

## **ATTACHMENT 1**

# NRC Review of National Enrichment Facility Integrated Safety Analysis Documentation

March 9-11, 2004

# Overview of Integrated Safety Analysis (ISA) Documentation

- ISA Documentation Includes
  - Process Safety Information
  - ISA Team Meeting Results
  - Action Items and Resolutions
  - Calculations
  - ISA Technical Reports
  - A/E and Urenco Documentation
  - IROFS Information
- Refer to Handout

# Features of ISA Documentation

- Development started September 2002
- Hartsville, TN Site
- Updated to Reflect Lea County, NM Site
  - Utilized ISA Update Process (previously described at Feb. 26, 2004 Meeting)
  - Utilized Hartsville HAZOPS as a starting point
  - Utilized Hartsville Consequence Methodology and Selected Action Item Responses

# Features of ISA Documentation (continued)

- Developed Lea County, NM specific documentation
  - HAZOPS
  - Consequence Evaluations
  - Accident Sequences and Risk Determinations
    - Internal and External Events

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**ATTACHMENT 2**



# U.S. Environmental Protection Agency Mixed Waste

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[EPA Home](#) > [Radiation](#) > [Programs](#) > [Mixed Waste](#) > Currently Operating Mixed Waste TSDFs

[Radiation Home](#) [News](#) [Information](#) [Topics](#) [Programs](#) [Visitors' Center](#) [Site Map](#)

[Programs Home](#)  
[Mixed Waste Home](#)

[About Mixed Waste](#)  
[Common Questions](#)  
[Mixed Waste Library](#)  
[Laws & Regulations](#)  
[Preventing and Managing Mixed Waste](#)  
[EPA's Mixed Waste Team](#)  
[Links](#)

## Currently Operating Mixed Waste TSDFs

The following treatment, storage, or disposal facilities (TSDF's) (listed alphabetically) currently have commercially available mixed waste treatment, storage, and/or disposal capabilities.

This page is not to be consider as an endorsement or recommendation for use. The following companies listed on this page represent only those permitted mixed waste treatment, storage, and/or disposal facilities currently accepting commercial mixed waste that have expressed an interest in participating in this HomePage. Generators should contact facilities operators and State and/or Federal regulators to determine the latest permit status and other regulatory information.

Properly permitted treatment, storage, or disposal facilities that are currently accepting commercial mixed waste should fill out the following [form](#) only if they wish to participate in this HomePage.

### Index of Participating Mixed Waste Treatment, Storage, and Disposal Facilities (TSDF's)

[Envirocare of Utah](#)  
[DSSI](#)  
[NSSI](#)  
[Perma-Fix Environmental Services](#)  
[East Tennessee Materials and Energy Corporation \(M&EC\)](#)

#### Envirocare of Utah, Inc.

Envirocare provides treatment, storage, transportation and disposal for waste streams in excess of 100 cubic feet.

Envirocare accepts both remediation and process wastes.

Envirocare accepts all nuclides within specific limits (less than NRC Class A), and over 200 waste codes including characteristic and listed wastes.



### Programs

[Programs Home](#)  
[WIPP Oversight](#)  
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[Mixed Waste](#)  
[Federal Guidance](#)  
[Naturally Occurring Radioactive Materials](#)  
[Radon](#)  
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Envirocare's treatment operation performs two types of mixed waste treatment:

1. Stabilization - State-of-the-art 150 tons per day treatment facility can process soils, sludges (up to 49% aqueous liquids), debris, process wastes, etc. to meet either characteristic or listed treatment standards. Non-thermal technologies include stabilization, chemical fixation, chemical oxidation, chemical reduction, neutralization, deactivation. Less than 5% volume of increase is typical.
2. Macroencapsulation - LDPE extrusion technology encapsulates elemental lead and debris in order to meet both D008 and alternative debris treatment standards.

The Envirocare facility is located in the Great Basin Desert Area of western Utah, approximately 75 miles west of Salt Lake City. This arid location receives less than 6 inches of yearly precipitation, and is 40 miles from the nearest populated area. In 1988, Envirocare began NORM disposal operations at the site. In 1992, capabilities expanded to include LLRW and mixed waste disposal. Full scale mixed waste treatment operations began in early 1995. Currently, Envirocare is the only permitted solid mixed waste disposal facility in the U.S. The mixed waste cells exceed EPA requirements for design and construction for hazardous waste disposal. These cells are above-grade, capped embankments designed for lifetimes of at least 1,000 years.

The State of Utah is both an NRC Agreement state and an EPA RCRA Authorized state, and therefore Envirocare's primary license and permit are state regulated.

Envirocare holds the following permits:

- Utah Division of Radiation Control  
Radioactive Material License  
License Number - UT 2300249
- Utah Division of Solid and Hazardous Waste  
RCRA Part B Permit  
EPA ID# - UTD982598898



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return to: [\[top\]](#) [\[previous location\]](#)

**Diversified Scientific Services, Inc. (DSSI)  
(A Wholly Owned Subsidiary of Perma-Fix Environmental  
Services, Inc.)**

DSSI provides thermal treatment of LIQUID mixed, hazardous and/or radioactive waste. DSSI also provides for waste brokerage and transportation services.

DSSI accepts remedial and as-generated process wastes provided that the waste is a pumpable liquid and one that DSSI can accept (see below).

In LIQUID form, DSSI can accept all RCRA hazardous waste codes (except F020, F021, F022, F023, F026, and F027), including waste containing small quantities of radioisotopes with atomic numbers 1 through 83 (inclusive), and multiple isotopes from atomic numbers 88 through 96.

DSSI owns and operates an industrial boiler system that produces electrical power from the thermal treatment of liquid wastes classified as mixed or radioactive. The residue resulting from the treatment process is considered DSSI generated waste, and is disposed of by DSSI at an appropriately licensed and permitted disposal facility. Through beneficial recovery of thermal energy, large quantities of mixed waste that would otherwise be stored produce a useful product while a substantial waste reduction is accomplished.

The following is a short history of DSSI.

1989 Permitted by Private Investors  
1991 Purchased by Chemical Waste  
Management, Inc.  
1992 Operated by Chem-Nuclear Systems, Inc.  
1992-93 Facility and System Upgrades  
1993 Operations Resumed in December of 1993  
1995 Final Facility Upgrades completed  
2000 Permit renewal  
2000 Purchased by Perma-Fix Environmental  
Services, Inc. (PESI)

DSSI holds the following permits:

1. EPA Generators Number: TND98-210-9142, Issued by: State of Tennessee  
Department of Environment and

- Conservation Division of Solid Waste Management
2. TSD Part B - Hazardous Waste Permit:TNHW-024, Issued by: State of Tennessee Department of Environment and Conservation Division of Solid Waste Management
  3. Radioactive Materials License: R-73014-K98, Issued by: State of Tennessee Department of Environment and Conservation Division of Radiological Health
  4. Air Pollution Permit: 937185F, Issued by: State of Tennessee Department of Environment and Conservation Division of Air Pollution Control
  5. NPDES Storm Water Runoff: TNR00321, Issued by: State of Tennessee Department of Environment and Conservation Division of Water Pollution Control
  6. NESHAP (No number specified), Issued by: U.S. EPA, Region IV
  7. Boiler & Industrial Furnace (BIF) Part B Permit Part A: TND98-210-9142, Issued by: U.S. EPA, Region IV

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return to: [\[top\]](#) [\[previous location\]](#)

## NSSI

NSSI is a fully RCRA Part B permitted facility which accepts hazardous, mixed, and radioactive wastes for treatment, storage, and disposal.

NSSI has an authorized drum storage capacity of 4000 drums. NSSI is a permitted radioactive, mixed, and hazardous waste transporter. Disposal of all residues of wastes received at NSSI is at offsite facilities. A list of authorized treatments at NSSI is contained in the permits. Copies of the permits are contained in the facility profile.

NSSI accepts both remediation and as-generated process wastes. NSSI accepts private sector wastes only, DOE, DoD, and other government generated wastes are accepted only through private sector brokers.

NSSI is permitted for all EPA waste codes, all waste forms, and all radionuclides including special nuclear material. The only waste materials not currently acceptable at NSSI are PCB above 50 ppm, explosives, and Dioxins. NSSI is licensed for all radionuclides including special nuclear material.

NSSI was formed in 1971 primarily as a manufacturer of tracer materials and sealed sources for the oil well logging industry. Waste was a minor business until 1980 when EPA began to regulate wastes. Waste activities are now the primary business at NSSI. NSSI has accepted radioactive, hazardous, and mixed wastes since 1971, 1980, and 1981, respectively.

NSSI is licensed for radioactive waste treatment and storage under the Texas Bureau of Radiation Control (BRC) agreement state license Lo-1811. NSSI is permitted for the treatment and storage of hazardous and mixed wastes under Texas Natural Resources and Conservation Commission (TNRCC) permit number HW50269.

**more  
info**

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return to: [\[top\]](#) [\[previous location\]](#)

**Perma-Fix Environmental Services, Inc.**

Perma-Fix possesses a RCRA Part B permit to qualify as a TSDF (Treatment, Storage and Disposal Facility) to store and process hazardous and mixed wastes.

Perma-Fix possesses a Radioactive Materials License authorizing the receipt of Source, Special Nuclear, By-Product, Naturally Occurring and Accelerator-Produced Radioactive Materials.

The license and permit authorize the receipt of liquids, sludges and solids for the purpose of storage, treatment and disposal.

The facility uses state-of-the-art analytical and treatment equipment to:

- Decommission labpacks
- Thermally treat organic liquids, sludges and solids
- Stabilize mixed wastes containing inorganic compounds using the proprietary Perma-Fix Process
- Distill halogenated organic liquids

Perma-Fix provides a full scope of services for generators of hazardous, non-hazardous, mixed and radioactive wastes. Perma-Fix has the expertise to provide:

- Mixed waste treatment
- Liquid scintillation vial processing and disposal
- Decay-In-Storage of short-lived wastes
- Research and development of "orphaned" mixed wastes
- Laboratory analysis and waste characterization
- On-site decontamination and remediation
- Audits and training programs
- Radioactive materials licensing assistance

The Gainesville facility has been a mixed waste facility since 1983 that:

- Handles an estimated 80% of the liquid scintillation vial (LSV) waste processing for the country, and
- Receives mixed waste from all 50 states and the U.S. territories.



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return to: [\[top\]](#) [\[previous location\]](#)

**East Tennessee Materials and Energy Corporation (M&EC)**  
(A Wholly Owned Subsidiary of Perma-Fix Environmental Services, Inc.)

The Waste Treatment Center is located at the

East Tennessee Technology Park (ETTP) within the USDOE complex (formally the K-25 site) near Oak Ridge, Tennessee.

M&EC possesses a RCRA Part B permit to store and treat mixed wastes. This qualifies as a TSDF (Treatment, Storage and Disposal Facility).

M&EC possesses a Radioactive Materials License authorizing the receipt of Source, Special Nuclear, By-Product, Naturally-Occurring and Accelerator Produced Radioactive Materials.

The license and permit authorize the receipt of liquids, sludges and solids for the purpose of storage, treatment and disposal. Processes are focused on employing safe and controlled methods of treatment in large batches that are tailored to the specific wastes to be treated.

With state-of-the-art treatment equipment, the facility:

- Uses the pre-treatment process for the separation of organics from the solids;
- Uses chemical extraction employing several techniques to destroy the organic portion of the wastes;
- Uses aqueous waste treatment to include: equalization, neutralization, precipitation, filtration, ion exchange, and activated carbon adsorption to treat these wastes;
- Uses dewatering and filtration system employing a filter press to dewater sludges which result from the aqueous water treatment processes;
- Uses chemical fixation for solid and sludge wastes that contain RCRA hazardous metals. A chemical fixation agent is added to the waste which reacts to produce a metal complex that is no longer characteristically hazardous; the waste can then be tested and confirmed as passing the test; then solidified;
- Uses a metals precipitation process by chemically precipitating metals into a low solubility form prior to final treatment; and
- Uses other waste treatment processes to include neutralization, alkaline chlorination, controlled waste reaction and liquefaction.

M&EC provides a full scope of services for generators of mixed wastes predominantly oriented to large volumes of mixed wastes from the USDOE.

M&EC has the contracts to receive and treat wastes from the Department of Energy and its

Prime Contractors through the BROAD SPECTRUM contract issued by Bechtel Jacobs, LLC. The USDOE and its contractors are able to ship wastes to the M&EC facility with established contractual and pricing methods in place.

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return to: [\[top\]](#) [\[previous location\]](#)

✿ [Treatment Options](#) ✿ [Mixed Waste Treatment Guidance](#) ✿ [TSDF Information Form](#) ✿

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URL: [http://www.epa.gov/radiation/mixed-waste/mw\\_pg11a.htm](http://www.epa.gov/radiation/mixed-waste/mw_pg11a.htm)