INFORMATION THAT NRC STAFF MAY REQUIRE TO AUTHORIZE
EXTENDED INTERIM STORAGE OF LOW-LEVEL RADIOACTIVE WASTE

The following identifies the information that the U.S. Nuclear Regulatory Commission (NRC) considers pertinent to any request from a materials or fuel cycle licensee to authorize extended interim storage of low-level radioactive waste (LLRW). Licensees whose LLRW storage circumstances do not dictate the need for license amendment may also find the information useful for a self-audit of the adequacy of their extended interim LLRW storage in conjunction with other licensed operations.

1. Identification of Waste To Be Stored

   a. Any possession limit increases needed for extended interim storage of LLRW. Increases in possession limits to accommodate interim storage of LLRW may result in the imposition of additional requirements, such as the requirements described in the increased controls and fingerprinting orders issued to licensees authorized to possess certain quantities of radionuclides of concern (see, e.g., 70 Federal Register 72128 (December 1, 2005); 72 Federal Register 70901 December 13, 2007)). Licensees should note that, although low specific activity radioactive material inventories pose a low risk, the increased controls requirements were imposed on certain types of licensees, by either license condition or order based on authorized possession limits. Specific activity thresholds were not established for categorical exclusion. However, licensees were permitted to request relief from the increased controls if compliance with any of the requirements was unnecessary in specific circumstances.

   b. The estimated maximum amount of LLRW to be stored, both in terms of volume and activity, by radionuclide. Estimates should be based on licensee operations which generate LLW, any anticipated changes to these practices and best available assessment of external factors which will affect future disposal availability.

   c. Characterization of the LLRW to be stored:

      1) volume and activity of waste by class (A, B, C, or greater than Class C per 10 CFR 61.55);

      2) physical form of the waste (solid, liquid, or gas);

      3) any processing of the waste either in-house or by an external vendor (volume reduction, solidification, or other treatment);

      4) additional non-radiological properties of LLRW, if any (e.g., toxic, biologic/pathogenic, corrosive, flammable).

   d. The amount and type of LLRW currently being stored or processed and current disposition pathways (e.g., disposal by broker/processor, decay-in-storage).

e. Any additional permits or approvals necessary for storage. These may include, for instance, U.S. Environmental Protection Agency hazardous waste permits, state approvals, and local approvals. The licensee may wish to assess the potential impact of such approvals on the future disposition of particular waste streams.

2. Plans for Final Disposition

a. The volume, activity, and specific waste streams that must be stored because disposal capacity/disposition options do not currently exist for the waste streams.

b. Disposition timeline and pathway for all waste streams likely to be stored for more than 1 calendar year for any discretionary reason (e.g., operational or business considerations). For waste streams that are likely to be stored for more than 1 calendar year for nondiscretionary reasons (e.g., lack of disposal capacity) dependent on third-party actions, the licensee may wish to provide estimates by or on behalf of the third party of the potential timeline and pathway of disposition. If no such estimate exists, the licensee may provide an acknowledgement of the circumstance.

3. Physical Description of Storage Area or Storage Structure

a. The location and description or diagram of the LLRW storage area (or storage structure). This may demonstrate where packages will be stored and how packages will be accessible for inspection purposes. The licensee may wish to include the locations of waste processing equipment (if applicable), air sampling stations, effluent filters, and any sources of flammable or explosive material and any sources of material that are mobile or could be rendered mobile (e.g., liquids, gases, sludges, ash, or fine-grained material) if the primary containment was compromised.

b. The maximum volume of LLRW that can be stored in the proposed waste storage area related to the annual volume of waste generated.

c. The type of building/structure or enclosure within which the waste will be stored. The licensee may wish to briefly describe the means (if not self-evident) by which waste will be protected from deleterious impacts of both chronic (e.g., precipitation, changes in temperature, humidity) and applicable extreme (hurricanes, tornadoes) climatological conditions. The licensee may wish to identify aspects of the storage area that require periodic maintenance or testing (e.g., mechanical and electrical systems, gaskets, and seals) and the frequency of such maintenance.

d. General measures to control access to the LLRW storage area and other methods, as applicable, to ensure security of the waste. It is not necessary for licensees that are implementing the increased controls requirements, to submit their increased controls documentation during the licensing process unless requested. The NRC strongly recommends not submitting such information and will rely on NRC inspectors to review this documentation during licensee inspections. However, whenever a licensee believes that this information is needed in order to respond to the increased controls requirements or to respond to an apparent violation, then the document may be submitted, provided it is properly marked in accordance with 10 CFR 2.390, “Public Inspections, Exemptions, Requests for Withholding.”

e. The ventilation system to assure adequate ventilation of an enclosed storage area.

f. The fire detection, protection, and suppression system to minimize the likelihood and extent of fire.

g. Mitigation of the adverse effects of extremes of temperature and humidity, not climatologically induced or otherwise described according to item 3.c above, on waste and waste containers.

h. The vulnerability of the waste to other hazards, both anthropologically induced (e.g., industrial accidents) and, to the extent beyond the scope of item 3.c above, natural (e.g., flooding, earthquakes).

4. Packaging and Container Integrity

a. The nature of packages or containers to be used for storage of LLRW. Licensees may wish to inform themselves of any hazards the waste may pose to package or container integrity (structural stability, containment of radioactive waste, contribution to shielding, and utility of handling and manipulation), and the projected storage life of the packages or containers.

b. The program for periodic inspections of LLRW packages to ensure that they retain their integrity and containment of LLRW.

c. The program for the identification and mitigation of damaged, leaking, or deteriorating waste packages or containers. This may include, if applicable, equipment for remote handling and/or repackaging damaged or leaking waste containers.

d. Additional, information related to possible problem areas related to waste packages and waste forms is found in NUREG/CR-4062, “Extended Storage of Low-Level Radioactive Waste: Potential Problem Areas.”

5. Radiation Protection

a. The program for safe placement and inspection of waste in storage and maintaining occupational exposures as low as is reasonably achievable (ALARA). This program should include periodic radiation and contamination surveys of individual packages and the storage area in general, as well as posting the storage area in accordance with 10 CFR 20.1902, “Posting Requirements.” The radiation protection program, including the ALARA plan for the waste storage area or facilities, should be an integral part of the overall facility radiation protection program.

b. Projected exposure rates, needs for shielding (if any), and any changes in personnel monitoring which will be required as a result of waste storage.

c. If procedures for responding to emergencies are not otherwise described in overall facility licensing documentation, the licensee may wish to describe the procedures, including triggering mechanisms, responsibilities and authorities, internal and external notifications and notification of and coordination with local fire, police, and medical departments and/or other emergency service providers. The licensee may wish to consider formal agreements with emergency response providers that clearly define roles

and responsibilities. The licensee may wish to consider periodic drills. As licensees that are implementing or will be implementing the increased controls requirements are aware, the specifics of a licensee's security program must be protected, and the specifics of the radioactive materials possessed are sensitive security-related information. This information can be shared only with those who are considered trustworthy and reliable and have a need to know.

d. The system for maintaining accurate records of waste in storage (including any waste receipts or transfers from or to other licensees) to ensure accountability.

6. Training and Qualifications

a. The program for training personnel in procedures for packaging, handling, placement, inspection, surveying, and emergency response for LLRW storage.

b. Qualifications for all personnel responsible for aspects of LLRW storage (if they differ from those responsible for management of other licensed radioactive material). In most cases, management of LLRW storage will represent only a portion of individual job responsibility for a number of facility personnel. Licensees may wish to estimate the percentage of each individual's time allocated to some aspect of LLRW storage.

7. Financial Assurance

a. The adequacy of financial assurance in accordance with 10 CFR 30.35, 10 CFR 40.36, or 10 CFR 70.25, all titled "Financial Assurance and Recordkeeping for Decommissioning," based on any increases in possession limits mandated by nondiscretionary extended interim storage. If amended possession limits exceed the limits specified in these sections, regulations require a decommissioning funding plan or certification of financial assurance. In either case, this submittal should demonstrate that financial resources are or will be in place not only to decommission the licensed operation but also to provide for the reasonable best estimated cost of handling, transport, and disposal of all LLRW stored on site.

b. The adequacy of facility liability and/or comprehensive insurance given the added requirement for extended interim storage of LLRW.

8. Emergency Preparedness

The adequacy of licensee emergency preparedness with respect to increased possession limits as a result of requirements for LLRW storage. Licensees may wish to review the relevant sections of 10 CFR Part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material," 10 CFR Part 40, "Domestic Licensing of Source Material," and 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material," to ensure that regulatory requirements regarding emergency preparedness are met. If proposed maximum possession limits exceed the limits specified in 10 CFR 30.32(i)(1), 10 CFR 40.31(j)(1), or 10 CFR 70.22(i)(3), either demonstrate that an emergency plan is not needed or develop and maintain a plan that meets the requirements of these sections.

9. Security/Increased Controls

Security measures consistent with the attractiveness and accessibility of the material and vulnerability to theft and sabotage. Commission regulations in 10 CFR 20.1801, "Security of Stored Material," and 10 CFR 20.1802, "Control of Material Not in Storage," require licensees (1) to secure from unauthorized removal or access licensed materials that are stored in controlled or unrestricted areas and (2) to control and maintain constant surveillance of licensed material that is in a controlled or unrestricted area and that is not in storage.

Low specific activity radioactive material inventories pose lower risk. The NRC is issuing increased controls requirements to certain types of licensees based on their authorized possession limits. Specific activity thresholds were not established for categorical exclusion. Rather, implementation of the increased controls is based on possession of radionuclides of concern in quantities greater than or equal to the activity limits provided Table 1 of the increased controls orders (see, e.g., 70 Federal Register 72128 (December 1, 2005). There is a process by which a licensee may request relief from the increased controls if compliance with any of the requirements is deemed unnecessary in specific circumstances.

The NRC strongly recommends that licensees not submit their increased controls documentation during the licensing process. NRC inspectors will review this documentation during licensee inspections. However, whenever a licensee believes that this information is needed to respond to the increased controls requirements or to respond to an apparent violation, then the licensee may submit the document, provided that it is properly marked in accordance with 10 CFR 2.390.

For licensees implementing the increased controls requirements, the specifics of a licensee's security system must be protected. Further, specific information related to the radioactive materials possessed is considered sensitive security- related information that can be shared only with those who are considered trustworthy and reliable and have a need to know. Licensees who need assistance in determining when such information can be appropriately shared with public officials should contact the appropriate NRC regional office.