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LONG TERM SURVEILLANCE PLAN

Edgemont Uranium Mill Tailings  
Disposal Basin  
Edgemont, South Dakota

NRC Source Material License  
SUA-816

TENNESSEE VALLEY AUTHORITY  
March 1990

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## LONG TERM SURVEILLANCE PLAN

### I. INTRODUCTION

The Tennessee Valley Authority (TVA) has completed the decommissioning of the Edgemont, South Dakota, Uranium Mill. This work included tailings and contaminated material removal, deposition, and burial; and mill site and disposal site reclamation. This document describes the surveillance and maintenance necessary to ensure the long-term containment of tailings and contaminated material within the disposal basin.

### II. SITE DESCRIPTION AND OWNERSHIP

The Edgemont disposal site is located approximately two miles south of the Town of Edgemont in Fall River County, South Dakota (attachment 1). Also attached are: As Built Cross Sections (attachment 2); Topographic map (attachment 3); Aerial Photograph (attachment 4); and a legal survey plat (attachment 5).

The disposal basin encompasses 99.56 acres and begins at the head of an ephemeral drainage. The site is underlain by competent unweathered shale ranging in depth from 300 to 700 feet. The basin walls were constructed with a compacted clay liner with an average thickness of 13 feet. The upstream core of the containment dam was constructed with a compacted clay liner, 70-foot-thick at the center of the basin. The basin is capped with 1 foot of topsoil material, a 5 foot layer of radiologically clean compacted fill, and 3 feet of compacted clay. The surface has been revegetated with native grass species. The basin is fenced with a 4-foot high barbed wire fence. TVA will continue to own the disposal basin and approximately 80 acres immediately adjacent and surrounding the basin. Access to the basin is across the adjacent TVA property from a county road approximately 500 feet west of the basin.

### III. SURVEILLANCE

The disposal basin was revegetated in the fall of 1989. Until verification has been established that revegetation of the disposal basin equals or exceeds native perennial species, visual inspections will be performed quarterly. These inspections will be onsite walk-throughs along a 200-foot-wide parallel grid.

Because of the design and construction of the disposal basin, minimal surveillance activities will be required. After revegetation has been established and verified, the surveillance for the site will be annual onsite visual inspections. These annual inspections will be a visual walk through along a 200-foot-wide parallel grid. The primary purpose of the inspection will be for evidence of cover cracking, wind or water erosion, structural discontinuity of the containment dam, maintenance of vegetation, and animal intrusions that could result in adverse impacts. The entire perimeter fence will also be inspected for integrity and deterioration. The NRC will be informed of the annual inspection date, 30 days in advance. An inspection report will be filed with TVA management and the NRC.



Contingency inspections will be unscheduled and performed when information has been received indicating that the site integrity has been, or may be, compromised by natural events or human activities. An inspection report will be prepared and filed with TVA and the NRC.

#### IV. MONITORING

The disposal basin was constructed with a compacted clay perimeter liner along the sides and basin face of the containment dam. The bottom of the basin is underlain with 300 to 700 feet of competent shale. The cover consists of a 3-foot-thick compacted clay cap and 5 feet of compacted fill. Therefore, the contaminated material is encapsulated by material with a permeability of  $1 \times 10^{-7}$  cm/s or less. Based on the above disposal basin conditions, there is no groundwater monitoring system.

Other than the visual site inspections (see III, Surveillance), no additional monitoring is planned or necessary.

#### V. MAINTENANCE

The disposal basin has been designed and constructed to negate the need for any type of routine maintenance. The site has been revegetated with self-sustaining native grass species. After vegetation has been established, no remedial vegetation activities are anticipated. The cover of the disposal basin was constructed with slopes of 2 percent from the basin crown to a maximum of 5 percent leading to the perimeter diversion ditches. Because of the vegetation and slopes, there should be no long-term adverse wind or water erosion impacts that will require maintenance. The disposal basin has been fenced with a 4-foot high, 3-strand barbed wire fence to prevent livestock grazing. It is expected that there may be some wildlife utilization of the site but no adverse impacts are expected. Fence repair and maintenance will be performed as necessary to maintain the integrity of the fence. If any inspection of the disposal basin reveals failure to the original as-built condition, then construction repair will be conducted to reestablish the original as-built condition.

#### VI. REMEDIAL RESPONSE

All inspections will be documented with copies provided to TVA and NRC. If any inspection or other information indicates remedial action is appropriate, the NRC will be notified within 72 hours of such discovery. If significant remedial work is deemed to be necessary, TVA will develop a plan and schedule to accomplish the required work. This plan and schedule will be provided to NRC prior to initiation of any onsite activities unless directed otherwise by NRC. If situations are encountered that would expose the public or the environment to contaminated material, if the integrity of the containment basin is jeopardized, or if there is an imminent threat of release of contaminated material, immediate actions will be taken as appropriate and NRC will be notified immediately.