

12/11/02

Program Plan for the Vulnerability Assessment of Spent Fuel Storage Systems

Purpose: Given a set of potential terrorist threats and a developed series of event scenarios, assess the vulnerability of spent fuel dry storage systems to those events in terms of potential loss of function(s) of the storage systems. If vulnerabilities are identified, additional protective measures to reduce these vulnerabilities will be identified and evaluated in support of recommended actions.

Scope: Consideration of all spent fuel dry storage systems with a certificate of compliance or utilized under a site specific license shall be made for the vulnerability assessment. A screening process shall be developed to identify specific storage systems, vendor models, etc. that represent types of storage systems and the worst case source term contents for that system will be included. These will constitute the examples for which detailed assessments of vulnerability will be performed. A logic system shall be developed to allow reasonable estimates regarding the vulnerability of specific storage system not identified for detailed assessment. Bounding concepts shall be utilized where there is a defensible basis. Preliminary screening results being developed are included in the attached matrix identifying threats and storage system examples.

Vulnerability Assessments:

Identify the analyses necessary to assess the vulnerability of each example spent fuel storage unit to each of the defined threat scenarios. Determine whether the necessary analyses will be performed by NRC staff or contractor personnel. The necessary analyses to be performed can be considered as addressing the following subject areas.

Analysis Areas:

- * Definition of environmental conditions/loadings created by the threat scenarios
- * Structural/Mechanical/Materials analyses to define any breaching of the containment/confinement boundary of the storage system
- * Structural/Mechanical/Materials damage analyses to determine the extent of change of conditions of the stored source materials
- * Analyses to define the dispersion and resulting doses resulting from the threat scenarios

Recommendations:

Provide recommendations that will result in decreased vulnerabilities. The cost effectiveness of such changes are to be estimated. Areas of potential recommendations include the following.

(

Ex 2

El 68

Portions Ex 2

() Ex 2

Storage Systems and Milestones	
Packages	Target Date
HI-STORM - Steel clad Concrete cask with canister	threat dependent
NUHOMS 32P - Horizontal "bunker style" system with canister	threat dependent
TN-68 - Steel-lead-steel compsite, Bolted closure, no canister	threat dependent
VSC-24 - Reinforced concrete with canister.	threat dependent