

GUIDANCE FOR LAND CLEAN-UP  
INVOLVING CO-60 CONTAMINATION

Decontamination Plan (or RAP)

Before decontamination operation, the licensee is required to submit a decontamination plan to NRC for review and approval. A license amendment is normally required for the clean-up action.

The decontamination plan should include:

- a. Summary of the proposed action.
- b. Background/history of operation and identified contamination.
- c. Radiological characterization of the contaminated area, including: approximate volume or mass; identification of the principal nuclides in the waste (i.e., CO-60); estimates of the concentrations of the nuclides; estimates of the total activity of nuclides; and the basis for the estimated concentrations and total activities (i.e., the number of samples measured, the representativeness of the samples, and the appropriateness of the instruments used to measure the activity in samples).
- d. Description of site environment, including: physical location of waste; parameters, such as land use and water use in the area, that may expedite or inhibit migration of radioactive material; potential pathways for on-site and off-site exposures; and estimates of possible exposures (occupational and nonoccupational).
- e. Proposed plans for decontamination and disposal, including: method of removal and disposition of waste; location of disposal site; transportation; costs; applicable regulations and restrictions; radiation safety procedures to be used during decontamination; mitigating measures planned to minimize radioactivity released to the environment; and methods to be used to demonstrate compliance with NRC's criteria.

Criteria for acceptability of CO-60 contamination of ground areas<sup>1</sup>

CO-60 is a beta and gamma radiation emitter with a half-life of 5.26 years. The primary pathway for exposure of individuals for CO-60 is by direct radiation.

- The gamma exposure at 1 meter above the ground surface shall not exceed 10 microR/hr above background for an area greater than 30 ft x 30 ft and shall not exceed 20 microR/hr above background for any discrete area (i.e., less than 30 ft x 30 ft).
- The concentration limit for subsurface CO-60 contamination is 8 pCi/g above background for an equivalent area of 30 ft x 30 ft..

The above limits are the NRC's target criteria for land clean-up. Use of any limits above the target criteria will require a detailed cost benefit evaluation or justifications and NRC staff approval.

1. May 6, 1987 memorandum from J. Hickey, Chief of Operations Branch in FCMA/NMSS, to W. Cline, Chief of NMSS Branch in Region II.