DEPARTMENT OF THE ARMY
US ARMY CHEMICAL SCHOOL
401 MANSCEN LOOP
FORT LEONARD WOOD, MISSOURI 65473-8926

REPLY TO
ATTENTION OF:

January 2, 2003

Health Physics Office

Ms. Orysia Masnyk Bailey
U. S. Nuclear Regulatory Commission, Region II
Division of Nuclear Materials Safety
Sam Nunn Atlanta Federal Building
61 Forsyth Street SW Suite 23T85
Atlanta, GA 30303-8931

Dear Ms Bailey:

Enclosed is the Final Radiological Status Report, Fort McClellan, Pelham Range "Burial Mound" from Allied Technology Group (ATG), dated October 2002. Request this report be included as part of the remediation activities under NRC Materials License Number 01-02861-05, Docket Number 030-17584. Also enclosed is a completed NRC Form 314, Certificate of Disposition of Materials.

If you have any questions or require clarification on any of the information above, please contact Mr. John May at (573) 596-0131 extension 3-6224.

Sincerely,

Gary R. Wallace
Colonel, U.S. Army
Assistant Commandant

Enclosures

FINAL RADIOLOGICAL STATUS REPORT

Ft. McClellan

Pelham Range "Burial Mound"

Allied Technology Group Inc.
1550 Bear Creek Rd.
Kingston, TN 37763

October 2002

NRC FORM 314 (6-95)
10 CFR 30.36(c)(1)(iv)
10 CFR 40.42(c)(1)(iv)
10 CFR 70.38(c)(1)(iv)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0028 EXPIRES: 06/30/98

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 30 MINUTES. THIS SUBMITTAL IS USED BY NRC AS PART OF THE BASIS FOR ITS DETERMINATION THAT THE FACILITY HAS BEEN CLEARED OF RADIOACTIVE MATERIAL BEFORE THE FACILITY IS RELEASED FOR UNRESTRICTED USE. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0028), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503. AN AGENCY MAY NOT CONDUCT OR SPONSOR, AND A PERSON IS NOT REQUIRED TO RESPOND TO, A COLLECTION OF INFORMATION UNLESS IT DISPLAYS A CURRENTLY VALID OMB CONTROL NUMBER.

CERTIFICATE OF DISPOSITION OF MATERIALS

INSTRUCTIONS: ALL ITEMS MUST BE COMPLETED -- PRINT OR TYPE
SEND THE COMPLETED CERTIFICATE TO THE NRC OFFICE SPECIFIED ON THE REVERSE

LICENSEE NAME AND ADDRESS	LICENSE NUMBER
U. S. Army Chemical School 401 MANSCEN Loop, Suite 1843 Fort Leonard Wood, MO 65473-8926	01-02861-05
	LICENSE EXPIRATION DATE 31 March, 2003

A. MATERIALS DATA *(Check one and complete as necessary)*

THE LICENSEE OR ANY INDIVIDUAL EXECUTING THIS CERTIFICATE ON BEHALF OF THE LICENSEE CERTIFIES THAT:
(Check and/or complete the appropriate item(s) below.)

[ ] 1. NO MATERIALS HAVE EVER BEEN PROCURED OR POSSESSED BY THE LICENSEE UNDER THIS LICENSE.

OR

[X] 2. ALL ACTIVITIES AUTHORIZED BY THE LICENSE HAVE CEASED AND ALL MATERIALS PROCURED AND/OR POSSESSED BY THE LICENSEE UNDER THE LICENSE NUMBER CITED ABOVE HAVE BEEN DISPOSED OF IN THE FOLLOWING MANNER. *(If additional space is needed, use the reverse side or provide attachments.)*

Describe specific material transfer actions and, if there were radioactive wastes generated in terminating this license, the disposal actions including the disposition of low-level radioactive waste, mixed waste, Greater-than-Class-C waste, and sealed sources, if applicable.
The residual contamination in the soil at the Pelham Range "Burial Mound" was disposed of by Allied Technology Group as part of a contract to remediate site. See "Final Radiological Status Report, Fort McClellan, Pelham Range", dated October 2002.

For transfers, specify the date of the transfer, the name of the licensed recipient, and the recipient's NRC license number or Agreement State name and license number.

If materials were disposed of directly by the licensee rather than transferred to another licensee, licensed disposal site or waste contractor, describe the specific disposal procedures *(e.g., decay in storage)*.

B. OTHER DATA

[X] 1. OUR LICENSE HAS NOT YET EXPIRED; PLEASE TERMINATE IT.

2. A RADIATION SURVEY WAS CONDUCTED BY THE LICENSEE TO CONFIRM THE ABSENCE OF LICENSED RADIOACTIVE MATERIALS AND TO DETERMINE WHETHER ANY CONTAMINATION REMAINS ON THE PREMISES COVERED BY THE LICENSE. *(Check one)*

[ ] NO *(Attach explanation)*
[X] YES, THE RESULTS *(Check one)*
[X] ARE ATTACHED, or
[ ] WERE FORWARDED TO NRC ON *(Date)*

3. THE PERSON TO BE CONTACTED REGARDING THE INFORMATION PROVIDED ON THIS FORM	NAME	TELEPHONE NUMBER *(Include Area Code)*
	John W. May, Health Physics Manager	(573)596-0131 ext 36224

4. MAIL ALL FUTURE CORRESPONDENCE REGARDING THIS LICENSE TO
U.S. Army Chemical School, Health Physics Office,
401 MANSCEN Loop, Suite 1843, Fort Leonard Wood, MO 65473

CERTIFYING OFFICIAL

I CERTIFY UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT

PRINTED NAME AND TITLE	SIGNATURE	DATE
GARY R. WALLACE Colonel, U.S.Army, Assistant	Gary R. Wallace	2 Jan 2003

WARNING: FALSE STATEMENTS IN THIS CERTIFICATE MAY BE SUBJECT TO CIVIL AND/OR CRIMINAL PENALTIES. NRC REGULATIONS REQUIRE THAT SUBMISSIONS TO THE NRC BE COMPLETE AND ACCURATE IN ALL MATERIAL RESPECTS. 18 U.S.C. SECTION 1001 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTIONS.

FINAL RADIOLOGICAL STATUS REPORT

Ft. McClellan

Pelham Range "Burial Mound"

Allied Technology Group Inc.
1550 Bear Creek Rd.
Kingston, TN 37763

October 2002

Final Radiological Status Report
Ft. McClellan, Pelham Range "Burial Mound"
Allied Technology Group Inc.

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1.0 Background Information

Fort McClellan is comprised of three parts, the Main Post, the Choccolocco Corridor, and the Pelham Range occupying 45,679 acres adjacent to Anniston, Alabama. The Main Post encompasses 19,000 acres and contains the majority of the facilities. The Choccolocco Corridor, approximately 4,500 acres, is leased from the State of Alabama and connects the Main Post with the Talladega National Forest to the east. Pelham Range consists of approximately 22,000 acres west of the Main Post.

The Army Base Closure and Realignment Committee (BRAC) identified Fort McClellan as an installation for closure. ATG determined acceptable site-specific concentrations for use as guideline values and has developed the comprehensive methodology to effect the removal and disposal of radiologically contaminated material in the 'Burial Mound' and perform a survey for the unconditional release of the area. The mound is contaminated with Cs-137 and Co-60. Disposition of the primary and incidental secondary waste streams shall be at Envirocare of Utah, or other licensed/authorized recipient.

The history of the base included training exercises for the Army Chemical Corp. for simulated large area radioactive contamination (fallout) from the surface detonation
of a small yield (less than 0.5 kiloton) nuclear weapon. The training concept was to raise and lower sealed radioactive sources, and have students perform both ground and aerial surveys to map the radiological fallout pattern. The training facility was utilized to train Radiation Control Teams in support of nuclear weapons testing performed by the Atomic Energy Commission (AEC). There was an AEC license issued for use of the sealed sources.

The Old Rideout Field used locally fabricated Co-60 sources and higher activity commercially procured Cs-137 sources. While the Co-60 sources were used to simulate a uniform fallout pattern, the Cs-137 sources were used to simulate hot spots within the fallout pattern. An excessive number of leaking locally fabricated Co-60 sources contributed to the formation of the on-site 'Burial Mound' for use as an interim on-site disposal cell. The contaminated soil resulting from historically leaking sources was accumulated and transported to the location is now designated as the 'Burial Mound'.

2.0 Site Information

2.1 Site Description

The actual 'Burial Mound' is observed as a slight elevation standing secluded from adjacent woodlands and drainage areas by open land all around. The 'Burial Mound' is located at the northwest corner of Pelham

Range, at the northern end of the Battle Drill Area of Range 24C. The mound is oblong in shape and is approximately 25 meters long by 15 meters wide at coordinates 593300 meters East, 3732500 meters North in Universal Transverse Mercator (UTM) Grid Zone 16. Ref: Industrial Radiation Study No. 27-MH-0987-R2-97, U.S. Army Center for Health Promotion and Preventive Medicine.

The mound was an irregular pile of soil to approximately 6' elevation above the surrounding grade, and covered with light vegetation. The footprint encompasses parts of six grids (10 m x 10 m), and contamination has been observed to a depth of 12' below grade.

The area surrounding the 'Burial Mound' was utilized as a training area for students at the U.S. Army Chemical and Military Police Schools, Active Duty Units, Reserve Units and Alabama National Guard Units. Subsequent to BRAC action, the area including the present 'Burial Mound' is to be remediated and turned over to the State for use by the National Guard.

2.2 Site Conditions at the Time of the Final Survey

In order to remediated the site the "Burial Mound" and 8 associated grids were excavated to a depth of ~4 meters (12 feet) below natural grade.

All material from the excavation was processed and monitored to determine the presence of radioactive material. Processing and monitoring was accomplished by placing the soil through a shredder/conveyor system.

The soil was fed into a hopper where it was chopped, shredded and fed onto a conveyor belt. The conveyor system passed the soil under an array of ten (10) 2in x 2in NaI detectors. Details of the system are found in Reference 1.

Those materials that were identified to exceed the DCGLs were packaged in intermodal containers and shipped for disposal, and the soils that were below the DCGLs were backfilled into the excavation and the site graded.

All site grading was completed. All equipment had been removed from the site.

2.3 Identity of Contaminants

Radiological characterization of the 'Burial Mound' was performed by the U.S. Army Center for Health Promotion and Preventive Medicine (CHPPM), reference Industrial Radiation Study No. 27-MH-0987-R2-97, Pelham Range Burial Mound Site, Fort McClellan, Alabama, 29 August - 15 September 1995 and 14 - 28 January 1996. The survey followed much

of the protocols of NUREG/CR-5849, including background determination, walkover surface scans, hole logging, and sample analysis. A total of 571 systematic random and select bias samples were analyzed for radiological parameters. Both elevated Co-60 and Cs-137 were observed in surface soil samples, but only elevated Co-60 was found in subsurface samples. Surveys and analysis performed during the remediation process indicated both Cs-137 and Co-60 contamination in the excavated material.

2.4 Waste Disposal

Site remediation resulted in the generation of 17 intermodal containers of waste soil, approximately 2000 pounds of contaminated Pb, and several items with discreet points of activity that were unacceptable for disposal with the soil waste stream.

Soil was shipped to Envirocare of Utah for disposal; Pb was shipped to both NSSI in Houston, TX and Permafix in Gainesville, FL. Discreet sources that had no Pb associated with them were shipped to the Duratek consolidation facility in Barnwell, SC; those that had Pb associated with them were shipped to NSSI in Houston.

Copies of the associated shipping papers are included in Appendix G.

2.5 Temporary Storage Area

Prior to shipping, all of the intermodal containers were moved to a temporary storage area in the paved parking lot of the SOTS-A site on the "Gate 5 road" on Pelham range. The NRC approved an amendment to the site license to provide for temporary storage of the material.

The containers were moved to allow access for shipping. The safety areas established around other work that conducted onsite would have prevented access to the worksite during the shipping campaign.

Prior to movement all of the containers were surveyed for loose surface contamination and gamma dose rates. All survey results were less than the applicable DOT transportation limits.

While the material was staged the site was posted as a "Radioactive Material Storage Area" and "Radiation Area". When the shipping campaign was complete a walk over survey was performed using a 2x2 NaI detector connected to a Ludlum Model 12 survey instrument. No contamination was detected and the postings were removed from the area.

3.0 Final Status Survey Overview

3.1 Survey Objectives

The purpose of the FSS was to demonstrate that the radiological conditions at the area of the "Burial Mound" and the areas utilized in the processing and monitoring of the material excavated from the vicinity of the Burial Mound satisfy the NRC approved release limits. The area can, therefore, be released from licensing restrictions for future use without radiological controls.

3.2 Organization and Responsibilities

ATG personnel performed the surveys and sampling required to complete the FSS.

Samples were shipped to ATG laboratory personnel at ATG's radiological materials processing facilities in Richland, WA, and Oak Ridge, TN, for analysis. Duplicate and split samples were sent to independent radiological laboratories in Richland, WA (Severn Trent Labs). This analytical laboratory was evaluated by ATG and determined to satisfactorily meet Corporate Quality Assurance (QA) requirements.

Site personnel reported to the ATG Project Manager for direction and supervision during performance of the project, and were briefed on the technical requirements of the Decommissioning Plan.

3.3 Instrumentation

Reference 1 provides a description, with associated sensitivities, of the survey instruments used during the FSS. The combination of instrumentation and technique were chosen to provide detection sensitivity capable of verifying the approved release limits. All instruments were calibrated and performance checked. Calibration records are provided in Appendix B.

3.4 Survey Procedures

Survey planning and procedures were developed and conducted In Accordance With (IAW) Reference 2. Procedures are briefly described in this section, with further detail provided in Section 6 of Reference 1.

Minimum Detectable Activities (MDA) for the conveyor survey system was determined as a part of the development of reference 1 (Site D&D

plan), the relevant appendix from the approved plan is included in Appendix H.

3.4.1 Area Classification

All of the material in the 8 grids (10m x 10m) that defined the mound and the area immediately surrounding it was excavated to a depth of 12 ft (4m) and all of the excavated material was processed and monitored to determine the presence of radioactive material above the release limits.

Due to the relocation of the material previously present in the Burial Mound during the sorting process, the entire site area was designated as a Class 1 area and was gamma scanned at 100% coverage. There were no Class 2 or 3 areas in this survey.

3.4.2 Reference Grids

A reference grid system was established, IAW Reference 1, to: facilitate selection of sampling and measurement locations; link sample analytical data to locations; and enable data analysis and averaging to ensure compliance with the release limits. The grid system was laid out in the north-south and east west directions. Ten-meter square (10m x 10m) grids were used for the subject outside area grid. A survey record, designating the assignment of grid points, is provided as Appendix A.

3.4.3 Surface Scans

All onsite excavation and grading was performed prior to commencement of the FSS with the exception of the bottom of the excavation. The below grade surface at the bottom of the excavation was scanned and sampled upon completion of the excavation activities.

Soil scans were performed using Ludlum 44-10 NaI 2" x 2" detectors attached to a Ludlum Model 12 count-rate instrument. As described in Reference 1, the instruments were held within a few inches of the ground surface, with scans conducted at a probe movement rate of less than 0.5 m/s. All areas received a 100% scan.

While scanning the technician paid particular attention to the audible response from the insturment to indicate the presence of concentrated activity. The instrument count rate was recorded every 2 meters during the survey in order identify potential trends.

The MDA for the NaI scan of the site is determined in reference 4. The relevant table from NUREG 1507, showing the MDA for both Cs-137 and Co-60, is included in Appendix H.

The results of these measurements are discussed in Section 4.3.

3.4.4 Exposure Rate Measurements

Exposure-rate measurements were taken using a Ludlum Model 2221 with a 2x2 NaI detector. Measurements were taken for .5 min at the location of each sample point, at a distance of one meter (1 m) from the surface.

Section 6.8.3 of Reference 1 states that "Exposure rates in uR/h will be used as a surrogate measurement to demonstrate compliance with the concentration criteria for Co-60 and Cs-137 in surface soil." It further specifies the exposure rate readings be correlated to readings taken with a Pressurized Ion Chamber and that the results will be tested using the statistical approach specified in Ref 2 (MARSSIM).

3.4.5 Soil Sampling

Soil samples were collected daily from processed soil and in accordance with MARSSIM guidance for the FSS. The original intent of the plan was to perform much of the gamma spectroscopy analysis onsite. Upon setup onsite it was determined that the power supplied from generators and temperature shifts made operation of an onsite system gamma spectroscopy system impractical. As a result, the site decommissioning plan was amended and all soil samples were shipped offsite to the ATG laboratories in WA and TN for analysis.

3.4.6 Quality Assurance Samples

The NRC, the EPA, and the State of Alabama collected duplicate samples from Area A (bottom of the excavation).

Ten percent of the samples collected as a part of the FSS were sent to an independent laboratory for analysis.

3.5 Background Level Determinations

An extensive background investigation was performed in ref. 3. The background investigation determined the background levels for various nuclides including the contaminants Cs-137 and Co-60 and the

background dose rate for the site. Table 3-1 summarizes the results of this study.

Review of the background information shows that for the purposes determining site release both Cs-137 and Co- 60 can be assumed not to be present in background. When the FSS soil samples were evaluated against the DCGLs the background concentrations of Cs-137 and Co-60 were assumed to be zero

Table 3-1 Reconnaissance Background

Nuclide	Low pCi/g	High pCi/g	Avg pCi/g	MDA
Co-60	<MDA	<MDA	<MDA	0.2 pCi/g
Cs-137	<MDA	1.6	0.55	0.2 pCi/g

Table 3-2 Troop Assembly Area Background

Nuclide	Low pCi/g	High pCi/g	Avg pCi/g	MDA
Co-60	<MDA	<MDA	<MDA	0.2 pCi/g
Cs-137	<MDA	0.3	.12*	0.2 pCi/g

- Note: avg. activity from ref. 3. This calculated average is less than MDA for the analysis.

Table 3-3 Background Gamma Dose Rate

Location	NaI Background	NaI Avg. Background	HPIC Background	HPIC Avg. Background
Reconnaissance	3.99 – 7.53 uR/hr	5.3 uR/hr	5.8 – 11.6 uR/hr	8.24 uR/hr
Troop Assembly Area	5.65 – 5.90 uR/hr	5.7 uR/hr	7.2 – 10.2 uR/hr	8.7 uR/hr

3.6 Sample Analysis

The soil samples were packaged and shipped to ATG's radiological materials processing facilities Oak Ridge, TN, for analysis. Duplicate and split samples were sent to independent radiological laboratories in Richland WA. (Severn Trent Labs) All samples were analyzed by gamma spectrometry equipment, which had been calibrated, and performance checked using NIST-traceable sources.

3.7 Data Interpretation

Data was evaluated as it was collected by technicians in the field and was reviewed but the site supervisor. The completed final data packages were then evaluated again during the report compilation.

Reference 2 section 8.2.5 gives the following guidance. "When the data clearly shows that a survey unit meets or exceeds the release criterion, the result is often obvious without performing the formal statistical analysis." It further states in table 8.2 that if all measurements are below the DCGL that the Survey unit meets the release criterion.

Review of the soil analysis shows that all samples are less than the DCGL as determined for this site. As such the site meets the release criterion to be removed from license controls.

3.8 Records

All original survey records and associated documentation, as described herein, will be maintained by ATG, IAW applicable quality record retention requirements, until such time as authorized by the NRC for disposal.

4.0 Survey Findings and Results

Data is found in Appendices C, D, and E as described herein.

4.1 Ground Surveys

<u>Scans</u>

All areas of the site were surveyed by direct gamma scan using a 2x2 NaI detector attached to a Ludlum Mod 12 rate meter instrument. The scans were conducted by swinging the detector in a serpentine fashion across the

grid at ~ 0.5 m/sec while paying particular attention to the instruments audible response.

The initial scan of area A (excavation) was conducted sub grade (-4m) prior to refilling with processed soil, an additional scan was performed after the excavation was re-filled.

Review of the data shows that Area A has consistently higher readings.

No "hot spots" or areas of discrete activity were observed.

Scan results are attached in Appendix C.

Exposure Rates

Exposure rates were determined by correlating .5 min counts with a 2x2 NaI detector attached to a Ludlum model 2221 scaler/rate meter.

Data was collected at 1m above the surface at the same locations where soil samples were collected.

Efforts to develop correlation factors have identified flaws in this methodology that result in significant error in the adjusted data.

The pressurized ion chamber provides an accurate energy compensated measurement, while the NaI provides an un-compensated measurement of events.

The radionuclides of concern on the site Cs-137 and Co-60 have significantly different gamma energies (.663MeV for Cs-137 and 1.173MeV and 1.332MeV for Co-60) and as such the ratio of Cesium to Cobalt used for correlation measurements directly affects the results. After reviewing the information collected with the pressurized ion chamber it was determined that it did not provide useful data.

In addition, this protocol is commonly used to determine the condition of a site without performing extensive soil sampling. In the case of the "Burial Mound" sufficient soil samples have been collected and analyzed to determine final status of the site. This section also called for the data to be tested by the Wilcoxon Rank Sum test; however, Ref 2 section 2.2 recommends this test for contaminants that are naturally occurring. The background concentration of the two contaminants in the burial mound, Co-60 and Cs-137, is effectively zero. Cobalt-60 does not appear in background and Cs-137 appears at 3% or less of the $DCGL_{Cs137}$.

The raw count data collected in this portion of the survey is reported in Appendix E. The data does demonstrate that the general area radiation level above Area A is elevated in comparison to background and the surrounding survey units. This elevation is attributed to the residual Co-60 activity in the material used to fill the excavation. The processed soil sample data documents the presence of residual Co-60 activity at approximately 15% of the $DCGL_{Co\text{-}60}$.

The subject instruments were calibrated using NIST traceable calibration sources with calibration fields that had been verified using pressurized ion chamber instruments.

Soil Samples

Soil Samples were collected IAW reference 1. Samples collected during the FSS were collected from the first 15cm of soil and analyzed by Gamma Spectroscopy for Cs-137 and Co-60 concentrations. The derived cleanup guidelines developed for soil are **2.3 pCi/g Co-60** and **9.2 pCi/g Cs-137** as agreed upon and approved in Ref 1. These are based on a dose rate of 25 mrem/y, as stipulated in 10 CFR 20.

Review of the soil sample data shows that none of the samples collected in either the FSS or from the processed soil exceeds the DCGLs for either Co-60 or Cs-137.

In addition, application of the unity rule to all samples in all cases results in a sum of the fraction < 1. The site clearly meets the release criterion.

Sample results are provided in Appendix E.

4.2 Data Evaluation

Scans of the site indicated no "hot spots" or areas concentrated areas with elevated activity.

All soil sample concentrations are less that the DCGL's developed for the site.

General area radiation levels in Survey Unit A (excavation area) are elevated above those of the surrounding areas. Review of the processed soil sample data shows that the majority of the samples have concentrations of Co-60 and Cs-137 that exceed background. This low level of residual activity is responsible for the elevated readings in the vicinity of Area A. All sample concentrations are below the DCGL established for the site.

4.3 Residual Activity Inventory

Residual activity is present in the material used to re-fill the excavation. Based on the results of processed soil samples the average Co-60 activity in soil is 0.343pCi/g (~15% of the limit) and the average Cs-137 concentration is 0.211 pCi/g (~2% of the limit). Both of these are significantly below the DCGLs determined for this site.

5.0 Summary

The FSS of the "Burial Mound" and adjacent areas was conducted to meet the requirements of Reference 2. Results of the survey demonstrate that the decontamination actions were effective in reducing residual activity at the site to meet the limits for release for unrestricted use.

6.0 References

1. "U.S. Army Fort McClellan, Fort McClellan, Alabama HQ, IOC Project Number USA 98-046, PHASE II, 'BURIAL MOUND' DECOMMISSIONING PLAN ATG Inc., Oak Ridge, TN; March 2001

2. The Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)

3. U.S. Army Center for Health Promotion and Preventive Medicine (CHPPM), reference Industrial Radiation Study No. 27-MH-0987-R2-97, Pelham Range Burial Mound Site, Fort McClellan, Alabama, 29 August - 15 September 1995 and 14 - 28 January 1996

4. NUREG-1507 - Minimum Detectable Concentrations With Typical Radiation Survey Instruments For Various Contaminants And Field Conditions

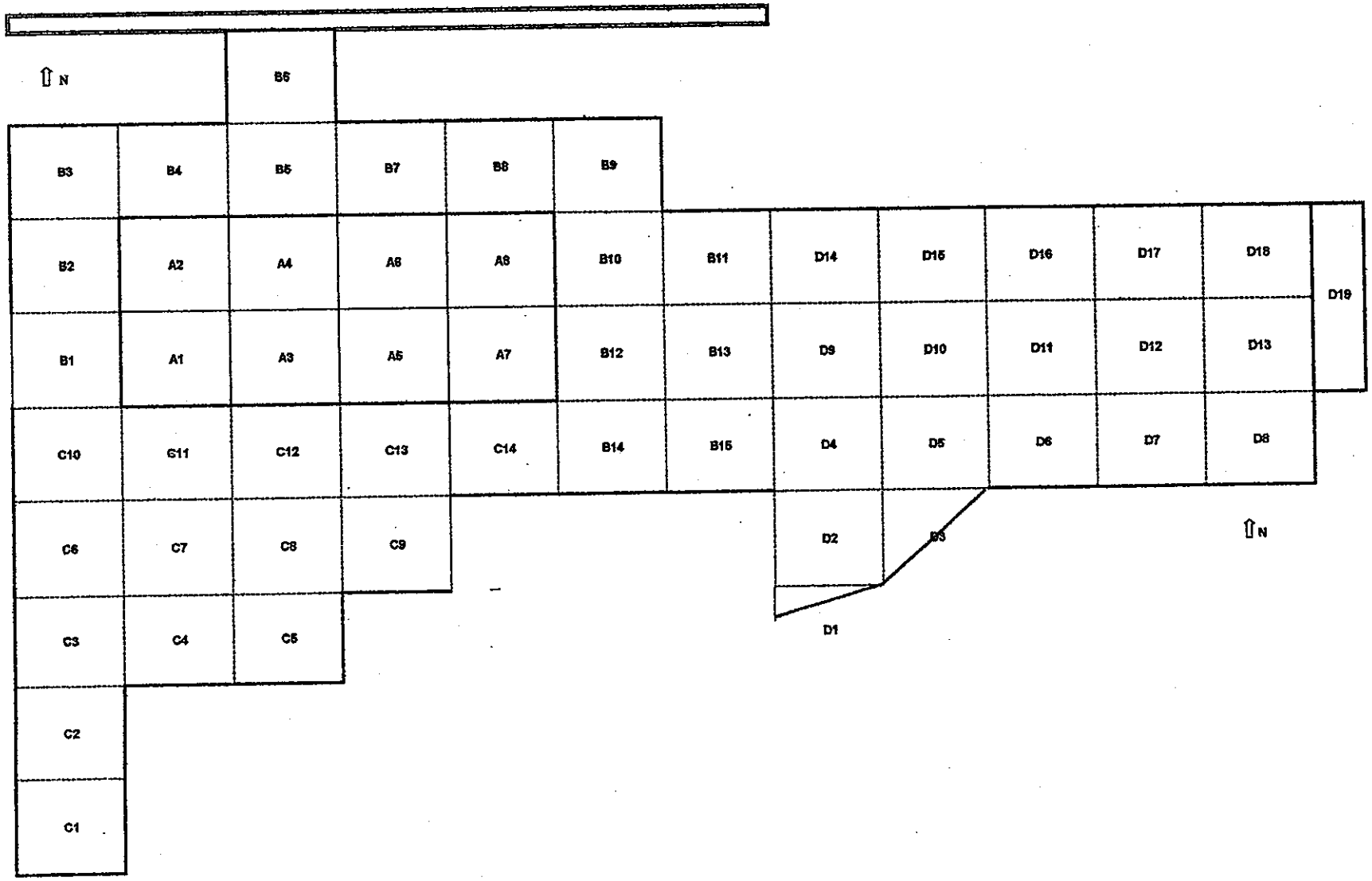
APPENDIX A

GRID MAP

ATG Burial Mound Project - Pelham Range
Final Status Survey
Performed By: J. Coleman

Overview of Site

All Grids are 10m x 10m with the exception of Grid D-19 (5m x 20m) and Two partial Grids D-1 and D-3



ATG Burial Mound Project - Pehlam Range
Final Status Survey
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 2-28-02
Detector ID # 132949 Cal Due: 2-28-02

N

Area A - Burial Mound Pit			
A2	A4	A6	A8
A1	A3	A5	A7

ATG Burial Mound Project - Pelham Range
Final Status Survey
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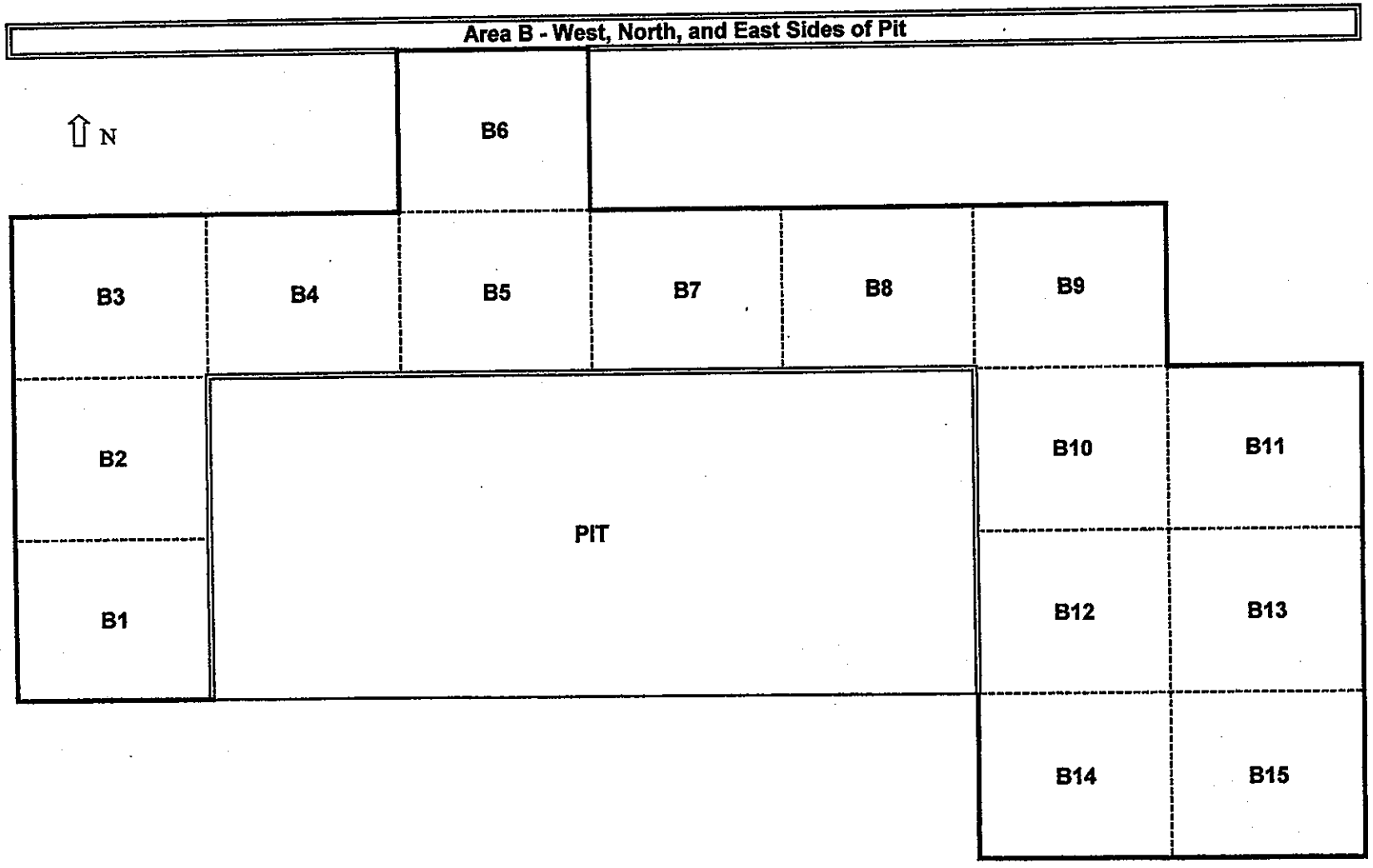

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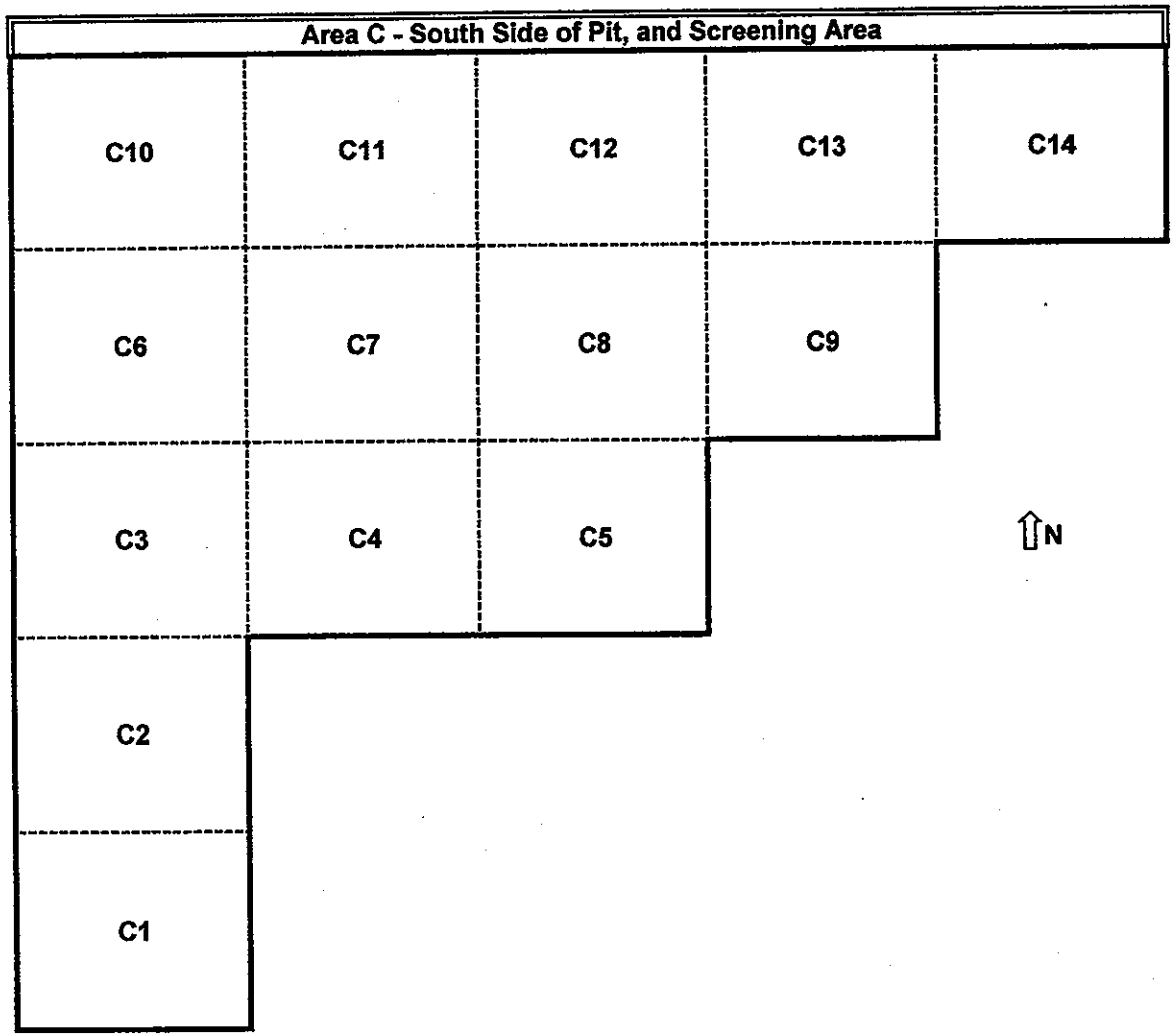

ATG Burial Mound Project - Pehlam Range
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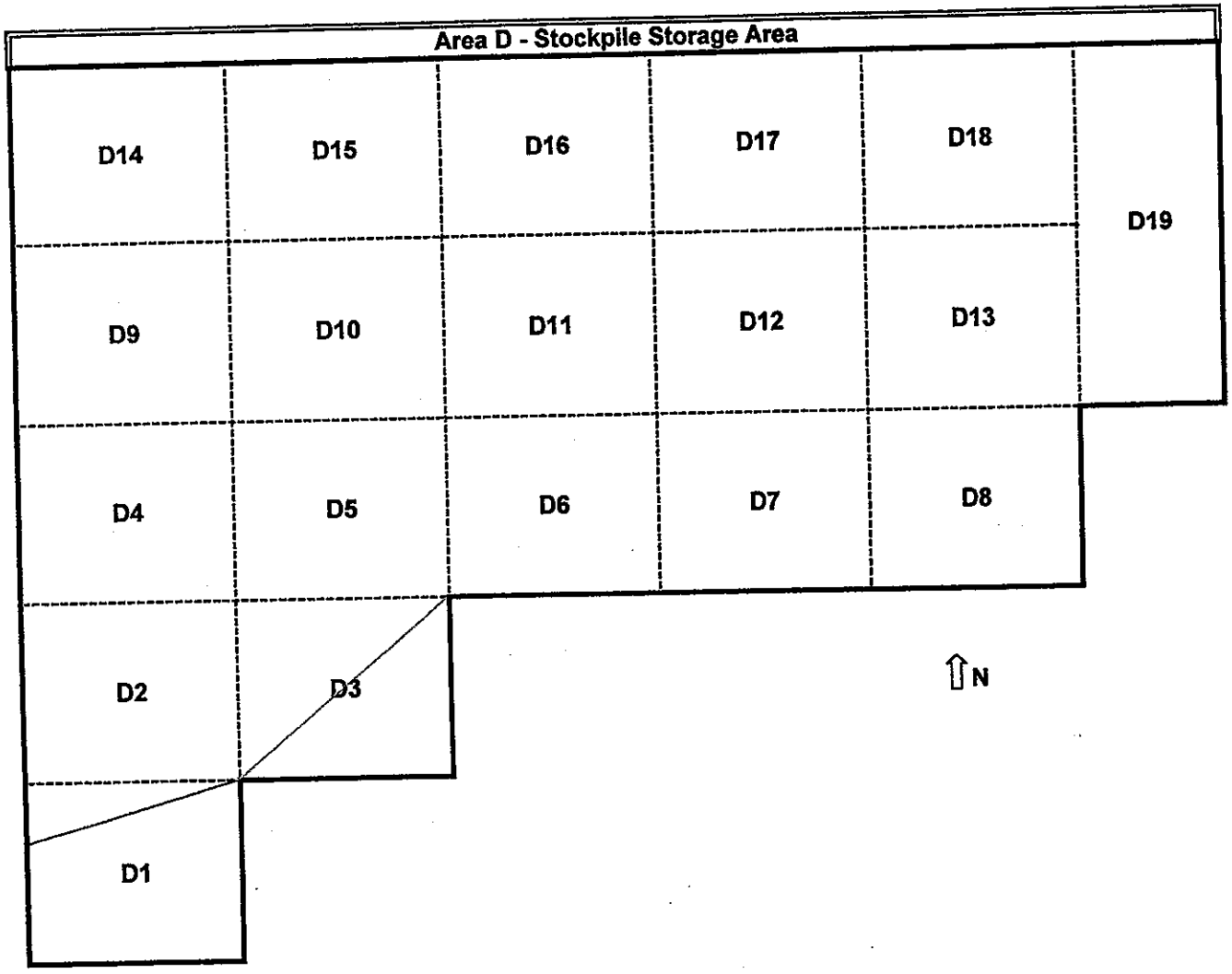


APPENDIX B

INSTRUMENT CALIBRATION RECORDS

ATG Calibration Record

Inst. Number: 93221 Model: LM-177 Cal. Date: 1/1/2002

Calibration Instruments					
Type	Number	Cal. Due Date	Type	Number	Cal. Due Date
Pulser	137572	10/15/2002	Temp.	2780	3/28/2002
Voltmeter	75300255	3/26/2002	Pressure	2780	3/28/2002
O-Scope	N/A	N/A	Humidity	N/A	N/A
Timer	N/A	N/A			

Count Rate/Scaler Calibration

Temp.: 67.2 deg.F Pressure: 28.93 in Hg Humidity: N/A

Scale	Target Value	Tolerances Min.	Tolerances Max.	Measurements As Found	Measurements As Left	Percent Error As Found	Percent Error As Left
X1	100	80	120	*	100	#VALUE!	0.0%
	250	200	300	*	250	#VALUE!	0.0%
	400	320	480	*	400	#VALUE!	0.0%
X10	1,000	800	1,200	*	1,000	#VALUE!	0.0%
	2,500	2,000	3,000	*	2,500	#VALUE!	0.0%
	4,000	3,200	4,800	*	4,000	#VALUE!	0.0%
X100	10,000	8,000	12,000	*	10,000	#VALUE!	0.0%
	25,000	20,000	30,000	*	25,000	#VALUE!	0.0%
	40,000	32,000	48,000	*	40,000	#VALUE!	0.0%
X1K	100,000	80,000	120,000	*	100,000	#VALUE!	0.0%
	250,000	200,000	300,000	*	250,000	#VALUE!	0.0%
	400,000	320,000	480,000	*	400,000	#VALUE!	0.0%

Comments: * Initial use. "AsFound" not required.

Other Calibration Parameters	As Found	As Left
Zero	*	0
High Voltage	*	900
Threshold (mV)	*	10
HV Indication:	*	900
Overrange	N/A	N/A
Audio	SAT	SAT

Detector Compatibility:*
GM SCINT Proport.
(Circle One)

** Use Specific Detector:
Type: 44-10
Number: 132947

* Indicate the default detector settings only if the instrument is NOT calibrated to a specific detector. Attach a limited use sticker that identifies: Threshold, Voltage, and detector that can be used with the calibration settings, as appropriate.

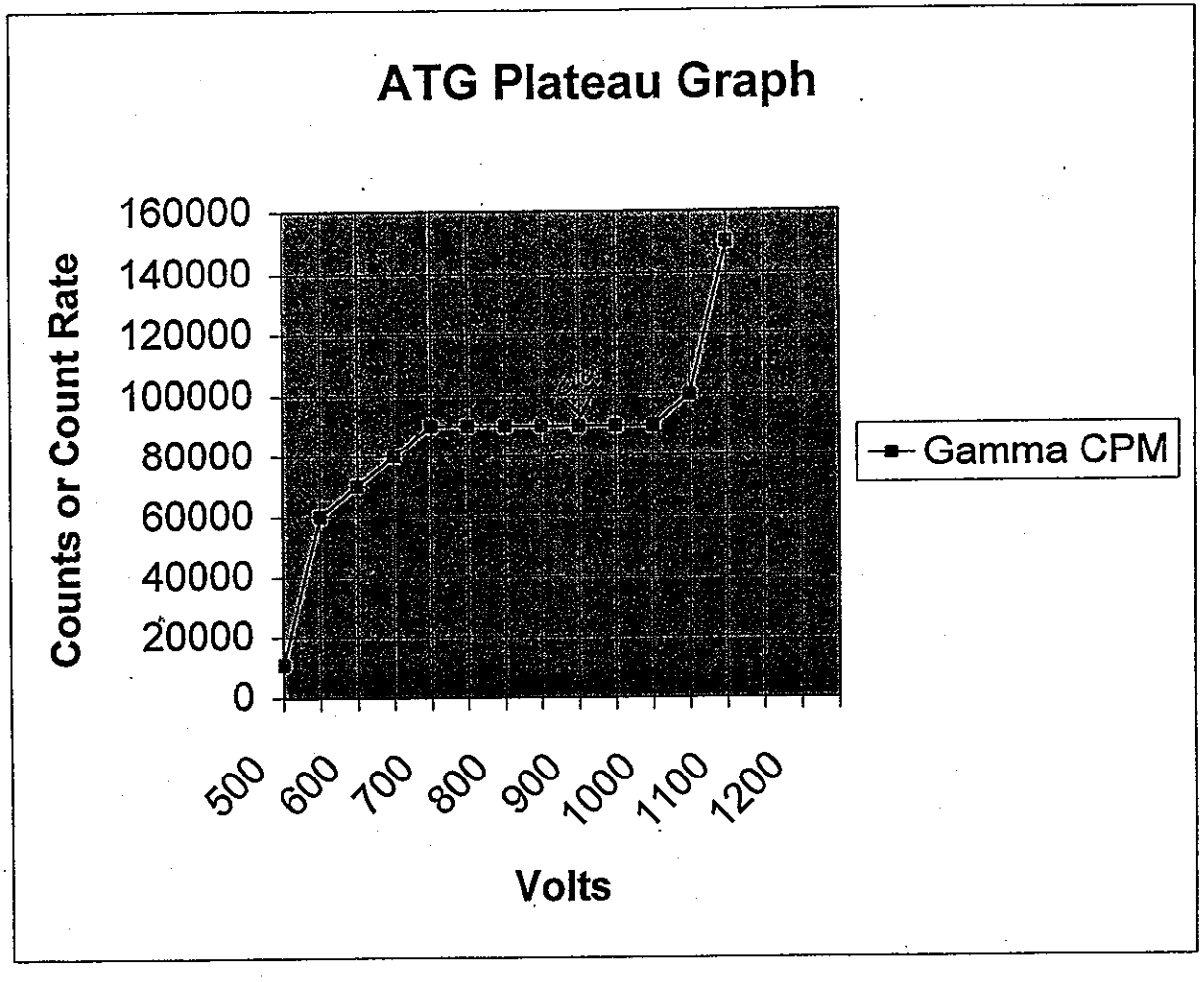
** A limited use sticker is required specifying the detector.

Calibrator (Print): Kevin Wright Calibrator (Signature): K Wright

Reviewed By: Scott AB Next Calibration Due: 1/1/2003

ATG Detector Setup Record

Volts	Gamma CPM	Bkgd CPM
500	11000	
550	60000	
600	70000	
650	80000	
700	90000	
750	90000	
800	90000	
850	90000	
900	90000	18000
950	90000	
1000	90000	
1050	100000	
1100	150000	
1150		
1200		
1250		



Operating Voltage: 900

Detector Model: **44-10**
Detector Number: **132947**

Instrument Assigned
Instrument Model: LM-177
Instrument Number: 93221
Sensitivity: **10mV**

Date: **1/1/2002**

Performed By: _____

Next Due: **1/1/2003**

Reviewed By: _____

O.V. - Operating Voltage

Gamma Source: Q96 Mixed Gamma
Activity: 5.67E+05 Gamma Emissions

Contact Efficiency: 12.7% (4 pi)

ATG Calibration Record

Inst. Number: 85723 Model: LM-177 Cal. Date: 1/1/2002

Calibration Instruments					
Type	Number	Cal. Due Date	Type	Number	Cal. Due Date
Pulser	137572	10/15/2002	Temp.	2780	3/28/2002
Voltmeter	75300255	3/26/2002	Pressure	2780	3/28/2002
O-Scope	N/A	N/A	Humidity	N/A	N/A
Timer	N/A	N/A			

Count Rate/Scaler Calibration

Temp.: 67.2 deg.F Pressure: 28.93 in Hg Humidity: N/A

Scale	Target Value	Tolerances		Measurements		Percent Error	
		Min.	Max.	As Found	As Left	As Found	As Left
X1	100	80	120	*	100	#VALUE!	0.0%
	250	200	300	*	250	#VALUE!	0.0%
	400	320	480	*	400	#VALUE!	0.0%
X10	1,000	800	1,200	*	1,000	#VALUE!	0.0%
	2,500	2,000	3,000	*	2,500	#VALUE!	0.0%
	4,000	3,200	4,800	*	4,000	#VALUE!	0.0%
X100	10,000	8,000	12,000	*	10,000	#VALUE!	0.0%
	25,000	20,000	30,000	*	25,000	#VALUE!	0.0%
	40,000	32,000	48,000	*	40,000	#VALUE!	0.0%
X1K	100,000	80,000	120,000	*	100,000	#VALUE!	0.0%
	250,000	200,000	300,000	*	250,000	#VALUE!	0.0%
	400,000	320,000	480,000	*	400,000	#VALUE!	0.0%

Comments: * Initial use. "AsFound" not required.

Other Calibration Parameters			
	As Found	As Left	
Zero	*	0	Detector Compatibility:*
High Voltage	*	900	GM (SCINT.) Proport.
Threshold (mV)	*	10	(Circle One)
HV Indication:	*	900	** Use Specific Detector:
Overrange	N/A	N/A	Type: 44-10
Audio	SAT	SAT	Number: 181831

* Indicate the default detector settings only if the instrument is NOT calibrated to a specific detector. Attach a limited use sticker that identifies: Threshold, Voltage, and detector that can be used with the calibration settings, as appropriate.

** A limited use sticker is required specifying the detector.

Calibrator (Print): Kevin Wright Calibrator (Signature): KWright

Reviewed By: Scott A. Next Calibration Due: 1/1/2003

ATG Detector Setup Record

Volts	Gamma CPM	Bkgd CPM
500	40000	
550	60000	
600	80000	
650	90000	
700	100000	
750	100000	
800	100000	
850	100000	
900	110000	15000
950	110000	
1000	110000	
1050	110000	
1100	110000	
1150	110000	
1200	110000	
1250	160000	

Operating Voltage: 900

Detector Model:	**44-10**
Detector Number:	**181831**
Instrument Assigned	
Instrument Model:	LM-177
Instrument Number:	85723

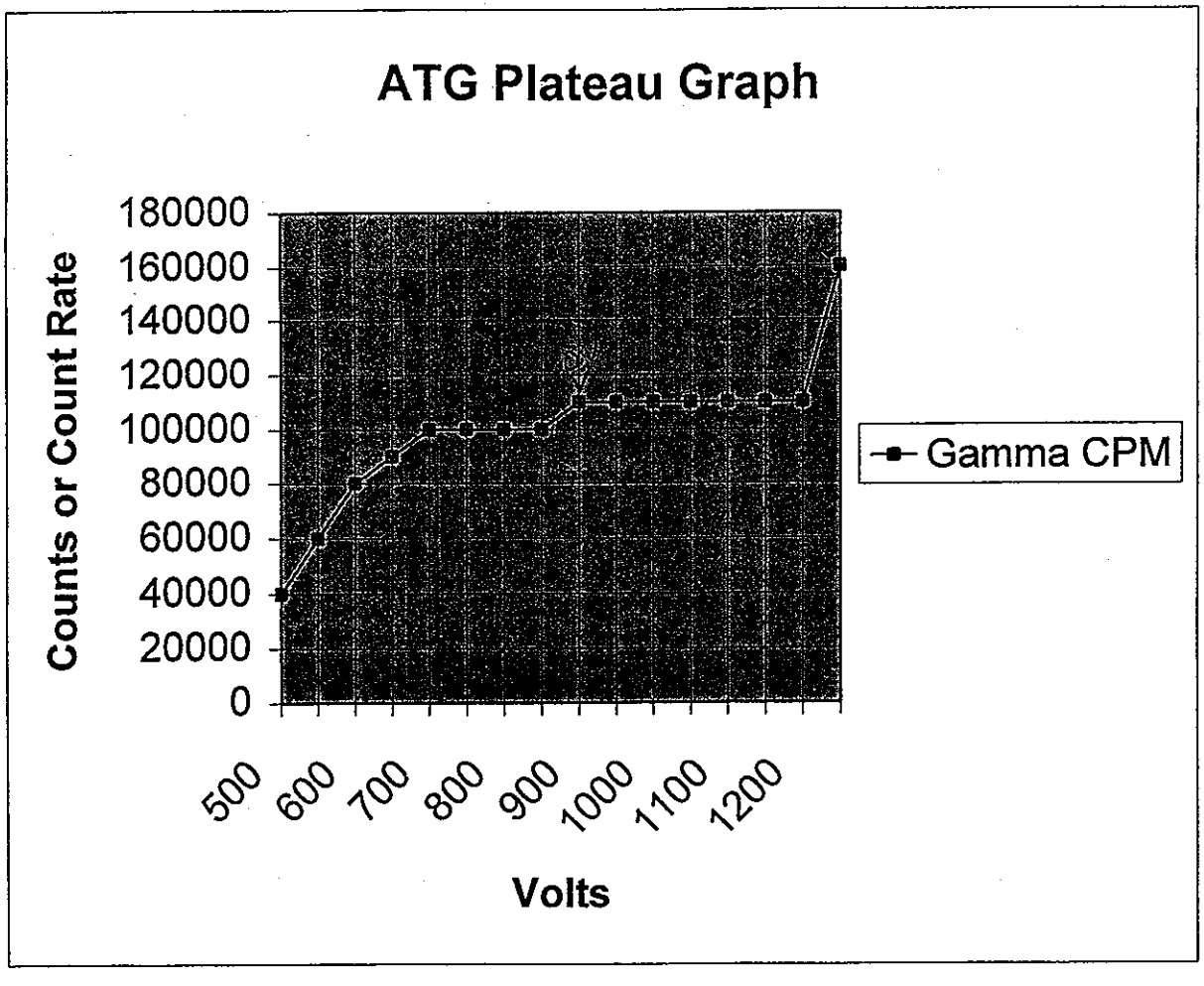
Sensitivity: **10mV**

Date: **1/1/2002**

Performed By: _____

Next Due: **1/1/2003**

Reviewed By: _____



O.V. - Operating Voltage

Gamma Source: Q96 Mixed Gamma

Activity: 5.67E+05 Gamma Emissions

Contact Efficiency: 16.8% (4 pi)

ATG Calibration Record

Inst. Number: 93211 Model: LM-177 Cal. Date: 1/1/2002

Calibration Instruments					
Type	Number	Cal. Due Date	Type	Number	Cal. Due Date
Pulser	137572	10/15/2002	Temp.	2780	3/28/2002
Voltmeter	75300255	3/26/2002	Pressure	2780	3/28/2002
O-Scope	N/A	N/A	Humidity	N/A	N/A
Timer	N/A	N/A			

Count Rate/Scaler Calibration

Temp.: 64.4 deg.F Pressure: 28.96 in Hg Humidity: N/A

Scale	Target Value	Tolerances Min.	Tolerances Max.	Measurements As Found	Measurements As Left	Percent Error As Found	Percent Error As Left
X1	100	80	120	*	100	#VALUE!	0.0%
	250	200	300	*	250	#VALUE!	0.0%
	400	320	480	*	400	#VALUE!	0.0%
X10	1,000	800	1,200	*	1,000	#VALUE!	0.0%
	2,500	2,000	3,000	*	2,500	#VALUE!	0.0%
	4,000	3,200	4,800	*	4,000	#VALUE!	0.0%
X100	10,000	8,000	12,000	*	10,000	#VALUE!	0.0%
	25,000	20,000	30,000	*	25,000	#VALUE!	0.0%
	40,000	32,000	48,000	*	40,000	#VALUE!	0.0%
X1K	100,000	80,000	120,000	*	100,000	#VALUE!	0.0%
	250,000	200,000	300,000	*	250,000	#VALUE!	0.0%
	400,000	320,000	480,000	*	400,000	#VALUE!	0.0%

Comments: * Initial use. "AsFound" not required.

Other Calibration Parameters	As Found	As Left
Zero	*	0
High Voltage	*	1000
Threshold (mV)	*	10
HV Indication:	*	1000
Overrange	N/A	N/A
Audio	SAT	SAT

Detector Compatibility:*
GM SCINT Proport.
(Circle One)

** Use Specific Detector:
Type: 44-10
Number: 130526

* Indicate the default detector settings only if the instrument is NOT calibrated to a specific detector. Attach a limited use sticker that identifies: Threshold, Voltage, and detector that can be used with the calibration settings, as appropriate.

** A limited use sticker is required specifying the detector.

Calibrator (Print): Kevin Wright Calibrator (Signature): [signature]

Reviewed By: [signature] Next Calibration Due: 1/1/2003

ATG Detector Setup Record

Volts	Gamma CPM	Bkgd CPM
500	100	
550	200	
600	500	
650	8000	
700	13000	
750	32000	
800	42000	
850	50000	
900	60000	
950	70000	
1000	80000	14000
1050	80000	
1100	80000	
1150	80000	
1200	80000	
1250	80000	

Operating Voltage: **1000**

Detector Model: **44-10**
Detector Number: **130526**

Instrument Assigned
Instrument Model: LM-177
Instrument Number: 93211

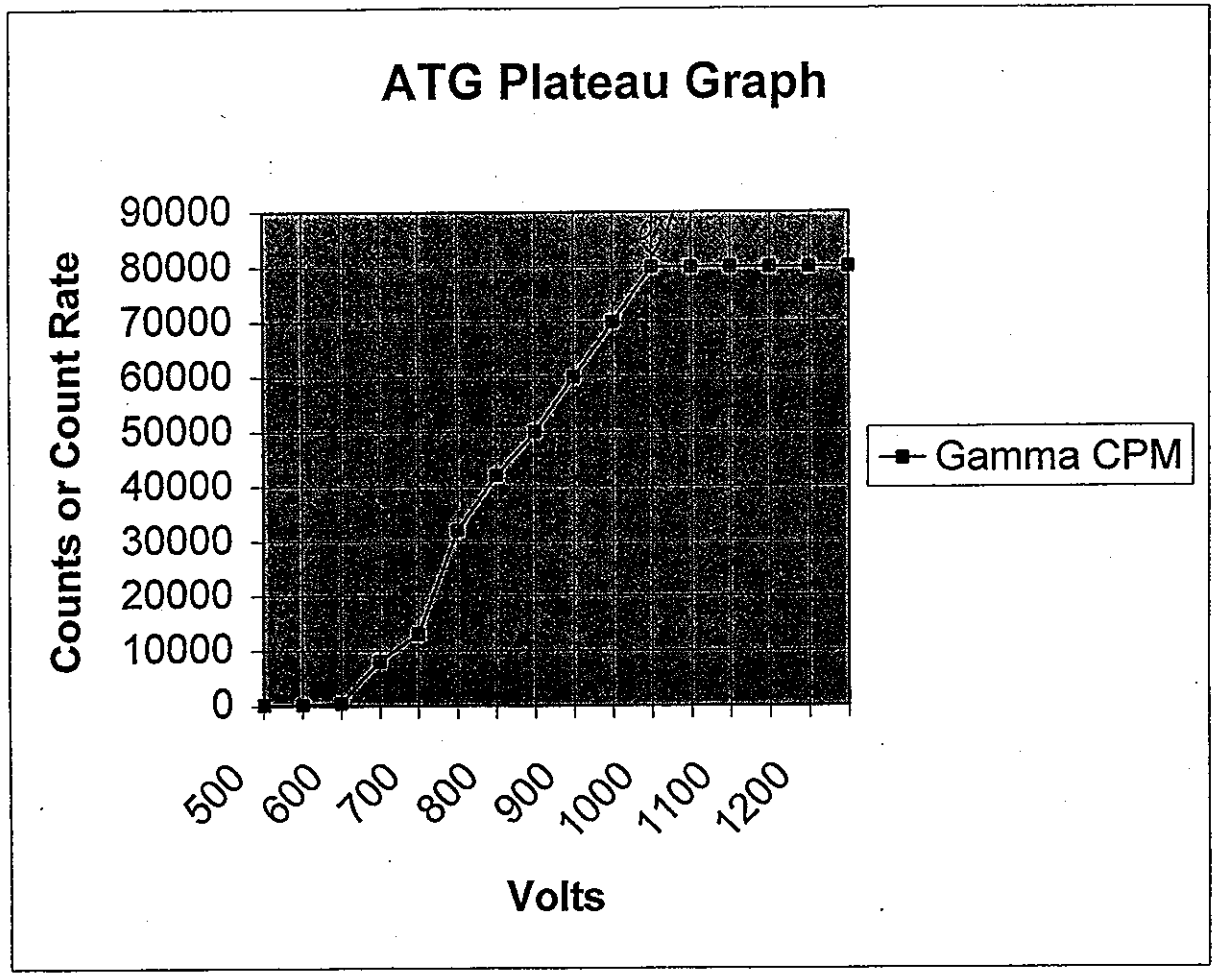
Sensitivity: **10mV**

Date: **1/1/2002**

Performed By: _____

Next Due: **1/1/2003**

Reviewed By: _____



O.V. - Operating Voltage

Gamma Source: Q96 Mixed Gamma
Activity: 5.67E+05 Gamma Emissions

Contact Efficiency: 11.6% (4 pi)

ATG Calibration Record

Inst. Number: 89935 Model: LM-177 Cal. Date: 1/1/2002

Calibration Instruments					
Type	Number	Cal. Due Date	Type	Number	Cal. Due Date
Pulser	137572	10/15/2002	Temp.	2780	3/28/2002
Voltmeter	75300255	3/26/2002	Pressure	2780	3/28/2002
O-Scope	N/A	N/A	Humidity	N/A	N/A
Timer	N/A	N/A			

Count Rate/Scaler Calibration

Temp.: 64.4 deg.F Pressure: 28.96 in Hg Humidity: N/A

Scale	Target Value	Tolerances Min.	Tolerances Max.	Measurements As Found	Measurements As Left	Percent Error As Found	Percent Error As Left
X1	100	80	120	*	100	#VALUE!	0.0%
	250	200	300	*	250	#VALUE!	0.0%
	400	320	480	*	400	#VALUE!	0.0%
X10	1,000	800	1,200	*	1,000	#VALUE!	0.0%
	2,500	2,000	3,000	*	2,500	#VALUE!	0.0%
	4,000	3,200	4,800	*	4,000	#VALUE!	0.0%
X100	10,000	8,000	12,000	*	10,000	#VALUE!	0.0%
	25,000	20,000	30,000	*	25,000	#VALUE!	0.0%
	40,000	32,000	48,000	*	40,000	#VALUE!	0.0%
X1K	100,000	80,000	120,000	*	100,000	#VALUE!	0.0%
	250,000	200,000	300,000	*	250,000	#VALUE!	0.0%
	400,000	320,000	480,000	*	400,000	#VALUE!	0.0%

Comments: * Initial use. "AsFound" not required.

Other Calibration Parameters	As Found	As Left
Zero	*	0
High Voltage	*	900
Threshold (mV)	*	10
HV Indication:	*	900
Overrange	N/A	N/A
Audio	SAT	SAT

Detector Compatibility:*
GM (SCINT.) Proport.
(Circle One)

** Use Specific Detector:
Type: 44-10
Number: 181829

* Indicate the default detector settings only if the instrument is NOT calibrated to a specific detector. Attach a limited use sticker that identifies: Threshold, Voltage, and detector that can be used with the calibration settings, as appropriate.

** A limited use sticker is required specifying the detector.

Calibrator (Print): Kevin Wright Calibrator (Signature): [signature]

Reviewed By: [signature] Next Calibration Due: 1/1/2003

ATG Detector Setup Record

Volts	Gamma CPM	Bkgd CPM
500	20000	
550	50000	
600	70000	
650	90000	
700	100000	
750	100000	
800	100000	
850	110000	
900	110000	15000
950	110000	
1000	110000	
1050	110000	
1100	110000	
1150	110000	
1200	120000	
1250	130000	

Operating Voltage: **900**

Detector Model: **44-10**
Detector Number: **181829**

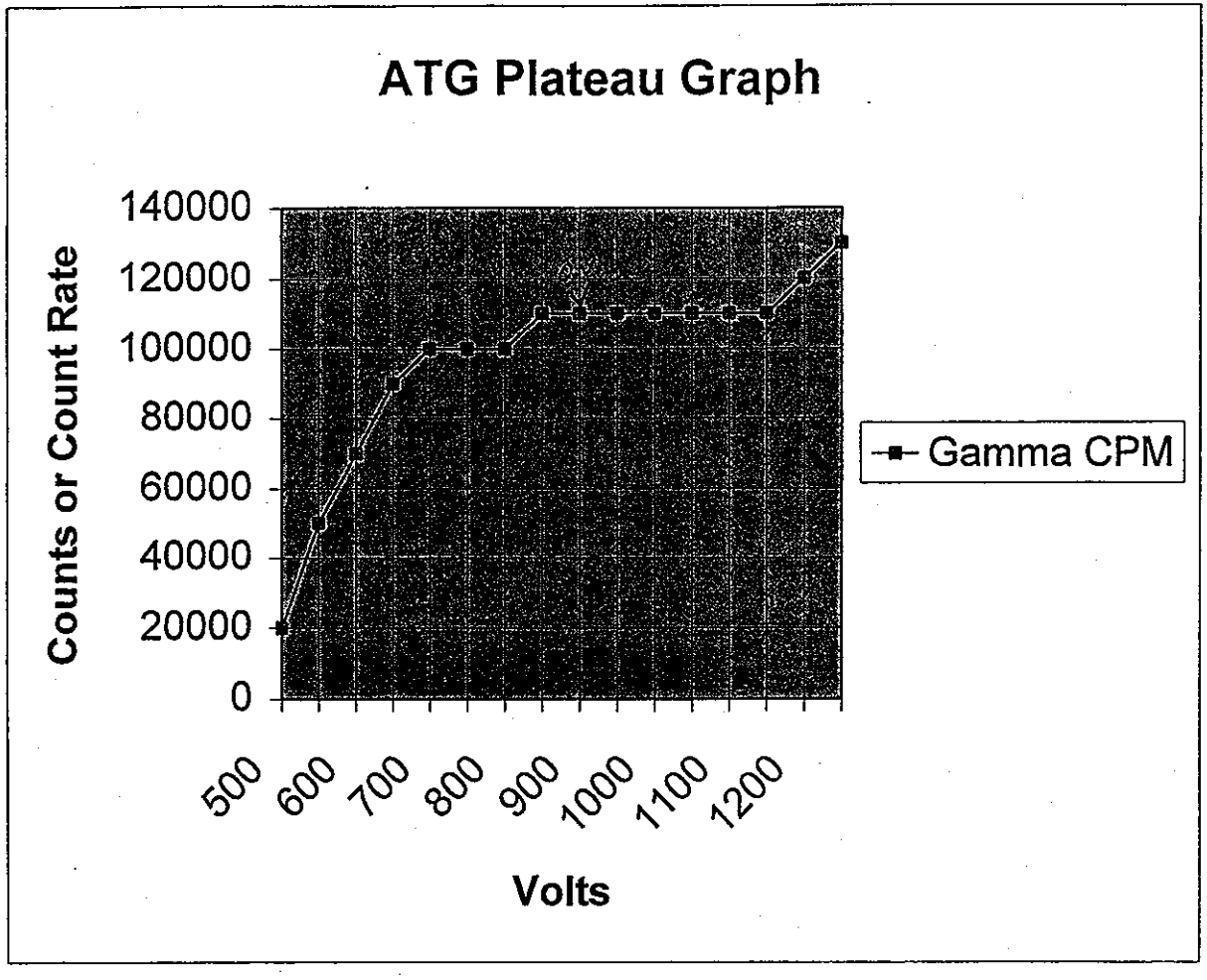
Instrument Assigned
Instrument Model: LM-177
Instrument Number: 89935
Sensitivity: **10mV**

Date: **1/1/2002**

Performed By: _____

Next Due: **1/1/2003**

Reviewed By: _____



O.V. - Operating Voltage

Gamma Source: Q96 Mixed Gamma
Activity: 5.67E+05 Gamma Emissions Contact Efficiency: 16.8% (4 pi)

ATG Calibration Record

Inst. Number: 93286 Model: LM-177 Cal. Date: 1/1/2002

Calibration Instruments					
Type	Number	Cal. Due Date	Type	Number	Cal. Due Date
Pulser	137572	10/15/2002	Temp.	2780	3/28/2002
Voltmeter	75300255	3/26/2002	Pressure	2780	3/28/2002
O-Scope	N/A	N/A	Humidity	N/A	N/A
Timer	N/A	N/A			

Count Rate/Scaler Calibration

Temp.: 64.4 deg.F Pressure: 28.96 in Hg Humidity: N/A

Scale	Target Value	Tolerances		Measurements		Percent Error	
		Min.	Max.	As Found	As Left	As Found	As Left
X1	100	80	120	*	100	#VALUE!	0.0%
	250	200	300	*	250	#VALUE!	0.0%
	400	320	480	*	400	#VALUE!	0.0%
X10	1,000	800	1,200	*	1,000	#VALUE!	0.0%
	2,500	2,000	3,000	*	2,500	#VALUE!	0.0%
	4,000	3,200	4,800	*	4,000	#VALUE!	0.0%
X100	10,000	8,000	12,000	*	10,000	#VALUE!	0.0%
	25,000	20,000	30,000	*	25,000	#VALUE!	0.0%
	40,000	32,000	48,000	*	40,000	#VALUE!	0.0%
X1K	100,000	80,000	120,000	*	100,000	#VALUE!	0.0%
	250,000	200,000	300,000	*	250,000	#VALUE!	0.0%
	400,000	320,000	480,000	*	400,000	#VALUE!	0.0%

Comments: * Initial use. "AsFound" not required.

Other Calibration Parameters			
	As Found	As Left	
Zero	*	0	Detector Compatibility:*
High Voltage	*	900	GM (SCINT) Proport.
Threshold (mV)	*	10	(Circle One)
HV Indication:	*	900	** Use Specific Detector:
Overrange	N/A	N/A	Type: 44-10
Audio	SAT	SAT	Number: 181317

* Indicate the default detector settings only if the instrument is NOT calibrated to a specific detector. Attach a limited use sticker that identifies: Threshold, Voltage, and detector that can be used with the calibration settings, as appropriate.

** A limited use sticker is required specifying the detector.

Calibrator (Print): Kevin Wright Calibrator (Signature): K Wright

Reviewed By: Scott A. Next Calibration Due: 1/1/2003

ATG Detector Setup Record

Volts	Gamma CPM	Bkgd CPM
500	10000	
550	35000	
600	48000	
650	70000	
700	80000	
750	90000	
800	100000	
850	100000	
900	100000	17000
950	100000	
1000	100000	
1050	100000	
1100	110000	
1150	110000	
1200	110000	
1250	130000	

Operating Voltage: **900**

Detector Model: **44-10**
Detector Number: **181317**

Instrument Assigned
Instrument Model: LM-177
Instrument Number: 93286

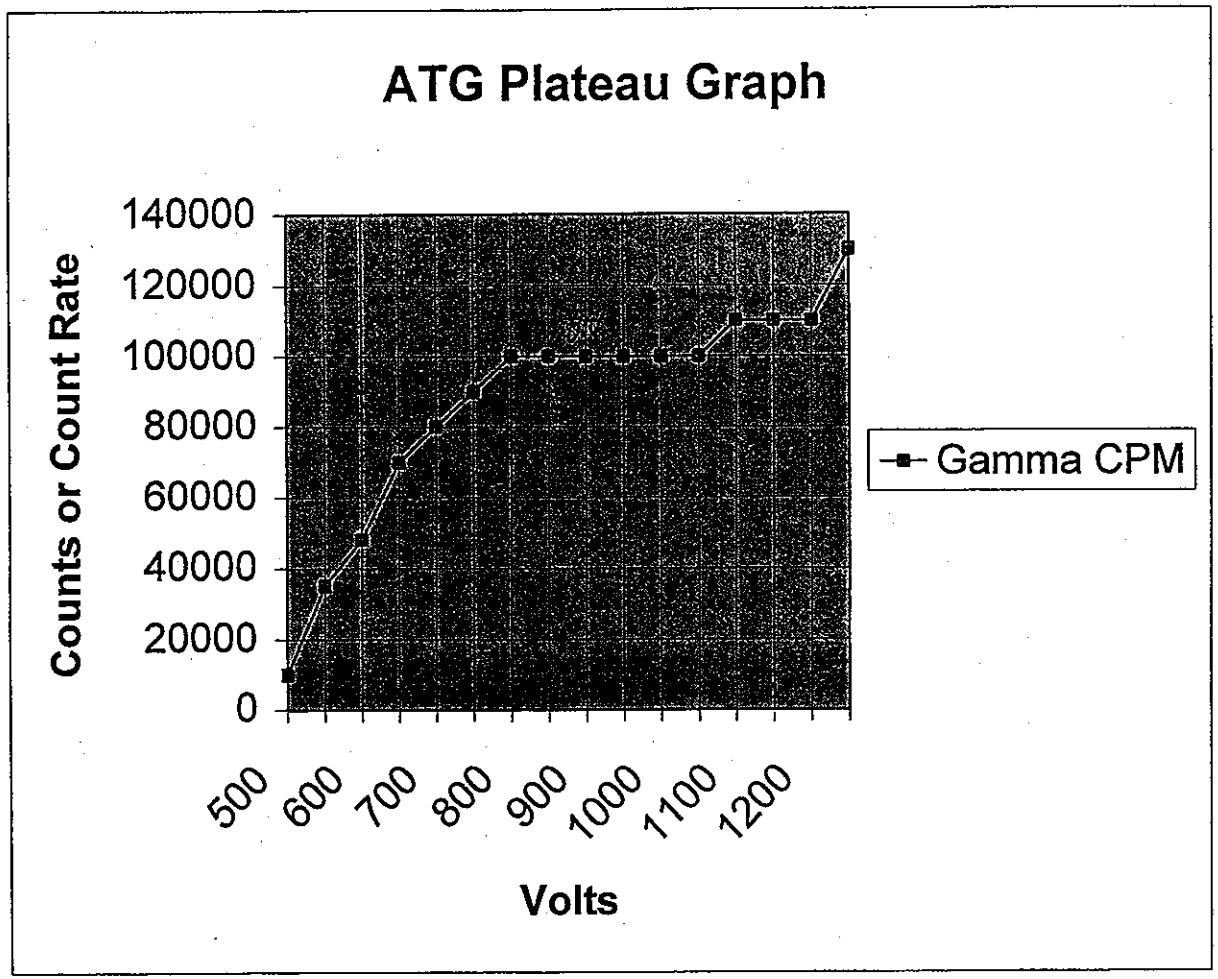
Sensitivity: **10mV**

Date: **1/1/2002**

Performed By: _____

Next Due: **1/1/2003**

Reviewed By: _____



O.V. - Operating Voltage

Gamma Source: Q96 Mixed Gamma
Activity: 5.67E+05 Gamma Emissions

Contact Efficiency: 14.6% (4 pi)

ATG Calibration Record

Inst. Number: 85662 Model: LM-177 Cal. Date: 1/1/2002

Calibration Instruments					
Type	Number	Cal. Due Date	Type	Number	Cal. Due Date
Pulser	137572	10/15/2002	Temp.	2780	3/28/2002
Voltmeter	75300255	3/26/2002	Pressure	2780	3/28/2002
O-Scope	N/A	N/A	Humidity	N/A	N/A
Timer	N/A	N/A			

Count Rate/Scaler Calibration

Temp.:	68.4 deg.F	Pressure:	28.93 in Hg	Humidity:	N/A

Scale	Target Value	Tolerances		Measurements		Percent Error	
		Min.	Max.	As Found	As Left	As Found	As Left
X1	100	80	120	*	100	#VALUE!	0.0%
	250	200	300	*	250	#VALUE!	0.0%
	400	320	480	*	400	#VALUE!	0.0%
X10	1,000	800	1,200	*	1,000	#VALUE!	0.0%
	2,500	2,000	3,000	*	2,500	#VALUE!	0.0%
	4,000	3,200	4,800	*	4,000	#VALUE!	0.0%
X100	10,000	8,000	12,000	*	10,000	#VALUE!	0.0%
	25,000	20,000	30,000	*	25,000	#VALUE!	0.0%
	40,000	32,000	48,000	*	40,000	#VALUE!	0.0%
X1K	100,000	80,000	120,000	*	100,000	#VALUE!	0.0%
	250,000	200,000	300,000	*	250,000	#VALUE!	0.0%
	400,000	320,000	480,000	*	400,000	#VALUE!	0.0%

Comments: * Initial use. "AsFound" not required.

Other Calibration Parameters			
	As Found	As Left	
Zero	*	0	Detector Compatibility:*
High Voltage	*	900	GM SCINT Proport.
Threshold (mV)	*	10	(Circle One)
HV Indication:	*	900	** Use Specific Detector:
Overrange	N/A	N/A	Type: 44-10
Audio	SAT	SAT	Number: 130772

* Indicate the default detector settings only if the instrument is NOT calibrated to a specific detector. Attach a limited use sticker that identifies: Threshold, Voltage, and detector that can be used with the calibration settings, as appropriate.

** A limited use sticker is required specifying the detector.

Calibrator (Print): Kevin Wright Calibrator (Signature): _____

Reviewed By: _____ Next Calibration Due: 1/1/2003

ATG Detector Setup Record

Volts	Gamma CPM	Bkgd CPM
500	3000	
550	11000	
600	29000	
650	40000	
700	50000	
750	60000	
800	70000	
850	80000	
900	80000	15000
950	80000	
1000	80000	
1050	80000	
1100	80000	
1150	80000	
1200	80000	
1250	90000	

Operating Voltage: **900**

Detector Model: 44-10
Detector Number: 130772

Instrument Assigned
Instrument Model: LM-177
Instrument Number: 85662

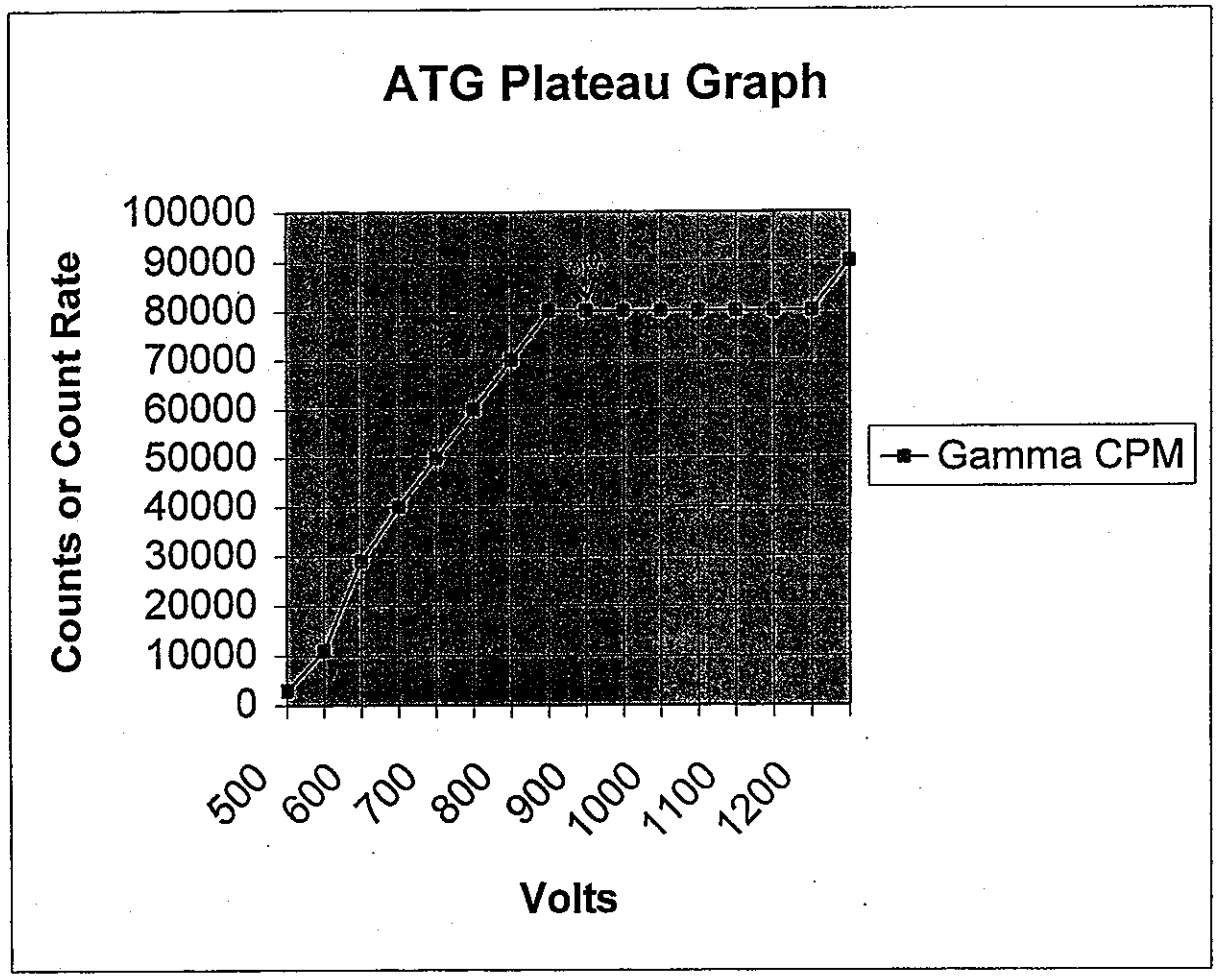
Sensitivity: **10mV**

Date: **1/1/2002**

Performed By: _____

Next Due: **1/1/2003**

Reviewed By: _____



O.V. - Operating Voltage

Gamma Source: Q96 Mixed Gamma
Activity: 5.67E+05 Gamma Emissions

Contact Efficiency: 11.5% (4 pi)

ATG Calibration Record

Inst. Number: 89868 Model: LM-177 Cal. Date: 1/1/2002

Calibration Instruments					
Type	Number	Cal. Due Date	Type	Number	Cal. Due Date
Pulser	137572	10/15/2002	Temp.	2780	3/28/2002
Voltmeter	75300255	3/26/2002	Pressure	2780	3/28/2002
O-Scope	N/A	N/A	Humidity	N/A	N/A
Timer	N/A	N/A			

Count Rate/Scaler Calibration

Temp.:	78.1 deg.F	Pressure:	29.49	in Hg	Humidity:	N/A

Scale	Target Value	Tolerances		Measurements		Percent Error	
		Min.	Max.	As Found	As Left	As Found	As Left
X1	100	80	120	*	100	#VALUE!	0.0%
	250	200	300	*	250	#VALUE!	0.0%
	400	320	480	*	400	#VALUE!	0.0%
X10	1,000	800	1,200	*	1,000	#VALUE!	0.0%
	2,500	2,000	3,000	*	2,500	#VALUE!	0.0%
	4,000	3,200	4,800	*	4,000	#VALUE!	0.0%
X100	10,000	8,000	12,000	*	10,000	#VALUE!	0.0%
	25,000	20,000	30,000	*	25,000	#VALUE!	0.0%
	40,000	32,000	48,000	*	40,000	#VALUE!	0.0%
X1K	100,000	80,000	120,000	*	100,000	#VALUE!	0.0%
	250,000	200,000	300,000	*	250,000	#VALUE!	0.0%
	400,000	320,000	480,000	*	400,000	#VALUE!	0.0%

Comments: * Initial use. "AsFound" not required.

Other Calibration Parameters			
	As Found	As Left	
Zero	*	0	Detector Compatibility:*
High Voltage	*	950	GM (SCINT) Proport.
Threshold (mV)	*	10	(Circle One)
HV Indication:	*	950	** Use Specific Detector:
Overrange	N/A	N/A	Type: 44-10
Audio	SAT	SAT	Number: 124118

* Indicate the default detector settings only if the instrument is NOT calibrated to a specific detector. Attach a limited use sticker that identifies: Threshold, Voltage, and detector that can be used with the calibration settings, as appropriate.

** A limited use sticker is required specifying the detector.

Calibrator (Print): Kevin Wright Calibrator (Signature): K Wright

Reviewed By: Scott Cole Next Calibration Due: 1/1/2003

ATG Detector Setup Record

Volts	Gamma CPM	Bkgd CPM
450	2500	
500	8000	
550	26000	
600	44000	
650	50000	
700	60000	
750	70000	
800	80000	
850	80000	
900	80000	
950	90000	15000
1000	90000	
1050	90000	
1100	90000	
1150	90000	
1200	110000	

Operating Voltage: **950**

Detector Model: **44-10**
Detector Number: **124118**

Instrument Assigned
Instrument Model: LM-177
Instrument Number: 89868

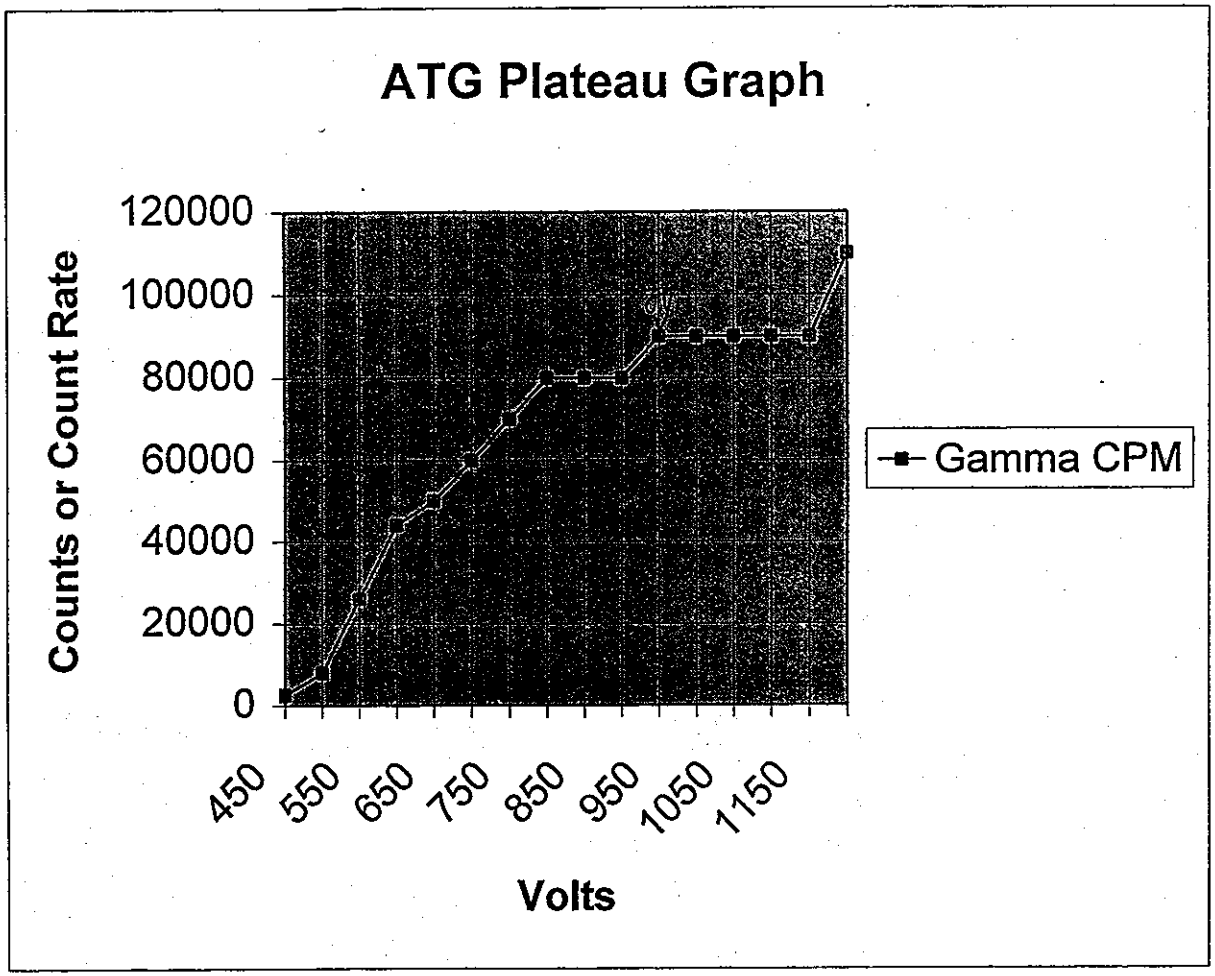
Sensitivity: **10mV**

Date: **1/1/2002**

Performed By: _____

Next Due: **1/1/2003**

Reviewed By: _____



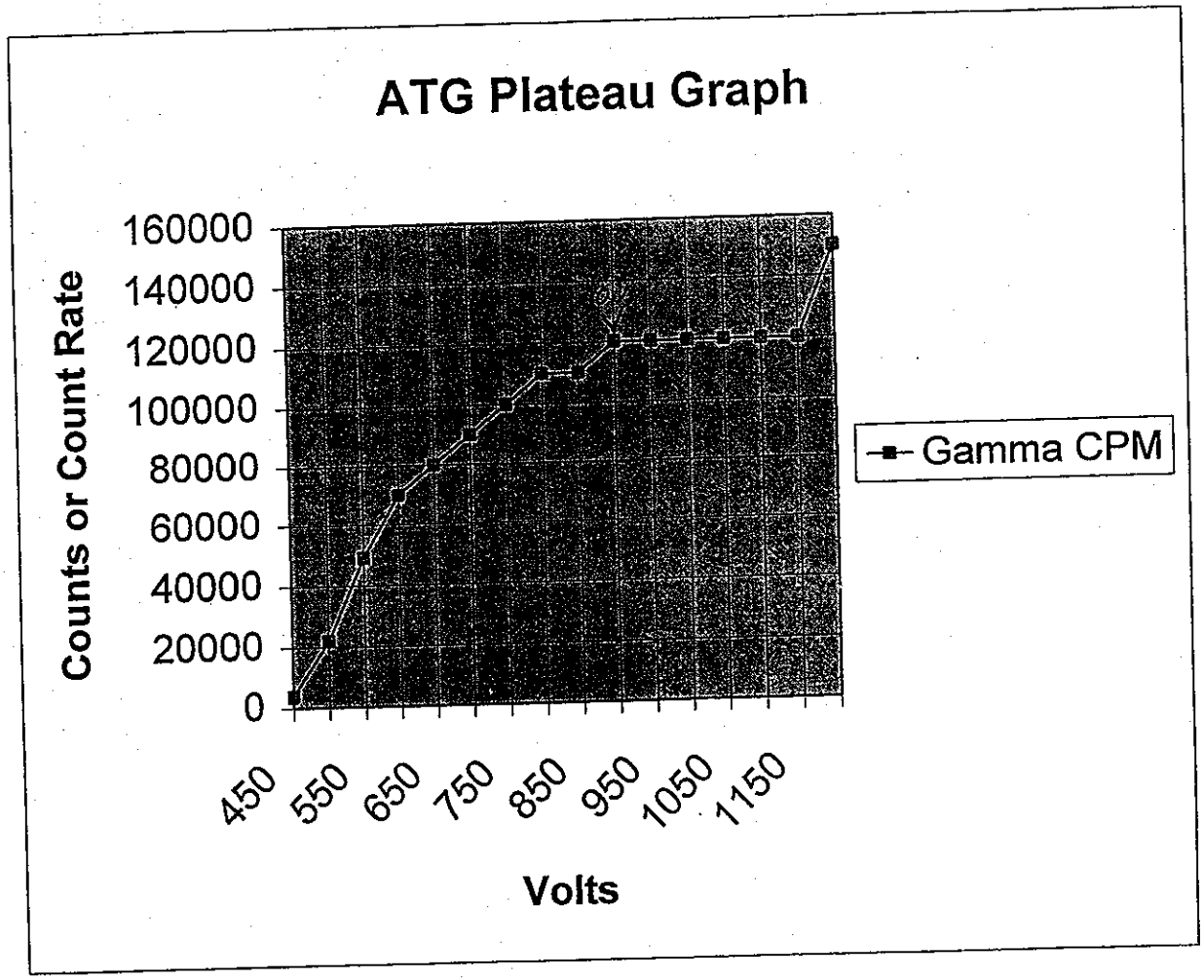
O.V. - Operating Voltage

Gamma Source: Q96 Mixed Gamma
Activity: 5.67E+05 Gamma Emissions

Contact Efficiency: 13.2% (4 pi)

ATG Detector Setup Record

Volts	Gamma CPM	Bkgd CPM
450	3800	
500	22000	
550	49000	
600	70000	
650	80000	
700	90000	
750	100000	
800	110000	
850	110000	
900	120000	17000
950	120000	
1000	120000	
1050	120000	
1100	120000	
1150	120000	
1200	150000	



Operating Voltage: 900

Detector Model:	44-10
Detector Number:	181315
Instrument Assigned	
Instrument Model:	LM-177
Instrument Number:	93253

Sensitivity: **10mV**

Date: 1/1/2002

Performed By: _____

Next Due: 1/1/2003

Reviewed By: _____

O.V. - Operating Voltage

Gamma Source: Q96 Mixed Gamma
Activity: 5.67E+05 Gamma Emissions

Contact Efficiency: 18.2% (4 pi)

ATG Calibration Record

Inst. Number: 89922 Model: LM-177 Cal. Date: 1/1/2002

Calibration Instruments					
Type	Number	Cal. Due Date	Type	Number	Cal. Due Date
Pulser	137572	10/15/2002	Temp.	2780	3/28/2002
Voltmeter	75300255	3/26/2002	Pressure	2780	3/28/2002
O-Scope	N/A	N/A	Humidity	N/A	N/A
Timer	N/A	N/A			

Count Rate/Scaler Calibration

Temp.: 78.1 deg.F Pressure: 29.49 in Hg Humidity: N/A

Scale	Target Value	Tolerances		Measurements		Percent Error	
		Min.	Max.	As Found	As Left	As Found	As Left
X1	100	80	120	*	100	#VALUE!	0.0%
	250	200	300	*	250	#VALUE!	0.0%
	400	320	480	*	400	#VALUE!	0.0%
X10	1,000	800	1,200	*	1,000	#VALUE!	0.0%
	2,500	2,000	3,000	*	2,500	#VALUE!	0.0%
	4,000	3,200	4,800	*	4,000	#VALUE!	0.0%
X100	10,000	8,000	12,000	*	10,000	#VALUE!	0.0%
	25,000	20,000	30,000	*	25,000	#VALUE!	0.0%
	40,000	32,000	48,000	*	40,000	#VALUE!	0.0%
X1K	100,000	80,000	120,000	*	100,000	#VALUE!	0.0%
	250,000	200,000	300,000	*	250,000	#VALUE!	0.0%
	400,000	320,000	480,000	*	400,000	#VALUE!	0.0%

Comments: * Initial use. "AsFound" not required.

Other Calibration Parameters			
	As Found	As Left	
Zero	*	0	Detector Compatibility:*
High Voltage	*	900	GM (SCINT.) Proport.
Threshold (mV)	*	10	(Circle One)
HV Indication:	*	900	** Use Specific Detector:
Overrange	N/A	N/A	Type: 44-10
Audio	SAT	SAT	Number: 181833

* Indicate the default detector settings only if the instrument is NOT calibrated to a specific detector. Attach a limited use sticker that identifies: Threshold, Voltage, and detector that can be used with the calibration settings, as appropriate.

** A limited use sticker is required specifying the detector.

Calibrator (Print): Kevin Wright Calibrator (Signature): K Wright

Reviewed By: Scott Ob Next Calibration Due: 1/1/2003

ATG Detector Setup Record

Volts	Gamma CPM	Bkgd CPM
450	10000	
500	37000	
550	50000	
600	60000	
650	80000	
700	90000	
750	100000	
800	110000	
850	110000	
900	120000	17000
950	120000	
1000	120000	
1050	120000	
1100	120000	
1150	120000	
1200	160000	

Operating Voltage: **900**

Detector Model: **44-10**
Detector Number: **181833**

Instrument Assigned
Instrument Model: LM-177
Instrument Number: 89922

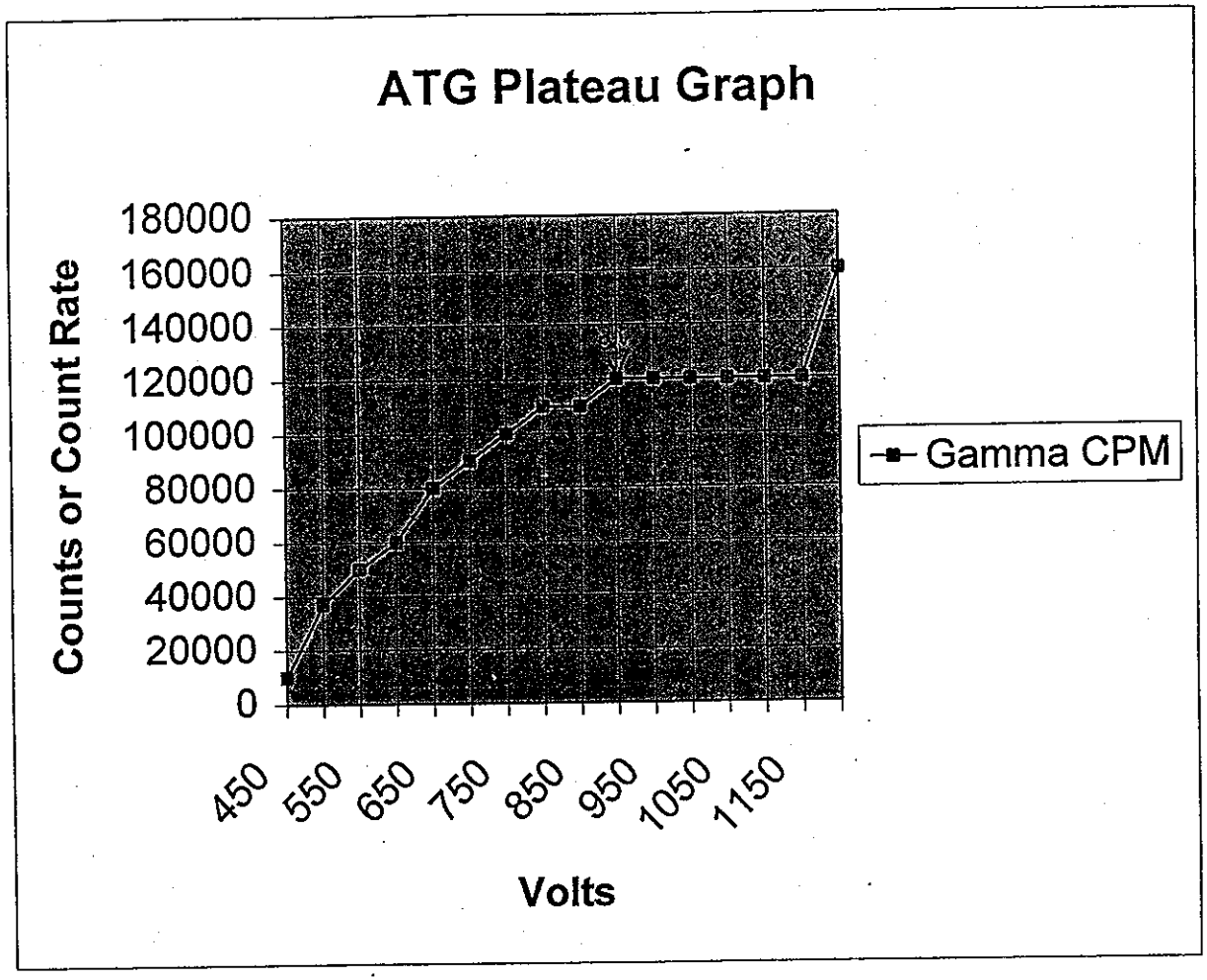
Sensitivity: **10mV**

Date: **1/1/2002**

Performed By: _____

Next Due: **1/1/2003**

Reviewed By: _____



O.V. - Operating Voltage

Gamma Source: Q96 Mixed Gamma
Activity: 5.67E+05 Gamma Emissions

Contact Efficiency: 18.2% (4 pi)

ATG Calibration Record

Inst. Number: 85744 Model: LM-177 Cal. Date: 1/1/2002

Calibration Instruments					
Type	Number	Cal. Due Date	Type	Number	Cal. Due Date
Pulser	137572	10/15/2002	Temp.	2780	3/28/2002
Voltmeter	75300255	3/26/2002	Pressure	2780	3/28/2002
O-Scope	N/A	N/A	Humidity	N/A	N/A
Timer	N/A	N/A			

Count Rate/Scaler Calibration

Temp.: 78.1 deg.F Pressure: 29.49 in Hg Humidity: N/A

Scale	Target Value	Tolerances		Measurements		Percent Error	
		Min.	Max.	As Found	As Left	As Found	As Left
X1	100	80	120	*	100	#VALUE!	0.0%
	250	200	300	*	250	#VALUE!	0.0%
	400	320	480	*	400	#VALUE!	0.0%
X10	1,000	800	1,200	*	1,000	#VALUE!	0.0%
	2,500	2,000	3,000	*	2,500	#VALUE!	0.0%
	4,000	3,200	4,800	*	4,000	#VALUE!	0.0%
X100	10,000	8,000	12,000	*	10,000	#VALUE!	0.0%
	25,000	20,000	30,000	*	25,000	#VALUE!	0.0%
	40,000	32,000	48,000	*	40,000	#VALUE!	0.0%
X1K	100,000	80,000	120,000	*	100,000	#VALUE!	0.0%
	250,000	200,000	300,000	*	250,000	#VALUE!	0.0%
	400,000	320,000	480,000	*	400,000	#VALUE!	0.0%

Comments: * Initial use. "AsFound" not required.

Other Calibration Parameters			
	As Found	As Left	
Zero	*	0	Detector Compatibility:* GM SCINT. Proport. (Circle One)
High Voltage	*	900	
Threshold (mV)	*	10	
HV Indication:	*	900	** Use Specific Detector:
Overrange	N/A	N/A	Type: 44-10
Audio	SAT	SAT	Number: 181828

* Indicate the default detector settings only if the instrument is NOT calibrated to a specific detector. Attach a limited use sticker that identifies: Threshold, Voltage, and detector that can be used with the calibration settings, as appropriate.

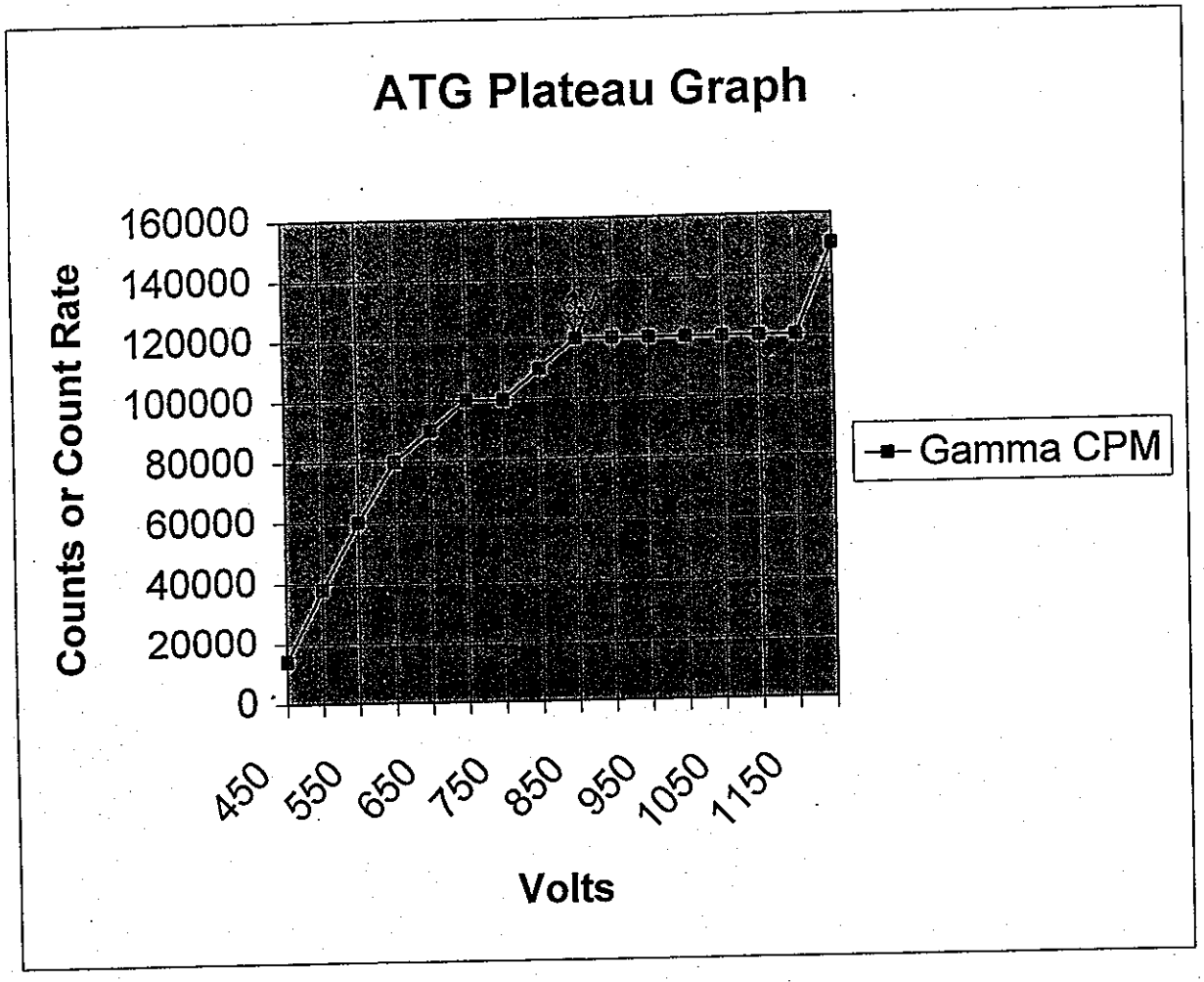
** A limited use sticker is required specifying the detector.

Calibrator (Print): Kevin Wright Calibrator (Signature): _____

Reviewed By: _____ Next Calibration Due: 1/1/2003

ATG Detector Setup Record

Volts	Gamma CPM	Bkgd CPM
450	14000	
500	38000	
550	60000	
600	80000	
650	90000	
700	100000	
750	100000	
800	110000	
850	120000	
900	120000	17000
950	120000	
1000	120000	
1050	120000	
1100	120000	
1150	120000	
1200	150000	



Operating Voltage: 900

Detector Model: **44-10**
Detector Number: **181828**

Instrument Assigned
Instrument Model: LM-177
Instrument Number: 85744

Sensitivity: **10mV**

Date: 1/1/2002

Performed By: _____

Next Due: 1/1/2003

Reviewed By: _____

O.V. - Operating Voltage

Gamma Source: Q96 Mixed Gamma
Activity: 5.67E+05 Gamma Emissions

Contact Efficiency: 18.2% (4 pi)

Carter Enterprises

274 Harvey rd.
Kingston, Tn 37763
(865)376-1487

Terms of rental

The rental of 10 Ludlum 177's will be accommodated by Carter enterprises to ATG for the rental fee of $70.00/instrument/month.

A minimum of two (2) months rental is required with subsequent months rental at ATG's option.

All instruments will be returned to Carter enterprises at the end of the rental period in the same condition as they were received.

Repair and maintenance of the instruments will be performed at a rate of $50.00/hour by a qualified and approved vender chosen by Carter enterprises.

Replacement cost of each instrument rented, (if the return condition of rented instruments warrants complete replacement) shall be new like models or the purchase price of new like models from the manufacture at current list price.

Model # L-177	Serial # 93253	Rental fee $70.00/Month
Model # L-177	Serial # 93286	Rental fee $70.00/Month
Model # L-177	Serial # 93221	Rental fee $70.00/Month
Model # L-177	Serial # 93211	Rental fee $70.00/Month
Model # L-177	Serial # 89868	Rental fee $70.00/Month
Model # L-177	Serial # 89935	Rental fee $70.00/Month
Model # L-177	Serial # 89922	Rental fee $70.00/Month
Model # L-177	Serial # 85744	Rental fee $70.00/Month
Model # L-177	Serial # 85723	Rental fee $70.00/Month
Model # L-177	Serial # 85662	Rental fee $70.00/Month

Total/month $700.00/month

Amount due this invoice: $1,400.00 for first two months

Payment must be recieved prior to release of rental instruments payable in cash or approved check

Leasor: _____ Date 12-28-01

Leasee: _____ of (company) Allied Technical Group(ATG) Date 12-28-01

Invoice # 01-10-ATG

SOLID SAMPLE EVALUATION

SAMPLE ID: **Red Clay #1** COC: **74**

Description: **Ft McClellan Sample**

NUCLIDE	% of Mix	QUANTITY (uCi/g)	ERROR (uCi/g)	QUANTITY (pCi/g)	ERROR (pCi/g)	MDA (uCi/g)	MDA (pCi/g)
Mn-54							
Co-57							
Co-58							
Co-60	98.36%	**1.49E-02**	**1.67E-03**	14890.00	1666.00		
Zn-65							
Ag-110m							
Sb-125							
Cs-134							
Cs-137	1.64%	**2.48E-04**	**4.69E-05**	247.60	46.88		
Nb-95							
Zr-95							
			Total pCi/g:	15137.60		MDA pCi/g:	0.00

Was Container Completely filled with sample? **Y**

Above 5 pCi/g: Yes

Recount: No

Desired MDA: 5 pCi/g

SAMPLE WEIGHT: **24.9** g

VOLUME: **22** ml

DENSITY: 1.13

If activity is NOT detected, fill out the MDA section. Otherwise, record the activity quantity in uCi/ml.

Bold data was entered by the evaluator.

Radon Daughters were allowed to reach equilibrium: **No**

Natural Nuclides

Thorium Series 100%		**Uranium Series 99.27%**		**Actinium Series 0.72%**		**K-40**
Nuclide	uCi/g	Nuclide	uCi/g	Nuclide	uCi/g	0.00E+00
Ac-228		Th-234		U-235		
Ra-224		Pa-234		Th-231		
Pb-212		Pa-234m		Pa-231		
Bi-212		U-234		Fr-223		
Tl-208		Ra-226		Th-227		
		Pb-214		Ra-223		
		Bi-214				

Unidentified Peak Resolution

Energy (keV)				Resolution			
None	N/A						
None	N/A						
None	N/A						
None	N/A						
None	N/A						
None	N/A						
None	N/A						

Evaluated by: _____ Date: 1-9-02

SOLID SAMPLE EVALUATION

SAMPLE ID: **Red Clay #2** COC: **74**

Description: **Ft McClellan Sample**

NUCLIDE	% of Mix	QUANTITY (uCi/g)	ERROR (uCi/g)	QUANTITY (pCi/g)	ERROR (pCi/g)	MDA (uCi/g)	MDA (pCi/g)
Mn-54							
Co-57							
Co-58							
Co-60	98.00%	**1.05E-02**	**1.18E-03**	10540.00	1181.00		
Zn-65							
Ag-110m							
Sb-125							
Cs-134							
Cs-137	2.00%	**2.15E-04**	**4.01E-05**	215.40	40.13		
Nb-95							
Zr-95							
			Total pCi/g:	10755.40		MDA pCi/g:	0.00

Was Container Completely filled with sample? **Y**

Above 5 pCi/g: Yes

Recount: No

Desired MDA: 5 pCi/g

SAMPLE WEIGHT: **25.2** g

VOLUME: **22** ml

DENSITY: 1.15

If activity is NOT detected, fill out the MDA section. Otherwise, record the activity quantity in uCi/ml.

Bold data was entered by the evaluator.

Radon Daughters were allowed to reach equilibrium: **No**

Natural Nuclides

Thorium Series 100%		**Uranium Series 99.27%**		**Actinium Series 0.72%**		**K-40**
Nuclide	uCi/g	Nuclide	uCi/g	Nuclide	uCi/g	0.00E+00
Ac-228		Th-234		U-235		
Ra-224		Pa-234		Th-231		
Pb-212		Pa-234m		Pa-231		
Bi-212		U-234		Fr-223		
Tl-208		Ra-226		Th-227		
		Pb-214		Ra-223		
		Bi-214				

Unidentified Peak Resolution

Energy (keV)				Resolution			
None	N/A						
None	N/A						
None	N/A						
None	N/A						
None	N/A						
None	N/A						
None	N/A						

Evaluated by: _____ Date: 1-9-02

SOLID SAMPLE EVALUATION

SAMPLE ID: **Red Clay #3** COC: **74**

Description: **Ft McClellan Sample**

NUCLIDE	% of Mix	QUANTITY (uCi/g)	ERROR (uCi/g)	QUANTITY (pCi/g)	ERROR (pCi/g)	MDA (uCi/g)	MDA (pCi/g)
Mn-54							
Co-57							
Co-58							
Co-60	98.56%	**1.61E-02**	**1.80E-03**	16050.00	1796.00		
Zn-65							
Ag-110m							
Sb-125							
Cs-134							
Cs-137	1.44%	**2.34E-04**	**4.47E-05**	234.40	44.73		
Nb-95							
Zr-95							
			Total pCi/g:	16284.40		MDA pCi/g:	0.00

Was Container Completely filled with sample? **Y**

Above 5 pCi/g: Yes

Recount: No

Desired MDA: 5 pCi/g

SAMPLE WEIGHT: **25.6** g

VOLUME: **22** ml

DENSITY: 1.16

If activity is NOT detected, fill out the MDA section. Otherwise, record the activity quantity in uCi/ml.

Bold data was entered by the evaluator.

Radon Daughters were allowed to reach equilibrium: **No**

Natural Nuclides

Thorium Series 100%		**Uranium Series 99.27%**		**Actinium Series 0.72%**		**K-40**
Nuclide	uCi/g	Nuclide	uCi/g	Nuclide	uCi/g	0.00E+00
Ac-228		Th-234		U-235		
Ra-224		Pa-234		Th-231		
Pb-212		Pa-234m		Pa-231		
Bi-212		U-234		Fr-223		
Tl-208		Ra-226		Th-227		
		Pb-214		Ra-223		
		Bi-214				

Unidentified Peak Resolution

Energy (keV)				Resolution			
None	N/A						
None	N/A						
None	N/A						
None	N/A						
None	N/A						
None	N/A						
None	N/A						

Evaluated by: _____ Date: 1-9-02

SOLID SAMPLE EVALUATION

SAMPLE ID: **Soil #1** COC: **74**

Description: **Ft McClellan Sample**

NUCLIDE	% of Mix	QUANTITY (uCi/g)	ERROR (uCi/g)	QUANTITY (pCi/g)	ERROR (pCi/g)	MDA (uCi/g)	MDA (pCi/g)
Mn-54							
Co-57							
Co-58							
Co-60	0.50%	**9.89E-05**	**1.49E-05**	98.92	14.85		
Zn-65							
Ag-110m							
Sb-125							
Cs-134							
Cs-137	99.50%	**1.97E-02**	**3.02E-03**	19730.00	3020.00		
Nb-95							
Zr-95							
			Total pCi/g:	19828.92		MDA pCi/g:	0.00

Was Container Completely filled with sample? **Y**

Above 5 pCi/g: Yes

Recount: No

Desired MDA: 5 pCi/g

SAMPLE WEIGHT: **31** g

VOLUME: **22** ml

DENSITY: 1.41

If activity is NOT detected, fill out the MDA section. Otherwise, record the activity quantity in uCi/ml.

Bold data was entered by the evaluator.

Radon Daughters were allowed to reach equilibrium: **No**

Natural Nuclides

Thorium Series 100%		**Uranium Series 99.27%**		**Actinium Series 0.72%**		**K-40**
Nuclide	uCi/g	Nuclide	uCi/g	Nuclide	uCi/g	0.00E+00
Ac-228		Th-234		U-235		
Ra-224		Pa-234		Th-231		
Pb-212		Pa-234m		Pa-231		
Bi-212		U-234		Fr-223		
Tl-208		Ra-226		Th-227		
		Pb-214		Ra-223		
		Bi-214				

Unidentified Peak Resolution

Energy (keV)				Resolution			
None	N/A						
None	N/A						
None	N/A						
None	N/A						
None	N/A						
None	N/A						
None	N/A						

Evaluated by: _____ Date: 1-9-02

SOLID SAMPLE EVALUATION

SAMPLE ID: **Soil #2** COC: **74**

Description: **Ft McClellan Sample**

NUCLIDE	% of Mix	QUANTITY (uCi/g)	ERROR (uCi/g)	QUANTITY (pCi/g)	ERROR (pCi/g)	MDA (uCi/g)	MDA (pCi/g)
Mn-54							
Co-57							
Co-58							
Co-60	0.61%	**1.19E-04**	**1.83E-05**	118.70	18.30		
Zn-65							
Ag-110m							
Sb-125							
Cs-134							
Cs-137	99.39%	**1.93E-02**	**2.96E-03**	19300.00	2956.00		
Nb-95							
Zr-95							
			Total pCi/g:	19418.70		MDA pCi/g:	0.00

Was Container Completely filled with sample? **Y**

Above 5 pCi/g: Yes

Recount: No

Desired MDA: 5 pCi/g

SAMPLE WEIGHT: **23.4** g

VOLUME: **22** ml

DENSITY: 1.06

If activity is NOT detected, fill out the MDA section. Otherwise, record the activity quantity in uCi/ml.

Bold data was entered by the evaluator.

Radon Daughters were allowed to reach equilibrium: **No**

Natural Nuclides

Thorium Series 100%		**Uranium Series 99.27%**		**Actinium Series 0.72%**		**K-40**
Nuclide	uCi/g	Nuclide	uCi/g	Nuclide	uCi/g	1.22E-05
Ac-228		Th-234		U-235		
Ra-224		Pa-234		Th-231		
Pb-212		Pa-234m		Pa-231		
Bi-212		U-234		Fr-223		
Tl-208		Ra-226		Th-227		
		Pb-214		Ra-223		
		Bi-214				

~~1.22E-05~~ TU 1-9-02

Unidentified Peak Resolution

Energy (keV)				Resolution			
None	N/A						
None	N/A						
None	N/A						
None	N/A						
None	N/A						
None	N/A						
None	N/A						

Evaluated by: [signature] Date: 1-9-02

SOLID SAMPLE EVALUATION

SAMPLE ID: **Soil #3** COC: **74**

Description: **Ft McClellan Sample**

NUCLIDE	% of Mix	QUANTITY (uCi/g)	ERROR (uCi/g)	QUANTITY (pCi/g)	ERROR (pCi/g)	MDA (uCi/g)	MDA (pCi/g)
Mn-54							
Co-57							
Co-58							
Co-60	0.59%	**1.11E-04**	**1.96E-05**	111.30	19.59		
Zn-65							
Ag-110m							
Sb-125							
Cs-134							
Cs-137	99.41%	**1.86E-02**	**2.85E-03**	18620.00	2852.00		
Nb-95							
Zr-95							
			Total pCi/g:	18731.30		MDA pCi/g:	0.00

Was Container Completely filled with sample? **Y**

Above 5 pCi/g: Yes

Recount: No

Desired MDA: 5 pCi/g

SAMPLE WEIGHT: **16.4** g

VOLUME: **22** ml

DENSITY: 0.75

If activity is NOT detected, fill out the MDA section. Otherwise, record the activity quantity in uCi/ml.

Bold data was entered by the evaluator.

Radon Daughters were allowed to reach equilibrium: **No**

Natural Nuclides						
Thorium Series 100%		**Uranium Series 99.27%**		**Actinium Series 0.72%**		**K-40**
Nuclide	uCi/g	Nuclide	uCi/g	Nuclide	uCi/g	1.75E-05
Ac-228		Th-234		U-235		
Ra-224		Pa-234		Th-231		
Pb-212		Pa-234m		Pa-231		
Bi-212		U-234		Fr-223		
Tl-208		Ra-226		Th-227		
		Pb-214		Ra-223		
		Bi-214				

~~1.75E-05~~ xw 1-9-02

Unidentified Peak Resolution

Energy (keV)				Resolution			
None	N/A						
None	N/A						
None	N/A						
None	N/A						
None	N/A						
None	N/A						
None	N/A						

Evaluated by: [signature] Date: 1-9-02

COPY

3/21/02

Safety and Ecology Corporation

2800 Solway Road
Knoxville, TN 37931

Calibration Certificate

Calibration Certificate for 44-10,Serial # PR164001, Bar Code # ,Property # SEC0000728

Date: 03/21/02 Date Last Cal. Expires: Technician: Shane Day

Location: 9999, Reason For Calibration: Due for Calibration

EQUIPMENT USED DURING CALIBRATION

MODEL:	2221	SERIAL #:	172035	CAL DUE:	12/19/02
MODEL:		SERIAL #:		CAL DUE:	

NIST TRACEABLE SOURCES USED

SOURCE	ISOTOPE	ACTIVITY	ASSAY DATE
99CS250-0288	Cs-137	8.8 uCi	3/18/99

AS FOUND DATA AF Instrument Condition: SAT AL Instrument Condition: SAT

Efficiency from Last Cal.: 0.70 % HV From Last Calibration: 1050 V Calibration Threshold: 10 mV

	HV	Center Count	Background Count	Probe Efficiency
AS FOUND:	1050 V	138475	4731	Cs-137 [redacted]
AS LEFT:	V	0	0	Cs-137 [redacted]

☑ Is the As Found Efficiency Within 20% of the efficiency from the last cal.?

Reproducibility: 138475 138524 138588 Average: 138529 ☑ Are the individual counts within 10% of the average?

[redacted]

PLATEAU AND SET POINT DATA (CPM)

High Voltage	Source Response	Background	HV	CENTER	Background	Efficiency
			V			Cs-137 [redacted]
						[redacted]

Comments: Married as a set with: Model: Serial #:

☑ Does Instrument Meet Final Acceptance Criteria? ☑ Calibration Sticker Attached?

Date Instrument Is Due For Next Calibration: [redacted]

Performed by: Shane Day Reviewed by: Mike Parton Date: 3/21/02

Printed Name: Shane Day

Entered In Computer Inventory By: Date: 3/21/02

COPY

SAFETY AND ECOLOGY CORPORATION

CALIBRATION CERTIFICATE FOR 2221 SERIAL# 172038

SEC0000935

SECTION 1: GENERAL INFORMATION

DATE: 11/30/01 **LOCATION:** SEC Lab

TECH: Jerry DeGroodt **DATE LAST CAL EXPIRES:**

Reason For Calibration: ○ Due For Calibration ○ Repair (See Remarks) ◉ Other (See Remarks) ○ Due and Repair (See Remarks)

EQUIPMENT USED DURING CALIBRATION

MODEL: M-500 **SERIAL #:** 171700 **CAL. DUE:** 02/28/02

MODEL: **SERIAL #:** **CAL DUE:**

SECTION 2: AS FOUND DATA

CONDITION: Sat

AF MECHANICAL ZERO: 0 **AL MECHANICAL ZERO:** 0

NEW BATTERIES: ○ Yes ◉ No **BATTERY CHECK:** Sat

HV	AS FOUND HV	AS LEFT HV
500 V:	504	A.F.
1000 V:	1002	A.F.
1500 V:	1499	A.F.

AF THRESHOLD: 10

AL THRESHOLD: 40

RATE METER						SCALER			
SCALE	RATE CPM	AS FOUND	% ERROR	AS LEFT	% ERROR	AS FOUND	% ERROR	AS LEFT	% ERROR
x.1 or x1	100	100	0.0%	A.F.					
	250	250	0.0%	A.F.		250	0.0%	A.F.	0.0%
	400	400	0.0%	A.F.					
x1 or x10	1000	1000	0.0%	A.F.					
	2500	2500	0.0%	A.F.					
	4000	4000	0.0%	A.F.					
x10 or x100	10K	10K	0.0%	A.F.					
	25K	25K	0.0%	A.F.					
	40K	40K	0.0%	A.F.					
x100 or x1000	100K	100K	0.0%	A.F.					
	250K	250K	0.0%	A.F.					
	400K	400K	0.0%	A.F.					

Is the As Found Data Within 20% of the Set Point?: ◉ Yes ○ No

SAFETY AND ECOLOGY CORPORATION

COPY

LOG SCALE

SCALE	RATE CPM	AS FOUND	% ERROR	AS LEFT	% ERROR
Log	200	200	0.0%	A.F.	
	2000	2000	0.0%	A.F.	
	20K	20K	0.0%	A.F.	
	200K	195K	2.5%	A.F.	

Is the As Found Data Within 20% of the Set Point?: ◉ Yes ○ No

SECTION 3: REPRODUCIBILITY

Serial #: 172038

x.1 or x1 Scale:	250	250	250
x1 or x10 Scale:	2500	2500	2500
x10 or x100 Scale:	25K	25K	25K
x100 or x1000 Scale:	250K	250K	250K

Are the Individual Counts Within 10% of the Average?: ◉ **Yes** ○ **No**

Fast / Slow Response Switch Functions Properly?: ◉ **Yes** ○ **No**

Audio Response: ◉ **Sat** ○ **Unsat**

SECTION 4: FINAL ACCEPTANCE

Audio Divide: ◉ Sat ○ Unsat **Push Buttons:** ◉ Sat ○ Unsat

Lamp: ◉ Sat ○ Unsat **Scaler/Digital:** ◉ Sat ○ Unsat

Remarks: Initial calibration of new meter.

Does Instrument Meet Final Acceptance Criteria?: ◉ Yes ○ No

Calibration Sticker Attached?: ◉ Yes ○ No

Date Instrument is Due For Next Calibration: **11/30/02**

Performed by: _____ **Reviewed by:** _____ **Date:** 11/30/01

Entered in Computer Inventory By: _____ Date: 11/30/01

APPENDIX C

GRID SURVEY RECORDS

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-01
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area A				
Grid # 1				
17	16	16	17	16
17	16	16	16	15
16	16	16	16	16
16	18	16	14	16
16	18	16	16	16

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-01
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area A				
Grid # 2				
16	16	16	15	16
17	16	15	14	14
18	16	15	15	14
16	15	16	15	14
16	16	15	15	16

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-01
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area				
Grid # 3				
16	14	14	14	15
16	16	14	15	16
15	16	15	15	16
16	15	16	16	16
16	16	16	15	15

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-01
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area A				
Grid # 4				
14	16	15	16	16
15	16	14	15	15
15	16	16	16	15
16	16	16	15	14
15	15	16	16	15

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-01
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area A				
Grid # 5				
16	17	16	17	18
16	16	16	16	18
16	16	17	18	18
17	17	17	16	17
17	18	18	18	17

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-01
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area A				
Grid # 6				
15	14	15	16	16
16	15	16	16	16
16	15	15	15	16
16	16	16	17	17
16	17	18	18	17

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-01
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area A				
Grid # 7				
18	18	18		
18	18	18		
18	18	18		
18	18	18		
18	20	18		

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-01
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area A				
Grid # 8				
16	17	17		
18	18	18		
17	17	17		
17	17	17		
17	17	17		

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-02
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area B				
Grid # 1				
12	12	14	13	12
12	14	12	12	13
11	12	12	12	12
12	11	13	11	12
11	12	13	12	12

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-02
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area B				
Grid # 2				
14	13	14	14	14
15	15	14	14	13
15	15	12	14	15
14	15	14	14	14
14	14	14	14	14

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-02
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area B				
Grid # 3				
12	11	12	14	11
12	14	12	12	12
13	14	12	12	12
14	15	13	12	12
15	15	14	13	14

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-02
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area B				
Grid # 4				
11	11	11	12	12
12	12	12	12	11
11	12	12	11	12
13	12	13	12	12
12	12	12	11	12

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-02
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area B				
Grid # 5				
10	10	11	11	10
11	10	11	10	12
10	10	10	10	10
10	10	11	11	10
12	12	12	12	11

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-02
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area B				
Grid # 6				
10	9	9	9	9
10	9	9	8	8
11	10	10	12	10
10	12	12	11	10
10	10	10	11	10

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-02
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area B				
Grid # 7				
10	10	10	10	9
10	10	10	10	11
10	12	10	10	11
11	10	10	10	10
12	11	12	11	12

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-02
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area B				
Grid # 8				
11	10	10	10	10
11	11	10	10	10
10	11	10	10	10
10	10	10	11	11
12	12	12	12	12

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-02
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area B				
Grid # 9				
8	8	9	10	9
8	8	8	10	9
8	9	9	8	8
10	8	7	6	7
11	10	8	6	6

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-02
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area B				
Grid # 10				
12	12	10	8	6
10	11	12	8	7
12	12	12	8	6
12	13	10	8	8
13	12	8	7	8

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-02
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area B				
Grid # 11				
6	6	11	8	10
8	6	10	9	10
9	8	10	10	10
8	9	10	10	10
8	9	10	10	10

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-02
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area B				
Grid # 12				
12	12	13	12	8
12	12	14	11	8
13	14	14	12	10
14	12	14	13	10
14	14	13	12	12

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-02
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area B				
Grid # 13				
8	9	9	12	11
8	8	10	12	13
10	9	10	12	13
10	9	10	12	12
11	11	12	12	12

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-02
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area B				
Grid # 14				
14	14	14	12	12
14	14	12	14	13
14	14	12	14	12
14	14	15	14	12
14	15	14	14	11

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-02
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area B				
Grid # 15				
10	11	11	10	14
11	12	12	12	13
12	11	11	12	12
11	12	10	14	11
10	12	11	12	12

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-03
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area C				
Grid # 1				
11	11	11	12	11
12	11	9	10	9
12	11	11	11	10
12	11	10	12	10
10	12	10	10	12

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-03
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area C				
Grid # 2				
10	12	11	10	10
10	10	12	10	12
11	12	11	11	10
10	10	11	12	10
11	10	12	11	10

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-03
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area C				
Grid # 3				
11	12	12	13	14
12	13	12	13	13
9	10	10	10	9
12	10	11	10	10
12	12	12	10	11

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-03
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area C				
Grid # 4				
14	14	13	13	12
12	13	14	13	14
12	12	12	11	12
12	12	11	11	12
12	13	11	11	10

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-03
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area C				
Grid # 5				
13	12	10	14	11
12	10	11	12	11
10	11	12	11	10
10	11	9	10	11
10	10	10	9	10

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-03
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area C				
Grid # 6				
9	9	9	9	10
9	10	10	10	9
9	10	10	10	10
10	9	8	8	9
8	8	9	10	9

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-03
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area C				
Grid # 7				
10	10	10	10	11
8	8	8	9	10
10	9	9	10	10
9	10	9	9	9
9	9	9	10	10

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-03
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area C				
Grid # 8				
12	11	11	10	10
10	9	10	9	9
10	10	10	10	10
8	10	9	10	10
10	10	10	10	11

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-03
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area C				
Grid # 9				
9	10	10	10	10
10	10	8	9	10
10	10	10	10	10
10	9	9	10	10
10	10	9	10	10

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-03
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area C				
Grid # *10*				
10	12	11	10	11
10	10	11	11	10
9	10	10	10	11
10	10	10	10	10
9	9	10	10	9

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-03
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area C				
Grid # 11				
10	11	11	11	10
10	12	11	11	10
10	11	10	9	9
10	10	10	10	9
10	10	10	10	9

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-03
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area C				
Grid # 12				
10	11	11	11	11
10	10	10	10	10
9	10	10	9	9
11	10	9	10	8
9	8	9	9	9

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-03
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area C				
Grid # 13				
12	11	10	10	10
10	10	12	11	10
10	9	9	10	9
10	10	10	10	11
10	10	10	10	11

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-03
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area C				
Grid #				
9	10	10	11	10
10	10	9	10	10
10	11	9	9	10
12	11	10	10	10
11	10	10	10	10

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-04
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area D				
Grid # 1				
11	11	11	10	
10	10	10		
10				

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-04
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area D				
Grid # 2				
10	10	12	11	10
11	10	10	11	10
11	11	10	11	11
11	112	11	10	10
10	11	12	10	10

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-04
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area D				
Grid # 3				
9	10	10	10	9
10	9	9	10	
9	9	10		
10	10			

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-04
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area D				
Grid # 4				
10	10	10	11	10
11	10	10	10	11
10	11	10	10	10
11	10	10	11	10
10	10	11	11	10

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-04
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area D				
Grid # 5				
11	10	10	9	8
11	10	8	9	8
10	10	11	9	9
10	10	10	10	8
10	10	11	10	10

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-04
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area D				
Grid # 6				
8	8	9	10	10
9	9	9	8	10
9	9	9	10	10
10	10	9	9	9
10	9	10	10	9

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-04
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area D				
Grid # 7				
10	10	9	8	8
10	9	9	9	9
9	9	9	9	8
9	8	9	8	8
9	8	7	8	8

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-04
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area D				
Grid # 8				
9	9	9	9	9
9	9	9	8	8
8	9	8	8	9
8	8	8	8	7
8	8	8	8	8

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-04
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area D				
Grid # 9				
10	10	10	10	9
10	10	9	10	10
11	11	10	9	8
11	10	9	9	9
10	10	9	9	9

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-04
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area D				
Grid # 10				
10	10	10	10	9
10	10	10	10	10
10	10	10	10	9
10	10	10	9	9
10	10	10	8	9

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-04
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area D				
Grid # 11				
9	9	9	9	9
8	8	8	9	9
10	9	9	9	8
8	8	9	9	9
8	8	9	8	9

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-04
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area D				
Grid # 12				
10	10	9	9	8
9	8	8	8	8
9	9	10	9	10
9	9	8	9	8
8	8	9	9	8

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-04
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area D				
Grid # 13				
9	9	9	9	9
8	8	8	8	8
9	9	10	9	9
9	9	8	9	9
10	10	9	9	9

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-04
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area D				
Grid # 14				
9	10	9	10	9
10	10	9	10	9
9	10	10	10	9
10	11	10	10	10
11	10	10	10	10

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-04
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area D				
Grid # 15				
9	9	10	9	8
9	9	10	10	9
10	10	10	9	9
9	8	9	9	9
10	10	10	9	9

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-04
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area D				
Grid # 16				
9	8	10	11	10
9	10	9	10	10
9	8	8	9	9
8	8	9	10	9
8	9	9	8	9

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-04
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area D				
Grid # 17				
9	9	8	8	8
10	10	9	9	9
9	9	10	10	10
8	9	10	8	10
9	9	8	9	9

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-04
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area D				
Grid # 18				
9	9	9	9	10
9	9	9	10	9
10	10	9	9	9
9	10	8	8	9
9	9	10	9	8

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-04
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area D				
Grid # 19				
9	8	8		
9	8	8		
9	9	8		
9	9	9		
10	8	8		
9	9	9		
9	8	8		
8	8	9		
9	9	8		
9	8	9		

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector. **NOTE: Grid D-19 is 20M long by 5M wide**

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-05
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area A at Final Grade				
Grid # 1				
10	10	10	11	10
11	10	10	10	11
10	11	10	10	10
11	10	10	11	12
10	10	11	11	10

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-05
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area A at Final Grade				
Grid # 2				
11	10	10	11	11
11	10	11	9	10
10	10	11	11	11
10	10	10	10	8
10	10	11	10	10

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-05
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area A at Final Grade				
Grid # 3				
10	10	10	12	12
10	10	10	9	12
10	10	10	12	12
12	12	10	10	10
12	10	12	12	9

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-05
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area A at Final Grade				
Grid # 4				
12	12	10	9	9
12	10	10	10	10
10	10	10	10	11
10	9	10	10	11
10	10	10	9	10

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-05
Performed By: J. Coleman
Instrument ID # 125741 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area A at Final Grade				
Grid # 5				
10	10	10	10	10
10	10	10	11	11
9	10	11	11	10
11	10	10	11	9
9	9	9	9	10

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-05
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-25-02
Detector ID # 132949 Cal Due: 8-28-02

Area A at Final Grade				
Grid # 6				
12	12	12	12	10
12	12	10	12	12
13	13	12	10	9
13	12	10	10	10
12	12	10	10	10

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-05
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area A at Final Grade				
Grid # 7				
12	12	12		
12	12	12		
12	12	12		
12	12	12		
12	12	12		

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

ATG Burial Mound Project - Pelham Range
Final Status Survey
Survey # FSS-5
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 8-28-02
Detector ID # 132949 Cal Due: 8-28-02

Area A at Final Grade				
Grid # 8				
10	10	10		
9	9	9		
12	10	10		
9	9	9		
9	9	10		

All readings are in gross CPM x1000 as observed on a Ludlum Model 12 attached to a 2x2 NaI detector

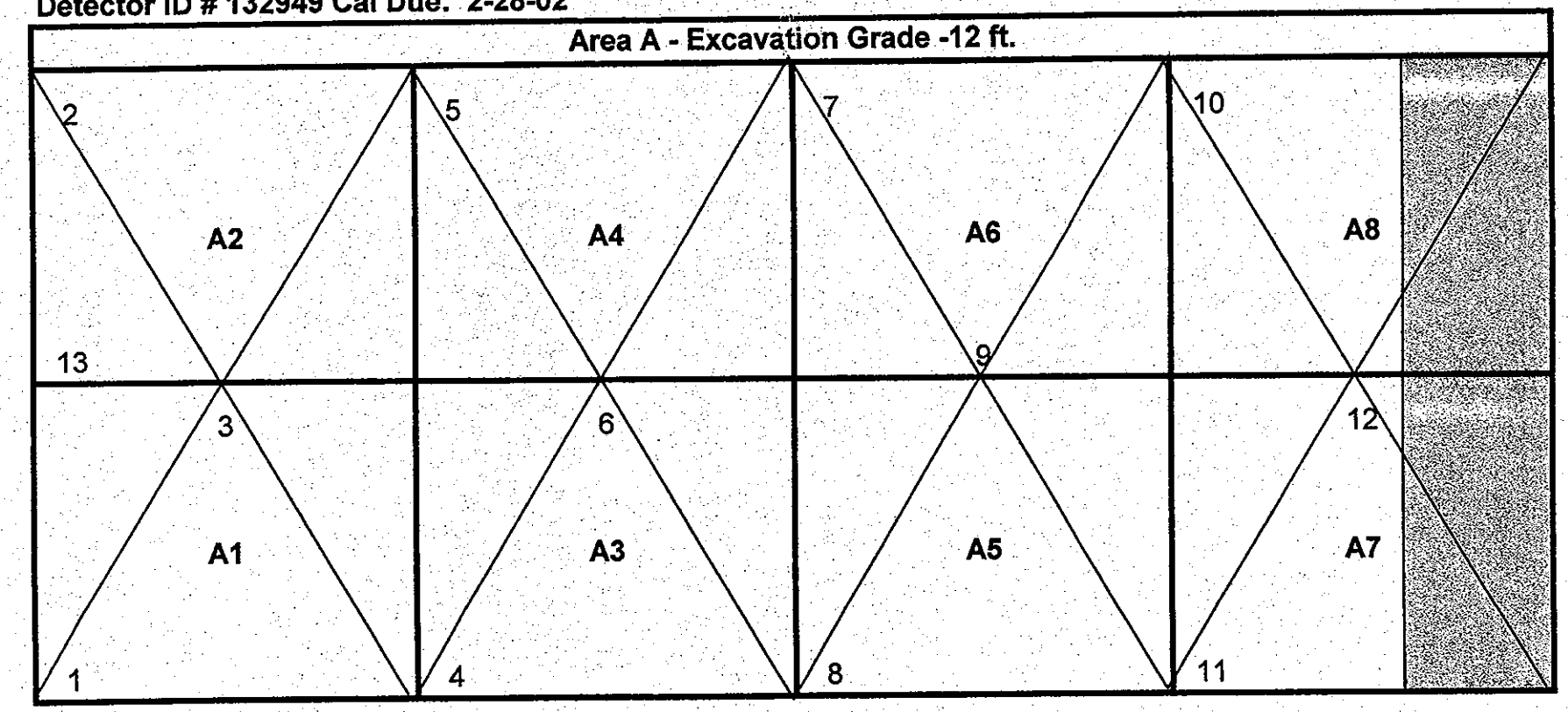
APPENDIX D

SOIL SAMPLE LOCATIONS

PLEASE NOTE

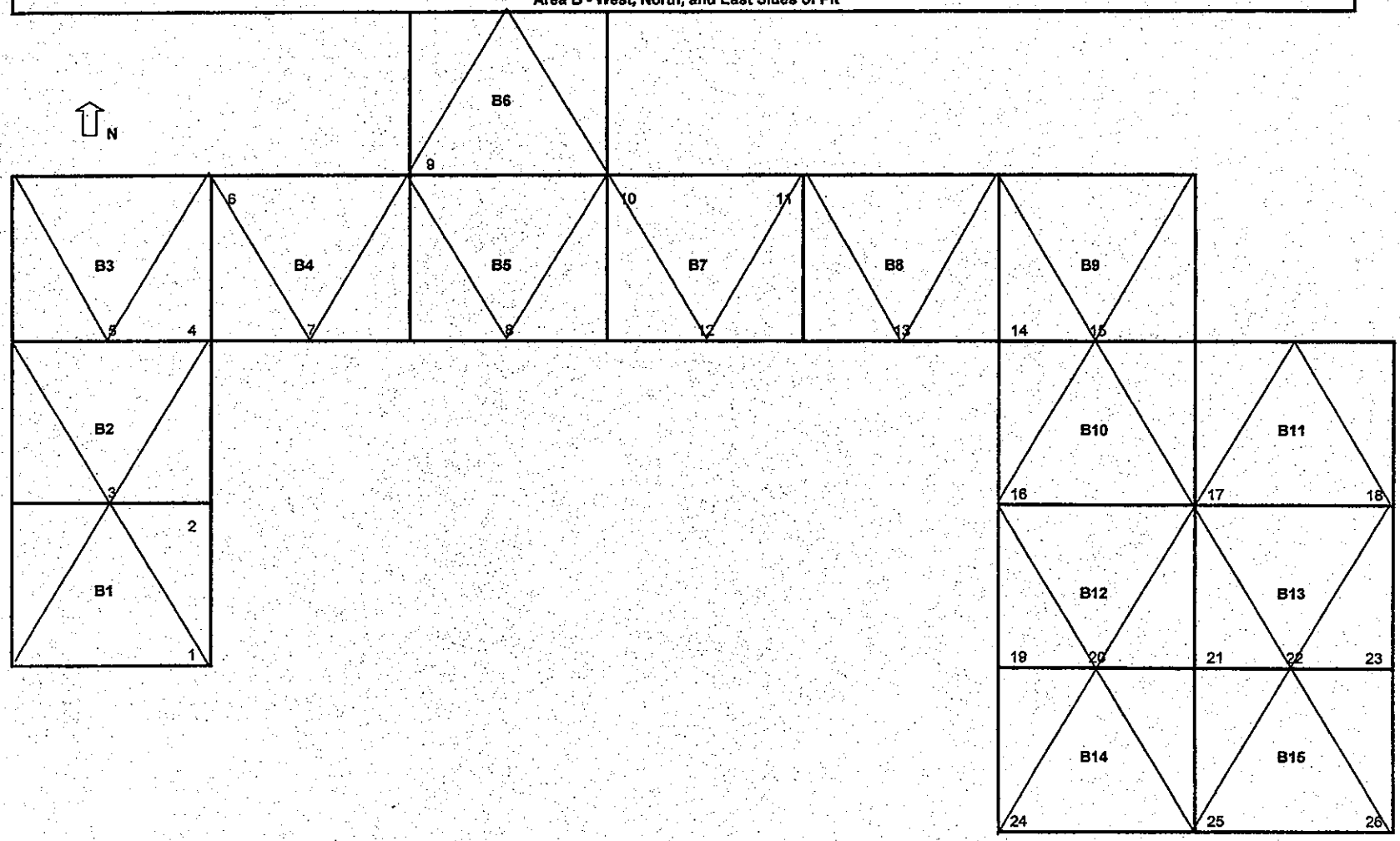
The attached sample analyses were performed at ATG Richland, WA, under the supervision of Joe Schroeder, or at ATG Oak Ridge, TN, under the supervision of Kevin Wright. The analysis records, as presented herein, is different for each facility. The subject laboratories are periodically audited and verified to meet the requirements of Reference 2. Sample volumes, weights, and count times are denoted on the individual survey records.

ATG Burial Mound Project - Pelham Range
Final Status Survey
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 2-28-02
Detector ID # 132949 Cal Due: 2-28-02

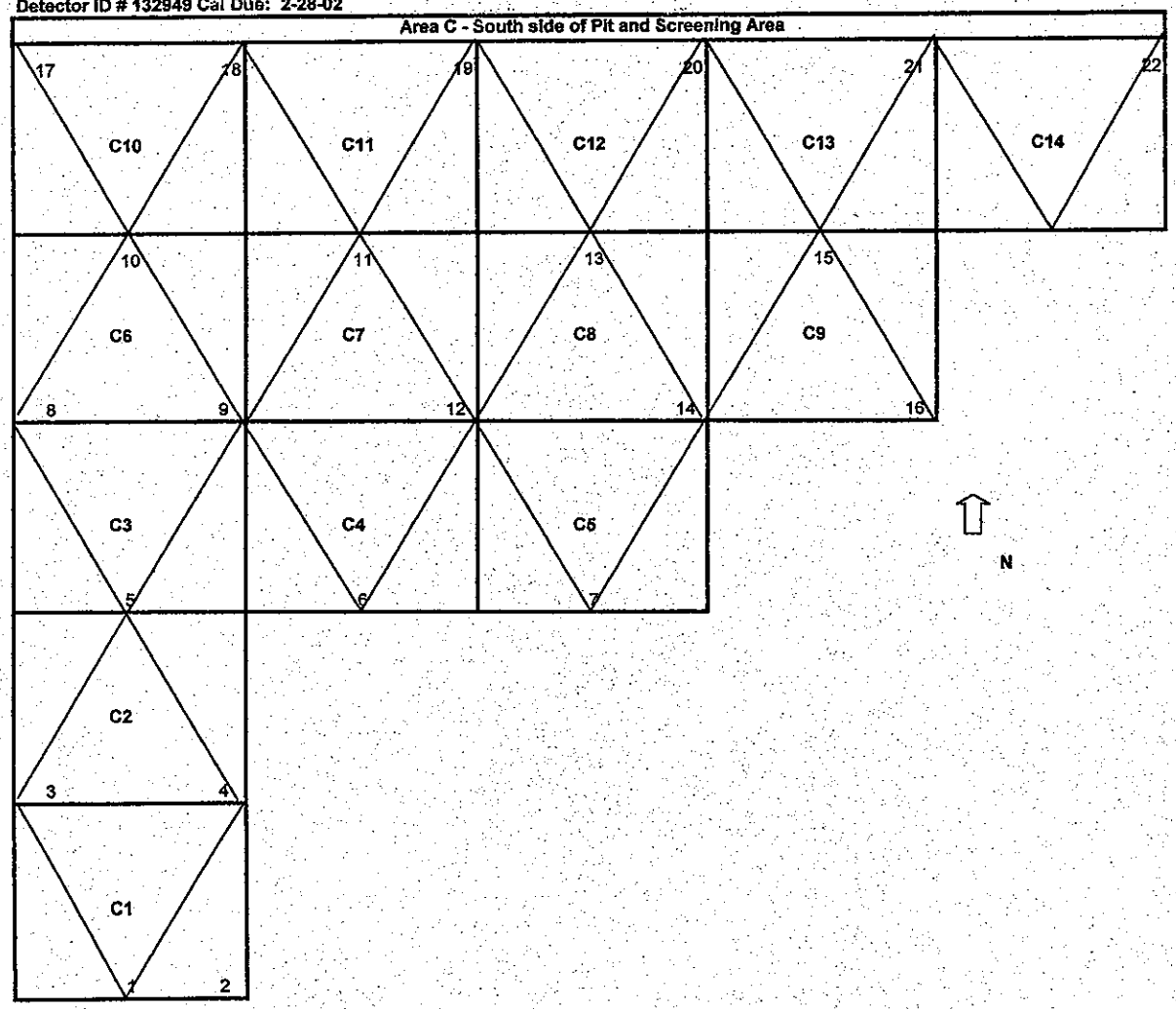


ATG Burial Mound Project - Pelham Range
Final Status Survey
Performed By: J. Coleman
Instrument ID # 125241 Cal Due: 2-28-02
Detector ID # 132949 Cal Due: 2-28-02

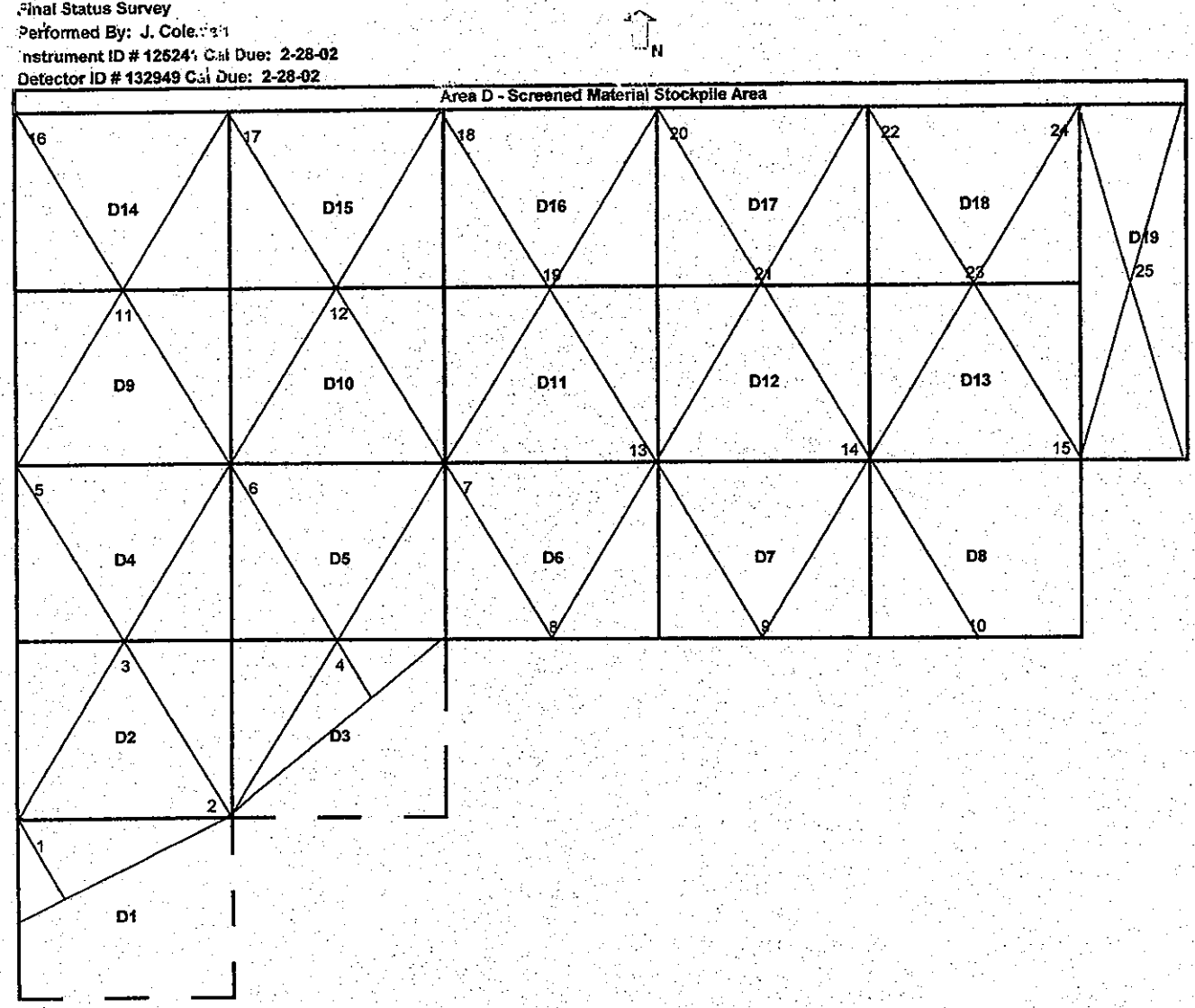
Area B - West, North, and East Sides of Pit



ATG Burial Mound Project - Pelham Range
Final Status Survey
Performed By: J. Colemal
Instrument ID # 12524 Cal Due: 2-28-02
Detector ID # 132949 Cal Due: 2-28-02



ATG Burial Mound Project - Pelham Range
Final Status Survey
Performed By: J. Cole
Instrument ID # 125241 Cal Due: 2-28-02
Detector ID # 132949 Cal Due: 2-28-02



APPENDIX E

SOIL SAMPLE ANALYSIS RESULTS

PLEASE NOTE

The attached sample analyses were performed at ATG Richland, WA, under the supervision of Joe Schroeder, or at ATG Oak Ridge, TN, under the supervision of Kevin Wright. The analysis records, as presented herein, is different for each facility. The subject laboratories are periodically audited and verified to meet the requirements of Reference 2. Sample volumes, weights, and count times are denoted on the individual survey records.

	Sample Grid# / Sequential #	Co-60 pCi/g	MDA	$Conc_{Co60}$ / $DCGL_{Co60}$	Cs-137 pCi/g	MDA	$Conc_{Cs137}$ / $DCGL_{Cs137}$	Sum of Ratios C0-60+Cs 137	Total Counts .5 min count w/ 2221 & 2x2 NaI
Survey Unit A*									
* .5 min readings in Unit A collected at grade after backfill									
1	A1-1	< 0.17	0.17	0.074	0.19	0.09	0.0207	0.0946	5204
2	A2-2	< 0.19	0.19	0.083	< 0.15	0.15	0.0090	0.0916	5111
3	A2-3	< 0.19	0.19	0.083	< 0.08	0.08	0.0090	0.0916	5224
4	A1-4	< 0.16	0.16	0.070	< 0.17	0.17	0.0076	0.0771	5047
5	A3-5	< 0.17	0.17	0.074	< 0.11	0.11	0.0080	0.0819	5387
6	A4-6	< 0.16	0.16	0.070	< 0.19	0.19	0.0076	0.0771	5184
7	A3-7	0.21	0.15	0.091	1.25	0.24	0.1359	0.2272	5192
8	A5-8	< 0.19	0.19	0.083	< 0.16	0.16	0.0090	0.0916	5115
9	A6-9	< 0.20	0.2	0.087	< 0.19	0.19	0.0095	0.0964	5305
10	A5-10	< 0.18	0.18	0.078	< 0.12	0.12	0.0085	0.0868	5411
11	A7-11	< 0.24	0.24	0.104	< 0.16	0.16	0.0113	0.1157	5304
12	A8-12	< 0.14	0.14	0.061	< 0.16	0.16	0.0066	0.0675	5239
13	A8-13	< 0.24	0.24	0.104	< 0.17	0.17	0.0113	0.1157	5091
Survey Unit B									
1	B1-1	< 0.16	0.16	0.070	1.05 ñ 0.19	0.19	0.008	0.077	4556
2	B1-2	< 0.14	0.14	0.061	< 0.10	0.1	0.007	0.067	4772
3	B2-3	< 0.18	0.18	0.078	< 0.11	0.11	0.009	0.087	4765
4	B3-4	< 0.07	0.07	0.030	< 0.11	0.11	0.003	0.034	4724
5	B3-5	< 0.09	0.09	0.039	< 0.10	0.1	0.004	0.043	4459
6	B3-6	< 0.05	0.05	0.022	< 0.10	0.1	0.002	0.024	4165
7	B4-7	< 0.11	0.11	0.048	< 0.12	0.12	0.005	0.053	5156
8	B5-8	< 0.13	0.13	0.057	0.21	0.09	0.023	0.079	5104
9	B6-9	< 0.10	0.1	0.043	0.26	0.1	0.028	0.072	4137
10	B7-10	< 0.10	0.1	0.043	< 0.09	0.09	0.005	0.048	4340
11	B7-11	< 0.09	0.09	0.039	0.43	0.1	0.047	0.086	4264
12	B7-12	< 0.08	0.08	0.035	0.26	0.07	0.028	0.063	5165
13	B8-13	< 0.11	0.11	0.048	< 0.08	0.08	0.005	0.053	5216
14	B9-14	< 0.15	0.15	0.065	< 0.11	0.11	0.007	0.072	4883
15	B9-15	< 0.12	0.12	0.052	< 0.09	0.09	0.006	0.058	4061
16	B10-16	< 0.20	0.2	0.087	0.14	0.08	0.015	0.102	5534
17	B11-17	0.21	0.15	0.091	0.95	0.19	0.103	0.195	5261
18	B11-18	< 0.10	0.1	0.043	< 0.13	0.13	0.005	0.048	4776
19	B12-19	< 0.14	0.14	0.061	< 0.12	0.12	0.007	0.067	5334
20	B12-20	< 0.22	0.22	0.096	< 0.13	0.13	0.010	0.106	4713
21	B13-21	< 0.14	0.14	0.061	0.28	0.09	0.030	0.091	4969
22	B13-22	0.17	0.11	0.074	0.6	0.14	0.065	0.139	4792
23	B13-23	< 0.14	0.14	0.061	0.17	0.1	0.018	0.079	4832
24	B14-24	< 0.19	0.19	0.083	0.19	0.1	0.021	0.103	4964
25	B15-25	< 0.06	0.06	0.026	< 0.08	0.08	0.003	0.029	5158
26	B15-26	< 0.16	0.16	0.070	0.15	0.08	0.016	0.086	4980

	Sample Grid# / Sequential #	Co-60 pCi/g	MDA	$Conc_{Co60}$ / $DCGL_{Co60}$	Cs-137 pCi/g	MDA	$Conc_{Cs137}$ / $DCGL_{Cs137}$	Sum of Ratios C0-60+Cs 137	Total Counts .5 min count w/ 2221 & 2x2 NaI
Survey Unit C									
1	C1-1	< 0.12	0.12	0.052	< 0.08	0.08	0.006	0.058	4388
2	C1-2	< 0.12	0.12	0.052	< 0.10	0.1	0.006	0.058	4542
3	C2-3	< 0.10	0.1	0.043	0.1	0.06	0.011	0.054	4372
4	C2-4	0.1	0.08	0.043	0.33	0.09	0.036	0.079	4549
5	C3-5	< 0.11	0.11	0.048	0.36	0.09	0.039	0.087	4335
6	C4-6	< 0.11	0.11	0.048	0.17	0.06	0.018	0.066	4441
7	C5-7	< 0.09	0.09	0.039	0.15	0.06	0.016	0.055	4452
8	C6-8	< 0.09	0.09	0.039	< 0.08	0.08	0.004	0.043	4532
9	C6-9	0.86	0.18	0.374	4.75	0.55	0.516	0.890	4466
10	C6-10	< 0.11	0.11	0.048	0.25	0.08	0.027	0.075	4313
11	C7-11	0.1	0.08	0.043	0.19	0.06	0.021	0.064	4700
12	C7-12	0.14	0.08	0.061	0.28	0.07	0.030	0.091	4698
13	C8-13	0.15	0.11	0.065	0.16	0.07	0.017	0.083	4570
14	C8-14	0.74	0.17	0.322	0.41	0.1	0.045	0.366	4746
15	C9-15	0.52	0.15	0.226	0.74	0.14	0.080	0.307	4604
16	C9-16	0.3	0.11	0.130	0.71	0.13	0.077	0.208	5011
17	C10-17	< 0.17	0.17	0.074	< 0.15	0.15	0.008	0.082	3907
18	C10-18	< 0.12	0.12	0.052	0.17	0.07	0.018	0.071	5256
19	C11-19	0.1	0.07	0.043	0.17	0.07	0.018	0.062	5455
20	C12-20	0.18 fi 0.11	0.11	0.048	0.48	0.11	0.052	0.100	5466
21	C13-21	0.24	0.14	0.104	0.73	0.15	0.079	0.184	5415
22	C14-22	< 0.08	0.08	0.035	0.13	0.06	0.014	0.049	5404

	Sample Grid# / Sequential #	Co-60 pCi/g	MDA	$Conc_{Co60}$ / $DCGL_{Co60}$	Cs-137 pCi/g	MDA	$Conc_{Cs137}$ / $DCGL_{Cs137}$	Sum of Ratios C0-60+Cs 137	Total Counts .5 min count w/ 2221 & 2x2 NaI
Survey Unit D									
1	D1-1	0.17	0.1	0.074	0.29	0.08	0.032	0.105	4512
2	D2-2	0.08	0.08	0.035	1.16	0.18	0.126	0.161	4146
3	D2-3	0.15	0.08	0.065	0.26	0.07	0.028	0.093	4986
4	D3-4	< 0.08	0.08	0.035	0.27	0.08	0.029	0.064	5133
5	D4-5	0.16	0.09	0.070	0.36	0.1	0.039	0.109	5102
6	D5-6	0.15	0.09	0.065	0.3	0.09	0.033	0.098	4904
7	D6-7	< 0.06	0.06	0.026	0.21	0.07	0.023	0.049	3997
8	D6-8	< 0.09	0.09	0.039	0.25	0.07	0.027	0.066	4534
9	D7-9	< 0.05	0.05	0.022	0.16	0.06	0.017	0.039	4188
10	D8-10	< 0.09	0.09	0.039	0.37	0.09	0.040	0.079	4250
11	D9-11	0.09	0.07	0.039	0.28	0.08	0.030	0.070	4675
12	D10-12	<0.10	0.1	0.043	0.37	0.09	0.040	0.084	4516
13	D11-13	< 0.08	0.08	0.035	0.39	0.1	0.042	0.077	4697
14	D12-14	< 0.07	0.07	0.030	< 0.09	0.09	0.010	0.040	4309
15	D13-15	< 0.05	0.05	0.022	0.21	0.07	0.023	0.045	4338
16	D14-16	< 0.08	0.08	0.035	< 0.09	0.09	0.004	0.039	4407
17	D15-17	< 0.13	0.13	0.057	0.18	0.07	0.020	0.076	4307
18	D16-18	0.25	0.11	0.109	0.48	0.1	0.052	0.161	4413
19	D16-19	< 0.09	0.09	0.039	0.34	0.08	0.037	0.076	4301
20	D17-20	< 0.06	0.06	0.026	0.54	0.1	0.059	0.085	4575
21	D17-21	< 0.10	0.1	0.043	< 0.09	0.09	0.005	0.048	4401
22	D18-22	< 0.11	0.11	0.048	0.45	0.1	0.049	0.097	4310
23	D18-23	< 0.11	0.11	0.048	0.21	0.07	0.023	0.071	4620
24	D19-24	< 0.11	0.11	0.048	0.23	0.07	0.025	0.073	4710
25	D19-25	< 0.10	0.1	0.043	0.3	0.08	0.033	0.076	4416

Final Radiological Status Report
Ft. McClellan, Pelham Range "Burial Mound"

Sample #	Co-60 pCi/g	MDA Co-60	$Conc_{Co60}$ / $DCGL_{Co60}$	Cs-137 pCi/g	MDA Cs-137	$Conc_{Cs137}$ / $DCGL_{Cs137}$	Sum of Ratios C0-60+Cs 137	
B-1	0.36	0.11	0.157	<MDA,	not reported	0	0.157	Background
B-2	.11 >	0.07	0.030	0.14	0.09	0.015	0.046	Background
B-3	.23 >	0.13	0.057	1.03	0.13	0.112	0.168	Background
B-4	<MDA	not reported	0	0.82	0.12	0.089	0.089	Background
B-5	<MDA,	Not reported	0	0.55	0.13	0.060	0.060	Background
Samples taken daily from Processed Soil								
P-1	0.2	0.06	0.087	1.9	0.1	0.207	0.293	1
P-2	0.35	0.08	0.152	1.85	0.1	0.201	0.353	2
P-3	0.23	0.12	0.100	1.2	0.14	0.130	0.230	3
P-4	<MDA,	not reported	0	0.63	0.11	0.068	0.068	4
P-5	0.28	0.1	0.122	1.1	0.18	0.120	0.241	5
P-6	0.29	0.09	0.126	<MDA,	not reported	0	0.126	6
P-7	0.61	0.12	0.265	1.8	0.12	0.196	0.461	7
P-8	0.25	0.09	0.109	0.95	0.12	0.103	0.212	8
P-9	0.46	0.08	0.200	1.85	0.1	0.201	0.401	9
P-10	0.31	0.1	0.135	2.45	0.19	0.266	0.401	10
P-11	0.27	0.1	0.117	2.9	0.12	0.315	0.433	11
P-12	0.78	0.08	0.339	1.2	0.11	0.130	0.470	12
P-13	0.47	0.08	0.204	1.8	0.09	0.196	0.400	13
P-14	0.26	0.11	0.113	0.87	0.11	0.095	0.208	14
P-15	0.13	0.09	0.057	1.3	0.11	0.141	0.198	15
P-16	0.14	0.1	0.061	0.53	0.09	0.058	0.118	16
P-17	0.29	0.11	0.126	1.8	0.13	0.196	0.322	17
P-18	0.47	0.09	0.204	0.85	0.11	0.092	0.297	18
P-19	0.28	0.1	0.122	0.79	0.1	0.086	0.208	19
P-20	0.22	0.07	0.096	1.5	0.09	0.163	0.259	20
P-21	0.55	0.12	0.239	0.93	0.13	0.101	0.340	21
P-22	0.79	0.1	0.343	0.87	0.12	0.095	0.438	22
P-23	0.53	0.1	0.230	0.37	0.1	0.040	0.271	23
P-24	0.38	0.12	0.165	0.4	0.13	0.043	0.209	24
P-25	0.26	0.11	0.113	0.42	0.14	0.046	0.159	25
P-26	0.76	0.14	0.330	0.58	0.13	0.063	0.393	26
P-27	0.12	0.04	0.052	0.25	0.05	0.027	0.079	27
P-28	0.75	0.06	0.326	0.17	0.06	0.018	0.345	28
P-29	0.41	0.06	0.178	0.12	0.05	0.013	0.191	29
P-30	0.89	0.05	0.387	0.17	0.04	0.018	0.405	30
P-31	1	0.06	0.435	0.17	0.05	0.018	0.453	31

Sample #	Co-60 pCi/g	MDA Co-60	$Conc_{Co60}$ / $DCGL_{Co60}$	Cs-137 pCi/g	MDA Cs-137	$Conc_{Cs137}$ / $DCGL_{Cs137}$	Sum of Ratios C0-60+Cs 137	
P-32	0.36	0.07	0.157	0.15	0.07	0.016	0.173	32
P-33	0.2	0.06	0.087	0.16	0.06	0.017	0.104	33
P-34	0.1	0.06	0.043	0.23	0.06	0.025	0.068	34
P-35	<MDA	not reported	0	0.25	0.06	0.027	0.027	35
P-36	0.22	0.09	0.096	0.25	0.08	0.027	0.123	36
P-37	0.21	0.07	0.091	0.52	0.08	0.057	0.148	37
P-38	<MDA,	not reported	0	0.37	0.07	0.040	0.040	38
P-39	<MDA,	not reported	0	<MDA,	not reported	0	0.000	39
P-40	0.23	0.08	0.100	0.18	0.07	0.020	0.120	40
P-41	0.21	0.08	0.091	<MDA,	not reported	0	0.091	41
P-42	0.4	0.1	0.174	0.08	0.07	0.009	0.183	42
P-63	0.94	0.28	0.409	0.89	0.21	0.097	0.505	43
P-64	0.43	0.21	0.187	0.6	0.18	0.065	0.252	44
P-65	<MDA	0.16	0.070	<	0.22	0.024	0.093	45
P-66	0.43	0.27	0.187	0.66	0.21	0.072	0.259	46
P-67	0.75	0.27	0.326	1.27	0.27	0.138	0.464	47
P-68	0.51	0.25	0.222	1.38	0.29	0.150	0.372	48
P-69	0.53	0.23	0.230	1	0.24	0.109	0.339	49
P-70	0.39	0.24	0.170	0.82	0.22	0.089	0.259	50
P-71	0.57	0.22	0.248	0.82	0.19	0.089	0.337	51
P-72	0.36	0.18	0.157	1.51	0.27	0.164	0.321	52
P-73	<MDA	0.19	0.083	0.15	0.1	0.016	0.099	53
P-74	<MDA	0.18	0.078	0.21	0.1	0.023	0.101	54
P-75	<MDA	0.12	0.052	0.33	0.11	0.036	0.088	55
P-76	<MDA	0.16	0.070	0.16	0.11	0.017	0.087	56
P-77	0.44	0.18	0.191	1.59	0.26	0.173	0.364	57
P-78	0.79	0.23	0.343	1.58	0.26	0.172	0.515	58
P-79	<MDA	0.14	0.061	0.19	0.08	0.021	0.082	59
P-80	<MDA	0.19	0.083	0.17	0.11	0.018	0.101	60
P-81	0.87	0.24	0.378	0.86	0.19	0.093	0.472	61
P-82	1.11	0.28	0.483	1.08	0.22	0.117	0.600	62
P-83	0.43	0.16	0.187	<	0.13	0.014	0.201	63
P-84	<MDA	0.16	0.070	<	0.1	0.011	0.080	64
P-85	<MDA	0.38	0.165	<	0.38	0.041	0.207	65
P-86	0.47	0.2	0.204	0.25	0.14	0.027	0.232	66
P-87	0.3	0.19	0.130	0.2	0.13	0.022	0.152	67
P-88	0.36	0.19	0.157	0.28	0.14	0.030	0.187	68
P-89	0.28	0.21	0.122	0.35	0.15	0.038	0.160	69
P-90	<MDA	0.21	0.091	0.96	0.21	0.104	0.196	70

Sample #	Co-60 pCi/g	MDA Co-60	$\frac{Conc_{Co60}}{DCGL_{Co60}}$	Cs-137 pCi/g	MDA Cs-137	$\frac{Conc_{Cs137}}{DCGL_{Cs137}}$	Sum of Ratios C0-60+Cs 137	
P-91	<MDA	0.21	0.091	<	0.13	0.014	0.105	71
P-92	<MDA	0.26	0.113	<	0.18	0.020	0.133	72
P-93	0.39	0.23	0.170	1.08	0.27	0.117	0.287	73
P-96	0.36	0.14	0.157	0.76	0.15	0.083	0.239	76
P-97	0.7	0.29	0.304	0.42	0.19	0.046	0.350	77
P-98	<MDA	0.29	0.126	0.36	0.14	0.039	0.165	78
P-99	<MDA	0.18	0.078	0.29	0.09	0.032	0.110	79
P-100	<MDA	0.19	0.083	<	0.13	0.014	0.097	80
P-101	<MDA	0.25	0.109	<	0.15	0.016	0.125	81
P-102	0.17	0.11	0.074	0.51	0.13	0.055	0.129	82
P-103	<MDA	0.19	0.083	<	0.21	0.023	0.105	83
P-104	<MDA	0.19	0.083	0.44	0.14	0.048	0.130	84
P-105	0.29	0.2	0.126	0.55	0.19	0.060	0.186	85
P-106	0.28	0.21	0.122	<	0.26	0.028	0.150	86
P-107	<MDA	0.22	0.096	0.3	0.13	0.033	0.128	87
P-108	0.17	0.15	0.074	0.3	0.12	0.033	0.107	88
P-109	<MDA	0.36	0.157	<	0.28	0.030	0.187	89
P-110	<MDA	0.32	0.139	<	0.26	0.028	0.167	90
P-111	<MDA	0.29	0.126	<	0.19	0.021	0.147	91
P-112	<MDA	0.3	0.130	<	0.17	0.018	0.149	92
P-113	<MDA	0.18	0.078	<	0.16	0.017	0.096	93
P-114	<MDA	0.24	0.104	<	0.17	0.018	0.123	94
P-115	0.4	0.31	0.174	0.27	0.21	0.029	0.203	95
P-116	0.46	0.36	0.200	0.61	0.26	0.066	0.266	96
P-117	0.33	0.29	0.143	0.33	0.22	0.036	0.179	97
P-118	<MDA	0.34	0.148	0.34	0.19	0.037	0.185	98
P-119	<MDA	0.56	0.243	0.52	0.29	0.057	0.300	99
P-120	<MDA	0.75	0.326	<	0.44	0.048	0.374	100
P-121	<MDA	0.42	0.183	<	0.37	0.040	0.223	101
P-122	0.42	0.34	0.183	0.29	0.23	0.032	0.214	102
P-123	<MDA	0.36	0.157	<	0.22	0.024	0.180	103
P-124	<MDA	0.58	0.252	<	0.29	0.032	0.284	104
P-125	<MDA	0.28	0.122	0.28	0.21	0.030	0.152	105
P-126	<MDA	0.38	0.165	<	0.26	0.028	0.193	106
P-127	<MDA	0.17	0.074	0.19	0.11	0.021	0.095	107
P-128	<MDA	0.23	0.100	<	0.09	0.010	0.110	108
P-129	<MDA	0.26	0.113	<	0.16	0.017	0.130	109
P-130	<MDA	0.27	0.117	<	0.15	0.016	0.134	110
1-21-02 (P-131)	<MDA	0.32	0.139	0.44	0.19	0.048	0.187	111
1-21-02 (P-132)	<MDA	0.24	0.104	0.3	0.16	0.033	0.137	112
1-22-02 (p-133)	0.24	0.18	0.104	1.25	0.26	0.136	0.240	113

Final Radiological Status Report
Ft. McClellan, Pelham Range "Burial Mound"

Sample #	Co-60 pCi/g	MDA Co-60	$Conc_{Co60}$ / $DCGL_{Co60}$	Cs-137 pCi/g	MDA Cs-137	$Conc_{Cs137}$ / $DCGL_{Cs137}$	Sum of Ratios C0-60+Cs 137	
1-23-02 P-134)	<MDA	0.24	0.104	0.15	0.1	0.016	0.121	114
1-23-02 (P-135)	<MDA	0.22	0.096	0.21	0.1	0.023	0.118	115
1-26-02 (p-136)	0.29	0.16	0.126	0.62	0.17	0.067	0.193	116
1-26-02 (P-137)	<MDA	0.16	0.070	0.19	0.1	0.021	0.090	117
1-27-02 (p-138)	0.2	0.13	0.087	0.28	0.1	0.030	0.117	118
1-27-02 P-139)	0.17	0.14	0.074	0.19	0.11	0.021	0.095	119
Average fractions of limits			0.343			0.570	0.211	

* Samples P-94 and P-95 were collected from alarming material on the conveyor belt to demonstrate the lower limits of the systems detection capability.

P-94*	5.66	0.81	2.461	0.9	0.21	0.098	2.559	74
P-95*	2.68	0.42	1.165	1.23	0.21	0.134	1.299	75

APPENDIX F

DUPLICATE SAMPLE RESULTS

Sample Results Summary

STL Richland

Ordered by Client Sample ID, Batch No.

Date: 10-Jul-02

Report No. : 19932

SDG No: 20425

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER
A2-3	E3KQ81AA	CO-60	3.65E-02 +- 2.84E-02	U	pCi/g		6.23E-02	
		CS-137	-6.25E-03 +- 3.22E-02	U	pCi/g		5.64E-02	
		K-40	8.90E+00 +- 1.45E+00		pCi/g		4.30E-01	
		RA-226	1.16E+00 +- 2.02E-01		pCi/g		9.81E-02	
		TH-232	1.15E+00 +- 4.20E-01		pCi/g		3.28E-01	
		U-238DHP	2.26E+00 +- 1.05E+00		pCi/g		1.15E+00	
A3-5	E3KQ41AA	CO-60	3.38E-03 +- 3.15E-02	U	pCi/g		5.90E-02	
		CS-137	-9.58E-03 +- 3.27E-02	U	pCi/g		5.59E-02	
		K-40	9.37E+00 +- 1.62E+00		pCi/g		5.39E-01	
		RA-226	9.61E-01 +- 1.78E-01		pCi/g		1.01E-01	
		TH-232	9.94E-01 +- 2.96E-01		pCi/g		2.75E-01	
A5-10	E3KQ91AA	CO-60	1.11E-01 +- 5.85E-02	U	pCi/g		1.18E-01	
		CS-137	2.06E-01 +- 8.75E-02		pCi/g		9.14E-02	
		K-40	1.62E+01 +- 2.65E+00		pCi/g		8.64E-01	
		RA-226	2.02E+00 +- 3.16E-01		pCi/g		1.63E-01	
		TH-232	1.24E+00 +- 6.15E-01		pCi/g		4.99E-01	
A6-9	E3KR31AA	CO-60	-1.05E-02 +- 3.50E-02	U	pCi/g		6.13E-02	
		CS-137	-4.55E-02 +- 3.60E-02	U	pCi/g		5.54E-02	
		K-40	1.10E+01 +- 1.84E+00		pCi/g		5.07E-01	
		RA-226	1.56E+00 +- 2.55E-01		pCi/g		1.22E-01	
		TH-232	1.40E+00 +- 4.54E-01		pCi/g		3.23E-01	
		U-238DHP	1.08E+00 +- 1.32E+00	U	pCi/g		1.74E+00	
B12-16	E3KQ31AA	CO-60	3.62E-02 +- 4.46E-02	U	pCi/g		8.63E-02	
		CS-137	1.66E-01 +- 6.72E-02	J	pCi/g		7.50E-02	
		K-40	1.02E+01 +- 1.73E+00		pCi/g		5.95E-01	
		RA-226	1.35E+00 +- 2.56E-01		pCi/g		1.36E-01	
		TH-232	1.39E+00 +- 3.57E-01		pCi/g		4.08E-01	
B13-17	E3KRD1AA	CO-60	2.54E-01 +- 6.00E-02		pCi/g		4.19E-02	
		CS-137	8.86E-01 +- 1.32E-01		pCi/g		5.30E-02	
		K-40	4.48E+00 +- 9.64E-01		pCi/g		5.10E-01	
		RA-226	8.59E-01 +- 1.80E-01		pCi/g		9.09E-02	
		TH-232	8.02E-01 +- 3.38E-01		pCi/g		2.78E-01	
B14-20	E3KQ11AA	CO-60	2.10E-02 +- 3.86E-02	U	pCi/g		7.35E-02	
		CS-137	1.69E-01 +- 4.68E-02	J	pCi/g		6.24E-02	

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

J Qual - No U qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the

Sample Results Summary

STL Richland

Ordered by Client Sample ID, Batch No.

Date: 10-Jul-02

Report No. : 19932 **SDG No:** 20425

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER
B14-20	E3KQ11AA	K-40	1.26E+01 +- 1.92E+00		pCi/g		5.21E-01	
		RA-226	1.37E+00 +- 2.24E-01		pCi/g		1.01E-01	
		TH-232	1.11E+00 +- 3.53E-01		pCi/g		3.33E-01	
		U-238DHP	2.08E+00 +- 1.03E+00		pCi/g		1.20E+00	
B17-25	E3KR11AA	CO-60	1.41E-03 +- 2.82E-02	U	pCi/g		5.22E-02	
		CS-137	1.36E-01 +- 4.78E-02	J	pCi/g		4.97E-02	
		K-40	2.73E+00 +- 6.33E-01		pCi/g		4.62E-01	
		MN-54	3.39E-02 +- 3.76E-02	U	pCi/g		5.65E-02	
		RA-226	5.45E-01 +- 1.22E-01		pCi/g		9.83E-02	
		TH-232	5.83E-01 +- 2.90E-01		pCi/g		2.74E-01	
B2-3	E3KQ61AA	CO-60	5.19E-03 +- 2.77E-02	U	pCi/g		5.38E-02	
		CS-137	1.17E-01 +- 4.06E-02	J	pCi/g		5.06E-02	
		K-40	3.48E+00 +- 8.79E-01		pCi/g		4.62E-01	
		RA-226	8.83E-01 +- 1.66E-01		pCi/g		8.90E-02	
		TH-232	9.48E-01 +- 2.59E-01		pCi/g		2.66E-01	
B3-5	E3KRV1AA	CO-60	3.32E-02 +- 2.91E-02	U	pCi/g		6.12E-02	
		CS-137	1.11E-01 +- 6.19E-02	J	pCi/g		5.56E-02	
		K-40	4.58E+00 +- 9.03E-01		pCi/g		4.36E-01	
		RA-226	1.02E+00 +- 1.67E-01		pCi/g		8.46E-02	
		TH-232	8.43E-01 +- 4.04E-01		pCi/g		2.80E-01	
		U-238DHP	1.46E+00 +- 1.08E+00		pCi/g		1.04E+00	
B6-8	E3KRA1AA	CO-60	4.33E-02 +- 3.64E-02	U	pCi/g		7.41E-02	
		CS-137	2.54E-01 +- 8.16E-02		pCi/g		5.26E-02	
		K-40	5.06E+00 +- 1.09E+00		pCi/g		5.50E-01	
		RA-226	8.82E-01 +- 1.73E-01		pCi/g		1.02E-01	
		TH-232	1.24E+00 +- 3.46E-01		pCi/g		2.73E-01	
		U-238DHP	6.40E-01 +- 1.11E+00	U	pCi/g		1.38E+00	
B7-9	E3KRL1AA	CO-60	1.48E-02 +- 2.90E-02	U	pCi/g		5.78E-02	
		CS-137	3.43E-01 +- 7.29E-02		pCi/g		5.56E-02	
		K-40	3.67E+00 +- 8.69E-01		pCi/g		4.92E-01	
		RA-226	8.22E-01 +- 1.58E-01		pCi/g		1.18E-01	
		TH-232	4.80E-01 +- 3.46E-01		pCi/g		3.90E-01	
C13-21	E3KRQ1AA	CO-60	2.75E-01 +- 7.17E-02		pCi/g		7.09E-02	
		CS-137	7.71E-01 +- 1.36E-01		pCi/g		6.78E-02	

RER - Replicate Error Ratio = (S-D)/|sqrt(sq(TPUs)+sq(TPUd))| as defined by ICPT BOA.

J Qual - No U qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the

Sample Results Summary

STL Richland

Ordered by Client Sample ID, Batch No.

Date: 10-Jul-02

Report No. : 19932 **SDG No:** 20425

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC/MDA	RER
C13-21	E3KRQ1AA	K-40	1.25E+01 +- 1.94E+00		pCi/g		5.15E-01	
		RA-226	1.47E+00 +- 2.50E-01		pCi/g		1.10E-01	
		TH-232	1.42E+00 +- 4.16E-01		pCi/g		3.78E-01	
C6-9	E3KRX1AA	CO-60	8.68E-01 +- 1.45E-01		pCi/g		6.19E-02	
		CS-137	5.67E+00 +- 7.09E-01		pCi/g		8.52E-02	
		K-40	9.10E+00 +- 1.53E+00		pCi/g		5.49E-01	
		RA-226	1.33E+00 +- 2.35E-01		pCi/g		1.35E-01	
		TH-232	1.28E+00 +- 5.05E-01		pCi/g		4.66E-01	
		U-238DHP	1.57E+00 +- 1.73E+00	U	pCi/g		2.18E+00	
C9-15	E3KRN1AA	CO-60	5.29E-01 +- 1.01E-01		pCi/g		5.64E-02	
		CS-137	7.35E-01 +- 1.20E-01		pCi/g		6.50E-02	
		K-40	8.50E+00 +- 1.48E+00		pCi/g		5.87E-01	
		RA-226	1.10E+00 +- 1.92E-01		pCi/g		1.02E-01	
		TH-232	1.14E+00 +- 3.72E-01		pCi/g		3.48E-01	
C9-16	E3KRE1AA	CO-60	2.83E-02 +- 3.07E-02	U	pCi/g		6.20E-02	
		CS-137	5.12E-01 +- 9.43E-02		pCi/g		5.71E-02	
		K-40	7.17E+00 +- 1.21E+00		pCi/g		4.19E-01	
		RA-226	1.17E+00 +- 1.94E-01		pCi/g		8.76E-02	
		TH-232	1.15E+00 +- 3.43E-01		pCi/g		2.95E-01	
		U-238DHP	2.32E+00 +- 1.16E+00		pCi/g		1.02E+00	
D2-2	E3KQR1AA	CO-60	3.21E-02 +- 4.18E-02	U	pCi/g		8.07E-02	
		CS-137	1.04E+00 +- 1.61E-01		pCi/g		6.07E-02	
		K-40	6.90E+00 +- 1.20E+00		pCi/g		5.46E-01	
		RA-226	1.10E+00 +- 1.93E-01		pCi/g		1.17E-01	
		TH-232	9.29E-01 +- 4.34E-01		pCi/g		4.27E-01	
D2-2 DUP	E3KQR1AC	CO-60	6.39E-02 +- 3.95E-02	U	pCi/g		8.18E-02	
		CS-137	1.20E+00 +- 1.73E-01		pCi/g		6.23E-02	
		K-40	6.03E+00 +- 1.16E+00		pCi/g		5.36E-01	
		RA-226	1.05E+00 +- 1.91E-01		pCi/g		1.07E-01	
		TH-232	7.43E-01 +- 3.79E-01		pCi/g		3.13E-01	
P-99	E3KQ01AA	CO-60	1.91E-02 +- 4.16E-02	U	pCi/g		7.96E-02	
		CS-137	2.31E-01 +- 6.21E-02		pCi/g		7.40E-02	
		K-40	1.07E+01 +- 1.74E+00		pCi/g		5.36E-01	
		RA-226	1.43E+00 +- 2.42E-01		pCi/g		1.12E-01	

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

Date: 10-Jul-02

Sample Results Summary
STL Richland
Ordered by Client Sample ID, Batch No.

Report No. : 19932

SDG No: 20425

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC/MDA	RER
P-99	E3KQ01AA	TH-232	1.35E+00 +- 4.83E-01		pCi/g		3.95E-01	
		U-238DHP	2.11E+00 +- 1.71E+00		pCi/g		2.08E+00	

Number of Results: 104

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

APPENDIX G

SHIPPING PAPERS

FORM 540 — Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 800 424 9300

ORGANIZATION: Chem-Trek ATG acct#ALDT

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? [X] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST: 1

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [X] NO
If "Yes," provide Manifest Number: NA

EPA MANIFEST NUMBER: NA

5. SHIPPER – NAME AND FACILITY
US Army Ft. McClellan, AL
US Army Operations Support Cmd
Attn: AMSOS-SF
Rock Island, IL 61299

USER PERMIT NUMBER: 0201 001 246
SHIPMENT NUMBER: NA

CONTACT: Wade Fillingame

6. CARRIER – Name and Address
Greenfield Logistical Solution
PO Box 580
Tooele, UT 84074

CONTACT: Veronica Hoffman

SIGNATURE – Authorized carrier acknowledging waste receipt: Larry Jewell

SHIPMENT I.D. NUMBER: 10036.04-03

[ ] COLLECTOR
[ ] PROCESSOR
[X] GENERATOR TYPE (Specify): G

TELEPHONE NUMBER (Include Area Code): 865-300-5789

EPA I.D. NUMBER: NA

SHIPPING DATE: 3/29/02

TELEPHONE NUMBER (Include Area Code): 865-384-5594

DATE: 3-29-02

7. FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 1 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): USA-98-046 (03)

9. CONSIGNEE - Name and Facility Address
Envirocare of Utah, Inc.
Clive Disposal Site
Interstate 80, Exit 49
Clive, UT 84029

CONTACT: Shipping and Receiving

TELEPHONE NUMBER (Include Area Code): (435)884-0155

SIGNATURE - Authorized consignee acknowledging waste receipt

DATE

10. CERTIFICATION

This is to certify that the herein-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. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: Wade Fillingame
See consignee block below.

TITLE: Sr. Broker

DATE: 03/29/2002

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity, n.o.s., 7, UN2912 Soil and debris	NA	na	Solid /Oxides	Co-60	Cs-137	K-40	Ra-226	8.0072E+02	2.1641E+01	LSA-II	40149. LBS; 540. FT3	GFLU 1001
				Th-230	Th-232	U-nat						

FOR CONSIGNEE USE ONLY

The original signed manifest resides with:
Wade Fillingame
1550 Bear Creek Rd.
Kingston, TN 37763
865-300-5789

___ Record Waste Description Inadequate
___ Contamination or Leakage Detected
___ Unexpected Exposure Rates Detected
___ Labels, Markings, etc. Inadequate
___ Container Integrity Inadequate
___ Other
___ No Violations Detected on this Shipment.

20. TERMS AND CONDITION

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material _____ is (or) __✓__ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1.

B. TITLE: Upon acceptance at the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in Envirocare of Utah, Inc.

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah, Inc.'s facility license.

D. INDEMNIFICATION: Generator agrees to indemnify Envirocare of Utah, Inc., its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST,) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 541

Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	TOTAL
1	m3 15.2911 ft3 540.0000	kg 18211.2813 ton 20.0745	NP	NP	NP	NP

ACTIVITY	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE	
MBq	8.0072E+02	NP	NP	NP	NP	(kgs)	NA
mCi	2.1641E+01	NP	NP	NP	NP	(tons)	NA

2. MANIFEST NUMBER USA-98-046 (03)

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME US Army Ft. McClellan, AL

SHIPMENT ID NUMBER 10036.04-03

DISPOSAL CONTAINER DESCRIPTION / WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

5. CONTAINER IDENTIFICATION NUMBER / GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) (ton)	9. SURFACE RADIATION LEVEL mSv/hr mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm2 dpm/100 cm2 ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION: CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF>0.1%	15. RADIOLOGICAL DESCRIPTION: INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT: RADIONUCLIDES	pCi/gm	MBq	mCi	16. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
GFLU 1001/ATG-OSC-02	IM	15.2911	18211.2813	3.4000E-02	<3.3400E-06	<3.3400E-05	22,39,29	15.2911	NA	Oxides/NA	0.00	Co-60	1.20107E+03	6.5386E+02	1.7672E+01	AU
		540.0000	20.0745	3.4000E+00	<2.000E+02	<2.000E+03		540.0000				Cs-137	2.50245E+02	1.3623E+02	3.6820E+00	
												K-40	6.40906E+00	3.4891E+00	9.4300E-02	
												Ra-226	9.99079E-01	5.4390E-01	1.4700E-02	
												Th-230	2.00495E+00	1.0915E+00	2.9500E-02	
												Th-232	2.10010E+00	1.1433E+00	3.0900E-02	
												U-nat	8.01982E+00	4.3660E+00	1.1800E-01	
												Subtotal		8.0072E+02	2.1641E+01	
												Total		8.0072E+02	2.1641E+01	
Shipment Totals		15.2911	18211.2813											8.0072E+02	2.1641E+01	
		540.0000	20.0745													

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural over-packs the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in item 6, or additional page.

Note 1A: Bulk Packaging Description Codes (Choose one code as may be applicable.)

A Gondola
B Intermodal
C End-dump
D Roll-off
E Seavan

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in item 11, or additional page

Note 2A: Specific Waste Descriptions (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note 3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S" and the media vendor and brand name must also be identified in Item 13. Code 100=NONE REQUIRED

Solidification
90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in item 13, or additional page
100. None Required.

FORM 540 — Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 800 424 9300

ORGANIZATION: Chem-Trek ATG acct#ALDT

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? [X] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST ==> 1

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [X] NO
If "Yes," provide Manifest Number ==>

EPA MANIFEST NUMBER: NA

5. SHIPPER – NAME AND FACILITY
US Army Ft. McClellan, AL
US Army Operations Support Cmd
Attn: AMSOS-SF
Rock Island, IL 61299

USER PERMIT NUMBER: 0201 001 248

SHIPMENT NUMBER: NA

CONTACT: Wade Fillingame

6. CARRIER – Name and Address
Greenfield Logistical Solution
PO Box 580
Tooele, UT 84074

CONTACT: Veronica Hoffman

SIGNATURE – Authorized carrier acknowledging waste receipt: Larry Jewell

SHIPMENT I.D. NUMBER: USA-98-046 (04)

[ ] COLLECTOR
[ ] PROCESSOR
[X] GENERATOR TYPE (Specify) G

TELEPHONE NUMBER (Include Area Code): 865-300-5789

EPA I.D. NUMBER: NA

SHIPPING DATE: 4/1/02

TELEPHONE NUMBER (Include Area Code): 865-384-5594

DATE: 4-4-02

7. FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 1 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 4001-01-02

9. CONSIGNEE - Name and Facility Address
Envirocare of Utah, Inc.
Clive Disposal Site
Interstate 80, Exit 49
Clive, UT 84029

CONTACT: Shipping and Receiving

TELEPHONE NUMBER (Include Area Code): (435)884-0155

SIGNATURE - Authorized consignee acknowledging waste receipt

DATE

10. CERTIFICATION

This is to certify that the herein-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. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: W. Wade Fillingame, Jr. See consignee block below.

TITLE: Sr. Broker

DATE: 04/01/2002

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity, n.o.s., 7, UN2912 Soil and Debris	NA	na	Solid /Oxides	Co-60	Cs-137	K-40	Ra-226	7.4528E+02	2.0143E+01	LSA-II	37811. LBS; 540. FT3	BKRU 2782
				Th-230	Th-232	U-nat						

FOR CONSIGNEE USE ONLY

The original signed manifest resides with:
Ken Hilton
1550 Bear Creek Rd.
Kingston, TN 37763
865-425-1006

___ Record Waste Description Inadequate
___ Contamination or Leakage Detected
___ Unexpected Exposure Rates Detected
___ Labels, Markings, etc. Inadequate
___ Container Integrity Inadequate
___ Other
___ No Violations Detected on this Shipment.

20. TERMS AND CONDITION

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material _____ is (or) ___✓___ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1.

B. TITLE: Upon acceptance at the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in Envirocare of Utah, Inc.

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah, Inc.'s facility license.

D. INDEMNIFICATION: Generator agrees to indemnify Envirocare of Utah, Inc., its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST,) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 540 (10-96)

FORM 541

Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	TOTAL
1	m3 15.2911 ft3 540.0000	kg 17150.7822 ton 18.9055	NP	NP	NP	NP

ACTIVITY	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE	
MBq	7.4528E+02	NP	NP	NP	NP	(kgs)	NA
mCi	2.0143E+01	NP	NP	NP	NP	(tons)	NA

2. MANIFEST NUMBER
4001-01-02

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME
US Army Ft. McClellan, AL

SHIPMENT ID NUMBER
USA-98-046 (04)

DISPOSAL CONTAINER DESCRIPTION / WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

5. CONTAINER IDENTIFICATION NUMBER / GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) / (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) / (ton)	9. SURFACE RADIATION LEVEL mSv/hr / mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm2 / dpm/100 cm2 ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) / (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION: CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF>0.1%	15. RADIOLOGICAL DESCRIPTION: INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT: RADIONUCLIDES	pCi/gm	MBq	mCi	16. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
BKRU 2782/ATG-OSC-02	1M	15.2911	17150.7822	5.0000E-02	<3.3400E-06	<3.3400E-05	22,39,29	15.2911	NA	Oxides/NA	0.00	Co-60	1.20108E+03	6.0858E+02	1.6448E+01	AU
		540.0000	18.9055	5.0000E+00	<2.000E+02	<2.000E+03		540.0000				Cs-137	2.50249E+02	1.2680E+02	3.4270E+00	
												K-40	6.40411E+00	3.2449E+00	8.7700E-02	
												Ra-226	1.00041E+00	5.0690E-01	1.3700E-02	
												Th-230	2.00083E+00	1.0138E+00	2.7400E-02	
												Th-232	2.10306E+00	1.0656E+00	2.8800E-02	
												U-nat	8.03252E+00	4.0700E+00	1.1000E-01	
												Subtotal		7.4528E+02	2.0143E+01	
												Total		7.4528E+02	2.0143E+01	
Shipment Totals		15.2911	17150.7822											7.4528E+02	2.0143E+01	
		540.0000	18.9055													

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural over-packs the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page.

Note 1A: Bulk Packaging Description Codes (Choose one code as may be applicable.)

A Gondola
B Intermodal
C End-dump
D Roll-off
E Seavan

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in item 11, or additional page

Note 2A: Specific Waste Descriptions (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note 3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S" and the media vendor and brand name must also be identified in Item 13. Code 100=NONE REQUIRED

Solidification

90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in item 13, or additional page
100. None Required.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

ISOTOPES REPORT

For Manifest # 4001-01-02
Envirocare of Utah, Inc.

Isotope	Total Activity (MBq)	Total Activity (mCi)
Co-60	6.0858E+02	1.6448E+01
Cs-137	1.2680E+02	3.4270E+00
K-40	3.2449E+00	8.7700E-02
Ra-226	5.0690E-01	1.3700E-02
Th-230	1.0138E+00	2.7400E-02
Th-232	1.0656E+00	2.8800E-02
U-nat	4.0700E+00	1.1000E-01

FORM 540 — Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 800 424 9300

ORGANIZATION: Chem-Trek ATG acct#ALDT

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? [X] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST: 1

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [X] NO
If "Yes," provide Manifest Number ⟹

EPA MANIFEST NUMBER: NA

5. SHIPPER – NAME AND FACILITY
US Army Ft. McClellan, AL
US Army Operations Support Cmd
Attn: AMSOS-SF
Rock Island, IL 61299

USER PERMIT NUMBER: 0201 001 246

SHIPMENT NUMBER: NA

CONTACT: Wade Fillingame

6. CARRIER – Name and Address
Greenfield Logistical Solution
PO Box 580
Tooele, UT 84074

CONTACT: Veronica Hoffman

SIGNATURE – *Authorized carrier acknowledging waste receipt*

SHIPMENT I.D. NUMBER: USA-98-048 (5)

[ ] COLLECTOR
[ ] PROCESSOR
[X] GENERATOR TYPE (Specify) G

TELEPHONE NUMBER (Include Area Code): 865-300-5789

EPA I.D. NUMBER: NA

SHIPPING DATE: 4/1/02

TELEPHONE NUMBER (Include Area Code): 865-384-5594

DATE:

7. FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 1 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 4008-01-03

9. CONSIGNEE - Name and Facility Address
Envirocare of Utah, Inc.
Clive Disposal Site
Interstate 80, Exit 49
Clive, UT 84029

CONTACT: Shipping and Receiving

TELEPHONE NUMBER (Include Area Code): (435)884-0155

SIGNATURE - *Authorized consignee acknowledging waste receipt*

DATE:

10. CERTIFICATION

This is to certify that the herein-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. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: W. Wade Fillingame, Jr. See consignee block below

TITLE: Sr. Broker

DATE: 04/01/2002

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity, n.o.s., 7, UN2912 Soil and Debris	NA	na	Solid /Oxides	Co-60	Cs-137	K-40	Ra-226	7.8839E+02	2.1308E+01	LSA-II	39439. LBS; 540. FT3	GFLU 1121
				Th-230	Th-232	U-nat						

FOR CONSIGNEE USE ONLY

The original signed manifest resides with:
Ken Hilton
1550 Bear Creek Rd.
Harriman, TN 37763
865-425-1006

___ Record Waste Description Inadequate
___ Contamination or Leakage Detected
___ Unexpected Exposure Rates Detected
___ Labels, Markings, etc. Inadequate
___ Container Integrity Inadequate
___ Other
___ No Violations Detected on this Shipment.

20. TERMS AND CONDITION

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material _____ is (or) __✓__ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1.

B. TITLE: Upon acceptance at the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in Envirocare of Utah, Inc.

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah, Inc.'s facility license.

D. INDEMNIFICATION: Generator agrees to indemnify Envirocare of Utah, Inc., its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST,) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 541

Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME		NET WASTE WEIGHT		SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	TOTAL
1	m3	15.2911	kg	17889.2307	NP	NP	NP	NP
	ft3	540.0000	ton	19.7195				

ACTIVITY

	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE	
MBq	7.8839E+02	NP	NP	NP	NP	(kgs)	NA
mCi	2.1308E+01	NP	NP	NP	NP	(tons)	NA

2. MANIFEST NUMBER
4008-01-03

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME
US Army Ft. McClellan, AL

SHIPMENT ID NUMBER
USA-98-048 (5)

DISPOSAL CONTAINER DESCRIPTION / WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

5. CONTAINER IDENTIFICATION NUMBER / GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) (ton)	9. SURFACE RADIATION LEVEL mSv/hr mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm2 dpm/100 cm2 ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION: CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF>0.1%	15. RADIOLOGICAL DESCRIPTION: INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT: RADIONUCLIDES	pCi/gm	MBq	mCi	16. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
GFLU 1121/ATG-OSC-02	IM	15.2911	17889.2307	3.4000E-02	<3.3400E-06	<3.3400E-05	22,39,29	15.2911	NA	Oxides/NA	0.00	Co-60	1.20106E+03	6.4380E+02	1.7400E+01	AU
		540.0000	19.7195	3.4000E+00	<2.000E+02	<2.000E+03		540.0000				Cs-137	2.50221E+02	1.3413E+02	3.6250E+00	
												K-40	6.40565E+00	3.4336E+00	9.2800E-02	
												Ra-226	1.00088E+00	5.3650E-01	1.4500E-02	
												Th-230	2.00177E+00	1.0730E+00	2.9000E-02	
												Th-232	2.09840E+00	1.1248E+00	3.0400E-02	
												U-nat	8.00706E+00	4.2920E+00	1.1600E-01	
												Subtotal		7.8839E+02	2.1308E+01	
												Total		7.8839E+02	2.1308E+01	
Shipment Totals		15.2911	17889.2307											7.8839E+02	2.1308E+01	
		540.0000	19.7195													

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural over-packs the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page.

Note 1A: Bulk Packaging Description Codes (Choose one code as may be applicable.)

A Gondola
B Intermodal
C End-dump
D Roll-off
E Seavan

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in item 11, or additional page

Note 2A: Specific Waste Descriptions (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note 3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S" and the media vendor and brand name must also be identified in item 13. Code 100=NONE REQUIRED

Solidification
90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in item 13, or additional page
100. None Required.

FORM 541 (10-8..

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

ISOTOPES REPORT

For Manifest # 4008-01-03
Envirocare of Utah, Inc.

Isotope	Total Activity (MBq)	Total Activity (mCi)
Co-60	6.4380E+02	1.7400E+01
Cs-137	1.3413E+02	3.6250E+00
K-40	3.4336E+00	9.2800E-02
Ra-226	5.3650E-01	1.4500E-02
Th-230	1.0730E+00	2.9000E-02
Th-232	1.1248E+00	3.0400E-02
U-nat	4.2920E+00	1.1600E-01

FORM 540 — Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 800 424 9300

ORGANIZATION: Chem-Trek ATG acct#ALDT

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? [X] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST ==> 1

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [X] NO
If "Yes," provide Manifest Number ==>

EPA MANIFEST NUMBER: NA

5. SHIPPER – NAME AND FACILITY
US Army Ft. McClellan, AL
US Army Operations Support Cmd
Attn: AMSOS-SF
Rock Island, IL 61299

USER PERMIT NUMBER: 0201 001 246

SHIPMENT NUMBER: NA

CONTACT: Wade Fillingame

6. CARRIER – Name and Address
Greenfield Logistical Solution
PO Box 580
Tooele, UT 84074

CONTACT: Veronica Hoffman

SIGNATURE – Authorized carrier acknowledging waste receipt: Larry Jewell

SHIPMENT I.D. NUMBER: USA-98-046 (06)

[ ] COLLECTOR
[ ] PROCESSOR
[X] GENERATOR TYPE (Specify) G

TELEPHONE NUMBER (Include Area Code): 865-300-5789

EPA I.D. NUMBER: NA

SHIPPING DATE: 4/2/02

TELEPHONE NUMBER (Include Area Code): 865-384-5594

DATE: 4-2-02

7. FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 1 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 4008-01-04

9. CONSIGNEE - Name and Facility Address
Envirocare of Utah, Inc.
Clive Disposal Site
Interstate 80, Exit 49
Clive, UT 84029

CONTACT: Shipping and Receiving

TELEPHONE NUMBER (Include Area Code): (435)884-0155

SIGNATURE - Authorized consignee acknowledging waste receipt

DATE

10. CERTIFICATION

This is to certify that the herein-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. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: W. Wade Fillingame, Jr. See consignee block below.

TITLE: Sr. Broker

DATE: 04/02/2002

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity, n.o.s., 7, UN2912 Soil and Debris	NA	na	Solid /Oxides	Co-60	Cs-137	K-40	Ra-226	8.0595E+02	2.1782E+01	LSA-II	40269. LBS; 540. FT3	BKRU 26315
				Th-230	Th-232	U-nat						

FOR CONSIGNEE USE ONLY

The original signed manifest resides with:
Ken Hilton
1550 Bear Creek Rd.
Oak Ridge, TN 37763
865-425-1006

___ Record Waste Description Inadequate
___ Contamination or Leakage Detected
___ Unexpected Exposure Rates Detected
___ Labels, Markings, etc. Inadequate
___ Container Integrity Inadequate
___ Other
___ No Violations Detected on this Shipment.

20. TERMS AND CONDITION

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material _____ is (or) __✓__ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1.

B. TITLE: Upon acceptance at the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in Envirocare of Utah, Inc.

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah, Inc.'s facility license.

D. INDEMNIFICATION: Generator agrees to indemnify Envirocare of Utah, Inc., its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST,) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 541

Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	TOTAL
1	m3 15.2911 ft3 540.0000	kg 18265.7124 ton 20.1345	NP	NP	NP	NP

ACTIVITY	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE	
MBq	8.0595E+02	NP	NP	NP	NP	(kgs)	NA
mCi	2.1782E+01	NP	NP	NP	NP	(tons)	NA

2. MANIFEST NUMBER
4008-01-04

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME
US Army Ft. McClellan, AL

SHIPMENT ID NUMBER
USA-98-046 (06)

DISPOSAL CONTAINER DESCRIPTION							WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER									
							PHYSICAL DESCRIPTION			14. CHEMICAL DESCRIPTION		15. RADIOLOGICAL DESCRIPTION				16. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
5. CONTAINER IDENTIFICATION NUMBER / GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) / (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) / (ton)	9. SURFACE RADIATION LEVEL mSv/hr / mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm2 / dpm/100 cm2 ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) / (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF>0.1%	INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT: RADIONUCLIDES	pCi/gm	MBq	mCi	
BKRU 26315/ATG-OSC-02	IM	15.2911	18265.7124	1.0000E-02	<3.3400E-06	<3.3400E-05	22,39,29	15.2911	NA	Oxides/NA	0.00	Co-60	1.20889E+03	6.5812E+02	1.7787E+01	AU
		540.0000	20.1345	1.0000E+00	<2.000E+02	<2.000E+03		540.0000				Cs-137	2.51877E+02	1.3712E+02	3.7060E+00	
												K-40	6.44984E+00	3.5113E+00	9.4900E-02	
												Ra-226	1.00588E+00	5.4760E-01	1.4800E-02	
												Th-230	2.01175E+00	1.0952E+00	2.9600E-02	
												Th-232	2.11370E+00	1.1507E+00	3.1100E-02	
												U-nat	8.08778E+00	4.4030E+00	1.1900E-01	
												Subtotal		8.0595E+02	2.1782E+01	
												Total		8.0595E+02	2.1782E+01	
Shipment Totals		15.2911	18265.7124											8.0595E+02	2.1782E+01	
		540.0000	20.1345													

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural over-packs the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in item 6, or additional page.

Note 1A: Bulk Packaging Description Codes (Choose one code as may be applicable.)

A Gondola
B Intermodal
C End-dump
D Roll-off
E Seavan

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in item 11, or additional page

Note 2A: Specific Waste Descriptions (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note 3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S" and the media vendor and brand name must also be identified in item 13. Code 100=NONE REQUIRED

Solidification
90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in item 13, or additional page
100. None Required.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

ISOTOPES REPORT

For Manifest # 4008-01-04
Envirocare of Utah, Inc.

Isotope	Total Activity (MBq)	Total Activity (mCi)
Co-60	6.5812E+02	1.7787E+01
Cs-137	1.3712E+02	3.7060E+00
K-40	3.5113E+00	9.4900E-02
Ra-226	5.4760E-01	1.4800E-02
Th-230	1.0952E+00	2.9600E-02
Th-232	1.1507E+00	3.1100E-02
U-nat	4.4030E+00	1.1900E-01

FORM 540 — Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 800 424 9300

ORGANIZATION: Chem-Trek ATG acct#ALDT

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? [X] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST: 1

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [X] NO
If "Yes," provide Manifest Number:

EPA MANIFEST NUMBER: NA

5. SHIPPER – NAME AND FACILITY
US Army Ft. McClellan, AL
US Army Operations Support Cmd
Attn: AMSOS-SF
Rock Island, IL 61299

USER PERMIT NUMBER: 0201 001 348
SHIPMENT NUMBER: NA

CONTACT: Wade Fillingame

6. CARRIER – Name and Address
Greenfield Logistical Solution
PO Box 580
Tooele, UT 84074

CONTACT: Veronica Hoffman

SIGNATURE – Authorized carrier acknowledging waste receipt

SHIPMENT I.D. NUMBER: USA-98-045 (7)

[ ] COLLECTOR
[ ] PROCESSOR
[X] GENERATOR TYPE (Specify) G

TELEPHONE NUMBER (Include Area Code): 865-300-5789

EPA I.D. NUMBER: NA

SHIPPING DATE: 4/2/02

TELEPHONE NUMBER (Include Area Code): 865-384-5594

DATE: 4/2/02

7. FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 1 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 4008-01-05

9. CONSIGNEE - Name and Facility Address
Envirocare of Utah, Inc.
Clive Disposal Site
Interstate 80, Exit 49
Clive, UT 84029

CONTACT: Shipping and Receiving

TELEPHONE NUMBER (Include Area Code): (435)884-0155

SIGNATURE - Authorized consignee acknowledging waste receipt

DATE

10. CERTIFICATION

This is to certify that the herein-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. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: W. Wade Fillingame, Jr. For Consignee Mark Denny

TITLE: Sr. Broker

DATE: 04/02/2002

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity, n.o.s., 7, UN2912 Soil and Debris	NA	na	Solid /Oxides	Co-60	Cs-137	K-40	Ra-226	8.0689E+02	2.1808E+01	LSA-II	40188. LBS; 540. FT3	GFLU 1003
				Th-230	Th-232	U-nat						

FOR CONSIGNEE USE ONLY

The original signed manifest resides with:
Ken Hilton
1550 Bear Creek Rd.
Kingston, TN 37763
865-425-1006

___ Record Waste Description Inadequate
___ Contamination or Leakage Detected
___ Unexpected Exposure Rates Detected
___ Labels, Markings, etc. Inadequate
___ Container Integrity Inadequate
___ Other
___ No Violations Detected on this Shipment.

20. TERMS AND CONDITION

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material _____ is (or) ✓ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1.

B. TITLE: Upon acceptance at the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in Envirocare of Utah, Inc.

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah, Inc.'s facility license.

D. INDEMNIFICATION: Generator agrees to indemnify Envirocare of Utah, Inc., its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST,) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 540 (10-96)

FORM 541

Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	TOTAL
1	m3 15.2911	kg 18228.9714	NP	NP	NP	NP
	ft3 540.0000	ton 20.0940				

ACTIVITY	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE	
MBq	8.0689E+02	NP	NP	NP	NP	(kgs)	NA
mCi	2.1808E+01	NP	NP	NP	NP	(tons)	NA

2. MANIFEST NUMBER
4008-01-05

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME
US Army Ft. McClellan, AL

SHIPMENT ID NUMBER
USA-98-046 (7)

DISPOSAL CONTAINER DESCRIPTION / WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

5. CONTAINER IDENTIFICATION NUMBER / GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) (ton)	9. SURFACE RADIATION LEVEL mSv/hr mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm2 dpm/100 cm2 ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION: CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF>0.1%	15. RADIOLOGICAL DESCRIPTION: INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT: RADIONUCLIDES	pCi/gm	MBq	mCi	16. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
GFLU 1003/ATG-OSC-02	IM	15.2911	18228.9714	1.0000E-02	<3.3400E-06	<3.3400E-05	22,39,29	15.2911	NA	Oxides/NA	0.00	Co-60	1.20106E+03	6.5890E+02	1.7808E+01	AU
		540.0000	20.0940	1.0000E+00	<2.000E+02	<2.000E+03		540.0000				Cs-137	2.50220E+02	1.3727E+02	3.7100E+00	
												K-40	6.40725E+00	3.5150E+00	9.5000E-02	
												Ra-226	9.98182E-01	5.4760E-01	1.4800E-02	
												Th-230	2.00311E+00	1.0989E+00	2.9700E-02	
												Th-232	2.10428E+00	1.1544E+00	3.1200E-02	
												U-nat	8.02593E+00	4.4030E+00	1.1900E-01	
												Subtotal		8.0689E+02	2.1808E+01	
												Total		8.0689E+02	2.1808E+01	
Shipment Totals		15.2911	18228.9714											8.0689E+02	2.1808E+01	
		540.0000	20.0940													

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural over-packs the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page.

Note 1A: Bulk Packaging Description Codes (Choose one code as may be applicable.)

A Gondola
B Intermodal
C End-dump
D Roll-off
E Seavan

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in item 11, or additional page

Note 2A: Specific Waste Descriptions (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note 3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S" and the media vendor and brand name must also be identified in Item 13. Code 100=NONE REQUIRED

Solidification
90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in item 13, or additional page
100. None Required.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

ISOTOPES REPORT

For Manifest # 4008-01-05
Envirocare of Utah, Inc.

Isotope	Total Activity (MBq)	Total Activity (mCi)
Co-60	6.5890E+02	1.7808E+01
Cs-137	1.3727E+02	3.7100E+00
K-40	3.5150E+00	9.5000E-02
Ra-226	5.4760E-01	1.4800E-02
Th-230	1.0989E+00	2.9700E-02
Th-232	1.1544E+00	3.1200E-02
U-nat	4.4030E+00	1.1900E-01

FORM 540 — Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 800 424 9300

ORGANIZATION: Chem-Trek ATG acct#ALDT

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? [X] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST: 1

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [X] NO
If "Yes," provide Manifest Number:

EPA MANIFEST NUMBER: NA

5. SHIPPER – NAME AND FACILITY
US Army Ft. McClellan, AL
US Army Operations Support Cmd
Attn: AMSOS-SF
Rock Island, IL 61299

USER PERMIT NUMBER: 0201 001 246
SHIPMENT NUMBER: NA

CONTACT: Wade Fillingame

6. CARRIER – Name and Address
Greenfield Logistical Solution
PO Box 580
Tooele, UT 84074

CONTACT: Veronica Hoffman

SIGNATURE – Authorized carrier acknowledging waste receipt: Larry Gunell

SHIPMENT I.D. NUMBER: USA-98-046 (8)

[ ] COLLECTOR
[ ] PROCESSOR
[X] GENERATOR TYPE (Specify) G

TELEPHONE NUMBER (Include Area Code): 865-300-5789

EPA I.D. NUMBER: NA

SHIPPING DATE: 4/3/02

TELEPHONE NUMBER (Include Area Code): 865-384-5594

DATE: 4-3-02

7. FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 1 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 4008-01-06

9. CONSIGNEE - Name and Facility Address
Envirocare of Utah, Inc.
Clive Disposal Site
Interstate 80, Exit 49
Clive, UT 84029

CONTACT: Shipping and Receiving

TELEPHONE NUMBER (Include Area Code): (435)884-0155

SIGNATURE - Authorized consignee acknowledging waste receipt

DATE

10. CERTIFICATION

This is to certify that the herein-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. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: W. Wade Fillingame, Jr. See consignee block below.

TITLE: Sr. Broker

DATE: 04/03/2002

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity, n.o.s., 7, UN2912 Soil and Debris	NA	na	Solid /Oxides	Co-60	Cs-137	K-40	Ra-226	8.5972E+02	2.3236E+01	LSA-II	42449. LBS; 540. FT3	BKRU 25966
				Th-230	Th-232	U-nat						

FOR CONSIGNEE USE ONLY

The original signed manifest resides with:
Ken Hilton
1550 Bear Creek Rd.
Kingston, TN 37763
865-425-1006

- ___ Record Waste Description Inadequate
- ___ Contamination or Leakage Detected
- ___ Unexpected Exposure Rates Detected
- ___ Labels, Markings, etc. Inadequate
- ___ Container Integrity Inadequate
- ___ Other
- ___ No Violations Detected on this Shipment.

20. TERMS AND CONDITION

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material _____ is (or) ✓ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1.

B. TITLE: Upon acceptance at the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in Envirocare of Utah, Inc.

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah, Inc.'s facility license.

D. INDEMNIFICATION: Generator agrees to indemnify Envirocare of Utah, Inc., its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST,) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 540 (10-96)

FORM 541

Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT
1	m3 15.2911 ft3 540.0000	kg 19254.5438 ton 21.2245

SPECIAL NUCLEAR MATERIAL (grams)

U-233	U-235	Pu	TOTAL
NP	NP	NP	NP

ACTIVITY

	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129
MBq	8.5972E+02	NP	NP	NP	NP
mCi	2.3236E+01	NP	NP	NP	NP

SOURCE

(kgs)	NA
(tons)	NA

2. MANIFEST NUMBER
4008-01-06

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME
US Army Ft. McClellan, AL

SHIPMENT ID NUMBER
USA-98-046 (8)

DISPOSAL CONTAINER DESCRIPTION / WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

5. CONTAINER IDENTIFICATION NUMBER / GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) (ton)	9. SURFACE RADIATION LEVEL mSv/hr mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm2 dpm/100 cm2 ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION: CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF>0.1%	15. RADIOLOGICAL DESCRIPTION: INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT: RADIONUCLIDES	pCi/gm	MBq	mCi	16. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
BKRU 25966/ATG-OSC-02	IM	15.2911	19254.5438	3.6000E-02	<3.3400E-06	<3.3400E-06	22,39,29	15.2911	NA	Oxides/NA	0.00	Co-60	1.20109E+03	7.0208E+02	1.8975E+01	AU
		540.0000	21.2245	3.6000E+00	<2.000E+02	<2.000E+03		540.0000				Cs-137	2.50220E+02	1.4626E+02	3.9530E+00	
												K-40	6.39318E+00	3.7370E+00	1.0100E-01	
												Ra-226	1.00012E+00	5.8460E-01	1.5800E-02	
												Th-230	2.00024E+00	1.1692E+00	3.1600E-02	
												Th-232	2.10152E+00	1.2284E+00	3.3200E-02	
												U-nat	7.97565E+00	4.6620E+00	1.2600E-01	
												Subtotal		8.5972E+02	2.3236E+01	
												Total		8.5972E+02	2.3236E+01	
Shipment Totals		15.2911	19254.5438											8.5972E+02	2.3236E+01	
		540.0000	21.2245													

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural over-packs the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page.

Note 1A: Bulk Packaging Description Codes (Choose one code as may be applicable.)

A Gondola
B Intermodal
C End-dump
D Roll-off
E Seavan

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in item 11, or additional page

Note 2A: Specific Waste Descriptions (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note 3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S" and the media vendor and brand name must also be identified in Item 13. Code 100=NONE REQUIRED

Solidification

90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in Item 13, or additional page
100. None Required.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

ISOTOPES REPORT

For Manifest # 4008-01-06
Envirocare of Utah, Inc.

Isotope	Total Activity (MBq)	Total Activity (mCi)
Co-60	7.0208E+02	1.8975E+01
Cs-137	1.4626E+02	3.9530E+00
K-40	3.7370E+00	1.0100E-01
Ra-226	5.8460E-01	1.5800E-02
Th-230	1.1692E+00	3.1600E-02
Th-232	1.2284E+00	3.3200E-02
U-nat	4.6620E+00	1.2600E-01

FORM 540 — Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 800 424 9300

ORGANIZATION: Chem-Trek ATG acct#ALDT

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? [X] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST ==> 1

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [X] NO
If "Yes," provide Manifest Number ==>

EPA MANIFEST NUMBER: NA

5. SHIPPER – NAME AND FACILITY
US Army Ft. McClellan, AL
US Army Operations Support Cmd
Attn: AMSOS-SF
Rock Island, IL 61299

USER PERMIT NUMBER: 0201 001 246

SHIPMENT NUMBER: NA

CONTACT: Wade Fillingame

6. CARRIER – Name and Address
Action Resources, Inc.
, AL

CONTACT: NA

SIGNATURE – Authorized carrier acknowledging waste receipt: [signature]

SHIPMENT I.D. NUMBER: USA-98-046 (19)

[ ] COLLECTOR
[ ] PROCESSOR
[X] GENERATOR TYPE (Specify) G

TELEPHONE NUMBER (Include Area Code): 865-300-5789

EPA I.D. NUMBER: ALR000007237

SHIPPING DATE: 4/18/02

TELEPHONE NUMBER (Include Area Code): 256-352-2689

DATE: 4-18-02

7. FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 1 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 4008-01-17

9. CONSIGNEE - Name and Facility Address
Envirocare of Utah, Inc.
Clive Disposal Site
Interstate 80, Exit 49
Clive, UT 84029

CONTACT: Shipping and Receiving

TELEPHONE NUMBER (Include Area Code): (435)884-0155

SIGNATURE – Authorized consignee acknowledging waste receipt

DATE

10. CERTIFICATION

This is to certify that the herein-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. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: W. Wade Fillingame, Jr. For Camelot Rock Products — [signature]

TITLE: Sr. Broker

DATE: 04/17/2002

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity, n.o.s., 7, UN2912 Soil and Debris	NA	na	Solid /Oxides	Co-60	Cs-137	K-40	Ra-226	7.9867E+02	2.1586E+01	LSA-II	39874. LBS; 540. FT3	MHFU 1776
				Th-230	Th-232	U-nat						

FOR CONSIGNEE USE ONLY

The original signed manifest resides with:
Ken Hilton
1550 Bear Creek Rd.
Kingston, TN 37763
865-425-1006

___ Record Waste Description Inadequate
___ Contamination or Leakage Detected
___ Unexpected Exposure Rates Detected
___ Labels, Markings, etc. Inadequate
___ Container Integrity Inadequate
___ Other
___ No Violations Detected on this Shipment.

20. TERMS AND CONDITION

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material _____ is (or) ___✓___ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1.

B. TITLE: Upon acceptance at the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in Envirocare of Utah, Inc.

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah, Inc.'s facility license.

D. INDEMNIFICATION: Generator agrees to indemnify Envirocare of Utah, Inc., its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST,) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 540 (10-96)

FORM 541

Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	TOTAL
1	m3 15.2911 ft3 540.0000	kg 18086.5434 ton 19.9370	NP	NP	NP	NP

ACTIVITY	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE	
MBq	7.9867E+02	NP	NP	NP	NP	(kgs)	NA
mCi	2.1586E+01	NP	NP	NP	NP	(tons)	NA

2. MANIFEST NUMBER 4008-01-17

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME US Army Ft. McClellan, AL

SHIPMENT ID NUMBER USA-98-046 (19)

DISPOSAL CONTAINER DESCRIPTION							WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER									
5. CONTAINER IDENTIFICATION NUMBER / GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) (ton)	9. SURFACE RADIATION LEVEL mSv/hr mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm2 dpm/100 cm2 ALPHA	BETA-GAMMA	PHYSICAL DESCRIPTION 11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF>0.1%	15. RADIOLOGICAL DESCRIPTION INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT RADIONUCLIDES	pCi/gm	MBq	mCi	16. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
MHFU 1776/ATG-OSC-02	IM	15.2911	18086.5434	5.0000E-02	<3.3400E-06	<3.3400E-05	22,39,29	15.2911	NA	Oxides/NA	0.00	Co-60	1.19858E+03	6.5120E+02	1.7600E+01	AU
		540.0000	19.9370	5.0000E+00	<2.000E+02	<2.000E+03		540.0000				Cs-137	2.51974E+02	1.3690E+02	3.7000E+00	
												K-40	6.40831E+00	3.4817E+00	9.4100E-02	
												Ra-226	1.00108E+00	5.4390E-01	1.4700E-02	
												Th-230	2.00149E+00	1.0874E+00	2.9390E-02	
												Th-232	2.10160E+00	1.1418E+00	3.0860E-02	
												U-nat	7.94058E+00	4.3142E+00	1.1660E-01	
												Subtotal		7.9867E+02	2.1586E+01	
												Total		7.9867E+02	2.1586E+01	
Shipment Totals		15.2911	18086.5434											7.9867E+02	2.1586E+01	
		540.0000	19.9370													

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural over-packs the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in item 6, or additional page.

Note 1A: Bulk Packaging Description Codes (Choose one code as may be applicable.)

A Gondola
B Intermodal
C End-dump
D Roll-off
E Seavan

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in item 11, or additional page

Note 2A: Specific Waste Descriptions (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note 3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S" and the media vendor and brand name must also be identified in item 13. Code 100=NONE REQUIRED

Solidification
90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in item 13, or additional page
100. None Required.

FORM 540 — Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 800 424 9300

ORGANIZATION: Chem-Trek ATG acct#ALDT

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? [X] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST ⟹ 1

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [X] NO
If "Yes," provide Manifest Number ⟹

EPA MANIFEST NUMBER: NA

5. SHIPPER – NAME AND FACILITY
US Army Ft. McClellan, AL
US Army Operations Support Cmd
Attn: AMSOS-SF
Rock Island, IL 61299

USER PERMIT NUMBER: 0201 001 246

SHIPMENT NUMBER: NA

CONTACT: Wade Fillingame

6. CARRIER – Name and Address
Action Resources, Inc.
, AL

CONTACT: NA

SIGNATURE – Authorized carrier acknowledging waste receipt

SHIPMENT I.D. NUMBER: USA-98-046 (17)

[ ] COLLECTOR
[ ] PROCESSOR
[X] GENERATOR TYPE (Specify) G

TELEPHONE NUMBER (Include Area Code): 865-300-5789

EPA I.D. NUMBER: ALR000007237

SHIPPING DATE: 4/18/02

TELEPHONE NUMBER (Include Area Code): 256-352-2689

DATE: 4-18-02

7. FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 1 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 4008-01-16

9. CONSIGNEE - Name and Facility Address
Envirocare of Utah, Inc.
Clive Disposal Site
Interstate 80, Exit 49
Clive, UT 84029

CONTACT: Shipping and Receiving

TELEPHONE NUMBER (Include Area Code): (435)884-0155

SIGNATURE - Authorized consignee acknowledging waste receipt

DATE

10. CERTIFICATION

This is to certify that the herein-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. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: W. Wade Fillingame, Jr.
Vice President Stock Trading

TITLE: Sr. Broker

DATE: 04/17/2002

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity, n.o.s., 7, UN2912 Soil and Debris	NA	na	Solid /Oxides	Co-60	Cs-137	K-40	Ra-226	7.9122E+02	2.1384E+01	LSA-II	39615. LBS; 540. FT3	MHFU 1767
				Th-230	Th-232	U-nat						

FOR CONSIGNEE USE ONLY

~~The original signed manifest resides with:~~
Ken Hilton
1550 Bear Creek Rd.
Kingston, TN 37763
865-425-1006

___ Record Waste Description Inadequate
___ Contamination or Leakage Detected
___ Unexpected Exposure Rates Detected
___ Labels, Markings, etc. Inadequate
___ Container Integrity Inadequate
___ Other
___ No Violations Detected on this Shipment.

20. TERMS AND CONDITION

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material _____ is (or) ✓ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land disposal restriction notice and/or certification as required by 40 CFR 268.1.

B. TITLE: Upon acceptance at the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in Envirocare of Utah, Inc.

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah, Inc.'s facility license.

D. INDEMNIFICATION: Generator agrees to indemnify Envirocare of Utah, Inc., its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST,) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 540 (10-96)

FORM 541

Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT
1	m3 15.2911 ft3 540.0000	kg 17969.0629 ton 19.8075

SPECIAL NUCLEAR MATERIAL (grams)

U-233	U-235	Pu	TOTAL
NP	NP	NP	NP

ACTIVITY

	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE	
MBq	7.9122E+02	NP	NP	NP	NP	(kgs)	NA
mCi	2.1384E+01	NP	NP	NP	NP	(tons)	NA

2. MANIFEST NUMBER
4008-01-16

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME
US Army Ft. McClellan, AL

SHIPMENT ID NUMBER
USA-98-046 (17)

DISPOSAL CONTAINER DESCRIPTION							WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER									
							PHYSICAL DESCRIPTION			14. CHEMICAL DESCRIPTION		15. RADIOLOGICAL DESCRIPTION				16. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
5. CONTAINER IDENTIFICATION NUMBER / GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) (ton)	9. SURFACE RADIATION LEVEL mSv/hr mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm2 dpm/100 cm2 ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF>0.1%	INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT RADIONUCLIDES	pCi/gm	MBq	mCi	
MHFU 1767/ATG-OSC-02	IM	15.2911	17969.0629	3.6000E-03	<3.3400E-06	<3.3400E-05	22,39,29	15.2911	NA	Oxides/NA	0.00	Co-60	1.20134E+03	6.4750E+02	1.7500E+01	AU
		540.0000	19.8075	3.6000E-01	<2.000E+02	<2.000E+03		540.0000				Cs-137	2.47133E+02	1.3320E+02	3.6000E+00	
												K-40	6.40487E+00	3.4521E+00	9.3300E-02	
												Ra-226	1.00089E+00	5.3946E-01	1.4580E-02	
												Th-230	2.00178E+00	1.0789E+00	2.9160E-02	
												Th-232	2.10201E+00	1.1329E+00	3.0620E-02	
												U-nat	8.00437E+00	4.3142E+00	1.1660E-01	
												Subtotal		7.9122E+02	2.1384E+01	
												Total		7.9122E+02	2.1384E+01	
Shipment Totals		15.2911	17969.0629											7.9122E+02	2.1384E+01	
		540.0000	19.8075													

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural over-packs the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page.

Note 1A: Bulk Packaging Description Codes (Choose one code as may be applicable.)

A Gondola
B Intermodal
C End-dump
D Roll-off
E Seavan

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in item 11, or additional page

Note 2A: Specific Waste Descriptions (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note 3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S" and the media vendor and brand name must also be identified in Item 13. Code 100=NONE REQUIRED

Solidification
90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in Item 13, or additional page
100. None Required.

FORM 540 — Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 800 424 9300

ORGANIZATION: Chem-Trek ATG acct#ALDT

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? [X] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST: 1

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [X] NO
If "Yes," provide Manifest Number:

EPA MANIFEST NUMBER: NA

5. SHIPPER – NAME AND FACILITY
US Army Ft. McClellan, AL
US Army Operations Support Cmd
Attn: AMSOS-SF
Rock Island, IL 61299

USER PERMIT NUMBER: 0201 001 248

SHIPMENT NUMBER: NA

CONTACT: Wade Fillingame

6. CARRIER – Name and Address
Action Resources, Inc.
, AL

CONTACT: NA

SIGNATURE – Authorized carrier acknowledging waste receipt

SHIPMENT I.D. NUMBER: USA-98-046 (17)

[ ] COLLECTOR
[ ] PROCESSOR
[X] GENERATOR TYPE (Specify) G

TELEPHONE NUMBER (Include Area Code): 865-300-5789

EPA I.D. NUMBER: ALR000007237

SHIPPING DATE: 4/18/02

TELEPHONE NUMBER (Include Area Code): 256-352-2889

DATE: 4-18-02

7. FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 1 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 4008-01-15

9. CONSIGNEE - Name and Facility Address
Envirocare of Utah, Inc.
Clive Disposal Site
Interstate 80, Exit 49
Clive, UT 84029

CONTACT: Shipping and Receiving

TELEPHONE NUMBER (Include Area Code): (435)884-0155

SIGNATURE - Authorized consignee acknowledging waste receipt

DATE

10. CERTIFICATION

This is to certify that the herein-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. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: W. Wade Fillingame or Sign on back before

TITLE: Sr. Broker

DATE: 04/17/2002

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity, n.o.s., 7, UN2912 Soil and Debris	NA	na	Solid /Oxides	Co-60 Th-230	Cs-137 Th-232	K-40 U-nat	Ra-226	7.8716E+02	2.1275E+01	LSA-II	39413. LBS; 540. FT3	MHFU 1757

FOR CONSIGNEE USE ONLY

The original signed manifest resides with:
Ken Hilton
1550 Bear Creek Rd.
Kingston, TN 37763
865-425-1006

___ Record Waste Description Inadequate
___ Contamination or Leakage Detected
___ Unexpected Exposure Rates Detected
___ Labels, Markings, etc. Inadequate
___ Container Integrity Inadequate
___ Other
___ No Violations Detected on this Shipment.

20. TERMS AND CONDITION

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material _____ is (or) __✓__ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1.

B. TITLE: Upon acceptance at the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in Envirocare of Utah, Inc.

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah, Inc.'s facility license.

D. INDEMNIFICATION: Generator agrees to indemnify Envirocare of Utah, Inc., its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST,) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 540 (10-96)

FORM 541

Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME		NET WASTE WEIGHT		SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	TOTAL
1	m3	15.2911	kg	17877.4373	NP	NP	NP	NP
	ft3	540.0000	ton	19.7065				

ACTIVITY	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE	
MBq	7.8716E+02	NP	NP	NP	NP	(kgs)	NA
mCi	2.1275E+01	NP	NP	NP	NP	(tons)	NA

2. MANIFEST NUMBER 4008-01-15

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME US Army Ft. McClellan, AL

SHIPMENT ID NUMBER USA-98-046 (17)

DISPOSAL CONTAINER DESCRIPTION / WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

5. CONTAINER IDENTIFICATION NUMBER / GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) / (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) / (ton)	9. SURFACE RADIATION LEVEL mSv/hr / mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm2 / dpm/100 cm2 ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) / (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION: CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF>0.1%	15. RADIOLOGICAL DESCRIPTION: INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT: RADIONUCLIDES	pCi/gm	MBq	mCi	16. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
MHFU 1757/ATG-OSC-02	IM	15.2911	17877.4373	1.6000E-02	<3.3400E-06	<3.3400E-05	22,39,29	15.2911	NA	Oxides/NA	0.00	Co-60	1.20208E+03	6.4380E+02	1.7400E+01	AU
		540.0000	19.7065	1.6000E+00	<2.000E+02	<2.000E+03		540.0000				Cs-137	2.48705E+02	1.3320E+02	3.6000E+00	
												K-40	6.40416E+00	3.4299E+00	9.2700E-02	
												Ra-226	1.00173E+00	5.3650E-01	1.4500E-02	
												Th-230	1.44373E+00	7.7323E-01	2.0898E-02	
												Th-232	2.10377E+00	1.1267E+00	3.0452E-02	
												U-nat	8.01384E+00	4.2920E+00	1.1600E-01	
												Subtotal		7.8716E+02	2.1275E+01	
												Total		7.8716E+02	2.1275E+01	
Shipment Totals		15.2911	17877.4373											7.8716E+02	2.1275E+01	
		540.0000	19.7065													

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural over-packs the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page.

Note 1A: Bulk Packaging Description Codes (Choose one code as may be applicable.)

A Gondola
B Intermodal
C End-dump
D Roll-off
E Seavan

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in item 11, or additional page

Note 2A: Specific Waste Descriptions (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note 3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S" and the media vendor and brand name must also be identified in item 13. Code 100=NONE REQUIRED

Solidification
90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in item 13, or additional page
100. None Required.

FORM 540 — Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 800 424 9300

ORGANIZATION: Chem-Trek ATG acct#ALDT

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? [X] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST ==> 1

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [X] NO
If "Yes," provide Manifest Number ==> EPA MANIFEST NUMBER: NA

5. SHIPPER – NAME AND FACILITY
US Army Ft. McClellan, AL
US Army Operations Support Cmd
Attn: AMSOS-SF
Rock Island, IL 61299

USER PERMIT NUMBER: 0201 001 245
SHIPMENT NUMBER: NA

CONTACT: Wade Fillingame

6. CARRIER – Name and Address
Action Resources, Inc.
, AL

CONTACT: NA

SIGNATURE – *Authorized carrier acknowledging waste receipt*: Scott Ayt

SHIPMENT I.D. NUMBER: USA-98-046 (16)

[ ] COLLECTOR
[ ] PROCESSOR
[X] GENERATOR TYPE (Specify) G

TELEPHONE NUMBER (Include Area Code): 885-300-5789

EPA I.D. NUMBER: ALR000007237

SHIPPING DATE: 4/17/02

TELEPHONE NUMBER (Include Area Code): 256-352-2689

DATE: 4-17-02

7. FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 1 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 4008-01-14

9. CONSIGNEE - Name and Facility Address
Envirocare of Utah, Inc.
Clive Disposal Site
Interstate 80, Exit 49
Clive, UT 84029

CONTACT: Shipping and Receiving

TELEPHONE NUMBER (Include Area Code): (435)884-0155

SIGNATURE - *Authorized consignee acknowledging waste receipt*

DATE

10. CERTIFICATION

This is to certify that the herein-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. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: W. Wade Fillingame, Jr. (Representative Shipper)

TITLE: Sr. Broker

DATE: 04/17/2002

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity, n.o.s., 7, UN2912 Soil and Debris	NA	na	Solid /Oxides	Co-60	Cs-137	K-40	Ra-226	8.2868E+02	2.2397E+01	LSA-II	41010. LBS; 540. FT3	MHFU 1675
				Th-230	Th-232	U-nat						

FOR CONSIGNEE USE ONLY

The original signed manifest resides with:
Ken Hilton
1550 Bear Creek Rd.
Kingston, TN 37763
865-425-1006

___ Record Waste Description Inadequate
___ Contamination or Leakage Detected
___ Unexpected Exposure Rates Detected
___ Labels, Markings, etc. Inadequate
___ Container Integrity Inadequate
___ Other
___ No Violations Detected on this Shipment.

20. TERMS AND CONDITION

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material _____ is (or) ✓ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1.

B. TITLE: Upon acceptance at the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in Envirocare of Utah, Inc.

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah, Inc.'s facility license.

D. INDEMNIFICATION: Generator agrees to indemnify Envirocare of Utah, Inc., its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST,) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 540 (10-96)

FORM 541

Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT
1	m3 15.2911 ft3 540.0000	kg 18601.8243 ton 20.5050

SPECIAL NUCLEAR MATERIAL (grams)

U-233	U-235	Pu	TOTAL
NP	NP	NP	NP

ACTIVITY

	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE	
MBq	8.2868E+02	NP	NP	NP	NP	(kgs)	NA
mCi	2.2397E+01	NP	NP	NP	NP	(tons)	NA

2. MANIFEST NUMBER
4008-01-14

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME
US Army Ft. McClellan, AL

SHIPMENT ID NUMBER
USA-98-046 (16)

DISPOSAL CONTAINER DESCRIPTION / WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

5. CONTAINER IDENTIFICATION NUMBER / GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) (ton)	9. SURFACE RADIATION LEVEL mSv/hr mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm2 dpm/100 cm2 ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION: CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF>0.1%	15. RADIOLOGICAL DESCRIPTION: INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT: RADIONUCLIDES	pCi/gm	MBq	mCi	16. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
MHFU 1675/ATG-OSC-02	IM	15.2911	18601.8243	2.8000E-02	<3.3400E-06	<3.3400E-05	22,39,29	15.2911	NA	Oxides/NA	0.00	Co-60	1.20396E+03	6.7710E+02	1.8300E+01	AU
		540.0000	20.5050	2.8000E+00	<2.000E+02	<2.000E+03		540.0000				Cs-137	2.50003E+02	1.4060E+02	3.8000E+00	
												K-40	6.40798E+00	3.6038E+00	9.7400E-02	
												Ra-226	1.00067E+00	5.6277E-01	1.5210E-02	
												Th-230	2.00200E+00	1.1259E+00	3.0430E-02	
												Th-232	2.10187E+00	1.1821E+00	3.1948E-02	
												U-nat	8.00668E+00	4.5029E+00	1.2170E-01	
												Subtotal		8.2868E+02	2.2397E+01	
												Total		8.2868E+02	2.2397E+01	
Shipment Totals		15.2911	18601.8243											8.2868E+02	2.2397E+01	
		540.0000	20.5050													

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural over-packs the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page.

Note 1A: Bulk Packaging Description Codes (Choose one code as may be applicable.)

A Gondola
B Intermodal
C End-dump
D Roll-off
E Seavan

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in item 11, or additional page

Note 2A: Specific Waste Descriptions (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note 3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S" and the media vendor and brand name must also be identified in item 13. Code 100=NONE REQUIRED

Solidification
90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in item 13, or additional page
100. None Required.

FORM 540 — Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 800 424 9300

ORGANIZATION: Chem-Trek ATG acct#ALDT

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? [X] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST ⟹ 1

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [X] NO
If "Yes," provide Manifest Number ⟹

EPA MANIFEST NUMBER: NA

5. SHIPPER – NAME AND FACILITY
US Army Ft. McClellan, AL
US Army Operations Support Cmd
Attn: AMSOS-SF
Rock Island, IL 61299

USER PERMIT NUMBER: 0201 001 246

SHIPMENT NUMBER: NA

CONTACT: Wade Fillingame

6. CARRIER – Name and Address
Action Resources, Inc.
, AL

CONTACT: NA

SIGNATURE – Authorized carrier acknowledging waste receipt: Michael Hale

SHIPMENT I.D. NUMBER: USA-98-046 (15)

[ ] COLLECTOR
[ ] PROCESSOR
[X] GENERATOR TYPE (Specify) G

TELEPHONE NUMBER (Include Area Code): 865-300-5789

EPA I.D. NUMBER: ALR000007237

SHIPPING DATE: 4/18/02

TELEPHONE NUMBER (Include Area Code): 256-352-2689

DATE: 4/18/02

7. FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 1 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 4008-01-13

9. CONSIGNEE - Name and Facility Address
Envirocare of Utah, Inc.
Clive Disposal Site
Interstate 80, Exit 49
Clive, UT 84029

CONTACT: Shipping and Receiving

TELEPHONE NUMBER (Include Area Code): (435)884-0155

SIGNATURE - Authorized consignee acknowledging waste receipt

DATE

10. CERTIFICATION

This is to certify that the herein-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. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: W. Wade Fillingame, Jr.
[illegible]

TITLE: Sr. Broker

DATE: 04/17/2002

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity, n.o.s., 7, UN2912 Soil and Debris	NA	na	Solid /Oxides	Co-60	Cs-137	K-40	Ra-226	8.0245E+02	2.1688E+01	LSA-II	39720. LBS; 540. FT3	MHFU 1612
Th-230	Th-232	U-nat										

FOR CONSIGNEE USE ONLY

The original signed manifest resides with:
Ken Hilton
1550 Bear Creek Rd.
Kingston, TN 37763
865-425-1006

___ Record Waste Description Inadequate
___ Contamination or Leakage Detected
___ Unexpected Exposure Rates Detected
___ Labels, Markings, etc. Inadequate
___ Container Integrity Inadequate
___ Other
___ No Violations Detected on this Shipment.

20. TERMS AND CONDITION

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material _____ is (or) ✓ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1.

B. TITLE: Upon acceptance at the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in Envirocare of Utah, Inc.

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah, Inc.'s facility license.

D. INDEMNIFICATION: Generator agrees to indemnify Envirocare of Utah, Inc., its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST,) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 540 (10-96)

FORM 541

Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	TOTAL
1	m3 15.2911 ft3 540.0000	kg 18016.6901 ton 19.8600	NP	NP	NP	NP

ACTIVITY	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE	
MBq	8.0245E+02	NP	NP	NP	NP	(kgs)	NA
mCi	2.1688E+01	NP	NP	NP	NP	(tons)	NA

2. MANIFEST NUMBER 4008-01-13

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME US Army Ft. McClellan, AL

SHIPMENT ID NUMBER USA-98-046 (15)

DISPOSAL CONTAINER DESCRIPTION							WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER									
							PHYSICAL DESCRIPTION			14. CHEMICAL DESCRIPTION		15. RADIOLOGICAL DESCRIPTION				16. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
5. CONTAINER IDENTIFICATION NUMBER / GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) (ton)	9. SURFACE RADIATION LEVEL mSv/hr mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm2 dpm/100 cm2 ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF>0.1%	INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT RADIONUCLIDES	pCi/gm	MBq	mCi	
MHFU 1612/ATG-OSC-02	IM	15.2911 540.0000	18016.6901 19.8600	1.8000E-03 1.8000E-01	<3.3400E-06 <2.000E+02	<3.3400E-05 <2.000E+03	22,39,29	15.2911 540.0000	NA	Oxides/NA	0.00	Co-60 Cs-137 K-40 Ra-226 Th-230	1.19998E+03 2.50842E+02 6.40665E+00 1.00066E+00 2.00199E+00	6.5490E+02 1.3690E+02 3.4965E+00 5.4612E-01 1.0926E+00	1.7700E+01 3.7000E+00 9.4500E-02 1.4760E-02 2.9530E-02	AU
												Th-232 U-nat	2.10165E+00 8.00662E+00	1.1470E+00 4.3697E+00	3.1000E-02 1.1810E-01	
												Subtotal		8.0245E+02	2.1688E+01	
												Total		8.0245E+02	2.1688E+01	
Shipment Totals		15.2911 540.0000	18016.6901 19.8600											8.0245E+02	2.1688E+01	

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural over-packs the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page.

Note 1A: Bulk Packaging Description Codes (Choose one code as may be applicable.)

A Gondola
B Intermodal
C End-dump
D Roll-off
E Seavan

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in item 11, or additional page

Note 2A: Specific Waste Descriptions (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note 3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S" and the media vendor and brand name must also be identified in item 13. Code 100=NONE REQUIRED

Solidification

90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in item 13, or additional page
100. None Required.

FORM 540 — Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 800 424 9300

ORGANIZATION: Chem-Trek ATG acct#ALDT

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? [X] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST ⟹ 1

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [X] NO
If "Yes," provide Manifest Number ⟹

EPA MANIFEST NUMBER: NA

5. SHIPPER – NAME AND FACILITY
US Army Ft. McClellan, AL
US Army Operations Support Cmd
Attn: AMSOS-SF
Rock Island, IL 61299

USER PERMIT NUMBER: 0201 001 246
SHIPMENT NUMBER: NA

CONTACT: Wade Fillingame

6. CARRIER – Name and Address
Action Resources, Inc.
, AL

CONTACT: NA

SIGNATURE – *Authorized carrier acknowledging waste receipt*

SHIPMENT I.D. NUMBER: USA-98-046 (15)

[ ] COLLECTOR
[ ] PROCESSOR
[X] GENERATOR TYPE (Specify) G

TELEPHONE NUMBER (Include Area Code): 865-300-5789

EPA I.D. NUMBER: ALR000007237

SHIPPING DATE: 4/17/02

TELEPHONE NUMBER (Include Area Code): 256-352-2689

DATE

7. FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 1 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 4008-01-13

9. CONSIGNEE - Name and Facility Address
Envirocare of Utah, Inc.
Clive Disposal Site
Interstate 80, Exit 49
Clive, UT 84029

CONTACT: Shipping and Receiving

TELEPHONE NUMBER (Include Area Code): (435)884-0155

SIGNATURE - *Authorized consignee acknowledging waste receipt*

DATE

10. CERTIFICATION

This is to certify that the herein-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. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: W. Wade Fillingame, Jr. (See consignee block above)
TITLE: Sr. Broker
DATE: 04/17/2002

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity, n.o.s., 7, UN2912 Soil and Debris	NA	na	Solid /Oxides	Co-60	Cs-137	K-40	Ra-226	8.0245E+02	2.1688E+01	LSA-II	39720. LBS; 540. FT3	MHFU 1612
				Th-230	Th-232	U-nat						

FOR CONSIGNEE USE ONLY

The original signed manifest resides with:
Ken Hilton
1550 Bear Creek Rd.
Kingston, TN 37763
865-425-1006

___ Record Waste Description Inadequate
___ Contamination or Leakage Detected
___ Unexpected Exposure Rates Detected
___ Labels, Markings, etc. Inadequate
___ Container Integrity Inadequate
___ Other
___ No Violations Detected on this Shipment.

20. TERMS AND CONDITION

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material _____ is (or) __✓__ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1.

B. TITLE: Upon acceptance at the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in Envirocare of Utah, Inc.

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah, Inc.'s facility license.

D. INDEMNIFICATION: Generator agrees to indemnify Envirocare of Utah, Inc., its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST,) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 540 (10-96)

FORM 540 — Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 800 424 9300

ORGANIZATION: Chem-Trek ATG acct#ALDT

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? [X] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST ==> 1

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [X] NO
If "Yes," provide Manifest Number ==> EPA MANIFEST NUMBER: NA

5. SHIPPER – NAME AND FACILITY
US Army Ft. McClellan, AL
US Army Operations Support Cmd
Attn: AMSOS-SF
Rock Island, IL 61299

USER PERMIT NUMBER: 0201 001 246
SHIPMENT NUMBER: NA
CONTACT: Wade Fillingame

6. CARRIER – Name and Address
Action Resources, Inc.
, AL
CONTACT: NA
SIGNATURE – Authorized carrier acknowledging waste receipt: Michael Hale

SHIPMENT I.D. NUMBER: USA-98-046 (14)
[ ] COLLECTOR
[ ] PROCESSOR
[X] GENERATOR TYPE (Specify) G
TELEPHONE NUMBER (Include Area Code): 865-300-5789
EPA I.D. NUMBER: ALR000007237
SHIPPING DATE: 4/17/02
TELEPHONE NUMBER (Include Area Code): 256-352-2689
DATE: 4/17/02

7. FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 1 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 4008-01-12

9. CONSIGNEE - Name and Facility Address
Envirocare of Utah, Inc.
Clive Disposal Site
Interstate 80, Exit 49
Clive, UT 84029

CONTACT: Shipping and Receiving
TELEPHONE NUMBER (Include Area Code): (435)884-0155
SIGNATURE - Authorized consignee acknowledging waste receipt
DATE

10. CERTIFICATION
This is to certify that the herein-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. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: W. Wade Fillingame, Jr.
TITLE: Sr. Broker
DATE: 04/17/2002

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity, n.o.s., 7, UN2912 Soil and debris	NA	na	Solid /Oxides	Co-60	Cs-137	K-40	Ra-226	8.6999E+02	2.3513E+01	LSA-II	42531. LBS; 540. FT3	MHFU 1530
				Th-230	Th-232	U-nat						

FOR CONSIGNEE USE ONLY

The original signed manifest resides with:
Ken Hilton
1550 Bear Creek Rd,
Kingston, TN 37763
865-425-1006

___ Record Waste Description Inadequate
___ Contamination or Leakage Detected
___ Unexpected Exposure Rates Detected
___ Labels, Markings, etc. Inadequate
___ Container Integrity Inadequate
___ Other
___ No Violations Detected on this Shipment.

20. TERMS AND CONDITION

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material _____ is (or) ✓ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1.

B. TITLE: Upon acceptance at the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in Envirocare of Utah, Inc.

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah, Inc.'s facility license.

D. INDEMNIFICATION: Generator agrees to indemnify Envirocare of Utah, Inc., its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST,) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 540 (10-96)

FORM 541

Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	TOTAL
1	m3 15.2911 ft3 540.0000	kg 19291.7384 ton 21.2655	NP	NP	NP	NP

ACTIVITY	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE	
MBq	8.6998E+02	NP	NP	NP	NP	(kgs)	NA
mCi	2.3513E+01	NP	NP	NP	NP	(tons)	NA

2. MANIFEST NUMBER
4008-01-12

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME
US Army Ft. McClellan, AL

SHIPMENT ID NUMBER
USA-98-046 (14)

DISPOSAL CONTAINER DESCRIPTION / WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

5. CONTAINER IDENTIFICATION NUMBER / GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) / (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) / (ton)	9. SURFACE RADIATION LEVEL mSv/hr / mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm2 / dpm/100 cm2 ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) / (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION: CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF>0.1%	15. RADIOLOGICAL DESCRIPTION: INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT: RADIONUCLIDES	pCi/gm	MBq	mCi	16. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
MHFU 1530/ATG-OSC-02	IM	15.2911	19291.7384	4.2000E-03	<3.3400E-06	<3.3400E-05	22,39,29	15.2911	NA	Oxides/NA	0.00	Co-60	1.19807E+03	7.1040E+02	1.9200E+01	AU
		540.0000	21.2655	4.2000E-01	<2.000E+02	<2.000E+03		540.0000				Cs-137	2.49598E+02	1.4800E+02	4.0000E+00	
												K-40	6.42714E+00	3.8110E+00	1.0300E-01	
												Ra-226	1.00089E+00	5.9348E-01	1.6040E-02	
												Th-230	2.00177E+00	1.1870E+00	3.2080E-02	
												Th-232	2.10224E+00	1.2465E+00	3.3690E-02	
												U-nat	8.00585E+00	4.7471E+00	1.2830E-01	
												Subtotal		8.6999E+02	2.3513E+01	
												Total		8.6999E+02	2.3513E+01	
Shipment Totals		15.2911	19291.7384											8.6999E+02	2.3513E+01	
		540.0000	21.2655													

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural over-packs the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page.

Note 1A: Bulk Packaging Description Codes (Choose one code as may be applicable.)

A Gondola
B Intermodal
C End-dump
D Roll-off
E Seavan

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in item 11, or additional page

Note 2A: Specific Waste Descriptions (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note 3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S" and the media vendor and brand name must also be identified in item 13. Code 100=NONE REQUIRED

Solidification
90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in item 13, or additional page
100. None Required.

FORM 540 — Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 800 424 9300

ORGANIZATION: Chem-Trek ATG acct#ALDT

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? [X] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST ==> 1

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [X] NO
If "Yes," provide Manifest Number ==>

EPA MANIFEST NUMBER: NA

5. SHIPPER – NAME AND FACILITY
US Army Ft. McClellan, AL
US Army Operations Support Cmd
Attn: AMSOS-SF
Rock Island, IL 61299

USER PERMIT NUMBER: 0201 001 248

SHIPMENT NUMBER: NA

CONTACT: Wade Fillingame

6. CARRIER – Name and Address
Action Resources, Inc.
, AL

CONTACT: NA

SIGNATURE – *Authorized carrier acknowledging waste receipt*

SHIPMENT I.D. NUMBER: USA-98-046 (13)

[ ] COLLECTOR
[ ] PROCESSOR
[X] GENERATOR TYPE (Specify) G

TELEPHONE NUMBER (Include Area Code): 865-300-5789

EPA I.D. NUMBER: ALR000007237

SHIPPING DATE: 4/17/02

TELEPHONE NUMBER (Include Area Code): 256-352-2689

DATE: 4/17/02

7. FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 1 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 4008-01-11

9. CONSIGNEE - Name and Facility Address
Envirocare of Utah, Inc.
Clive Disposal Site
Interstate 80, Exit 49
Clive, UT 84029

CONTACT: Shipping and Receiving

TELEPHONE NUMBER (Include Area Code): (435)884-0155

SIGNATURE - *Authorized consignee acknowledging waste receipt*

DATE

10. CERTIFICATION

This is to certify that the herein-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. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: W. Wade Fillingame Jr.
Sr. Consignee Acknowledgment

TITLE: Sr. Broker

DATE: 04/17/2002

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity, n.o.s., 7, UN2912 Soil and Debris	NA	na	Solid /Oxides	Co-60	Cs-137	K-40	Ra-226	8.3995E+02	2.2701E+01	LSA-II	41232. LBS; 540. FT3	MHFU 1515
				Th-230	Th-232	U-nat						

FOR CONSIGNEE USE ONLY

The original signed manifest resides with:
Ken Hilton
1550 Bear Creek Rd.
Kingston, TN 37763
865-425-1006

___ Record Waste Description Inadequate
___ Contamination or Leakage Detected
___ Unexpected Exposure Rates Detected
___ Labels, Markings, etc. Inadequate
___ Container Integrity Inadequate
___ Other
___ No Violations Detected on this Shipment.

20. TERMS AND CONDITION

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material _____ is (or) __✓__ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1.

B. TITLE: Upon acceptance at the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in Envirocare of Utah, Inc.

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah, Inc.'s facility license.

D. INDEMNIFICATION: Generator agrees to indemnify Envirocare of Utah, Inc., its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST,) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 540 (10-96)

FORM 541

Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	TOTAL
1	m3 15.2911 ft3 540.0000	kg 18702.5218 ton 20.6160	NP	NP	NP	NP

ACTIVITY	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE	
MBq	8.3995E+02	NP	NP	NP	NP	(kgs)	NA
mCi	2.2701E+01	NP	NP	NP	NP	(tons)	NA

2. MANIFEST NUMBER 4008-01-11

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME US Army Ft. McClellan, AL

SHIPMENT ID NUMBER USA-98-046 (13)

DISPOSAL CONTAINER DESCRIPTION / WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

5. CONTAINER IDENTIFICATION NUMBER / GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) / (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) / (ton)	9. SURFACE RADIATION LEVEL mSv/hr / mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm2 / dpm/100 cm2 ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) / (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION: CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF>0.1%	15. RADIOLOGICAL DESCRIPTION: INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT: RADIONUCLIDES	pCi/gm	MBq	mCi	16. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
MHFU 1515/ATG-OSC-02	IM	15.2911	18702.5218	8.0000E-04	<3.3400E-06	<3.3400E-05	22,39,29	15.2911	NA	Oxides/NA	0.00	Co-60	1.19845E+03	6.8450E+02	1.8500E+01	AU
		540.0000	20.6160	8.0000E-02	<2.000E+02	<2.000E+03		540.0000				Cs-137	2.52647E+02	1.4430E+02	3.9000E+00	
												K-40	6.40686E+00	3.6593E+00	9.8900E-02	
												Ra-226	1.00087E+00	5.7165E-01	1.5450E-02	
												Th-230	2.00174E+00	1.1433E+00	3.0900E-02	
												Th-232	2.10150E+00	1.2003E+00	3.2440E-02	
												U-nat	8.00696E+00	4.5732E+00	1.2360E-01	
												Subtotal		8.3995E+02	2.2701E+01	
												Total		8.3995E+02	2.2701E+01	
Shipment Totals		15.2911	18702.5218											8.3995E+02	2.2701E+01	
		540.0000	20.6160													

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural over-packs the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page.

Note 1A: Bulk Packaging Description Codes (Choose one code as may be applicable.)

A Gondola
B Intermodal
C End-dump
D Roll-off
E Seavan

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in item 11, or additional page

Note 2A: Specific Waste Descriptions (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note 3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S" and the media vendor and brand name must also be identified in item 13. Code 100=NONE REQUIRED

Solidification
90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in item 13, or additional page
100. None Required.

FORM 540 — Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 800 424 9300

ORGANIZATION: Chem-Trek ATG acct#ALDT

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? [X] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST ==> 1

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [X] NO
If "Yes," provide Manifest Number ==>

EPA MANIFEST NUMBER: NA

5. SHIPPER – NAME AND FACILITY
US Army Ft. McClellan, AL
US Army Operations Support Cmd
Attn: AMSOS-SF
Rock Island, IL 61299

USER PERMIT NUMBER: 0201 001 246

SHIPMENT NUMBER: NA

CONTACT: Wade Fillingame

6. CARRIER – Name and Address
Action Resources, Inc.
, AL

CONTACT: NA

SIGNATURE – Authorized carrier acknowledging waste receipt

SHIPMENT I.D. NUMBER: USA-98-046-(12)

[ ] COLLECTOR
[ ] PROCESSOR
[X] GENERATOR TYPE (Specify) G

TELEPHONE NUMBER (Include Area Code): 865-300-5789

EPA I.D. NUMBER: ALR000007237

SHIPPING DATE: 4/17/02

TELEPHONE NUMBER (Include Area Code): 256-352-2689

DATE

7. FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 1 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — 1 PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 4008-01-10

9. CONSIGNEE - Name and Facility Address
Envirocare of Utah, Inc.
Clive Disposal Site
Interstate 80, Exit 49
Clive, UT 84029

CONTACT: Shipping and Receiving

TELEPHONE NUMBER (Include Area Code): (435)884-0155

SIGNATURE - Authorized consignee acknowledging waste receipt

DATE

10. CERTIFICATION

This is to certify that the herein-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. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: W. Travis Fillingame, Jr.
Per consignee check below

TITLE: Sr. Broker

DATE: 04/17/2002

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity, n.o.s., 7, UN2912 Soil and Debris	NA	na	Solid /Oxides	Co-60	Cs-137	K-40	Ra-226	8.0061E+02	2.1638E+01	LSA-II	39307. LBS; 540. FT3	MHFU 1480
				Th-230	Th-232	U-nat						

FOR CONSIGNEE USE ONLY

The original signed manifest resides with:
Ken Hilton
1550 Bear Creek Rd.
Kingston, TN 37763
865-425-1006

___ Record Waste Description Inadequate
___ Contamination or Leakage Detected
___ Unexpected Exposure Rates Detected
___ Labels, Markings, etc. Inadequate
___ Container Integrity Inadequate
___ Other
___ No Violations Detected on this Shipment.

20. TERMS AND CONDITION

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material _____ is (or) ✓ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1.

B. TITLE: Upon acceptance at the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in Envirocare of Utah, Inc.

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah, Inc.'s facility license.

D. INDEMNIFICATION: Generator agrees to indemnify Envirocare of Utah, Inc., its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST,) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 540 (10-96)

FORM 541

Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT
1	m3 15.2911 ft3 540.0000	kg 17829.3565 ton 19.6535

SPECIAL NUCLEAR MATERIAL (grams)

U-233	U-235	Pu	TOTAL
NP	NP	NP	NP

ACTIVITY

	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE	
MBq	8.0061E+02	NP	NP	NP	NP	(kgs)	NA
mCi	2.1638E+01	NP	NP	NP	NP	(tons)	NA

2. MANIFEST NUMBER
4008-01-10

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME
US Army Ft. McClellan, AL

SHIPMENT ID NUMBER
USA-98-046-(12)

DISPOSAL CONTAINER DESCRIPTION / WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

5. CONTAINER IDENTIFICATION NUMBER / GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) / (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) / (ton)	9. SURFACE RADIATION LEVEL mSv/hr / mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm2 / dpm/100 cm2 ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) / (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION: CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF>0.1%	15. RADIOLOGICAL DESCRIPTION: INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT: RADIONUCLIDES	pCi/gm	MBq	mCi	16. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
MHFU 1480/ATG-OSC-02	1M	15.2911	17829.3565	3.4000E-02	<3.3400E-06	<3.3400E-05	22,39,29	15.2911	NA	Oxides/NA	0.00	Co-60	1.21349E+03	6.5386E+02	1.7672E+01	AU
		540.0000	19.6535	3.4000E+00	<2.000E+02	<2.000E+03		540.0000				Cs-137	2.52833E+02	1.3623E+02	3.6820E+00	
												K-40	6.40666E+00	3.4521E+00	9.3300E-02	
												Ra-226	1.00117E+00	5.3946E-01	1.4580E-02	
												Th-230	2.00165E+00	1.0786E+00	2.9150E-02	
												Th-232	2.10191E+00	1.1326E+00	3.0610E-02	
												U-nat	8.00661E+00	4.3142E+00	1.1660E-01	
												Subtotal		8.0061E+02	2.1638E+01	
												Total		8.0061E+02	2.1638E+01	
Shipment Totals		15.2911	17829.3565											8.0061E+02	2.1638E+01	
		540.0000	19.6535													

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural over-packs the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page.

Note 1A: Bulk Packaging Description Codes (Choose one code as may be applicable.)

A Gondola
B Intermodal
C End-dump
D Roll-off
E Seavan

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in item 11, or additional page

Note 2A: Specific Waste Descriptions (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note 3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S" and the media vendor and brand name must also be identified in item 13. Code 100=NONE REQUIRED

Solidification
90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in item 13, or additional page
100. None Required.

FORM 540 — Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 800 424 9300

ORGANIZATION: Chem-Trek ATG acct#ALDT

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? [X] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST: 1

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [X] NO
If "Yes," provide Manifest Number: NA

5. SHIPPER – NAME AND FACILITY
US Army Ft. McClellan, AL
US Army Operations Support Cmd
Attn: AMSOS-SF
Rock Island, IL 61299

USER PERMIT NUMBER: 0201 001 248
SHIPMENT NUMBER: NA
CONTACT: Wade Fillingame

6. CARRIER – Name and Address
Greenfield Logistical Solution
PO Box 580
Tooele, UT 84074

CONTACT: Veronica Hoffman
SIGNATURE – Authorized carrier acknowledging waste receipt: Larry Hartman

SHIPMENT I.D. NUMBER: USA-98-046 (11)
[ ] COLLECTOR
[ ] PROCESSOR
[X] GENERATOR TYPE (Specify) G
TELEPHONE NUMBER (Include Area Code): 865-300-6789
EPA I.D. NUMBER: NA
SHIPPING DATE: 4/4/02
TELEPHONE NUMBER (Include Area Code): 865-384-5594
DATE: 4/4/02

7. FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 1 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 4008-01-09

9. CONSIGNEE - Name and Facility Address
Envirocare of Utah, Inc.
Clive Disposal Site
Interstate 80, Exit 49
Clive, UT 84029

CONTACT: Shipping and Receiving
TELEPHONE NUMBER (Include Area Code): (435)884-0155
SIGNATURE - Authorized consignee acknowledging waste receipt
DATE

10. CERTIFICATION
This is to certify that the herein-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. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: W. Wade Fillingame Jr. (for consignee acknowledgment)
TITLE: Sr. Broker
DATE: 04/04/2002

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity, n.o.s., 7, UN2912 Soil & debris	NA	na	Solid /Oxides	Co-60	Cs-137	K-40	Ra-226	8.6321E+02	2.3330E+01	LSA-II	42588. LBS; 540. FT3	BKRU 25818
				Th-230	Th-232	U-nat						

FOR CONSIGNEE USE ONLY

The original signed manifest resides with:
Ken Hilton
1550 Bear Creek Rd.
Kingston, TN 37763
865-425-1006

___ Record Waste Description Inadequate
___ Contamination or Leakage Detected
___ Unexpected Exposure Rates Detected
___ Labels, Markings, etc. Inadequate
___ Container Integrity Inadequate
___ Other
___ No Violations Detected on this Shipment.

20. TERMS AND CONDITION

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material _____ is (or) ✓ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1.

B. TITLE: Upon acceptance at the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in Envirocare of Utah, Inc.

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah, Inc.'s facility license.

D. INDEMNIFICATION: Generator agrees to indemnify Envirocare of Utah, Inc., its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST,) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 540 (10-96)

FORM 541

Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	TOTAL
1	m3 15.2911 ft3 540.0000	kg 19317.5931 ton 21.2940	NP	NP	NP	NP

ACTIVITY	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE	
MBq	8.6321E+02	NP	NP	NP	NP	(kgs)	NA
mCi	2.3330E+01	NP	NP	NP	NP	(tons)	NA

2. MANIFEST NUMBER 4008-01-09

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME US Army Ft. McClellan, AL

SHIPMENT ID NUMBER USA-98-046 (11)

DISPOSAL CONTAINER DESCRIPTION / WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

5. CONTAINER IDENTIFICATION NUMBER / GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) / (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) / (ton)	9. SURFACE RADIATION LEVEL mSv/hr / mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm2 / dpm/100 cm2 ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) / (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION: CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF>0.1%	15. RADIOLOGICAL DESCRIPTION: INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT: RADIONUCLIDES	pCi/gm	MBq	mCi	16. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
BKRU 25818/ATG-OSC-02	IM	15.2911	19317.5931	3.6000E-02	<3.3400E-06	<3.3400E-05	22,39,29	15.2911	NA	Oxides/NA	0.00	Co-60	1.20111E+03	7.0489E+02	1.9051E+01	AU
		540.0000	21.2940	3.6000E+00	<2.000E+02	<2.000E+03		540.0000				Cs-137	2.50234E+02	1.4685E+02	3.9690E+00	
												K-40	6.43081E+00	3.7740E+00	1.0200E-01	
												Ra-226	1.00245E+00	5.8830E-01	1.5900E-02	
												Th-230	2.00490E+00	1.1766E+00	3.1800E-02	
												Th-232	2.09947E+00	1.2321E+00	3.3300E-02	
												U-nat	8.00699E+00	4.6990E+00	1.2700E-01	
												Subtotal		8.6321E+02	2.3330E+01	
												Total		8.6321E+02	2.3330E+01	
Shipment Totals		15.2911	19317.5931											8.6321E+02	2.3330E+01	
		540.0000	21.2940													

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural over-packs the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page.

Note 1A: Bulk Packaging Description Codes (Choose one code as may be applicable.)

A Gondola
B Intermodal
C End-dump
D Roll-off
E Seavan

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in item 11, or additional page

Note 2A: Specific Waste Descriptions (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note 3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S" and the media vendor and brand name must also be identified in item 13. Code 100=NONE REQUIRED

Solidification
90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in item 13, or additional page
100. None Required.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

ISOTOPES REPORT

For Manifest # 4008-01-09
Envirocare of Utah, Inc.

Isotope	Total Activity (MBq)	Total Activity (mCi)
Co-60	7.0489E+02	1.9051E+01
Cs-137	1.4685E+02	3.9690E+00
K-40	3.7740E+00	1.0200E-01
Ra-226	5.8830E-01	1.5900E-02
Th-230	1.1766E+00	3.1800E-02
Th-232	1.2321E+00	3.3300E-02
U-nat	4.6990E+00	1.2700E-01

FORM 540 — Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 800 424 9300

ORGANIZATION: Chem-Trek ATG acct#ALDT

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? [X] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST ==> 1

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [X] NO
If "Yes," provide Manifest Number ==>

EPA MANIFEST NUMBER: NA

5. SHIPPER -- NAME AND FACILITY
US Army Ft. McClellan, AL
US Army Operations Support Cmd
Attn: AMSOS-SF
Rock Island, IL 61299

USER PERMIT NUMBER: 0201 001 246

SHIPMENT NUMBER: NA

CONTACT: Wade Fillingame

6. CARRIER -- Name and Address
Greenfield Logistical Solution
PO Box 580
Tooele, UT 84074

CONTACT: Veronica Hoffman

SIGNATURE -- *Authorized carrier acknowledging waste receipt*: Larry Jewell

SHIPMENT I.D. NUMBER: USA-98-046 (10)

[ ] COLLECTOR
[ ] PROCESSOR
[X] GENERATOR TYPE (Specify) G

TELEPHONE NUMBER (Include Area Code): 865-300-5789

EPA I.D. NUMBER: NA

SHIPPING DATE: 2/4/02

TELEPHONE NUMBER (Include Area Code): 865-384-5594

DATE: 4-5-02

7. FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 1 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 4008-01-08

9. CONSIGNEE - Name and Facility Address
Envirocare of Utah, Inc.
Clive Disposal Site
Interstate 80, Exit 49
Clive, UT 84029

CONTACT: Shipping and Receiving

TELEPHONE NUMBER (Include Area Code): (435)884-0155

SIGNATURE - *Authorized consignee acknowledging waste receipt*

DATE

10. CERTIFICATION

This is to certify that the herein-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. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: W. Wade Fillingame Jr. [signature]

TITLE: Sr. Broker

DATE: 04/04/2002

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity, n.o.s., 7, UN2912 Soil and Debris	NA	na	Solid /Oxides	Co-60	Cs-137	K-40	Ra-226	7.8859E+02	2.1313E+01	LSA-II	39565. LBS; 540. FT3	BKRU 25231
				Th-230	Th-232	U-nat						

FOR CONSIGNEE USE ONLY

The original signed manifest resides with:
Ken Hilton
1550 Bear Creek Rd.
Kingston, TN 37763
865-425-1006

___ Record Waste Description Inadequate
___ Contamination or Leakage Detected
___ Unexpected Exposure Rates Detected
___ Labels, Markings, etc. Inadequate
___ Container Integrity Inadequate
___ Other
___ No Violations Detected on this Shipment.

20. TERMS AND CONDITION

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material _____ is (or) ✓ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1.

B. TITLE: Upon acceptance at the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in Envirocare of Utah, Inc.

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah, Inc.'s facility license.

D. INDEMNIFICATION: Generator agrees to indemnify Envirocare of Utah, Inc., its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST,) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 540 (10-96)

FORM 541

Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	TOTAL
1	m3 15.2911 ft3 540.0000	kg 17946.3833 ton 19.7825	NP	NP	NP	NP

ACTIVITY	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE	
MBq	7.8859E+02	NP	NP	NP	NP	(kgs)	NA
mCi	2.1313E+01	NP	NP	NP	NP	(tons)	NA

2. MANIFEST NUMBER 4008-01-08

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME US Army Ft. McClellan, AL

SHIPMENT ID NUMBER USA-98-046 (10)

DISPOSAL CONTAINER DESCRIPTION							WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER									
							PHYSICAL DESCRIPTION			14. CHEMICAL DESCRIPTION		15. RADIOLOGICAL DESCRIPTION				16. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
5. CONTAINER IDENTIFICATION NUMBER / GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) / (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) / (ton)	9. SURFACE RADIATION LEVEL mSv/hr / mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm2 / dpm/100 cm2 ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) / (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF>0.1%	INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT: RADIONUCLIDES	pCi/gm	MBq	mCi	
BKRU 25231/ATG-OSC-02	IM	15.2911	17948.3833	1.0000E-03	<3.3400E-06	<3.3400E-05	22,39,29	15.2911	NA	Oxides/NA	0.00	Co-60	1.20111E+03	6.4395E+02	1.7404E+01	AU
		540.0000	19.7825	1.0000E-01	<2.000E+02	<2.000E+03		540.0000				Cs-137	2.50243E+02	1.3416E+02	3.6260E+00	
												K-40	6.40445E+00	3.4336E+00	9.2800E-02	
												Ra-226	1.00069E+00	5.3650E-01	1.4500E-02	
												Th-230	2.03590E+00	1.0915E+00	2.9500E-02	
												Th-232	2.10491E+00	1.1285E+00	3.0500E-02	
												U-nat	8.00556E+00	4.2920E+00	1.1600E-01	
												Subtotal		7.8859E+02	2.1313E+01	
												Total		7.8859E+02	2.1313E+01	
Shipment Totals		15.2911	17948.3833											7.8859E+02	2.1313E+01	
		540.0000	19.7825													

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural over-packs the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page.

Note 1A: Bulk Packaging Description Codes (Choose one code as may be applicable.)

A Gondola
B Intermodal
C End-dump
D Roll-off
E Seavan

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in item 11, or additional page

Note 2A: Specific Waste Descriptions (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note 3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S" and the media vendor and brand name must also be identified in item 13. Code 100=NONE REQUIRED

Solidification
90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in item 13, or additional page
100. None Required.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

ISOTOPES REPORT

For Manifest # 4008-01-08
Envirocare of Utah, Inc.

Isotope	Total Activity (MBq)	Total Activity (mCi)
Co-60	6.4395E+02	1.7404E+01
Cs-137	1.3416E+02	3.6260E+00
K-40	3.4336E+00	9.2800E-02
Ra-226	5.3650E-01	1.4500E-02
Th-230	1.0915E+00	2.9500E-02
Th-232	1.1285E+00	3.0500E-02
U-nat	4.2920E+00	1.1600E-01

FORM 540 — Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 800 424 9300

ORGANIZATION: Chem-Trek ATG acct#ALDT

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? [X] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST ⟹ 1

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [X] NO
If "Yes," provide Manifest Number ⟹

EPA MANIFEST NUMBER: NA

5. SHIPPER – NAME AND FACILITY
US Army Ft. McClellan, AL
US Army Operations Support Cmd
Attn: AMSOS-SF
Rock Island, IL 61299

USER PERMIT NUMBER: 0201 001 246

SHIPMENT NUMBER: NA

CONTACT: Wade Fillingame

6. CARRIER – Name and Address
Greenfield Logistical Solution
PO Box 580
Tooele, UT 84074

CONTACT: Veronica Hoffman

SIGNATURE - *Authorized carrier acknowledging waste receipt*

SHIPMENT I.D. NUMBER: USA-98-046 (09)

[ ] COLLECTOR
[ ] PROCESSOR
[X] GENERATOR TYPE (Specify) G

TELEPHONE NUMBER (Include Area Code): 865-300-5789

EPA I.D. NUMBER: NA

SHIPPING DATE: 4/3/02

TELEPHONE NUMBER (Include Area Code): 865-384-5594

DATE: 4/3/02

7. FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 1 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 4008-01-07

9. CONSIGNEE - Name and Facility Address
Envirocare of Utah, Inc.
Clive Disposal Site
Interstate 80, Exit 49
Clive, UT 84029

CONTACT: Shipping and Receiving

TELEPHONE NUMBER (Include Area Code): (435)884-0155

SIGNATURE - *Authorized consignee acknowledging waste receipt*

DATE

10. CERTIFICATION

This is to certify that the herein-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. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: W. Wade Fillingame Jr.
Sign original in blue ink below

TITLE: Sr. Broker

DATE: 04/03/2002

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity, n.o.s., 7, UN2912 Soil and Debris	NA	na	Solid /Oxides	Co-60	Cs-137	K-40	Ra-226	7.9730E+02	2.1549E+01	LSA-II	39800. LBS; 540. FT3	GFLU 1081
				Th-230	Th-232	U-nat						

FOR CONSIGNEE USE ONLY

The original signed manifest resides with:
Ken Hilton
1550 Bear Creek Rd.
Kingston, TN 37763
865-425-1005

- ___ Record Waste Description Inadequate
- ___ Contamination or Leakage Detected
- ___ Unexpected Exposure Rates Detected
- ___ Labels, Markings, etc. Inadequate
- ___ Container Integrity Inadequate
- ___ Other
- ___ No Violations Detected on this Shipment.

20. TERMS AND CONDITION

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material _____ is (or) __✓__ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land disposal restriction notice and/or certification as required by 40 CFR 268.1.

B. TITLE: Upon acceptance at the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in Envirocare of Utah, Inc.

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah, Inc.'s facility license.

D. INDEMNIFICATION: Generator agrees to indemnify Envirocare of Utah, Inc., its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST,) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 540 (10-96)

FORM 541

Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT
1	m3 15.2911 ft3 540.0000	kg 18052.9775 ton 19.9000

SPECIAL NUCLEAR MATERIAL (grams)

U-233	U-235	Pu	TOTAL
NP	NP	NP	NP

ACTIVITY

	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE	
MBq	7.9730E+02	NP	NP	NP	NP	(kgs)	NA
mCi	2.1549E+01	NP	NP	NP	NP	(tons)	NA

2. MANIFEST NUMBER 4008-01-07

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME US Army Ft. McClellan, AL

SHIPMENT ID NUMBER USA-98-046 (09)

WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

DISPOSAL CONTAINER DESCRIPTION: 5. CONTAINER IDENTIFICATION NUMBER / GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) / (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) / (ton)	9. SURFACE RADIATION LEVEL mSv/hr / mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm2 / dpm/100 cm2 ALPHA	BETA-GAMMA	PHYSICAL DESCRIPTION: 11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) / (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION: CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF>0.1%	15. RADIOLOGICAL DESCRIPTION: INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT: RADIONUCLIDES	pCi/gm	MBq	mCi	16. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
GFLU 1081/ATG-OSC-02	IM	15.2911	18052.9775	8.0000E-03	<3.3400E-06	<3.3400E-05	22,39,29	15.2911	NA	Oxides/NA	0.00	Co-60	1.20108E+03	6.5109E+02	1.7597E+01	AU
		540.0000	19.9000	8.0000E-01	<2.000E+02	<2.000E+03		540.0000				Cs-137	2.50223E+02	1.3564E+02	3.6660E+00	
												K-40	6.40914E+00	3.4743E+00	9.3900E-02	
												Ra-226	1.00335E+00	5.4390E-01	1.4700E-02	
												Th-230	1.99987E+00	1.0841E+00	2.9300E-02	
												Th-232	2.10225E+00	1.1396E+00	3.0800E-02	
												U-nat	7.98583E+00	4.3290E+00	1.1700E-01	
												Subtotal		7.9730E+02	2.1549E+01	
												Total		7.9730E+02	2.1549E+01	
Shipment Totals		15.2911	18052.9775											7.9730E+02	2.1549E+01	
		540.0000	19.9000													

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural over-packs the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page.

Note 1A: Bulk Packaging Description Codes (Choose one code as may be applicable.)

A Gondola
B Intermodal
C End-dump
D Roll-off
E Seavan

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in item 11, or additional page

Note 2A: Specific Waste Descriptions (Choose all applicable codes:)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note 3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S" and the media vendor and brand name must also be identified in Item 13. Code 100=NONE REQUIRED

Solidification

90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in item 13, or additional page
100. None Required.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

ISOTOPES REPORT

For Manifest # 4008-01-07
Envirocare of Utah, Inc.

Isotope	Total Activity (MBq)	Total Activity (mCi)
Co-60	6.5109E+02	1.7597E+01
Cs-137	1.3564E+02	3.6660E+00
K-40	3.4743E+00	9.3900E-02
Ra-226	5.4390E-01	1.4700E-02
Th-230	1.0841E+00	2.9300E-02
Th-232	1.1396E+00	3.0800E-02
U-nat	4.3290E+00	1.1700E-01

APPROVED BY OMB: NO. 3[redacted]4
EXPIRES: 05/31/20[redacted]

Estimated burden per response to comply with this information collection request: 1[redacted]urs. This uniform manifest is required by NRC to meet reporting requirements of Federal [redacted]ts Agencies for the safe transportation and disposal of low-level waste. Forward comments regarding burden estimates to the Records Management [redacted]-5 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Pa[redacted]duction Project (3150-0164), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB [redacted]mber, the NRC may not conduct or sponsor, and a person is not required to respond to, the inform[redacted]ction.

NRC FORM 540
(5-1998)

U.S. NUCLEAR REGULATORY COMMISSION

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code)
800 424 9300

ORGANIZATION
Chemtrek ATG acct# ALDT

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT?
[X] YES
[ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST ⟹ 1

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [X] YES [ ] NO
If "Yes," provide Manifest Number ⟹

EPA MANIFEST NUMBER
02149872

5. SHIPPER – NAME AND FACILITY
US Army Ft. McClellan, AL
US Army Operations Support Cmd
Attn: AMSOS-SF
Rock Island IL 61299

SHIPPER I.D. NUMBER
USA-98-046 (21)

[ ] COLLECTOR
[ ] PROCESSOR
[X] GENERATOR TYPE (Specify) G

USER PERMIT NUMBER
NA

SHIPMENT NUMBER

CONTACT
Wade Fillingame

TELEPHONE NUMBER (Include Area Code)
865-300-5789

6. CARRIER – Name and Address
R&R Trucking
PO Box 544
Dunnewag MO 64841

EPA I.D. NUMBER
MOR 000012948

SHIPPING DATE

CONTACT
Jo Vance

TELEPHONE NUMBER (Include Area Code)
800 625 6885

SIGNATURE – Authorized carrier acknowledging waste receipt

DATE
18 April 02

7. NRC FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
NRC FORM 541 AND 541A — 1 PAGE(S)
NRC FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages)
USA-98-046 (21)

9. CONSIGNEE - Name and Facility Address
NSSI
5711 Ethridge St.
Houston TX 77087

CONTACT
Bob Gallagher

TELEPHONE NUMBER (Include Area Code)
713 6410391

SIGNATURE - Authorized consignee acknowledging waste receipt

DATE

10. CERTIFICATION
This is to certify that the herein-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. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the applicablerequirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE
W. Wade Fillingame, Jr.
See consignee block below.

TITLE
Sr. Broker

DATE
04/18/2002

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES		16. TOTAL PACKAGE ACTIVITY (MBq)	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, n.o.s., 7, UN2982 (RQ) Lead	Yellow III	1	Solid /oxides	Co-60		3.1450E+03	NA	125. LBS; 7.5 FT3	USA-98-046-N3

FOR CONSIGNEE USE ONLY

The original signed manifest resides with:
Ken Hilton
1550 Bear Creek Rd.
Kingston,, TN 37763
865-425-1009

APPROVED BY OMB: NO. [redacted]6
EXPIRES: 05/31/2[redacted]

Estimated burden per response to comply with this information collection request: [redacted]rs. This uniform manifest is required by NRC to meet reporting requirements of Federa[redacted]te Agencies for the safe transportation and disposal of low-level waste. Forward comments regarding burden estimate to the Records Management [redacted]T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the P[redacted] Reduction Project (3150-0164), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB [redacted]umber, the NRC may not conduct or sponsor, and a person is not required to respond to, the inform[redacted]ollection.

NRC FORM 541
(5-1998)

U.S. NUCLEAR REGULATORY COMMISSION

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME (m3)	NET WASTE WEIGHT (kg)	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	TOTAL
1	0.2124	56.6991	NP	NP	NP	NP

ACTIVITY (MBq) ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE (kg)
3.1450E+03	NP	NP	NP	NP	NA

2. MANIFEST NUMBER
USA-98-046 (21)

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME
US Army Ft. McClellan, AL

USA-98-046 (21)
SHIPPER ID NUMBER

WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

DISPOSAL CONTAINER DESCRIPTION: 5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1)	7. VOLUME (m3)	8. WASTE AND CONTAINER WEIGHT (kg)	9. SURFACE RADIATION LEVEL (Sv/hr) (mSv/hr)	10. SURFACE CONTAMINATION MBq/100 cm2 ALPHA	BETA-GAMMA	PHYSICAL DESCRIPTION: 11. WASTE DESCRIPTOR (See Note 2)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3)	13. SORBENT SOLIDIFICATION STABILIZATION MEDIA (See Note 3)	CHEMICAL DESCRIPTION: 14. CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF>0.1%	RADIOLOGICAL DESCRIPTION: 15. INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT	16. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
USA-98-046-N3/ATG-OSC-02	4	0.2124	56.6991	7.5000E+01	<3.3400E-06	<3.3400E-05	59-SEALED SOURCES	0.0283	100 100	oxides/na	0.00	Co-60 3.1450E+03	B
												Total 3.1450E+03 MBq	

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural overpacks the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page.

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27 Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in item 11, or additional page

Note 3: For solidification media that meet disposal site structural stability requirements, the numerical code must be followed by "-S." For all solidification media, the vendor (manufacturer) and brand name must also be identified in Item 13. Code 100=NONE REQUIRED.

Sorption

60. Speedi Dri
61. Celetom
62. Floor Dry/ Superfine
63. Hi Dri
64. Safe T Sorb
65. Safe N Dri
66. Florco
67. Florco X
68. Solid A Sorb
69. Chemsil 30
70. Chemsil 50
71. Chemsil 3030
72. Dicaperl HP200
73. Dicaperl HP500
74. Petroset
75. Petroset II
76. Aquaset
77. Aquaset II
89. Other. Describe in item 13, or additional page.

Solidification

90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in item 13, or additional page
100. None Required.

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
P.O. Box 13087
Austin, Texas 78711-3087
Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form approved. OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. AL 4/2100 29562
Manifest Document No.
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address US ARMY, FT. McCLELLAN 49872
US ARMY CHEMICAL SCHOOL, ATZN-CM-AHP, BUILDING
FT. McCLELLAN, AL 36205
4. Generator's Phone (205) 848 5752

5. Transporter 1 Company Name
PTR TRUCKING
6. US EPA ID Number
NOR COD 504 73

7. Transporter 2 Company Name
8. US EPA ID Number

9. Designated Facility Name and Site Address
NSSI
5711 ETHERIDGE ST
HOUSTON TX 77087
10. US EPA ID Number
TXD 952 560 394

11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
X	a. RADIOACTIVE MATERIAL, NOS, 7,794 UN2912. (RQ) LEAD	1	DM	125	P
	b.				
	c.				
	d.				

GENERATOR

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: William F. Klingenfuss Jr.
Signature
Month 04 Day 18 Year 02

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Michael Jerkins
Signature
Date: Month 04 Day 17 Year 02

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name
Signature
Date: Month Day Year

TNRCC-0311 (Rev. 07/01/97) White - original Pink-TSD Facility Yellow-Transporter Green-Generator's first copy

NSSI/RECOVERY SERVICES, INC COPY
5711 ETHERIDGE ST. HOUSTON, TX 77087
TXD982560294 TEL 713-641-0391 FAX 713-641-6153

LAND DISPOSAL NOTIFICATION AND CERTIFICATION FC

GENERATOR: Ft. McClellan - US Army, OSC **MANIFEST DOCUMENT NO.:** _____

STATE MANIFEST DOCUMENT NO.: 02149872

1. This waste is a X non-wastewater __ wastewater (40 CFR 268.2)
2. This waste is subject to any California List restrictions which are checked below:
   __ HOC's __ PCB's __ Acid __ Metals __ Cyanides
3. Identify ALL USEPA hazardous waste codes that apply to this waste shipment, as defined by 40 CFR 261. For each waste code, identify the corresponding subdivision, or check NONE if the waste code has no subdivision. Also check which treatment standards apply.

ITEM	US EPA HAZARDOUS WASTE CODE(S)	SUBDIVISION ENTER THE SUBDIVISION DESCRIPTION IF NOT APPLICABLE SIMPLY CHECK NONE DESCRIPTION NONE	CONCENTRATION IN MG/KG UNLESS NOTED AS MG/L TCLP OR TREATMENT TECHNOLOGY	MGMT MTHD
1	D008	Lead for Macro encapsulation (DEBRIS)	Macro Encapsulation	A
2				
3				

MANAGEMENT METHODS (MGMT MTHD)

A. **RESTRICTED WASTE REQUIRES TREATMENT**
THIS WASTE MUST BE TREATED TO THE APPLICABLE TREATMENT STANDARDS SET FORTH IN 40 CFR PART 268 SUBPART D, 268.32, OR RCRA SECTION 3004(D).

B **NON RCRA (APPENDIX IV OR V) LAB PACKS**
"I CERTIFY UNDER PENALTY OF LAW THAT I PERSONALLY HAVE EXAMINED AND AM FAMILIAR WITH THE WASTE AND THAT THE LAB PACK DOES NOT CONTAIN ANY WASTES IDENTIFIED AT 268.42 (c)(2) . I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE CERTIFICATION, INCLUDING THE POSSIBILITY OF A FINE AND IMPRISONMENT." (268.7(a)(8))

C. **RESTRICTED WASTES FOR WHICH THE TREATMENT STANDARD IS EXPRESSED AS A SPECIFIED TECHNOLOGY (AND THE WASTE HAS BEEN TREATED BY THAT TECHNOLOGY)**
"I CERTIFY UNDER PENALTY OF LAW THAT THE WASTE HAS BEEN TREATED IN ACCORDANCE WITH THE REQUIREMENTS OF 40 CFR 268.42. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING A FALSE CERTIFICATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT." (268.7(b)(5)(ii))

D. **RESTRICTED WASTE SUBJECT TO A VARIANCE**
THIS WASTE IS SUBJECT TO A NATIONAL CAPACITY VARIANCE, A TREATABILITY VARIANCE, OR A CASE-BY-CASE EXTENSION.

E. **WASTE IS NOT CURRENTLY SUBJECT TO PART 268 RESTRICTIONS**
THIS WASTE IS A NEWLY IDENTIFIED WASTE THAT IS NOT CURRENTLY SUBJECT TO ANY 40 CFR PART 268 RESTRICTIONS.

I CERTIFY UNDER PENALTY OF LAW THAT I PERSONALLY HAVE EXAMINED AND AM FAMILIAR WITH THE WASTE THROUGH THE ANALYSIS AND TESTING OR THROUGH KNOWLEDGE OF THE WASTE TO SUPPORT THIS CERTIFICATION AS REQUIRED BY THE TREATMENT STANDARDS SPECIFIED IN 40 CFR 268 SUBPART D AND ALL APPLICABLE PROHIBITIONS SET FORTH IN 40 CFR 268.32 OR RCRA 3004 (d) . I BELIEVE THAT THE INFORMATION I SUBMITTED IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING A FALSE CERTIFICATION, INCLUDING THE POSSIBILITY OF FINE OR IMPRISONMENT. (268.7(a)(2)(ii))

SIGNATURE [signature] W. Wade Fillingame, Jr. TITLE Sr. Broker, for US Army, OSC DATE 04/18/02

APPROVED BY OMB: NO. 3[illegible]
EXPIRES: 05/31/200[illegible]

Estimated burden per response to comply with this information collection request: 1[illegible]rs. This uniform manifest is required by NRC to meet reporting requirements of Federal a[illegible]te Agencies for the safe transportation and disposal of low-level waste. Forward comments regarding burden estimate to the Records Management [illegible]-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Pa[illegible]eduction Project (3150-0164), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB c[illegible]mber, the NRC may not conduct or sponsor, and a person is not required to respond to, the inform[illegible]ction.

NRC FORM 540 (5-1998)

U.S. NUCLEAR REGULATORY COMMISSION

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code)
CHEMTREC 800-424-9300

ORGANIZATION
ATG ACCT# ALDT

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT?
[X] YES
[ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST ⟹ 3

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [X] YES [ ] NO
If "Yes," provide Manifest Number ⟹

EPA MANIFEST NUMBER
AL4210029562 ATGO1

5. - SHIPPER -- NAME AND FACILITY
US Army Ft. McClellan, AL
US Army Operations Support Cmd
Attn: AMSOS-SF
Rock Island IL 61299

USER PERMIT NUMBER

SHIPMENT NUMBER

CONTACT
Wade Fillingame

6. CARRIER -- Name and Address
R&R Trucking
PO Box 544
Dunnewag MO 64841

CONTACT
Jo Vance

SIGNATURE -- Authorized carrier acknowledging waste receipt
Roger Ross

SHIPPER I.D. NUMBER
USA-98-046 (20)

[ ] COLLECTOR
[ ] PROCESSOR
[X] GENERATOR TYPE (Specify) G

TELEPHONE NUMBER (Include Area Code)
865-300-5789

EPA I.D. NUMBER
MOR 000501937

SHIPPING DATE
04/18/02

TELEPHONE NUMBER (Include Area Code)
800 625 6885

DATE
04-18-02

7. NRC FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
NRC FORM 541 AND 541A — 1 PAGE(S)
NRC FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages)
USA-98-046 (20)

9. CONSIGNEE - Name and Facility Address
PERMAFIX, INC.
1940 NW 67th Place
Gainsville FL 32653

CONTACT
Raymond Whittle

TELEPHONE NUMBER (Include Area Code)
800-365-6066

SIGNATURE - Authorized consignee acknowledging waste receipt

DATE

10. CERTIFICATION

This is to certify that the herein-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. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the applicablerequirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE
W. Wade Fillingame Jr.
See consignee block below.

TITLE
Sr. Broker

DATE
04/18/2002

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (including proper shipping name, hazard class, UN ID number, and any additional information	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES		16. TOTAL PACKAGE ACTIVITY (MBq)	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, n.o.s., 7, UN2982 (RQ) Lead	White - I	na	Solid /oxides	Co-60 Cs-137	Sr-90 Tc-99	4.4400E+01	NA	650. LBS; 7.5 FT3	USA-98-046-PF1
Radioactive material, n.o.s., 7, UN2982 (RQ) Lead	White - I	na	Solid /oxides	Co-60 Cs-137	Sr-90 Tc-99	4.4400E+01	NA	650. LBS; 7.5 FT3	USA-98-046-PF2
Radioactive material, n.o.s., 7, UN2982 (RQ) Lead	White - I	na	Solid /oxides	Co-60 Cs-137	Sr-90 Tc-99	4.4400E+01	NA	620. LBS; 7.5 FT3	USA-98-046-PF3

FOR CONSIGNEE USE ONLY

The original signed manifest resides with:
Ken Hilton
1550 Bear Creek Rd.
Kingston, TN 37763
865-425-1009

APPROVED BY OMB: NO. [redacted]66
EXPIRES: 05/31/[redacted]

Estimated burden per response to comply with this information collection request: [redacted]urs. This uniform manifest is required by NRC to meet reporting requirements of Fede[redacted]tate Agencies for the safe transportation and disposal of low-level waste. Forward comments regarding burden estimate to the Records Management [redacted](T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the P[redacted]k Reduction Project (3150-0164), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB [redacted]number, the NRC may not conduct or sponsor, and a person is not required to respond to, the inform[redacted] collection.

NRC FORM 541
(5-1998)

U.S. NUCLEAR REGULATORY COMMISSION

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME (m3)	NET WASTE WEIGHT (kg)	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	TOTAL
3	0.6372	870.8975	NP	NP	NP	NP

ACTIVITY (MBq) ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE (kg)
1.3320E+02	NP	NP	3.3300E+01	NP	NA

2. MANIFEST NUMBER
USA-98-046 (20)

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME
US Army Ft. McClellan, AL

USA-98-046 (20)
SHIPPER ID NUMBER

DISPOSAL CONTAINER DESCRIPTION / WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1)	7. VOLUME (m3)	8. WASTE AND CONTAINER WEIGHT (kg)	9. SURFACE RADIATION LEVEL (γ Sv/hr) (mSv/hr)	10. SURFACE CONTAMINATION MBq/100 cm2 ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3)	13. SORBENT SOLIDIFICATION STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION: CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF>0.1%	15. RADIOLOGICAL DESCRIPTION: INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT	16. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
USA-98-046-PF1/ATG-OSC-02	4	0.2124	294.8351	<1.0000E+00	<3.3400E-06	<3.3400E-05	33	0.0850	100 100	oxides/na	0.00	Co-60 1.1100E+01 Cs-137 1.1100E+01 Sr-90 1.1100E+01 Tc-99 1.1100E+01 Total 4.4400E+01 MBq	AU
USA-98-046-PF2/ATG-OSC-02	4	0.2124	294.8351	<1.0000E+00	<3.3400E-06	<3.3400E-05	33	0.0850	100 100	oxides/na	0.00	Co-60 1.1100E+01 Cs-137 1.1100E+01 Sr-90 1.1100E+01 Tc-99 1.1100E+01 Total 4.4400E+01 MBq	AU
USA-98-046-PF3/ATG-OSC-02	4	0.2124	281.2273	<1.0000E+00	<3.3400E-06	<3.3400E-05	33	0.0850	100 100	oxides/na	0.00	Co-60 1.1100E+01 Cs-137 1.1100E+01 Sr-90 1.1100E+01 Tc-99 1.1100E+01 Total 4.4400E+01 MBq	AU

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural overpacks the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page.

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27 Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in item 11, or additional page

Note 3: For solidification media that meet disposal site structural stability requirements, the numerical code must be followed by "-S." For all solidification media, the vendor (manufacturer) and brand name must also be identified in Item 13. Code 100=NONE REQUIRED.

Sorption

60. Speedi Dri
61. Celatom
62. Floor Dry/ Superfine
63. Hi Dri
64. Safe T Sorb
65. Safe N Dri
66. Floroo
67. Floroo X
68. Solid A Sorb
69. Chemsil 30
70. Chemsil 50
71. Chemsil 3030
72. Dicaperl HP200
73. Dicaperl HP500
74. Petroset
75. Petroset II
76. Aquaset
77. Aquaset II
89. Other. Describe in item 13, or additional page.

Solidification

90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in item 13, or additional page
100. None Required.

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. AL4210029562 — Manifest Document No.

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address US ARMY FT. McCLELLAN [illegible] ATTN: [illegible] FT. McCLELLAN AL 36205

4. Generator's Phone ( ) [illegible]

5. Transporter 1 Company Name [illegible]

6. US EPA ID Number MCNAC0701973

7. Transporter 2 Company Name

8. US EPA ID Number

9. Designated Facility Name and Site Address [illegible]

10. US EPA ID Number FLD980711671

A. State Manifest Document Number

B. State Generator's ID

C. State Transporter's ID

D. Transporter's Phone

E. State Transporter's ID

F. Transporter's Phone

G. State Facility's ID

H. Facility's Phone

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	Waste No.
a. [illegible] 7, UN3982 (RQ) (LEAD DECOS) F (LEAD DECOS)	X	3	DM	1740	P	
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above — K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name [illegible] — Signature [illegible] — Month Day Year 01 11 02

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name [illegible] — Signature [illegible] — Month Day Year [illegible]

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name — Signature — Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name — Signature — Month Day Year

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

APPROVED BY OMB: NO. 3[illegible]0164
EXPIRES: 05/31/2[illegible]

Estimated burden per response to comply with this information collection request: 1.[illegible] hours. This uniform manifest is required by NRC to meet reporting requirements of Federal [illegible] State Agencies for the safe transportation and disposal of low-level waste. Forward comments regarding burden estimate to the Records Management [illegible] (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the P[illegible] Reduction Project (3150-0164), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OM[illegible] number, the NRC may not conduct or sponsor, and a person is not required to respond to, the info[illegible] collection.

NRC FORM 540
(5-1998)

U.S. NUCLEAR REGULATORY COMMISSION

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code)
800 424 9300

ORGANIZATION
Chemtrek ATG acct# ALDT

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT?
[X] YES
[ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST ⟹ 1

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [X] YES [ ] NO
If "Yes," provide Manifest Number ⟹

EPA MANIFEST NUMBER
02585065

5. SHIPPER – NAME AND FACILITY
US Army Ft. McClellan, AL
US Army Operations Support Cmd
Attn: AMSOS-SF
Rock Island IL 61299

USER PERMIT NUMBER
NA

SHIPMENT NUMBER
NSSI-01

CONTACT
Wade Fillingame

6. CARRIER – Name and Address
R&R Trucking
PO Box 544
Dunnewag MO 64841

CONTACT
Jo Vance

SIGNATURE – Authorized carrier acknowledging waste receipt
[signature]

SHIPPER I.D. NUMBER
USA-98-046(2)

[ ] COLLECTOR
[ ] PROCESSOR
[X] GENERATOR TYPE (Specify) G

TELEPHONE NUMBER (Include Area Code)
865-300-5789

EPA I.D. NUMBER
MOR ~~000012588~~ 000501773

SHIPPING DATE
01/11/02

TELEPHONE NUMBER (Include Area Code)
800 625 6885

DATE
1-11-02

7. NRC FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
NRC FORM 541 AND 541A — 1 PAGE(S)
NRC FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages)
USA-98-046(2)

9. CONSIGNEE - Name and Facility Address
NSSI
5711 Ethridge St.
Houston TX 77087

CONTACT
Bob Gallagher

TELEPHONE NUMBER (Include Area Code)
713 6410391

SIGNATURE - Authorized consignee acknowledging waste receipt

DATE

10. CERTIFICATION
This is to certify that the herein-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. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the applicablerequirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE
[signature]

TITLE
SR. BROKER

DATE
1/11/02

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES		16. TOTAL PACKAGE ACTIVITY (MBq)	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, n.o.s., 7, UN2982	Yellow II	NA	Solid /oxides	Co-60	Sr-90	3.9318E+02	NA	400. LBS; 7.5 FT3	USA-98-046-02

FOR CONSIGNEE USE ONLY

APPROVED BY OMB: NO[redacted]6
EXPIRES: 05/31/[redacted]

Estimated burden per response to comply with this information collection request: [redacted]urs. This uniform manifest is required by NRC to meet reporting requirements of Feder[redacted]te Agencies for the safe transportation and disposal of low-level waste. Forward comments regarding burden estimate to the Records Management [redacted]T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the P[redacted] Reduction Project (3150-0164), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB [redacted]umber, the NRC may not conduct or sponsor, and a person is not required to respond to, the inform[redacted]ollection.

NRC FORM 541
(5-1998)

U.S. NUCLEAR REGULATORY COMMISSION

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME (m3)	NET WASTE WEIGHT (kg)	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	TOTAL
1	0.2124	181.4370	NP	NP	NP	NP

ACTIVITY (MBq) ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE (kg)
3.9318E+02	NP	NP	NP	NP	NA

2. MANIFEST NUMBER
USA-98-046(2)

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME
US Army Ft. McClellan, AL

USA-98-046(2)
SHIPPER ID NUMBER

DISPOSAL CONTAINER DESCRIPTION							WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER						
							PHYSICAL DESCRIPTION			CHEMICAL DESCRIPTION		RADIOLOGICAL DESCRIPTION	
5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIP-TION (See Note 1)	7. VOLUME (m3)	8. WASTE AND CONTAINER WEIGHT (kg)	9. SURFACE RADIATION LEVEL (mSv/hr)	10. SURFACE CONTAMINATION MBq/100 cm2 ALPHA	BETA-GAMMA	11. WASTE DESCRIP-TOR (See Note 2)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3)	13. SORBENT SOLIDIFICATION STABILIZATION MEDIA (See Note 3)	CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF>0.1%	INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT	16. WASTE CLASSIFI-CATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
USA-98-046-02/ATG-OSC-02	4	0.2124	181.4370	9.0000E+02	<3.3400E-06	<3.3400E-05	33,36	0.0850	100 100	oxides/na	0.00	Co-60 3.9242E+02 Sr-90 7.6294E-01	AU
												Total 3.9318E+02 MBq	

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural overpacks the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page.

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27 Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in item 11, or additional page

Note 3: For solidification media that meet disposal site structural stability requirements, the numerical code must be followed by "-S." For all solidification media, the vendor (manufacturer) and brand name must also be identified in Item 13. Code 100=NONE REQUIRED.

Sorption

60. Speedi Dri
61. Celetom
62. Floor Dry/ Superfine
63. Hi Dri
64. Safe T Sorb
65. Safe N Dri
66. Florco
67. Florco X
68. Solid A Sorb

Solidification

69. Chemsil 30
70. Chemsil 50
71. Chemsil 3030
72. Dicaperl HP200
73. Dicaperl HP500
74. Petroset
75. Petroset II
76. Aquaset
77. Aquaset II
89. Other. Describe in item 13, or additional page.
90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in item 13, or additional page
100. None Required.

COPY

FORM 541

CHEM-NUCLEAR CONSOLIDATION FACILITY

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME		NET WASTE WEIGHT		SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	TOTAL
1	m3	0.0193	kg	18.1437	NP	NP	NP	NP
	ft3	0.6800	lb	40.0000				

ACTIVITY	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE	
MBq	8.9200E+02	NP	NP	NP	NP	(kgs)	NA
mCi	2.4108E+01	NP	NP	NP	NP	(lbs)	NA

2. MANIFEST NUMBER
USA-98-046(01)

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME
US Army Ft. McClellan, AL

SHIPMENT ID NUMBER
NA

DISPOSAL CONTAINER DESCRIPTION							WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER							
							PHYSICAL DESCRIPTION			14. CHEMICAL DESCRIPTION		15. RADIOLOGICAL DESCRIPTION		16. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
5. CONTAINER IDENTIFICATION NUMBER / S.C. TRANSPORT PERMIT NUMBER	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) (lb)	9. SURFACE RADIATION LEVEL mSv/hr mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm2 dpm/100 cm2 ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3 & Note 3A)	CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF>0.1%	INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT: RADIONUCLIDES	MBq	mCi	
USA-98-048-01/	3	0.0193	18.1437	2.7500E+00	<3.3400E-06	<3.3400E-05	22	0.0566	100 100	oxides/na	0.00	Co-60	8.9200E+02	2.4108E+01	AU
		0.6800	40.0000	2.7500E+02	<2.000E+02	<2.000E+03		2.0000				Subtotal	8.9200E+02	2.4108E+01	
												Total	8.9200E+02	2.4108E+01	
Shipment Totals		0.0193	18.1437										8.9200E+02	2.4108E+01	
		0.6800	40.0000												

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural over-packs the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page.

Note 1A: Barnwell Specific Container Description Codes. (Choose one code as may be applicable.)

A High Integrity Container - Poly
B High Integrity Container - Poly with Steel Shell
C High Integrity Drum Overpack - Poly
D High Integrity Container - Stainless Steel
E High Integrity Container - Fiberglass
F Liner - Steel

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in item 11, or additional page

Note 2A: Barnwell Specific Waste Descriptor Codes (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note 3: Solidification and Stabilization Media Codes: (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S" and the media vendor and brand name must also be identified in item 13. Code 100=NONE REQUIRED.

Solidification
90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in item 13, or additional page
100. None Required.

Note 3A: Barnwell Specific Solidification and Stabilization Media Codes. (Choose this code if applicable)

M Wax Binder

TEXAS NATURAL RESOURCE
CONSERVATION COMMISSION
P.O. Box 13087
Austin, Texas 78711-3087

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form approved. OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N/A - NON-HAZ WASTE. Manifest Document No. 85005

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
US ARMY, FT. McCLELLAN, AL
~~US ARMY, OSC~~
ATTN: AMJ05-SF ~~ROCK ISLAND, IL 61299~~

4. Generator's Phone (865) 300 5789

5. Transporter 1 Company Name
R&R TRUCKING CO

6. US EPA ID Number
MOR 0000129470

7. Transporter 2 Company Name

8. US EPA ID Number

9. Designated Facility Name and Site Address
NSSI
5211 ETHRIDGE ST.
HOUSTON, TX 77087

10. US EPA ID Number
TXD 982560294

11A. HM	11. US DOT Description (Including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
X	a. RADIOACTIVE MATERIAL, NOS 7, UN2982	1	DM	400	~~G~~ P
	b.				
	c.				
	d.				

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information US ARMY
RETURN ALL CONTAMINATED
800-424-9300 EMERGENCY RESPONSE

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

GENERATOR

Printed/Typed Name: WADE ELLINGHAM FOR USARMY OSC
Signature
Month 01 Day 11 Year 02

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Terrell Cozart
Signature
Date: Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name
Signature
Date: Month Day

TNRCC-0311 (Rev. 07/01/97) White - original Pink-TSD Facility Yellow-Transporter Green-Generator's first copy

Table 6.4 NaI Scintillation Detector Scan MDCs for Common Radiological Contaminants[a]

Radionuclide/Radioactive Material	1.25" x 1.5" NaI Detector		2" x 2" NaI Detector	
	Scan MDC (pCi/g)	Weighted cpm/μR/h	Scan MDC (pCi/g)	Weighted cpm/μR/h
Am-241	44.6	5,830	31.5	13,000
Co-60	5.8	160	3.4	430
Cs-137	10.4	350	6.4	900
Th-230	3,000	4,300	2,120	9,580
Ra-226 (In equilibrium with progeny)	4.5	300	2.8	760
Th-232 decay series (Sum of all radionuclides in thorium decay series, in equilibrium)	28.3	340	18.3	830
Th-232 alone (In equilibrium with progeny in decay series)	2.8	340	1.8	830
Depleted Uranium[b] (0.34% U-235)	80.5	1,680	56.0	3,790
Processed Natural Uranium[b]	115	1,770	80.0	3,990
3% Enriched Uranium[b]	137	2,010	95.7	4,520
20% Enriched Uranium[b]	152	2,210	107	4,940
50% Enriched Uranium[b]	168	2,240	118	5,010
75% Enriched Uranium[b]	188	2,250	132	5,030

[a]Refer to text for complete explanation of factors used to calculate scan MDCs. For example, the background level for the 1.25" × 1.5" NaI detector was assumed to be 4,000 cpm and 10,000 cpm for the 2" × 2" NaI detector. The observation interval was 1 second and the level of performance was selected to yield d' of 1.38.
[b]Scan MDC for uranium includes sum of U-238, U-235, and U-234.

ATG INC.

CALCULATION COVER SHEET

CALC. NO. MCAB-01
No. of Sheets: 1 of 76

PROJECT: Fort McClellon Burial Mound Decommissioning

PURPOSE: Calculate the performance of a conveyor-mounted detector system, scanning soil with potential cobalt-60 and cesium-137 contamination.

SOURCES OF DATA: Preliminary design of conveyor system - Lake City Project Manager, Frank Whitaker

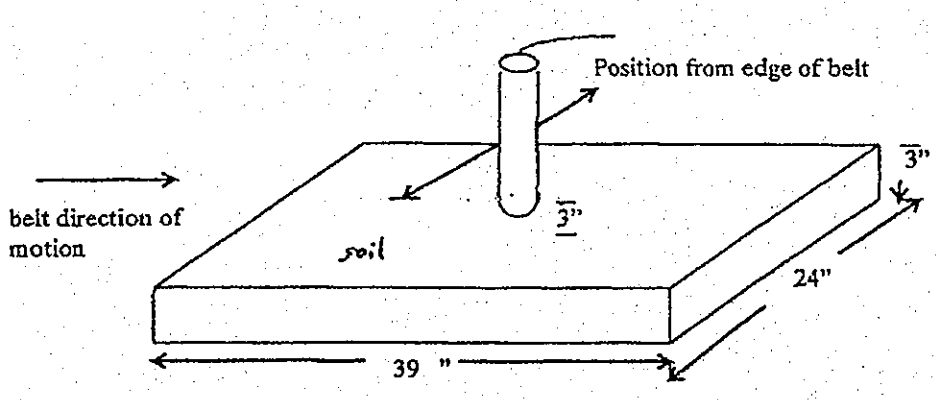
SOURCES OF FORMULAE & REFERENCES: Multi-Agency Radiation Survey and Site Investigation Manual, MARSSIM (NUREG-1575) December, 1997.

ATTACHMENT: Summary of hand calculations and output from Microshield™ runs.

CONCLUSION: System minimum detectable count rate (MDCR) is approx. 676 cpm (net). This will allow detection of Co-60 at 1.5 pCi/g or 135 nCi discrete source; or Cs-137 at 2.8 pCi/g or 80 nCi discrete source.

PRELIMINARY CALC. ☐ FINAL CALC. ☐ SUPERSEDES CALC. NO. _____

REV. NO.	REVISION	BY:	DATE	CHECKED	DATE	APPROVED	DATE



CONVEYOR-MOUNTED DETECTOR MODEL

DIMENSIONS:

24" wide
belt moves at 0.5 m/s; covers 1m (39") in 2sec. counting interval
soil 3" high on belt
detectors mounted 6" above belt
10 2x2 NaI detectors cover width of belt

ASSUMPTIONS:

Soil is uniformly contaminated at 1 pCi Co-60/gram soil (Case 1.)
Soil is uniformly contaminated at 5 pCi Cs-137/gram soil (Case 2.)
Soil covers a 5 uCi point source of Co-60 (Case 3.)
Soil covers a 5 uCi point source of Cs-137 (Case 4.)

Summary of four Cases shown below, followed by discussion of detectability.

CASE 1:

Four detector positions modeled with Microshield Ver. 5. 1) center of belt (12" from edge); 2) 9" from edge; 3) 6" from edge; and 4) 3" from edge.

Mirror-image positions are the same for distances from the other side of the belt. Ignore soil on belt, which is further than 19.5" from detectors.

Microshield results show dose rate fairly constant across width of belt. Average dose rate 1.08 uR/hr, from soil at 1 pCi-Co-60/gram. Using a dose rate to count rate conversion of 430 cpm/uR/hr[1], gives 464 cpm (net.)

[1] MARSSIM Table 6-7.

CASE 2:

Same detector geometry.

Microshield results show dose rate fairly constant across width of belt. Average dose rate 1.32 uR/hr, from soil at 5 pCi-Cs-137/gram. Using a dose rate to count rate conversion of 900 cpm/uR/hr[2], gives 1188 cpm (net.)

Results are scalable to other concentrations of Cs-137.

CASE 3:

In this case, a point source of Co-60 travels towards and under the detectors. Width of the belt is not considered, because the particle will pass directly under one of the detectors. It is assumed to be under the 3" of soil. Since Ludlum ratemeters integrate for 2 seconds, the particle will travel 1m (39") in that time.

Seven particle positions are modeled, from 19.7" in front of the detectors to 19.7" after the detectors. The average dose rate of the seven is 58.1 uR/hr, as shown; yielding a count rate of 24,983 cpm.

Distance from Detectors	Dose Rate uR/hr
±19.7"	7.8
±13.0	23.7
±6.6	87.0
0	222.1
Average	58.1

CASE 4:

The geometry is the same as Case 3. The point source in this case is 5 uCi Cs-137.

The average dose rate is 16.4 uR/hr, as shown; yielding a count rate of 14,760 cpm.

Distance from Detectors	Dose Rate uR/hr
±19.7"	1.9
±13.0	5.4
±6.6	21.8
0	56.9
Average	16.4

[2] MARSSIM Table 6-7.

DETECTABILITY - MINIMUM DETECTABLE COUNT RATE (MDCR)

The scanning MDCR applies both to a detector moving along the ground, as well as soil on a conveyor belt moving under a detector. This MDCR is a function of background count rate, observation interval and confidence level (d'). As shown on the hand calculation sheet, MDCR is 676 cpm (net) for a background of 8,000 cpm and 2sec observation interval.

SUMMARY

Case	Calc'ed Count Rate (net)	MDCR (net)	Detectable Amount*
1	464 cpm	676	1.5 pCi/g
2	1188	676	2.8 pCi/g
3	24,983	676	135 nCi
4	14,760	676	229 nCi

* Concentration or source strength, ratioed to MDCR.

MDCR
(MARSSIM eqn. 6-9)

$MDCR = S_i \times 60/i$

$S_i = d' \sqrt{b_i}$

$i = 2$ sec obs. interval

$d' = 1.38$ (per MARSSIM)

$b_i = 8000$ cpm $\times 2/60 = 267$

$S_i = \sqrt{b_i} \times 1.38 = 22.5$

$MDCR = 22.5 \times 60/2 = 676$ cpm

CASE 1

MICROSHIELD OUTPUT

Soil with 1 pCi Co-60 per gram.

MicroShield v5.01 (5.01-01003)
Allied Technology Group, Inc.
Results With Buildup
FILE: Case 1
Case Title: Co-veyor -I
This case was run on Monday, November 23, 1998 at 11:19:41 AM
Dose Point # 1 - (6,19.5,12) in

Group #	Energy (MeV)	Activity photons/sec	Fluence Rate photons/cm²/sec	Energy Fluence MeV/cm²/sec	Exposure Rate mR/hr
1	0.6938	4.999e-001	4.319e-005	2.997e-005	5.785e-008
2	1.1732	3.065e+003	2.672e-001	3.135e-001	5.602e-004
3	1.3325	3.065e+003	2.681e-001	3.573e-001	6.199e-004
	TOTALS:	6.130e+003	5.354e-001	6.708e-001	1.180e-003

MicroShield v5.01 (5.01-01003)
Allied Technology Group, Inc.
Results With Buildup
FILE: Case 1
Case Title: Co-veyor
This case was run on Monday, November 23, 1998 at 11:19:41 AM
Dose Point # 2 - (6,19.5,9) in

Group #	Energy (MeV)	Activity photons/sec	Fluence Rate photons/cm²/sec	Energy Fluence MeV/cm²/sec	Exposure Rate mR/hr
1	0.6938	4.999e-001	4.237e-005	2.940e-005	5.676e-008
2	1.1732	3.065e+003	2.622e-001	3.076e-001	5.496e-004
3	1.3325	3.065e+003	2.631e-001	3.506e-001	6.082e-004
	TOTALS:	6.130e+003	5.253e-001	6.582e-001	1.158e-003

MicroShield v5.01 (5.01-01003)
Allied Technology Group, Inc.
Results With Buildup
FILE: Case 1
Case Title: Co-veyor
This case was run on Monday, November 23, 1998 at 11:19:41 AM
Dose Point # 3 - (6,19.5,6) in

Group #	Energy (MeV)	Activity photons/sec	Fluence Rate photons/cm²/sec	Energy Fluence MeV/cm²/sec	Exposure Rate mR/hr
1	0.6938	4.999e-001	3.964e-005	2.751e-005	5.311e-008
2	1.1732	3.065e+003	2.455e-001	2.880e-001	5.146e-004
3	1.3325	3.065e+003	2.464e-001	3.283e-001	5.696e-004
	TOTALS:	6.130e+003	4.919e-001	6.163e-001	1.084e-003

MicroShield v5.01 (5.01-01003)
Allied Technology Group, Inc.
Results With Buildup
FILE: Case 1
Case Title: Co-veyor
This case was run on Monday, November 23, 1998 at 11:19:41 AM
Dose Point # 4 - (6,19.5,3) in

Group #	Energy (MeV)	Activity photons/sec	Fluence Rate photons/cm²/sec	Energy Fluence MeV/cm²/sec	Exposure Rate mR/hr
1	0.6938	4.999e-001	3.416e-005	2.370e-005	4.576e-008
2	1.1732	3.065e+003	2.120e-001	2.487e-001	4.445e-004
3	1.3325	3.065e+003	2.130e-001	2.838e-001	4.923e-004
	TOTALS:	6.130e+003	4.250e-001	5.325e-001	9.369e-004

CASE 2

MICROSHIELD OUTPUT

Soil with 5 pCi Cs-137 per gram.

MicroShield v5.01 (5.01-01003)
Allied Technology Group, Inc.
Results With Buildup
FILE: C:\JOEL\MS5\DATA\CO_VEYOR.MS5
Case Title: Conveyor - Cesium
This case was run on Monday, November 23, 1998 at 11:31:07 AM
Dose Point # 1 - (6,19.5,12) in

Group #	Energy (MeV)	Activity photons/sec	Fluence Rate photons/cm²/sec	Energy Fluence MeV/cm²/sec	Exposure Rate mR/hr
1	0.0318	3.001e+002	1.816e-003	5.776e-005	4.812e-007
2	0.0322	5.537e+002	3.472e-003	1.118e-004	8.996e-007
3	0.0364	2.015e+002	1.828e-003	6.653e-005	3.780e-007
4	0.6616	1.304e+004	1.127e+000	7.458e-001	1.446e-003
	TOTALS:	1.410e+004	1.134e+000	7.461e-001	1.448e-003

MicroShield v5.01 (5.01-01003)
Allied Technology Group, Inc.
Results With Buildup
FILE: C:\JOEL\MS5\DATA\CO_VEYOR.MS5
Case Title: Conveyor - Cesium
This case was run on Monday, November 23, 1998 at 11:31:07 AM
Dose Point # 2 - (6,19.5,9) in

Group #	Energy (MeV)	Activity photons/sec	Fluence Rate photons/cm²/sec	Energy Fluence MeV/cm²/sec	Exposure Rate mR/hr
1	0.0318	3.001e+002	1.794e-003	5.709e-005	4.755e-007
2	0.0322	5.537e+002	3.432e-003	1.105e-004	8.891e-007
3	0.0364	2.015e+002	1.806e-003	6.574e-005	3.735e-007
4	0.6616	1.304e+004	1.106e+000	7.317e-001	1.418e-003
	TOTALS:	1.410e+004	1.113e+000	7.319e-001	1.420e-003

MicroShield v5.01 (5.01-01003)
Allied Technology Group, Inc.
Results With Buildup
FILE: C:\JOEL\MS5\DATA\CO_VEYOR.MS5
Case Title: Conveyor - Cesium
This case was run on Monday, November 23, 1998 at 11:31:07 AM
Dose Point # 3 - (6,19.5,6) in

Group #	Energy (MeV)	Activity photons/sec	Fluence Rate photons/cm²/sec	Energy Fluence MeV/cm²/sec	Exposure Rate mR/hr
1	0.0318	3.001e+002	1.714e-003	5.453e-005	4.542e-007
2	0.0322	5.537e+002	3.278e-003	1.055e-004	8.492e-007
3	0.0364	2.015e+002	1.724e-003	6.277e-005	3.566e-007
4	0.6616	1.304e+004	1.035e+000	6.846e-001	1.327e-003
	TOTALS:	1.410e+004	1.041e+000	6.848e-001	1.329e-003

MicroShield v5.01 (5.01-01003)
Allied Technology Group, Inc.
Results With Buildup
FILE: C:\JOEL\MS5\DATA\CO_VEYOR.MS5
Case Title: Conveyor - Cesium
This case was run on Monday, November 23, 1998 at 11:31:07 AM
Dose Point # 4 - (6,19.5,3) in

Group #	Energy (MeV)	Activity photons/sec	Fluence Rate photons/cm²/sec	Energy Fluence MeV/cm²/sec	Exposure Rate mR/hr
1	0.0318	3.001e+002	1.497e-003	4.763e-005	3.968e-007
2	0.0322	5.537e+002	2.863e-003	9.217e-005	7.418e-007
3	0.0364	2.015e+002	1.504e-003	5.475e-005	3.111e-007
4	0.6616	1.304e+004	8.913e-001	5.897e-001	1.143e-003
	TOTALS:	1.410e+004	8.972e-001	5.899e-001	1.145e-003

CASE 3

MICROSHIELD OUTPUT

5 uCi, Co-60 point source

MicroShield v5.01 (5.01-01003)
Allied Technology Group, Inc.
Results With Buildup
FILE: C:\JOEL\MS5\DATA\CO2VEYOR.MS5
Case Title: Cobalt point source
This case was run on Monday, November 23, 1998 at 11:41:43 AM
Dose Point # 1 - (6.5,1.97e+01,0) in

Group #	Energy (MeV)	Activity photons/sec	Fluence Rate photons/cm²/sec	Energy Fluence MeV/cm²/sec	Exposure Rat mR/hr
1	0.6938	3.018e+001	2.408e-004	1.671e-004	3.226e-007
2	1.1732	1.850e+005	1.734e+000	2.035e+000	3.636e-003
3	1.3325	1.850e+005	1.809e+000	2.411e+000	4.183e-003
	TOTALS:	3.700e+005	3.544e+000	4.446e+000	7.819e-003

MicroShield v5.01 (5.01-01003)
Allied Technology Group, Inc.
Results With Buildup
FILE: C:\JOEL\MS5\DATA\CO2VEYOR.MS5
Case Title: Cobalt point source
This case was run on Monday, November 23, 1998 at 11:41:43 AM
Dose Point # 2 - (6,1.30e+01,0) in

Group #	Energy (MeV)	Activity photons/sec	Fluence Rate photons/cm²/sec	Energy Fluence MeV/cm²/sec	Exposure Rat mR/hr
1	0.6938	3.018e+001	8.136e-004	5.645e-004	1.090e-006
2	1.1732	1.850e+005	5.315e+000	6.236e+000	1.114e-002
3	1.3325	1.850e+005	5.430e+000	7.235e+000	1.255e-002
	TOTALS:	3.700e+005	1.075e+001	1.347e+001	2.370e-002

MicroShield v5.01 (5.01-01003)
Allied Technology Group, Inc.
Results With Buildup
FILE: C:\JOEL\MS5\DATA\CO2VEYOR.MS5
Case Title: Cobalt point source
This case was run on Monday, November 23, 1998 at 11:41:43 AM
Dose Point # 3 - (6,6.57e+00,0) in

Group #	Energy (MeV)	Activity photons/sec	Fluence Rate photons/cm²/sec	Energy Fluence MeV/cm²/sec	Exposure Rate mR/hr
1	0.6938	3.018e+001	3.240e-003	2.248e-003	4.340e-006
2	1.1732	1.850e+005	1.971e+001	2.312e+001	4.131e-002
3	1.3325	1.850e+005	1.976e+001	2.633e+001	4.567e-002
	TOTALS:	3.700e+005	3.947e+001	4.945e+001	8.699e-002

MicroShield v5.01 (5.01-01003)
Allied Technology Group, Inc.
Results With Buildup
FILE: C:\JOEL\MS5\DATA\CO2VEYOR.MS5
Case Title: Cobalt point source
This case was run on Monday, November 23, 1998 at 11:41:43 AM
Dose Point # 4 - (6,0,0) in

Group #	Energy (MeV)	Activity photons/sec	Fluence Rate photons/cm²/sec	Energy Fluence MeV/cm²/sec	Exposure Rate mR/hr
1	0.6938	3.018e+001	8.446e-003	5.860e-003	1.131e-005
2	1.1732	1.850e+005	5.041e+001	5.914e+001	1.057e-001
3	1.3325	1.850e+005	5.034e+001	6.707e+001	1.164e-001
	TOTALS:	3.700e+005	1.008e+002	1.262e+002	2.221e-001

CASE 4

MICROSHIELD OUTPUT

5 uCi, Cs-137 point source

MicroShield v5.01 (5.01-01003)
Allied Technology Group, Inc.
Results With Buildup
FILE: C:\JOEL\MS5\DATA\CO2VEYOR.MS5
Case Title: Cesium point source
This case was run on Monday, November 23, 1998 at 12:51:49 PM
Dose Point # 1 - (6.5,1.97e+01,0) in

Group #	Energy (MeV)	Activity photons/sec	Fluence Rate photons/cm²/sec	Energy Fluence MeV/cm²/sec	Exposure Rate mR/hr
1	0.0318	3.623e+003	1.092e-018	3.475e-020	2.895e-022
2	0.0322	6.685e+003	7.388e-018	2.378e-019	1.914e-021
3	0.0364	2.433e+003	1.979e-013	7.204e-015	4.093e-017
4	0.6616	1.575e+005	1.240e+000	8.203e-001	1.590e-003
	TOTALS:	1.702e+005	1.240e+000	8.203e-001	1.590e-003

MicroShield v5.01 (5.01-01003)
Allied Technology Group, Inc.
Results With Buildup
FILE: C:\JOEL\MS5\DATA\CO2VEYOR.MS5
Case Title: Cesium point source
This case was run on Monday, November 23, 1998 at 12:51:49 PM
Dose Point # 2 - (6,1.30e+01,0) in

oup #	Energy (MeV)	Activity photons/sec	Fluence Rate photons/cm²/sec	Energy Fluence MeV/cm²/sec	Exposure Rate mR/hr
1	0.0318	3.623e+003	8.047e-014	2.560e-015	2.133e-017
2	0.0322	6.685e+003	3.958e-013	1.274e-014	1.026e-016
3	0.0364	2.433e+003	6.913e-010	2.516e-011	1.430e-013
4	0.6616	1.575e+005	4.232e+000	2.800e+000	5.428e-003
	TOTALS:	1.702e+005	4.232e+000	2.800e+000	5.428e-003

MicroShield v5.01 (5.01-01003)
Allied Technology Group, Inc.
Results With Buildup
FILE: C:\JOEL\MS5\DATA\CO2VEYOR.MS5
Case Title: Cesium point source
This case was run on Monday, November 23, 1998 at 12:51:49 PM
Dose Point # 3 - (6,6.57e+00,0) in

Group #	Energy (MeV)	Activity photons/sec	Fluence Rate photons/cm²/sec	Energy Fluence MeV/cm²/sec	Exposure Rate mR/hr
1	0.0318	3.623e+003	2.385e-008	7.588e-010	6.321e-012
2	0.0322	6.685e+003	8.197e-008	2.639e-009	2.124e-011
3	0.0364	2.433e+003	6.391e-006	2.326e-007	1.322e-009
4	0.6616	1.575e+005	1.698e+001	1.123e+001	2.178e-002
	TOTALS:	1.702e+005	1.698e+001	1.123e+001	2.178e-002

MicroShield v5.01 (5.01-01003)
Allied Technology Group, Inc.
Results With Buildup
FILE: C:\JOEL\MS5\DATA\CO2VEYOR.MS5
Case Title: Cesium point source
This case was run on Monday, November 23, 1998 at 12:51:49 PM
Dose Point # 4 - (6,0,0) in

Group #	Energy (MeV)	Activity photons/sec	Fluence Rate photons/cm²/sec	Energy Fluence MeV/cm²/sec	Exposure Rate mR/hr
1	0.0318	3.623e+003	2.497e-005	7.945e-007	6.618e-009
2	0.0322	6.685e+003	7.046e-005	2.268e-006	1.826e-008
3	0.0364	2.433e+003	1.003e-003	3.652e-005	2.075e-007
4	0.6616	1.575e+005	4.436e+001	2.935e+001	5.690e-002
	TOTALS:	1.702e+005	4.436e+001	2.935e+001	5.690e-002

Soil Monitoring System

Through-put:

3" Deep	.25'	max depth of materi
24" wide	2.0'	(active belt width)
1.5 ft per sec (0.45 m/sec)		Max travel speed for rec. sensitivity (~1.5 pCi/s

.25' x 2.0' x 1.5' sec x 60 sec/min x 60 min/hr
= 2700 CF / hr
= 100 CY / hr MAX

Correction factors allocated:

1. .8 — 3" is max depth at bottom of concave conveyor belt only. Dept diminishes in both directions towar the sides.
2. .8 — Throughput interruptions attributed to positive alarms and subsequen materials marking, sorting, and restarts.
3. .8 — System start-up / shut-down operati QC — achieve 8 hrs productive effort over 10 hr work day.
4. .5 — Weather related delays, system obstruction, equipment failure.

100 cy/hr x 0.8 x 0.8 x 0.8 x 0.5 = ~25 cy