

Collaboration and Commitment to Sealed Source Safety, Security, and Disposition – 13627

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ABSTRACT

EnergySolutions, the Division of Radiation Control at the Utah Department of Environmental Quality (UDEQ), the Conference of Radiation Control Program Directors (CRCPD), and the Department of Energy's Global Threat Reduction Initiative (GTRI) are collaborating on a truly innovative effort to expand opportunities for cost-effective sealed source disposal. These entities have developed a first-of-its-kind initiative to dispose of certain sealed sources at the EnergySolutions disposal facility near Clive, Utah, which normally cannot accept sealed sources of any type. This creative and collaborative effort to improve radiation health, safety, and security exemplifies the spirit and commitment represented by the Richard S. Hodes, M.D. Honor Lecture Award, which is presented annually at the Waste Management Symposia by the Southeast Compact Commission to encourage environmental professionals and political leaders to develop innovative approaches to waste management in the United States. The participants in the collaborative initiative are honored to receive special recognition for their efforts thus far. They also recognize that the hard work remains to be done.

INTRODUCTION

The Source Collection and Threat Reduction Program (SCATR), administered by CRCPD and funded by the Department of Energy's Global Threat Reduction Initiative (GTRI), has provided sealed source licensees with technical and financial support for the disposal of thousands of disused sealed sources since its inception in 2007. The objective of the program is to provide a cost effective process for identifying and reducing the threat of diversion of radioactive material for misuse. Prior to July 2008, the Low-Level Radioactive Waste (LLRW) disposal facility in Barnwell, South Carolina afforded sealed source waste generators without a LLRW Compact facility and SCATR a disposal pathway for such sources. Following Barnwell's July 2008 closure to out-of-compact generators, most states and generators have not been able to dispose of their disused and unwanted sealed sources. Efforts to develop alternative pathways have been predictably and understandably challenging.

LLRW disposal in the U.S. is governed by a highly complex and unique combination of National, regional, and State policies, processes, and politics. The Low-Level Radioactive Waste

Policy Amendments Act of 1985 (LLRWPA) placed upon States and regional Compacts the obligation to provide for the disposal of Class A, B, and C waste generated within their borders. However, the LLRWPA also allowed that Compact and non-Compact LLRW disposal facilities could opt to accept waste from states without a Compact facility. Prior to July 2008, the Barnwell facility accepted waste from all states. The *EnergySolutions* facility near Clive, Utah, is unaffiliated with a Compact and accepts Class A LLRW from authorized generators in all 50 states. However, the *EnergySolutions* license to operate the Clive facility has not permitted it to accept sealed sources of any class or type for disposal.

Into Action – Collaboration and Coordination to Enable Sealed Source Disposal at Clive

Both industry and government recognized that unprecedented collaboration and coordination would be necessary to develop new sealed source disposal options. No single entity, agency, or industry group could on its own solve the problem. Following a September 2008 workshop on sealed source security facilitated by the Department of Homeland Security (DHS) and GTRI, DHS created the Removal and Disposition of Disused Sources Focus Group (“RDDS Focus Group”), which included sealed source manufacturers, distributors, users, storage and disposal companies, regulators, other Federal and State officials, and LLRW compact members. The RDDS Focus Group, which developed two reports signed by over 40 stakeholders in December 2009 and June 2010, not only clarified and articulated the various sealed source disposal challenges and associated national security concern, but also recommended solutions and a path forward to address them.¹

One solution from the RDDS Focus group reports that emerged as particularly relevant for SCATR and the disposal of Class A sealed sources is the possibility of a license amendment to allow sealed source disposal at the Clive, Utah disposal facility. Sealed sources have been prohibited for disposal at the facility because of site-specific factors which in the interim had changed.² However, a change in these factors by themselves did not automatically lead to a change in the license. A license variance or amendment would be required. GTRI engaged both *EnergySolutions* and DRC to explore and encourage efforts to pursue the change. It was clear that such an initiative, which would expand the allowable waste stream to the facility, would require agreement and action by a range of stakeholders with varied equities and interests, including *EnergySolutions*, GTRI, DRC, and CRCPD.

Taking on the challenge, the four organizations collaborated on an action plan to turn the idea into reality. Buffeted by consistent GTRI encouragement and support, *EnergySolutions* worked closely with its regulator, the DRC, and CRCPD to determine which sealed sources might be acceptable for disposal and how to structure a license variance to meet the needs of all parties,

¹ The two RDDS Focus Group reports are available at <http://osrp.lanl.gov/docs.shtml>.

² License Condition 164 to RML UT 2300249 prohibits disposal of sealed sources at the Clive facility.

including sealed source generators and the general public. The official process for an EnergySolutions license variance began with an EnergySolutions request for the change, centered on GTRI’s threat reduction initiatives and limited to those sealed sources registered as disused with the Offsite Source Recovery Project (OSRP) administered by GTRI and Los Alamos National Laboratory (LANL). EnergySolutions presented its request to DRC staff in August 2011.³ Shortly thereafter, DRC released a draft license variance followed by a thirty day public comment period. After reviewing and incorporating the public comments it received –there were none in opposition to the change— DRC issued in April 2012 the final license variance.

For many sealed source generators, who combined possess hundreds of thousands of disused sealed sources, this effort represented the first disposal breakthrough since the Barnwell import restrictions went into effect. The coordinated action it took to achieve the success is particularly noteworthy and laudable given the relatively small volume and financial importance of sealed sources relative to non-sealed source waste. The organizations involved in the effort – EnergySolutions, DRC, GTRI, and CRCPD—have been and still are motivated solely by a commitment to security, health, and safety.

SCATR/Clive – The Path Ahead

The April 2012 variance includes a range of sealed sources that meet the definition for Class A waste and will last for a period of one year from the date the first sealed source waste is received at the EnergySolutions Clive, UT facility. Only sealed sources recovered in coordination with the SCATR program are authorized for disposal under the variance. Among the radionuclides acceptable for disposal are several which are particularly important from a national security, health, and safety standpoint. Cobalt-60 and cesium-137, two of the most commonly used gamma-emitting radionuclides, are eligible for disposal at Clive, within the specified limits. Table 1 includes some common radionuclides eligible for disposal under the initiative, along with the activity limits required by the variance.

Table I: Commonly Used Radionuclides and Class A Limits

Isotope	Class A Limit	Isotope	Class A Limit	Isotope	Class A Limit
Co-60	25.9 MBq/cm ³	I-125	25.9 MBq/cm ³	Ir-192	25.9 MBq/cm ³
Cs-137	37 kBq/cm ³	Cd-109	25.9 MBq/cm ³	Zn-65	25.9 MBq/cm ³
Gd-153	25.9 MBq/cm ³	Ba-133	Unlimited	Tl-204	25.9 MBq/cm ³
Fe-55	25.9 MBq/cm ³	Ge-68	25.9 MBq/cm ³	Na-22	25.9 MBq/cm ³
Co-57	25.9 MBq/cm ³	Eu-152	Unlimited	Mn-54	25.9 MBq/cm ³
Po-210	25.9 MBq/cm ³	Pm-147	25.9 MBq/cm ³	Au-195	25.9 MBq/cm ³

³ On August 2, 2011, EnergySolutions submitted to the DRC variance request CDII-0216 to RML UT 2300249. In a meeting on August 18, 2011, EnergySolutions presented their request to DRC staff.

In order to encourage generators to take advantage of this opportunity, CRCPD is offering to share the cost of Class A sealed source disposal at Clive. While the ultimate support offered will depend on a variety of factors –including the cost of collection, processing, transportation, and disposal, as well as the generators’ ability to pay—SCATR is targeting a 50 percent cost-share in order to take advantage of this opportunity.

However, one of the most important elements of this effort is the model it provides to other sites and states which may be able to undertake similar efforts in support of national security, health, and safety. It is never an easy decision for regulators or the citizens they serve to increase the type or amount of radioactive material disposed in their states. This effort provides other states and regulators with a precedent and a path forward for crafting similar initiatives in the future.

CONCLUSION

While the efforts by EnergySolutions, DRC, GTRI, and CRCPD are a necessary and unprecedented first step, the importance of the effort can only be judged by the number of sources ultimately disposed under the variance. CRCPD experience and the surprisingly low rates of sealed source disposal thus far at the newly opened Waste Control Specialists (WCS) LLRW facility in Andrews County, Texas suggest that the process for generators to allocate disposal funding and initiate disposal can be challenging. This may be all the more challenging because Class B and C sealed sources will be also be collected for disposal at WCS from generators participating in the Clive initiative. CRCPD will address these challenges by working with a small subset of states –Illinois, Indiana, New York, and Ohio—to ‘pilot’ the Clive disposal effort and Class B and C source collections to determine the best process for engaging other states in the weeks and months thereafter. The current schedule for activity is as follows.

1. **Ongoing - Registration.** Generators must register their Class A, B, and C disused sources with the Off-Site Source Recovery Project (OSRP) at <http://osrp.lanl.gov/PickUpSources.aspx>. Sources must be registered with OSRP to qualify for disposal under this opportunity. Sources not qualifying for this opportunity may also be registered for consideration under future opportunities.
2. **Ongoing – Update.** If generator sources are already registered, generators are asked to update the registration information. Each source must be uniquely identified by a serial number or other unique identifier.
3. **March 15, 2013** is the deadline for all sources to be registered with OSRP to qualify for this opportunity.
4. **March 15, 2013 to April 15, 2013.** A certified waste disposal broker will contact potentially qualifying licensees to confirm sealed source information and provide a cost

estimate for packaging, collection, processing, and disposal, and arrange a date and time for collection of the sources.

5. **May 15, 2013.** Source collections will begin. Upon the broker's arrival for packaging and collection of the material, facilities must have available any available documentation pertaining to the activity, isotope, and date of manufacture or original assay of all sources to be collected, and also ensure that Class B and C sources are separated from the Class A sources for collection.
6. **June 1, 2013.** On or about June 1, 2013, the one year variance window for disposal at Clive will open.

Generators or others with additional questions regarding this opportunity may call or email Russ Meyer at CRCPD at 512-761-3822 or rmeyer@crepd.org.