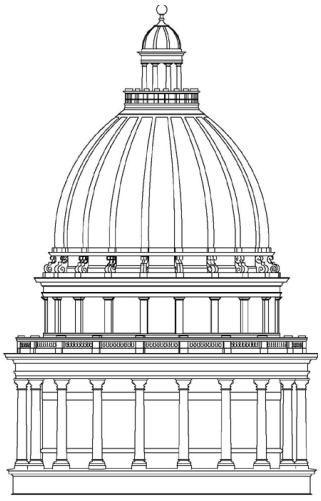
REPORT TO THE

UTAH LEGISLATURE

Number 2012-10



A Performance Audit of The Division of Radiation Control

September 2012

Office of the
LEGISLATIVE AUDITOR GENERAL
State of Utah

STATE OF UTAH
Office of the Legislative Auditor General

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JOHN M. SCHAFF, CIA
AUDITOR GENERAL

September 11, 2012

TO: THE UTAH STATE LEGISLATURE

Transmitted herewith is our report, **A Performance Audit of the Division of Radiation Control** (Report #2012-10). A digest is found on the blue pages located at the front of the report. The objectives and scope of the audit are explained in the Introduction.

We will be happy to meet with appropriate legislative committees, individual legislators, and other state officials to discuss any item contained in the report in order to facilitate the implementation of the recommendations.

Sincerely,

John M. Schaff, CIA
Auditor General

JMS:KRM/lm

Digest of
A Performance Audit of
The Division of Radiation Control

Chapter I: Introduction

This audit reviewed the oversight role of the Division of Radiation Control (DRC) regarding the receipt and disposal of radioactive waste at the Clive, Utah facility, which is privately owned and operated by Energy*Solutions*. The DRC is charged with protecting Utah citizens and the environment from sources of radiation that constitute a significant health hazard. It is the responsibility of the DRC to monitor the activities of Energy*Solutions* and waste generators to ensure only approved waste enters the state. The DRC's position is that they work under a common and recognized regulatory framework that relies on the regulated entity to self-police compliance and report any violations. They reported it is widely used in environmental regulation. However, Utah has unique waste prohibitions and is the only state with a business privately owning a radioactive waste disposal site. Consequently, we are concerned that the DRC is not providing adequate independent oversight of incoming waste because of the self-policing model.

Chapter II: Current Radioactive Waste Disposal Controls Are Not Sufficient

Prohibited Radioactive Waste Has Come to Utah. The State has implemented a prohibition on greater than Class A low-level radioactive waste (LLRW). However, despite this ban, there are recorded instances where waste generators and brokers have shipped inappropriate waste classes to Utah. The waste was received and disposed of by Energy*Solutions* at its Clive facility if not identified as banned until after disposal. Once identified, the recorded instances of Class A violations were self-reported by Energy*Solutions* to the DRC, confirming our concern that the DRC is not sufficiently exercising its authority to independently review the classification of waste shipments received. We believe that the DRC bears the responsibility to independently ensure that Energy*Solutions* can effectively identify and reject banned waste shipments.

Current Controls Do Not Adequately Prevent Banned Radioactive Waste. As the oversight arm for radioactive waste disposal in Utah, the DRC is not exercising sufficient controls to detect radioactive waste banned by Utah statute. To address these special considerations of Utah's site, the DRC should further apply its agreement state status from the NRC that allows it flexibility in regulating Utah's site. The NRC confirmed that Utah has the authority to monitor and sample incoming waste, in accordance with governing safety principles (known as ALARA), to ensure the site is in compliance with Utah's restrictions. However, the DRC has chosen to not exercise the flexibility it is allowed, and instead continues to compare itself against other states, federal rules, and environmental programs that do not address the unique restrictions that are important to the Utah site. We believe the DRC should adjust its regulatory model to address Utah's special considerations and provide independent verification that the Clive site is in compliance with all rules and laws governing it.

Chapter III: DRC Should Focus More on Predisposal Waste Controls

DRC Should Perform Physical Verification of Waste Classification. The DRC does not perform independent sampling of bulk waste to verify waste classification. Instead, the DRC has given Energy*Solutions* the responsibility of self-policing Utah's waste disposal rules. We find it concerning that the DRC fully relies on Energy*Solutions* to self-report classification violations. Therefore, it is essential that the DRC independently validate incoming waste shipments and give reasonable assurances that the prohibition of Class B and C wastes, as well as foreign waste, is indeed being followed by Energy*Solutions*. If the DRC assumes responsibility for independent waste sampling, Energy*Solutions* could continue to bear the cost of the waste verification much as they do now.

Containerized Waste Risks Should Be Addressed By DRC Through Program Changes. The classification of containerized waste, unlike bulk waste, receives no validation through sampling by the DRC or Energy*Solutions*. Instead, the DRC has indicated that it can only trust that generators, brokers, and processors are correctly sending only Class A waste to Utah for disposal. We are concerned that containerized waste does not receive independent classification oversight by the DRC. The NRC has given agreement states some latitude regarding how their radioactive waste regulatory programs can be conducted. The DRC can therefore change its Generator Site Access Permit (GSAP) program, with Radiation Control Board approval, to provide the ability to verify a sample of containerized waste classification at a generator's facility before shipment to Utah.

DRC Should Focus More On Predisposal Activities. The DRC has the vast majority of its oversight resources devoted to monitoring the waste after it has been buried. Instead, greater emphasis needs to be put on inspecting the waste prior to disposal. Once waste is in the ground, greater time, cost, and effort is necessary to handle banned waste. Reallocating resources to predisposal controls will strengthen DRC's oversight ability.

DRC Should Require Better Reporting Regarding Foreign Waste to Ensure It Is Not Coming to Utah. Foreign waste (waste not generated in the United States) is not allowed to be disposed of at the Clive facility. However, current reporting requirements are not sufficient to determine if foreign waste which came to the U.S. is being sent to Utah for disposal. The DRC agrees and is looking at improving reporting requirements.

Permit Program Fees Should Be Used To Fund DRC Predisposal Oversight. During the audit, the DRC has indicated that certain oversight activities are cost-prohibitive. However, based on a limited review of the DRC's funding sources, we are concerned that GSAP revenues may be subject to reallocation through the Department of Environmental Quality's (DEQ) central fund account. Instead, fees from the GSAP program should be dedicated to oversight efforts of the generators participating in the program. We recommend this practice be reviewed for greater accountability to determine if a more appropriate allocation of funding is possible.

REPORT TO THE

UTAH LEGISLATURE

Report No. 2012-10

A Performance Audit of
The Division of Radiation Control

September 2012

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Table of Contents

Chapter I
Introduction

This audit reviewed the oversight role of the Division of Radiation Control (DRC), regarding the receipt and disposal of radioactive waste at the Clive, Utah facility, which is privately owned and operated by Energy*Solutions*. The DRC is charged with protecting Utah citizens and the environment from sources of radiation that constitute a significant health hazard. It is the responsibility of the DRC to monitor the activities of Energy*Solutions* and waste generators to ensure that only approved waste enters the state. The DRC's position is that it works under a common and recognized regulatory framework that relies on the regulated entity to self-police compliance and report any violations. They reported that this regulatory framework is widely used in environmental regulation. However, Utah has unique waste prohibitions and is the only state with a business privately owning a radioactive waste disposal site. Consequently, we are concerned that the DRC is not providing adequate independent oversight of incoming waste because of the self-policing model.

We are concerned that the DRC is not providing adequate, independent oversight of radioactive waste disposal to ensure compliance with Utah statute.

There are three classifications of low-level radioactive waste (LLRW) that are currently disposed of in the United States: Classes A, B, and C. Utah statute stipulates that only waste with the lowest class of radioactivity, designated as Class A waste, can be disposed of in Utah. The other two classes, Class B and C, are not allowed to be disposed of within the State of Utah. Based on Utah's waste disposal affiliation with other states, there is also a ban preventing foreign waste (waste generated outside of the United States) from being disposed within the state.

Radioactive Waste Requires a Special Disposal Facility

In Utah, the DRC regulates the disposal of radioactive waste. The DRC is charged with ensuring that the public is reasonably protected from the potential harmful effects of radioactive byproduct disposed of at the Clive facility, which is located in Utah's West Desert.

The DRC is charged with ensuring that the public is reasonably protected from potential harmful effects of radioactive waste disposal.

Radioactive waste is generated in various ways (e.g., industry, medical, private, and government research)

The disposal of radioactive waste is considered the end of the radioactive material life cycle that spans its production, use, processing (such as volume reduction), temporary storage prior to disposal, and disposal. The radioactive waste disposed of at the Clive facility is LLRW, which is one of the lowest regulated forms of radioactive waste. Industries, hospitals and medical entities, educational and research institutions, private or government laboratories, and nuclear fuel cycle facilities (i.e., nuclear power reactors and fuel fabrication plants) that use radioactive materials generate low-level wastes as part of their normal operations. These waste streams are generated in many physical and chemical forms and various levels of radioactivity.

Low-level waste disposal occurs at commercially operated low-level waste disposal facilities that must be licensed by either the federal Nuclear Regulatory Commission (NRC) or Agreement States (further explained later in the chapter). The facilities must be designed, constructed, and operated to meet safety standards and specified performance objectives. The operator of the facility must also extensively describe the site on which the facility is located and analyze how the facility will perform for years into the future.

The Division of Radiation Control Regulates the Clive Facility

The DRC is a division within the Department of Environmental Quality (DEQ) and has four main operational sections: x-ray, radioactive materials, LLRW and uranium mill licensing and permitting, and LLRW and uranium mill compliance. As mentioned, the DRC is responsible to provide protection to the public against hazards from various sources of radioactivity through regulatory and oversight activities. The responsibilities of the DRC are outlined in Figure 1.1.

Figure 1.1 The DRC Regulates Radioactive Waste for the State of Utah. The DRC is charged to mitigate the risk of hazardous exposure to the public from radioactive sources. The DRC addresses its responsibilities through four main operational sections.

DRC Sections	Responsibilities
X-Ray Section	Issue certificates for x-ray equipment and oversee the use of these technologies.
Radioactive Materials Section	Issue licenses for radioactive materials and oversee the use of these materials.
LLRW and Uranium Mill Licensing and Permitting Section	Issue radioactive material licenses and groundwater permits to uranium mills and waste disposal facilities.
LLRW and Uranium Mill Compliance Section	Oversee compliance with licenses and permits issued to uranium mills and disposal facilities. Issue permits to waste generators for disposal shipments and monitor compliance with shipment rules.

Note: The parts in red text above were our focus during the audit, and even then our main focus was on LLRW compliance.

Our audit only examined programs that dealt with the licensing, permitting, and compliance activities of the receipt and disposal of LLRW; even then, we focused primarily on the DRC's compliance activities associated with Energy*Solutions*. The only facility licensed and permitted to receive and dispose of radioactive waste in the state is the Clive facility, which, as mentioned earlier, is privately owned and operated by Energy*Solutions*. We did not review the operations of uranium mills in Utah.

The audit focused primarily on DRC's compliance activities associated with Energy*Solutions*, the owner and operator of the Clive waste disposal site.

According to Department of Energy records, the Clive facility, as of 2011, currently disposes of approximately 97 percent of the commercial Class A waste volumes generated in the United States and about 16 percent of the curies (a measure of radioactivity intensity) in the United States. The facility disposes of the following types of waste:

- Bulk waste: Items contaminated with radioactive materials, such as structural debris from power plant demolition, which is shipped for disposal in large transportation containers.

- Containerized waste: Waste that is placed in a sealed container and not opened prior to disposal due to safety concerns.

- Mixed waste: Waste that is deemed both radioactive and hazardous.

The DRC has a section of employees whose primary responsibility is to monitor the Clive facility for compliance with state statute and rules.

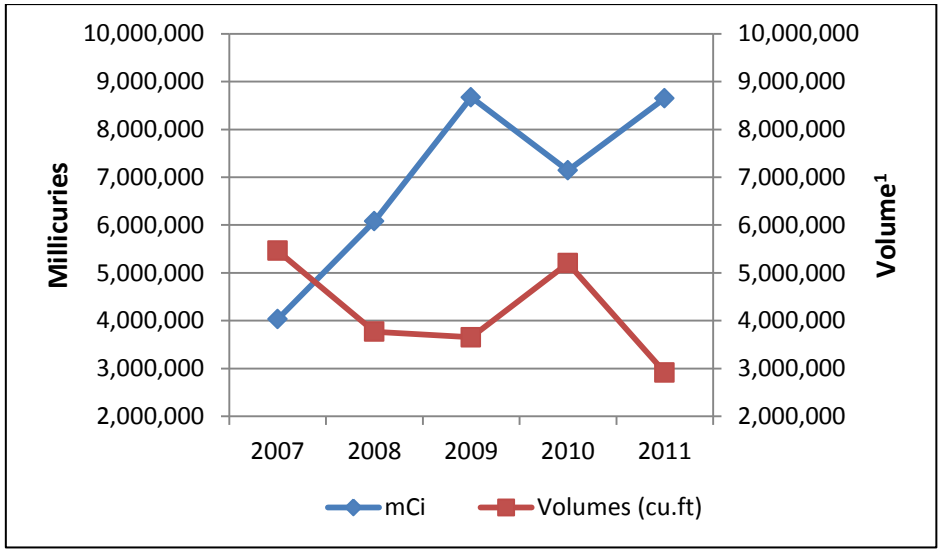
The DRC is the regulator responsible for giving reasonable assurances that the waste being received and disposed of meets all federal and state safety statutes. The DRC has a section of employees whose primary responsibility is to monitor the Clive facility for compliance with rules and to perform ongoing evaluations of the operations of the facility.

Volumes Have Decreased While Millicuries Have Increased Over the Last Five Years

The Clive facility has been receiving LLRW since 1991. However, Energy*Solutions* has only been the owner and operator of the Clive facility since 2005. While the amount of waste disposed of has decreased since 2007, the concentration of radioactivity in the waste, measured in millicuries,[1] has increased. Figure 1.2 shows both of these trends.

[1] A millicurie is a common measurement of radioactivity that is used by Energy*Solutions*. It is equal to one-thousandth of a curie, a unit of radioactivity equal to the amount of radioactive isotope that decays at the rate of 37 million disintegrations per second.

Figure 1.2 Radioactive Content and Waste Volumes Disposed of at Clive Since 2007. Although waste volumes have decreased, the radioactive content of the waste has increased over the same period of time.



Source: Utah Division of Radiation Control
1- Volume data does not include 11e.(2) waste and mixed waste

Figure 1.2 shows the patterns of radioactivity (millicurie) and volume over the last several years.[2] As the figure demonstrates, volumes of waste (measured in cubic feet) have decreased, though there was a spike in volume during 2010. However, overall, the amount of volume received for disposal has decreased by approximately 47 percent since 2007. On the other hand, the concentration of radioactivity, or the amount of millicuries, has increased since 2007 by approximately 115 percent. The DRC reports that as of October 2011 84,723 curies were disposed of in the two primary embankments at Clive while the maximum amount of radioactivity allowed at the site is significantly higher. In other words, ample capacity exists.

In general terms, volumes have been decreasing and radioactivity has been increasing at the Clive site.

[2] Utah's current radioactive waste disposal tax is assessed on gross receipts, which is revenue earned on waste volume. A radioactive disposal facility is assessed 12 percent of its receipts for containerized waste, 10 percent for processed waste, and 5 percent for most other waste. For more information on the tax see report #2012-09 *A Performance Audit of Utah's Radioactive Waste Facility Tax*.

Utah Does Not Accept Class B and C Waste

Four states currently accept low-level radioactive waste. However, Utah is the only state that prohibits higher classes of low-level waste.

Currently in the United States, there are four states with active commercial LLRW disposal facilities: Utah, South Carolina, Washington, and Texas. Utah policymakers have enacted a unique framework that sets Utah's facility at Clive apart from other states' facilities. Specifically, LLRW that is classified as greater than Class A is not accepted for disposal in Utah. Figure 1.3 compares Utah's waste disposal framework with that of other states.

Figure 1.3 Utah Has a Unique LLRW Disposal Framework. Utah is the only disposal state that has a prohibition on Class B and C low-level radioactive waste. Further, Utah is the only state to authorize a site that is commercially owned. (See the next section for information on state compacts).

	Utah	South Carolina	Washington	Texas
LLRW License Date	1991	1971	1965	2012
Waste Class Accepted	A Only	A, B, C	A, B, C	A, B, C
Commercially-Owned	Yes	No[1]	No	No[2]
Waste Accepted From	Most US Generators[3]	State Compact Generators Only	Primarily State Compact Generators[4]	Primarily State Compact Generators[5]
Compact Membership	Northwest	Atlantic	Northwest	Texas

1. *The operator of the disposal site has deeded the land to the State of South Carolina.*
2. *The operator of the Texas facility owned the land and privately built the site. However, during operations, the land has been deeded to the state by the company.*
3. *By compact resolution, Clive does not accept waste from Northwest Interstate Compact states.*
4. *Washington also accepts waste from the Rocky Mountain Compact per an agreement with the Northwest Interstate Compact. Rocky Mountain states produce less than 1 percent of the nation's waste.*
5. *Texas limits out-of-compact waste to 30 percent of waste disposed at the site.*

As shown in the preceding figure, Utah's LLRW disposal facility is unique from other states' facilities in a few important ways:

- ***Utah Code*** 19-3-103.7 states that Utah may not accept Class B or C low-level radioactive waste. Other disposal states accept LLRW from Classes A, B, and C.

Utah is unique in several ways from other states that accept radioactive waste.

- Utah is the only disposal state with a facility that is commercially owned and operated. In 1991, the state issued an exemption (in regard to LLRW disposal at Clive) to the

requirement that disposal facilities must be owned by a government entity. All other disposal states exercise ownership of the disposal facilities, which are then operated by a private business entity.

- Utah's Clive facility is able to accept LLRW from most regions of the United States in accordance with existing resolutions issued by the Northwest Interstate Compact (NWIC). Other disposal states have restrictions that all or most of the waste accepted must come from fellow compact states.

Nuclear Regulatory Commission Allows Agreement States to Customize Regulatory Functions

States are able to create their own radioactive material/waste regulatory programs through agreements with the federal NRC.[3] Thirty-seven states have such agreements and are referred to by the NRC as Agreement States. Also, many states have joined together in compacts to collaborate on how and where LLRW disposal will be conducted. A total of 10 compacts currently exist, and eight states[4] remain unaffiliated. Since there are 10 compacts but only four states with active disposal sites, not every compact has a member state hosting waste disposal operations. Therefore, states have sent waste to the Clive facility or have arranged agreements through the compacts to which they are a party state for disposal site access in Utah, in accordance with resolutions issued by the NWIC.

Utah Is a Member of the Northwest Interstate Compact

The Atomic Energy Act of 1954 allows the federal NRC to assign authority to states for the regulation of radioactive materials, as long as states show they have regulatory programs that are adequate to protect public health and safety and are compatible with the NRC's. The NRC has exercised this authority for LLRW disposal facilities

[3] The NRC retains regulatory authority over nuclear power plants.
[4] Washington DC and Puerto Rico are also unaffiliated. More information on compacts can be found in Appendix A.

through state agreements signed by the governors of the participating states and the chairman of the NRC. Currently, 37 states have entered into agreements with the NRC. NRC agreement states license the four operating LLRW disposal facilities in the United States.

Utah is a member of the Northwest Interstate Compact.

Beyond becoming NRC Agreement States, many states have joined together in compacts to regionally determine how and where LLRW will be disposed.[5] Utah is a member of the NWIC, whose website states:

> The Compact is a cooperative effort of the party states to protect their citizens, and maintain and enhance economic viability, while sharing the responsibilities of low-level radioactive waste management.

Currently, there are 10 state compacts, while 8 individual states remain unaffiliated. Washington DC and Puerto Rico are also unaffiliated. See Appendix A for more information about the state compact system.

Clive Facility Operates Outside Of the Typical Compact Framework

Although a compact disposal site was already operating in Washington, the NWIC issued a resolution acknowledging Utah as the licensing authority, with full regulatory oversight, of Energy*Solutions* as the owner and operator of the Clive waste disposal site. This setup makes Utah's facility unique. The Washington facility continues to be the primary disposal site for NWIC member states, including Utah. LLRW generated in Utah is sent to Washington for disposal. Thus, instead of providing a disposal benefit to Utah or other NWIC member states, the Clive facility operates as a private business venture by Energy*Solutions* for the purpose of receiving out-of-compact and federal waste. The NWIC website confirms that out-of-region LLRW may be disposed of at Clive. We did not review, nor does this report recommend changes to, Utah's membership in the NWIC or modifications to NWIC bylaws and amendments.

We do not recommend changes to Utah's membership in the Northwest Interstate Compact or modifications to the compact's bylaws.

[5] State compacts are authorized under the Low-Level Waste Policy Amendments Act of 1985 (Public Law 99-240).

Access to Information, Personnel, and Site Locations Was Limited by Energy*Solutions*

This audit was unique from other audits in that Energy*Solutions* is a private company, so we had no legal authority to audit the entity. However, the Legislature requested impartial information about the sufficiency and accuracy of the regulatory oversight provided by the DRC. To accomplish this task, it was necessary to work with Energy*Solutions* who owns and runs the Clive radioactive waste disposal facility.

Energy*Solutions* voluntarily cooperated with some aspects of the audit, but we were not given complete access. While we do not consider Energy*Solutions* an auditee, they held information pertinent to the audit. Consequently, we believe we must still report access limitations placed upon us, in accordance with *Government Auditing Standards (*The Yellow Book*)*. *Government Auditing Standards* are published by the Comptroller General of the United States, of the Government Accountability Office. Audit Standard 7.11 states the following:

> Auditors should also report any significant constraints imposed on the audit approach by information limitations or scope impairments, including denials or excessive delays of access to certain records or individuals.

Energy*Solutions* voluntarily cooperated with some aspects of the audit, but we were not given complete access.

During the audit, we experienced denial to some information, personnel, and sites. We also experienced excessive delays in obtaining some information. However, it is also important to note that Energy*Solutions*' cooperation with the audit was voluntary. The company was helpful in several ways, assisting in some portions of the audit. For example, the company voluntarily provided us access to some staff and gave us some data related to shipments and disposal controls.

Nevertheless, as stated, we did not have access to all records, personnel, and site locations that we requested. Therefore, we are concerned that some risk areas may have gone undetected or remain underdeveloped and not reviewed. Other states accepting radioactive

Due to access limitations, we are concerned that some risk areas may have gone undetected, or remain underdeveloped and not reviewed.

waste have greater oversight access to their waste disposal sites because they own the sites and lease them to waste disposal contractors. If the Legislature desires greater oversight of Energy*Solutions*, they could stipulate access requirements in statute as a condition of Energy*Solutions*' license to operate in the state. Chapter III discusses this in more detail. In contrast to Energy*Solutions,* DRC provided us full access to its records and staff. However, the DRC relies heavily on Energy*Solutions* as a record keeper, which is a concern because we were unable to access some documentation through Energy*Solutions* that we would have been able to obtain had the DRC kept the records.

Audit Scope and Objectives

We were asked to audit radioactive waste disposal issues in the state and address concerns raised by the Legislature. The scope of the audit included the following objectives:

- Review the DRC's oversight role of radioactive waste disposal.
- Review areas where the DRC's controls could be strengthened to ensure laws and rules are followed.

Chapter II
Current Radioactive Waste Disposal Controls Are Not Sufficient

Utah does not allow greater than Class A low-level radioactive waste (Classes B and C) to be disposed of inside of the state. Also, the Northwest Interstate Compact (NWIC) does not allow the disposal of radioactive waste from foreign countries in member states, such as Utah. However, over the last decade of operation of the Clive facility, there have been some documented instances of greater than Class A waste being disposed of at Energy*Solutions'* Clive site. Energy*Solutions* self-reported these occurrences and paid fines for the violations; the waste generators involved also paid fines.

While these documented cases are concerning, we are more concerned that the Division of Radiation Control's (DRC) lack of independent oversight could allow many more shipments of greater than Class A waste to be disposed of at the site and never detected. These control weaknesses also apply to foreign waste that could come to the site and be disposed of without detection. We requested information from the DRC that would help us determine whether foreign waste is coming to the state. The DRC referred us to Energy*Solutions* for the documentation. However, Energy*Solutions* did not comply with our request.

We are concerned with the lack of independent controls, which can result in prohibited waste being disposed of in the state.

This chapter identifies (1) several examples of prohibited waste coming to the Clive site and (2) control weaknesses that would allow additional prohibited waste to enter the site undetected. Chapter III provides recommendations to the DRC to improve oversight of waste disposal and strengthen control weaknesses identified in this chapter.

This chapter identifies control weaknesses. The next chapter provides recommendations to the DRC to remedy the control problems.

Prohibited Radioactive Waste Has Come to Utah

As explained in Chapter I, Utah has implemented a prohibition on greater than Class A low-level radioactive waste (LLRW). However, despite this ban, there are recorded instances where waste generators and brokers have shipped inappropriate waste classes to Utah. The

We believe that the DRC bears the responsibility to independently ensure that Energy*Solutions* is effectively identifying and rejecting banned waste.

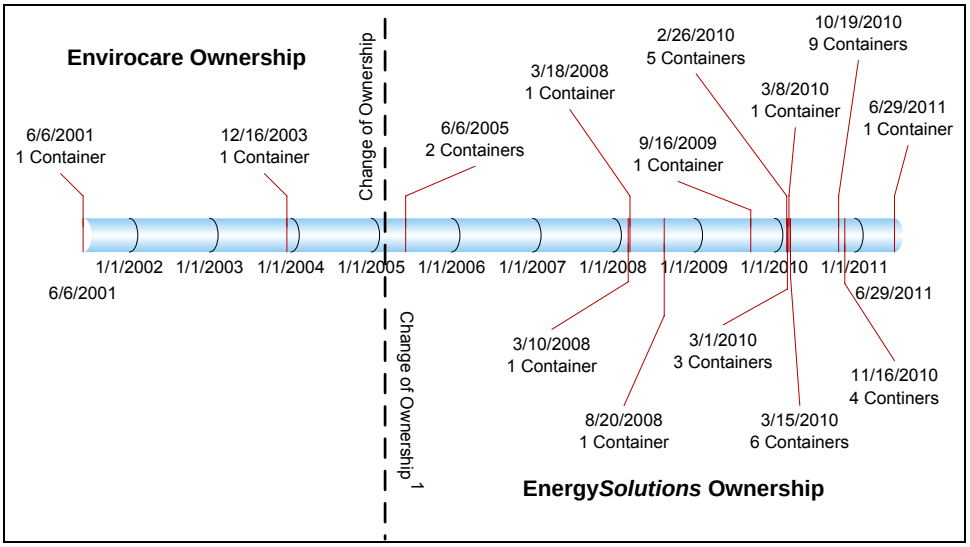
waste was received and disposed of by Energy*Solutions* at its Clive facility or returned to the shipper if identified before disposal. Once identified, the recorded instances of Class A violations were self-reported by Energy*Solutions* to the DRC, confirming our concern that the DRC is not sufficiently exercising its authority to independently review the classification of waste shipments received. ***Utah Code*** 19-3-108.(2)(h) states that the DRC shall "issue orders necessary to enforce the provisions" of its authority under state law. We believe this means that the DRC bears the responsibility to independently ensure that Energy*Solutions* can effectively identify and reject banned waste shipments beyond the current self-policing model.

In total, 37 containers (not to be confused with containerized waste, as discussed later) shipped to Utah since 2001 were identified by Energy*Solutions* in 2010 and 2011 to have exceeded Class A concentration limits. It is important to note that these 37 containers[6] represent a small fraction of total containers coming to the site. Our larger concern (discussed more below) is not the proportion of containers in violation, but the lack of independent verification by the DRC. Had the DRC been independently checking incoming waste, it may have detected more significant noncompliance issues.

Two of the containers were accepted for disposal under the management of the disposal site's prior owner, Envirocare, while the remaining 35 containers were accepted after site transition to Energy*Solutions'* ownership early in 2005. Figure 2.1 shows a timeline of when all 37 waste containers that were beyond Class A limits were received at Clive.

[6] The DRC reports that the 37 containers represent less than one one-hundredth of a percent (0.0096%) of the total number of containers since 2001.

Figure 2.1 Timeline of Greater than Class A Radioactive Waste Containers' Arrival in Utah for Disposal. Between 2001 and 2011, 37 of the waste containers (not containerized waste, which is discussed later) sent to the Clive disposal site were self-identified by Energy*Solutions* as greater than Class A violations. All violations issued by the DRC included fines which were paid; thus, all violations have been resolved and are considered closed.



1 – Although the sale of Envirocare was finalized in January 2005, the new owners of the Clive facility did not officially change the name of Envirocare to EnergySolutions until February 2006.

Since 2001, there have been 37 self-reported incidents of banned waste coming to Clive. We are especially concerned that control weaknesses could have allowed and potentially will allow much more to enter undetected if not addressed.

All 37 waste containers documented as in violation of Class A limits were self-identified by Energy*Solutions* after its staff either corrected a computer error in its Electronic Waste Information System (EWIS) or took physical samples of waste before disposal. The four containers in violation that were first received at Clive between 2001 and 2005 (as shown in Figure 2.1) were not identified as violations until 2010. DRC management decided that, since these four containers had not been identified as violations within five years of disposal, they would not issue penalties to the waste generators involved. Thus, the DRC only issued Notices of Violation[7] (NOVs) and fines to the seven individual generators associated with the 33 containers that violated Class A limits and arrived at Clive (either being disposed of or rejected) within the past five years. For detailed summaries of the

[7] Administrative Rule R313-14-1, which discusses **Notices of Violation,** indicates that the purpose of the radiation control inspection and compliance program is to assure safety by ensuring compliance with rules, obtaining prompt corrections of violations, deterring future violations, and encouraging improvement.

seven NOVs issued by the DRC, including the reported causes of the violations, refer to Appendix B.

DRC allowed banned waste that was not identified until after disposal to remain buried at Clive.

It should be noted that the DRC allowed the banned waste that was identified after it had been disposed of to remain buried at Clive. Energy*Solutions* made the case to the DRC that it was more hazardous to human health to dig up and send the waste back to the generators than to allow it to remain unmoved in the disposal cells. The DRC approved Energy*Solutions*' proposal to not unearth the waste and return it to the generators. More information on this issue can be found in Appendix B. Since banned waste was permitted to remain buried, our concern is that once prohibited waste is disposed of in Utah, precedent appears to show that it can remain in the state. Therefore, it is imperative that the DRC has adequate predisposal controls to prevent the arrival and disposal of banned waste. Energy*Solutions* claims that there have been instances that prohibited waste shipments have been removed from the disposal cells and returned to generators in the past.

DRC Bears Responsibility to Ensure That Energy*Solutions* Rejects Banned Waste

We believe the DRC bears a responsibility to independently validate that banned waste is found and rejected before disposal in Utah.

Although we are concerned with the generator deficiencies that led to banned waste being sent to Utah (as discussed in detail in Appendix B), we are primarily concerned that the DRC is not providing independent oversight of the waste generators', brokers', and Energy*Solutions*' ability to comply with Utah's prohibition of greater than Class A waste. We believe the DRC bears a responsibility to independently validate the effectiveness of Energy*Solutions'* receiving controls to ensure that Class B and C waste is indeed identified and rejected before disposal at Clive. Strengthened DRC predisposal oversight is vital, as Energy*Solutions* has already accepted and buried prohibited waste in the past and the DRC appears to have set a precedent that banned waste not identified until after disposal will be allowed to remain buried in Utah.

We identified several control weaknesses that reinforced our concern that the DRC is not providing sufficient independent oversight. These are discussed in the remainder of this chapter.

In the remainder of this chapter, we identify several control weaknesses related to waste disposal at Clive. These weaknesses reinforce our concern that the DRC is not providing sufficient independent assurance that Energy*Solutions* and waste generators/brokers are compliant with Utah's prohibition on greater

than Class A and foreign wastes. We believe the DRC needs to take a more active role in waste disposal oversight to ensure waste sent to and disposed of in Utah is appropriate.

Current Controls Do Not Adequately Prevent Banned Radioactive Waste

As the oversight arm for radioactive waste disposal in Utah, the DRC is not exercising sufficient controls to detect radioactive waste banned by Utah law. The DRC's position is that they work under a common and recognized regulatory framework that relies on the regulated entity to self-police compliance and report any violations. However, due to the unique waste prohibitions and private business ownership of Utah's radioactive waste disposal, we are concerned that the DRC's self-policing model does not provide adequate independent oversight of incoming waste.

We are concerned that the DRC's lack of predisposal waste oversight is insufficient to adequately detect if banned waste is coming to the state.

The DRC subscribes to the Nuclear Regulatory Commission's (NRC) focus on postdisposal oversight, but greater emphasis must be placed on the independent validation of waste streams brought to the Clive facility in order to ensure that Utah's unique prohibition on Class B and C waste, as well as the foreign waste ban, is adhered to. We are concerned that, due to a lack of predisposal waste oversight, the DRC is unable to independently detect banned waste. Specifically, we have identified a number of predisposal control weaknesses that put the state at risk of accepting and disposing of prohibited waste. These control weaknesses include the following:

- Energy*Solutions* polices its own waste disposal operations.
- DRC has no independent controls over the classification of containerized waste.
- DRC predisposal checks do not include waste classification oversight.
- Vertical integration and the reattribution of waste conceal the origins of waste (see footnotes 14 and 15 for term definitions).
- DRC's disposal permit program lacks independent review of waste generators.

Although our concerns about these control weaknesses are reported in the remainder of this chapter, Chapter III contains our recommendations to the DRC and the Legislature on how to address the control weaknesses.

DRC Regulatory Framework Relies On Self-Policing by Regulated Entity

The DRC reports that they work under a regulatory framework where the regulated entity is responsible to self-police and report violations of compliance.

The DRC reports that they work under a regulatory framework where the regulated entity is responsible to self-police and report violations of compliance. The DRC told us that it is a common practice for the regulated entity to police itself. Specifically, the DRC reported that its model is based on the following principles:

- DRC relies on the regulated entity to put in place systems and procedures to gather and monitor environmental impacts of the site.
- DRC requires that the regulated entity keep documentation of compliance.
- DRC does not independently create or manage compliance systems or monitoring records. Rather, they audit some records at established intervals (Note: as mentioned, the DRC is not auditing incoming waste records with any frequency).

While we understand the self-policing model might be a common practice in certain areas, Utah is unique in radioactive waste disposal and should therefore have a distinct model of regulation. No other state has allowed private ownership of a radioactive waste disposal site. In addition, no other state accepting low-level radioactive waste has banned Class B and C waste as Utah has done. Finally, through NWIC resolution, foreign waste is not allowed in Utah.

The NRC reports that Utah has the authority to sample incoming waste, but the DRC has chosen to not exercise this authority because of the regulatory model they follow.

To address these special considerations of Utah's site, the DRC should further apply its agreement state status from the NRC that allows it flexibility in regulating Utah's site. The NRC confirmed that Utah has the authority to monitor and sample incoming waste, in accordance with governing safety principles (known as ALARA), to ensure that the site is in compliance with Utah's restrictions. An NRC

staff person reported that he knows of no NRC prohibitions on regulators (like Utah DRC) sampling waste. The NRC staff also pointed us to a federal regulation (10 CFR Part 61.81) that specifically authorizes NRC to sample waste. So, having the DRC sample incoming waste would still be compatible with federal rules.

However, the DRC has chosen not to exercise the flexibility it is allowed, and instead continues to compare itself against other states, federal rules, and environmental programs that do not address the unique restrictions that are important to the Utah site. We believe the DRC should adjust its regulatory model to address Utah's special considerations and provide independent verification that the Clive site is in compliance with all rules and laws governing it.

Energy*Solutions* Polices Its Own Waste Disposal Operations

While Energy*Solutions'* website[8] states that "Utah regulators inspect and monitor" waste shipments for compliance with Class A concentration limits, the DRC has indicated to us, and we confirmed through audit testing, that its staff is not involved in that aspect of oversight.

Since the DRC is not actively involved in reviewing the classification of waste coming into the Clive site, they referred us to Energy*Solutions* to learn of any waste acceptance controls in place at the Clive facility that check waste classification. We are concerned that the DRC does not perform independent verification of Class A concentration limit compliance, but instead strictly uses the self-policing model and conducts no independent verification of incoming waste classification. Due to the unique nature of Utah's site, we believe the DRC must do more to ensure compliance with Utah law and compact rules.

We are concerned that the DRC does not perform independent verification of Class A concentration limits.

Instead of focusing on predisposal oversight, the DRC has devised oversight "modules" that mainly focus on postdisposal controls. In other words, modules primarily provide oversight of radiation safety after waste has already been buried in the ground. Modules are usually compliance reviews that examine various areas of the disposal site.

Instead of predisposal oversight, the DRC focuses primarily on postdisposal controls.

[8] http://www.energysolutions.com/media-center/nuclear101/semprasafe-blending *(August 2012)*

This practice is consistent with the NRC's rules that allow states to be flexible when determining how to verify waste streams. However, NRC rules are written so that certain criterion are met, such as the proper way to fill out a manifest, but they do not prescribe how the State of Utah should independently verify waste classification.

Energy*Solutions'* Self-Monitoring Lacks Independent Oversight. Although we have concerns with the lack of sampling of containerized waste, discussed in more detail later in this chapter, we found Energy*Solutions*' bulk waste sampling controls to be adequate. However, with the exception of random physical sampling, Energy*Solutions*' controls rely on information self-reported by waste generators or brokers in the shipment manifest. Thus, we deem sampling the most reliable form of verification of waste classification. Figure 2.2 summarizes the steps conducted by Energy*Solutions* when determining that only Class A waste is being received at the Clive site.

Figure 2.2 Energy*Solutions'* Predisposal Controls for Bulk Waste Are Mostly Adequate, but There Are Minimal Controls for Containerized Waste. This figure shows the controls conducted by Energy*Solutions* when determining the classification of both bulk and containerized waste. We are concerned that these controls lack independent reviews by the DRC.

Energy*Solutions'* controls over bulk waste appear legitimate, but they lack independence. However, there are minimal controls for containerized waste, as discussed later.

Bulk Waste	
Control 1: Before Arrival	**Control 2: Sampling at Clive**
EnergySolutions reviews the profile and manifest information associated with a bulk waste shipment to check classification. However, this review places trust in the shipper that the information is correct on the manifest.	Energy*Solutions'* bulk waste physical sampling is capable of detecting if the shipper misclassified the waste.[1]
Containerized Waste Controls	
Control 1: Before Arrival	**Control 2: Sampling at Clive**
EnergySolutions reviews the profile and manifest information associated with a containerized waste shipment to check classification. However, this review places trust in the shipper that the information is correct on the manifest.	No physical sampling is conducted of containerized waste, which is consistent with other disposal sites. However, other disposal sites do not have to check for Class B and C waste. Instead of sampling, measurements are taken of radioactive dose rates (activity/mass-unit), but this does not verify waste classification[2].

1. *EnergySolutions samples10 percent of containers, with a minimum of six containers checked per shipment. Also, EnergySolutions must sample each of the first ten shipments (rail or highway) or one sample for each of the first 100 cubic yards up to 1000 cubic yard. Thereafter, there must be one sample for each additional 500 cubic yards following the first ten shipments or following the first 1000 cubic yards. However, DRC does not require these checks to occur before disposal.*
2. *Our concerns with this control weakness are discussed under the section "DRC Has No Independent Controls Over the Classification of Containerized Waste" on page 20.*

As shown in the prior figure, the validating methods performed by Energy*Solutions* on bulk waste are legitimate means to check the classification of waste prior to disposal. However, our concern is that these methods lack independent oversight, may depend on manifest data self-reported by generators/brokers, and rely heavily on Energy*Solutions* to self-report any problems. In fact, the DRC does not routinely request the results of the physical samples tested by Energy*Solutions*, nor does it conduct a superficial review of the manifest to validate the waste classification. Also, as discussed in more detail later, we are concerned that there are minimal classification controls over containerized waste. We believe that the DRC should be more involved in predisposal controls to ensure independence and integrity of the steps being completed by Energy*Solutions* to comply with Class A limits.

All Documented Waste Classification Violations Have Been Self-Reported. Although there is clearly an effort by Energy*Solutions* to comply with Utah's prohibition on greater than Class A waste through self-reporting of violations, without independent DRC oversight, the credibility of Energy*Solutions*' full compliance can be questioned. We reviewed the seven NOVs issued to generators that sent banned waste to the Clive facility, as well as other NOVs issued to Energy*Solutions* acting as the operator of the disposal site. These violations were for either waste misclassification (greater than Class A waste) as detailed in Appendix B or for Energy*Solutions*' noncompliance with other responsibilities at Clive. In Figure 2.3, we show the number of self-reported violations versus the number the DRC identified during its oversight efforts.

Figure 2.3 Reported Greater than Class A Violations Have All Been Detected by Energy*Solutions*, not the DRC. This figure shows that for waste classification issues, the DRC has not been involved in detecting problems in this area. The DRC has found other compliance issues not related to banned waste entering the site.

Violation Type for 2011	Energy*Solutions* Self-Reported	DRC Detected	Total
Greater than Class A	7	0	7
Energy*Solutions'* Noncompliance with Clive Responsibilities	4	5	9

Source: Division of Radiation Control

All violations dealing with banned waste coming to the Clive site were self-reported by Energy*Solutions*.

During this audit, we specifically reviewed the NOVs issued in 2011 to generators for greater than Class A waste violations as found in Appendix B. According to the above figure, we found that all seven Class A violations documented were self-reported by Energy*Solutions* to the DRC. In addition, we also reviewed all 2011 NOVs issued to Energy*Solutions* acting as the operator of the Clive disposal facility. As mentioned in the above figure, the DRC identified five violations while Energy*Solutions* self-reported four. This stands to reason as the DRC focuses on postdisposal oversight at Clive, while assigning the responsibility of predisposal oversight, such as sampling and verifying waste classification, to Energy*Solutions*. Therefore, we believe that the DRC should implement independent predisposal waste oversight to provide greater assurance that Energy*Solutions* is indeed identifying and rejecting banned waste shipments. These controls are especially needed for containerized waste, discussed more in the next section.

DRC Has No Independent Controls Over the Classification of Containerized Waste

Containerized waste is not sampled by Energy*Solutions* or DRC to ensure correct waste classification.

The physical waste sampling done by Energy*Solutions* to assess waste classification of bulk waste is adequate. However, due to the health and safety concerns associated with containerized waste, no sampling of this waste is conducted at Clive, as shown in Figure 2.2.

Containerized waste, unlike bulk waste, is waste that must be handled in a specialized sealed container to maintain health and safety of the public and waste workers. We were told by Energy*Solutions* that containerized waste is never opened for sampling after receipt and before disposal at Clive. We are concerned with the lack of sampling of containerized waste and believe this poses a significant risk of hotter waste coming to Utah undetected.

Without sampling of containerized waste, Energy*Solutions* and DRC must trust that the generators are honest and are not sending banned waste to the site.

We questioned how the DRC and Energy*Solutions* can really know what is in the containers if it is not independently verified. We were told that they can only trust that the generators and brokers are honest and accurate with their waste classifications reported on the shipping manifest. The DRC indicated that this is a common and accepted regulatory practice. However, we remain concerned that containerized waste receives no independent verification to ensure that banned waste is not being disposed of at the Clive site. We believe that containerized

waste should be more regularly tested by DRC in intervals that are acceptable through the principle of ALARA.[9]

It is especially important for the DRC to independently validate containerized waste since much of the waste is coming from a company that has partnered with Energy*Solutions*. Specifically, Energy*Solutions* is in a joint venture, called Semprasafe, with a radioactive waste processor in Tennessee named Studsvik. Data provided to us by Energy*Solutions* shows that it is likely that the majority[10] of the millicuries[11] coming to the Clive disposal site are either through Studsvik or directly from an Energy*Solutions*-owned processor.

A further concern is that much of the containerized waste is coming from a processor in business with Energy*Solutions*.

On the Energy*Solutions* website,[12] the company indicates that the THOR[13] process used by Studsvik to reduce waste volumes, which may produce containerized waste, has the potential to increase waste classification beyond Class A limits. We therefore believe that THOR-processed waste, especially when producing containerized waste, requires independent classification verification prior to its arrival at Clive to ensure compliance with state statute.

It is important to note that the THOR process, though only recently being used in the Semprasafe joint venture between Energy*Solutions* and Studsvik, has been occurring for at least 10 years, and the resulting waste has been disposed of at Clive during this time without independent verification. Since this waste comes to the Clive

[9] **ALARA** is an acronym for "as low as (is) reasonably achievable." According to the NRC, this means that a person/entity should make every reasonable effort to maintain exposure to radiation as low as possible in accordance with benefits to the public health and safety, societal and socioeconomic considerations.

[10] Note: the data provided by Energy*Solutions* is not consistent with data provided by the DRC. We did not have support from Energy*Solutions* to reconcile the data differences (DRC receives its data from Energy*Solutions* as well). However, Energy*Solutions* did validate the accuracy of its data.

[11] **Millicurie** is a common measurement of radioactivity. It is the measurement used by Energy*Solutions*. It is equal to one thousandth of a curie. A curie is a unit of radioactivity equal to the amount of radioactive isotope that decays at the rate of 37 million disintegrations per second.

[12] http://www.energysolutions.com/media-center/nuclear101/semprasafe-blending (August 2012)

[13] Energy*Solutions* states that the THOR process "uses heat to reform resins into a compact, homogeneous, environmentally stable waste form that is known as reformed residue."

site sealed and cannot be safely opened, the waste should be sampled at the processing facility prior to container closure. Chapter III contains our recommendation for the handling and sampling of containerized waste on-site at the processor to verify waste classification.

DRC Predisposal Checks Do Not Include Waste Classification Oversight

The limited predisposal reviews that are conducted by the DRC focus not on the detection of banned waste, but on transportation safety.

The DRC's main focus at the Clive facility is on postdisposal waste oversight, but it also performs some checks that could be considered predisposal efforts. However, the primary predisposal review conducted by the DRC is not related specifically to radiation oversight, but instead is focused on U.S. Department of Transportation (DOT) regulations. However, DOT oversight is not designed to identify and reject banned waste coming to the site. For example, we found that a DRC inspector conducting DOT checks reviewed at least three waste manifests where greater than Class A waste came to the Clive site. Since the purpose of the DOT checks is not to look for banned waste shipments, the DRC did not detect this Class B and C waste. Instead, these Class A limit violations were later self-reported by Energy*Solutions*.

DRC Reported that Enforcing DOT Rules Is Its Primary Method of Predisposal Control. It is important to point out that Energy*Solutions* also performs checks of incoming waste shipments for compliance with DOT rules, but the DRC sends an inspector to the Clive site four days every week to independently validate compliance with DOT rules. It is interesting to us that the DRC would independently validate this area of regulation but ignore independent waste classification oversight. The DRC indicated that DOT oversight began in 2000; however, we were unable to document the genesis of the program. Figure 2.4 depicts the DOT inspection process performed by DRC staff.

Figure 2.4 DOT Regulation Inspection Process. The DOT inspection process does not validate the waste classification, but instead, after delivery to Clive, reviews whether the waste was safe to travel.

No waste classification verification is done during DRC's DOT checks.

Figure 2.4 shows that no waste classification verification is done during DRC predisposal checks. Instead, a manifest is visually matched to the shipment to ensure DOT regulation compliance with placard rules. The DRC does not inspect every shipment received at Clive for transportation regulation compliance, but we were told that DRC staff generally visits Clive on the same four weekdays every week to inspect any shipments that may have recently arrived but have not yet been processed by Energy*Solutions*. Since shipments can be received at any time, we are concerned that weekends and certain weekday times do not receive DRC shipment checks as staff only operate on a set and predictable schedule. Therefore, we believe these shipment checks should be conducted on a random sampling basis over all days and times that shipments may be received in order to encourage greater DOT rule compliance by generators and Energy*Solutions*.

As an example of DRC's transportation focus, we found three instances where manifests showed incoming waste was greater than Class A. These manifests were reviewed by DRC staff, but violations were not detected.

DRC Was Unaware that Some Shipments Checked for DOT Rule Compliance Violated Class A Concentration Limits. We were able to document three instances where shipment manifests that received DRC transportation rule checks were later found by Energy*Solutions* to include containers that violated Class A concentration limits. These violations were identified by Energy*Solutions* after waste disposal when it corrected the error in its computer system that assesses self-reported data on a shipping manifest, as discussed in Appendix B.

Although physical sampling provides the best verification of waste, a calculation using information reported on the shipping manifest can be performed as an initial check of waste classification. This manual test does assume that the manifest represents accurate information about the waste shipment as provided by the generator.

We were told by DRC staff that this manual manifest calculation is not done with any regularity as part of the DOT safety checks.

It appears that, if the DRC had conducted a manual classification calculation on the manifests at the time of the transportation compliance inspections, the above mentioned three greater than Class A violations could have been identified and the shipments returned to the generators before disposal. However, the manual calculation was not done as an initial independent classification check, and the prohibited waste was disposed of and remains buried at Clive. Yet, we stress that this check relies on information self-reported by the waste generator on the manifest; therefore, physical sampling of waste is necessary to verify the manifest accurately reflects the contents of a shipment.

DRC transportation reviews do appear to help improve transportation safety, but more can be done by the DRC to ensure banned waste is not entering the site.

The DOT inspections performed by the DRC do appear to serve a purpose: to enforce safety regulations relevant to DOT rules through the deterrence of fines issued to violating generators. However, more should be done prior to the disposal of the waste to independently ensure that waste classification is being reasonably validated.

Vertical Integration and Reattribution of Waste Conceals Origins of Waste

Greater oversight by the DRC is needed to review waste that is processed, transported, and disposed of by Energy*Solutions*.

As discussed in Chapter I, Utah's radioactive disposal site is unique in that a private, vertically integrated company owns and operates the site. Thus, we believe greater validation from the DRC is essential to ensure that banned waste streams are not being disposed of at the Clive facility. Vertical integration[14] allows Energy*Solutions* a great deal of control over how to manage its waste without disclosing the origin of the waste. Energy*Solutions* is allowed to receive waste from generators out of state and reattribute[15] it as if it was the original

[14] **Vertical integration** refers to a company that has expanded into its own supply line, such as a grocery store that produces some or all of the food it sells. In the case of Energy*Solutions,* it refers to the ownership of some waste generating/processing facilities in places like Tennessee and the United Kingdom as well as disposal operations in Utah.

[15] **Reattribution** refers to an allowed practice used by some waste processors that reassigns ownership of the waste on the manifest to the processor of the waste instead of the original generator of the waste. When reattribution occurs, the manifest that is sent to Utah has the processor of the waste listed as the generator and we are unable to determine who the original generator of the waste was.

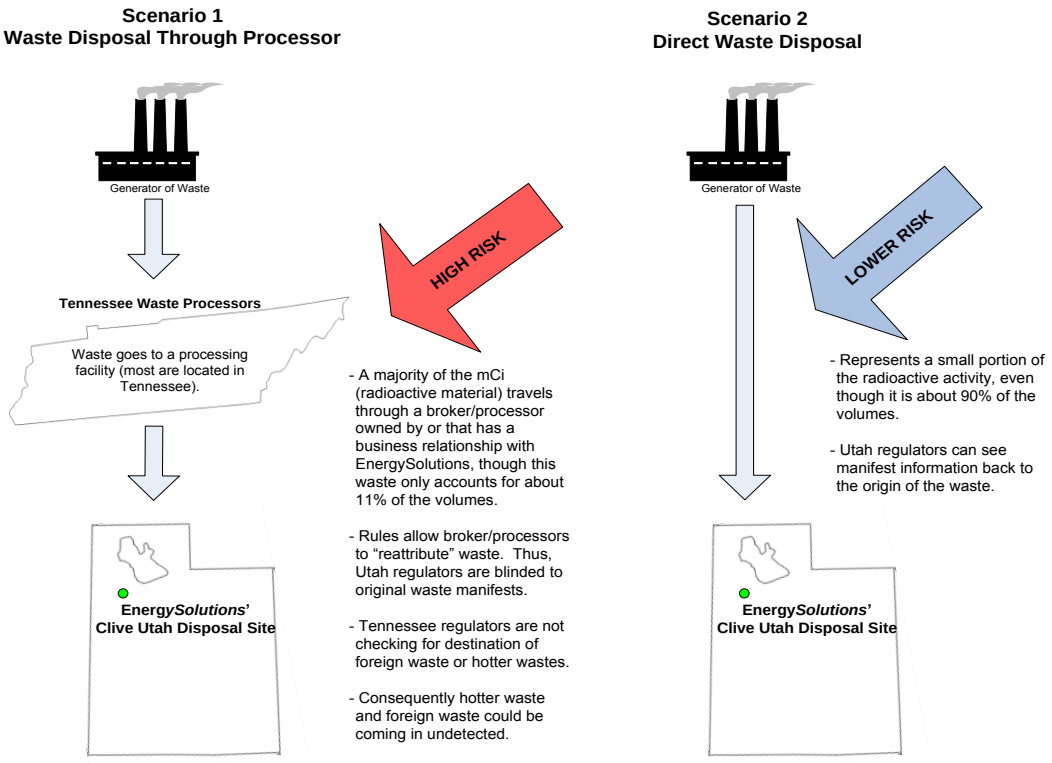
generator. This should be a concern to the DRC from an oversight perspective, because the original character (make-up or content) of the waste stream may change during processing, and the identity of the original generator is generally undisclosed.

During the audit, Energy*Solutions* restricted our access to some records and staff. We also did not have access to Energy*Solutions'* company partners out of state, specifically in Tennessee. Therefore, we were unable to test whether certain waste streams were traceable to a generator of origin. Further, we were unable to validate if any prohibited waste, such as foreign waste, was returned to the generator because it is not allowed to be disposed of at the Clive facility. Figure 2.5 shows the two main ways by which radioactive waste is received for disposal at Clive.

We had limited access to some of Energy*Solutions* records and were not given access to out-of-state operations.

Figure 2.5 Vertical Integration and Waste Reattribution Blinds DRC Regulators to Waste Origins. Energy*Solutions* now owns (or is in partnership with) processing sites outside of Utah, so more risk is associated with the waste coming to the site because the DRC is blinded to generators of origin through reattribution. It appears the majority of the millicuries coming to the Clive site are related to Energy*Solutions'* out-of-state operations or another company in partnership with Energy*Solutions*.

Waste that travels through a processor presents a higher risk because the DRC is blinded to the original generator of the waste.



As Figure 2.5 shows, the greatest risk lies with the waste stream processed through brokers/processors owned or partnered by Energy*Solutions* because reattributed waste blinds the DRC to waste origins. Though Energy*Solutions* only brings in 11 percent of the waste volume disposed of at Clive, those shipments account for the majority[16] of the millicuries received for disposal.

[16] Note: the data provided by Energy*Solutions* is not consistent with data provided by the DRC. We did not have support from Energy*Solutions* to reconcile the data differences (DRC receives its data from Energy*Solutions* as well). However, Energy*Solutions* did validate the accuracy of its data.

Energy*Solutions*' involvement in the waste from generation to disposal can be similar to the circumvention of a financial control. Financial controls rely on principles like segregation of duties, proper authorization, adequate documentation, and independent verification. For example, independent verification occurs when an independent person (perhaps a manager) at a retail store compares the cash register logs to the cash in the register and bank deposits. In this scenario, the manager ensures that all cash received into the register from sales was correctly accounted for. We believe that the DRC needs to be more involved in independent verification to ensure that incoming waste is allowed for disposal in the state and is correctly accounted for.

DRC needs to be more involved in independent verification to ensure that incoming waste is allowed for disposal.

Another troubling issue is that the Tennessee regulators are not required to validate any waste streams leaving their state, which places more responsibility on the shoulders of the DRC to ensure that waste sent to Utah is acceptable. We believe that the DRC needs to fulfill the role of independent verification of incoming waste. As mentioned previously, the DRC currently has given responsibility for verification of incoming waste classification entirely to Energy*Solutions*.

Regulators outside of the state are not reviewing for waste compliance with Utah's prohibitions. The DRC must be more involved in independent verification.

DRC's Disposal Permit Program Lacks Independent Review of Waste Generators

In the final control weakness area, we are concerned that the DRC's Generator Site Access Permit program (GSAP) is not adequately designed to detect and prevent banned waste from coming to the Clive site. We reviewed violation reports that show generator deficiencies caused cases of banned waste being sent to Utah. The DRC should conduct an independent review of waste generators as part of the permit program.

DRC's GSAP program is not designed to adequately detect banned waste.

In order to ship and dispose of LLRW in Utah, waste generators, processors, and shipment brokers are required to obtain a permit from the DRC. *Utah Administrative Code* R313-26-3 states:

> A Waste Generator, Waste Collector, or Waste Processor shall obtain a Generator Site Access Permit from the Executive Secretary before transferring radioactive waste to a land disposal facility in Utah.

The current GSAP program only requires a generator to send basic contact information and volume estimates.

Our concern with this program is that the DRC does not perform an independent review of a generator's ability to comply with Utah's ban on greater than Class A waste. During the permitting process, the DRC is only collecting contact information and an estimate of annual waste volumes expected to be shipped to the state. When we asked DRC staff if the permitting process includes an independent review of a generator's ability to comply with Utah disposal rules before waste is shipped, we were told that it did not. Instead, the DRC indicated that the application form requires the generator to agree by signature to comply with all applicable federal and state laws and rules as well as the disposal facility operator's license agreement with the state.

Acting as a waste broker, Energy*Solutions* sent banned waste to Utah.

We believe that the DRC should improve the GSAP program to include an independent review of a generator's ability to comply with Utah's unique waste prohibitions. The importance of DRC independent verification is apparent when considering the causes of the reported greater than Class A violations. For example, as detailed in Appendix B (see generator 5), we are concerned with the circumstances of one generator's violation, as Energy*Solutions* itself participated in sending prohibited waste to Clive as a waste broker. It appears that Energy*Solutions* failed to validate the waste information, which was incorrectly provided to them by the original generator, before the waste was shipped to Utah.

At least one generator shipped waste without conducting its own waste classification review, believing that Energy*Solutions* would detect any problems.

We are also concerned with another generator's admission of quality control weaknesses that caused its violation (see Appendix B, generator 1). This generator stated:

> Since ES [Energy*Solutions*] performs an independent verification of all waste shipments, [we] did not complete a backward look in the extent of condition review. [We] should have not relied solely on this information and should have completed a backward review.

This generator appears to indicate that its complacency toward shipment verification of classification was because of a belief that Energy*Solutions* would detect any mistakes on the receiving end of the waste transaction. It is concerning that a generator or waste broker may not validate the classification of its waste before shipment to Utah.

It is imperative for Energy*Solutions* to have effective waste acceptance controls in place and for the DRC to validate those controls. However, we also believe that the DRC can do more to verify a waste generator's ability to comply with Utah's disposal rules before permits are issued and shipment is authorized. As discussed in detail in Chapter III, an improved GSAP program could include requiring the waste generator/broker to allow DRC access to its records and facility for waste sampling as a condition for access to the Clive disposal site.

In conclusion, our review of NOV records as well as DRC and Energy*Solutions* operations has revealed several control weaknesses that put Utah at risk of receiving and disposing of banned radioactive waste. This is especially concerning as Energy*Solutions* has already accepted banned waste, and the DRC appears to have set a precedent to allow prohibited waste shipments to remain in Utah if not identified until after they have been buried in the ground. Therefore, we believe predisposal controls exercised by the DRC are paramount to ensure compliance with Utah's waste bans. Next, Chapter III will provide recommendations to the DRC that are aimed at bolstering the predisposal control weakness areas discussed in this chapter.

Recommendations to correct for control weaknesses identified in this chapter can be found in Chapter III.

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Chapter III
DRC Should Focus More On Predisposal Waste Controls

The previous chapter described control weaknesses concerning radioactive waste disposal, including examples of banned waste coming to Utah and disposed of at Energy*Solutions*' Clive site. This chapter details recommended changes to improve controls to help ensure that only approved waste types are disposed of in Utah in accordance with state statute. The Division of Radiation Control (DRC) is focused almost exclusively on postdisposal controls required by the Nuclear Regulatory Commission (NRC). This focus, in our opinion, has resulted in the DRC giving Energy*Solutions* too much latitude to police itself on predisposal waste classification issues. To help correct control weaknesses discussed in Chapter II, we recommend the DRC do the following:

This chapter details recommended changes to improve controls to help ensure state statute is being followed.

- DRC should perform physical verification of waste classification.
- Containerized waste risks should be addressed by DRC through program changes.
- DRC should focus more on predisposal oversight activities.
- DRC should require better reporting regarding foreign waste to ensure it is not coming to Utah.
- Permit program fees should be used to fund DRC predisposal oversight of waste generators.

In Chapter II, we reported on control weaknesses concerning the disposal of radioactive waste at Energy*Solutions*' Clive facility. We recommend that the DRC become independently involved with predisposal oversight of radioactive waste by enacting the above recommendations. Doing so will ensure that waste accepted at Clive is compliant with Utah's restrictions on greater than Class A waste and the Northwest Interstate Compact's (NWIC) ban on foreign-generated waste. In the remainder of this chapter, these recommendations will be discussed in detail.

The DRC should do more to independently verify incoming waste.

DRC Should Perform Physical Verification of Waste Classification

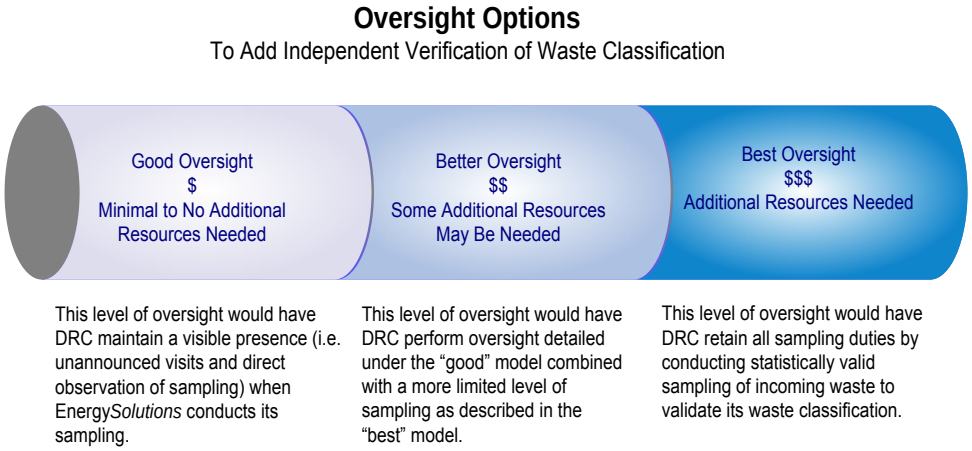
As discussed in Chapter II, the DRC does not perform independent sampling of bulk waste to verify waste classification. Instead, the DRC has given Energy*Solutions* the responsibility of self-policing its compliance with Utah's waste disposal rules. We find it concerning that the DRC relies fully on Energy*Solutions* to self-report classification violations. Therefore, it is essential that the DRC independently validate incoming waste shipments and give reasonable assurances that the prohibition of Class B and C wastes, as well as foreign waste, is indeed being followed by Energy*Solutions*. If the DRC assumes responsibility for independent waste sampling, Energy*Solutions* could continue to bear the cost of the waste verification much as they do now.

The DRC entrusts Energy*Solutions* to self-report classification violations.

We believe physical waste sampling is the strongest control to provide independent confirmation that prohibited bulk waste is not disposed of at the Clive facility because it does not rely on information self-report by the generator. Though it would be unreasonable to sample every shipment, there are sampling methods currently performed by Energy*Solutions* on noncontainerized or bulk waste (as explained in the prior chapter's Figure 2.2) that the DRC could replicate and implement independently. Specifically, Energy*Solutions* has adopted an acceptable method to randomly test waste shipments prior to disposal. In order to increase the level of independent oversight, we present options that the DRC could adopt to increase its ability to test the classification of waste being shipped to the Clive facility. Figure 3.1 shows a spectrum of waste sampling options and their relative costs, from highest to lowest.

The DRC could replicate physical sampling methods currently performed by Energy*Solutions*.

Figure 3.1 DRC Has Options to Increase Predisposal Oversight of Waste Classification. Instead of fully relying on Energy*Solutions* to verify the classification of waste, which lacks independence, the DRC can assume all or some responsibility to test for waste classification compliance through reallocation of and/or an increase in financial resources. Currently, the DRC is not providing independent oversight of incoming waste.



As shown in Figure 3.1, the DRC could improve its predisposal oversight of waste shipments by independently performing all sampling of waste shipments. This is the most costly method of waste classification testing, but it also provides the most assurance that banned waste is rejected. On the other end of the spectrum, the DRC could implement the least costly, but least effective, oversight option, which would not require independent testing but would have greater staff involvement in Energy*Solutions*' sampling of waste and review of results.

The greatest level of oversight would require the most resources but would provide the greatest assurance of waste classification.

In order to increase predisposal oversight through independent sampling, the DRC may require additional funding and changes to current staffing allocations. As discussed in greater detail later in this chapter, DRC staff primarily focuses on postdisposal oversight efforts as prescribed by the NRC. We believe the DRC should implement a more appropriate balance between predisposal and postdisposal oversight activities. Also, if the DRC assumes responsibility for some or all of the waste sampling, Energy*Solutions* could be required to continue to bear the cost of the waste verification much as they do now.

Reallocating resources could increase the DRC's oversight of predisposal activities.

We also conducted a limited review of the DRC's revenue sources, which are subject to potential reallocation at the department level. We believe the Legislature should work with the Department of Environmental Quality (DEQ) and the DRC to determine if it would be more appropriate to directly allocate revenues received from regulated entities to oversight activities directly related to those entities. This recommendation will be discussed in more detail later in the chapter.

Containerized Waste Risks Should Be Addressed By DRC Through Program Changes

As mentioned in the prior chapter, the classification of containerized waste, unlike bulk waste, receives no validation through sampling by the DRC or Energy*Solutions*. Instead, the DRC trusts that generators, brokers, and processors are correctly sending only Class A waste to Utah for disposal. We are concerned that containerized waste does not receive independent classification oversight by the DRC. The NRC has given agreement states, such as Utah, some flexibility regarding how their radioactive waste regulatory programs can be conducted. Therefore, the DRC should present to the Radiation Control Board the need to change its Generator Site Access Permit (GSAP) program to require verification of a sample of containerized waste classification at a generator's facility before shipment to Utah.

Containerized waste requires traveling to the generators' facilities to inspect the contents prior to their sealing.

It was reported to us that containerized waste presents too great a health hazard for a shipment to be opened and independently sampled once it has been received. We were told the health risk is due to (1) the nature of the radiation (gamma radiation) and (2) the high radioactivity of the waste, which just meets Class A levels. Consequently, strengthened oversight should include travel by the DRC to the generators' facilities to perform checks on contents of containers and overall operations before the containers are sealed. This type of independent test should increase compliance over time.

It should be noted that we are not suggesting that all low-level radioactive waste (LLRW) bound for Utah be subject to on-site reviews by the DRC. Bulk waste and other noncontainerized waste

that can be easily sampled after receipt can continue to be subjected to waste classification sampling in Utah.

The DRC has questioned its authority to travel out of state to perform waste compliance oversight on containerized waste. However, if approved by the Radiation Control Board, the DRC could require that such oversight authority be agreed to by the generator during the permitting process as a condition to disposing of containerized waste in Utah. Similarly, Nevada utilizes its authority to review the operations of federal out-of-state generators that send waste there for disposal.

The DRC could require a generator to allow them to have oversight authority as a condition to disposing of containerized waste in Utah.

Specifically, the Department of Energy (DOE) owns a radioactive waste disposal site in Nevada, but the state has oversight authorization of this site and out-of-state federal generator sites through a written agreement. A Nevada representative indicated they have a team of four inspectors who travel out of state to federal waste generator sites to exercise the state's authority to approve or deny waste shipments. State inspectors also have the authority to take physical samples of the waste, but they generally review the waste characteristics. All state oversight efforts are funded by the DOE as a condition of federal waste disposal in Nevada. The Nevada Environmental Protection Bureau of Federal Facilities states:

> In accordance with the Agreement-In-Principle (AIP), staff performs joint oversight of low-level waste and mixed low-level waste disposal activities at the NTS [Nevada Test Site] . . . NDEP [Nevada Department of Environmental Protection] staff . . . conducts disposal site visits and random inspections of waste shipments arriving at the NTS. In addition staff participate in DOE/NNSA's [National Nuclear Security Administration] audits of generators at their out of state facilities.

The state of Nevada, as part of its agreement with generators, is allowed to perform audits of out-of-state facilities.

Although the state has no legal requirement or authority to oversee DOE disposal operations, Nevada indicated that it is obligated to maintain "non-regulatory oversight" through the AIP. Nevada stated this oversight is important to independently screen DOE waste streams for acceptable waste characterization and compliance with disposal site rules.

We believe similar independent oversight, tailored to Utah's unique needs, is also important for the DRC to ensure generator, processor, and Energy*Solutions* compliance with Utah's prohibition of greater than Class A waste. Again, we are only recommending on-site reviews of a sample of containerized waste that cannot be sampled at Clive. Based on rules that would need to be adopted by the Radiation Control Board, the DRC should require waste generators to agree to on-site oversight authority during the permitting process as a condition for shipping waste to Utah. Ideally, this would not preclude the DRC from also conducting on-site reviews of generators that primarily ship noncontainerized waste, if a pattern of noncompliance is found during physical sampling of these waste types at Clive. Like Nevada, which has oversight efforts funded by the DOE, DRC could use current generator-paid fees or require additional fees to cover the expense of out-of-state oversight efforts.

Generator fees paid to the DRC could be used to compensate for costs related to out-of-state oversight duties.

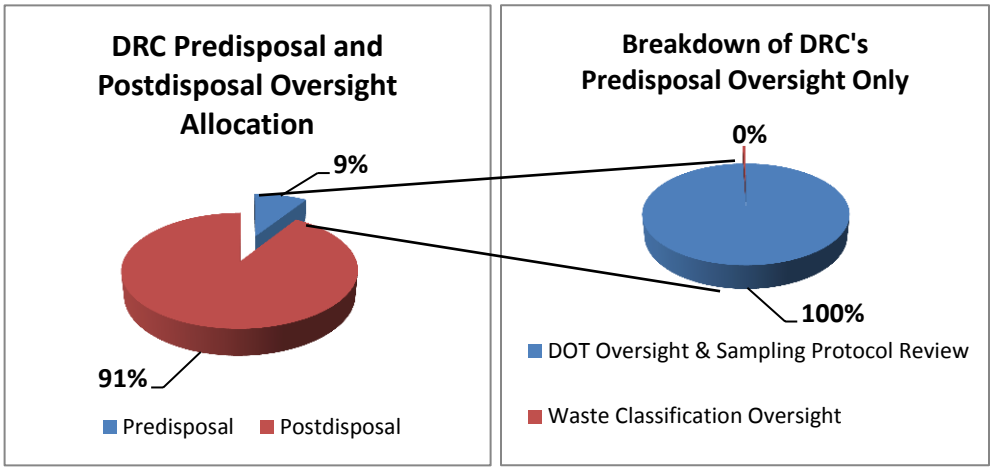
DRC Should Focus More On Predisposal Activities

The last chapter indicated that the U.S. Department of Transportation (DOT) inspection process currently implemented by the DRC is not intended to determine the classification of waste being disposed of at Clive. Instead, the DRC has the vast majority of its oversight resources devoted to monitoring waste after it has been buried. Greater emphasis needs to be put on inspecting the waste prior to disposal. Once banned waste is in the ground, greater time, cost, and effort are necessary to handle it. Reallocating resources to predisposal controls will strengthen DRC's oversight ability.

The DRC has eight employees whose job functions include working with Energy*Solutions*. Some of these employees divide their time between the Clive facility and other regulated sites. However, only one employee works fulltime performing the DOT inspection duties that would be considered predisposal oversight. We reviewed the work DRC staff perform at the Clive facility and have categorized it into two categories: predisposal and postdisposal efforts. The majority of employees' time is spent on postdisposal duties. Figure 3.2 shows how the time is allocated between these two areas as well as a breakdown of predisposal-only efforts.

The majority of DRC's oversight of the Clive facility is placed on postdisposal duties.

Figure 3.2 Time Allocation of DRC Oversight at the Clive Facility. The vast majority of DRC resources are deployed in monitoring waste after it has been buried. Also, the predisposal oversight conducted by DRC is not intended to verify waste classification.



Source: Auditor analysis of DRC data.

DRC staff spends 91 percent of their time on postdisposal functions; however, the remaining 9 percent of time does not aid in the validation of the classification of waste.

Figure 3.2 shows that approximately 91 percent of DRC staff time is spent on postdisposal functions, whereas only 9 percent is spent on predisposal functions. The 9 percent can be attributed to DOT inspections and the annual safety review of Energy*Solutions*' waste sampling protocols utilized at Clive. None of the aforementioned predisposal controls assist in the validation of the classification of waste. In other words, there are no DRC personnel dedicated to verifying the classification of the waste prior to its disposal.

From our observation, reallocating staff may be the cheapest and quickest way to implement change and bring immediate results. However, the DRC has expressed concerns that removing workers from postdisposal duties and transferring them to predisposal work could possibly put the DRC in noncompliance with NRC rules. The NRC's interest in protecting the public health and safety is not solely for disposal purposes; however, the NRC places a greater emphasis on the disposal of the waste after its burial.

The NRC is not equipped through its rules to give the appropriate guidance to independently verify waste classification prior to its burial. The NRC's focus is on the staff's technical abilities to accomplish their jobs, which are related to safety and postdisposal concerns. However, as long as the DRC, at a minimum, complies with the NRC's rules, then the DRC has as much latitude as it requires to meet the demands

of the laws of the State of Utah. The DRC should, therefore, adequately reallocate staff time to predisposal oversight efforts and work with the NRC to ensure compliance with federal waste disposal monitoring rules.

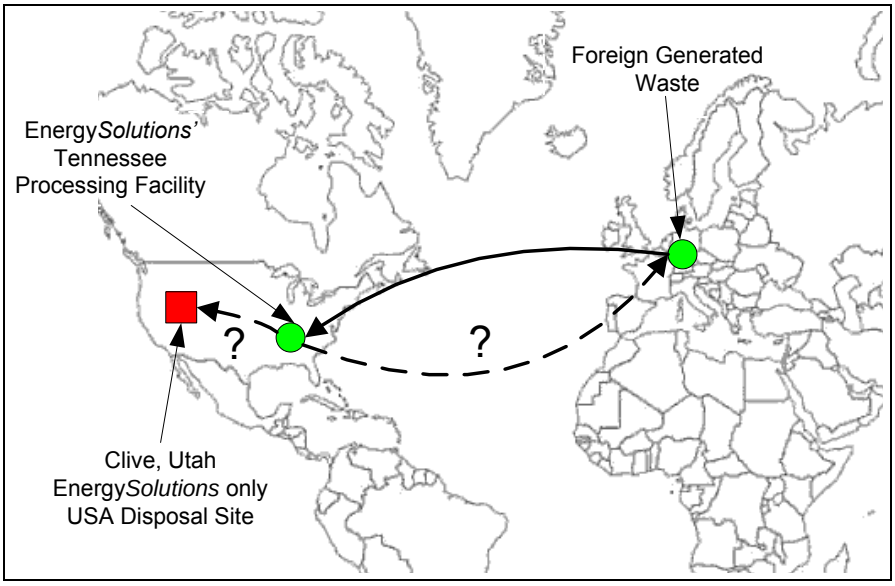
DRC Should Require Better Reporting Regarding Foreign Waste to Ensure It Is Not Coming to Utah

Foreign waste may not be disposed of at the Clive facility, but current reporting requirements are not adequate to determine if it is coming to Utah.

Foreign waste (waste not generated in the United States) is not allowed to be disposed of at the Clive facility in accordance with a Northwest Interstate Compact (NWIC) resolution that was upheld by a federal court decision. However, current reporting requirements are not sufficient to ensure that foreign waste shipped to the U.S. is not coming to Utah for disposal. The DRC agrees and is looking at improving reporting requirements. A discussion of this issue between the DRC and the NWIC, of which Utah is a member, is key to ensuring that this requirement is met.

Figure 3.3 shows one example of a foreign waste license Energy*Solutions* has from the NRC to "burn and return" waste. The NRC issued a license to Energy*Solutions* to import LLRW and, following processing or incineration in Tennessee, to export the ash (processed waste) to the country of origin. The problem is that no regulatory jurisdiction, such as the NRC, NWIC, DRC or Tennessee, could give us adequate assurance that Energy*Solutions* is indeed returning the waste to the country of origin.

Figure 3.3 Energy*Solutions* Processes Waste Imported from Generators Outside of the United States. Energy*Solutions* is required to process the waste and then return it to the foreign generator, but we were unable to determine if this is occurring or if perhaps foreign waste is coming to Utah for disposal at Clive.



Foreign waste imported by Energy*Solutions* is processed in Tennessee. However, Tennessee rules do not differentiate between where the waste comes from and where it goes, only that it stays in the state for no more than a year. Accordingly, Tennessee regulators do not review whether foreign waste comes to a processing site in their state and then goes to Utah. Therefore, if Utah wants to ensure that foreign waste is not coming to its borders, then the DRC must develop a methodology to enforce the ban on this waste.

Tennessee regulators do not verify if foreign waste is being sent to Utah.

Better Reporting Requirements Need to Be Established. Under a resolution created by the NWIC, the Compact does not "serve as an arrangement for disposal of low-level radioactive wastes generated in foreign countries- including foreign-generated waste that is characterized as domestic generated waste by another compact or unaffiliated state . . ." The NWIC requires a report that designates where the waste brought into the Clive site originated. However, the design of this report did not allow us to trace waste back to its origins.

The report provided by the NWIC could not trace the waste back to its foreign origins.

Further, *Utah Administrative Code* requires transparency of waste origins or information on where the original generation of waste occurred. Figure 3.4 gives the language of this rule.

Figure 3.4. *Utah Administrative Code* R313-26-4(4). All radioactive waste received at the Clive facility needs to be traceable to the original generator.

> A Waste Collector, Waste Processor, or Waste Generator shall ensure all radioactive waste contained within a shipment for disposal at a land disposal facility in the state is traceable to the original generators and states, regardless of whether the waste is shipped directly from the point of generation to the disposal facility.

As a condition of a permit being given to the generator, the DRC should require a report that shows the origin of the waste.

Pursuant to this rule, the DRC should devise reporting requirements that must be followed in order for an entity to receive a waste disposal permit. The report should be devised in such a way that easily shows the pedigree of waste, from the original source to disposal. The DRC should include checkpoints that can be used to independently validate the accuracy of the report. The DRC may wish to work with the NWIC on this report.

Auditors Did Not Have Access to Energy*Solutions*' Operations to Test if Foreign Waste Is Coming to Utah. We submitted a request to Energy*Solutions* for information on the original source of waste shipments, including imported foreign waste. We also requested access to Energy*Solutions*' Tennessee facility where foreign waste is processed. Energy*Solutions* did not provide complete access to the information and sites, in accordance with independent audit standards, necessary for us to determine if banned foreign waste has been sent to and disposed of in Utah. Therefore, we cannot provide assurance that foreign waste is not coming to the state.

Energy*Solutions* restricted a great deal of access, which prevented any determination if banned waste was disposed of in Utah.

We are concerned with the lack of transparency of foreign waste processing because Energy*Solutions* has a financial incentive to dispose of this waste. Rules allow Energy*Solutions* to reattribute the waste in Tennessee or change the ownership name of the waste and essentially obscure the identity of the generator of origin. We reviewed several recent reports where we could see reattribution occurring. However, we were not able to determine if the reattribution occurred with waste streams generated inside or outside of the United States. We want to be clear that we are not accusing Energy*Solutions* of inappropriate behavior, but we were not given access to the necessary information to make a determination.

To ensure that no banned waste is coming to the Clive site, we recommend the Legislature consider whether greater governmental audit access should be granted as a condition of Energy*Solutions'* license agreement with the State of Utah.

Permit Program Fees Should Be Used To Fund DRC Predisposal Oversight

In Chapter II, we discussed how the DRC's Generator Site Access Permit (GSAP) program lacks independent reviews of a waste generator's ability to comply with Utah's ban on greater than Class A waste. As part of this discussion, we reviewed documented instances of generator deficiencies that caused Class A limit violations. These violations indicate that improvements to the GSAP program are needed. To ensure that only acceptable waste is sent to Utah, the DRC should require detailed reviews of waste generator operations and shipments funded through GSAP revenues.

The Generator Site Access Permit program does not independently review a generator's capability to comply with the ban on Class B and C waste.

During the audit, the DRC indicated that certain oversight functions, such as sampling, are cost-prohibitive. Based on a limited review of the DRCs funding sources, we are concerned that GSAP revenues may be subject to reallocation through the Department of Environmental Quality's (DEQ) central fund account. Instead, fees from the GSAP program should be dedicated to oversight efforts of the generators participating in the program.

Through the GSAP program, generators that receive waste disposal permits are assessed an annual fee. The DRC receives the revenue from these fees. We reviewed the collections the DRC received for the issuance of permits for fiscal years 2009, 2010, and 2011. Figure 3.5 displays the annual GSAP receipts.

Figure 3.5 Generator Site Access Permit Program Fees for Fiscal Years 2009, 2010, and 2011. The GSAP program provides the DRC with substantial funding annually. We believe these revenues should be used by the DRC for verification of classification of waste shipments from generators.

	2009	2010	2011
GSAP Fees Received	$267,394	$460,000	$497,497

Note: According to the DRC, the increase in fee totals between 2009 and 2010 is due to a change in the fee structure that eliminated a lower fee tier, resulting in more waste generators being subject to higher fee tiers.

GSAP fees are deposited in a central fund, the Environmental Quality Restricted Account, which is commingled with other revenues received by other divisions in DEQ.

The DRC indicated that one staff member is in charge of managing the issuance of GSAP program permits and that this position is technically funded by the GSAP fees. However, the fee revenue is actually transferred to the DEQ's central fund account–the Environmental Quality Restricted Account (EQRA), which was established by ***Utah Code*** 19-1-108 in 1996. This is primarily true for revenues received by the Division of Solid and Hazardous Waste (DSHW) as well. The DRC and the DSHW are then allotted a certain annual budget amount from the EQRA, primarily based on budget allocations from the prior year.

We discussed this accounting method with the Office of Support Services (OSS), which does the budget and accounting work for DEQ. Staff confirmed that there is no direct accounting tie in the EQRA between an entity paying a fee to a division and those funds going back to that same division to fund its oversight activities. For example, there is no direct accounting tie between GSAP fees paid to the DRC by waste generators and those fees being allocated back to the DRC to fund its oversight programs. Instead, OSS indicated that it uses the EQRA accounting method in order to reallocate funds among divisions and programs when necessary to balance out fund surpluses and deficits that may occur among divisions over time.

We understand the financial constraints state agencies work under and the need for them to be creative to successfully fund all of their responsibilities and programs. However, we question the appropriateness of potentially reallocating revenues to programs unrelated to the generation of those revenues. We are especially concerned about the appropriateness of reallocating GSAP fee revenue through the EQRA to fund ancillary programs unrelated to LLRW

shipments and predisposal oversight. Although state statute put the EQRA in place, direction regarding how the funds should be tracked is absent.

However, even if DEQ did ensure all GSAP fees were directly allocated to the DRC to fund its operations, we would still question the use of these revenues if they were not dedicated to the oversight of the paying party. In other words, we would question the appropriateness of using GSAP fees to fund oversight activities such as x-ray machine inspections instead of allocating those funds to the predisposal oversight of the waste generators that paid those fees to access the disposal site. Whether at the department or the division level, we question the practice of the reallocation of regulatory revenues to oversight functions unrelated to the purpose of their generation.

We question the practice of the reallocation of regulatory revenues to oversight functions unrelated to the purpose of their generation.

We believe the current DEQ practices of reallocating division revenues and limited tracking of funds through the EQRA may limit the ability of DRC to implement a more rigorous oversight program of incoming waste shipments. Fees from the GSAP program could be dedicated to oversight efforts of waste shipments from generators participating in the program. Funding the program in this manner would be similar to Nevada's out-of-state oversight, as previously discussed, which is funded by the DOE. The DRC could use generator-paid GSAP fees to cover the expense of out-of-state oversight efforts.

GSAP program fees could be dedicated to oversight efforts of the waste shipments from generators participating in the program.

We recommend that the Legislature, DEQ, and DRC review the current practice of EQRA accounting, for greater accountability, to determine a more effective way to ensure that the DRC has the appropriate allocation of funding for improved waste shipment and predisposal oversight.

Recommendations

1. We recommend that the Division of Radiation Control (DRC) improve predisposal controls that will validate bulk waste streams prior to disposal by implementing one or more of the following (based on Figure 3.1 on page 33):

    - Maintain a visible presence (i.e., unannounced visits and direct observation of sampling) when Energy*Solutions* conducts its sampling.

    - Implement a visible presence, as described above, combined with an increase in random sampling of waste.

    - Retain all sampling duties by conducting statistically valid random sampling of incoming waste.

2. We recommend that, as a condition to access Utah's disposal site, the DRC require containerized waste generators to grant the DRC full authority to review all on-site operations and conduct on-site sampling of waste before shipment in order to validate waste classification, when the need is determined by DRC.

3. We recommend that the DRC present to the Radiation Control Board the need to change its Generator Site Access Permit (GSAP) program to require testing by the DRC of a random sample of containerized waste to verify the classification of the waste at some of the generators' facilities before shipment to Utah.

4. We recommend that the DRC review staff time allocation to ensure the amount of predisposal oversight is adequate to address waste classification risks with respect to Utah's law prohibiting Class B and C waste.

5. We recommend that the DRC expand its Department of Transportation inspections of waste shipments, on a random sample basis, to include all days and times Energy*Solutions* may receive waste shipments.

6. We recommend that the DRC have better reporting requirements to determine if foreign waste is entering the state.

7. We recommend that the Legislature consider if greater governmental audit access should be granted as a condition of Energy*Solutions*' license agreement with the State of Utah.

8. We recommend that the Legislature, DEQ, and the DRC review the current use of GSAP revenues to determine an appropriate program allocation to ensure adequate generator waste shipment and predisposal oversight.

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Appendices

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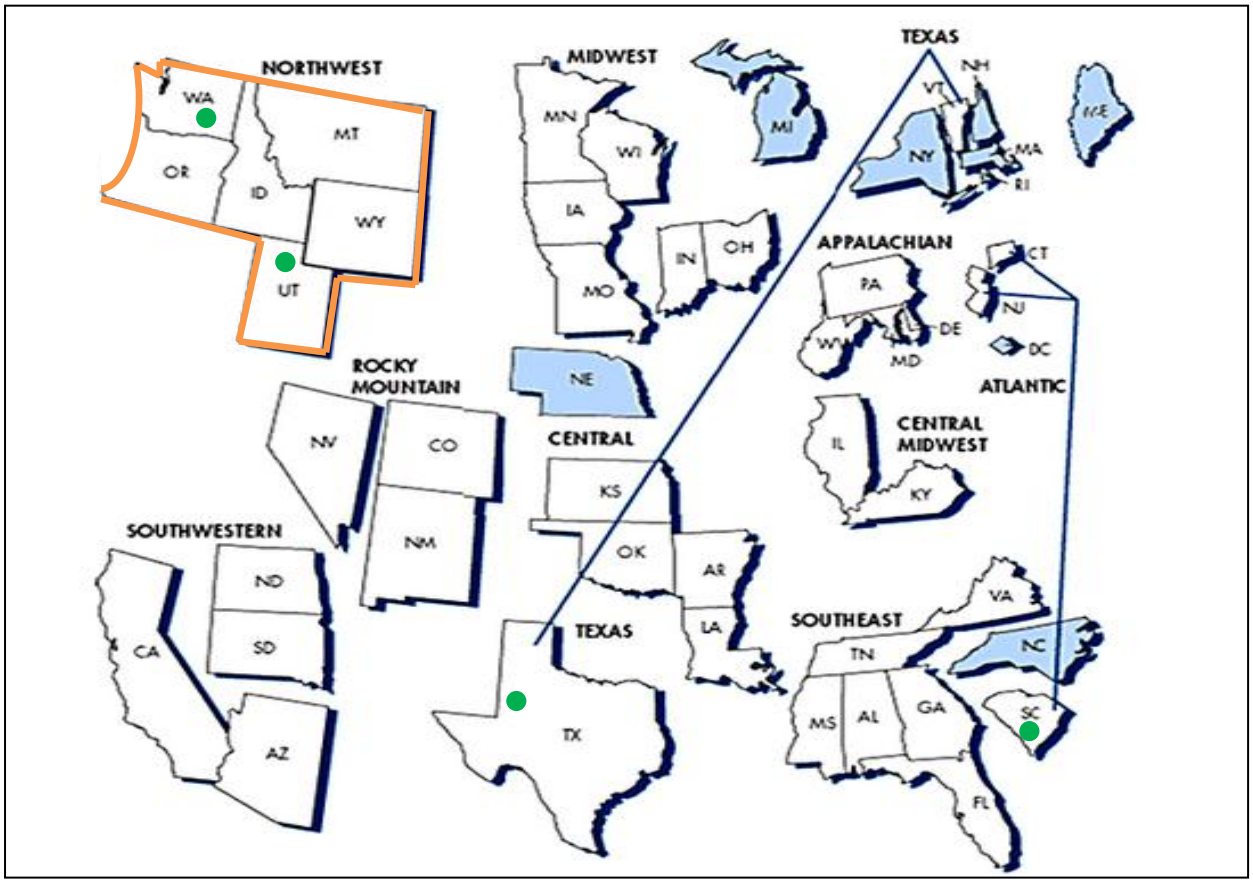
Appendix A:
Additional Information Regarding Compact States

Map Listing of State Compacts. Currently, there are 10 state low-level radioactive waste (LLRW) compacts in the United States. Utah is a member of the Northwest Interstate Compact (NWIC) and sends its waste to the Washington disposal site.



Source: United States Nuclear Regulatory Commission.
Key: green circles = active disposal sites; white state groups = approved compacts; light blue states = unaffiliated.
Note: Alaska and Hawaii belong to the Northwest Compact. Also, Washington DC and Puerto Rico are unaffiliated.

Since there are only four active disposal sites in the country, not all states that have entered into compacts have a disposal facility within the boarder of at least one of their member states. For example, the Rocky Mountain Compact (RMC) does not have a member state with an active LLRW disposal site. Therefore, the RMC has entered into an agreement with the NWIC to dispose of waste at the Washington State disposal site. The NWIC indicates that this agreement was put in place because RMC member states "generate very small volumes of waste, making a RMC disposal site uneconomical."

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Appendix B:
Generator Deficiencies Caused Banned Waste Violations

Of the 37 greater than Class A waste containers described in Figure 2.1 of Chapter II, 23 were not identified until after disposal by Energy*Solutions*. The remaining 14 containers, which were all received after the beginning of October 2010, were identified during waste sampling by Energy*Solutions* before disposal and were returned to the shippers. The Division of Radiation Control (DRC) management decided to issue seven Notices of Violation (NOVs) for the 33 containers in violation that were identified within five years of arrival at Clive. Therefore, four containers of greater than Class A waste disposed of at Clive were never issued NOVs.

We were only able to review in detail the seven documented greater than Class A NOVs for calendar year 2011, since that was the first year the DRC began keeping a summary record of violations it issued to waste generators. Therefore, we were unable to verify if there were any other instances of greater than Class A NOVs issued by the DRC prior to 2011. The DRC claims there have not been any others issued before that time. Our review of these NOVs shows that they were caused by a variety of waste generator/broker deficiencies. The following figure summarizes the causes of the violations as self-reported by the seven individual generators that received NOVs for exceeding Class A limits.

Causes of Class A Violations that Received NOVs. Seven individual generators were issued NOVs by the DRC for violations of Class A concentration limits. The waste from generators 1-4 remains buried at Clive. The waste from generators 5-7 was returned to the shippers, as the violations were identified before disposal.

NOV Recipient	Number of Containers in Violation	Cause of Class A Violation
Violations discovered by Energy*Solutions* after computer error correction		
Generator 1	16	Error in the generator's waste inventory database
Generator 2	1	Inaccurate information on the waste manifest
Generator 3	1	Calculation error
Generator 4	1	Updated waste documentation not followed by revised classification
Subtotal	19	
Violations discovered by Energy*Solutions* during physical waste sampling		
Generator 5	4	Waste never adequately characterized
Generator 6	9	Waste manifest information never verified
Generator 7	1	Updated waste characteristics not followed by revised classification
Subtotal	14	
Grand Total	33[1]	

1 – Four additional waste containers were found to violate Class A concentration limits. However, the DRC decided not to issue NOVs for those violations since they were not identified within five years of waste disposal.

The prior figure shows that seven individual generators received NOVs for 33 containers sent to Clive that exceeded Class A concentration limits. The figure also shows that the violations were self-identified by Energy*Solutions* either through the physical sampling of waste or after it corrected a computer error in its Electronic Waste Information System (EWIS).[17] Yet most importantly, our review of the seven NOV files maintained by the DRC indicates that the violations were caused by a variety of generator deficiencies. Detailed summaries of the violations as found in the NOV reports are described next.

Generator 1

- A generator sent eight waste shipments consisting of 16 containers classified as Class A to Energy*Solutions* at the Clive facility. Energy*Solutions* determined the classification of all 16 containers should have been Class C. The generator indicated this violation was caused by an update to an inventory database in which a placeholder of "Class A" was put into a new classification field that did not exist in the prior database. This placeholder was never updated to reflect the waste's actual classification before the waste was shipped to Utah**.** The generator stated that:

  > Since ES [Energy*Solutions*] performs an independent verification of all waste shipments, [we] did not complete a backward look in the extent of condition review. [We] should have not relied solely on this information and should have completed a backward review.

  In addition, the generator reported that an additional 78 containers were found in its inventory with incorrect waste classifications following the violation of the 16 containers shipped to Clive. The DRC fined the generator $4,875.

Generator 2

- A generator sent Energy*Solutions* one drum, in a shipment of 51 drums, that was found to exceed Class A waste disposal limits. The generator indicated that the cause of the violation was inaccurate information on the waste manifest that resulted from a software miscalculation. The DRC fined the generator $3,250.

Generator 3

- A generator sent Energy*Solutions* one drum, in a shipment of 19 packages, that was found to be misclassified as Class A waste. The cause of the violation was that the classification of the container was based on the gross weight rather than the net weight. Therefore, the weight of the drum itself was included in the waste weight calculation, which is incorrect. The DRC fined the generator $3,250. The generator

[17] It should be noted that although Energy*Solutions* corrected the error in its EWIS program, the system continues to utilize information self-reported by waste generators on the shipping manifest as a means to verify waste classification.

contested the violation, but the DRC did not find there was sufficient evidence to rescind the NOV. However, the DRC decided to defer the civil financial penalty for 12 months. If the generator has no other violations in this time period, the DRC indicated it will withdraw the NOV.

Generator 4

- A generator sent Energy*Solutions* a shipment of 76 drums in which one container of liquids classified as Class A was accepted and disposed of at the Clive disposal site. Energy*Solutions* later found that the waste exceeded Class A concentration limits. The generator indicated the violation was caused by a revision to the written characterization of the waste to include some missing isotopes known to typically be present in the waste stream. While the isotope listing was adjusted, the generator did not also update the classification calculation, which would have indicated it was actually Class C waste. The DRC fined the generator $3,250.

Generator 5

- A generator sent a shipment of four metal drums and nine pressure vessels described as Class A to Energy*Solutions'* Clive facility. The four metal drums were sampled and were found to be misclassified as Class A waste. One of the drums was confirmed as Class C waste. The four drums were returned to the waste generator. Although the waste was generated by another entity, the shipment came under an Energy*Solutions* generator permit as it was acting as a shipment broker. Energy*Solutions* determined the cause of the violation was that the four drums were never adequately characterized for shipment. It was found that two of the drums contained waste not consistent with the original profile of the waste stream. The DRC fined Energy*Solutions* $8,750.

Generator 6

- A shipment of nine drums characterized as Class A waste was received at Clive by Energy*Solutions*. Samples of all nine drums indicated that the waste was actually Class C. The generator reported that the cause of the violation was that the waste was generated prior to the implementation of its program to verify manifested data. The waste was returned by Energy*Solutions* to the generator. The DRC fined the generator $5,000.

Generator 7

- A shipment of one metal box containing LLRW described by the generator as Class A was received by Energy*Solutions* at the Clive facility. Energy*Solutions* sampled the waste and discovered isotope concentrations that exceeded Class A limits. It is reported that this violation was the second of this type by the generator in about a year. The generator indicated that the cause of the violation was due to revisions of weight and volume estimates of the waste that were not followed by a recalculation

of the waste classification. The generator also did not recognize during packing that the waste was different from previous shipments that also came from the same waste stream. The shipment was returned to the generator. The DRC fined the generator $7,500.

It should be noted that the DRC allowed the 19 containers of banned waste that were discovered when Energy*Solutions* corrected an error in its computer system, as shown in the prior figure, to remain in Utah at the Clive facility. As mentioned previously, in addition to these 19 containers, the four containers also found during Energy*Solutions* computer system correction that were not issued NOVs, remain buried at Clive as well. Energy*Solutions* had already buried the waste when the violations were found, and it made the case to the DRC that it was more hazardous to human health to dig up and send the waste back to the generators than to allow it to remain unmoved in the disposal cells at Clive. The DRC approved Energy*Solutions*' proposal to not unearth the waste. The 14 containers of greater than Class A waste that were discovered by Energy*Solutions* during physical sampling, as shown in the prior figure, were identified before burial and were, therefore, returned to the various generators or brokers.

Agency Response

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State of Utah
GARY R. HERBERT
Governor

GREG BELL
Lieutenant Governor

Department of
Environmental Quality

Amanda Smith
Executive Director

DIVISION OF RADIATION CONTROL
Rusty Lundberg
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August 31, 2012

John M. Schaff, CIA
Auditor General
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RE: Division of Radiation Control Response to Legislative Audit Report, "A Performance Audit of the Division of Radiation Control" (Report No. 2012-10)

Dear Mr. Schaff:

Thank you for the opportunity to respond to the above-referenced Legislative Audit Report. We express our appreciation to the auditors for the manner in which they interacted with our staff and for their professional conduct while housed in our offices. Over the course of gathering information, we also appreciate the various opportunities we had to discuss with the auditors the technical, regulatory, and policy aspects of the low-level radioactive waste program.

In reviewing the report, we note that some of the overall recommendations offered have the potential to complement and enhance regulatory oversight of the EnergySolutions Clive facility by the Division of Radiation Control (DRC) and may result in optimizing program processes and improving efficiencies. The Department of Environmental Quality (DEQ) has not only been emphasizing the value of such improvement efforts, but also implementing resulting recommendations over the course of the last couple of years. The DRC believes that a similar process improvement evaluation and subsequent implementation of the audit recommendations regarding independent verification of waste classification appears to have merit as an agency priority.

We also note that the process to implement the recommendations brings at least two important considerations to the forefront:

- How to weigh the recommended oversight approach consisting of additional oversight activities compared to the existing oversight framework that has been successfully proven for many years. **The audit recommendations are heavily based on policy implementation, whereas the existing regulatory framework is founded on protecting public health and safety** and is fully consistent with other environmental

regulatory programs (and certainly non-environmental regulatory programs as well); and

- How to weigh the cost/benefit implications of a significant change in oversight focus.

Additionally, our review of the report reaffirms our recognition of the technical complexities, public health and safety considerations, regulatory framework, and key policies associated with the management and disposal of low-level radioactive waste. Consequently, we appreciate the auditors' efforts to evaluate and provide recommendations to enhance our oversight activities of the EnergySolutions Clive facility in Tooele County. We have provided clarifications and comments, as detailed below, in an effort to better understand and improve the regulation of commercial low-level radioactive waste.

We first address the recommendations offered at the end of Chapter III of the report. Following those comments, we then provide additional responses that address both specific audit report statements and relevant general subject matters.

RESPONSES TO REPORT RECOMMENATIONS

Recommendation 1: The Division of Radiation Control (DRC) improve predisposal controls that will validate the bulk waste streams prior to its disposal by implementing one or more of the following:

- *Maintain a visible presence (i.e. unannounced visits and direct observation of sampling) when EnergySolutions conducts its sampling.*
- *Implement a visible presence, as described above, combined with an increase in random sampling of incoming waste.*
- *Retain all sampling duties by conducting statistically valid random sampling of incoming waste.*

Response 1: We agree that additional activities could be employed in the oversight of the waste acceptance process, particularly for more frequent observations of waste sampling and analysis as well as validating waste classification utilizing computational methods. We have already initiated internal discussions about how to expand efforts that incorporate one or more of the above options. However, we note the following relevant factors regarding our on-site inspections:

- Site inspections are and have been conducted on an ongoing basis at essentially a daily frequency and consequently are already unannounced. For purposes of complying with required site security procedures, DRC staff sign the facility entrance log each time they go on site. Signing this log is really the only means by which EnergySolutions is notified that inspectors are on site.
- During the two-year period state agencies were working a four-day work week, inspectors were occasionally on-site on Fridays. Since the return to a five-day work week, inspectors are there four to five times a week.

- The normal operational hours for receiving waste at the Clive facility is Monday through Friday, excluding major holidays. Waste shipments are not processed or accepted by EnergySolutions on weekends (unless special arrangements are made between EnergySolutions and the generator to bring in a crew to perform waste receipt operations).

Recommendation 2: The DRC require generators of containerized waste, as a condition to access Utah's disposal site, to grant the DRC full authority to review all onsite operations and conduct onsite sampling of waste before shipment in order to validate waste classification, when the need is determined by DRC.

Response 2: In establishing the Generator Site Access Permit (GSAP) program, the Legislature gave the authority for rulemaking to the Radiation Control Board (Board). We believe that in order to require such conditions as part of a permit approval; it must be enforceable and therefore fully implementable under the authority of a rule.

To that end, the DRC will work with the Board in developing and adopting the appropriate rule changes, including determining the associated implementation costs of the rule changes, as required by administrative rulemaking requirements. Factors associated in determining these costs include, but not limited to, out-of-state travel (all of the approximate 140 permitted waste generators are located outside of Utah, many of which are Department of Energy facilities), sampling equipment (including chain of custody materials), sample transportation, laboratory analytical costs, mobile computer support, and staff time in reviewing analytical results and performing the necessary calculations to determine the proper waste classification. It would also be important to couple this cost analysis with an analysis of the resulting benefits.

It is important to note that the sampling and analysis for multiple radioactive isotopes in a waste is only one of the necessary components in determining or validating waste classification (i.e., whether a waste containing radioactive materials is Class A, B, or C low-level radioactive waste). Extensive calculations must also be done for each measured isotope within a given shipping container in order to complete the waste classification determination for that container.

In managing the samples, the DRC will also need to amend its radioactive materials license and receive reciprocity approval from each of the appropriate licensing agency (U.S. Nuclear Regulatory Commission (NRC) or respective Agreement State) when performing on-site sampling outside of Utah. This will be necessary in order to account for the radionuclides contained within a given sample and to comply with the applicable requirements for the possession, transportation, and transfer of radioactive materials. Reciprocity license approvals are time-limited and must be renewed annually.

Recommendation 3: The DRC present to the Radiation Control Board the need to change its Generator Site Access Permit (GSAP) program to require testing by the DRC of a random sample of containerized waste to verify the classification of a waste at some of the generators' facilities before shipment to Utah.

Response 3: We understand the intent of this recommendation is to develop and adopt a rule change that reflects the need for periodic verifications. Like the previous response, the DRC will work with the Radiation Control Board to develop and adopt such a rule, including determining the associated costs, as required by administrative rulemaking requirements, and in comparison to the resulting benefits.

For comparative context, Texas requires Waste Control Specialists, LLC (WCS) to perform point-of-origin, out-of-state audits of generators who ship waste to their facility in Andrews, Texas; instead of relying on state personnel to conduct these audits. Specifically, the approved Waste Acceptance Plan for WCS states, "The purpose of the generator site audit is to verify that the generator's waste classification/characterization, chelating agent characterization, process control and packaging/shipping programs are being implemented in accordance with the documentation that was provided to WCS in the generator's certification package." (Waste Acceptance Plan, Waste Control Specialists, LLC, March 16, 2007, Rev 12a, p. 5.2-1-20) Thus, Texas' approach regarding regulatory oversight follows the regulatory framework and structure commonly found throughout national, state, and local environmental programs.

Recommendation 4: The DRC review staff time allocation to ensure the amount of predisposal oversight is adequate to address waste classification risks with respect to Utah's law prohibiting Class B and C waste.

Response 4: We acknowledge the importance of conducting compliance monitoring and oversight with respect to the state law prohibiting the receipt and disposal of Class B and Class C low-level radioactive waste (LLRW). We see our response to this recommendation as a means to optimize program resources and improve efficiencies.

Among the various waste acceptance or predisposal oversight activities the DRC performs at the Clive facility, the compliance monitoring and oversight of existing rules and regulations associated with the transportation of LLRW are more specifically directed at protecting the public health and safety since waste shipments occur over public roads and therefore create a potential exposure to the public compared to other pre-disposal activities. Ensuring the integrity of waste shipment containers and the supporting documentation accomplishes that important objective and is one of the reasons why the DRC has directed its limited oversight resources to this area.

In consideration of the audit report recommendation, the DRC will evaluate the level of activity inspection staff currently dedicated to the various components of the waste acceptance process for incoming shipments. Following that evaluation, we will be in a better position to balance waste acceptance procedures and oversight activities that include waste classification verifications without compromising Utah's commitments with the U.S. Nuclear Regulatory Commission (NRC) as an Agreement State. Indeed, this is an opportunity to have existing staff incorporate additional waste classification reviews as part of their on-site inspections rather than a process of reallocating resources.

In mentioning Utah's program commitments to the NRC, it is important to underscore the fact that Utah entered into an agreement with the NRC in order to regulate radioactive materials, including low-level radioactive waste. However, only a limited number of states are an "Agreement State" with the NRC for purposes of regulating low-level radioactive waste. Specifically, Utah was granted agreement state status by the NRC for the following programs in the noted years:

Radioactive materials	1984
Low-level radioactive waste	1990
Byproduct material (e.g., uranium mill tailings)	2004

As national programs that a state may implement under an agreement between the NRC and the Governor of a State (which results in the NRC transferring its jurisdictional authority to that state), each of these programs has specific program standards, indicators, and criteria that an Agreement State must meet, as established by the NRC under the authority of the federal Atomic Energy Act. (See Section 274, Atomic Energy Act of 1954, P.L. 83-703, 42 USC 2021).

As part of the NRC-Utah agreement, the NRC conducts periodic, in-depth evaluations of the DRC in administering these programs. These comprehensive evaluations are guided by national criteria and indicators in order to create consistency among the states that have Agreement State status with the NRC. The evaluation criteria and indicators serve as a means to document that a state not only has a well-trained and qualified staff but also can perform to meet program commitments and produce quality work products within established timeframes.

The above information was provided as added context as we evaluate inspection staff resources dedicated to predisposal activities with respect to program implementation commitments to the NRC and Utah's law prohibiting Class B and C waste into the state for management and disposal.

Recommendation 5: The DRC expand its Department of Transportation inspections of waste shipments on a random sample basis to include all days and times EnergySolutions may receive waste shipments.

Response 5: Information provided above in our response to Recommendation 1. also applies here.

Recommendation 6: The DRC have better reporting requirements to determine if foreign waste is entering the state.

Response 6: Because of federal law (Low-Level Waste Policy Act of 1980 and the Low-Level Waste Policy Amendments Act of 1985) devolving jurisdictional authority and responsibility for the management of low-level radioactive wastes to the states under the legal ability for two or more states to create and establish compacts for purposes of developing low-level radioactive waste disposal capacity and control of wastes within the compact, this is primarily an issue governed by the Northwest Interstate Compact (NWIC). Utah is a party state to this compact. See supplemental information describing the NWIC in the General Subject Matters section below.

Foreign waste (waste not generated in the United States) is not allowed to be disposed of at the Clive facility in accordance with a NWIC resolution and a federal court decision that reaffirms the jurisdictional authority of the NWIC over out-of-compact waste, including foreign waste. In meeting its obligations under the NWIC resolutions, EnergySolutions submits a monthly report to the compact containing certain information (generator name, state of generation, total waste volume, average concentration, etc.) for shipments of LLRW received at Clive. The NWIC has not expressed any dissatisfaction with the reports submitted by EnergySolutions.

Following the federal court ruling, EnergySolutions presented to the NWIC a document entitled, *Residual Low-Level Radioactive Waste from Incineration*, for its consideration and concurrence. The document specifically addresses the management of foreign waste received for incineration at the Bear Creek facility in Tennessee and identifies low-level radioactive waste that will be returned to the host country following incineration to ensure compliance with the compact resolution addressing foreign waste. The document also addresses the matter of attribution of residual waste. At its May 2011 meeting, the NWIC issued its concurrence with the document.

In meeting its obligations under the NWIC resolutions, EnergySolutions submits a monthly report to the compact containing certain information (generator name, state of generation, total waste volume, and average concentration) for all shipments of LLRW received at Clive. The Executive Director of the NWIC continues to express satisfaction with the content and timeliness of these reports.

However, we will work with the NWIC to evaluate if potential improvements to the reports can more completely encompass the full management cycle (importation to exportation) of foreign low-level radioactive waste.

Recommendation 7: The Legislature consider if greater governmental audit access should be granted as a condition of EnergySolutions' license agreement with the State of Utah.

Response 7: This recommendation rests with the Legislature for its consideration and possible action. DEQ is willing to work with the Legislature in its consideration of this recommendation.

Recommendation 8: The Legislature, DEQ, and the DRC review the current use of GSAP revenues received and determine the appropriate program allocation to ensure adequate generator waste shipment and disposal oversight.

Response 8: The GSAP revenues described in the above recommendation are managed under the Environmental Quality Restricted Account (EQRA). Additional revenue sources also managed through the EQRA are the radioactive waste program, as administered by the DRC, and as administered by the Division of Solid and Hazardous Waste (DSHW), the hazardous waste and solid waste (non-hazardous industrial and municipal) programs.

The framework of the EQRA, from both the revenue and expenditure components, has been a long-time, coordinated effort among DEQ, industry, and the Legislature in order to find an optimal balance that sustains multiple, vital environmental functions and services without negatively impacting the economic viability of Utah's businesses and industries. The audit recommendation regarding the EQRA and the GSAP program constitutes a significant change to this longstanding, broadly supported framework. Any changes to any component of the revenues and programs tied to the EQRA would undoubtedly have a ripple effect on all of the others that should be considered, including the potential to impact revenue the EQRA provides into the General Fund.

RESPONSES TO SPECIFIC AUDIT REPORT STATEMENTS

DIGEST

Audit, p. i., first paragraph: It is the responsibility of the DRC to monitor the activities of EnergySolutions and waste generators to ensure only approved waste enters the state.
Response: Ensuring only approved waste enters the state is among other responsibilities the DRC performs in protecting the public health and safety with respect to the possession, use, transfer, transportation, and disposal of radioactive materials. The DRC also administers the X-ray registration and inspection, indoor radon protection, and uranium mill programs.

Audit, p. i, first paragraph: The DRC's position is that they work under a common and recognized regulatory framework that relies on the regulated entity to self-police compliance and report any violations.
Response: This regulatory framework is not unique to radiation control programs, but is fundamental to and fully integrated into other environmental and non-environmental regulatory programs, at the federal, state, and local government levels.

Additional specific agency responses to the items summarized in the Digest portion of the report are provided in the respective sections below.

CHAPTER I

Audit, p.1: First paragraph
Response: This regulatory framework is not unique to radiation control programs, but is fundamental to and fully integrated into other environmental and non-environmental regulatory programs, at the federal, state, and local government levels. The DRC carries out regulation of EnergySolutions based on a network of authority and guidance from the Nuclear Regulatory Commission, Environmental Protection Agency, and state statute and rule. The construct of environmental regulation in the United States for compliance relies on the regulated entity to acquire a license/permit, construct an acceptable methodology for monitoring compliance, conduct inspections including sampling and keep all information on record for a period of time.

Additionally, enforcement penalties and criminal charges for knowingly breaking the law create a framework of compliance. The appropriate regulatory agency audits licensee compliance by conducting visual inspection of premises, reviewing records, interviewing facility or site representatives, taking photographs, collecting samples, and observing facility operations.

While the DRC follows this accepted methodology, we also agree that there could be greater independent oversight of waste generators and shipments to ensure compliance prior to disposal.

Audit, p. 7, middle paragraph: States are "able to create their own radioactive material waste regulatory programs through agreements with the federal NRC."
Response: Agreement states are held to structured requirements established by the NRC. The requirements are based on performance (quality, quantity, timeliness, etc.) as well as administrative and organizational adequacy and compatibility (laws, rules, procedures, etc.). "Creating" a program is accomplished within this context and in conjunction with ongoing performance evaluations conducted under the direction of the NRC to ensure agreement states meet the necessary criteria.

Audit, p. 8, top paragraph: Currently, 37 states have entered into agreements with the NRC.
Response: The majority of the thirty-seven states have entered into an agreement with the NRC in order to regulate radioactive materials and the agreements do not always include the authority to regulate low-level radioactive waste. Only a limited number of states are an Agreement State with the NRC for purposes of regulating low-level radioactive waste. Utah is one of the states that is an Agreement State for administering a low-level radioactive waste program. Specifically, Utah was granted agreement state status by the NRC for the following programs in the noted years:

Radioactive materials 1984
Low-level radioactive waste 1990
Byproduct material (e.g., uranium mill tailings) 2004

As national programs that a state may implement under an agreement between the NRC and the governor of a state, each of these programs has specific program performance standards, indicators, and criteria that an Agreement State must meet, as established by the NRC under the authority of the federal Atomic Energy Act. (See Section 274, Atomic Energy Act of 1954, P.L. 83-703, 42 USC 2021). In granting agreement state status, the NRC transfers its jurisdictional authority to that state.

Audit, p. 8, last paragraph: Although a compact disposal site was already operating in Washington, the NWIC issued a resolution acknowledging Utah as the licensing authority, with full regulatory oversight, of EnergySolutions as the owner and operator of the Clive waste disposal site. ... Thus, instead of providing a disposal benefit to Utah or other NWIC member states, the Clive facility operates as a private business venture by EnergySolutions for the purpose of receiving out-of-compact and federal waste.
Response: For added clarity, we recommend the noted changes. In recognition of the fact that the disposal site in Richland, Washington serves as the official LLRW disposal facility for the NWIC ~~Although a compact disposal site was already operating in Washington~~, the NWIC issued a

resolution acknowledging Utah as the licensing authority, with full regulatory oversight, of EnergySolutions as the owner and operator of the Clive waste disposal site.

When the NWIC was formed and received the required congressional approval in 1985, Utah was one of seven member states. Wyoming later became the eighth state. The NWIC Articles are also incorporated into Utah law (19-3-201, et seq., UCA). When Utah policymakers enacted provisions to address the required approvals for a commercial low-level radioactive waste disposal facility in Utah, Utah's membership in the NWIC had already been established. Thus, when the Legislature acted to grandfather the Clive facility from the statutorily required legislative and gubernatorial approvals, policy matters and considerations regarding the absence of any disposal benefit of the Clive facility to Utah were acknowledged and addressed in full awareness of Utah's membership in the NWIC, including the associated disposal ramifications.

CHAPTER II

Audit, p. 11, second paragraph: Auditors' request for information from DRC regarding foreign waste shipments.
Response: In an, effort to facilitate the auditors in obtaining the requested information, they were referred to EnergySolutions for the following reasons:

- The NRC holds the exclusive authority to issue licenses for the import and export of LLRW. Agreement States are not eligible to be granted this authority. Thus, license conditions governing the management of LLRW imports and exports and the associated records and documentation are set by the NRC through license conditions. EnergySolutions holds copies of the import and export licenses from the NRC.

- Foreign waste is received and treated/processed by facilities operated by EnergySolutions and that are located outside of Utah (e.g., Bear Creek, Tennessee). Waste management records for these facilities are maintained at those locations and in compliance with the regulations administered by and the license conditions set by the Tennessee radiation control program. Tennessee, as an NRC Agreement State, has full authority to administer the radiation control programs in Tennessee.

- Additionally, as a result of the NWIC's resolutions regarding out-of-compact LLRW, including foreign-generated LLRW, the NWIC receives monthly reports from EnergySolutions.

Thus, the auditors were referred to these sources regarding documentation for foreign-generated waste as the appropriate recordkeeping entities.

The EnergySolutions Clive facility is prohibited from receiving and disposing of foreign-generated LLRW due to actions taken by the NWIC (resolution and clarifying resolution). The legal jurisdiction of the compact resolutions over the Clive facility was upheld by the U.S. Tenth Circuit Court of Appeals in a decision issued in November 2010. The NWIC is the only entity

with the authority to enforce the foreign waste prohibition; the State of Utah is prevented by the Commerce Clause of the U.S. Constitution from prohibiting the disposal of a waste due to its country of origin.

It is the NWIC, then, that must be satisfied that foreign-generated LLRW is not coming into the Clive facility. The NWIC has indicated that it is satisfied with the monthly reports it receives from EnergySolutions addressing waste received at the Clive facility for the following reasons:

- The reports identify the state of origin of the waste, including prior to any treatment or processing
- The reports provide specific data regarding the name of the waste generator and, if applicable, the waste processor, the volume and radioactivity of the waste, and the waste shipment number.
- The reports sort data by compact (or unaffiliated state)

The auditors requested and DRC provided them with examples of these monthly reports.

Audit, p. 12, top paragraph: Utah Code 19-3-108(2)(h) states the DRC shall "issue orders necessary to enforce the provisions" of its authority under state law. We believe this means that the DRC bears the responsibility to independently ensure that EnergySolutions can effectively identify and reject banned waste shipments beyond the current self-policing model.
Response: We agree that additional oversight efforts can be performed to enhance our compliance evaluations.

Audit, p. 12, second paragraph: In total 37 containers, ...
Response: Over the period evaluated by the auditors (2001 to 2011), nearly 385,000 containers were received at the Clive facility. Fourteen of the 37 containers were rejected and sent back to the respective generators. The remaining twenty-three containers were disposed.

Audit, p. 12, second paragraph: Had the DRC been independently checking incoming waste they may have detected more significant noncompliance issues.
Response: We acknowledge the importance of conducting oversight with respect to the state law prohibiting the receipt and disposal of Class B and Class C LLRW. We also note that the oversight of existing rules and regulations associated with the transportation of LLRW is more specifically directed at protecting the public health and safety since waste shipments occur over public roads and therefore create a potential exposure to the public compared to other pre-disposal activities. Ensuring the integrity of waste shipment containers and supporting documentation accomplishes that important objective and is why the DRC has directed its oversight resources to this area. The DRC agrees that additional oversight efforts can be performed to enhance our compliance evaluations.

If by the statement, "more significant noncompliance issues," the auditors mean that additional containers exceeding the Class A limits would have been identified over the period evaluated if

the DRC had been performing independent verification, then we believe this to be speculative. When EnergySolutions discovered the error in the computer software program used to calculate the proper waste classification, they corrected the error and recalculated the waste classification for all of the containers received. From that extensive recalculation, only twenty-three containers were identified as exceeding Class A limits. If the DRC had been performing a 100% independent review using similar computer-based methods, the same results would have occurred.

Audit, p. 13: DRC management decided that since these four containers were not identified as violations within five years of disposal that they would not issue penalties to the waste generators involved.
Response: This decision was based on consideration of legal advice from the Utah Attorney General's Office in applying Utah's statute of limitations.

Audit, p. 14: First paragraph
Response: As part of the enforcement action issued by the DRC to EnergySolutions, EnergySolutions was required to submit a technical justification for the waste to remain in the disposal embankment. The DRC reviewed and evaluated EnergySolutions' technical justification—which resulted in the DRC's concurrence. Through a technical assistance request to the NRC, the DRC engaged the assistance of NRC to also review EnergySolutions' justification as well as the DRC's evaluation and rationale for its concurrence. The DRC received NRC's evaluation report in March 2012 (cover letter dated February 29, 2012). The NRC reaffirmed the DRC's findings.

Audit, p. 15, second bullet: DRC predisposal checks do not include waste classification oversight.
Response: Incoming waste manifests are reviewed by DRC inspectors. These manifests are required to denote waste classification under federal regulations and equivalent state rules. The inspectors do review waste classification information on the manifests; however, as previously noted, we agree that additional activities could be employed in the oversight of the waste acceptance process, to enhance waste classification verification.

Audit, pp. 16-17: DRC Regulatory Framework Relies on Self-Policing by Regulated Entity
Response: We have addressed the basis for the regulatory framework in other responses. We reaffirm our acknowledgement of implementing additional efforts to enhance predisposal oversight activities.

Audit, pp. 16 (bottom paragraph) – 17 (top two paragraphs): NRC flexibility
Response: Flexibility is in addition to, not to supersede agreement commitments and obligations with the NRC. Flexibility would not relieve the DRC from meeting such program commitments and obligations. In meeting these commitments, the DRC achieves its objective to protect public health and safety, while applying flexibility for waste classification verification purposes. As noted in other responses, we also note the importance of the information addressing Texas' determination to rely on WCS, as the licensee to operate the LLRW disposal facility, to conduct waste generator audits. (Waste Acceptance Plan, Waste Control Specialists, LLC, March 16, 2007, Revision 12a, pp. 5.2-1-19 to 5.2-1-20)

Audit, p. 17, last paragraph: Instead of focusing on predisposal oversight, the DRC has devised oversight "modules" that mainly focus on postdisposal controls.
Response: Recommended change. In meeting the required performance commitments with the NRC ~~Instead of focusing on predisposal oversight~~, the DRC has devised oversight "modules" that mainly focus on postdisposal controls.

It is also important to note that, particularly for long-lived radionuclides, extensive analysis of post-disposal conditions is required in order to determine whether the long-term engineering design and controls as well as the site-specific conditions are appropriate for the control of long-lived radionuclides. The inspection modules ensure that, on an ongoing basis, the DRC monitors and evaluates the performance of the Clive facility to be protective of the public health and safety in the short-term as well as in the long-term.

Audit, p. 19, top paragraph: In fact, the DRC does not routinely request the results of the physical samples tested by EnergySolutions, nor does it conduct a superficial review of the manifest to validate the waste classification.
Response: Recommended change. In fact, the DRC does not routinely request the results of the physical samples tested by EnergySolutions, nor does it conduct independent calculations using manifest data ~~a superficial review of the manifest~~ to validate the waste classification.

Audit, p. 22: Second paragraph
Response: See previous response to Recommendation 1.

Also, following the enactment by the Legislature of the authority for the Generator Site Access Permit (GSAP) program and the adoption of implementing rules by the Radiation Control Board in the early 2000's, the DRC increased its compliance monitoring of incoming waste shipments. Marked improvements in the integrity (i.e., structural and ability to contain contents) of shipping containers have occurred due to the GSAP program, resulting in greater protection to the public with respect to waste shipments.

Audit, p. 23: Figure 2.4
Response: Incoming waste manifests are reviewed by DRC inspectors. These manifests are required to denote waste classification under federal regulations and equivalent state rules. The inspectors do review waste classification information on the manifests; however, as previously noted, we agree that additional activities could be employed in the oversight of the waste acceptance process, to enhance waste classification verification.

Audit, p. 23: Top paragraph
Response: See previous response to Recommendation 1.

Audit, p. 23: Bottom two paragraphs
Response: We agree that additional activities could be employed in the oversight of the waste acceptance process, to enhance waste classification verification.

Audit, pp. 27 – 29: DRC's Disposal Permit Program Lacks Independent Review of Waste Generators
Response: As noted in our previous responses to Recommendation 2. and Recommendation 3., we will work with the Radiation Control Board to develop and adopt rule changes that expand the regulatory scope of the GSAP program, including determining the associated costs, as required by administrative rulemaking requirements, and in consideration of the resulting benefits.

CHAPTER III

Audit, p. 31: First paragraph
Response: As noted previously, the regulatory framework the DRC follows and implements is similar to other environmental programs. The DRC, by allowing the regulated entities to carry the greater responsibility for not only complying with the established requirements and standards but also providing and maintaining the necessary documentation to demonstrate such compliance, is aligned with this approach. Additionally, environmental programs that are delegable from the federal government to a state agency come with required performance standards, criteria, and commitments. As an agreement state with the NRC, the Utah radiation control rules and procedures are based on federal regulations, guidance, and other similar program related documents. Consequently, the DRC's implementation of the radiation control programs is directed toward meeting NRC's performance standards and criteria.

While the DRC follows this commonly accepted regulatory framework and approach, we believe that there can be increased independent oversight of waste generators and shipments to ensure compliance prior to disposal.

Audit, p. 32, first paragraph: Instead the DRC has given EnergySolutions the responsibility of self-policing Utah's waste disposal rules.
Response: As noted in similar responses, the DRC has not "given" EnergySolutions this responsibility. As with other environmental programs, as a licensee/permittee, EnergySolutions has the responsibility to comply with the applicable laws and rules and the appropriate regulatory agency monitors that compliance.

Audit, p. 32, second paragraph: We believe physical waste sampling is the strongest control to provide independent confirmation that prohibited bulk waste is not disposed of at the Clive facility.
Response: Physical sampling of incoming waste shipments is only one component that is necessary to determine waste classification. As noted in the description provided below in the Independent Verification Sampling section, the use of calculations (by computer or manually) must also be applied to each isotope listed on the manifest form, including the sum of fractions rule. Depending on the number of isotopes present in a given waste stream / shipping container, this can be a very extensive process. Additionally, contractual arrangements with a certified out-of-state laboratory will be necessary since the state health laboratory is currently without the analytical capability to detect the common isotopes found in wastes received at the Clive facility. The audit report implies that sampling is all that is necessary to determine and verify waste

classification. We recognize the importance of sampling and laboratory analysis coupled with the necessary computational work in order to implement increased oversight of the waste acceptance process.

Audit, p. 35: Comparative example of Nevada's oversight of the DOE facility in Nevada.
Response: For additional comparative context and a more analogous example, we note that Texas requires Waste Control Specialists (WCS), the licensee and operator of the newly licensed low-level radioactive waste disposal facility in Andrews County, Texas, to validate waste classification determinations made by the generators via point-of-origin audits. Texas does not perform point-of-origin inspections. (See the WCS Waste Acceptance Plan, as approved by Texas.) The context of this decision by Texas is important for the following reasons:

- Follows the commonly accepted regulatory framework described in this response
- Addresses Texas' rule regarding the preservation of waste classification (see Texas Administrative Code, Title 30, Part 1, Chapter 336, Subchapter C, Rule §336.229 and Subchapter H, Rule §336.745(d)).

Audit, p. 36, second paragraph: Reallocating resources to predisposal controls will strengthen DRC's oversight ability.
Response: Recommended Change: Reallocating resources to predisposal controls without compromising existing regulatory commitments with the NRC, will strengthen DRC's oversight ability.

This is really not a matter of reallocating staff resources, but more of an opportunity to have existing staff incorporate additional waste classification reviews as part of their on-site oversight inspections.

Audit, p. 36, last paragraph: The majority of employees' time is spent on postdisposal duties.
Response: Recommended Change: In meeting the required performance commitments with the NRC, the majority of employees' time is spent on post-disposal duties.

Audit, p. 37: Figure 3.2 Heading
Response: Recommended change. Also, the predisposal oversight conducted by DRC is not intended to independently verify waste classification.

By reviewing manifest information, DRC inspectors review waste classification designation as part of the required shipping description. We cannot verify the accuracy of the data presented in the figure because there is no reference to the source of the data. The figure should cite the source of the data.

Audit, p. 37, second paragraph: However, the DRC has expressed concerns that removing workers from postdisposal duties and transferring them to predisposal work could possibly put the DRC in noncompliance with NRC rules.
Response: Program performance commitments and obligations to NRC as an agreement state are not properly characterized as a matter of compliance or noncompliance with NRC rules. It is

more a matter of meeting the nationally established performance indicators and criteria based in implementing the radiation control programs. NRC utilizes these metrics in evaluating an agreement state. Results of these periodic program evaluations determine the level and frequency of subsequent NRC program evaluations. Perhaps the auditors misunderstood staff responses when discussing this.

We believe it is important to note that the NRC's and DRC's interest in protecting the public health and safety is not solely for disposal purposes. Both agencies are concerned for the public's health and safety in all aspects (full life cycle) of the manufacturing, transportation, use, reuse, and disposal of radioactive materials and wastes. To isolate disposal as the only need to be attentive to protecting the public (including occupational settings) is overly simplistic and diminishes the need for ensuring all areas of radioactive materials and wastes handling are protective. The NRC's adoption (as well as Utah's) of U.S. DOT regulations is evidence of the need to protect the public while materials and waste are in transit on public highways.

Audit, p. 38: Top paragraph
Response: As an Agreement State with the NRC, the DRC is obligated to meet NRC's national program performance indicators. The flexibility allowed by the NRC and referred to in the audit report is essentially outside of these specified parameters and indicators. The type of pre-disposal activities the auditors recommend that the DRC implement fall outside of NRC's evaluation criteria. Implementation to enhance or improve pre-disposal oversight must be in addition to, not supersede, meeting the agreement state commitments and obligations. Changes in DRC resource commitments that impact the ability to meet national program performance standards results in increased scrutiny by the NRC, not greater flexibility. This does not mean we would not implement the additional recommended oversight, it simply means that the DRC would need to do this in addition to its agreement state commitments.

Audit, p. 38: Last paragraph
Response: Recommended change. The problem is that no regulatory jurisdiction, such as the NRC, NWIC, DRC or Tennessee, could give us adequate assurance that EnergySolutions is indeed returning the waste to the country of origin using independently generated data.

We believe the revision more accurately reflects the auditors' concern with the absence of independent data to verify the exclusive management and exportation of foreign waste. The NRC is the licensing authority for the import and/or export of radioactive materials. Therefore, the NRC relies on the information provided by EnergySolutions as the licensee to document the fact that foreign waste is managed in exclusive treatment batches (not comingled with domestically generated low-level radioactive waste) to ensure all of the treated/processed foreign waste is properly exported to the country of origin. The NWIC similarly relies on the monthly reports from EnergySolutions in order to monitor compliance with the NWIC resolutions regarding out-of-compact waste and foreign waste.

Audit, p. 39: First paragraph, last sentence

Response: Recommended change. Therefore, if Utah, in coordination with the NWIC, wants to ensure that foreign waste is not coming to its borders, then the DRC should work with the NWIC to ~~must~~ develop a more robust methodology to enforce the ban on this waste.

In the absence of a state law regarding a ban on foreign waste, it is the NWIC, as affirmed by a U.S. Tenth Circuit Court of Appeals decision, that has the jurisdictional authority over foreign waste within the compact, including the Clive facility.

Audit, pp. 41-43: Permit Program Fees Should Be Used to Fund DRC Predisposal Oversight
Response: The Generator Site Access Permit (GSAP) revenues are managed under the Environmental Quality Restricted Account (EQRA). Additional revenue sources related to the radioactive waste, hazardous waste, and solid waste (non-hazardous industrial and municipal) programs are also managed through the EQRA.

The framework of the EQRA, from both the revenue and expenditure components, has been a long-time, coordinated effort among DEQ, industry, and the Legislature in order to find an optimal balance that sustains multiple, vital environmental functions and services without negatively impacting the economic viability of Utah's businesses and industries. The audit recommendation regarding the EQRA constitutes a significant change to this longstanding, broadly supported framework. Any changes to any component of the revenues and programs tied to the EQRA would undoubtedly have a ripple effect on all of the others, including the potential to impact revenue the EQRA provides into the General Fund.

APPENDIX B

Audit, p. 51: First paragraph
Response: See previous responses to report pages 12 and 13.

Audit, p. 54: It should be noted that the DRC allowed ... ...
Response: Under the NOV issued to EnergySolutions by the DRC, EnergySolutions was required to prepare and submit a report regarding the disposal of the waste. The DRC reviewed and evaluated EnergySolutions' justification—which resulted in the DRC's concurrence. Through a technical assistance request to the NRC, the DRC engaged the assistance of NRC to also review EnergySolutions' justification as well as the DRC's evaluation and rationale for its concurrence. The DRC received NRC's evaluation report in March 2012 (cover letter dated February 29, 2012). The NRC reaffirmed the DRC's findings.

Additional points regarding shipments exceeding Class A limits:

The wastes were very similar in character and concentration to Class A wastes. Most of the errors occurred for two reasons:

- The generator considered the total container volume rather than the net waste volume in calculating the concentrations of radionuclides. Although not an authorized method for changing classification, it is helpful in analyzing the scope of this problem to understand

that if the generator had filled the remainder of the container with less concentrated waste, the waste would have been Class A waste.

- The generator failed to appropriately apply the "Sum of the Fractions" rule. Although each radionuclide considered separately was present in concentrations that would make it a Class A waste, it was packaged with other radionuclides, triggering an obligation to perform additional calculations to determine classification. These calculations were not performed appropriately. Below in Figure 1, is an example of two separate shipping containers from the EWIS investigation that demonstrates the sum of fractions rule. In each of the examples, the fractional contribution of each isotope is calculated and summed. For each shipping container, the sum of the fractional contribution of each isotope slightly exceeds 1.0. Exceeding 1.0 means that each container exceeds the Class A limit. This also demonstrates the complexity associated with Class A determinations.

Figure 1: Examples of the Shipments Exceeding Class A Limits by Sum of Fractions Rule

Manifest Numb	Bates Number	EWIS Cor	Cont. ID	Container Volume[m^3]	Isotope	Activity (pCi/g)	Activity(nCi/g)	Activity[MBq]	Activity[Ci]	Activity[nCi]	Waste Volume[m^3]	Limit[Ci/m^3]	Limit[nCi/g]	Actual[Ci/m^3]	Sum of Fraction	
9328-06-0002	PM00804	0010	C08197511/NM089	0.2081	Am-241	3.66905E+03	3.66905E+00		0.00000E+00	0.00000E+00			1.00000E+01		0.37	
				(7.3507cu.ft.)	Co-60		0.00000E+00	1.94620E+01	5.26000E-04	5.26000E+05	1.89200E-01	7.00000E+02		2.78013E-03	0.00	
					Cs-137		0.00000E+00	1.94620E+01	5.26000E-04	5.26000E+05	1.89200E-01	1.00000E+00		2.78013E-03	0.00	
					Pu-238	3.66905E+03	3.66905E+00		0.00000E+00	0.00000E+00			1.00000E+01		0.37	
					Pu-239	3.66905E+03	3.66905E+00		0.00000E+00	0.00000E+00			1.00000E+01		0.37	
					U-235	3.66905E+00	3.66905E-03									
					U-238	3.66905E+03	3.66905E+00									
														Unity Sum:	1.10	Class C
9079-08-0001	PM00976	0025	RHZ-103-A16907	0.21	Am-241	1.92000E+03	1.92000E+00		0.00000E+00	0.00000E+00			1.00000E+01		0.19	
				(7.34 cu.ft.)	Np-237	7.69000E-03	7.69000E-06						1.00000E+01		0.00	
					Pu-238	2.75000E+02	2.75000E-01		0.00000E+00	0.00000E+00			1.00000E+01		0.03	
					Pu-239	6.86000E+03	6.86000E+00		0.00000E+00	0.00000E+00			1.00000E+01		0.69	
					Pu-240	1.61000E+03	1.61000E+00		0.00000E+00	0.00000E+00			1.00000E+01		0.16	
					Pu-241	3.37000E+04	3.37000E+01		0.00000E+00	0.00000E+00			3.50000E+02		0.10	
					Pu-242	1.08000E-01	1.08000E-04		0.00000E+00	0.00000E+00			1.00000E+01		0.00	
														Unity Sum:	1.16	Class C

GENERAL SUBJECT MATTERS

Comments we offer in this area are associated with general themes that are integrated into multiple sections of the audit report and serve to supplement and provide added context to the above responses to the recommendations and comments to specific report statements.

General Regulatory Program Framework

The Department of Environmental Quality's overall statutory charge is to:

> … safeguard public health and quality of life by protecting and improving environmental quality while considering the benefits to public health, the impacts on economic development, property, wildlife, tourism, business, agriculture, forests, and other interests, and the costs to the public and to industry; (19-1-102 (3), UCA)

As a division within DEQ, the DRC contributes to the DEQ mission by protecting the health and safety of Utah citizens and the environment from hazards associated with various sources of

radiation by regulating their use, management, and disposal. In accomplishing this mission, the DRC administers the following key programs:

- Radioactive materials possession, use, and transfer
- X-ray use
- Low-level radioactive waste management
- Uranium mill operations and associated mill tailings disposal
- Indoor radon protection

Of the above programs, Utah has entered into an agreement with the U.S. Nuclear Regulatory Commission (NRC) to have complete jurisdiction and therefore fully implement the radioactive materials, low-level radioactive waste, and uranium mills programs. In granting "Agreement State" status to Utah, the NRC transfers its jurisdictional authority. Consequently, Utah radiation control rules and procedures are based on federal regulations, guidance, and other similar program related documents. As part of the NRC-Utah agreement, the NRC conducts periodic, in-depth evaluations of the DRC in administering these programs. These comprehensive evaluations are guided by national performance criteria and indicators in order to create consistency among the states that have "Agreement State" status with the NRC as well as the four regional NRC offices that implement these programs in non-agreement states. The evaluation criteria and indicators serve as a means to document that a state not only has a well-trained and qualified staff but also can perform to meet program commitments and produce quality work products within established timeframes.

The most recent evaluation conducted of the DRC by a team consisting of NRC staff and staff from other agreement states was completed in July 2011. A final report was issued by the NRC in October 2011. The findings of this evaluation determined that the "Utah Agreement State Program [to be] adequate to protect public health and safety and compatible with the U.S. Nuclear Regulatory Commission's (NRC) program." Both are the highest rating given by the NRC in performing program reviews and they indicate the NRC did not find the DRC to have any significant deficiencies in implementing the reviewed programs, including the low-level radioactive waste management program and its oversight of the EnergySolutions Clive facility in Tooele County.

This is noteworthy in the context of this audit because the NRC's findings underscore the DRC's commitment to and focus on the protection of health and safety as a priority in its activities to administer the low-level radioactive waste management program and our regulatory oversight of EnergySolutions.

Nearly every environmental enforcement program in Utah and in the rest of the nation relies in large part on industry self-reporting: Utah Pollution Discharge Elimination System (UPDES) dischargers provide effluent information to the Division of Water Quality; major air pollution sources provide air emissions testing results to the Division of Air Quality; and Resource Conservation and Recovery Act (RCRA) disposal facilities provide data about materials disposed to the Division of Solid and Hazardous Waste. In the 20 years of DEQ's existence, and even in the years before that, we have had no indication that the Legislature is interested, for any of our

divisions, in making the fundamental changes that would be required for our enforcement programs to become independent of self-reporting.

The following are examples of points that capture some of the key concepts of this environmental regulatory framework:

- State and Federal environmental regulatory programs require and rely on the regulated entity to put in place systems and procedures to gather and monitor environmental discharges (or potential discharges) of pollutants.
- Regulated entity is required to keep documents and all records of compliance (as specified in rule) for a period of 3 to 5 years.
- Regulatory agencies do not independently create or manage compliance systems or monitoring records – rather they audit records kept by the entity at regular intervals.
- Compliance by the appropriate agency is done by reviewing and "auditing" the reports and documents provided and kept by the regulated entity – including those documents that show testing of materials and lab results of pollutants.

The low-level radioactive waste disposal program framework is not uniquely different than other environmental regulatory programs. Both federal and state environmental regulatory programs are based on the fundamental premise that the regulated community bears the burden of not only complying with the established requirements and standards but also providing and maintaining the necessary documentation to demonstrate such compliance. The appropriate regulatory agency then has the role of reviewing that information to determine if the applicable requirements and standards are indeed met. Findings and determinations identifying any deficiencies or omissions are then considered in deciding the level or degree of the appropriate enforcement action to be taken by the regulatory agency. The DRC response may vary from informal, with varying flexibility in the type of acceptable corrective actions, to formal, with very prescriptive or even mandatory actions deemed necessary in order to ensure compliance.

Another important component of the existing environmental regulatory framework in Utah is the fact that the Legislature enacted in the early 1990's, an identical provision for each of the environmental programs regarding the adoption of rules with respect to federal regulations. For the radiation control programs, the law states that the Radiation Control Board cannot adopt rules that implement federal law and that are more stringent than the corresponding federal regulations, unless a written finding is made by the Board that corresponding federal regulations are not adequate to protect public health and the environment. (See 19-3-104(8) & (9) UCA)

For comparative context, Texas requires Waste Control Specialists, LLC (WCS) to perform on-site audits of generators submitting waste to their facility in Andrews, Texas; instead of relying on state personnel to conduct these audits. Specifically, the approved Waste Acceptance Plan for WCS states, "The purpose of the generator site audit is to verify that the generator's waste classification/characterization, chelating agent characterization, process control and packaging/shipping programs are being implemented in accordance with the documentation that was provided to WCS in the generator's certification package." (Waste Acceptance Plan, Waste Control Specialists, LLC, March 16, 2007, Rev 12a, p. 5.2-1-20) Thus, Texas' approach

regarding regulatory oversight follows the regulatory framework and structure commonly found throughout national, state, and local environmental programs.

Protection Of Public Health And Safety

The need for protecting the public health and safety is equally important to the NRC and the DRC and is evidenced by the DRC's commitment to and focus on activities that ensure accomplishing this critical objective.

With respect to the low-level radioactive waste management system, the following are key or significant components to which DRC resources are dedicated in order to protect the public health and safety. The following components of that system are provided and depicted in their normal sequence with respect to a radioactive waste disposal facility:

Generation => Transportation => Acceptance => Disposal => Post Disposal (i.e., Site Closure & Post-Closure)

Based on NRC's regulations governing the management and disposal of low-level radioactive wastes, it is clear that NRC believes that the most effective and beneficial approach and method to protect the public health and safety rests primarily on the transportation (meeting U.S. Department of Transportation (DOT) requirements) and the disposal/post disposal components. As an Agreement State with the NRC for the low-level radioactive waste management program, Utah's regulatory program (statutes, rules, and policies), and implementation procedures and actions are, as previously noted, compatible to the NRC in order to meet the agreement obligations. The DRC will carefully review the diversion of program resources from current allocations that support meeting NRC Agreement State obligations and commitments to the waste acceptance/predisposal component to avoid adverse effect on program performance per NRC program standards.

State Prohibition Of Class B And Class C Low-Level Radioactive Waste

The legislative history associated with the passage of the prohibition on Class B and Class C low-level radioactive wastes underscores that this was a policy decision and not a matter of addressing an increased need for protecting public health and safety.

A previous radioactive material license approval, with the attending conditions, by the DRC to allow EnergySolutions to receive and dispose of Class B and Class C low-level radioactive wastes determined that the required operational procedures and engineered barriers would protect public health and safety. This decision was consistent with similar determinations made not only by the NRC in establishing the federal regulations for the near-surface land disposal of low-level radioactive waste, but also recently by Texas in approving the new low-level radioactive waste disposal facility in Andrews County, Texas to receive and dispose of Class A, B, and C wastes.

Generator Site Access Permit (GSAP) Program

In 2001 (H.B. 370), the Legislature enacted the Generator Site Access Permit program by putting in place the following items:

- Require a generator or broker to obtain a generator site access permit from the DRC in order to have access to a commercial radioactive waste treatment or disposal facility in the state;
- Grant rulemaking authority to the Radiation Control Board for rules governing a generator site access permit program; and
- Allow the DRC to establish fees for generator site access permits
  (See 19-3-106.4 UCA)

A more complete summary of the Generator Site Access Permit program is provided as a separate document.

Northwest Interstate Compact

The Northwest Interstate Compact (NWIC) consists of eight western states (Alaska, Hawaii, Idaho, Montana, Oregon, Utah, Washington, and Wyoming) and was created under the authority granted by following federal laws:

Low-level Waste Policy Act 1980
Low-level Waste Policy Act Amendments 1985 (supersedes the 1980 act)

In 1985 Congress ratified the Northwest Interstate Compact.

Overall, the above referenced federal laws were put into place as a result of issues raised by the states of Nevada, Washington, and South Carolina in their role as "sited states" or states hosting low-level radioactive waste disposal facilities. These states were seeking a more equitable approach to the disposal needs for low-level radioactive wastes. Then, as it is today, LLRW is generated from a broad spectrum of radioactive materials users (industrial, medical, institutional, etc.) throughout the United States. In recognition of the need for states to address the disposal needs for low-level radioactive wastes, both individually and collectively, Congress enacted these laws—allowing states certain flexibility while granting authority to states within a Congressionally-approved compact the ability to exercise exclusionary rights over the low-level radioactive wastes entering the compact for disposal.

Since January 1, 1993 and as allowed under the Policy Act, the Richland, Washington, disposal site (operated by US Ecology) ceased accepting out-of-compact LLRW, except for that volume agreed to in a contract entered into with the Rocky Mountain Compact (RMC). The RMC consists of Colorado, Nevada, and New Mexico.

In 2006, the NWIC passed a resolution (Third Amended Resolution and Order) addressing the issue of disposal access to the EnergySolutions Clive facility. This resolution acknowledges Utah

as the licensing and regulatory authority over the Clive facility and grants to out-of-compact generators disposal access to the Clive facility for LLRW (meeting license conditions), including mixed waste (combined hazardous waste and radioactive waste).

In 2008, the NWIC passed a clarifying resolution (Resolution Clarifying the Third Amended Resolution and Order) stating that LLRW generated in foreign countries, including foreign-generated waste that is characterized as domestically generated by another compact or unaffiliated state, is not granted disposal access to the EnergySolutions Clive facility.

A lawsuit was filed by EnergySolutions in federal court claiming the NWIC did not have authority to control disposal access at the Clive facility since it is not the official disposal facility for the compact. In November 2010, the U.S. Circuit Court of Appeals decided in favor of the NWIC, keeping the legal authority of the resolutions intact.

Following this ruling, EnergySolutions presented to the NWIC a document entitled, *Residual Low-Level Radioactive Waste from Incineration*, for its consideration and concurrence. The document specifically addresses the management of foreign waste received for incineration at the Bear Creek facility in Tennessee and identifies low-level radioactive waste that will be returned to the host country following incineration to ensure compliance with the compact resolution addressing foreign waste. The document also addresses the matter of attribution of residual waste. At its May 2011 meeting, the NWIC issued its concurrence with the document.

In meeting its obligations under the NWIC resolutions, EnergySolutions submits a monthly report to the compact containing certain information (generator name, state of generation, total waste volume, and average concentration) for all shipments of LLRW received at Clive. The Executive Director of the NWIC continues to express satisfaction with the content and timeliness of these reports.

Waste Attribution

The NWIC addressed this matter through its resolutions and is satisfied that waste attribution is adequately dealt with by the monthly reports submitted by EnergySolutions.

The DRC recently addressed the matter of waste attribution by issuing a letter dated March 22, 2012. This letter specifically focuses on the need to receive additional information for treated or processed LLRW destined for disposal in Utah. A link to the letter can be found on the DRC's main Web page. Subsequent to this letter, the DRC has further refined the required data in terms of content and format.

Independent Verification Sampling

Since the audit report does not really define what constitutes independent verification sampling, we have assumed that these are samples that are separate and distinct from those samples taken by

EnergySolutions. Given this assumption, independent verification sampling is completely valid only if, at least, the two following conditions exist:

- The waste is 100% or completely homogenous
- The verification sample collects an identical sample of the waste as the one taken by EnergySolutions (or, as applicable, the generator).

Analytical results alone will not determine if the package contents exceed the Class A limits. This is done by accounting for the activity of an individual isotope and the waste volume through the use of calculations (by computer or manually). For wastes containing multiple isotopes, the sum of fractions rule must be applied.

Disposal Of Waste Exceeding Class A Limits

If the DRC had been using an independent version of the EWIS software for waste classification verification, the same 37 containers that EnergySolutions identified would also have been identified by the DRC. This means that no additional containers would have been flagged by the software as exceeding Class A limits for the time period of interest. It is clear that if the DRC had the use of the software, it would have resulted in a more timely determination of waste classification (e.g., during predisposal), but would not have changed the outcome of the number of containers identified as exceeding Class A limits.

The DRC reviewed and evaluated EnergySolutions' technical justification—which resulted in the DRC's concurrence. Through a technical assistance request to the NRC, the DRC engaged the assistance of NRC to also review EnergySolutions' justification as well as the DRC's evaluation and rationale for its concurrence. The DRC received NRC's evaluation report in March 2012 (cover letter dated February 29, 2012). The NRC reaffirmed the DRC's findings.

We acknowledge the importance of conducting compliance monitoring and oversight with respect to the state law prohibiting the receipt and disposal of Class B and Class C low-level radioactive waste (LLRW) and agree that additional activities could be employed in the oversight of the waste acceptance process to enhance waste classification verification.

We again express our appreciation for the work of the auditors in preparing this report and providing recommendations. We look forward in moving ahead to address these recommendations.

Best regards,

Rusty Lundberg

Rusty Lundberg
Director

Separate Attachment: Generator Site Access Permit Program Summary

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UTAH DIVISION OF RADIATION CONTROL
GENERATOR SITE ACCESS PROGRAM

Background

The Generator Site Access Program was initiated in 2001 and established with the primary mission to protect the citizens of Utah and assure the lowest exposure of radiation by overseeing shipments of radioactive material arriving at EnergySolutions. The program was instituted in response to concerns with EnergySolutions (then Envirocare of Utah) performing their own "self-audits" regarding the proper packaging and shipping of low-level radioactive waste by out-of-state waste generators and the fact that the Division of Radiation Control had no enforcement regulations or oversight authority regarding out-of-state generators who ship waste to the facility. These concerns were voiced by both the general public and the Utah Division of Radiation Control (DRC).

In response to these concerns, Legislative approval for an oversight program was obtained and rules were written and adopted by the Radiation Control Board. Since its inception in 2001, the DRC's implementation of the GSA program has resulted in marked improvements in how low-level radioactive waste shipments are received at the Clive facility and how out-of-state generators prepare, transport, and otherwise manage waste shipments, including appropriate enforcement actions when violations are identified. Regulatory compliance inspections are performed at the low-level radioactive waste disposal site on an ongoing basis, assuring rail car and truck shipments adhere to state and federal transportation regulations.

Historically, DRC staff have conducted Department of Transportation (DOT) related inspections when waste receipt/disposal activities are in process. Specifically, the licensee operates Monday through Friday, and observes major holidays. Waste shipments that arrive on the weekend or holiday are not accepted until the following work day. DRC inspectors have gone out on Saturdays or "off hours" on a random basis throughout the year. This is usually performed by the health physics staff and not the transportation specialist. In addition, the DRC has sent health physics staff to conduct DOT related inspections; resulting in increased on-site inspections. For example, when State of Utah offices were on a 4-day, 10-hour schedule, DRC staff would change the GSA inspection days on a random basis during any given month (e.g., if the staff worked Monday through Thursday, they may change the Wednesday for a Friday). In calendar year 2008, DRC staff conducted 14 inspections on Friday's throughout the course of the year. This information was compiled from the GSA database maintained by the DRC to track on-site inspections and record the shipping information of the incoming shipments that are randomly selected and reviewed by the DRC inspectors.

Description

Under Utah Code Section 19-3-106.4, waste generators or brokers who transfer low-level radioactive wastes into the State of Utah, for the purposes of waste treatment or disposal, are required to obtain a generator site access (GSA) permit from the director of the Division of Radiation Control. The GSA Permits are issued and the Utah GSA Program is implemented under the regulatory requirements of R313-26 (Utah Administrative Code (UAC)), *Generator Site Access Permit Requirements for Accessing Utah Radioactive Waste Disposal Facilities*.

Compliance

Through the GSA Program, the DRC monitors and regulates the level of compliance demonstrated by GSA Permit holders. There are currently 138 active permits on file.

The DRC utilizes inspections and, when necessary, enforcement actions to ensure radioactive waste shipments are packaged and shipped in a manner that will protect members of the public, licensee personnel, property, and the environment.

Purpose

The GSA Program is intended to ensure waste importers comply with all applicable State or Federal laws, administrative rules and regulations, licenses, or license conditions of the land disposal facility regarding the packaging, transportation, delivery, storage, and disposal of low-level radioactive wastes. The GSA Program also supports the DRC's overall mission to protect the public and the environment from undue hazards and associated risks through the uniform application of enforcement actions.

Inspection

Verification of compliance by GSA permittees is accomplished by direct inspection by DRC staff at the Clive facility.

The foundation of these inspections is based, in part, on the following:

- Code of Federal Regulations:
  - 10 CFR (Energy/Nuclear Regulatory Commission)
  - 40 CFR (Protection of the Environment/RCRA/TSCA
  - 49 CFR (Transportation/Hazardous Materials)
- Radioactive Material Licenses (UT 2300249, UT 2300478)

Visual examination of waste shipments is routinely performed. These inspections include:

- Evaluating the adequacy and integrity of the waste package and containment,
- Assessing the condition of the shipment conveyance and its lading/payload,
- Confirming that the presence of a hazardous material is properly communicated (labeling, marking, placarding),
- Verifying radiological conditions associated with the shipments are within specified limits, and
- Reviewing the required shipping papers and waste manifests for completeness and accuracy.

Recording and tracking of information taken from shipping documents into a database maintained by the DRC.

- Inspectors routinely enter information taken from shipping documents into a database maintained by the DRC.

The DRC's incorporation and enforcement of U.S. DOT requirements allow the DRC to address any transportation issues/violations associated with waste shipments received at the Clive disposal facility. Such actions by the DRC serve to reduce the potential for radionuclide exposure by ensuring that future shipments are appropriately packaged. Continued noncompliance may result in suspension or revocation of the GSA permit.

From January 1, 2011 to July 25, 2012, the DRC has inspected 3,316 shipments received at the Clive facility. This is consistent with the 2,000 to 3,000 inspected shipments that are completed annually and is significant when accounting for the number of containers that may make up a given shipment.

In addition to routine GSA inspections, DRC HP staff also conduct one inspection module that is related to predisposal activities, as follows:

- Module 15 - Waste Characterization Plan: DRC staff verify that EnergySolutions appropriately follows the Waste Characterization Plan for characterizing, sampling, and accepting incoming

waste at the Clive facility. This inspection includes verifying EnergySolutions collects samples at the right frequency, and sends confirmation samples to an offsite lab to verify the results. Before a waste stream can be accepted at the Clive facility, the shipper must submit laboratory analysis to EnergySolutions showing what the waste is (e.g. waste profile, classification, waste type, etc…) for EnergySolutions' review and approval.

Enforcement

Under R313-14 UAC, *Violations and Escalated Enforcement*, the DRC takes the necessary actions regarding noncompliant shipments, including the issuance of Notices of Violation and imposition of civil penalties. If it is believed that the existing statutory civil penalties are insufficient to serve as an effective deterrent for noncompliance, then efforts to change these penalties have merit.

Additionally, a point system has been implemented to assign relative severity to noncompliant conditions. The *Generator Site Access Permit Enforcement Policy* outlines the point system and the potential consequences for exceeding action threshold levels for accumulated points. The policy is available online at http://www.radiationcontrol.utah.gov/GSA/index.htm. More serious violations or a continuous trend of noncompliant conduct could warrant suspension or revocation of a permit.

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Energy*Solutions*

Response

to

Report Number 2012-10
Performance Audit of the Division of Radiation Control

September 4, 2012

Response to OLAG Report 2012-10 (DRC)

Energy*Solutions* appreciates the opportunity to formally respond to Report Number 2012-10 Performance Audit (the Report) of the Division of Radiation Control (the DRC) by The Office of the Legislative Auditor General (OLAG). Energy*Solutions* operates safely and in full compliance with Utah's regulations. Specifically, Energy*Solutions* looks forward to confirming, again, that it does not allow Class B and C waste at its Clive facility, it does not take foreign waste, and its processes for reporting and correcting compliance are appropriate. Energy*Solutions* welcomes reasonable and efficient independent compliance verification by the DRC.

Background

Energy*Solutions* is a privately owned business. It provides important services to our country, it generates tax revenue for the State of Utah and Tooele County, and it employs many of Utah's citizens. Privately owned businesses are not ordinarily given an opportunity to attach responses to legislative audit reports (to the best of our knowledge, no other privately owned business has ever been targeted by an OLAG audit). Although Energy*Solutions* appreciates the opportunity to respond, this response respectfully raises serious concerns about the genesis, audit process, and production of the Report. Energy*Solutions* was not provided any information regarding the origin of the request for the audit or the allegations that may have been made in connection with the audit request. The Report was then produced relying on unnamed experts and on data OLAG had no authority to demand from a privately owned business. Energy*Solutions* cooperated with OLAG's requests because transparency is a core value of the company. Energy*Solutions* will work cooperatively with legislators and the DRC to address the concerns raised by the Report, but we strongly urge that legislators not condone this treatment of Utah's privately owned businesses, regardless of which state agencies regulate their activities.

Summary

Energy*Solutions* safely disposes of the lowest level (Class A) of low level radioactive waste (LLRW). Its processes and procedures reflect a commitment to the highest standards of safety in the industry. Energy*Solutions* competes in an industry comprised of at least 14 LLRW disposal sites in seven states. Energy*Solutions* has always welcomed, and still welcomes, independent verification of the testing and sampling regularly performed by its employees and scientists. While Energy*Solutions* intends to work cooperatively with legislators, this response addresses fundamentally flawed assumptions underlying the Report's recommendations.

Specific Responses

Energy*Solutions* already submits to numerous independent verifications, compliance audits and regulatory oversight.

Energy*Solutions* is already one of the most heavily regulated businesses in the state, submitting to hundreds of internal, customer, and government regulatory audits every year. These audits, some by federal agencies, are intensive and robust in order to assure the highest standards of compliance are met in our handling of waste. For example, the Department of Energy (DOE) conducts annual in-depth audits.

The Nuclear Procurement Issues Committee (NUPIC) conducts thorough independent audits on behalf of its customers. Likewise, CHWMEG, Inc. and other independent companies audit the Clive facility on a regular basis. These audits cover every aspect of Energy*Solutions*' practices, policies and procedures. They focus specifically on Energy*Solutions*' compliance with the Class A waste restriction in order to protect the interests of their clients. Energy*Solutions* also has a very robust quality assurance program under the Nuclear Quality Assurance "NQA-1" criteria that, in addition to regulatory oversight, emphasizes self-reporting and tracks corrective action plans to completion.

The Report analysis does not accurately represent verification of containerized waste compliance. Energy*Solutions* welcomes DRC participation in the verification process.

The Report mischaracterizes processes related to containerized waste. OLAG assumed the only way to independently verify that containerized waste is compliant with state law is to open the shipping cask and the waste container. In fact, opening the waste container is not necessary. Energy*Solutions* opens the shipping cask and takes a radiation measurement on the external surfaces of each shipping container and compares it to the information reported by the generator. This is a standard industry verification method that confirms the nature of the isotopes in the shipment while protecting employees from unnecessary exposure. Energy*Solutions* welcomes independent participation by DRC in this process.

A healthy self-notification program is the hallmark of effective regulation and is encouraged by the Nuclear Regulatory Commission (NRC)

With respect to the role of a self-reporting program in the overall compliance objective, the DRC follows industry standards. The Report suggests that self-reported issues are failures because the regulators did not notice problems first. This line of reason is invalid because (a) it assumes something would not have been identified by DRC inspectors simply because it was self-identified, (b) it is not supported by leading experts and (c) it improperly assumes that a facility is suspect merely because it is privately owned. A healthy self-notification program is the hallmark of effective regulation and is encouraged by the NRC. It is used by privately owned nuclear utilities throughout the country. Numerous studies conclude that healthy self-notification programs increase compliance and make corrective action programs more efficient. See, e.g., M. Toffel and J. Short, "Coming Clean and Cleaning Up; Does Voluntary Self-Reporting Indicate Effective Self-Policing?", 54 J.L. & Econ. 609 (Aug. 2011). In addition to the self-reporting program, the DRC conducts independent sampling when it is appropriate to do so. For example, the DRC sampled controversial waste shipments in 2010 and the results showed complete compliance.

The Report misuses the fact that Energy*Solutions* voluntarily self-reported past non-conforming shipments, paid civil penalties and undertook corrective actions.

In January of 2010, as a result of a self audit of waste classification software, Energy*Solutions* reported to DRC that 37 shipments out of over 100,000 shipments in previous years had been accepted which were greater than Class A. In almost all of these cases, the shipments had been incorrectly documented by the U.S. Government. Energy*Solutions* discovered the U.S. Government's errors and made all necessary corrections to remedy the situation including payment of significant fines. Corrective actions were demanded by the DRC regulators with additional DRC oversight to assure the underlying problem was corrected. The identification and self reporting of past nonconforming shipments demonstrates

Energy*Solutions*' commitment to compliance and safety regardless of the scope of DRC oversight. Increased oversight may be redundant, but Energy*Solutions* does not oppose it.

The Report suggests that the DRC set a policy precedent that banned or improperly disposed of waste would remain buried. This is incorrect. The decision not to remove certain material was the result of an exhaustive review by the DRC and concurrence by the NRC based on a number of standard criteria for such evaluations.

Clive does not take waste from foreign generators, and the Report finds no evidence that foreign waste is arriving at Clive. Independent verification is welcomed.

All waste shipped to Clive comes from U.S. generators as required by Energy*Solutions'* agreement with the Northwest Interstate Compact (NWIC). The Report raises the concern that Energy*Solutions* owns a facility in Bear Creek, Tennessee, which processes a limited amount of foreign waste. Foreign waste processed at Bear Creek is either shipped back to the country of origin or, in the case of the metal melting process, is released into the recycled metal market as a product. Incinerated waste is handled in separate batches and the incinerator is swept out after each batch so that each batch is completely separate as required by contracts. No foreign waste is shipped to the Bear Creek facility to be processed and shipped to Clive. The Report does not appear to consider the provisions of the agreement made with the NWIC, the Bear Creek procedures, or contract conditions mandated by waste generators. The OLAG report is concerned with independent verification, which Energy*Solutions* will be pleased to reasonably accommodate.

Energy*Solutions* welcomes reasonable additional independent verification and concurs with the OLAG's recommendation that DRC concentrate more on pre-disposal activities.

Notwithstanding all of the independent audits and independent verification systems already established, Energy*Solutions* welcomes reasonable independent verification of the many processes and procedures in place to ensure full compliance. Energy*Solutions* concurs with the OLAG's recommendation that DRC concentrate more on pre-disposal activities and that Generator Site Access Program (GSAP) funds be used for this oversight. No additional funds are necessary considering the significant increase in oversight funding granted in 2011.

Comments regarding limited access reveal a fundamental error underlying the Report.

Energy*Solutions* is a private business. OLAG had no authority to demand data, information or access from a private business. Energy*Solutions* cooperated voluntarily pursuant to its policy of transparency. Although the Report states that access was limited, all information and site access were offered, subject to reasonable business conditions. OLAG improperly suggests in many places that Energy*Solutions* was the source of restrictions. In fact, it was Utah law that established the boundaries of OLAG's authority, and OLAG's requests for access and documents from a privately owned business were far outside of those boundaries.

Although Energy*Solutions* cooperated voluntarily pursuant to its policy of transparency, Energy*Solutions* is concerned that such practices and policies will affect other regulated private businesses in Utah, such as

hospitals, banks, mines, and manufacturers. This Report should not become a precedent under which OLAG may demand documents and access from private businesses.

Miscellaneous Corrections and Clarifications

- Figure 1.2 - This is inaccurate because it appears to include curies from 11e.(2) waste and "mixed waste" without including the corresponding volumes.
- Page 3 – Energy*Solutions* does not take 97 percent of LLRW in the US. The government generates and disposes of over 90% of the waste in the LLRW market, only a portion of which is shipped to Clive. The LLRW market, including waste sources and disposal sites, is more competitive and diverse than the Report analysis assumes. As mentioned above, Energy*Solutions* competes in an industry comprised of at least 14 LLRW disposal sites in seven states.

Concluding Comments

Energy*Solutions* will, notwithstanding the many misunderstandings reflected in the Report, work with the DRC and legislators to develop appropriate improvements to independent verification procedures. Energy*Solutions* is fully committed to operate with the highest standards of safety and quality in the industry.