which is signed by an authorized FERMCO WCO.

9.13 Hold Point QF8 - FEMP/QP-12.08, Section 2.10

FERMCO WCO or WPC shall witness an operability check, and either conduct or witness a limited road worthiness check of each vehicle transporting FERMCO waste to NTS.

9.14 Hold Point QF9 - FEMP/QP-12.08, Section 2.13

FERMCO WCO shall:

- Examine all shipment paperwork for completeness and accuracy.
- Verify that all required certification checks have been completed.
- Verify that all authorizations are complete and valid, and that the certification file is complete.
- Complete and sign a certification statement as required by NVO-325 (Rev. 1).
- Verify that SEG's "Radioactive Material Shipment Release Checklist" has been completed to the extent applicable.
- Verify that the Bill of Lading, manifest and/or tally sheet, "Package Storage & Disposal Data" report, and the FERMCO certification statement are sent with each shipment, and that driver's instructions have been give to the driver.

9.15 Hold Point QF9 - FEMP/QP-12.08, Section 2.14

Post shipment requirements are:

FERMCO WCO shall ensure that copies of the Certification and the "Package Storage & Disposal Data" report are FAXed within 24 working hours to DOE/NV, and Reynolds Electrical & Engineering Company, Inc., at Area 5. Failure to communicate due to faulty communication equipment at the sending or receiving site shall not be cause for a nonconformance.

FERMCO WCO shall verify the DOE/NRC 741 Form has been completed and transmitted to REECo.

The **FERMCO** WCO at **SEG**, and Quality Certification at the **FEMP** shall maintain certification files in accordance with requirements outlined in this WCPP, and this appendix to the plan.

10.0 INSPECTION

Inspection hold points have been identified in the Waste Certification Hold Point Diagram. For the purpose of certification, completion and signing of a properly identified checklist or inspection report by an authorized person constitutes an inspection. Key inspections identified in NVO-325 (Rev. 1) are addressed as follows:

- **SEG** shall inspect waste containers prior to use (SEG/OP-2.2).
- Verification and certification of the contents of each container shall be based on the waste characterization performed at the FEMP and traceability to the waste packaged. **FERMCO** inspection of final packaging operations shall initially be conducted once during each shift of operation. Inspections shall be performed by WPCs and/or WCOs.
- **SEG** shall inspect the final packages prior to submittal for certification. A **FERMCO** WPC, or WCO, shall inspect each package prior to certification.
- A **FERMCO** WCO shall inspect each shipment and associated paperwork.

11.0 TEST CONTROLS

Tests affecting certification are not anticipated. However, should testing be required, controls will be implemented that conform to NVO-325 (Rev. 1) requirements.

12.0 CONTROL OF MEASURING AND TEST EQUIPMENT

FERMCO will ensure that the analytical laboratory's QA Program Plan and QA Project Plan provides adequate instrument calibration procedures. Periodic audits of the laboratory will be performed.

SEG measuring and test equipment will be controlled in accordance with NVO-325 (Rev. 1) requirements and the WCPP. Examples of measuring and test equipment to be controlled are radiation measuring equipment and weighing devices.

Each instrument will have a unique identification for calibration control.

Records of calibration will be maintained, and systems will be in place to ensure timely recall of instruments requiring re-calibration.

SEG test equipment and measuring devices will be tagged or labeled to indicate they are calibrated or certified for continued use. Out of calibration devices will be tagged out-of-service and segregated. If segregation is not practicable, out-of-service tags will be prominently displayed or a security system will be employed to prevent inadvertent use.

NOTE: The labeling or tagging of torque wrenches may be impractical due to size and condition of use.

Calibration performed by **SEG** is confined to the radiological instruments calibration laboratory. Temperature and humidity will be measured and controlled as necessary for calibration. Calibration of weighing devices is contracted through SEG procurement.

13.0 HANDLING STORAGE AND SHIPPING

SEG shall handle, store and ship waste in a manner that will not affect the certification status. **FERMCO** WPCs shall apply a TID to each overpack package, and packages shall be sheltered or otherwise protected prior to shipment. All handling and storage will comply with ALARA concepts.

SEG transporter (driver) will be provided additional tamper indicating devices (seals) for trailers.

All seal numbers will be recorded on the shipping paperwork. The driver will initial and date a record of seals removed and installed during each load inspection made in route. Broken seals will be kept and presented with the shipping papers upon arrival at the NTS.

SEG will seal vans used in shipment with a numbered tamper indicating device, and will control the shipment by routing.

14.0 INSPECTION, TEST, AND OPERATIONAL STATUS

Items rejected by SEG for use will either be tagged or clearly marked unsuitable for use (e.g., for rework, reject, etc.). FERMCO checklists will be designed to verify documentation of satisfactory completion of any required preceding inspections. Nonconforming items identified by FERMCO will be tagged as nonconforming using tags exhibited in the WCPP. NV-211 stickers will be used to control certification and loading of packages for shipment.

15.0 CONTROL OF NONCONFORMING ITEMS

SEG Procedure SEG/QA-15.1 will be followed in controlling nonconformances identified by SEG personnel. Copies of these nonconformances and resolutions shall be provided to the FERMCO WCO, who will disseminate the information to WPCs. Nonconformances identified by FERMCO personnel will be controlled in accordance with the WCPP and the applicable FERMCO procedure.

Nonconformances of lesser consequence (such as missing barcode labels) will not require issuance of a nonconformance report if the nonconforming condition is corrected within one working day. However, should the nonconforming item(s) be left unattended, nonconformance tags will be applied. Records of all nonconformances, including those not documented on a nonconformance report, will be compiled for tracking and corrective action purposes.

Nonconformances will be evaluated to determine root causes and determine the need for corrective action. Requests for corrective action and responses thereto will be documented on a corrective action report as required by the controlling documents in Section 16.0 of this appendix.

Material failing to pass TCLP analysis will be segregated for later treatment which include processes described in SEG procedure OP-6.17, Sulfur Polymer Cement Solidification System Operation.

16.0 CORRECTIVE ACTIONS

SEG Procedure SEG/QA-15.1 will be followed in identifying, developing, and implementing corrective actions for nonconformances identified by SEG personnel. The root cause evaluation performed in Section 15.0 of this appendix is included in the corrective action report. Copies of the corrective action reports will be provided to the FERMCO WCO, who will evaluate the impact upon the certification program. Negative impact will require interface between SEG and FERMCO to achieve resolution.

Corrective actions identified as a result of nonconformances identified by FERMCO personnel will be controlled in accordance with the WCPP and the applicable FERMCO procedure (SSOP-0023) listed in Appendix I, Table I of the current application.

17.0 QUALITY ASSURANCE RECORDS

Minimum requirements for defining and maintaining QA records are defined in NVO-325 (Rev. 1). FERMCO QA records generated at SEG pertinent to the certification of Waste Stream ONL000000009 at SEG will, while at that site, be maintained by the WCO. SEG will maintain originals of all records generated by their personnel and file copies will be given to the WCO. Records will be legible, identifiable, and retrievable. All QA records, to be valid, must be signed and dated. Mistakes or corrections in records will have a single line drawn through the changed data and shall be signed or initialed and dated.

After making copies, the FERMCO WCO at SEG will forward all certification records to the FEMP for storage. The forwarded records will be stored at the FEMP initially in a fire resistant safe, or in standard metal file cabinets located in an area protected with an automatic sprinkler system. For permanent storage, the records will be transferred to the FEMP storage repository, or a contracted repository having an approved fire protection system.

FERMCO will provide SEG copies of all audits and surveillance, nonconformance reports, approved "Package Storage & Disposal Data" reports, and signed certification statements. Copies of certification files retained by the WCO at SEG will be retained by the WCO at SEG for a maximum of ninety (90) days.

18.0 AUDITS/SURVEILLANCE

SEG has an audit and surveillance program, and conducts scheduled audits and surveillance of their operations. Information copies of SEG audits and surveillance impacting waste certification will be distributed to the FERMCO Chief WCO. The FERMCO WCO and SEG auditors will review the checklist results and identify Conditions Adverse to Quality needing corrective action.

FERMCO Independent Assessment will conduct an operations review prior to any certification and shipment of metal melt waste from the SEG site. FERMCO audits are conducted in accordance with the WCPP and applicable FERMCO procedures. Due to the presence of FERMCO certifiers at SEG, additional audits and formal surveillance is optional up to one year from the current audit date.

19.0 TRAINING

All SEG and FERMCO personnel associated with waste management and the certification program will be trained on the requirements of the WCPP and NVO-325 (Rev. 1). All persons who generate, package, certify, prepare data, perform related radiation surveys, or perform the associated quality functions will receive training in the requirements and implementing procedures for those parts of the certification program in which they are involved.

Initial training to requirements of the WCPP and NVO-325 (Rev. 1) will be given to eligible SEG personnel by a FERMCO technical instructor utilizing the FERMCO training program. The presenter of future training is optional, but the training program in any case will meet NVO-325 (Rev. 1) requirements.

Similar to Ohio, Tennessee has adopted the Federal program for implementing RCRA. The Tennessee regulations for hazardous waste identification are promulgated under Tennessee Hazardous Waste Management Rules 1200-1-11. WCOs and WPCs will receive, as a minimum, informal instruction on applicable state of Tennessee regulations for shipment of low level waste.

All training will be effective for the lesser of a period of two years or until major change.
SEG auditors will have training commensurate with the scope, complexity, or special nature of activities to be audited. Auditors are given training and orientation on the requirements of 10 CFR 50, Appendix B and NQA-1 licensing fundamentals.

FERMCO auditors are trained and qualified in accordance with FERMCO Procedure QP-6.07, "Certification of Quality Assurance Audit Personnel."

Records of training course content, exams, and test results will be maintained as FERMCO QA records at SEG, and shall be available for review by audit personnel.

FERMCO will maintain, at the FEMP, all records of training presented by FERMCO, which includes NVO-325 (Rev. 1) WCPP training given to SEG personnel.

SEG document control will maintain records of SEG's training, which includes training on procedures.

TABLE I

MASTER PLANS, MANUALS AND PROCEDURES

SEG SITE STANDARD OPERATING PROCEDURES		Location
OP-2.2	Overpacking System	in Appendix II
OP-2.8	Press (Supercompactor) Operation	in Appendix II
OP-4.2	Radioactive Material Reciept	in Appendix II
OP-4.3	Data Systems Waste Tracking	in Appendix II
OP-4.4Q	Radioactive Material Shipment	in Appendix II
OP-6.17	Sulfur Polymer Cement Solidification System Operation	Appendix III
SEG/QA-4.1	Quality Assurance Procedure Procurement Control	in Appendix II
SEG/QA-7.2	Approved Supplier List	in Appendix II
SEG/QA-10.1	Inspection	in Appendix II
SEG/QA-15.1	Nonconformance Reporting	in Appendix II
SEG/QA-100 Revision 3	Quality Assurance Program	in Appendix II
SEG/QA-114	Quality Assurance Plan for the FERMCO Scrap Metal Project	Appendix III
STD-P-17-700	FERMCO Material Processing Procedure	Appendix III
FERMCO PROCEDURES		
QP-12.08	Certification of Compacted Low Level Waste for Shipment from SEG to NTS	in Appendix II
QP-6.07	Certification of Quality Assurance Audit Personnel	Appendix III

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Contains Proprietary Information

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QAP - 114

QUALITY ASSURANCE PLAN

FOR THE

FERMCO SCRAP METAL PROJECT

Revision 0

SCIENTIFIC ECOLOGY GROUP, INC.

Our Vision

To be the safest, highest performing, innovative waste management company in the world, accomplished by combining teamwork, exceptional customer service, the application of advanced technologies, and a commitment to excellence.

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QAP - 114

Revision 0

QUALITY ASSURANCE PLAN

FOR THE

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT COMPANY (FERMCO) SCRAP METAL PROJECT

PREPARED BY:	K. D. Campbell	4-14-93
	Ken Campbell, Sr., Quality Engineer	Date
REVIEWED BY:	Dale Hedges	4-14-93
	Dale Hedges, Vice President, QA	Date
REVIEWED BY:	E. Douglas Jamieson for	4/15/93
	Bill Richards, Metal Melt Manager /ASTR,	Date
APPROVED BY:	Douglas C. Moore	4/23/93
	Doug Moore, Project Manager	Date
REVIEWED BY:	Mary Ann Forrest	4/26/93
	FERMCO/QA	Date

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1. SCOPE

This Quality Assurance Plan (QAP) describes the Quality Assurance system for controlling work performed by SEG for the Fernald Environmental Restoration Management Corporation (FERMCO). This work includes all activities necessary to remove, decontaminate, or process an estimated 2210 tons of non-RCRA, low-level radioactive scrap metal from the Fernald site to allow unrestricted or beneficial re-use of these materials.

2. APPLICABILITY

This plan is applicable to all activities related to the removal, transportation, decontamination, and melting of the FERMCO identified scrap metal from the Fernald Environmental Management Project (FEMP) Site for maximum beneficial re-use.

3. BACKGROUND

This Project is being executed using SEG's existing Quality Assurance Program, SEG/QA-100. The SEG QA Program is supplemented by this Plan (QAP-114) and the Removal Action Project Plan (RAPP) to identify and define specific Quality Assurance requirements necessary for this Project. This QAP is designed to control the processes related to the FERMCO Scrap Metal Project to prevent unacceptable end products or services.

SEG/QA-100 complies with NQA-1, the State of Tennessee Department of Health and Environmental Licenses, and other appropriate U.S. Codes and Standards.

The technical requirements of this Project are specified in contractual documents. The Project Manager maintains a current list of applicable documents which apply to this Project.

4. RESPONSIBILITIES

The Project Manager is responsible for the end quality of products and services for this project. The SEG Vice President, Quality Assurance is responsible for measuring the effectiveness of implementation in accordance with this QA Plan, the FERMCO contract and DOE requirements.

5. QUALITY ASSURANCE REQUIREMENTS

Quality Assurance is an integral part of the SEG volume reduction process. The steps which require in-process verification by cognizant personnel and/or surveillance by the QA Department are depicted on the flowchart shown as Attachment 4. This flowchart is for typical SEG Metal Melt processing. A flowchart depicting the process flow for this project and associated specific tasks is provided in the Removal Action Project Plans (RAPP) as Attachment No. 1.

The SEG Quality Assurance Program, SEG/QA-100, provides the basic quality requirements for this Project. This QA Plan provides additional unique project quality requirements. A matrix of project specific documents and the SEG QA Program documents is provided as Attachment 1. These documents are available to SEG project personnel and FERMCO for reference and use.

6. FERMCO SCRAP METAL PROCESSING QUALITY PLAN CRITERIA

The quality plan criteria applicable to this project are identified below. Attachment 1 provides a Matrix of Project specific quality requirements and SEG implementing documents.

6.1 ORGANIZATION

The Project Manager for the FERMCO Project is ultimately responsible for the quality of products and services for the project. The organization chart for the project is shown in Figure 2. As shown, the Project Manager reports to the SEG Vice President, Project Management, who in turn reports to the President of SEG. The SEG Vice President, QA reports to the SEG President. As such, the Quality Assurance organization has access and organizational freedom to identify quality problems, coordinate corrective actions and verify implementation of the corrective actions.

Any subcontractors/suppliers used for the FERMCO Project will be directed by the Project Manager with the concurrence of SEG Purchasing. All subcontractor-supplied equipment and services are subject to the quality requirements as defined in this Quality Plan.

6.2 QUALITY ASSURANCE PROGRAM

SEG activities associated with the FERMCO Scrap Metal Project are managed and controlled in accordance with this Quality Assurance Plan (QAP) and the SEG Quality Assurance Manual (QAM). The QAP and QAM meet the requirements of NQA-1 and are written in an 18 criteria format, corresponding to NQA-1. If any discrepancies exist between the QAM and Quality Plan, this Quality Plan shall prevail for the FERMCO Scrap Metal Project and FERMCO project-specific procedures.

All SEG project personnel are trained or indoctrinated to the requirements of this Quality Plan.

The SEG Quality Assurance department assesses the adequacy of implementation of this Quality Plan—throughout the duration of this project—through documentation reviews, surveillances, inspections, and audits as needed. Results of assessments are provided to SEG Management.

6.3 DESIGN CONTROL

Design and/or design modifications are not anticipated for this project.

6.4 PROCUREMENT DOCUMENT CONTROL

SEG will conduct procurement activities in accordance with Section 4 of SEG/QA-100 and procedure SEG/QA-4.1. Procurement documents are reviewed by technically knowledgeable personnel to assure appropriate technical, quality assurance and documentation requirements are incorporated.

Procurement documents identify SEG's responsibility for ensuring that suppliers comply with quality requirements. Hold Points are clearly identified in appropriate procurement documents. Procurement activities are specified, reviewed, and controlled for unique project procurements.

6.5 INSTRUCTIONS, PROCEDURES AND DRAWINGS

Procedures and instructions issued in support of this Project are controlled and approved in accordance with SEG/QAP-100, Section 5, and procedure SEG/QA-5.1. The matrix shown as Attachment 1 identifies documents applicable to the FERMCO Scrap Metal Project. Project specific procedures are developed as necessary to augment SEG implementing procedures and, when required, issued prior to the commencement of the work activity. Forms identified in procedures and instructions are typical in format and may vary without revision to the procedure, as long as the essential elements of control are the same.

Project procedures, developed by the SEG staff, are reviewed by the Project Manager and SEG Vice President, Quality Assurance. The Project Manager approves the procedures before submitting them to FERMCO for review. After their review, changes or comments are incorporated into the procedure or resolved prior to final issuance. Any changes to approved documents are subject to the same level of control (review, approval, and issue) as the originals. Each individual using a document is responsible for assuring that the document is the latest issue. Appropriate documents are available at locations where the prescribed work is performed.

6.6 DOCUMENT CONTROL

Project documents will be controlled in accordance with SEG/QA-100 Section 6 and procedure SEG/QA-6.1. The Project Manager, or a designee, identifies documents to be controlled. A distribution list will designate individuals and/or organizations who will receive controlled copies.

Project documents which furnish documentary evidence of the conduct and quality of the work being performed for FERMCO are controlled in accordance with applicable SEG QA Program procedures.

Sufficient documentation is prepared during the project to furnish evidence of the conduct and quality of the work. Transmittal, receipt, indexing, filing, storage, maintenance, and retrieval of the project records is performed in accordance with this QAP and the SEG QA Program.

6.7 CONTROL OF PURCHASED MATERIAL, EQUIPMENT AND SERVICES

Items or services purchased for the FERMCO Scrap Metal Project are controlled in accordance with SEG/QA-100, Section 7 and Procedure SEG/QA 7.1. The Project Manager identifies those items or services which will be purchased and determines, with the concurrence of Quality Assurance, the means by which the quality of the item or service is assured.

Potential suppliers are evaluated and selected based on objective evidence of their ability to meet the project specifications in accordance with SEG/QA 7.2, Approved Suppliers List.

6.8 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS AND COMPONENTS

SEG controls the identification of materials, parts and components in accordance with Section 8 of SEG/QA 100. Where necessary, project procedures identify the unique control of materials, parts, and components for the FERMCO Scrap Metal Project, including overpack drums. Traceability of FERMCO material is maintained throughout processing activities in accordance with SEG/OP-4.3.

6.9 CONTROL OF SPECIAL PROCESSES

SEG controls special processes in accordance with SEG/QA-100, Section 9 and Procedure SEG/QA-9.1.

Activities relative to processing FERMCO scrap metal at the SEG Metal Melt Facility (MMF) are controlled in accordance with this QAP and Procedure STD-P-17-700, FERMCO Material Processing Procedure.

All project radioactive waste tracking activities and health physics operations are implemented under controlled conditions by qualified personnel using qualified procedures and equipment in an authorized work environment.

6.10 INSPECTION

SEG inspection activities for the FERMCO Scrap Metal Project are controlled in accordance with SEG/QA-100, Section 10 and Procedure SEG/QA-10.1, Inspection. Surveillance activities are controlled by procedure SEG/QA-10.2.

In-process inspection and surveillance activities are performed by qualified personnel who do not directly participate in the performance of the original work activity being inspected. Inspection/surveillance results are documented.

In-process verification is performed in accordance with STD-P-17-700, FERMCO Material Processing Procedure. Surveillances conducted by QA for this project will begin with the receipt of the first shipment and on a weekly basis thereafter in accordance with SEG QA surveillance plan. Process activities selected for in-process verification and as surveillance points are shown in Attachment 4.

SEG in-process verification points for this project are established and characteristics, methods, and acceptance criteria identified in approved procedures. Controls are established for in-process detection of unacceptable activities, as well as final inspection, to verify acceptability.

6.11 TEST CONTROL

Test control is not anticipated to be part of this project. In the event test control is required, testing activities will be subject to the controls described in each specific test procedure.

6.12 CONTROL OF MEASURING AND TEST EQUIPMENT

Measuring and Test Equipment (M&TE) used for the FERMCO Scrap Metal Project is controlled in accordance with Sections 12 of SEG/QA-100 and procedure SEG/QA-12.1. This documented system provides for determining the current calibration status of any M&TE used for the FERMCO Scrap Metal Project.

Instruments are calibrated as dictated by the type and class of instrument/equipment. When calibration services are procured from an outside vendor, the vendor will be evaluated, approved and listed on SEG Approved Suppliers List. Reference standards used to calibrate instruments are traceable to the National Institute of Standards and Testing (NIST).

Instruments that have not been maintained or calibrated are tagged or removed from service. If M&TE is found to be out of calibration or past the required calibration date, an evaluation is made of the validity of previous inspection results and the acceptability of items previously inspected.

6.13 HANDLING, SHIPPING AND STORAGE

The handling, shipping and storage of materials and equipment for the FERMCO Scrap Metal Project is accomplished in accordance with SEG/QA-100, Section 13, Procedure SEG/QA-13.2 and project specific instructions. These procedures and instructions used in conjunction with the requirements of NVO-325 include directions for the handling, storage, packaging and shipping of radioactive waste and the identification of documentation necessary to accompany items being handled or transported.

All material processed for this project will be kept separated from other generators material during the entire processing cycle.

6.14 INSPECTION, TEST AND OPERATING STATUS

The status of equipment, operations, or inspection is controlled in accordance with SEG/QA-100, Section 14 and Procedure SEG/QA-14.1. Tags, labels, or markings are use to identify the status and may not be removed without proper authorization, as specified in approved procedures.

6.15 CONTROL OF NONCONFORMING ITEMS

SEG/QA-100, Section 15 and procedure SEG/QA-15.1 provides the requirements for personnel assigned to the FERMCO Scrap Metal Project to detect, identify, report and follow-up deficiencies to assure that nonconforming items or activities are corrected.

6.16 CORRECTIVE ACTION

Corrective Action Reports (CAR) are used to document conditions adverse to quality. CARs may be generated as the result of the collective evaluation for adverse trends from NCRs, inspections, internal audits and surveillances. A CAR may also be generated in the event it should become necessary to Stop Work on project activities. The existing SEG corrective action program applies to this project and is documented in SEG/QA-100, Section 16 and Procedure SEG/QA-16.1.

6.17 QUALITY ASSURANCE RECORDS

SEG will control quality documents generated for this Project in accordance with contract specifications and in an agreed upon format coincidental with the activity to which they relate, so that the quality status of the work can be readily verified. Quality Records are generated to provide evidence of the effective implementation of the quality assurance program by SEG and its suppliers. These records are collected

and maintained in an organized and controlled manner which provides retrievability and protection from damage or loss. The records will be made available to FERMCO for inspection upon request.

Typical Quality Records to be maintained by SEG and its suppliers and their respective retention periods for this project are identified on Attachment 3, Records Flow Schedule. The records shall be concisely compiled, indexed and cross referenced to the contract number. They will be provided to FERMCO at the conclusion of the contract or dispositioned as directed by FERMCO.

6.18 AUDITS

Elements of the SEG QA Program are audited in accordance with the SEG annual audit plan. Surveillance of the project activities will be conducted on key activities which have been identified in the flowchart shown as Attachment 4. Audits and surveillances will be conducted by qualified personnel in accordance with the existing SEG program defined in SEG/QA-100, Section 18.

Internal audits and surveillances are performed in accordance with applicable procedures. Audit and surveillance results relative to the FERMCO Scrap Metal Project will be documented in reports and sent to Project Manager for disposition.

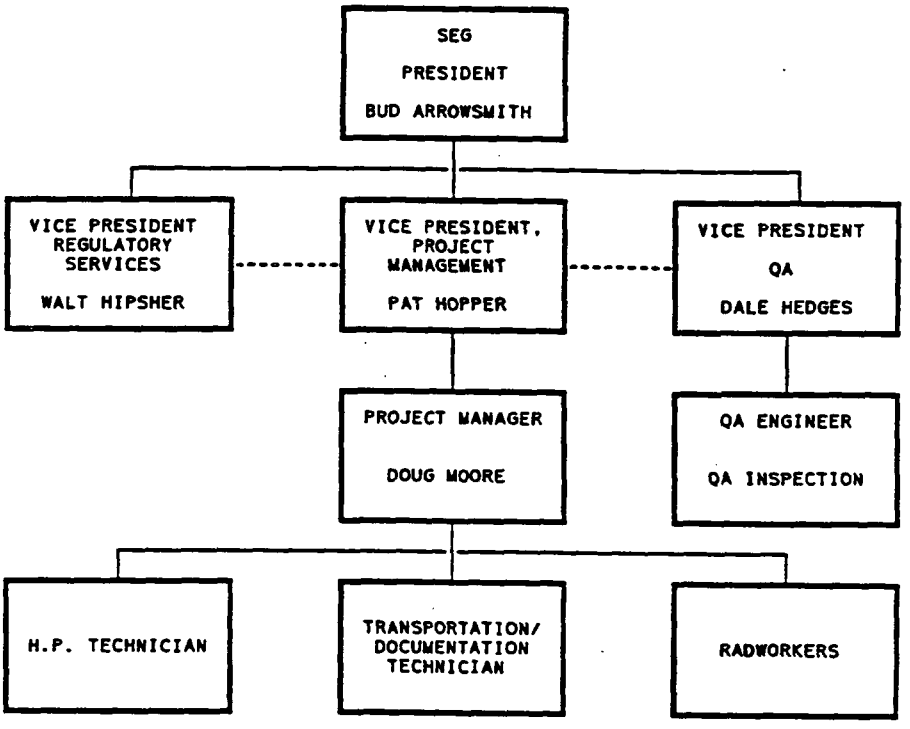
ATTACHMENT 1
MATRIX OF IMPLEMENTING DOCUMENTS
FERMCO SCRAP METAL PROJECT

QAP Criteria	Project - Specific Documentation	SEG Quality Assurance Documents
1. ORGANIZATION	QAP-114, FERMCO Quality Plan	SEG/QA 100, Section 1 SEG Quality Assurance Program
2. QA PROGRAM	QAP-114, FERMCO Quality Plan	SEG/QA 100, Section 2 SEG Quality Assurance Program
		SEG/QA 2.1 Training and Indoctrination
		SEG/QA 2.2 Certification of Quality Audit Personnel
4. PROCUREMENT DOCUMENT	QAP-114, FERMCO Quality Plan	SEG/QA 100, Section 4 SEG Quality Assurance Program
		SEG/QA 4.1 Procurement Control
5. INSTRUCTIONS, PROCEDURES, AND DRAWINGS	QAP-114, FERMCO Quality Plan	SEG/QA 100, Section 5 SEG Quality Assurance Program
		SEG/QA 5.1 Procedures, Instructions, Drawings
6. DOCUMENT CONTROL	QAP-114, FERMCO Quality Plan	SEG/QA 100, Section 6 SEG Quality Assurance Program
		SEG/QA 6.1 Document Control
7. CONTROL OF PURCHASED MATERIAL, EQUIPMENT AND SERVICES	QAP-114, FERMCO Quality Plan	SEG/QA 100, Section 7 SEG Quality Assurance Program

QAP Criteria	Project - Specific Documentation	SEG Quality Assurance Documents
MATERIAL CONTROL PROCEDURES		SEG/QA 7.1 Material Control Procedure
		SEG/QA 7.2 Approved Suppliers List
		SEG/QA 7.3 Quality Assurance Supplier Evaluation
9. CONTROL OF SPECIAL PROCESSES	QAP-114, FERMCO Quality Plan	SEG/QA 100, Section 9 SEG Quality Assurance Program
	STD-P-17-700 FERMCO Material Processing Procedure	SEG/QA-9.1 Control of Special Processes
		SEG/OP 4.2 Rad Material Receipt
		SEG/OP 4.3 Rad Waste Tracking
		SEG/OP 4.4 Rad Material Shipment
10. INSPECTION	QAP-114, FERMCO Quality Plan	SEG/QA 100, Section 10 SEG Quality Assurance Program
		SEG/QA 10.1 Inspections
		SEG/QA 10.2 Surveillance Practice
		SEG/QA 10.3 Qualification of Inspection and Test Personnel
		STD-P-17-700 FERMCO Material Processing Procedure

QAP Criteria	Project - Specific Documentation	SEG Quality Assurance Documents
12. CONTROL OF M&TE	QAP-114, FERMCO Quality Plan	SEG/QA 100, Section 12 SEG Quality Assurance Program
		SEG/QA 12.1 Measuring and Test Equipment
13. SHIPPING, HANDLING & STORAGE	QAP-114, FERMCO Quality Plan	SEG/QA,100, Section 13 SEG Quality Assurance Program
14. INSPECTION, TEST, AND OPERATING STATUS	QAP-114, FERMCO Quality Plan	SEG/QA 100, Section 14
		SEG/QA 13.2 Control of CVRF Receipt, Storage & Shipment
15. NONCONFORMING MATERIAL, PARTS AND COMPONENTS	QAP-114, FERMCO Quality Plan	SEG/QA 100, Section 15 SEG Quality Assurance Program
		SEG/QA 15.1 Nonconformance Reporting
16. CORRECTIVE ACTION	QAP-114, FERMCO Quality Plan	SEG/QA 100, Section 16 SEG Quality Assurance Program Document Control
		SEG/QA 16.1 Corrective Action
17. QUALITY RECORDS	QAP-114, FERMCO Quality Plan	SEG/QA 100, Section 17 SEG Quality Assurance Program
		SEG/QA 17.1 Quality Records Management
		SEG/QA 17.2 Records Submittal to the SEG Records Center
18. AUDITS	QAP-114, FERMCO Quality Plan	SEG/QA 100, Section 18 SEG Quality Assurance Program
		SEG/QA 18.1 Audit Program

ATTACHMENT 2
SEG ORGANIZATION
FERMCO SCRAP METAL PROJECT



TITLE:	QUALITY ASSURANCE PLAN FOR THE FERMCO SCRAP METAL PROJECT	NUMBER: QAP-114 REVISION: 0

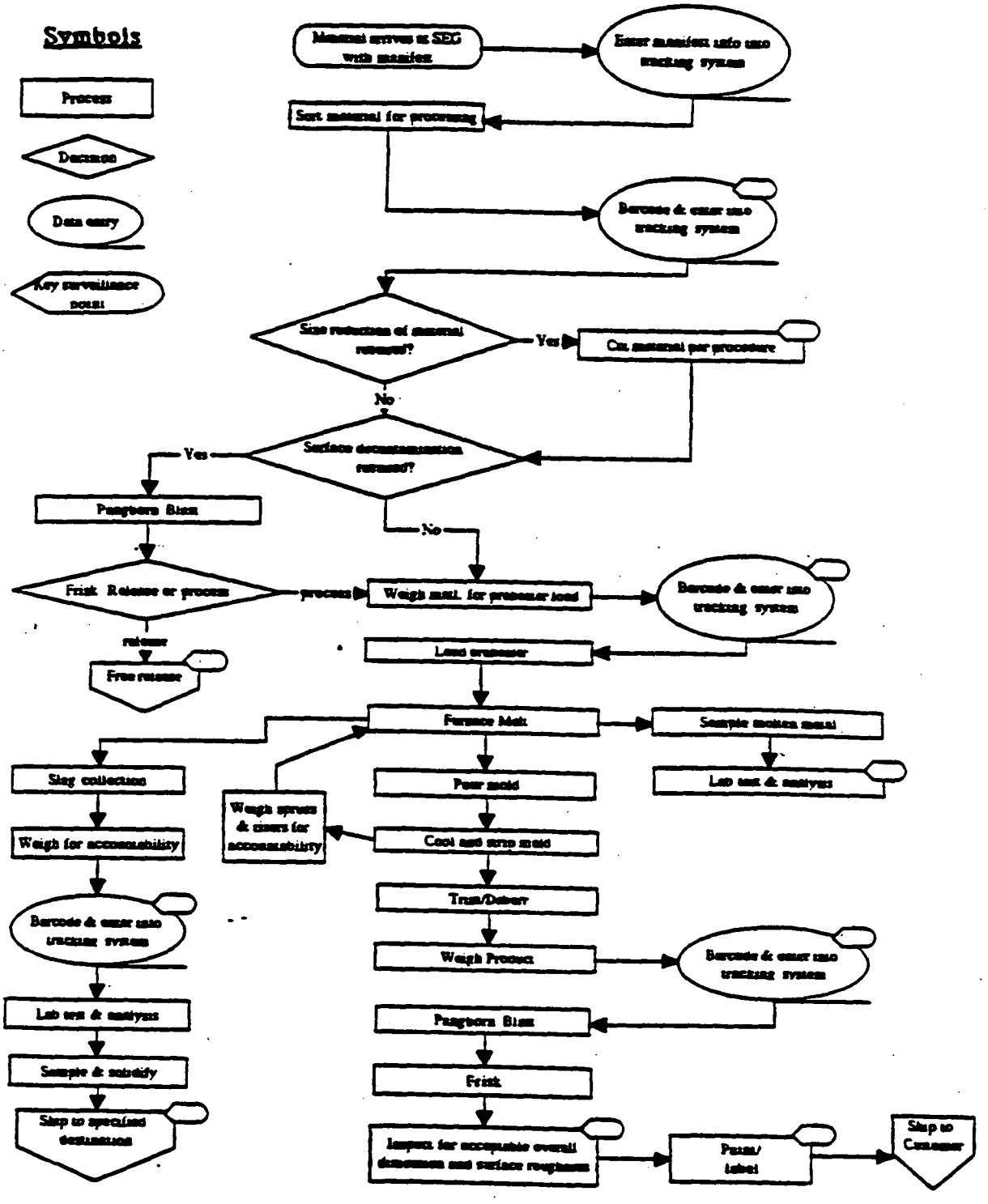
ATTACHMENT 3
RECORDS FLOW SCHEDULE
FERMCO SCRAP METAL PROJECT

PROJECT NO. AND ITEM NO.	NAME OF RECORDS	FORM NO.	RETAIN IN ACTIVE FILE (IN DEPT.)	RETAIN IN CENTRAL FILES	TOTAL RETENTION	METHOD OF DISPOSAL
	Personnel Quality & Training Records		1 year	6 permanent	7 years	
	Calibration Records		1 year	6 years	permanent	
	Transportation /Shipping Reports		1 year	permanent	7 years	
	Nonconformance Report		1 year	permanent	permanent	
	QA Plan		1 year	permanent	permanent	
	FERMCO Scrap Metal Project Procedures		1 year	6 years	7 years	
	Rad Material Receiving Reports		1 year	permanent	permanent	
	QA Surveillance, Inspections and Audits		1 year	6 years	7 years	

LOCATION: _____ DIVISION: _____ SECTION OR DEPT: _____ PROJECT NO: _____

APPROVED BY & TITLE: _____ RECORDS SERVICES: _____ SHEET NO: _____ of _____

ATTACHMENT 4
TYPICAL METAL MELT PROCESS FLOW



Next 6 Pages Redacted

Contains Proprietary Information

CERTIFYING OFFICIAL:

2.1.2 Review applicable codes and standards which delineate the qualification requirements for audit personnel. Develop and administer the required examination to auditor candidates.

2.2 Personnel Training

MANAGER, AUDITS AND APPRAISALS:

2.2.1 Administer the necessary training in the auditing techniques and procedures to qualified auditor candidates. Conduct of the training may be delegated to a qualified Technical Instructor.

2.3 Evaluation of Personnel Qualifications

CERTIFYING OFFICIAL:

2.3.1 Obtain the necessary documentation which supports qualification for certification (e.g., standard resumes, training records, audit participation records, appropriate forms, and required written examination results) for each individual who will be assigned an auditing task requiring certification.

2.3.2 Obtain documentation demonstrating the qualification of technical specialists or management representatives who will be used to perform Quality Assurance Program audits.

2.3.3 Review individual qualifications against the applicable auditing task qualification requirements as outlined in Quality Assurance Auditor Qualification, ATTACHMENT A, Para. B.

2.3.4 Document the results of the evaluation on the Certification of Auditor Qualification Form (ATTACHMENT B.)

2.3.5 If unacceptable, provide written notice with justification to individual indicating reason for not granting the certification.

2.3.6 If acceptable, complete and send to the individual the Notification of Certification Memorandum (ATTACHMENT C).

2.3.7 Send a copy of the notice indicating acceptable/unacceptable for certification to the individual's supervisor.

2.4 Documentation of Personnel Qualification Records and Certification

CERTIFYING OFFICIAL:

2.4.1 Review the completed Certification of Auditor Qualification Form (ATTACHMENT B) for adequacy and completeness including, as required, the verification of the credit allocation for professional requirements.

2.4.2 Maintain a file of each auditor's qualification records. Retain the original Notification of Auditor Certification memorandum.

2.4.3 Maintain the auditor certification database which contains for each auditor the information on the Auditor Certification Record (ATTACHMENT D.)

2.4.4 Send copy of each Certification of Auditor Qualification Form and Notification of Auditor Qualification Form to the organization responsible for maintaining the site training records.

2.5 Recertification of Personnel

CERTIFYING OFFICIAL:

2.5.1 Review the database monthly to determine which auditors/lead auditors are nearing their recertification period.

2.5.2 If the auditor/lead auditor has not met the requirements for recertification through audit participation, issue a notice that recertification is required to the affected auditor/lead auditor and their supervisor at least four weeks prior to the required date for recertification. The notice shall request the auditor/lead auditor to provide evidence of maintenance of proficiency through other means as specified in ATTACHMENT A, Para. C.1. This information shall be documented on forms such as those in ATTACHMENTS F through I. Where retraining or additional training is anticipated for recertification, the notice shall be issued sufficiently in advance to permit the scheduling and completion of required training.

2.5.3 Review the original certification documentation and additional supporting documentation accumulated during the annual period. If acceptable, update their Certification of Auditor Qualification Form (ATTACHMENT B) by signing and dating the annual evaluation block. If unacceptable, provide to the auditor a written explanation for not recertifying.

2.5.4 After the determination to recertify, complete and send to the individual the Notification of Recertification letter (ATTACHMENT E) along with the next scheduled recertification date.

2.5.5 Send a copy of the notice indicating recertification or non-recertification to the individual's supervisor and Training Records.

2.5.6 Return the original documentation and any additional supporting documentation to the individual's auditor certification file.

2.5.7 Update the auditor certification database.

3.0 REFERENCES

3.1 ANSI/ASME NQA-1, Quality Assurance Program Requirements for Nuclear Facilities, Supplementary Requirements for the Qualification of Quality Assurance Program Audit Personnel", Appendix 2A-3, Nonmandatory Guidance on the Education and Experience of Lead Auditors.

3.2 QP-10.02, Tracking, Verification and Closure of Audit Corrective Action Reports and Open Audits

3.3 QP-10.03, Administration of Quality Assurance and Environmental Audits

3.4 QP-10.04, Conduct of Quality Assurance and Environmental Audits

3.5 RM-0012, Quality Assurance Program Description

3.6 FMPC-708, Personnel Certification

3.7 SSOP-0049, FEMP Audit Program

4.0 ATTACHMENTS

4.1 ATTACHMENT A - Quality Assurance Auditor Qualification

4.2 ATTACHMENT B - Certification of Auditor Qualification Form

4.3 ATTACHMENT C - Notification of Certification Memorandum

4.4 ATTACHMENT D - Auditor Certification Record

4.5 ATTACHMENT E - Notification of Recertification

4.6 ATTACHMENT F - Training Record

4.7 ATTACHMENT G - Participation in Audit Process

4.8 ATTACHMENT H - Participation in Verification Activities

4.9 ATTACHMENT I - Document Review Record

QUALITY ASSURANCE AUDITOR QUALIFICATION

A. Functional Statement

The Quality Assurance Auditor serves as a member of a Quality Assurance Program Auditing Team. This includes performing any assigned portion of an audit and assuring effective execution of the audit.

B. Qualifications Required

The qualifications listed on this task description are intended to define the minimum capabilities that qualify personnel to perform Quality Assurance Program audits in accordance with ANSI/ASME NQA-1.

1. Training Auditors shall have, or shall be given, appropriate training or orientation to develop their proficiency for performing required audits. Proficiency of personnel for performance of the various auditing functions shall be developed by:

   a. Training in applicable codes, standards, and regulations.

   b. Training in audit techniques and, if applicable, on-the-job training, guidance, and counseling under the direct supervision of a Lead Auditor.

   c. Demonstrated knowledge of Fernald Environmental Restoration Management Corporation's (FERMCO) audit procedures.

QUALITY ASSURANCE AUDITOR QUALIFICATION
Page 2 of 3

2. Education and Experience The prospective Auditor shall have verifiable evidence that a minimum of five (5) points under the following scoring system have been accumulated.

   a. Education (4 points maximum). Associates degree from an accredited institution: score one (1) point, or if the degree is in engineering, physical or environmental sciences, mathematics, or quality assurance, score two (2) points; or, a bachelor's degree from an accredited institution: score two (2) points or, if the degree is in engineering, physical or environmental sciences, business management, or quality assurance score three (3) points; in addition score one (1) point for a master's degree in engineering, physical or environmental sciences, business, management, or quality assurance from an accredited institution.

   b. Experience (9 points maximum). Technical experience in engineering, manufacturing, construction, operation, or in maintenance: score (1) point for each full year with a maximum of five (5) points for this aspect of experience.

      If two (2) or more years of this experience have been in the nuclear or environmental field, score one (1) additional point; or,

      If two (2) or more years of this experience have been in quality assurance, score two (2) additional points; or,

      If two (2) or more years of this experience have been in quality assurance auditing, score three (3) additional points; or,

      If two (2) or more years of this experience have been in nuclear or environmental quality assurance, score three (3) additional points; or,

      If two (2) or more years of this experience have been in nuclear or environmental quality assurance auditing, score four (4) additional points.

QUALITY ASSURANCE AUDITOR QUALIFICATION
Page 3 of 3

c. Rights of Management (2 points maximum). The Lead Auditor's employer may grant up to two (2) points for other performance factors applicable to auditing which may not be explicitly called out in this section. Examples of these factors are leadership, sound judgement, maturity, analytical ability, tenacity, past performance, quality assurance training courses.

3. Communication Skills The prospective Auditor shall have the capability to communicate effectively, both in writing and orally. These skills shall be attested to in writing by the Certifying Official or designee on the Certification of Auditor Qualification Form (ATTACHMENT B.)

C. Maintenance of Qualification

1. Maintenance of Proficiency Auditors shall maintain their proficiency through one or more of the following: regular and active participation in the audit process; review and study of codes, standards, procedures, instructions, and other documents related to quality assurance programs and program auditing; participation in training programs. Based on management's annual assessment, management may extend the qualification, require retraining, or require requalification. These evaluations shall be documented.

2. Requalification Auditors who fail to maintain their proficiency for a period of two years or more shall require requalification. Requalification shall include retraining in accordance with the requirements of paragraph B.1.

D. Certification Requirements

Each Quality Assurance Auditor shall be certified as being qualified to participate in audits, and the Auditor's records shall be established and maintained in accordance with ANSI/ASME NQA-1. In addition, the certification shall specifically identify any restrictions concerning the nature of the audits or areas of auditing for which the certification shall be considered valid.

QUALITY ASSURANCE LEAD AUDITOR QUALIFICATION
Page 1 of 5

A. Functional Statement

The Quality Assurance Lead Auditor serves primarily as the Team Leader in the conduct of Quality Assurance Program audits. This includes the detailed planning, arranging, and coordination of the activities of the quality assurance audit team.

B. Qualifications Required

The qualifications listed on this task description are intended to define the minimum capabilities that qualify personnel to lead Quality Assurance Program audits in accordance with ANSI/ASME NQA-1.

1. Education and Experience The prospective Lead Auditor shall have verifiable evidence that a minimum of ten (10) points under the following scoring system have been accumulated.

   a. Education (4 points maximum). Associates degree from an accredited institution: score one (1) point, or if the degree is in engineering, physical or environmental sciences, mathematics, or quality assurance, score two (2) points; or, a bachelor's degree from an accredited institution: score two (2) points or, if the degree is in engineering, physical or environmental sciences, business management, or quality assurance score three (3) points; in addition score one (1) point for a master's degree in engineering, physical or environmental sciences, business, management, or quality assurance from an accredited institution.

QUALITY ASSURANCE LEAD AUDITOR QUALIFICATION
Page 2 of 5

b. Experience (9 points maximum). Technical experience in engineering, manufacturing, construction, operation, or in maintenance: score (1) point for each full year with a maximum of five (5) points for this aspect of experience.

   If two (2) or more years of this experience have been in the nuclear or environmental field, score one (1) additional point; or,

   If two (2) or more years of this experience have been in quality assurance, score two (2) additional points; or,

   If two (2) or more years of this experience have been in quality assurance auditing, score three (3) additional points; or,

   If two (2) or more years of this experience have been in nuclear or environmental quality assurance, score three (3) additional points; or,

   If two (2) or more years of this experience have been in nuclear or environmental quality assurance auditing, score four (4) additional points.

c. Other Credentials of Professional Competence (2 points maximum). Certification of competency in engineering, science, or quality assurance specialties issued and approved by a State Agency, or National Professional or Technical Society, score two (2) points.

d. Rights of Management (2 points maximum). The Lead Auditor's employer may grant up to two (2) points for other performance factors applicable to auditing which may not be explicitly called out in this section. Examples of these factors are leadership, sound judgement, maturity, analytical ability, tenacity, past performance, quality assurance training courses.

QUALITY ASSURANCE LEAD AUDITOR QUALIFICATION
Page 3 of 5

2. Communication Skills The prospective Auditor shall have the capability to communicate effectively, both in writing and orally. These skills shall be attested to in writing by the Certifying Official or designee on the Certification of Auditor Qualification Form (ATTACHMENT B).

3. Training Prospective Lead Auditors shall have training to the extent necessary to assure their proficiency in auditing skills. As a minimum, this training shall include training in applicable codes, standards, and regulations; training in auditing techniques, and demonstrated knowledge of FERMCO's audit procedures. Training in the following areas shall be given based upon management evaluation of the particular needs of each prospective Lead Auditor.

   a. Knowledge and understanding of ANSI/ASME NQA-1 and other nuclear-related codes, standards, regulations, regulatory guides, as applicable.

   b. General structure of quality assurance programs as a whole and applicable elements such as organization; design control; procurement document control; instructions; procedures and drawings; document control; control of purchased materials, parts, and components; control of special processes; inspection; test control; control of measuring and test equipment; handling, storage , and shipping; inspection, test, and operating status; nonconforming materials, parts, or components; corrective actions; quality records; and quality information feedback.

   c. Auditing techniques of examining, questioning, evaluating and reporting audit findings; methods of identifying and following up on corrective action items for deviations; and methods of closing out audit findings.

QUALITY ASSURANCE LEAD AUDITOR QUALIFICATION
Page 4 of 5

d. Audit planning in the quality-related functions for the following activities: design, purchasing, fabrication, handling, shipping, storage, cleaning, erection, installation, inspection, testing, statistics, nondestructive examination, maintenance, repair, operation, modification of nuclear facilities or associated components and safety aspects of the nuclear facility.

e. On-the-job training to include the elements of audit activity as described in ANSI/ASME NQA-1.

4. Audit Participation The prospective Lead Auditor shall have participated in a minimum of five (5) Quality Assurance Program audits within a period of time not to exceed three (3) years prior to the date of qualification.

5. Examination The prospective Lead Auditor shall pass an examination which shall evaluate comprehension of and ability to apply the body of knowledge identified in paragraph B.3. The test may be oral, written, practical, or any combination of the three types. The development and administration of the examination shall be in accordance with Section 5.2 of ANSI/ASME NQA-1, Supplement 2S-3.

C. Maintenance of Qualification

1. Maintenance of Proficiency

Lead Auditors shall maintain their proficiency through one or more of the following: regular and active participation in the audit process; review and study of codes, standards, procedures, instructions and other documents related to quality assurance programs and program auditing; participation in training programs. Based on management annual assessment, management may extend the qualification, require retraining, or require requalification. These evaluations shall be documented.

CHANGE NOTICE

No. QP-6.07-00-01	Effective Date: 03/25/94	Page 1 of 1

(Manager, Quality Assurance)

CHANGE NOTICE #1 to existing procedure QP-6.07, "Certification of Quality Assurance Audit Personnel", Revision 0 dated 12/01/93.

CHANGE NOTICE #1

1) Existing Section B.4 of Attachment A, Page 12 of 22 of QP-6.07:

4. Audit Participation The prospective Lead Auditor shall have participated in a minimum of five (5) Quality Assurance Program audits within a period of time not to exceed three (3) years prior to the date of qualification.

2) Changes to Section B.4 of Attachment A, Page 12 of 22 of QP-6.07:

4. Audit Participation The prospective Lead Auditor shall have participated in a minimum of five (5) Quality Assurance Program audits within a period of time not to exceed three (3) years prior to the date of qualification.

a) In lieu of five audits to qualify as Lead Auditor, three (3) surveillances shall be considered equivalent to one (1) appraisal and two (2) appraisals shall be considered equivalent to one (1) audit, or six (6) surveillances shall be considered equivalent to one (1) audit.

b) American Society for Quality Control (ASCQ) certification as Certified Quality Auditor or ISO 9000 certification as Lead Assessor shall be considered as satisfying the requirements for audit experience, provided the individual has participated in at least two (2) audits under the FEMP Quality Assurance Program.

c) Participation in at least three (3) audits at other nuclear facilities shall be considered as applicable experience, provided the individual has participated in at least two (2) audits under the FEMP Quality Assurance Program.

PLEASE INSERT THIS CHANGE NOTICE IN FRONT OF PAGE 1 OF QP-6.07.

QUALITY ASSURANCE LEAD AUDITOR QUALIFICATION
Page 5 of 5

2. Requalification

Lead Auditors who fail to maintain their proficiency for a period of two years or more shall require requalification. Requalification shall include retraining in accordance with the requirements of paragraph B.3, reexamination in accordance with paragraph B.5, and participation as an Auditor in accordance with paragraph B.4.

D. Certification Requirements

Each Quality Assurance Lead Auditor shall be certified as being qualified to lead audits, and the Lead Auditor's record shall be established and maintained in accordance with ANSI/ASME NQA-1. In addition, the certification shall specifically identify any restrictions concerning the nature of the audits or areas of auditing for which the certification shall be considered valid.

ATTACHMENT B
Page 1 of 1

CERTIFICATION OF AUDITOR QUALIFICATION FORM

CERTIFICATION OF AUDITOR QUALIFICATION FORM

Certification of Auditor Qualifications For: _____
EMPLOYEE'S NAME

A. PROFESSIONAL REQUIREMENTS — POINTS

1. EDUCATION 4 Pts. Max.	LEVEL	UNIVERSITY	DEGREE	DATE	
	1. Undergraduate				
	2. Graduate				
2. EXPERIENCE 9 Pts. Max.	AREA	COMPANY		DATES	
	Industry (5 pts. max.) and				
	Nuclear Industry (NI), or				
	Quality Assurance (QA), or				
	Auditing (AU), or				
	Combined NI, QA, AU				
3. PROFESSIONAL ACCOMPLISHMENT 2 Pts. Max.	AREA	CERTIFICATE		DATE	
	1. P.E.				
	2. Society/Agency				
4. MANAGEMENT 2 Pts. Max.	JUSTIFICATION			DATE	
	Evaluated by: (name & title): _____ Date: _____				
MINIMUM REQUIREMENTS: AUDITOR - 5 Pts.; LEAD AUDITOR - 10 Pts.				Total Points	

B. AUDIT COMMUNICATION SKILLS

Evaluated by: (name & title): _____ Date: _____

C. AUDIT TRAINING COURSES (or Successfully Completed Training Assignments)

COURSE OR ACTIVITY	DATE
1.	
2.	

D. AUDIT PARTICIPATION

LOCATION	AUDIT	DATE
1.		
2.		
3.		
4.		
5.		

E. SPECIFIC EXAMINATION

Passed _____ Date: _____

F. AUDITOR QUALIFICATION CERTIFIED BY:

SIGNATURE AND TITLE		DATE CERTIFIED
	Auditor	
	Lead Auditor	

G. ANNUAL EVALUATION

SIGNATURE						
DATE						

ATTACHMENT C
Page 1 of 1

NOTIFICATION OF CERTIFICATION MEMORANDUM

EXHIBIT

Certifying Official FERMCO: QA:XX:XXX

(Date)

(Individual being Certified)

You have been certified as an Auditor in accordance with FERMCO procedures and ANSI/ASME Standard NQA-1. The effective date of your certification is _____ and recertification will be required one year from that date. Recertification will be based on: participation in the audit process; review and study of codes, standards and other documents related to quality assurance programs; and/or participation in training programs related to quality assurance. You will be required to present evidence of such involvement to the Certifying Official.

Certifying Official

Attachment: Certification

cc: Employee's Supervisor
Certification Files
Training Records

AUDITOR CERTIFICATION RECORD

TYPICAL INFORMATION

The following informational elements are contained in the auditor certification database:

1. Name of Individual Certified
2. Manager of Individual Certified
3. Class - denotes grade of certification, i.e. 1 = Auditor, 2 = Lead Auditor
4. Status 1 = Active, 2 = Inactive
5. Effective Date of Initial Certification
6. Notification of Impending Individual Recertification
7. Date of Last Recertification
8. Date next Recertification Due
9. Participation - Total number of audits for each individual
10. Date of Last Audit
11. Number of Last Audit

SAMPLE OF AUDITOR CERTIFICATION RECORD

EXHIBIT

c 18/92

AUDITOR CERTIFICATION RECORDS

Notification	Name	Manager	Classification	Status	Effective Date	Last Recert Date	Next Recert Schedule	Audit Participation	Appraisal Participation	Date of Last Audit/App.	No. of Last Audit/App.
9304	LEIST, JEFFREY R.	H. A. Clawson	1	1	6/21/91	920621	930621	1	0	11/12/91	191-08
9304	RICHARDSON, HARRIET E.	B. D. Varchol	1	1	6/15/88	920615	930615	2	2	2/27/92	192-01*
9304	WEHRFRITZ, CAMILA J.	L. E. Rogers	1	1	6/21/91	920621	930621	1		8/19/91	191-13
9306	BLALOCK, WILLIAM O.	J. E. Curry	1	1	8/20/92	920820	930820				
9306	HENRY, ROBIN L.	F. H. Ford	1	1	8/31/92	920831	930831				
9207	CLAWSON, HARRY A.	J. A. Grumski	2	1	9/22/86	910922	920922			6/14/90	E90-02
9207	CURRY, JAMES E.	E. D. Savage	2	1	9/16/91	910916	920916				
9208	WEISSENBERG, JAMES F.	J. E. Curry	2	1	10/30/86	911030	921130	24	0	7/10/92	S92-02
9210	GRUMSKI, JOSEPH A.	H. F. Daugherty	2	1	12/04/87	911204	921204	3	0	6/14/90	E90-02
9301	ADKINS, STEPHEN E.	J. L. Trujillo	2	1	3/27/89	920315	930315	13	0	4/27/92	E92-03
9301	DALL, TIMOTHY M.	J. E. Curry	2	1	3/23/90	920507	930507	5		2/13/92	S92-01
9301	FARMER, LINDA S.	H. F. Daugherty	2	1	3/14/90	920314	930314	4	0	6/27/91	191-05
9301	HERRINAN, KATHLEEN A.	S. J. Wentzel	2	1	3/15/90	920315	930315	7	1	9/25/91	190-08
9302	HILBERT, ROBERT H.	B. D. Varchol	2	1	4/15/92	920415	930415	5		12/03/91	992-01
9302	MADARIS, SUSAN C.	B. D. Varchol	2	1	4/11/91	920326	930326	6	0	6/17/92	E92 10
9302	McCULLEY, DAVID T.	J. Gagliano (EBA)	2	1	4/10/87	920405	930405	14	0	10/12/90	190-05

Classification: 1 Auditor 3 Auditor in Training 5 Not Certified/Decertified
2 Lead Auditor 4* Auditor Examiner

Status: 1 Active
2 Inactive

ATTACHMENT E
Page 1 of 1

NOTIFICATION OF RECERTIFICATION

EXHIBIT

Certifying Official FERMCO: QA:XX:XXX

(Date)

NOTIFICATION OF RECERTIFICATION

(Individual being Recertified)

This is notification that your Auditor/Lead Auditor Certification has been extended until _____. The effective date of your recertification is _____.

Certifying Official

cc: Employee's Supervisor
Certification File
Training Records

ATTACHMENT F
Page 1 of 1

TRAINING RECORD

EXHIBIT

TRAINING RECORD

Page ___ of ___

Name _____ SSN _____

Course #	Course Title	Dates of Attendance

ATTACHMENT G
Page 1 of 1

PARTICIPATION IN AUDIT PROCESS

QUALITY ASSURANCE
PARTICIPATION IN AUDIT PROCESS

Name: _____ Section Mgr. Approval: _____ Date: _____

AUDIT NUMBER	AUDIT TITLE/SCOPE	LOCATION OF AUDIT	DATE(S) OF AUDIT	FUNCTION*

*e.g. Audit Planner

PARTICIPATION IN VERIFICATION ACTIVITIES

QUALITY ASSURANCE
PARTICIPATION IN VERIFICATION ACTIVITIES

Name: _____ Section Mgr. Approval: _____ Date: _____

Verific. Activity Number	Verification Activity Title/Scope	Location	Date(s)	Function

*e.g., Performer, Supervisor

ATTACHMENT I
Page 1 of 1

DOCUMENT REVIEW RECORD

QUALITY ASSURANCE
DOCUMENT REVIEW RECORD

Categories:
R = Required
D = Desirable
NA = Not Applicable

PROCEDURE	REVISION	DATE APPROVED	CATEGORY			DATE	EMPLOYEE INITIAL
			R	D	NA		

NOTE: Procedures will be identified and added as written.