

Attachment E

EnergySolutions Work Plan

Chemtura Site Remediation


ENERGYSOLUTIONS

CS-OP-PN-026

Work Plan for Chemtura Site Remediation Project

Project No. 137083

Revision 0

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**Work Plan
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This project is concerned with the packaging, transportation and disposal of low level radioactive waste (LLRW) from the Chemtura Corporation facility located in Bethany, Connecticut on Amity Road.

1.2 Background

Chemtura is a manufacturer of specialty chemicals previously operating under the Crompton Corporation until 2005. The facility at 74 Amity Road, Bethany, Connecticut was an agricultural research facility.

1.3 Purpose

The purpose of this project is to excavate radiological contaminated targeted soil areas at the Bethany facility, package these soils, and transport the soil as LLRW from Bethany, Connecticut to the EnergySolutions waste disposal facility in Clive, Utah.

1.4 Description

EnergySolutions will provide radiological safety support during the course of the excavation, packaging, loading, transportation, and demobilization of the LLRW activities on site.

EnergySolutions will also excavate, load, package, and have the LLRW soils transloaded to a rail facility for transportation to the Clive, Utah disposal facility. EnergySolutions will coordinate its activities with the Chemtura Radiation Safety Officer (RSO) and the RSO's representatives.

EnergySolutions will coordinate this project with the local authorities and emergency services prior to starting project activities at the Bethany site.

1.5 Scope

The scope of this project is to provide services, packaging, transportation, and disposal of the following:

- 1.5.1 Approximately fourteen and one half ($14\frac{1}{2}$) cubic yards (yd^3) of soil located in the "Peach Tree" area will be excavated for disposal. The activity concentrations of Carbon-14 (C-14) identified in the area ranged from 5 to 108 pCi/g. Soil excavations from this area are expected to be at a maximum depth of 12 to 18 inches. The contaminated soil will be packaged into 5 yd^3 USDOT Industrial Packaging Type One (IP-1) soft-sided containers. The containers will be moved to a staging area near the edge of the asphalt parking area for weighing and loading onto flatbed tractor trailers. The excavation activities will be conducted under weather

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conditions that would minimize the moisture content of the contaminated soil matrix.

- 1.5.2 Approximately thirty nine (39) yd³ of soil located within the "Fenced Area" will also be excavated. The activity concentrations of C-14 identified in the area ranged from 0.5 to 43 pCi/g. Soil excavations from this area are expected to be at a maximum depth of 18 inches. The contaminated soil will be packaged into 5 yd³ IP-1 soft-sided containers. The containers will be moved to a staging area near the edge of the asphalt parking area for weighing and loading onto flatbed tractor trailers. The excavation activities will also be conducted under weather conditions that would minimize the moisture content of the contaminated soil matrix.

The chain link fence, the intertwined Wisteria plants, and the concrete fence post bases have been previously surveyed for radiological contaminants and the samples analyzed. The fence, posts, Wisteria, and concrete bases results indicated residual surface activity concentrations that were less than 38 dpm/100 cm². During excavation activities the chain link fence and posts in the Corral area will be randomly surveyed with net surface activity concentrations not to exceed 200 dpm/100 cm². These surveys will be conducted using hand held survey meters prior to disposal as non-radioactive waste.

1.6 Schedule

The on-site duration of the project is approximately five (5) days, tentatively scheduled to begin on October 13, 2008 with a completion date of October 17, 2008.

2.0 COMMITMENTS

2.1 Health and Safety

All project work shall be performed under the *EnergySolutions Corporate Safety and Health Program* (Ref. No. 3.1) and the *EnergySolutions Commercial Services Division Health and Safety Plan* (Ref. No. 3.2). Work activities may include hazards such as heavy object lifting, noise, dust, electrical, and other physical hazards (sharp edges, working at elevation, etc.). *EnergySolutions* is responsible for assuring safety for the following:

- 2.1.1 Operation of heavy equipment by *EnergySolutions* personnel or subcontractors,
- 2.1.2 Lifting, rigging, and movement of high center-of-gravity materials,
- 2.1.3 Use of power tools,
- 2.1.4 Any other potential safety hazards identified for the Chemtura - Bethany site,
- 2.1.5 Following the administrative and engineering controls described in this work plan,

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- 2.1.6 Assuring that non-radiological hazardous materials are stored in a safe manner, and
- 2.1.7 Notifying the Project Manager of any unanticipated hazardous materials or conditions that may be encountered during the work.

2.2 Radiation Protection

The Commercial Services *Radiation Protection Program (RPP) for Commercial Services Projects* (Ref. No. 3.3) will be implemented during this project to ensure that potential radiation exposures to site workers and members of the public, as well as potential airborne releases to the environment are maintained as low as reasonable achievable (ALARA). Site workers are responsible for maintaining their radiation exposure ALARA and notifying supervision of potential radiological hazards, improper practices, or issues of non compliance. Every site worker is encouraged to identify potential changes to current procedures or practices, especially those that may reduce radiation exposures or improve worker safety.

- 2.2.1 EnergySolutions shall be responsible for monitoring entry to and exit from radiological controlled areas (RCA), while conducting activities on-site. The radiation protection supervisor (RPS) shall be responsible for items released for unrestricted use from any RCA in accordance with written procedures. No items will be removed from the RCA without approval of the RPS or EnergySolutions Commercial Services (CS) RSO.

- 2.2.2 Personal protective equipment (PPE) requirements shall be determined in accordance with the EnergySolutions *Selection and Use of Radiological Protective Clothing* procedure (Ref. No. 3.4) at the start of work activities and as specified in this Work Plan. In accordance with this procedure¹ and the anticipated C-14 contamination in soils (less than 180 dpm/100 cm²), there is no site-specific requirement for radiological PPE. However, PPE, as discussed in Section 5.6 of this plan, will be worn to maintain potential personal contamination events ALARA.

- 2.2.3 The Commercial Services RPP establishes administrative control levels for individual whole body radiation dose. No site worker will be allowed to exceed this dose limit without the prior approval of the Commercial Decommissioning Services President. The CS RSO shall approve all exposures greater than 75% of any administrative limit.

2.3 Quality Assurance & Quality Control

All work will be performed in a quality manner and under the auspices of the EnergySolutions *Quality Assurance Program* (Ref. No. 3.5).

¹ CS-RS-PR-001, "Selection and Use of Radiological Protective Clothing"; Attachment 5.1 – "Guide for the Selection of Radiological Protective Clothing"; β^-/γ – emitters < 1,000 dpm/100 cm².

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The following documents and specifications are included in the work scope by reference:

- 3.1 ES-SH-PG-100, *Safety and Health Program*
- 3.2 CS-SH-PN-004, *Commercial Services Division Health and Safety Plan*
- 3.3 CS-RS-PG-001, *Radiation Protection Program for Commercial Services Projects*
- 3.4 CS-RS-PR-001, *Selection and Use of Radiological Protective Clothing*
- 3.5 ES-QA-PG-001, *Quality Assurance Program*
- 3.6 ES-AD-PR-005, *First Notifications*
- 3.7 CS-AD-PR-002, *Commercial Services Project Records Procedure*
- 3.8 CS-FO-PR-002, *Calibration and Maintenance of Radiological Survey and Sampling Equipment*
- 3.9 CS-RS-PR-009, *Radioactive Source Inventory, Leak Testing, and Control at Field Projects*
- 3.10 CS-RS-PR-002, *Personnel Survey and Decontamination Procedure*
- 3.11 CS-RS-PR-003, *Commercial Services Radiation Worker and Authorized User Training Procedure*
- 3.12 CS-WM-PG-001, *Radioactive Materials Management Program for Commercial Services Projects*
- 3.13 CS-WM-PR-002, *Transportation of Radioactive Materials and LLRW from Project Sites*
- 3.14 CS-RS-PN-004, *Commercial Services Transportation Emergency Response Plan*

4.0 GENERAL

Radioactive contamination associated with the scope of work defined above will be screened using portable beta radiation detectors coupled to rate meters capable of detecting C-14. Other radiological equipment may be used, as necessary, to assure regulatory compliance and company requirements.

As sufficient samples of the radioactive material have already been analyzed for environmental contaminants², there will be no additional environmental sampling, unless requested by the Chemtura RSO.

The Radioactive Waste Profile (Form EC-0230, Rev. 6) will be used to document the characteristics of the LLRW soil for the Clive, Utah disposal facility. The waste profile will be reviewed by an EnergySolutions Certified Broker to assure suitability for disposal at the Clive, Utah Bulk Waste Facility, in accordance with the Waste Acceptance Criteria (WAC). Any discrepancies will be resolved by revision to the waste profiles and/or establishing new waste profiles and waste streams as required by the WAC.

² TestAmerica Job Number 220-5740-1; EnergySolutions Technical Review – 08/01/2008

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ALL project personnel (EnergySolutions and/or subcontractors) have the authority to stop work when health, safety, or environmental concerns potential exist or occur. The affected work activity shall be placed in a safe condition and immediately ceased until the Project Manager/On-site Supervisor has investigated the concern, identified causal factors, developed and implemented corrective actions, and provided additional training as necessary. Normally, a stop work action will result in a First Notification Report in accordance with, EnergySolutions *First Notifications* procedure (Ref. No. 3.6).

4.2 Responsibilities of On-site Personnel**4.2.1 Project Manager/On-site Supervisor**

The Project Manager/On-site Supervisor will be the main site point of contact. The Project Manager/On-site Supervisor has overall responsibility for the day to day management of the characterization activities and ensuring that all EnergySolutions employees and subcontractors have the proper training and experience to perform their assigned duties.

4.2.2 Site Safety Officer (SSO)

The SSO is responsible for implementation of the EnergySolutions *Safety and Health Program* (Ref. No. 3.1) and the *Commercial Services Division Health and Safety Plan* (CS HASP) (Ref. No. 3.2). The Project Manager/On-site Supervisor may serve in this role in addition to his/her other duties.

4.2.3 The Project Manager/On-site Supervisor is responsible for implementation of the *Radiation Protection Program for Commercial Services Projects* (Ref. No. 3.3) and other applicable Commercial Services procedures.

4.2.4 Project Employee(s)

Each individual project employee is responsible for complying with the requirements of this Project Work Plan, the CS HASP (Ref. No. 3.2), RWP's, and the specific requirements of applicable implementing procedures.

4.2.5 Subcontractors

Subcontractors supporting this project shall be subject to the applicable portions of the safety, quality, operational and regulatory requirements of this project.

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- 4.3.1 Work shall not commence until authorization is provided by the Project Manager/On-site Supervisor to ensure the proper training and project setup is complete.
- 4.3.2 Safety meetings for all project personnel shall be conducted on a daily basis prior to beginning work activities to address the work to be performed and any applicable safety hazards.
- 4.3.3 All project personnel are responsible for project safety and have both the right and the responsibility to call for a STOP WORK if there are unsafe working conditions or behaviors that are either observed or anticipated. All site personnel are required to immediately report any unsafe conditions (observed or anticipated) upon recognition of the condition.
- 4.3.4 Subcontractors will be trained to safety standards for the equipment that they operate. Subcontractors will provide insurance/bonding for the scope of their work. Copies of operator training must be provided to the SSO.

4.4 Records

Records generated during the project shall be neat, legible, and prepared using ink and in accordance with the *Commercial Services Project Records Procedure* (Ref. No. 3.7). Each record will be dated and signed by the individual preparing and/or reviewing the record. Changes to completed records shall be performed using a single line out which is to be initialed and dated. Examples of records generated during the implementation of the Project Work Plan will include:

- A copy of this Project Work Plan
- Training records
- Project logs and safety briefings
- Job Hazard Analyses
- Survey results and logs
- Instrument calibration records and source certificates
- Instrument source and response tests

5.0 REQUIREMENTS

Prior to the beginning of waste shipments, the following pre-requisites must be completed:

5.1 Site Requirements and Equipment

- 5.1.1 Utilities for the surveillance, transfer, packaging, waste loading, and transportation-related activities are available.

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- 5.1.2 A pre-mobilization walk-down has been conducted to identify conditions adverse to safety, radiation safety practices that are ALARA³, equipment status and inventory, and operational sequences.
- 5.1.3 Site safety concerns have been addressed and incorporated into this Work Plan.
- 5.1.4 Sufficient stand-alone packages have been ordered for the Clive Type A shipments.
- 5.1.5 Lifting and material moving equipment sufficient to lift/move materials and/or components in a safe manner [weight capacity \geq 20,000 lbs.] has been selected and ordered.
- 5.1.6 Calibrated radiological instruments are available for surveillance, sampling, and compliance-related activities.
- 5.1.7 The Chemtura RSO may be on site for activities involving radiological materials.
- 5.1.8 Bethany first responders have been briefed about the project and have participated in a meeting where their concerns have been discussed and resolved.

5.2 Project Regulatory Permits and Requirements

- 5.2.1 Site personnel have been briefed on project security requirements in 49CFR§172.800. The security requirements will be outlined in this work plan.
- 5.2.2 Site personnel have been briefed about emergencies and emergency first-responders. The Emergency Response Information required by 49CFR§172.600 are made available on site and on shipping documents.
- 5.2.3 A State of Utah Generator Site Access Permit (GSAP) has been obtained for the disposal of LLRW in the State of Utah.
- 5.2.4 Other elements of 49CFR§§172 & 173 have been followed for the shipment of the LLRW to Clive, Utah

5.3 Transportation Requirements

- 5.3.1 A Five-day Advance Notification Form has been sent to the scheduling department at scheduling@energySolutions.com or FAXED to Attn. Scheduling Dept., 435.884.3549, the Clive Disposal Facility at least five working days prior to the date of anticipated arrival of the first shipment.
- 5.3.2 An approved Notice To Transport has been issued and received by the site staff prior to the first shipment of LLRW.
- 5.3.3 Each package has been inspected to meet the requirements of 49CFR§§173.24, 410.
- 5.3.4 Radioactive Material Shipment Exclusive Use Instructions (Form CP-SR-PR-204-F8) has been prepared for the driver(s).
- 5.3.5 USNRC Uniform Low Level Radioactive Waste Manifests (Forms 540, 541, and 542) have been prepared and submitted, as required.

³ ALARA – As Low As Reasonably Achievable, 10CFR§20.1001

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On the first day of work the Project Manager/On-site Supervisor, or designee(s) will provide site-specific training to all workers involved in the preparation, packaging, and shipping of LLRW. Site personnel will have site specific radiation worker training prior to initiating work on site. Site-specific training will include a pre-job briefing, information on the radioactive contaminants for this project, radioactive waste handling training, and dissemination of the any safety equipment required for the safe completion of assigned tasks.

Site personnel will be familiar with the requirements of:

1. This Project Work Plan,
2. *Commercial Services Division Health and Safety Plan* (Ref. No. 3.2)
3. Applicable operating procedures
4. Locations of:
 - Saint Mary's Hospital – 56 Franklin St. Waterbury, CT (203.709.7055)
 - Yale-New Haven Hospital – 20 York St. New Haven, CT (203.688.4242)
 - Waterbury Hospital – 64 Robbins St. Waterbury, CT (203.573.6000)

5.5 Procedures

Copies of references in Section 3.0 shall be located at the job site, as necessary.

5.6 Personnel Protective Equipment (PPE)

PPE is for worker safety and protection against non-radiological hazards as specified in the CS HASP. These minimal requirements are: hard hat, safety shoes, safety glasses, and visible vest (when excavation and/or lifting and moving of the waste packages are taking place).

For outdoors radiological tasks, including waste handling, PPE is required for radiological protection. PPE requirements include Tyvek[®]-like coveralls, booties or rubber shoe covers, and gloves. For indoors radiological tasks, gloves and eye protection (for protection from beta (β^-) particles) is required.

5.7 Site Security and Access

The Chemtura – Bethany site is a controlled facility and access to work areas associated with the disposal operations will be controlled by EnergySolutions. Additional controls will be implemented during the project activities. All personnel shall be aware of site security and be responsible to control access to the site. Parking will be limited to area(s) determined by the Project Supervisor.

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Survey instrumentation will be selected to ensure that alpha, beta, and gamma contamination can be identified at levels above background in or on shipping containers at DOT regulatory levels, e.g., 49CFR§173.441 and §173.443.

5.8.1 Calibration

EnergySolutions maintains instrumentation in accordance with *EnergySolutions Calibration and Maintenance of Radiological Survey and Sampling Equipment* procedure (Ref. No. 3.8). The calibration, maintenance, control, and operation of *EnergySolutions* radiation detection instruments meet the criteria provided by ANSI Standards N323-1978 and N42.17A-1989. All field survey instrumentation is calibrated on an annual basis, at a minimum, and following any maintenance that could affect the instrument's calibration. Attachment 8.5 provides a list of detection levels that should be used as guidance for determining the suitability of any instrument. The instrumentation used for radiological surveys and personal frisking may be calibrated to Co-60, Sr/Y-90, Tc-99, Cs-137 and/or Th-230.

5.8.2 Response Testing

All radiological instrumentation will be response tested and documented daily when in use in accordance with *EnergySolutions Calibration and Maintenance of Radiological Survey and Sampling Equipment* (Ref. No. 3.8).

5.8.3 Source Control

All sources used for instrument response tests will be secured when not in active possession by qualified personnel in accordance with *EnergySolutions Radioactive Source Inventory, Leak Testing, and Control at Field Projects* (Ref. No. 3.9).

5.9 Personnel Monitoring

All personnel exiting the work area will be required to perform at a minimum a frisk for both beta/gamma and alpha on hands and footwear. This will be performed by the use of hand held instruments. All personnel will use proper frisking techniques in accordance with *EnergySolutions Commercial Services Personnel Survey and Decontamination Procedure* (Ref. No. 3.10). If frisking identifies any contamination above background levels, the on-site supervisor shall be notified immediately. If routine monitoring indicates that workers may have been potential exposed to internal exposure, bioassay methods will be considered for estimating the dose. The need for an emergency bioassay will be determined by the CS RSO in accordance with *EnergySolutions Radiation Protection Program for Commercial Services Projects* (Ref. No. 3.3).

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At a minimum, fixed and removable surface contamination surveys will be conducted before any equipment enters or leaves a radiological area. The Chemtura administrative criterion for unrestricted release of equipment is 200 dpm/100 cm² above background. The contamination surveys will demonstrate that equipment entering and leaving the radiological area are free from contamination. If contamination is identified greater than 200 dpm/100 cm² above background, the on-site supervisor will be notified immediately.

5.11 Air Sampling

Air sampling is not required for this project. Dose modeling⁴ of a release/failure of a five (5) yd³ package indicates that the dose within 50 feet would be less than 0.02 microrem (µrem).

6.0 OPERATIONAL REQUIREMENTS**6.1 Pre-operational Walk-down**

Project workers will conduct a safety walk-down of the site prior to initiating the activities of this plan. An inspection report shall document any conditions of concern noted during the walk-down on a Work Site Safety Checklist (Form 1), which will address:

- 6.1.1 Determine remedial actions for safety concerns and document actions, and
- 6.1.2 Obtain any necessary additional equipment, if appropriate, prior to starting any task that has a documented safety concern.

6.2 Operational Requirements

- 6.2.1 Assure that site personnel are familiarized with safety-related issues and equipment prior to starting operational tasks.
- 6.2.2 Set up a counting and instrument area based upon ambient radiological conditions.
- 6.2.3 Separate and/or rope off area to be used for the instrument area.
- 6.2.4 Preoperational surveys should be conducted to determine the best location for staging of waste containers to be filled or packaged or for transportation. The Project Manager/On-site Supervisor shall approve all changes in area designations.

6.3 Initial Radiological Controls

- 6.3.1 Establish control points at entrance/exit points.
- 6.3.2 Post entrances according to radiological conditions.
- 6.3.3 Set up PPE doffing station.

⁴ Hotspot, version 2.06 – General Plume

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6.3.4 Set up a LLRW container staging area in the controlled area.

6.4 Operational Radiological Controls

6.4.1 Inventory and store equipment used during operations in areas to avoid cross-contamination.

6.4.2 Maintain a clean area to be used for staging empty containers.

6.4.3 Transfer empty LLRW containers to work area only when necessary to maintain good radiological housekeeping practices.

6.4.4 Assure that RCA postings and boundaries are inspected and maintained on a regular basis.

6.4.5 Rope off area to be used for staging of containers:

- When appropriate, post area as a RCA.
- Stage waste container.
- Assure that the container is in a secure area prior to the end of the day.

6.4.6 Perform surveys on filled packages to identify any change in dose/contamination status.

6.4.7 Perform surveys on any unfilled LLRW package, new rental equipment, and waste transport vehicle prior to its use to establish its baseline radiological data.

6.4.8 Document any changes and have the data available for the morning safety orientation.

6.5 Safety Controls

6.5.1 Identify any materials requiring a Material Safety Data Sheet (MSDS). Obtain the MSDS's and place them in a notebook that is easily accessible to site workers.

6.5.2 Identify any requirements for safe storage of hazardous materials. Provide labels for identifying these materials, as necessary.

6.5.3 Prior to the start of work each day, inspect for the condition of safety supplies and potential hazards

6.5.4 Conduct morning safety meeting.

6.5.5 Stage radiological equipment.

6.5.6 Bring tools, expendables, and instruments into work area.

6.5.7 Conduct a daily safety walk-down of the active areas on site. An inspection report shall document any conditions of concern on a Work Site Safety Checklist (Form 1).

7.0 WASTE MANAGEMENT

7.1 Waste Characterization

The radioactive material on the Chemtura site has been identified as C-14. Characterization of the waste will consist of estimating total C-14 activity (in

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curies or millicuries) of each waste container for the purposes of complying with the WAC for the Clive, Utah disposal site.

The WAC for the Clive facility is contained in the Bulk Waste Disposal and Treatment Facilities Waste Acceptance Criteria, Revision 6.

7.2 Characterization Data

Activities in the various packages were estimated by converting survey data from the two areas into pCi/g, based upon their latest survey data. A variance of 2σ was added to the highest observed activity concentration of 108 pCi/g to yield 180 pCi/g. This specific activity will be used as the shipping and disposal C-14 specific activity.

Analytical results from TestAmerica indicated that Chemtura materials were below limit concentrations in 40 CFR §261.

7.3 Waste Package Controls

- 7.3.1 No additional waste shall be added to containers that have been filled and sealed. Waste generated during the course of waste disposal tasks may be placed in appropriate partially filled containers.
- 7.3.2 Activities assigned to the various waste containers will be determined by the EnergySolutions Certified Broker and/or the On-site Supervisor.
- 7.3.3 Surveys will be conducted and documented on any container that has added waste to determine its waste type and class in accordance with applicable regulatory and the WAC.
- 7.3.4 Documentation of activities assigned for each container will be available for review by the EnergySolutions Certified Broker.

7.4 Waste Handling**7.4.1 Container Loading and Inspection**

1. Visually inspect the container to ensure there are no tears, or unraveled seams.
2. Visually assure to ensure there are no sharp materials in the container prior to loading.
3. For new containers and casks, assure that there is no significant removable contamination, above background, or dose rate associated with the container prior to loading.
4. The following are not allowed in any container without specific written permission of the EnergySolutions Certified Broker and On-site Supervisor:

- *Hazardous Waste* - There shall not be any LLRW that is potential RCRA hazardous waste loaded into any waste container. Personnel loading waste check with the On-site

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Supervisor, if there is any question about constituents of any waste. Waste destined for the Clive site must meet the approved waste profiles.

- *Free-standing or bulk liquid waste* - There shall be no free-standing or bulk liquids loaded into any waste container destined for disposal. Small amounts of incidental liquid may be absorbed so that no more than 1% exists by volume, or 0.5% if processed to a solidified form. Provisions for additional absorbent should be made in each container due to the affects of differing temperatures and pressures along the transportation routes and at the Clive disposal site.
- *Chelating agents* – No more than 1% of the waste, by weight, may be chelating or complexing agents. In order to assure compliance, the inventory of chelating agents will be less than 150 net pounds. Common types of chelates found at sites are citric acid based cleaners, Radiac Wash, RadAway, and EDTA.

7.4.2 Waste Container Inventory

A waste container inventory will be kept for waste containers that are filled during this project. An item entry must include a description of the waste item (e.g. paper, soil, wood, plastic, rubber, air pump, electrical wiring, misc. metal parts, etc.), the isotope(s) and activity(s), weight, estimated volume, date of entry, and the person making the entry. After each container is filled, the inventory shall be used to determine the total activity for the container. The information from each container shall be provided to the On-site Supervisor and the EnergySolutions Certified Broker after each container is full.

7.5 Waste Container Documentation

Each waste container should have the following data associated with a unique identification number:

1. Physical description of the contents,
2. Physical form, e.g., solid, liquid, gaseous,
3. Principal chemical constituent(s),
4. Volume of the waste,
5. Burial volume of the container,
6. Net weight of the waste,
7. Gross weight of the container,
8. Any over packs,
9. Combustible, Non-combustible
10. Percentage of chelates by weight, if any,
11. Sorption media, if any,
12. Solidification media, if any
13. Isotope(s) and associated activities,
14. Isotope concentrations – pCi/g
15. Highest and average surface dose rates,
16. Removable contamination (α , β^- , γ) dpm/100 cm²,

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17. Waste class, e.g., AU (A – Unstable); BU (B – Unstable); etc.

7.6 Class A Waste - Clive Bulk Waste Facility Disposal

7.6.1 Anticipated Exposure Levels

There will be approximately twelve (12) soft-sided 5 yd³ packages. No elevated exposure levels above background are anticipated for any of these packages.

7.6.2 Other Potential Hazards

As these packages weigh between 9,000 and 11,000 lbs., there are risks associated with crushing and other physical injuries associated with movement of this scale of weight. These packages should be moved with forklifts, and/or cranes (with appropriate load capacities). Associated with the use of motorized equipment, a potential hazard of overhead interferences exists. Care should be taken during rigging of these boxes during transfer to the flat bed trailer.

7.6.3 Truck and Flatbed Trailer Inspection and Readiness

1. An incoming roadworthiness inspection shall be completed on the truck, and trailer using the *EnergySolutions* Certified Broker inspection checklist.
2. An incoming radiological survey shall be completed on the truck, trailer, and cask using a survey inspection document.
3. An incoming inspection of the operator's ID, license and other documents shall be conducted. At a minimum, the CDL endorsement, Hazmat endorsement, and current medical certificate shall be verified.
4. Driver and crane operator site-specific training shall be completed.
5. An area should be set aside for staging the truck and trailer that takes into consideration all of the following:
 - Overhead obstructions for the cask, forklift, or crane,
 - Surface conditions, level, potholes, seams, etc.,
 - Space needed for both the forklift and crane to transfer boxes without resetting the crane's position.
8. The packages will be inspected for proper labels and markings. Any missing labels/markings should be placed on the boxes prior loading.
9. Each waste package should have the Section 7.5 "Waste Package Documentation" data associated with a unique identification number.
10. Placement of the packages on the trailer shall be reviewed and approved by the *EnergySolutions* Certified Broker and the truck operator.
11. The transportation exclusive use, radiation protection, and security documents shall be given to the operator for review and signature.
12. Roadworthiness inspections, radiological surveys, *EnergySolutions* Certified Broker documentation, disposal site documents, and manifests shall be completed.

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13. Photographs documenting the condition of the truck and loaded trailer should be taken prior to leaving the site.
14. For any shipping papers required by governmental agencies, two copies shall be generated and each signed by the responsible personnel, e.g., two manifests will be generated. Each manifest will have original signatures.
15. Notifications shall be completed prior to the truck and cask leaving the site, e.g., emergency response, disposal site, and broker supervisor.

8.0 ATTACHMENTS

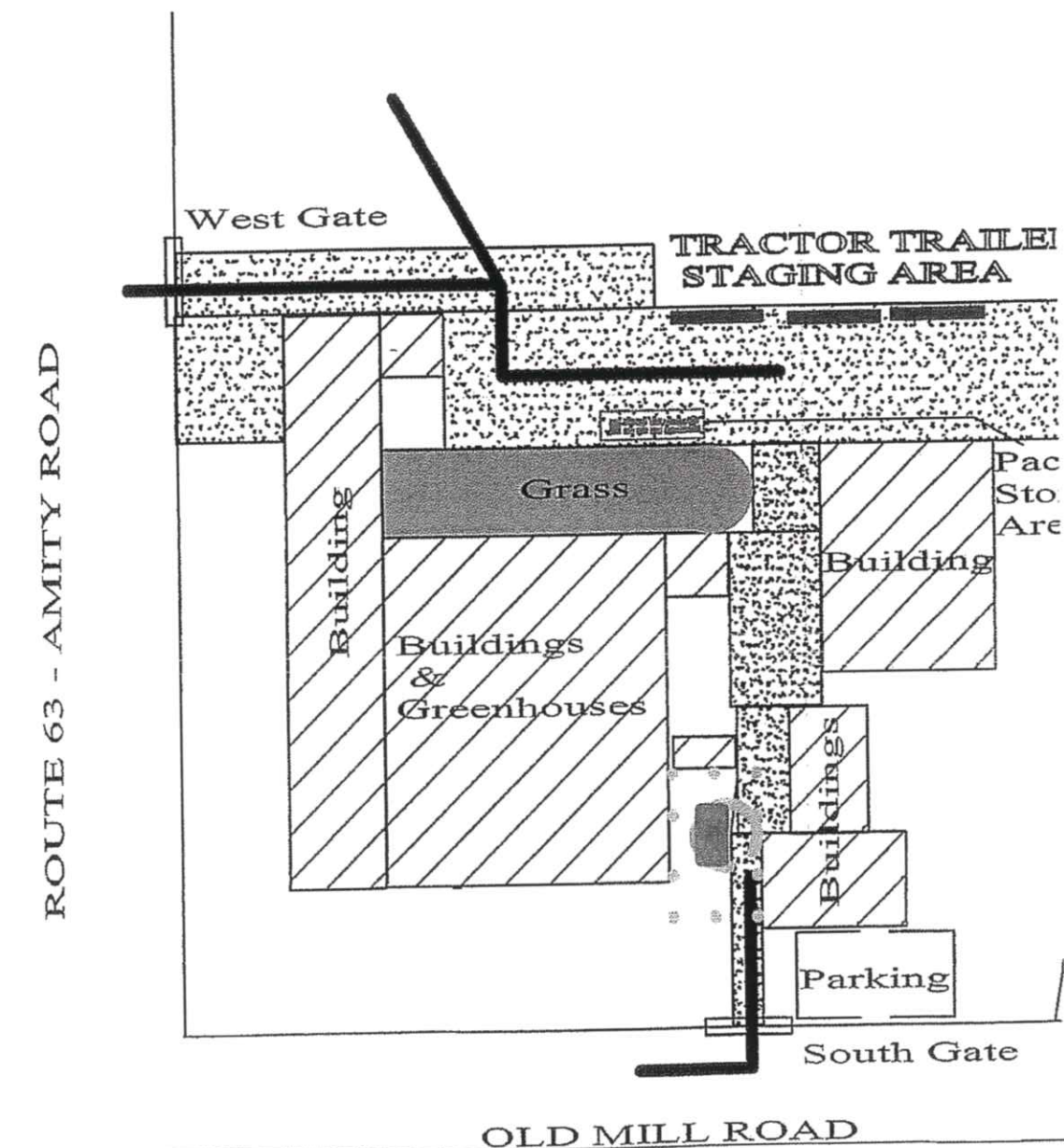
- 8.1 Figures
- 8.2 Work Site Safety Checklist
- 8.3 Instrument List
- 8.4 Project RWP
- 8.5 Waste Profile & Supporting Data

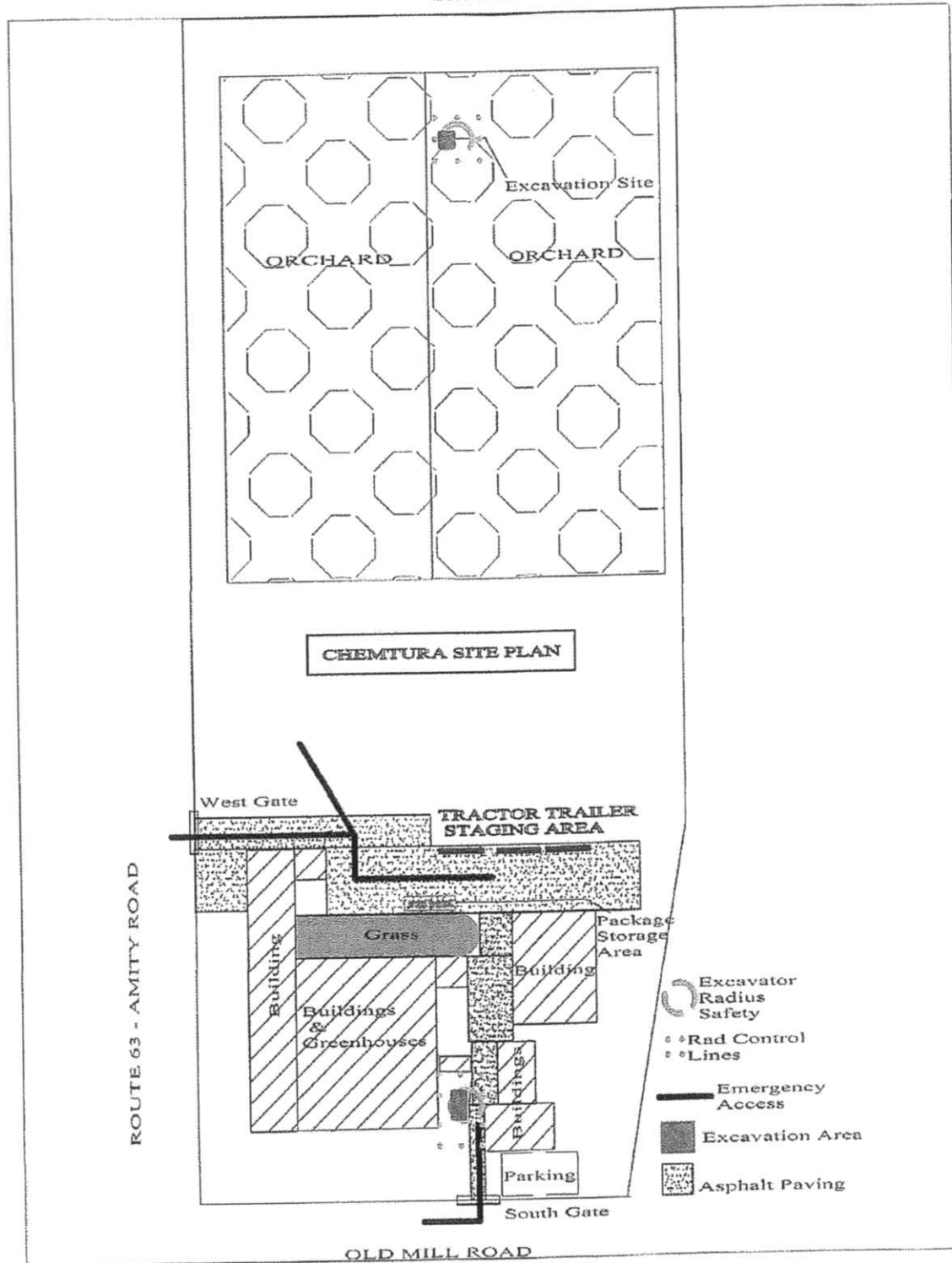
**Work Plan
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Attachment 8.1

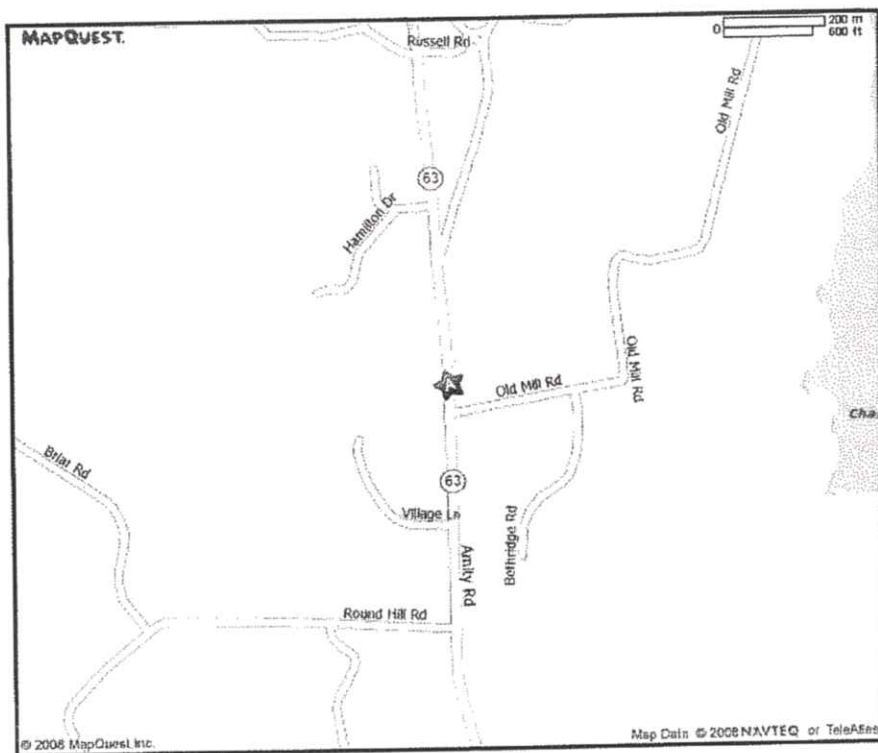
Figures

Work Plan
for Chemtura Site Remediation ProjectCS-OP-PN-026
Revision 0Figure 1
Insert from Site Plan

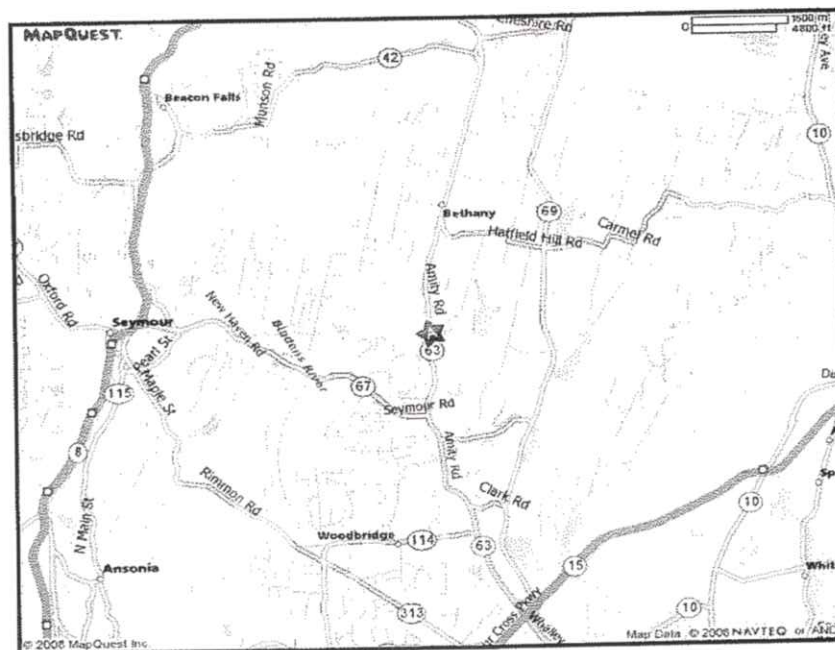
**Work Plan
for Chemtura Site Remediation Project****CS-OP-PN-026
Revision 0****Figure 2
Site Plan**

**Work Plan
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**Figure 3
74 Amity Road, Bethany, CT**



**Figure 4
Bethany Area**



**Work Plan
for Chemtura Site Remediation Project**

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Attachment 8.2

Work Site Safety Checklist

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**Work Plan
for Chemtura Site Remediation Project**

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Attachment 8.3

Instrument List

**Work Plan
for Chemtura Site Remediation Project****CS-OP-PN-026
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The following is a list of radiological instruments that may be used for this project. It does not preclude using other instruments, as necessary:

- Ludlum Model 12 Count Rate Meter – G-M detector
- Ludlum Model 2221 Scaler – 44-110 Alpha-Beta GPC detector
- Ludlum Model 2929 Scaler – Alpha-Beta swipe counter
- Ludlum Model 3030 Scaler – Alpha-Beta swipe counter
- Bicron microrem dose-rate meter
- Thermo-Eberline E-600 – multiple detectors – dose-rate & count rate meter

2. Calibrated Tools

None for this project.

**Work Plan
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Attachment 8.4

Project RWP

**Work Plan
for Chemtura Site Remediation Project****CS-OP-PN-026
Revision 0****RADIATION WORK PERMIT**☐ Job Specific ☒ Standing/General

Job Location: Chemtura – 74 Amity Road Bethany, CT			RWP No. : 001
Task Name/Number	Initiated By	Estimated Person Hours	Start Date
Excavation & Loading	S. R. Smith	120	10/13/2008
Job Description (Be Specific) Excavate approximately 55 cubic yards of soil			End Date: 10/17/2008
Contaminated with < 180 pCi gram ⁻¹ from two locations, place the soil in 5 cubic yard Lift-liners			Est. Person-Rem: 0
prepare packages and ship off-site for transfer to Clive, UT			Total Exposure-Rem: 0

INITIAL RADIOLOGICAL CONDITIONS (attach survey if applicable)

Radiation	Contamination	Air Sampling	Other
General Area Dose (units) < 40 $\mu\text{R hr}^{-1}$	General Loose (dpm/100cm²) < 160 dpm/100 cm ²	% of DAC/Isotope N/A	
Hot Spot Dose (units) < 40 $\mu\text{R hr}^{-1}$	General Fixed (dpm/100cm²) < 160 dpm/100 cm ²	% of DAC/Isotope N/A	
Surveyed By:		Date:	

RCT SUPPORT

<input type="checkbox"/> None	<input type="checkbox"/> Initial	<input checked="" type="checkbox"/> Intermittent	<input type="checkbox"/> Continuous
-------------------------------	----------------------------------	--	-------------------------------------

PROTECTIVE CLOTHING AND EQUIPMENT REQUIREMENTS (Check all that apply)

Body	Respiratory Protection*	Dosimetry
Lab Coat	Dust mask (not for rad work)	Film Badge
Coveralls <input type="checkbox"/> 1 pr <input type="checkbox"/> 2pr	Half Face	TLD/OSL Badge
Disp. Coveralls <input checked="" type="checkbox"/> 1 pr <input type="checkbox"/> 2pr	Full Face	Low Range Dosimeter
Plastic Suit <input type="checkbox"/> 1 pr <input type="checkbox"/> 2pr	Supplied Air Respirator	High Range Dosimeter
Fire Retardant Coveralls	Supplied Air Hood	Integrating Dose Rate Meter
Head	SCBA	Integrating Neutron Meter
Skull Cap	Particulate (HEPA) Cartridge	Neutron Badge
Hood <input type="checkbox"/> Disposable <input type="checkbox"/> Cloth	Vapor Cartridge	Multi Badge
Face Shield	Other	Finger Ring
Goggles	Feet	Ankle Badge
Hands	Plastic Booties <input type="checkbox"/> 1 pr <input type="checkbox"/> 2pr	Pocket Dosimeter
Rubber Gloves <input checked="" type="checkbox"/> 1 pr <input type="checkbox"/> 2pr	Rubber Booties <input checked="" type="checkbox"/> 1 pr <input type="checkbox"/> 2pr	Alarming Electronic Dosimeter
Surgeons Gloves <input type="checkbox"/> 1 pr <input type="checkbox"/> 2pr	Cloth Booties <input type="checkbox"/> 1 pr <input type="checkbox"/> 2pr	
Cotton Liners	Rubber Boots	Bioassay*
Leather Work Gloves	Covers <input type="checkbox"/> Disposable <input type="checkbox"/> Cloth	

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Taped Cuffs					
		*If required by the Radiological Respiratory Protection Program, an ALARA evaluation must be documented prior to use.		* The use of bioassay must be pre-approved by a Certified Health Physicist	

SPECIAL INSTRUCTIONS (Check all that apply)

<input type="checkbox"/> Tape Gloves and Footwear to Coveralls	<input type="checkbox"/> Temporary Ventilation Unit Required
<input type="checkbox"/> Wear Dosimeter on Inner Coveralls	<input checked="" type="checkbox"/> Pre-Job Planning Meeting Required
<input checked="" type="checkbox"/> Set Up Local Control Zone (Radiation or Contamination)	<input type="checkbox"/> Contamination Control Envelope Required
<input type="checkbox"/> Wear Dosimetry on Head	<input type="checkbox"/> Outer Personnel Clothing Not to be Worn
<input type="checkbox"/> Airborne Sample to be Taken as Specified Below	<input type="checkbox"/> Notify HP/RCT Prior to Start of Work
<input type="checkbox"/> Fire Watch Required	<input type="checkbox"/> Re-Evaluate Radiological Conditions Every
<input type="checkbox"/> Confined Space Entry Controls Required	<input type="checkbox"/> Re-Evaluate Hazardous Conditions Every
<input checked="" type="checkbox"/> Hard Hats Required	<input type="checkbox"/> Chemical Hazards Present (provide Hazard Analysis)
<input checked="" type="checkbox"/> Eye Protection Required	<input type="checkbox"/> Use of Scaffolding Required
<input type="checkbox"/> Hearing Protection Required	

MONITORING REQUIREMENTS (Check all that apply)

Radiation		Contamination		Air Sampling		Other
Once per shift	X	Once per shift	X		WA	BZ
Daily		Daily		Once per shift		
Weekly		Weekly		Daily		
Prior to work start		Prior to work start		When in work area		
Every _____ hours		Every _____ hours		Every _____ hours		
At completion of job	X	At completion of job		Lapel		
Gamma		Beta/Gamma	X	O2		
Alpha		Alpha		VOCs		
Beta	X					
Neutron				WA – Work Area		
				BZ – Breathing Zone		

INSTRUCTIONS TO WORKERS

- Read the RWP carefully. By signing the RWP briefing/acknowledgment sheet and signing in on the RWP sign-in sheet you acknowledge that you have read and understand to RWP requirements.
- Read and familiarize yourself with any attachments including JHAs, surveys and other job related instructions as you are responsible for your own exposure as well as the safety and well being of yourself and others.
- You must follow the RWP instructions including the wearing the appropriate PPE and monitoring equipment. Only the RPS or Site Safety Officer may down grade any PPE and monitoring requirements.

**Work Plan
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APPROVALS (see table below for required approval)

	Printed Name	Signature	Date
Prepared By:	Stewart R Smith		
Commercial Services RSO:			
Radiation Safety Committee:			
Termination:			

Radiation Safety Committee approval required for these conditions:	Individual approaching any Administrative Limit (Reference 2.2)
	Task \geq 2 person-rem TEDE
	Dose to the public > 10 mrem (excluding transportation)

Attachments: NONE

**Work Plan
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**Attachment 8.5
Waste Profile
&
Supporting Data**

ENERGYSOLUTIONS

EC-0230
Revision 7

RADIOACTIVE WASTE PROFILE RECORD

A. GENERATOR AND WASTE STREAM INFORMATION

GENERAL: Complete this form for one waste stream. Contact EnergySolutions at (801) 532-1330 if you have any questions while completing this form. Please indicate "N/A" if a category does not apply.

1. GENERATOR INFORMATION

Generator Name: Chemtura Corporation - Bethany Site EPA ID #: CTD000841312
 Generator Contact: Jay Nag Title: E-fate scientist & RSO
 Mailing Address: 199 Benson Road
Middlebury, CT 06749 Utah Site Access Permit #: 0211 001 864
 Phone: (203) 573-3698 Fax: (203) 573-3660 Email: Jay.Nag@chemtura.com
 Contractor Name: N/A Location of Waste (City, State): Bethany, CT
 Name & Title of Person Completing Form: Stewart R Smith Phone: (801) 303-1603 Email: ssmith@energysolutions.com

2. WASTE STREAM INFORMATION

Waste Stream ID: 0942-01 Waste Stream Name: Chemtura - Bethany Agricultural Station State of Origin: CT
 Revision: 0 Date: 10/10/2008 Volume (ft³): ~1,500 Delivery Date: 10/27/2008

CHECK APPROPRIATE BOXES BELOW. Please verify the required forms requested below are completed and submitted with the Radioactive Waste Profile Record.

HAZARDOUS WASTE: Is the waste classified as hazardous waste as defined by 40 CFR 261?

- N ☒ If NO, complete and attach the "Low-Level Radioactive Waste Certification Attachment".
 Y ☐ If YES, complete and attach the "Hazardous Waste Certification Attachment" and check applicable box below.
 Has the waste been treated to meet applicable treatment standards per 40 CFR 268? Y ☐ N ☐
 Is the waste to be treated by EnergySolutions? Y ☐ N ☐

LOW-LEVEL RADIOACTIVE WASTE: Is the radioactive waste defined as Low-Level Radioactive Waste in accordance with the Low-Level Radioactive Waste Policy Amendments Act of 1985 or in DOE Order 435.1?

- Y ☒ If YES, a current copy of a LLRW Compact Export letter authorizing export must be submitted if applicable. This authorization is applicable for non-DOE LLRW (i.e., Mixed Waste, NORM/NARM, 11e.(2) material, and waste from DOE do not require a Compact Export Letter).
 N ☐ If NO, check appropriate box: NORM/NARM ☐ 11e.(2) Byproduct Material ☐ Other: _____

SPECIAL NUCLEAR MATERIAL: Does the waste stream contain material with uranium enriched in U-235 or any of the following radionuclides: U-233, Pu-236, Pu-238, Pu-239, Pu-240, Pu-241, Pu-242, Pu-243, or Pu-244?

- Y ☐ N ☒ If Yes, complete and attach the "SNM Exemption Certification" form (EC-0230-SNM). Supporting statements, analytical results, and documentation must be included with the submittal.

PCB WASTE: Does the waste contain Polychlorinated Biphenyls (PCB) that are regulated for disposal per 40 CFR 761?

- Y ☐ N ☒ If Yes, complete and attach the "PCB Waste Certification" form (EC-98279).

ASBESTOS: Does the waste contain Asbestos Containing Material?

- Y ☐ N ☒ If Yes, Asbestos Containing Material must be managed in accordance with applicable federal regulations. Provide a detailed description of the waste containing asbestos in Section B.5 of the waste profile.

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RADIOACTIVE WASTE PROFILE RECORD

B. WASTE PHYSICAL PROPERTIES & PACKAGE INFORMATION

1. GENERAL CHARACTERISTICS

Does the waste contain free liquids? Y ☐ N ☒ If Yes, what is the percent of free liquid by waste volume? _____ %
 If Yes, is the liquid aqueous (water-based)? Y ☐ N ☐
 Does the waste contain absorbent? Y ☒ N ☐ Density range of the waste: 1.5 - 1.9 g/cc ☒ lb/ft³ ☐
 List percentage of waste type by volume: Soil 98% Concrete & Metal 1% DAW 1% Resins _____% Sludge _____%
 Other constituents and percentage by volume? _____

2. MATERIAL SIZE

Gradation of Material: Indicate the percentage of waste material that would pass through the following grid sizes. For example, 95% of the material would pass through a 12" square, 90% passes through a 4" square, 80% passes through a 1" square, etc.

12" 99% 4" 99% 1" 75% 1/4" 50% 1/40" 10% 1/200" 1%

Does the waste stream contain oversize debris (i.e., no dimension < 10 inches and any dimension > 12 feet)? Y ☐ N ☒
 If Yes, include a detailed description (i.e., weight, size, drawings, etc.) of the oversize debris in the narrative of Section B.5.

3. MOISTURE CONTENT

For soil or soil-like materials, please use Std. Proctor Method ASTM D-698 to determine the optimum moisture content. The waste material must not exceed 3 percentage points above optimum moisture upon arrival at EnergySolutions' disposal facility unless approved by EnergySolutions.

Optimum Moisture Content: 23.3% at Maximum Dry Density (lb/ft³): 99.7

Average Moisture Content: 21.7% Moisture Content Range: 20.8% - 23.3%

4. WASTE SHIPPING & PACKAGING

Transportation Mode: ☐ Highway ☒ Rail

Shipping & Container Packages: ☐ Drums* (≤ 85 gallons) ☐ Boxes (≤ 100 ft³) ☒ Soft-Sided Bags (≤ 10 yd³)
 (Check all that apply)

☐ Intermodal ☐ Sealand ☐ Gondola** ☐ Box Car

Other:

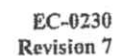
*Palletized drums are preferred by the disposal site. Please specify in the "Other" field if drums will not be palletized.

**Dimensions of gondola railcars must be between 48 to 65 feet in length and 8.5 to 12.5 feet in height as measured from the top of the rail to the top of the railcar unless approved by EnergySolutions.

5. NARRATIVE DESCRIPTION AND HISTORY OF WASTE

Please submit a narrative description and history of the waste as an attachment to the Radioactive Waste Profile Record. This attachment should include the following:

- Process that generated the waste
- Waste material physical composition and characteristics
- Radiological and chemical characterization method
- Basis for determining manifested radionuclide concentrations
- Description and amounts of absorbents, if applicable
- Basis of non-hazardous or hazardous waste determinations
- Treatment processes, if applicable
- Product information or Material Safety Data Sheets associated with the waste as applicable
- Information requested in other sections of this form



Waste Stream ID: 0942-01 Revision: 0 Date of Revision: 10/10/2008

Obtain sufficient samples to adequately determine a range and weighted average of activity in the waste. Attach the gamma spectroscopy or radiochemistry data supporting the radionuclide information listed below.

1. Does the waste material contain accessible surfaces with contact dose rates greater than 500 mR/hr? Y ☐ N ☒
2. Does the waste material contain any of the following isotopes: Aluminum-26, Berkelium-247, Calcium-41, Californium-250, Chlorine-36, Rhenium-187, Terbium-157, or Terbium-158? Y ☐ N ☒
3. Please list the following information for each isotope associated with the waste. Provide an explanation in the narrative description of Section B.5 if the waste contains localized "hot spots" or elevated concentrations that significantly exceed the upper concentration range. If additional space is needed, provide an Attachment C.3 to this profile record formatted as below.

[illegible]

ENERGYSOLUTIONS

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RADIOACTIVE WASTE PROFILE RECORD

LOW-LEVEL RADIOACTIVE WASTE CERTIFICATION ATTACHMENT

This form is required only if the checkbox for Hazardous Waste on page one has been checked No. Otherwise, complete the Hazardous Waste Certification Attachment instead of this attachment. EnergySolutions may waive the chemical laboratory analyses if the material is not amenable to chemical sampling and analysis (e.g., debris items including metal pieces, concrete, plastic, etc.). Justification for waiving the chemical analyses must be provided in Section B.5.

D. MINIMUM REQUIRED CHEMICAL ANALYSIS

The following parameters must be analyzed by a Utah or NELAC certified laboratory. Typical SW-846 analytical methods have been listed. Other approved methods are acceptable. Attach the most recent or applicable chemical analytical results representing the waste.

1. GENERAL CHEMICAL PARAMETERS

SW-846 Analytical Methods

PFLT: _____ Pass / Fail Method 9095 Not applicable for liquid radioactive waste streams.

2. 40 CFR 261.24 Table 1 – Contaminants of Toxicity Characteristic

Metals: Methods 6010 & *7470 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Arsenic <u>2.0E-01</u>	Chromium <u>5.0E-02</u>	Selenium <u>1.5E-01</u>
Barium <u>3.5E-01</u>	Lead <u>5.0E-02</u>	Silver <u>3.0E-02</u>
Cadmium <u>5.0E-02</u>	*Mercury <u>2.0E-03</u>	

Organics, Pesticides/Herbicides: Methods 8081/*8151 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Endrin <u>5.0E-03</u>	Toxaphene <u>1.2E-02</u>	Chlordane <u>2.5E-04</u>
Lindane <u>2.5E-03</u>	*2,4-D <u>0.0E-00</u>	Heptachlor <u>2.5E-05</u>
Methoxychlor <u>2.5E-04</u>	*2,4,5-TP Silvex <u>0.0E-00</u>	

Organics, Semi-Volatile: Method 8270 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

o-Cresol <u>2.0E-02</u>	Hexachlorobenzene <u>2.0E-02</u>	Pentachlorophenol <u>1.0E-01</u>
m-Cresol <u>---</u>	Hexachlorobutadiene <u>2.0E-02</u>	Pyridine <u>4.0E-02</u>
p-Cresol <u>2.0E-02</u>	Hexachloroethane <u>2.0E-02</u>	2,4,5-Trichlorophenol <u>1.0E-01</u>
Total Cresol <u>4.0E-02</u>	Nitrobenzene <u>2.0E-02</u>	2,4,6-Trichlorophenol <u>2.0E-02</u>
2,4-Dinitrotoluene <u>2.0E-02</u>		

Organics, Volatile: Method 8260 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Benzene <u>5.0E-03</u>	1,4-Dichlorobenzene <u>2.0E-02</u>	Methyl ethyl ketone <u>1.0E-02</u>
Carbon Tetrachloride <u>5.0E-03</u>	1,2-Dichloroethane <u>5.0E-03</u>	Tetrachloroethylene <u>5.0E-03</u>
Chlorobenzene <u>5.0E-03</u>	1,1-Dichloroethylene <u>5.0E-03</u>	Trichloroethylene <u>5.0E-03</u>
Chloroform <u>5.0E-03</u>	Vinyl Chloride <u>5.0E-03</u>	

3. Was the waste at the point of generation a RCRA hazardous waste per 40 CFR 261? Y ☐ N ☒

If Yes, list former hazardous waste codes and former underlying hazardous constituents. List worst-case concentrations for each hazardous constituent. If additional space is needed, provide an Attachment D.3 to this profile record formatted as below. Attach the most recent chemical analytical results demonstrating compliance with applicable treatment standards.

If No, indicate "N/A" in Section D.3 below.

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RADIOACTIVE WASTE PROFILE RECORD

D. 3.	Former EPA HW Codes or Underlying Hazardous Constituents	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst Case Concentration (mg/kg unless noted as mg/L TCLP)
	N/A		
	N/A		
	N/A		
	N/A		
	N/A		
	N/A		

4. OTHER CHEMICAL CONSTITUENTS

List any other chemical constituents of concern (e.g., PCBs, chelating agents, etc.) and worst-case concentrations. If additional space is needed, provide an Attachment D.4 to this profile record formatted as below.

Other Chemical Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)	Other Hazardous Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A			
N/A			
N/A			
N/A			
N/A			
N/A			

5. LABORATORY CERTIFICATION

☒ UTAH or NELAC CERTIFIED

The Utah or NELAC certified laboratory holds a current certification for the applicable chemical test methods insofar as such official certifications are given. Please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for chemical analyses required by this form.

☐ OTHER LABORATORY CERTIFICATION (Describe below)

6. CERTIFICATION

I certify that sample results representative of the waste described in this profile were or shall be obtained using state- and EPA-approved analytical methods. I also certify that where necessary representative samples were or shall be provided to EnergySolutions and to qualified laboratories for the analytical results reported herein. I further certify that the waste described in this record is not prohibited from land disposal in 40 CFR 268 (unless prior arrangements are made for treatment at EnergySolutions) and that all applicable treatment standards are clearly indicated on this form. I also certify that the information provided on this form is complete, true, and correct and is accurately supported and documented by any laboratory testing as required by EnergySolutions. I certify that the results of any said testing have been submitted to EnergySolutions. I certify that the waste does not contain any prohibited items listed in EnergySolutions' Radioactive Material License.

Generator's Signature:

Title: RSO - Chemtura

Date: 10/10/2008

ES - PROJECT MANAGER

10/10/2008

**ATTACHMENT B.5
PHYSICAL PROPERTIES**Generator Name: Chemtura CorporationWaste Stream ID: 0942-01Revision #: 0Revision Date: 10/10/2008**OVERWRITE THIS SECTION TO COMPLETE YOUR NARRATIVE**

Items to include in this attachment as applicable:

- Process that generated the waste – *Small amounts of C-14 labeled organic compounds were sprayed upon plants as part of experiments involving agricultural chemical products.*
- Waste material physical composition and characteristics – *Soils were contaminated as part of these experiments.*
- Radiological and chemical characterization method – *Samples from the soil, leaf and root systems were taken and analyzed by combustion and liquid scintillation counter by Eberline of Oak Ridge, TN.*
- Basis for determining manifested radionuclide concentrations – *The range of the LSC results was evaluated. The manifested concentration in pCi gm^{-1} was determined by adding 2σ to the highest observed concentration.*
- Description and amounts of absorbents, if applicable – *Sufficient clay absorbent (<1% by weight) was added to the packages to absorb moisture that might separate due to vibrations generated by transportation.*
- Basis of non-hazardous or hazardous waste determinations – *Analysis was conducted on samples provided to TestAmerica for TCLP from Chemtura Corporation. EnergySolutions, Inc. environmental and radiological staff evaluated the results.*
- Treatment processes, if applicable – *Not Applicable*
- Product information or Material Safety Data Sheets associated with the waste as applicable – *Not Applicable*
- Information requested in other sections of this form

For waste streams with SNM, please include the information requested in items 3a through 3d of the SNM Exemption Certification (form EC-0230-SNM) including: - *Not Applicable*

- How the waste was generated
- Physical forms in the waste
- Uranium chemical composition (if applicable)
- How the waste was characterized
- The range of SNM concentrations
- Analytical results with error values
- Spatial distribution uniformity of SNM
- Determination of manifested concentrations

For waste streams containing PCBs regulated for disposal, please provide a description of the PCB waste categories listed on the PCB Waste Certification form (EC-98279) – *Not Applicable*

For profiles containing large components (e.g., single items > 20,000 lbs), please provide the following information: - *Not Applicable*

- Drawings illustrating dimension, weight, access ports to void spaces and lifting points
- Photographs of the object
- Radiological characterization and surveys including dose rates and surface contamination levels
- Packaging, rigging, loading and transportation plans

07.11018

Sand & Soil Sample Chain of Custody Document

Shipped From: Robin Charlton
Chemtura Corporation
199 Benson Rd
Middlebury, CT 06749
Phone 203-573-3692
Fax 203-573-3660
robin.charlton@chemtura.com

To: Michael McDougall
Eberline Services
601 Scarboro Rd
Oak Ridge, TN 37830
Phone 865-481-0683

Shipping Conditions: ambient temperature
Shipping Carrier: FedEx

Shipper Signature: Fed Ex Date: 11/5/12

Sample No.	Description	Sampling Date	Box No.	Shipped	Received
S1	G1-I-5 (Greenhouse # Section # Table #)	10/29/07	1	X	
S2	G1-I-6	10/29/07	1	X	
S3	G1-I-7	10/29/07	1	X	
S4	G1-I-8	10/29/07	1	X	
S5	G1-I-11	10/29/07	1	X	
S6	G1-I-12	10/29/07	1	X	
S7	G1-II-1	10/29/07	1	X	
S8	G1-II-2	10/29/07	1	X	
S9	G1-II-5	10/29/07	1	X	
S10	G1-II-6	10/29/07	1	X	
S11	G1-II-7	10/29/07	1	X	
S12	G1-III-1	10/29/07	1	X	
S13	G1-III-2	10/29/07	1	X	
S14	G1-III-6	10/29/07	1	X	
S15	G2-I-1	10/29/07	1	X	
S16	G2-I-2	10/29/07	1	X	
S17	G2-I-3	10/29/07	1	X	
4 S18	G2-I-4	10/29/07	1	X	
5 S19	G2-I-6	10/29/07	1	X	
6 S20	G2-I-7	10/29/07	1	X	
7 S21	G2-I-8	10/29/07	1	X	
8 S22	G2-II-1	10/29/07	1	X	
9 S23	G2-II-2	10/29/07	1	X	
10 S24	G2-II-3	10/29/07	1	X	
11 S25	G2-II-4	10/29/07	1	X	
12 S26	G2-II-7	10/29/07	1	X	
13 S27	G2-II-8	10/29/07	1	X	
14 S28	G2-II-9	10/29/07	1	X	

Sand and Soil Chain of Custody

NOV 15 2007

Page 1 of 3

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07.11018

Sample No.	Description	Sampling Date	Box No.	Shipped	Received
15 S29	G2-II-10	10/29/07	1	X	
16 S30	G2-III-1	10/29/07	1	X	
17 S31	G2-III-2	10/29/07	1	X	
18 S32	G2-III-3	10/29/07	1	X	
19 S33	G2-III-4	10/29/07	1	X	
20 S34	G2-III-7	10/29/07	1	X	
S35	G2-III-8	10/29/07	1	X	
S36	G3-I-2	10/29/07	1	X	
S37	G3-I-3	10/29/07	1	X	
S38	G3-I-4	10/29/07	1	X	
S39	G3-I-5	10/29/07	1	X	
S40	G3-I-6	10/29/07	1	X	
S41	G3-I-7	10/29/07	1	X	
S42	G3-I-8	10/29/07	1	X	
S43	G3-I-9	10/29/07	1	X	
S44A	G3-I-10	10/29/07	1	X	
S44B	G3-II-1	10/29/07	1	X	
S45	G3-II-2	10/29/07	1	X	
S46	G3-II-3	10/29/07	1	X	
S47	G3-II-4	10/29/07	1	X	
S48	G3-II-5	10/29/07	1	X	
S49	G3-II-6	10/29/07	1	X	
S50	G3-II-7	10/29/07	1	X	
S51	G3-II-8	10/29/07	1	X	
S52	G3-II-9	10/29/07	1	X	
S53	G3-II-10	10/29/07	1	X	
S54	G3-III-1	10/29/07	1	X	
S55	G3-III-2	10/29/07	1	X	
S56	G3-III-3	10/29/07	1	X	
S57	G3-III-4	10/29/07	1	X	
S58	G3-III-5	10/29/07	1	X	
S59	G3-III-6	10/29/07	1	X	
S60	G3-III-7	10/29/07	1	X	
S61	G3-III-8	10/29/07	1	X	
S62	Upper Apple NE 0-6 in	10/30/07	1	X	
S63	Upper Apple NE 6-12 in	10/30/07	1	X	
S64	Upper Apple SW 0-6 in	10/30/07	1	X	
S65	Upper Apple SW 6-12 in	10/30/07	1	X	
S66	Lower Apple Center 0-6 in	10/30/07	1	X	
S67	Lower Apple Center 6-12 in	10/30/07	1	X	
S68	Lowest Apple Center 0-6 in	10/30/07	1	X	
S69	Lowest Apple Center 6-12 in	10/30/07	1	X	
S70	Peach NE 9-15 in	10/30/07	2	X	

Sand and Soil Chain of Custody.doc

NOV 15 2007

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06

07.11.10

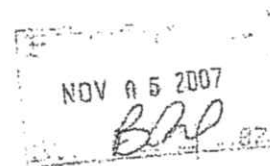
Sample No.	Description	Sampling Date	Box No.	Shipped	Received
S71	Peach SW 9-15 in	10/30/07	2	X	
S72	Grape E 0-6 in	10/30/07	2	X	
S73	Grape E 6-12 in	10/30/07	2	X	
S74	Grape W 0-6 in	10/30/07	2	X	
S75	Grape W 6-12 in	10/30/07	2	X	
S76	Old Corral E 0-6 in	10/31/07	2	X	
S77	Old Corral E 6-12 in	10/31/07	2	X	
S78	Old Corral W 0-6 in	10/31/07	2	X	
S79	Old Corral W 6-12 in	10/31/07	2	X	
S80	Corral SW 0-6 in	10/31/07	2	X	
S81	Corral SW 6-12 in	10/31/07	2	X	
S82	Corral mid W 0-6 in	10/31/07	2	X	
S83	Corral mid W 6-12 in	10/31/07	2	X	
S84	Corral NW 0-6 in	10/31/07	2	X	
S85	Corral NW 6-12 in	10/31/07	2	X	
S86	Corral SE 0-6 in	10/31/07	2	X	
S87	Corral SE 6-12 in	10/31/07	2	X	
S88	Corral mid E 0-6 in	10/31/07	2	X	
S89	Corral mid E 6-12 in	10/31/07	2	X	
S90	Corral NE 0-6 in	10/31/07	2	X	
S91	Corral NE 6-12 in	10/31/07	2	X	

Acknowledgement of Receipt:

Received in Good condition. If other than good condition, please explain.Signature: B. WebbDate: 11/5/07Printed Name: B. Webb

Please send a signed copy of this document to the Shipper at the address above.

The samples above are submitted for the analysis of ^{14}C content with standard 21-day turn-around time and Level IV Analytical Data Package with Standard EDD at an MDA of < 5 pCi/g. The NRC specification for decommissioning is 12 pCi/g.



KF
12/3/07 ~~07.11135~~

07.12002

Sand & Soil Sample Chain of Custody Document

Shipped From: Robin Charlton
Chemtura Corporation
199 Benson Rd.
Middlebury, CT 06749
Phone 203-573-3692
Fax 203-573-3660
robin.charlton@chemtura.com

To: Michael McDougall
Eberline Services
601 Scarboro Rd
Oak Ridge, TN 37830
Phone 865-481-0683

Shipping Conditions: ambient temperature
Shipping Carrier: FedEx

Shipper Signature: Robin Charlton Date: 11/30/07

Sample No.	Description	Sampling Date	Box No.	Shipped	Received
4 S96	Corral NE hole 12-15 in	11/30/07	1	X	
5 S97	Corral NW hole 12-15 in	11/30/07	1	X	
6 S98	Corral mid E out 0-6 in	11/30/07	1	X	
7 S99	Corral mid E out 6-12 in	11/30/07	1	X	
8 S100	Corral mid N out 8-14 in	11/30/07	1	X	
9 S101	Corral mid W out 0-6 in	11/30/07	1	X	
10 S102	Corral mid W out 6-12 in	11/30/07	1	X	
11 S103	Peach mid E 3 ft out 0-6 in	11/30/07	1	X	
12 S104	Peach mid N 3 ft out 0-6 in	11/30/07	1	X	
13 S105	Peach mid W 3 ft out 0-6 in	11/30/07	1	X	
14 S106	Peach mid S 3 ft out 0-6 in	11/30/07	1	X	
15 S107	Peach SE 1 ft out 0-6 in	11/30/07	1	X	
16 S108	Peach SW 1 ft out 0-6 in	11/30/07	1	X	
17 S109	Peach Center 0-6 in (soil and clay)	11/30/07	1	X	
18 S110	Peach Center 6-12 in (clay)	11/30/07	1	X	

Acknowledgement of Receipt:

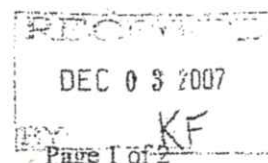
Received in good condition. If other than good condition, please explain.

Signature: [Signature] Date: 12/3/07

Printed Name: Kevin Fox

Please send a signed copy of this document to the Shipper at the address above.

Soil Chain of Custody 113007.doc



Page 1 of 2

005

00.01040

Sand & Soil Sample Chain of Custody Document

Shipped From: Robin Charlton
Chemtura Corporation
199 Benson Rd
Middlebury, CT 06749
Phone 203-573-3692
Fax 203-573-3660
robin.charlton@chemtura.com

To: Michael McDougall
Eberline Services
601 Scarboro Rd
Oak Ridge, TN 37830
Phone 86 5-481-0683

Shipping Conditions: ambient temperature
Shipping Carrier: FedEx

Shipper Signature: Robin Charlton Date: 1/10/08

Sample No.	Description	Sampling Date	Box No.	Shipped	Received
4 S111	Corral NE fence 0-6 in	1/10/08	1	X	
5 S112	Corral NW fence 0-6 in	1/10/08	1	X	
6 S113	Corral WN fence 0-6 in	1/10/08	1	X	
7 S114	Corral W fence 0-6 in	1/10/08	1	X	
8 S115	Corral E fence 0-6 in	1/10/08	1	X	
9 S116	Corral EN fence 0-6 in	1/10/08	1	X	
10 S117	Peach SW 3 ft out 0-6 in	1/10/08	1	X	
11 S118	Peach SW 5 ft out 0-6 in	1/10/08	1	X	
12 S119	Peach N 4 ft out 0-6 in	1/10/08	1	X	
13 S120	Peach N 5 ft out 0-6 in	1/10/08	1	X	

Acknowledgement of Receipt:

Received in good condition. If other than good condition, please explain.

Signature: [Signature] Date: 1/14/08 0800
Printed Name: Kevin Fox

Please send a signed copy of this document to the Shipper at the address above.

The samples above are submitted for the analysis of ^{14}C content with standard 21-day turn-around time and Level IV Analytical Data Package with Standard EDD at an MDA of < 5 pCi/g. The NRC specification for decommissioning is 12 pCi/g.

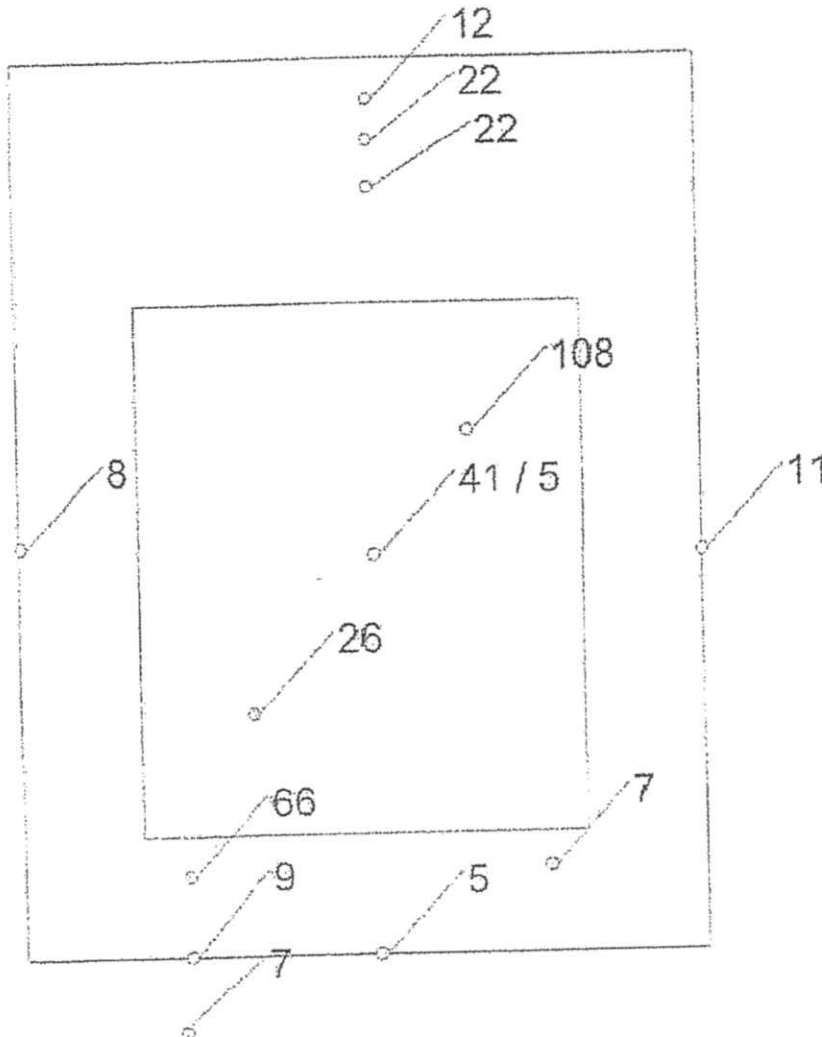
Soil Chain of Custody 011008.doc

EXP-17
JAN 14 2008
KF

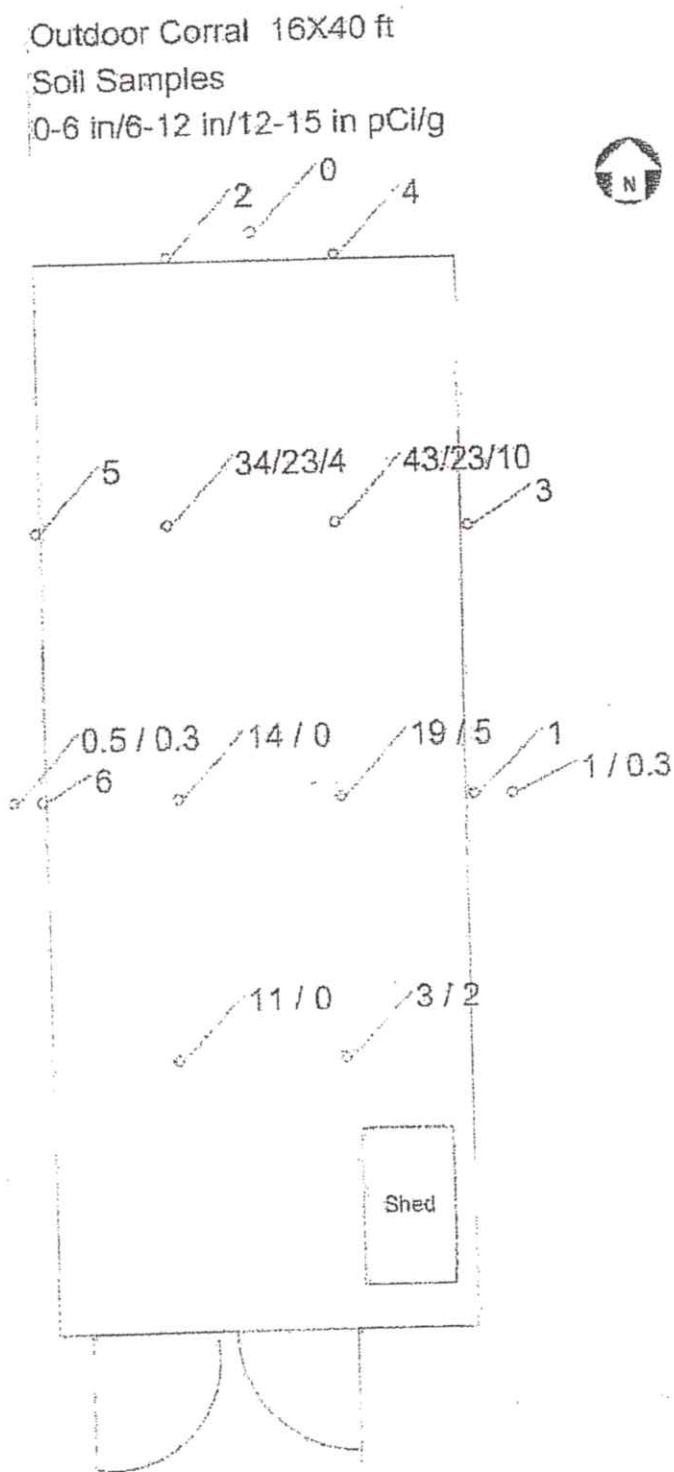
Page 1 of 1



Peach Tree Area 17X22 ft
Soil Samples
0-6 in/6-12 in pCi/g



Inner rectangle is 11X13 ft
area previously excavated to
an average of at least 6 in.



Eberline Services

Final Report of Analysis

January 2011

Client E

Eberline Services

Final Report of Analysis

Report To:

Robin Charton

Chemtura Corporation

199 Benson Road

Middlebury, CT 06749

Work Order Details:

SDG:

07-11021

Purchase Order:

4603003657

Analysis Category:

ENVIRONMENTAL

Sample Matrix:

SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
07-11021-01	LCS	KNOWN	11/05/07 00:00	11/15/2007	11/15/2007	07-11021	Carbon-14	EPA 520.0 Modified	3.66E+02	1.02E+01	2.03E+00	1.82E+00	pc/g
07-11021-01	LCS	SPIKE	11/05/07 00:00	11/15/2007	11/15/2007	07-11021	Carbon-14	EPA 520.0 Modified	3.14E+02	3.85E+00	2.03E+00	1.82E+00	pc/g
07-11021-02	MBL	BLANK	11/05/07 00:00	11/15/2007	11/15/2007	07-11021	Carbon-14	EPA 520.0 Modified	-3.34E-01	5.14E-01	2.62E-01	8.91E-01	pc/g
07-11021-03	DUP	S68	10/30/07 00:00	11/15/2007	11/15/2007	07-11021	Carbon-14	EPA 520.0 Modified	9.93E-01	5.36E-01	2.74E-01	8.82E-01	pc/g
07-11021-04	DO	S68	10/30/07 00:00	11/15/2007	11/15/2007	07-11021	Carbon-14	EPA 520.0 Modified	3.35E-01	5.29E-01	2.70E-01	8.93E-01	pc/g
07-11021-05	TRG	S69	10/30/07 00:00	11/15/2007	11/15/2007	07-11021	Carbon-14	EPA 520.0 Modified	6.43E-01	5.15E-01	2.63E-01	8.58E-01	pc/g
07-11021-06	TRG	S70	10/30/07 00:00	11/15/2007	11/15/2007	07-11021	Carbon-14	EPA 520.0 Modified	1.08E+02	1.62E+00	8.42E-01	9.02E-01	pc/g
07-11021-07	TRG	S71	10/30/07 00:00	11/15/2007	11/15/2007	07-11021	Carbon-14	EPA 520.0 Modified	2.64E+01	8.92E-01	4.57E-01	8.58E-01	pc/g
07-11021-08	TRG	S72	10/30/07 00:00	11/15/2007	11/15/2007	07-11021	Carbon-14	EPA 520.0 Modified	1.31E+00	5.38E-01	2.75E-01	8.75E-01	pc/g
07-11021-09	TRG	S73	10/30/07 00:00	11/15/2007	11/15/2007	07-11021	Carbon-14	EPA 520.0 Modified	6.48E-01	5.19E-01	2.65E-01	8.65E-01	pc/g
07-11021-10	TRG	S74	10/30/07 00:00	11/15/2007	11/15/2007	07-11021	Carbon-14	EPA 520.0 Modified	6.47E-01	5.18E-01	2.64E-01	8.62E-01	pc/g
07-11021-11	TRG	S75	10/30/07 00:00	11/15/2007	11/15/2007	07-11021	Carbon-14	EPA 520.0 Modified	3.31E-01	5.23E-01	2.67E-01	8.83E-01	pc/g
07-11021-12	TRG	S76	10/31/07 00:00	11/15/2007	11/15/2007	07-11021	Carbon-14	EPA 520.0 Modified	0.00E+00	5.17E-01	2.64E-01	8.83E-01	pc/g
07-11021-13	TRG	S77	10/31/07 00:00	11/15/2007	11/16/2007	07-11021	Carbon-14	EPA 520.0 Modified	3.34E-01	5.27E-01	2.69E-01	8.89E-01	pc/g

Chemtura Bethany Site
January 2011

Attachment E

CU=Counting Uncertainty; CSU=Combined Standard Uncertainty (1-sigma); MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Services

Final Report of Analysis

Chemtura Bethany Site
January 2011

Eberline Services

Final Report of Analysis

Report To:

Robin Charlton

Chemtura Corporation

199 Benson Road

Middlebury, CT 06749

Work Order Details:

SDG:

07-11022

Purchase Order:

4603003657

Analysis Category:

ENVIRONMENTAL

Sample Matrix:

SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
07-11022-01	LCS	KNOWN	11/05/07 00:00	11/5/2007	11/16/2007	07-11022	Carbon-14	EPA 520.0 Modified	3.77E+02	1.06E+01			pCi/g
07-11022-01	LCS	SPIKE	11/05/07 00:00	11/5/2007	11/16/2007	07-11022	Carbon-14	EPA 520.0 Modified	3.01E+02	3.36E+00	1.78E+00	1.50E+00	pCi/g
07-11022-02	MBL	BLANK	11/05/07 00:00	11/5/2007	11/16/2007	07-11022	Carbon-14	EPA 520.0 Modified	-2.73E-01	4.32E-01	2.20E-01	7.47E-01	pCi/g
07-11022-03	DUP	S78	10/31/07 00:00	11/5/2007	11/16/2007	07-11022	Carbon-14	EPA 520.0 Modified	-2.56E-01	4.05E-01	2.07E-01	7.01E-01	pCi/g
07-11022-04	DO	S78	10/31/07 00:00	11/5/2007	11/16/2007	07-11022	Carbon-14	EPA 520.0 Modified	5.32E-01	4.36E-01	2.22E-01	7.27E-01	pCi/g
07-11022-05	TRG	S79	10/31/07 00:00	11/5/2007	11/16/2007	07-11022	Carbon-14	EPA 520.0 Modified	2.60E-01	4.22E-01	2.15E-01	7.12E-01	pCi/g
07-11022-06	TRG	S80	10/31/07 00:00	11/5/2007	11/16/2007	07-11022	Carbon-14	EPA 520.0 Modified	-4.07E+01	6.06E-01	3.10E-01	7.33E-01	pCi/g
07-11022-07	TRG	S81	10/31/07 00:00	11/5/2007	11/16/2007	07-11022	Carbon-14	EPA 520.0 Modified	0.00E+00	4.40E-01	2.24E-01	7.51E-01	pCi/g
07-11022-08	TRG	S82	10/31/07 00:00	11/5/2007	11/16/2007	07-11022	Carbon-14	EPA 520.0 Modified	1.40E+01	6.34E-01	3.24E-01	7.07E-01	pCi/g
07-11022-09	TRG	S83	10/31/07 00:00	11/5/2007	11/16/2007	07-11022	Carbon-14	EPA 520.0 Modified	0.00E+00	4.12E-01	2.10E-01	7.03E-01	pCi/g
07-11022-10	TRG	S84	10/31/07 00:00	11/5/2007	11/16/2007	07-11022	Carbon-14	EPA 520.0 Modified	3.43E+01	8.48E-01	4.36E-01	6.90E-01	pCi/g
07-11022-11	TRG	S85	10/31/07 00:00	11/5/2007	11/17/2007	07-11022	Carbon-14	EPA 520.0 Modified	2.26E+01	7.36E-01	3.77E-01	7.03E-01	pCi/g
07-11022-12	TRG	S86	10/31/07 00:00	11/5/2007	11/17/2007	07-11022	Carbon-14	EPA 520.0 Modified	-2.88E+00	4.73E-01	2.41E-01	7.16E-01	pCi/g
07-11022-13	TRG	S87	10/31/07 00:00	11/5/2007	11/17/2007	07-11022	Carbon-14	EPA 520.0 Modified	-2.07E+00	4.53E-01	2.31E-01	7.06E-01	pCi/g
07-11022-14	TRG	S88	10/31/07 00:00	11/5/2007	11/17/2007	07-11022	Carbon-14	EPA 520.0 Modified	1.89E+01	7.10E-01	3.64E-01	7.29E-01	pCi/g
07-11022-15	TRG	S89	10/31/07 00:00	11/5/2007	11/17/2007	07-11022	Carbon-14	EPA 520.0 Modified	5.00E+00	5.11E-01	2.61E-01	7.20E-01	pCi/g
07-11022-16	TRG	S90	10/31/07 00:00	11/5/2007	11/17/2007	07-11022	Carbon-14	EPA 520.0 Modified	4.31E+01	9.43E-01	4.86E-01	7.10E-01	pCi/g
07-11022-17	TRG	S91	10/31/07 00:00	11/5/2007	11/17/2007	07-11022	Carbon-14	EPA 520.0 Modified	2.34E+01	7.60E-01	3.90E-01	7.26E-01	pCi/g

Attachment

CU=Counting Uncertainty; CSU=Combined Standard Uncertainty (1-sigma); MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Services

Final Report of Analysis

Report To:				Work Order Details:						
Robin Charlton			SDG:		07-12002					
Chemtura Corporation			Purchase Order:		4603003657					
199 Benson Road			Analysis Category:		ENVIRONMENTAL					
Middlebury, CT 06749			Sample Matrix:		SO					
Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
12/03/07 00:00	12/3/2007	12/7/2007	07-12002	Carbon-14	EPA 520.0 Modified	3.67E+02	1.03E+01			pCi/g
12/03/07 00:00	12/3/2007	12/7/2007	07-12002	Carbon-14	EPA 520.0 Modified	2.95E+02	3.40E+00	3.43E+00	1.55E+00	pCi/g
12/03/07 00:00	12/3/2007	12/7/2007	07-12002	Carbon-14	EPA 520.0 Modified	2.85E-01	4.61E-01	4.61E-01	7.78E-01	pCi/g
11/30/07 00:00	12/3/2007	12/7/2007	07-12002	Carbon-14	EPA 520.0 Modified	7.79E+00	5.50E-01	5.50E-01	7.10E-01	pCi/g
11/30/07 00:00	12/3/2007	12/7/2007	07-12002	Carbon-14	EPA 520.0 Modified	9.85E+00	6.17E-01	6.17E-01	7.70E-01	pCi/g
11/30/07 00:00	12/3/2007	12/7/2007	07-12002	Carbon-14	EPA 520.0 Modified	3.97E+00	4.97E-01	4.97E-01	7.24E-01	pCi/g
11/30/07 00:00	12/3/2007	12/7/2007	07-12002	Carbon-14	EPA 520.0 Modified	1.06E+00	4.44E-01	4.44E-01	7.23E-01	pCi/g
11/30/07 00:00	12/3/2007	12/7/2007	07-12002	Carbon-14	EPA 520.0 Modified	2.65E-01	4.30E-01	4.30E-01	7.25E-01	pCi/g
11/30/07 00:00	12/3/2007	12/7/2007	07-12002	Carbon-14	EPA 520.0 Modified	0.00E+00	4.27E-01	4.27E-01	7.29E-01	pCi/g
11/30/07 00:00	12/3/2007	12/7/2007	07-12002	Carbon-14	EPA 520.0 Modified	5.22E-01	4.28E-01	4.28E-01	7.14E-01	pCi/g
11/30/07 00:00	12/3/2007	12/7/2007	07-12002	Carbon-14	EPA 520.0 Modified	2.68E-01	4.35E-01	4.35E-01	7.34E-01	pCi/g
11/30/07 00:00	12/3/2007	12/7/2007	07-12002	Carbon-14	EPA 520.0 Modified	1.10E+01	5.89E-01	5.89E-01	6.98E-01	pCi/g
11/30/07 00:00	12/3/2007	12/7/2007	07-12002	Carbon-14	EPA 520.0 Modified	2.18E+01	7.44E-01	7.45E-01	7.28E-01	pCi/g
11/30/07 00:00	12/3/2007	12/7/2007	07-12002	Carbon-14	EPA 520.0 Modified	7.58E+00	5.50E-01	5.50E-01	7.15E-01	pCi/g
11/30/07 00:00	12/3/2007	12/7/2007	07-12002	Carbon-14	EPA 520.0 Modified	4.93E+00	5.04E-01	5.04E-01	7.10E-01	pCi/g
11/30/07 00:00	12/3/2007	12/7/2007	07-12002	Carbon-14	EPA 520.0 Modified	6.73E+00	5.32E-01	5.33E-01	7.08E-01	pCi/g
11/30/07 00:00	12/3/2007	12/7/2007	07-12002	Carbon-14	EPA 520.0 Modified	6.64E+01	1.14E+00	1.15E+00	7.26E-01	pCi/g
11/30/07 00:00	12/3/2007	12/7/2007	07-12002	Carbon-14	EPA 520.0 Modified	4.14E+01	9.63E-01	9.65E-01	7.55E-01	pCi/g
11/30/07 00:00	12/3/2007	12/7/2007	07-12002	Carbon-14	EPA 520.0 Modified	5.36E+00	5.48E-01	5.49E-01	7.72E-01	pCi/g

Chemtura Bethany Site
January 2011

CU=Counting Uncertainty; CSU=Combined Standard Uncertainty (2-sigma); MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Services

Final Report of Analysis

Report To:

Robin Charlton

Chemtura Corporation

199 Benson Road

Middlebury, CT 06749

SDG: 08-01040

Purchase Order: 4603003657

Analysis Category: ENVIRONMENTAL

Sample Matrix: SO

Work Order Details:

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
08-01040-01	LCS	KNOWN	01/14/08 00:00	1/14/2008	1/21/2008	08-01040	Carbon-14	EPA 520.0 Modified	3.62E+02	1.01E+01	3.41E+00	1.49E+00	pCi/g
08-01040-01	LCS	SPIKE	01/14/08 00:00	1/14/2008	1/21/2008	08-01040	Carbon-14	EPA 520.0 Modified	2.99E+02	3.38E+00	8.47E-01	1.47E+00	pCi/g
08-01040-02	MBL	BLANK	01/14/08 00:00	1/14/2008	1/21/2008	08-01040	Carbon-14	EPA 520.0 Modified	-5.50E-01	8.47E-01	8.70E-01	1.35E+00	pCi/g
08-01040-03	DUP	S111	01/10/08 00:00	1/14/2008	1/21/2008	08-01040	Carbon-14	EPA 520.0 Modified	4.06E+00	8.70E-01	8.56E-01	1.34E+00	pCi/g
08-01040-04	DO	S111	01/10/08 00:00	1/14/2008	1/21/2008	08-01040	Carbon-14	EPA 520.0 Modified	3.53E+00	8.56E-01	8.93E-01	1.40E+00	pCi/g
08-01040-05	TRG	S112	01/10/08 00:00	1/14/2008	1/22/2008	08-01040	Carbon-14	EPA 520.0 Modified	2.18E+00	8.93E-01	9.11E-01	1.40E+00	pCi/g
08-01040-06	TRG	S113	01/10/08 00:00	1/14/2008	1/22/2008	08-01040	Carbon-14	EPA 520.0 Modified	4.73E+00	9.11E-01	9.28E-01	1.38E+00	pCi/g
08-01040-07	TRG	S114	01/10/08 00:00	1/14/2008	1/22/2008	08-01040	Carbon-14	EPA 520.0 Modified	6.21E+00	9.26E-01	9.45E-01	1.41E+00	pCi/g
08-01040-08	TRG	S115	01/10/08 00:00	1/14/2008	1/22/2008	08-01040	Carbon-14	EPA 520.0 Modified	1.06E+00	8.45E-01	8.45E-01	1.46E+00	pCi/g
08-01040-09	TRG	S116	01/10/08 00:00	1/14/2008	1/22/2008	08-01040	Carbon-14	EPA 520.0 Modified	2.74E+00	9.08E-01	9.08E-01	1.39E+00	pCi/g
08-01040-10	TRG	S117	01/10/08 00:00	1/14/2008	1/22/2008	08-01040	Carbon-14	EPA 520.0 Modified	8.88E+00	9.80E-01	9.81E-01	1.44E+00	pCi/g
08-01040-11	TRG	S118	01/10/08 00:00	1/14/2008	1/22/2008	08-01040	Carbon-14	EPA 520.0 Modified	6.50E+00	9.69E-01	9.69E-01	1.40E+00	pCi/g
08-01040-12	TRG	S119	01/10/08 00:00	1/14/2008	1/22/2008	08-01040	Carbon-14	EPA 520.0 Modified	2.15E+01	1.18E+00	1.18E+00	1.40E+00	pCi/g
08-01040-13	TRG	S120	01/10/08 00:00	1/14/2008	1/22/2008	08-01040	Carbon-14	EPA 520.0 Modified	1.19E+01	1.06E+00	1.06E+00	1.44E+00	pCi/g

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EBERLINE
SERVICES

Oak Ridge Laboratory

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621

40 CFR § 261.24 Table 1

EPA HW No.	Contaminant	CAS No.	mg/L	Test USA Analyte	Chemtura		Analysis MDL mg/L
					Corral Area mg/L	Peach Tree Area mg/L	
D004	Arsenic	7440-38-2	5.0	Arsenic	0.2	0.026	0.022
D005	Barium	7440-39-3	100.0	Barium	0.35	0.33	0.006
D018	Benzene	71-43-2	0.5	Benzene	0.005	0.005	0.00074
D006	Cadmium	7440-43-8	1.0	Cadmium	0.05	0.05	0.014
D019	Carbon tetrachloride	56-23-5	0.5	Carbon tetrachloride	0.005	0.005	0.0011
D020	Chlordane	57-74-9	0.03	Chlordane	0.0025	0.0025	0.00071
D021	Chlorobenzene	108-90-7	100.0	Chlorobenzene	0.005	0.005	0.00072
D022	Chloroform	67-66-3	5.0	Chloroform	0.005	0.005	0.00067
D007	Chromium	7440-47-3	5.0	Chromium	0.05	0.05	0.005
D023	o-Cresol	95-48-7	200.0	2-Methylphenol	0.02	0.02	0.0012
D024	m-Cresol	108-39-4	200.0	—	—	—	—
D025	p-Cresol	106-44-5	200.0	4-Methylphenol	0.02	0.02	0.00078
D026	Cresol [Total] ⁴	1319-77-3	200.0	Methylphenols [Total]	0.04	0.04	0.0012
D016	2,4-D	94-75-7	10.0	2,4-D	0.000	0.000	0.008
D027	1,4-Dichlorobenzene	106-46-7	7.5	1,4-Dichlorobenzene	0.02	0.02	0.001
D028	1,2-Dichloroethane	107-06-2	0.5	1,2-Dichloroethane	0.005	0.005	0.00072
D029	1,1-Dichloroethylene	75-35-4	0.7	1,1-Dichloroethene	0.005	0.005	0.00083
D030	2,4-Dinitrotoluene	121-14-2	0.13	2,4-Dinitrotoluene	0.02	0.02	0.0084
D012	Endrin	72-20-8	0.02	Endrin	0.0005	0.0005	0.00007
D031	Heptachlor	76-44-8	0.008	Heptachlor	0.00025	0.00025	0.000038
D031	Heptachlor epoxide	76-44-8	0.008	Heptachlor epoxide	0.00025	0.00025	0.000029
D032	Hexachlorobenzene	118-74-1	0.13	Hexachlorobenzene	0.02	0.02	0.00095
D033	Hexachlorobutadiene	87-68-3	0.5	Hexachlorobutadiene	0.02	0.02	0.0017
D034	Hexachloroethane	67-72-1	3.0	Hexachloroethane	0.02	0.02	0.001
D008	Lead	7439-92-1	5.0	Lead	0.05	0.015	0.015
D013	Lindane	58-89-9	0.4	γ-BHC (Lindane)	0.00025	0.00025	0.000026
D009	Mercury	7439-97-6	0.2	Mercury	0.002	0.002	0.001
D014	Methoxychlor	72-43-5	10.0	Methoxychlor	0.0025	0.0025	0.00045
D035	Methyl ethyl ketone	78-93-3	200.0	Methyl ethyl ketone	0.01	0.01	0.0011
D036	Nitrobenzene	98-95-3	2.0	Nitrobenzene	0.02	0.02	0.0015
D037	Pentachlorophenol [sic]	87-86-6	100.0	Pentachlorophenol	0.1	0.1	0.0024
D038	Pyridine	110-86-1	5.0	Pyridine	0.04	0.04	0.0077
D010	Selenium	7782-49-2	1.0	Selenium	0.15	0.03	0.016
D011	Silver	7440-22-4	5.0	Silver	0.03	0.03	0.0065
D039	Tetrachloroethylene	127-18-4	0.7	Tetrachloroethene	0.005	0.005	0.00081
D015	Toxaphene	8001-35-2	0.5	Toxaphene	0.012	0.012	0.0011
D040	Trichloroethylene	79-01-6	0.5	Trichloroethene	0.005	0.0021	0.00062
D041	2,4,5-Trichlorophenol	95-95-4	400.0	2,4,5-Trichlorophenol	0.1	0.1	0.001
D042	2,4,6-Trichlorophenol	88-06-2	2.0	2,4,6-Trichlorophenol	0.02	0.02	0.00099
D017	2,4,5-TP (Silvex)	93-72-1	1.0	2,4,5-TP (Silvex)	0.000	0.000	0.002
D043	Vinyl chloride	75-01-4	0.2	Vinyl chloride	0.005	0.005	0.00098

⁴ If o-, m- and p-Cresol concentration cannot be differentiated, the total Cresol (D026) is used. The regulatory level of total cresol is 200 mg/L.

Percent moisture = 23.6% 20.8%

RCRA Review by: SR Smith

Date: 8/1/2008

Checked by: DR SLYWKA

Date: 8/1/2008

Package #: 1

Step 3		Pounds	Grains
Material Weight:		15316.5	6,947,428.9
U.S. =	453.59237	grams	

Notes:

- (1) If special forms use the A_1 value, or if normal form use the A_2 value
- (2) If ≤ 1 , then clip per 49CPR§73.421 or §73.424 (as appropriate); if > 1 , then continue calculations.
- (3) If ≤ 1 , then Type A Quantity; if > 1 , then Type B Quantity and continue calculations for HIRC.
- (4) For 95% lead, multiply $0.95 \times$ (Step 1d Σx) = 98% of the total relative radioactivity per 49CFR§73.431(g)
- (5) If ≤ 1 , then Type B Quantity; if > 1 , then Type B Quantity+HIRC.

YELLOW AREAS MAY NOT BE EDITED

WASTE CLASSIFICATION

Package #: []

Work Volume		Step D		Step E
ft	yd	m	gallon	liter
3.6	3.6			cc
211,657.778	0	0	0	2,707,066

Waste Mass:	Step 1		Waste Mass:	Step 2	
	points	tons		points	tons
5,80E+03			5,80E+03		
26,10E+07	0		26,10E+07	0	

Total alpha TRU		Nucleides		Activity	
35 ± 8 years		Cl	Thg	Cl	Thg
Atomic Number = 22		3.00E-05	1.10E-10		
Isotopes: Am-241					
Am-241Cm-244Cm-246Cm-248Cm-250Cm-252Cm-254Cm-256Cm-258Cm-260Cm-262Cm-264Cm-266Cm-268Cm-270Cm-272Cm-274Cm-276Cm-278Cm-280Cm-282Cm-284Cm-286Cm-288Cm-290Cm-292Cm-294Cm-296Cm-298Cm-300Cm-302Cm-304Cm-306Cm-308Cm-310Cm-312Cm-314Cm-316Cm-318Cm-320Cm-322Cm-324Cm-326Cm-328Cm-330Cm-332Cm-334Cm-336Cm-338Cm-340Cm-342Cm-344Cm-346Cm-348Cm-350Cm-352Cm-354Cm-356Cm-358Cm-360Cm-362Cm-364Cm-366Cm-368Cm-370Cm-372Cm-374Cm-376Cm-378Cm-380Cm-382Cm-384Cm-386Cm-388Cm-390Cm-392Cm-394Cm-396Cm-398Cm-400Cm-402Cm-404Cm-406Cm-408Cm-410Cm-412Cm-414Cm-416Cm-418Cm-420Cm-422Cm-424Cm-426Cm-428Cm-430Cm-432Cm-434Cm-436Cm-438Cm-440Cm-442Cm-444Cm-446Cm-448Cm-450Cm-452Cm-454Cm-456Cm-458Cm-460Cm-462Cm-464Cm-466Cm-468Cm-470Cm-472Cm-474Cm-476Cm-478Cm-480Cm-482Cm-484Cm-486Cm-488Cm-490Cm-492Cm-494Cm-496Cm-498Cm-500Cm-502Cm-504Cm-506Cm-508Cm-510Cm-512Cm-514Cm-516Cm-518Cm-520Cm-522Cm-524Cm-526Cm-528Cm-530Cm-532Cm-534Cm-536Cm-538Cm-540Cm-542Cm-544Cm-546Cm-548Cm-550Cm-552Cm-554Cm-556Cm-558Cm-560Cm-562Cm-564Cm-566Cm-568Cm-570Cm-572Cm-574Cm-576Cm-578Cm-580Cm-582Cm-584Cm-586Cm-588Cm-590Cm-592Cm-594Cm-596Cm-598Cm-600Cm-602Cm-604Cm-606Cm-608Cm-610Cm-612Cm-614Cm-616Cm-618Cm-620Cm-622Cm-624Cm-626Cm-628Cm-630Cm-632Cm-634Cm-636Cm-638Cm-640Cm-642Cm-644Cm-646Cm-648Cm-650Cm-652Cm-654Cm-656Cm-658Cm-660Cm-662Cm-664Cm-666Cm-668Cm-670Cm-672Cm-674Cm-676Cm-678Cm-680Cm-682Cm-684Cm-686Cm-688Cm-690Cm-692Cm-694Cm-696Cm-698Cm-700Cm-702Cm-704Cm-706Cm-708Cm-710Cm-712Cm-714Cm-716Cm-718Cm-720Cm-722Cm-724Cm-726Cm-728Cm-730Cm-732Cm-734Cm-736Cm-738Cm-740Cm-742Cm-744Cm-746Cm-748Cm-750Cm-752Cm-754Cm-756Cm-758Cm-760Cm-762Cm-764Cm-766Cm-768Cm-770Cm-772Cm-774Cm-776Cm-778Cm-780Cm-782Cm-784Cm-786Cm-788Cm-790Cm-792Cm-794Cm-796Cm-798Cm-800Cm-802Cm-804Cm-806Cm-808Cm-810Cm-812Cm-814Cm-816Cm-818Cm-820Cm-822Cm-824Cm-826Cm-828Cm-830Cm-832Cm-834Cm-836Cm-838Cm-840Cm-842Cm-844Cm-846Cm-848Cm-850Cm-852Cm-854Cm-856Cm-858Cm-860Cm-862Cm-864Cm-866Cm-868Cm-870Cm-872Cm-874Cm-876Cm-878Cm-880Cm-882Cm-884Cm-886Cm-888Cm-890Cm-892Cm-894Cm-896Cm-898Cm-900Cm-902Cm-904Cm-906Cm-908Cm-910Cm-912Cm-914Cm-916Cm-918Cm-920Cm-922Cm-924Cm-926Cm-928Cm-930Cm-932Cm-934Cm-936Cm-938Cm-940Cm-942Cm-944Cm-946Cm-948Cm-950Cm-952Cm-954Cm-956Cm-958Cm-960Cm-962Cm-964Cm-966Cm-968Cm-970Cm-972Cm-974Cm-976Cm-978Cm-980Cm-982Cm-984Cm-986Cm-988Cm-990Cm-992Cm-994Cm-996Cm-998Cm-1000Cm-1002Cm-1004Cm-1006Cm-1008Cm-1010Cm-1012Cm-1014Cm-1016Cm-1018Cm-1020Cm-1022Cm-1024Cm-1026Cm-1028Cm-1030Cm-1032Cm-1034Cm-1036Cm-1038Cm-1040Cm-1042Cm-1044Cm-1046Cm-1048Cm-1050Cm-1052Cm-1054Cm-1056Cm-1058Cm-1060Cm-1062Cm-1064Cm-1066Cm-1068Cm-1070Cm-1072Cm-1074Cm-1076Cm-1078Cm-1080Cm-1082Cm-1084Cm-1086Cm-1088Cm-1090Cm-1092Cm-1094Cm-1096Cm-1098Cm-1100Cm-1102Cm-1104Cm-1106Cm-1108Cm-1110Cm-1112Cm-1114Cm-1116Cm-1118Cm-1120Cm-1122Cm-1124Cm-1126Cm-1128Cm-1130Cm-1132Cm-1134Cm-1136Cm-1138Cm-1140Cm-1142Cm-1144Cm-1146Cm-1148Cm-1150Cm-1152Cm-1154Cm-1156Cm-1158Cm-1160Cm-1162Cm-1164Cm-1166Cm-1168Cm-1170Cm-1172Cm-1174Cm-1176Cm-1178Cm-1180Cm-1182Cm-1184Cm-1186Cm-1188Cm-1190Cm-1192Cm-1194Cm-1196Cm-1198Cm-1200Cm-1202Cm-1204Cm-1206Cm-1208Cm-1210Cm-1212Cm-1214Cm-1216Cm-1218Cm-1220Cm-1222Cm-1224Cm-1226Cm-1228Cm-1230Cm-1232Cm-1234Cm-1236Cm-1238Cm-1240Cm-1242Cm-1244Cm-1246Cm-1248Cm-1250Cm-1252Cm-1254Cm-1256Cm-1258Cm-1260Cm-1262Cm-1264Cm-1266Cm-1268Cm-1270Cm-1272Cm-1274Cm-1276Cm-1278Cm-1280Cm-1282Cm-1284Cm-1286Cm-1288Cm-1290Cm-1292Cm-1294Cm-1296Cm-1298Cm-1300Cm-1302Cm-1304Cm-1306Cm-1308Cm-1310Cm-1312Cm-1314Cm-1316Cm-1318Cm-1320Cm-1322Cm-1324Cm-1326Cm-1328Cm-1330Cm-1332Cm-1334Cm-1336Cm-1338Cm-1340Cm-1342Cm-1344Cm-1346Cm-1348Cm-1350Cm-1352Cm-1354Cm-1356Cm-1358Cm-1360Cm-1362Cm-1364Cm-1366Cm-1368Cm-1370Cm-1372Cm-1374Cm-1376Cm-1378Cm-1380Cm-1382Cm-1384Cm-1386Cm-1388Cm-1390Cm-1392Cm-1394Cm-1396Cm-1398Cm-1400Cm-1402Cm-1404Cm-1406Cm-1408Cm-1410Cm-1412Cm-1414Cm-1416Cm-1418Cm-1420Cm-1422Cm-1424Cm-1426Cm-1428Cm-1430Cm-1432Cm-1434Cm-1436Cm-1438Cm-1440Cm-1442Cm-1444Cm-1446Cm-1448Cm-1450Cm-1452Cm-1454Cm-1456Cm-1458Cm-1460Cm-1462Cm-1464Cm-1466Cm-1468Cm-1470Cm-1472Cm-1474Cm-1476Cm-1478Cm-1480Cm-1482Cm-1484Cm-1486Cm-1488Cm-1490Cm-1492Cm-1494Cm-1496Cm-1498Cm-1500Cm-1502Cm-1504Cm-1506Cm-1508Cm-1510Cm-1512Cm-1514Cm-1516Cm-1518Cm-1520Cm-1522Cm-1524Cm-1526Cm-1528Cm-1530Cm-1532Cm-1534Cm-1536Cm-1538Cm-1540Cm-1542Cm-1544Cm-1546Cm-1548Cm-1550Cm-1552Cm-1554Cm-1556Cm-1558Cm-1560Cm-1562Cm-1564Cm-1566Cm-1568Cm-1570Cm-1572Cm-1574Cm-1576Cm-1578Cm-1580Cm-1582Cm-1584Cm-1586Cm-1588Cm-1590Cm-1592Cm-1594Cm-1596Cm-1598Cm-1600Cm-1602Cm-1604Cm-1606Cm-1608Cm-1610Cm-1612Cm-1614Cm-1616Cm-1618Cm-1620Cm-1622Cm-1624Cm-1626Cm-1628Cm-1630Cm-1632Cm-1634Cm-1636Cm-1638Cm-1640Cm-1642Cm-1644Cm-1646Cm-1648Cm-1650Cm-1652Cm-1654Cm-1656Cm-1658Cm-1660Cm-1662Cm-1664Cm-1666Cm-1668Cm-1670Cm-1672Cm-1674Cm-1676Cm-1678Cm-1680Cm-1682Cm-1684Cm-1686Cm-1688Cm-1690Cm-1692Cm-1694Cm-1696Cm-1698Cm-1700Cm-1702Cm-1704Cm-1706Cm-1708Cm-1710Cm-1712Cm-1714Cm-1716Cm-1718Cm-1720Cm-1722Cm-1724Cm-1726Cm-1728Cm-1730Cm-1732Cm-1734Cm-1736Cm-1738Cm-1740Cm-1742Cm-1744Cm-1746Cm-1748Cm-1750Cm-1752Cm-1754Cm-1756Cm-1758Cm-1760Cm-1762Cm-1764Cm-1766Cm-1768Cm-1770Cm-1772Cm-1774Cm-1776Cm-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06Cm-3208Cm-3210Cm-3212Cm-3214Cm-3216Cm-3218Cm-3220Cm-3222Cm-3224Cm-3226Cm-3228Cm-3230Cm-3232Cm-3234Cm-3236Cm-3238Cm-3240Cm-3242Cm-3244Cm-3246Cm-3248Cm-3250Cm-3252Cm-3254Cm-3256Cm-3258Cm-3260Cm-3262Cm-3264Cm-3266Cm-3268Cm-3270Cm-3272Cm-3274Cm-3276Cm-3278Cm-3280Cm-3282Cm-3284Cm-3286Cm-3288Cm-3290Cm-3292Cm-3294Cm-3296Cm-3298Cm-3300Cm-3302Cm-3304Cm-3306Cm-3308Cm-3310Cm-3312Cm-3314Cm-3316Cm-3318Cm-3320Cm-3322Cm-3324Cm-3326Cm-3328Cm-3330Cm-3332Cm-3334Cm-3336Cm-3338Cm-3340Cm-3342Cm-3344Cm-3346Cm-3348Cm-3350Cm-3352Cm-3354Cm-3356Cm-3358Cm-3360Cm-3362Cm-3364Cm-3366Cm-3368Cm-3370Cm-3372Cm-3374Cm-3376Cm-3378Cm-3380Cm-3382Cm-3384Cm-3386Cm-3388Cm-3390Cm-3392Cm-3394Cm-3396Cm-3398Cm-3400Cm-3402Cm-3404Cm-3406Cm-3408Cm-3410Cm-3412Cm-3414Cm-3416Cm-3418Cm-3420Cm-3422Cm-3424Cm-3426Cm-3428Cm-3430Cm-3432Cm-3434Cm-3436Cm-3438Cm-3440Cm-3442Cm-3444Cm-3446Cm-3448Cm-3450Cm-3452Cm-3454Cm-3456Cm-3458Cm-3460Cm-3462Cm-3464Cm-3466Cm-3468Cm-3470Cm-3472Cm-3474Cm-3476Cm-3478Cm-3480Cm-3482Cm-3484Cm-3486Cm-3488Cm-3490Cm-3492Cm-3494Cm-3496Cm-3498Cm-3500Cm-3502Cm-3504Cm-3506Cm-3508Cm-3510Cm-3512Cm-3514Cm-3516Cm-3518Cm-3520Cm-3522Cm-3524Cm-3526Cm-3528Cm-3530Cm-3532Cm-3534Cm-3536Cm-3538Cm-3540Cm-3542Cm-3544Cm-3546Cm-3548Cm-3550Cm-3552Cm-3554Cm-3556Cm-3558Cm-3560Cm-3562Cm-3564Cm-3566Cm-3568Cm-3570Cm-3572Cm-3574Cm-3576Cm-3578Cm-3580Cm-3582Cm-3584Cm-3586Cm-3588Cm-3590Cm-3592Cm-3594Cm-3596Cm-3598Cm-3600Cm-3602Cm-3604Cm-3606Cm-3608Cm-3610Cm-3612Cm-3614Cm-3616Cm-3618Cm-3620Cm-3622Cm-3624Cm-3626Cm-3628Cm-3630Cm-3632Cm-3634Cm-3636Cm-3638Cm-3640Cm-3642Cm-3644Cm-3646Cm-3648Cm-3650Cm-3652Cm-3654Cm-3656Cm-3658Cm-3660Cm-3662Cm-3664Cm-3666Cm-3668Cm-3670Cm-3672Cm-3674Cm-3676Cm-3678Cm-3680Cm-3682Cm-3684Cm-3686Cm-3688Cm-3690Cm-3692Cm-3694Cm-3696Cm-3698Cm-3700Cm-3702Cm-3704Cm-3706Cm-3708Cm-3710Cm-3712Cm-3714Cm-3716Cm-3718Cm-3720Cm-3722Cm-3724Cm-3726Cm-3728Cm-3730Cm-3732Cm-3734Cm-3736Cm-3738Cm-3740Cm-3742Cm-3744Cm-3746Cm-3748Cm-3750Cm-3752Cm-3754Cm-3756Cm-3758Cm-3760Cm-3762Cm-3764Cm-3766Cm-3768Cm-3770Cm-3772Cm-3774Cm-3776Cm-3778Cm-3780Cm-3782Cm-3784Cm-3786Cm-3788Cm-3790Cm-3792Cm-3794Cm-3796Cm-3798Cm-3800Cm-3802Cm-3804Cm-3806Cm-3808Cm-3810Cm-3812Cm-3814Cm-3816Cm-3818Cm-3820Cm-3822Cm-3824Cm-3826Cm-3828Cm-3830Cm-3832Cm-3834Cm-3836					

Total all with 50 ≤ δ years	Nurtured	Activities	
		Cl	Th
Example 1: C=0.8, C=0.49, M=0.54, M=0.56, N=0.95, Z=0.85			
Total Activity =			

Co-13A, Fe-55
Fe-59, Mn-54, Mn-56
Nb-94, Zn-65

Surveys	Activity	
	C	Tue
Total Activity =	0.75	0

	Activity	
	Cl ⁻	Ilg.
Nitrides		
	3.00E-09	1.11E-10
Total Activity =	3.00E+09	1.11E-10

$$\begin{aligned} \text{Cl} &= \text{Thq} \times 27.03 \\ \text{mCl} &= \text{Cthq} \times 27.03 \\ \text{nCl} &= \text{Xthq} \times 27.03 \\ \text{oCl} &= \text{Bq} \times 0.02703 \\ \text{pCl} &= \text{Mq} \times 27.03 \\ \text{Thq} &= 0.037 \times \text{Cl} \\ \text{Cthq} &= 0.037 \times \text{mCl} \\ \text{Xthq} &= 0.037 \times \text{nCl} \\ \text{Bq} &= 37 \times \text{oCl} \\ \text{Mq} &= 0.037 \times \text{pCl} \end{aligned}$$
[illegible]

Table II	Activity	Activity	Activity	Site	ES
Radionuclides	C1	Thb	act	Step 3	ac
Total all with $1/2 < 5 \text{ years}$	0	0.0007-0.03	0.0003-0.05	0.0010-0.05	
H-3			0.0005-0.05	0.0005-0.05	
C-14			0.0005-0.05	0.0005-0.05	
N-14 (inc.)			0.0005-0.05	0.0005-0.05	
Se-90			0.0005-0.05	0.0005-0.05	
C-132			0.0005-0.05	0.0005-0.05	

YELLOW AREAS MAY NOT BE EDITED

TABLE 1	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6		Step 7	
						Class B (low) n/E/green	Class C (low) n/E/green	Step 6 n/E/green	Step 7 n/E/green
1-mg dried Radiation filter	Concentration 1.18E-01	Class A (low) Active	Step B 4.15E-01			Step 6 n/E/green	Step 7 n/E/green	Step 8 n/E/green	Step 9 n/E/green
C-14	0.0001-00	6.72	4.15E-01			7.2	4.15E-01	0.0001-00	0.0001-00
C-14 (red, med.)	0.0001-00	7.2	0.0001-00			72	0.0001-00	0.0001-00	0.0001-00
Na-24 (red, med.)	0.0001-00	19.8	0.0001-00			198	0.0001-00	0.0001-00	0.0001-00
Na-24 (red, med.)	0.0001-00	0.018	0.0001-00			0.18	0.0001-00	0.0001-00	0.0001-00
Na-24 (red, med.)	0.0001-00	0.72	0.0001-00			7.2	0.0001-00	0.0001-00	0.0001-00
15-99	0.0001-00	0.0072	0.0001-00			0.072	0.0001-00	0.0001-00	0.0001-00
1-19	0.0001-00								
	Concentration n/E/green	Class A (low) n/E/green							
Total alpha ERE	1.18E-06	9	1.36E-07			99	1.36E-08		
50-5 years	0.0001-00	9	0.0001-00			90	0.0001-00		
66-226	0.0001-00	31.8	0.0001-00			318	0.0001-00		
Pv-241	0.0001-00	1800	0.0001-00			18000	0.0001-00		
Class-242	0.0001-00								
		N =	4.15E-01			S =	0.0001-00		

TABLE II	Step II	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7
Superficial Radiation Total Time 1st & 5 years	Concentration pCtC	Cross A pCtC	Steel II pCtC	Cross B pCtC	Steel II pCtC	Cross C pCtC	Steel II pCtC
H-3	0.0001-0.00	6.50	0.0002-0.00	15.50-16.50	Time not in matrix		
C-40	0.0003-0.00					6.50	0.0001-0.00
Sr-85	0.0003-0.00	3.15	0.0002-0.00	6.50		5.50	0.0003-0.00
Nb-95 (total metal)	0.0003-0.00	31.5	0.0003-0.00	135		6.50	0.0003-0.00
Sr-90	0.0001-0.00	0.036	0.0002-0.00	39.5		41.60	0.0001-0.00
C-137	0.0001-0.00	0.9	0.0002-0.00	39.5			0.0001-0.00
		Σ		Σ		Σ	

CLASS A WASTE

YELLOW AREAS MAY NOT BE EDITED