

UTAH LEGISLATURE

NATURAL RESOURCES, AGRICULTURE AND ENVIRONMENT INTERIM COMMITTEE

OFFICE OF THE LEGISLATIVE AUDITOR GENERAL

Performance Audit of the Division of Radiation Control

(Report 2012-10)

Department of Environmental Quality

Division of Radiation Control

November 14, 2012



Division of Radiation Control

Protects Utahns from sources of radiation. Responsibilities include:

- Radioactive Materials
- Low-Level Radioactive Waste
- Uranium Mill and Disposal Facilities
- X-Ray Registration and Inspection
- Indoor Radon

Performance Audit

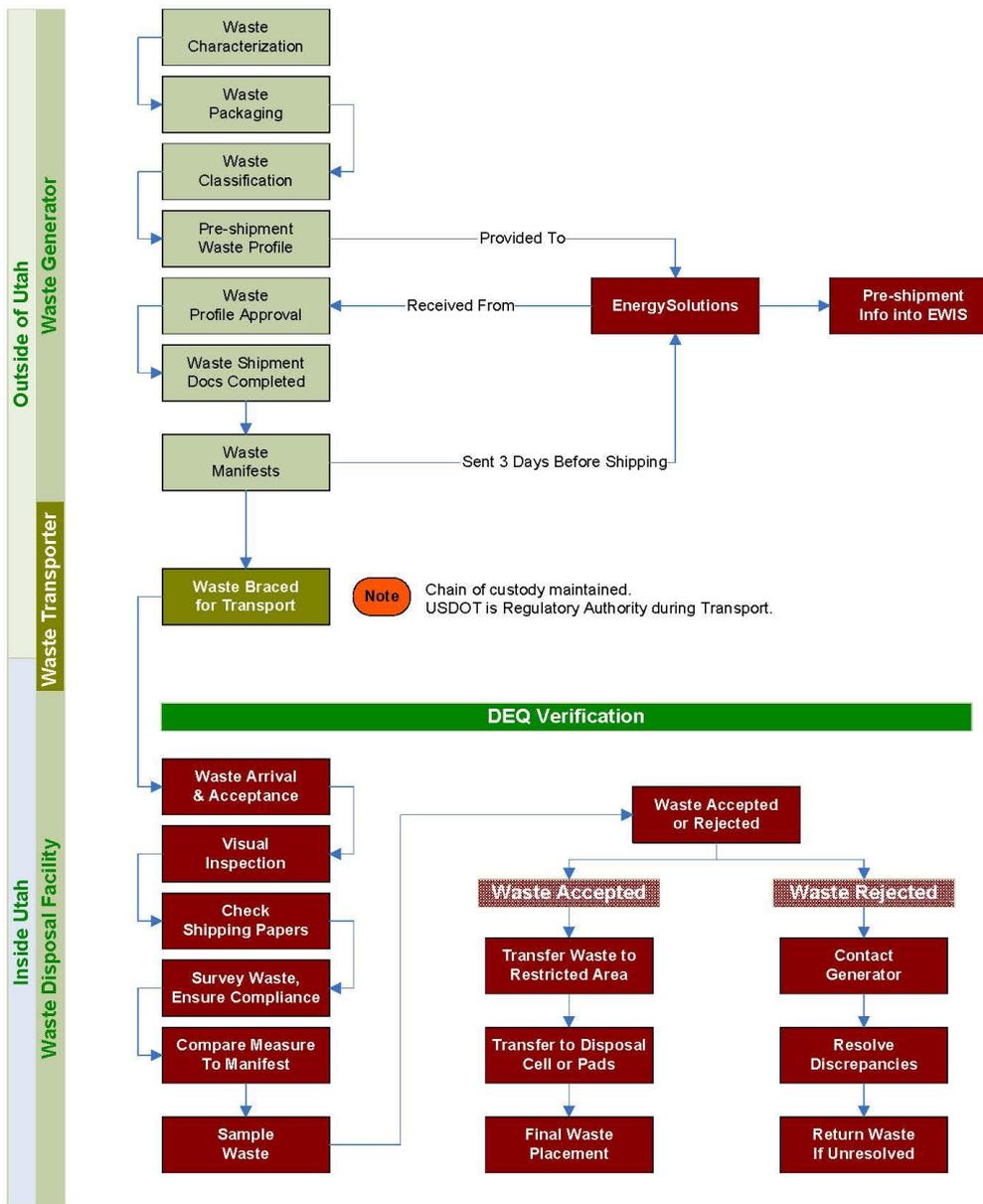
Reviewed
Oversight Role of
Division for Low-
Level Radioactive
Waste at Clive

Made
Recommendations
for Improvement

Pre-Disposal
Generator Site Access
Reporting
Legislative

Utah Low Level Radioactive Waste Disposal

September 17, 2012



Pre-Disposal: Clive Facility

Audit

Recommendations:



- Validate bulk waste streams
- Ensure adequate staff resources for pre-disposal oversight and verification of waste classification

DRC Response Action

- Increase frequency of observation of waste sampling and analysis



DRC Response Action

- Increase frequency of oversight through additional waste classification reviews



DRC Response Action

- Validate waste classification through computational methods and additional testing

Table 2



Radionuclide	Concentration Gigabecquerels per cubic meter			Concentration Curies per cubic meter		
	Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Col. 3
Total of all radionuclides with less than 5 year half-life	25,900	(11)	(11)	700	(11)	(11)
H-3	1480	(11)	(11)	40	(11)	(11)
Co-60	25,900	(11)	(11)	700	(11)	(11)
Ni-63	129.5	2590	25,900	3.5	70	700
Ni-63 in activated metal	1295	25,900	259,000	35	700	7000

Pre-Disposal: Clive Facility

Audit

Recommendations:

- Expand U.S. Dept. of Transportation inspections of incoming waste shipments during all hours of waste acceptance operations



DRC Response Action

- Continue longstanding approach of daily presence during waste acceptance operations



DRC Response Action

- Apply statistically valid approach for oversight of DOT shipping requirements
- Evaluate customized software programs for waste manifests and waste classification data

A close-up photograph of a whiteboard filled with various mathematical formulas. The formulas include the normal distribution function $\phi(x) = \frac{1}{\sigma\sqrt{2\pi}} \exp\left\{-\frac{(x-\mu)^2}{2\sigma^2}\right\}$, the gamma function $\Gamma\left(\frac{\nu+1}{2}\right)$, and the beta function $\frac{\Gamma\left(\frac{\nu+1}{2}\right)}{\sqrt{\nu\pi}\Gamma\left(\frac{\nu}{2}\right)} \left(1 + \frac{x^2}{\nu}\right)^{-(\nu+1)/2}$. Other visible formulas include $\frac{1}{x\sqrt{2\pi\sigma^2}} \exp\left\{-\frac{(\ln x - \mu)}{2\sigma^2}\right\}$ and $(2\pi)^{-k/2} |\Sigma|^{-1/2} e^{-\frac{1}{2}(x-\mu)^T \Sigma^{-1}(x-\mu)}$.



DRC Response Action

- Over 15,700 DOT inspections from FY 2007 to FY 2012



Generator Site Access

Audit Recommendations



- DRC conduct point-of-origin inspections for waste shipment preparation and waste classification
- Radiation Control Board changes rules to allow for random sampling by DRC of waste prior to shipment to Utah

DRC Response Action

- Benchmark review of other states' point-of-origin inspection procedures
- Finalize analysis on frequency of and protocols for point-of-origin inspections (Implementation Schedule)

Washington Department of Health Office of Radiation Protection Waste Management Section	WMS 321 REVISION: 1
Point-of-Origin Inspection Procedure	PAGE: 1 OF 4 Date: February 2010

APPROVED BY: *Philly S* DATE: Feb. 18, 2010

 DEPARTMENT OF
ECOLOGY
State of Washington

WMS 321, 2/10, Rev. 1 Page 1 of 4

DRC Response Action

EXAMPLE:

- Completed On-Site inspection of Studsvik's waste processing facility in Erwin, TN October 2012



DRC Response Action

- Begin early rule development for Generator Site Access Program
- Engage health physics experts to develop independent recommendations



Reporting Requirements



Audit

Recommendation:

- Better reporting requirements to determine if foreign waste is being shipped to Clive

DRC Response Action

- Work with Northwest Interstate Compact (NWIC) on possible ways to improve reporting
- Review current reports
- Perform analysis of need for rule/potential Compact resolution/legislation



Legislative Considerations



Audit Recommendations:

- Legislature consider if greater governmental access granted as a condition of licensure
- Legislature and DEQ review allocation of GSA permit revenues to ensure adequate funding for GSA and pre-disposal oversight

DRC Response Action

- DEQ willing to work with Legislature on solutions





Contact Information

Rusty Lundberg

Utah Division of Radiation Control

Utah Department of Environmental Quality

(801) 536-4257

rlundberg@utah.gov

