OAK RIDGE NATIONAL LABORATORY
MANAGED BY UT-BATTELLE FOR THE DEPARTMENT OF ENERGY

P.O. Box 2008
Oak Ridge, TN 37831-6186
Phone: (865) 574-5776
Fax: (865) 576-8614
E-Mail: downerkm@ornl.gov

September 15, 2003

Mr. Bret Rogers
Director of Technical Services
Envirocare of Utah, Inc.
605 North 5600 West
Salt Lake City, UT 84101

Dear Mr. Rogers:

Proposed Radioactive Waste Profile 9315-01, "Building 4501 Mixed Waste Oversize Debris," September 12, 2003

Please find enclosed a signed copy of the subject Profile including:

- Radioactive Waste Profile Record
- Attachment B.5 Physical Properties
- Hazardous Waste Analysis Certification Attachment
- Special Nuclear Material Exemption Certification

This original profile is being submitted in accordance with your email "Comments for Waste Profile 9315-01 (Bldg 4501 MW Oversize Debris)," dated September 12, 2003.

Please contact me (865-574-5776) or Darrell Daugherty (865-576-2013) if you have any questions regarding the profile.

Sincerely,

Karen Downer

Karen Downer, Director
Environmental Protection and Waste Services Division

KMD:vmm

Enclosure

c/enc: K. A. Carney
D. L. Daugherty
L. J. Megza
L. C. Roddye
C. A. Schrof
S. D. Van Hoesen

c: K. J. Beierschmitt

ENVIROCARE of Utah, Inc.

RADIOACTIVE WASTE PROFILE RECORD

EC-0230, Revision 4

A. GENERATOR AND WASTE STREAM INFORMATION

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

1. GENERATOR INFORMATION

Generator Name: U.S. Department of Energy/UT-Battelle EPA ID #: TN1890090003

Generator Contact: Lance Mezga Title: Manager-Laboratory Waste Services

Mailing Address: P.O. Box 2008 Oak Ridge, TN 37831-6021

Utah Site Access Permit #: 0289 001 601

Phone: 865 574-7258 Fax: 865 241-2843 Email: BCX@ornl.gov

Contractor Name: UT Battelle LLC Location of Material (City, State): Oak Ridge, TN

Name & Title of Person Completing Form: Craig Sorum-Waste Management Specialist Phone: 865 574-7749

2. WASTE STREAM INFORMATION

Waste Stream ID: 9315-01 Waste Stream Name: Building 4501 Mixed Waste Oversize Debris

Revision: 0 Date: 9/12/03 Volume (ft³): ~27503 Delivery Date: 9/30/03

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

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

Y ☒ N ☐ If No, complete and attach the "Low-Level Radioactive Waste Analysis Certification Attachment".

If Yes, complete and attach the "Hazardous Waste Analysis Certification Attachment" and check applicable box below.

Has the waste been treated to meet applicable treatment standards per 40 CFR 268? Y ☐ N ☒

Is the waste to be treated by Envirocare? Y ☒ N ☐

LOW-LEVEL RADIOACTIVE MATERIAL: Is the radioactivity contained in the waste material Low-Level Radioactive Waste as defined in the Low-Level Radioactive Waste Policy Amendments Act of 1985 or in DOE Order 435.1?

Y ☒ N ☐ If Yes, a current copy of a LLRW Compact Export letter authorizing export must be submitted if applicable. This authorization is applicable for non-DOE LLRW (i.e., Mixed Waste, NORM/NARM, 11e.(2) material, and waste from DOE do not require a Compact Export Letter)

If No, check appropriate box: NORM/NARM ☐ 11e.(2) Byproduct Material ☐ Other: _____

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

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

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

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

ASBESTOS: Does the waste contain Asbestos Containing Material?

Y ☐ N ☒ If Yes, Asbestos Containing Material must be managed in accordance with 40 CFR 61. Provide a detailed description of the waste containing asbestos in Section B.5 of the waste profile.

ENVIROCARE of Utah, Inc.

RADIOACTIVE WASTE PROFILE RECORD

EC-0230, Revision 4

B. WASTE PHYSICAL PROPERTIES & PACKAGE INFORMATION

1. GENERAL CHARACTERISTICS

Does the waste contain free liquids? Y ☐ N ☒ If Yes, what is the percent of free liquid by waste volume? NA %

Does the waste contain absorbent? Y ☒ N ☐ Density range of the waste: 5 - 200 S G ☐ lb/ft3 ☑

List percentage of waste type by volume: Soil ____ % Concrete & Metal 70% DAW 20% Resins ____ % Sludge 1%

Other constituents and percentage by volume? glass 4%, Wood 4%, Misc. Debris 1%

2. MATERIAL SIZE

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

12" 10-100 % 4" 10-80 % 1" 0-40 % 1/4" 0-15 % 1/40" 0-1 % 1/200" 0 %

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

3. MOISTURE CONTENT

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

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

Average Moisture Content: NA % Moisture Content Range: NA% - NA%

4. WASTE SHIPPING & PACKAGING

Transportation Mode: ☒ Highway ☐ Rail

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

☐ Intermodal ☒ Sealand ☐ Gondola* ☐ Box Car

Other: _____

*Dimensions of gondola railcars must be between 48 to 56.5 feet in length and 8.5 to 12.5 feet in height as measured from the top of the rail to the top of the railcar unless approved by Envirocare.

5. NARRATIVE DESCRIPTION AND HISTORY OF WASTE

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

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

ATTACHMENT B.5
PHYSICAL PROPERTIES

Generator Name: Department of Energy/UT-Battelle Generator # / Waste Stream #:9315-01
Revision #: 0 Revision Date: 9/12/03

Process that generated the waste:

This waste stream is the result of the D&D of a project conducted at the Oak Ridge National Laboratory (ORNL), buiding 4501, Cell D. The project was develped to evaluate and select a technology for the treatment of high level waste solutions from another Department of Energy (DOE) facility. The experiment was designed to precipitate and remove radioactive cesium and trace amounts of Strontium and Uranium from waste solutions by means of a continuous-flow stirred-reactor (CSTR) system. This experiment has concluded, and therefore the experimental apparatus involved has become oversize debris waste material.

Waste material physical composition and characteristics:

The waste stream consists of oversize debris to include piping, agitators, electrical wiring, pumps, stainless steel tubing, stainless steel vessels, a 55 gallon bung drum, sludges, flow meters, valves, scales, lead bricks, lead shielding, wipes and PPE.

Radiological and chemical characterization method:

Radiological Characterization of Solid Radioactive Waste, ORNL-WC-507, guidance document describes the characterization methods that are applicable (with qualifications) for all wastes determined to be radioactive (i.e., Solid Low-Level). Radiological characterization for over sized debris utilizes a variety of characterization methods to determine the radionuclides present and the amounts of contamination present on the material. The general approach for achieving radiological characterization starts with PK information. In essence, if acceptable PK is available, the waste can be adequately characterized. If PK alone is insufficient for characterization, but radionuclide identities and relative concentrations can be determined from PK, S&A, and/or gamma spectroscopy, then gross radiation measurements (and scaling factors, if necessary) may be used to develop an adequate radiological characterization.

Additionally, Radioactive Waste Guidance (Waste Container Log Sheet Use With Single Waste Item Description (WID) Container - Instruction Rev. 3a, dated 11/8/00) describes radiological contamination measurement processes for waste items in particular surface contaminated objects. This guidance document also describes the data gathered for completion of a waste container log sheet.

Due to the physical form of the waste stream, "oversized debris", sampling (Required Chemical Laboratory Analysis) of the EC-0230, can not be performed. ORNL generators use "Guidance for Characterization of Hazardous, Polychlorinated Biphenyl, and Low-level Mixed Waste" (ORNL-WC-406) guidance document for making hazardous/nonhazardous waste determinations. Chemically, the oversize debris is predominantly metal, plastic, glass, paper, and sludge material. The only known regulated constituents present in this waste stream is lead and mercury. This is based on process knowledge from the initial experimentation which describes lead being used for shielding, and mercury, which was an ingredient in the original experiment.

The original feed solution contained ~5Ci Cs137, Sr85, and 5 ppm enriched uranium. The Sr85 was used to simulate Sr90, and is no longer part of this waste stream due to it's short half life. Based on process knowledge, and mass balance from the experiment, there is ~.5 Ci of Cs137, 440 pCi of U235, and 3.86 pCi of U238 potentially available as contamination spread over the oversize debris volume of ~275 ft3.

Basis for determining manifested radionuclide concentraitons

Process knowledge information from the original experiment indicates that a total of 0.5 Ci of Cs137 and 440pCi of U235 is spread over the entire oversize debris volume (~275ft3). This volume is to be packaged into lead lined B25

boxes, and then into a SeaLand container. The concentrations may vary from as low as 0.1 Ci (6.3e3 pCi/g) to 0.5 Ci (3.2e4 pCi/g) of Cs137, 440 pCi (2.77e-5 pCi/g) of U235 and 3.86pCi (2.43e-6 pCi/g) of U238 as distributed. These concentrations are based on an assumed mass of the shipping container (Sealand) as manifested to be ~35,000 lbs.

Description and amounts of absorbents, if applicable:

There is a 55 gallon bung drum that has small amounts of sludge residue remaining within. The drum lid will be cut off of the drum during removal and placement into the B25 box. The sludge drum will have Radsorb added to eliminate the possibility of free liquids. Additionally, each of the three lead lined B25 boxes will have 6 lbs of Radsorb added to each box to ensure that there will be no free liquids present.

Basis for non-hazardous or hazardous waste determinations

Process knowledge from the original experimentation indicates that there is lead and mercury present in the waste stream as a potential residue. Since mercury was an initial ingredient of one of the test feed materials (7.17% of the total feed solution @ 88.7 mg/l) in the CSTR experimentation, there is small potential for residual mercury to reside on the oversize debris material, and within the sludge. The sludge material that has the highest potential for the mercury is dry, and has Radsorb added to endsure that there are no free liquids. Lead was used during the experiment to reduce dose rates to workers to maintain adherance to As Low As Reasonably Achievable (ALARA).

Treatment processes, if applicable:

The oversize debris is RCRA regulated for Lead (D008) and Mercury (D009) as described above. This oversize debris is a candidate for macroencapsulation under the alternative treatment standards at Envirocare of Utah. There will be no treatment performed by the generator.

Production information or MSDS as applicable:

See attached documentation.

Information requested in other sections of this form:

ENVIROCARE
of Utah, Inc.

RADIOACTIVE WASTE PROFILE RECORD

EC-0230, Revision 4

C. RADIOLOGICAL INFORMATION

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

1. Does the waste material contain accessible surfaces with contact dose rates greater than 500 mR/hr? Y ☒ N ☐

2. Does the waste material contain any of the following isotopes: Aluminum-26, Berkelium-247, Calcium-41, Californium-249, Californium-250, Chlorine-36, Rhenium-187, Terbium-157, or Terbium-158? Y ☐ N ☒

3. Please list the following information for each isotope associated with the waste. The manifested concentration on the Uniform LLRW Manifest Form 541 must not exceed the upper concentration range listed below for each isotope. Provide an explanation in the narrative description of Section B.5 if the waste contains localized "hot spots" or elevated concentrations that significantly exceed the upper concentration range. Envirocare's license assumes that short-lived decay products of specified isotopes are present in concentrations equal to the parent. Consequently, these short-lived isotopes do not need to be listed below. If additional space is needed, provide an Attachment C.3 to this profile record formatted as below.

Isotopes	Manifested Concentration Range (pCi/g)			Weighted Avg. per Container (pCi/g)	Isotopes	Manifested Concentration Range (pCi/g)			Weighted Avg. per Container (pCi/g)
Cs137	6.3e3	to	5.1e4	3.2e4			to		
U235	2.77e-6	to	2.77e-4	2.77e-5			to		
U238	2.43e-8	to	2.43e-6	2.43e-7			to		
		to					to		
		to					to		
		to					to		
		to					to		
		to					to		
		to					to		
		to					to		
		to					to		
		to					to		
		to					to		
		to					to		
		to					to		
		to					to		
		to					to		
		to					to		
		to					to		
		to					to		
		to					to		
		to					to		
		to					to		
		to					to		
		to					to		
		to					to		
		to					to		
		to					to		

ENVIROCARE of Utah, Inc.

RADIOACTIVE WASTE PROFILE RECORD

EC-0230, Revision 4

HAZARDOUS WASTE ANALYSIS CERTIFICATION ATTACHMENT

This form is required only if the checkbox for Hazardous Material on page one has been checked YES. Envirocare may waive the chemical laboratory analyses if the material is not amenable to chemical sampling and analysis (e.g., debris items including metal pieces, concrete, plastic, etc.). Justification for waiving the chemical analyses must be provided in Section B 5.

D. MINIMUM REQUIRED CHEMICAL ANALYSIS

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

1. GENERAL CHEMICAL PARAMETERS

		SW-846 Analytical Methods
Soil pH: NA		Method 9045 Please provide the range of the pH analyses performed.
PFLT NA	Pass / Fail	Method 9095 Not applicable for liquid radioactive waste streams.
Reactive Sulfide: NA	mg/kg	Method 9034
Reactive Cyanide: NA	mg/kg	Method 9014 If the Reactive Cyanide is > 50 mg/kg, total and amenable cyanide are required.
		Method 9010 Total cyanide NA mg/kg Amenable cyanide: NA mg/kg
TOX NA	mg/kg	Method 9020 TOX or Method 8260 & 8270 analyses (totals). If TOX >200 mg/kg, Method 8260 & 8270 analyses (totals) are required

Has the waste been analyzed for volatile or semi-volatile constituents (Method 8260 or 8270)? Y ☐ N ☐

Any distinguishing color or odor? Y ☐ N ☐ If Yes, color: ; odor: ____

2. HAZARDOUS WASTE CODES AND TREATMENT STANDARDS (40 CFR 268)

List all hazardous waste codes and treatment standards. Include hazardous waste codes that have been removed through treatment and indicate "Former" in the second column. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D 2 to this profile record formatted as below. Include a description of hazardous waste determinations and any variances, exclusions, etc. in the narrative requested in Section B 5.

EPA HW Codes	Description, Constituent of Concern, or Subcategory	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
D008	Radioactive Lead Solids	MACRO	
D009	Low Sub-Alternative Treatment Std for Haz Debris	MACRO	

ENVIROCARE
of Utah, Inc.

RADIOACTIVE WASTE PROFILE RECORD

EC-0230, Revision 4

D. 2. HAZARDOUS WASTE CODES AND TREATMENT STANDARDS (Continued)

EPA HW Codes	Description, Constituent of Concern, or Subcategory	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)

3. UNDERLYING HAZARDOUS CONSTITUENTS (40 CFR 268.48)

List all underlying hazardous constituents (UHCs) and treatment standards. Include UHCs that have been removed through treatment. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D.3 to this profile record formatted as below.

Underlying Hazardous Constituents	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
Mercury	Macro	
Lead	Macro	

ENVIROCARE
of Utah, Inc.

RADIOACTIVE WASTE PROFILE RECORD

EC-8238, Revision 4

D. 4. OTHER CHEMICAL CONSTITUENTS

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

Other Chemical Constituents	Worst Case Concentration (mg/kg unless noted as mg/l TCLP)	Other Hazardous Constituents	Worst-Case Concentration (mg/kg unless noted as mg/l TCLP)
NA			

5. LABORATORY CERTIFICATION INFORMATION

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

☐ **OTHER LABORATORY CERTIFICATION** (Describe below)

6. CERTIFICATION

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

Generator's Signature: Daniel V. Daugherty Title: VP- Battelle Waste Certification Official Date: 09/12/03

ENVIROCARE of Utah, Inc.

Special Nuclear Material Exemption Certification

EC-0230-SNM, Revision 2

The Special Nuclear Material Exemption Certification form must be completed and signed by each generator certifying to the following conditions. Please attach this form and all required information to the Radioactive Waste Profile Record (EC-0230). **A completed and signed copy of this form must also accompany each waste manifest.**

Waste Stream ID: 9315-01 _____ Manifest No._____

1. Check applicable category below for the waste stream:

√	Uranium Enrichment Percent	Weight Percent of Chemicals in Condition 2c	Weight Percent of Materials in Condition 2d	U-235 Concentration (pCi/g)	Measurement Uncertainty* (pCi/g)
☐	< 10 %	≤ 20 %	≤ 1 %	≤ 1,900	≤ 285
☒	Unlimited	≤ 20 %	≤ 1 %	≤ 1,190	≤ 179
☐	Unlimited	Sum of both ≤ 45 % of waste by weight		≤ 680	≤ 102
☐	Unlimited	Unlimited	Unlimited	≤ 26	≤ 10
☐	Not Applicable - Enriched U-235 is not present in the waste.				

* A concentration value is used for the maximum measurement uncertainty limit rather than a percentage value to allow greater flexibility for generators with waste having very low SNM concentrations.

2. Certify to the following requirements by checking each box:

☒ a. Concentrations of SNM in individual waste containers do not exceed the applicable values listed in the above table and SNM isotope concentrations listed in Table 1.

☒ b. The SNM is homogeneously distributed throughout the waste or the SNM concentrations in any contiguous mass of 600 kilograms (1,323 lbs) do not exceed on average the specified limits. (Based on process knowledge or testing).

☒ c. Except as allowed by Condition 1, the waste does not contain "pure forms" of chemicals containing carbon, fluorine, magnesium, or bismuth in bulk quantities (e.g., a pallet of drums, a B-25 box). By "pure forms," it is meant that mixtures of the above elements such as magnesium oxide, magnesium carbonate, magnesium fluoride, bismuth oxide, etc. do not contain other elements. (Based on process knowledge or testing).

☒ d. Except as allowed by Condition 1, the waste does not contain total quantities of beryllium, hydrogenous material enriched in deuterium, or graphite above one percent of the total weight of the waste. (Based on process knowledge, physical observations, or testing).

☒ e. Waste packages do not contain highly soluble forms of uranium greater than 350 grams of uranium-235 or 200 grams of uranium-233. If the waste contains mixtures of U-233 and U-235, the waste meets the sum of the fractions rule. Highly soluble forms of uranium include, but are not limited to: uranium sulfate, uranyl acetate, uranyl chloride, uranyl formate, uranyl fluoride, uranyl nitrate, uranyl potassium carbonate, and uranyl sulfate. (Based on process knowledge or testing).

☒ f. For containers of liquid waste with more than 600 kilograms of waste, the total activity (pCi) of SNM in the manifested container does not exceed the SNM concentration in the above table or Table 1 times 600 kilograms of waste (based on process knowledge or testing). For example, the maximum activity of Pu-239 in any manifested container of liquid waste is 6 0 mCi (6.0E+09 pCi) as shown below:

$$10{,}000\frac{pCi}{g} \times 600{,}000\,g = 6.0X10^{9}\,pCi = 6.0\,mCi\ Pu\text{-}239$$

ENVIROCARE of Utah, Inc.

Table 1. Maximum concentrations of SNM in individual waste containers (refer to above table for U-235 limits).

Radionuclide	Maximum Concentration (pCi/g)	Measurement Uncertainty (pCi/g)	Radionuclide	Maximum Concentration (pCi/g)	Measurement Uncertainty (pCi/g)
U-233	75,000	11,250	Pu-241	350,000	50,000
Pu-236	500	75	Pu-242	10,000	1,500
Pu-238	10,000	1,500	Pu-243	500	75
Pu-239	10,000	1,500	Pu-244	500	75
Pu-240	10,000	1,500			

3. **Indicate that the following information is attached to the Radioactive Waste Profile Record by checking each box. (Note: Only the two-page Special Nuclear Material Exemption Certification form needs to be included with each manifest).**

   ☒ a. Provide a description of how the waste was generated, list the physical forms in the waste, and identify the uranium chemical composition.

   ☒ b. Provide a general description of how the waste was characterized (including the volumetric extent of the waste, and the number, location, type, and results of any analytical testing), the range of SNM concentrations, and the analytical results with error values used to develop the concentration ranges.

   ☒ c. Describe the process by which the waste was generated showing that the spatial distribution of SNM must be uniform, or other information supporting spatial distribution.

   ☒ d. Describe the methods to be used to determine the concentrations on the manifests. These methods could include direct measurement and the use of scaling factors. Describe the uncertainty associated with sampling and testing used to obtain the manifest concentrations.

4. **Generator's certification of compliance with the SNM exemption:** I certify that the information provided on this form is complete, true, and correct and is based on process knowledge, physical observations, or approved laboratory testing. I also certify that sampling and radiological testing of waste containing SNM was performed in accordance with Envirocare's Radioactive Material License and that any supporting documentation and analytical results have been submitted to Envirocare of Utah, Inc.

Darrell L Daugherty	Darrell L Daugherty	UT - Radiation Waste Certification Official	09/12/03
Authorized Signature	Printed Name	Title	Date