



January 20, 2011

CD11-0017

Mr. Rusty Lundberg
Executive Secretary
Utah Radiation Control Board
195 North 1950 West
Salt Lake City, UT 84114-4850

Mr. Arthur T. Howell, Director
Division of Nuclear Material Safety
U.S. Nuclear Regulatory Commission Region IV
612 East Lamar Blvd.
Suite 400
Arlington, TX 76011-4125

Re: Written Notification of Non-Compliant Shipment at the Clive Low-Level Radioactive Waste Disposal Facility. Radioactive Material License UT 2300249 for Shipment Number 0421M-31-0022, Bates Number M11459, GSAP 0112001205

Dear Sirs:

This letter provides written notification and additional follow-up to the Utah Division of Radiation Control (UDRC) and the U.S. Nuclear Regulatory Commission (NRC) Region IV of a non-compliant shipment at the EnergySolutions Low-Level Radioactive Waste Disposal Facility (Clive) in Clive, Utah. On December 16, 2010, a verbal notification was made, via telephone, from Rick Chalk, Director of Health Physics - Clive, UT to:

- Mr. John Hultquist, Utah Division of Radiation Control

On December 21, 2010, a follow up written notification was provided to:

- Mr. Rusty Lundberg, Executive Secretary Utah Radiation Control Board
- Mr. John Hultquist, Utah Division of Radiation Control

On January 14, 2011, off-site laboratory results were reviewed and indicated the Special Nuclear Material (SNM) concentrations within this shipment exceeded the Clive Radioactive Material License (RML) and verbal notification was made, via telephone, from Rick Chalk, Director of Health Physics - Clive, UT to:

- Mr. Robert Evans, U.S. Nuclear Regulatory Commission Region IV
- Mr. John Hultquist, Utah Division of Radiation Control

On October 19, 2010, EnergySolutions Clive disposal facility received shipment 0421M-31-0022 (Bates Number M11459) from Materials and Energy Corporation (generator) consisting of nine 55-gallon drums. A composite sample was obtained from six drums within the shipment on October 20, 2010, for on-site gamma spectroscopy analysis. On December 7, 2010 the 9 drums were taken from the Mixed Waste storage pad and placed into the Mixed Waste 9AFF (CLSM) disposal embankment in preparation for final disposal. Several other waste streams were then placed around this shipment in containers consisting of B-25 boxes and other 5 and 55-gallon drums in preparation for disposal. Each of these waste shipments were segregated by the original containers and were never mixed together with other waste shipments. The initial analytical results on the 0421M-31-0022 were analyzed then reviewed December 16, 2010, indicated elevated levels of Am-241 greater than Class A limits. The determination was made to re-sample the shipment by taking two additional composite samples from all 9 drums within the shipment. The shipment was re-sampled and analyzed on December 16, 2010. A review of this analytical data determined that the results were within Class A levels, but were higher than the concentrations identified on the Uniform Low Level Radioactive Waste Manifest (manifest). Condition report CRS10-060 was initiated to track this issue. Once the re-sample analysis was reviewed and discussed with the generator, the decision was made to send these samples off-site to be validated by an independent laboratory. The nine containers were then removed on December 20, 2010 from the Mixed Waste disposal embankment, re-packed into 85-gallon over packs and placed in storage on hold pending final sample results.

Final results from the off-site independent lab were received on January 14, 2011. After reviewing the data it was determined that Am-241 concentrations did fall within the Clive License limits, but Plutonium (SMN) concentrations exceeded Class A concentrations and exceeded the SNM concentrations authorized by the Clive RML. The shipment sample results and requisite Utah Radioactive Material License Number UT 2300249 license conditions that were exceeded are listed below.

1. **License Condition 9.B.** – “In accordance with the Utah Code Annotated 19-3-105, the Licensee may not receive Class B or Class C low-level radioactive waste without first receiving approval from the Executive Secretary of the Utah Radiation Control Board and also receiving approval from the Governor and the Legislature.”

Utah Administrative Code R313-15-1008

The maximum Class A waste concentration for an alpha-emitting transuranics with a half-life greater than five years is 10 nCi/g (10,000 pCi/g).

Non-Compliance

Contrary to the above license condition, the sample results were 20,900 pCi/g Plutonium- 238 and 10,100 pCi/g Plutonium- 239/240.

2. **License Condition 13.A.** – “Concentrations of SNM in individual waste containers must not exceed the values listed in Table 13-A at the time of receipt.” Only the Pu-238 and Pu-239/240 concentrations are listed below.

Plutonium 238 – 10,000 pCi/g

Plutonium 239/240 maximum concentration – 10,000 pCi/g

Non-Compliance

Contrary to the above license condition, the sample results were 20,900 pCi/g Plutonium- 238 and 10,100 pCi/g Plutonium- 239/240.

3. **License Condition 13.H.** – “EnergySolutions shall notify the NRC, Region IV office within 24 hours if any of the above conditions are violated, including if a batch during treatment process exceeds the SNM concentration in License Condition 13.A. A written notification of the event must be provided within 7 days.”

This letter and the phone notifications referenced above meet this license condition.

In summary, the waste drums (Manifest No. 0421M-31-0022) exceeded Class A concentrations for Pu-238 and Pu-239/240 and the Clive SNM exemption concentration for Pu-238 and Pu-239/240. In accordance with the EnergySolutions Quality Assurance Program, Condition Report CRSD10-060 was initiated and will require a corrective action plan from the generator that will include corrective steps to prevent recurrence. EnergySolutions has pulled the generator’s Notice to Transport until a review is completed on their corrective action plan. A schedule for returning this shipment has not yet been determined. EnergySolutions is currently working with the generator to have this shipment returned to their site as soon as possible. The shipment will remain on hold in the Mixed Waste restricted area until it is shipped back to the generator.

In a letter to UDRC and NRC region IV dated January 3, 2011 (correspondence CD11-0003), EnergySolutions initiated Condition Report CL-CR-11-0001 to evaluate causal factors and trends, if any, associated with the repeated number of waste classification and SNM Order concerns over the last 6 months. This non-conforming shipment will be added to the evaluation



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that is currently being conducted. Results of this evaluation will be provided no later than February 28, 2011.

Please call with any questions or concerns at (801) 649-2179.

Sincerely

A handwritten signature in cursive script that reads "Rick Chalk".

Rick Chalk
Director of Health Physics - Clive, UT.

Cc: Mr. John Hultquist, Utah DRC
Mr. Robert Evans, U.S. NRC