Licensees' Perspectives on Storage and Disposal of CsCl Sources

NRC CsCl Workshop

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CsCl Disposal Options

- For new sources, ensure vendor agreement stipulates allowing return of source(s)
  - Potential issue – vendor goes out of business
- Use of a licensed disposal site
  - Not an option for out-of-compact Class B, C
  - Not an option for licensees having Greater Than Class C (GTCC) waste
- Storage on-site
  - Safety and security concerns

CsCl Disposal

- Depends on
  - Activity
  - Volume
- Use decay corrected activity
- What is considered the volume for disposal?
  - Source capsule?
  - Source capsule + radiation shield?
  - Entire device?
- Class A, B and C waste classifications for land disposal listed in 10 CFR 61.55

10 CFR 61.55

Table 2

Radionuclide	Concentration, curies per cubic meter		
	Col. 1	Col. 2	Col. 3
Total of all nuclides with less than 5 year half-life	700	([1])	([1])
H–3	40	([1])	([1])
Co–60	700	([1])	([1])
Ni–63	3.5	70	700
Ni–63 in activated metal	35	700	7000
Sr–90	0.04	150	7000
Cs–137	1	44	4600

[1]There are no limits established for these radionuclides in Class B or C wastes. Practical considerations such as the effects of external radiation and internal heat generation on transportation, handling, and disposal will limit the concentrations for these wastes. These wastes shall be Class B unless the concentrations of other nuclides in Table 2 determine the waste to be Class C independent of these nuclides.

CsCl Disposal Issues

- Many medical irradiators would be considered GTCC
- For MCF blood bank irradiator, activity would need to be < 570 Ci to be considered Class C waste.

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Radioactive Waste Landscape

- No disposal options for commercial CsCl source disposal since closure of Barnwell, SC in July 2008 to out of compact waste
- DOE preparing EIS for disposal of GTCC
- Waste Control Specialists, LLC (WCS) – operates radioactive disposal site in Andrews County – West Texas – for Texas Compact (Texas and Vermont)
- Lack of political will for LLW compact development or federal answer

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"..lack of a GTCC and non-GTCC waste disposal option for unwanted sealed radiological sources that pose security and public health concerns will continue to increase the number of orphan sources."

HEALTH PHYSICS SOCIETY

Specialists in Radiation Safety

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DOE should amend EIS to include Class B &C waste

Subject: Comments on Notice of Intent To Prepare an Environmental Impact Statement for the Disposal of Greater-Than-Class-C (GTCC) Low-Level Radioactive Waste

The Health Physics Society[1] (HPS) is pleased to provide public comment on the scope of the subject Environmental Impact Statement (EIS) as published in the Notice of Intent in Federal Register / Vol. 72, No. 140/Monday, July 23, 2007 page 40135 as corrected.

Class B & C waste not covered in Energy Policy Act of 2005 mandate for DOE

The HPS has two comments. Comment 1: The HPS supports the scope of the subject EIS as described in the Notice of Intent for GTCC and Department of Energy "GTCC-like" waste with the caveat that there be clear stakeholder involvement in the decision-making process that would allow disposal of waste streams not originally destined for the Waste Isolation Pilot Project (WIPP). Comment 2: The HPS requests that the DOE take the

Would require legislative approval

Waste Control Specialists

Disposal Operations At WCS

WCS Timeline

- 2009 - Licensed to receive low level radioactive waste
- 2009 – Disposed of 750,000 ft^3 of radioactive material generated at Fernald, Ohio during the Cold War
- 2/2011 - Begin accepting Class A, B and C waste from Texas Compact
- 6/2011 - Begin accepting Class A, B and C waste from DOE
- ???? – Licensed to accept Class A, B, and C waste from outside of compact

PS021-0

CONTINUED FEDERAL AND STATE ACTION IS NEEDED FOR BETTER CONTROL OF RADIOACTIVE SOURCES

POSITION STATEMENT OF THE HEALTH PHYSICS SOCIETY*

HEALTH PHYSICS SOCIETY

Adopted: January 2002

Contact: Richard J. Burk, Jr.
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Recommended Congress take action to ensure accessibility and safe options for disposal of radioactive sources especially Cat 1 ,2, and 3

Recommended federal and state agencies work with professional organizations to develop and implement programs to better inform licensees' on source disposal

The Health Physics Society (HPS) believes that security of vulnerable[1] and orphan[2] sources, both domestic and international, is a radiation safety issue of high priority needing additional state and national attention. Many disused[3] sources are also vulnerable and to that extent are included in this statement.

The HPS Position Statement *State and Federal Action Is Needed for Better Control of Orphan Sources* (HPS 2002) conveyed the Society's view that the orphan-source problem was a radiation safety issue of high priority. Although publication of the position statement followed the events of September 11, 2001, the document was primarily drafted prior to that date so it did not focus on the potential for malevolent use of radioactive sources. With concerns about the increased malevolent use[4] of radioactive sources emerging as a possible threat, the enhancement of orphan-source controls as advocated in the April 2002 position statement has become a subset of the security controls needed for all vulnerable sources.

The purpose of this position statement is to update and expand the scope of the April 2002 position statement to include, among other things, security of all vulnerable and orphan sources

Short and Long Term Solutions

- Through 2062, estimated total activity of GTCC and GTCC-like waste will be 7X greater than Class A, B and C waste [1]
- Long term
  - DOE site - GTCC
  - WCS site – Class B & C
- Short term
  - On site storage

[1] Greater-Than-Class C Low Level Radioactive Waste, Volume and Activity of Wastes Addressed in the EIS, An online public information and involvement resource, http://www.gtcceis.anl.gov/guide/gtccquant/index.cfm. Accessed 11/5/10.

Trivia Question

How much does it cost to *move* a CsCl blood bank irradiator 10 miles in a Type B container?

a) a month's mortgage payment
b) all new kitchen appliances
c) a new Lexus
d) a house in Jacksonville (median priced)

Answer: (c) a new Lexus; over $30,000

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