Summary of All Comments Related to Impacts of Lack of Low-level Radioactive Waste (LLRW) Disposal Access on Academic and Medical Research using Radioactive Sources

1. **Written comments submitted through ADM**

- American Society of Radiation Oncology, 10/16/08 (sic)
  (ADAMS Accession No. ML093030244)
  - Radioactive sources and material are vital for disease diagnosis
  - Use of such material creates LLRW
  - High cost of disposal can negatively affect research
  - Institutions are safely and securely storing LLRW
  - Research grant money has decreased due to LLRW issues
  - LLRW storage is unavailable or costly
  - LLRW storage can lead to unnecessary radiation exposure
  - Source Collection and Threat Reduction (SCATR) program good but lacks funds
  - Need uniform integrated LLRW policy

- American Society of Physicists in Medicine (AAPM), 10/20/09
  (ADAMS Accession No. ML093030245)
  - Institutions are safely and securely storing LLRW
  - Medical institutions continue to provide quality health care despite LLRW disposal challenges
  - Research using radioactive material has dropped significantly
  - CORAR has ceased production of over 300 catalogue products used in research
  - Grant money available for actual research has decreased because of LLRW issues
  - Encourage licensees in non-Agreement States to register sources
  - Urge uniform LLRW policy re. cost and access
  - LLRW uncertainties make grant estimates difficult
  - Need centralized LLRW storage location

- Northwest Interstate Compact, 11/2/2009 (ADAMS Accession No. ML093200515)
  - Compact ensures access to regional generators
  - Exclusionary authority ensures continued operation
  - Disposal fees are reasonable/rate regulated
  - LLRW can be sent out of region for processing

2. **Written Comments submitted to Project Manager or Environmental Protection and Performance Assessment Directorate Director**

- Conference of Radiation Control Program Directors (CRCPD) (ADAMS Accession No. ML092880055)
  - Institutions are safely and securely storing LLRW
  - Lack of disposal access can lead to abandoned material
  - Most research is continuing
  - Licensees discourage some research resulting in LLRW with no disposal
  - Good medical care continues
  - States continue to monitor stored waste

- Harvard University (ADAMS Accession No. ML092920043)
  - Authorizes research with viable disposal option
  - Some projects deferred because of lack of disposal option
  - Harvard has rigorous DIS and LLRW storage program

- University of Virginia (ADAMS Accession No. ML093430238)
  - Have not seen alternative technologies adopted due to availability of LLW disposal
  - Waste disposal costs were not an incentive to discontinue using radioactive labels
  - The disposal cost has not affected their research community at this time

- Todd D. Lovinger, Esq. (email, 10/13/2009) (ADAMS Accession No. ML093430237)
  - Disposal facilities are expensive to operate; providing cheaper alternatives for certain waste streams will likely require higher costs for other waste streams, in order to make the facility economically viable.
  - Suggests that neither Low-Level Radioactive Waste Policy Act nor the actions of states and compacts act as a hindrance to the use of treatment and processing facilities

- Kate Roughan, QSA Global (email, 10/16/2009) (ADAMS Accession No. ML093430236)
  - Due to very high disposal costs of Co-60 in radiography and uncertainty about future disposal, Co-60 users are using Betatrons or linear accelerators
  - Disposal cost can exceed the cost of a new source
  - Current disposal options have made licensees begin long term storage
  - Long term storage is a problem because of space, worker dose, safety, and security
  - Because there are challenges in storage, companies have been inventive in re-use and recycling of sources

- Andrew Bieniawski, Office of Global Threat Reduction
  (ADAMS Accession No. ML093430239)
  - States prioritize the recoveries of disused and unwanted sealed sources according to prioritization scheme based on national security considerations
  - The intent of GTRI's source recovery projects is threat reduction and not cost reduction for licensees who have commercial disposal pathways available to them.

- National Institutes of Health (NIH) (email string re. private grant policy, 11/06/2009)
  (ADAMS Accession No. ML093430235)
  - Allow reimbursement without specific restriction
  - No ceiling on overhead, including waste disposal
  - Grant reviewer may be less inclined to fund proposals with "really outrageous" overhead costs.

3. **Hardcopy comments submitted through Workshops/Feedback forms**

- NIH- need better support for special needs attendees
- Council on Radionuclides and Radiopharmaceuticals (CORAR)- excellent meeting; good collaboration
- AAPM- hard to follow if not there in person; put feedback form on line

4. **Transcript Comments** (ADAMS Accession No. ML092880048)

- Lynne Fairobent, AAPM
  - Institutions are safely and securely storing LLRW
    Re: SCATR: Barnwell closure mandates State storage (e.g. FL)
  - NRC should encourage non AS participation and establish collection points
  - See also comments from AAPM letter dated 10/17/2009

- Diane D'Arrigo, Nuclear Information and Resource Service
  - Distinct difference between research waste and reactor waste
  - Doesn't want disposal of research waste to open door for NPP waste

- John Ernst, University of Missouri Research Reactor
  - Provide isotopes for research, diagnosis, and treatment
  - Isotopes for industrial uses
  - Operations and experimental use of RAM- Class B and C LLRW
  - Challenges re: LLRW Storage-cost, security, use of space, packaging
  - Massachusetts Institute of Technology, National Institute of Standards and Technology have similar LLRW challenges

- Leonard Smith, CORAR
  - Deletion of catalogue products because of LLRW and mixed waste challenges
  - Catalogue products more economical than custom, produce less LLRW
  - Interim storage of LLRW
  - Noted storage cost, need for surveillance, need for monitoring
  - Concerns re: stabilizing for storage vs. disposal waste acceptance criteria
  - Customers administrative bans on using long-lived radiochemicals
  - Noted challenges in getting specific information from research community
  - Provided list of discontinued catalogue products (see attached)
  - Provided examples of how used in research
  - Some mixed waste stored to avoid high cost of processing for disposal as LLRW

- William Dornsife, Waste Control Specialists
  - Noted National Council on Radiation Protection Report No. 143 - Management Techniques for Laboratory and other Small Institutional Generators to minimize Off-Site Disposal of LLRW
  - Concerned about transfer of regulatory authority per new definition of byproduct material

- Dr. Robert Gould, Physicians for Social Responsibility
  - Noted low volumes and activities of medical LLRW
  - Noted concerns with nuclear power and resultant waste
  - Suggested isolating medical and academic waste from NPP waste

- Michael Zittle, Oregon State University and Campus Radiation Safety Officers
  - Need additional disposal options for efficiency and cost effectiveness
  - Noted concerns with compact restrictions
  - Cited specific challenges to research because of discontinued compounds
  - Difficulty disposing unused brachytherapy sources
  - Noted concerns with Off-Site Source Recovery Program
  - Cited cost and liability concerns with SCATR program
  - Cited high cost of disposal at Compact site
  - Cited out of compact movement challenges re: processing and disposal

- Debbie Gilley, Florida Bureau of Radiation Control and CRCPD
  - Research and medical institutions safely storing LLRW
  - LLRW disposal pathway challenges may affect research
  - Despite challenges, no health care is denied
  - Need to find solution for disposal or secure, safe long-term storage
  - Noted recent diversion of some SCATR funds to deal with bankrupt facilities
  - See also CRCPD letter

- Shawn Seeley, Organization of Agreement States
  - Researchers may waive grant money because of LLRW disposal
  - On-site LLRW storage could become an issue10-15 years from now

- Ralph Andersen, Nuclear Energy Institute
    - DOE MIMS system tracks LLRW disposed of, stored material not tracked
    - Refuted distinction between NPP and research waste
    - Suggested additional outreach to industrial users
    - States may have additional information re: disused source management problem