Academic Institutions are Affected by LLRW Issues

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Academic Generator Radioactive Waste Disposal Issues

1. Lack of disposal capacity and disposal options

2. Excessive disposal cost

3. Storage and security challenges

Lack of Disposal Capacity and Disposal Options

- 36 States have no disposal access for Class B and C waste despite plentiful capacity remaining in existing facilities.
- Compact restrictions and exclusionary authority of waste preclude academic institutions from utilizing technologies and processes that could result in tremendous cost savings to the universities and tax payers.
- The Academic Community needs additional disposal options to increase efficiency and cost effectiveness.

Excessive Disposal Cost

- Northwest and Rocky Mountain Compact researchers have a noncompetitive disadvantage due to 50% higher disposal costs.
- Lack of free market competition creates high disposal costs.
- The cost of radioactive waste disposal has outpaced the cost of inflation over the past 20 years.
- Fees and surcharges are unreasonably high for waste disposal and site management.

Storage and Security Challenges

- Storage space may be unavailable or costly to maintain.
- Storage of radioactive waste may cause unnecessary radiation exposure.
- Storage may require increased possession limits and costly enhanced security requirements.
- Radioactive waste in storage may pose a security threat.

Research Activities are Impacted by Waste Disposal Issues

- Major radioisotope suppliers have stopped manufacturing many radioisotope compounds due to waste disposal issues.
- CORAR (Council on Radionuclides and Radiopharmaceuticals) provided a list of discontinued compounds.

Research Activities are Impacted by Waste Disposal Issues

- Biomedical research protocols utilize many of the discontinued ^{14}C and ^{3}H compounds such as Cholesterol Linoleate, Histidine, L-amino acid mixture and many other compounds.

- A researcher in Kansas is “unable to perform molecular biology research without these radioisotope compounds.”

Research Activities are Impacted by Waste Disposal Issues

- Environmental fossil fuel pollutant studies are negatively affected by inability to obtain compounds such as ^{3}H-Benzo(a)pyrene, and ^{14}C-pyrene.

- A researcher in Oregon “cannot perform accurate risk assessments of the potential health hazards associated with these pollutants without these compounds.”

- Although the compound is unavailable from a major manufacturer, it could be synthesized by a smaller manufacturer, but it costs about $10,000 and the researcher’s grant cannot support this study.

Research activities impacted by disposal issues

- Nutrition studies rely heavily on ^{14}C labeled fatty acids such as stearic acid, oleic acid, arachidonyl CoA, myristic acid, eicosatrienoic acid, eicosapentaenoic acid, docosahexaenoic acid.

- A researcher in Oregon says “discontinuing the availability of the ^{14}C labeled fatty acids would compromise his ability to document changes in the metabolism of these fatty acids in mouse/human models of metabolic disease.”

Medical Activities Affected by Waste Disposal Issues

- Two ophthalmologists in CA retired several years ago and wish to terminate their radioactive material licenses.

- However, they have no disposal outlet for at least three ^{90}Sr eye applicator devices.

- Storage of these sources present safety and security challenges.

Medical Activities Affected by Waste Disposal Issues

- Radiation oncology clinics have difficulty disposing unused ^{137}Cs brachytherapy sources.

- Like eye applicators, storage of these sources also present safety and security challenges.

Medical Activities Affected by Waste Disposal Issues

- A radiopharmaceutical manufacturer in Tennessee wanted to purchase a ^{252}Cf source to perform tests on a new shielding design for a cyclotron facility.

- The company decided not to proceed with the new shield design because they didn't want to incur liabilities associated with purchasing a source with no disposal option.

Solutions to Academic and Medical Facility LLRW Waste Disposal Issues

- Amend the Act to adapt to the changing framework of LLRW (Low-level Radioactive Waste) disposal.
  - The Act and Compacts often preclude generators from utilizing waste processing services such as volume reduction by incineration with no disposal volume attributed to the generator.

- Repeal the Act to create competition and to increase efficiency and cost effectiveness.

Solutions to Academic and Medical Facility LLRW Waste Disposal Issues

- Authorize DOE facilities to accept Class B & C waste from generators without access to a commercial disposal facility.

- Modify DOE's (Department of Energy) disposal criteria for GTCC (Greater-Than-Class-C) to include class B and C waste.

Conclusion

- The academic and medical community is suffering due to:
  1. Lack of disposal capacity and options
  2. Excessive disposal costs
  3. Storage and security concerns

- The academic community requests cooperation from all the players and stakeholders to utilize existing processes and facilities and develop more LLRW disposal options.