Met:Ed / GPU

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Writer's Direct Dial Number

May 12, 1981
LL2-81-0134

TMI Program Office
Attn: L. H. Barrett, Deputy Program Director
U. S. Nuclear Regulatory Commission
c/o Three Mile Island Nuclear Station
Middletown, Pennsylvania 17057

Dear Sir:

Three Mile Island Nuclear Station, Unit 2 (TMI-2)
Operating License No. DPR-73
Docket No. 50-320
Submerged Demineralizer System

On May 8, 1981 we submitted to you our processing strategy plan for SDS operations (LL2-81-0108). On page 5 of the letter and page 2 of 3 of the attachment to the letter typographical errors exist.

Replacement pages are transmitted herewith.

Sincerely,

G. K. Hovey
Vice-President and
Director, TMI-2

GKH:LJL:djb
Attachments
cc: Dr. B. J. Snyder, Program Director, TMI Program Office

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The leakage collection subsystem of SDS will be in operation during SDS processing to cleanup the water in the leakage containment boxes around the SDS liners and to minimize the overall buildup of activity in the "B" Spent Fuel Pool. It is currently planned to load the leakage containment ion exchangers with organic resin to improve resin performance at the high flow rate through the beds (i.e. 50 gpm). It is our objective to operate this system to limit total curie deposition in these beds to permit shallow land burial in a dewatered condition. A key assumption of this total curie deposition is that only isotopes with half-lives greater than 5 years need be considered in determining whether disposal in the dewatered condition is allowable. This is GPU's understanding of current and probable future commercial shallow land disposal site license conditions and the manner in which they are and will be interpreted. Based upon this objective, it appears that a typical leakage containment ion exchange vessel can remain in-service for about 5 weeks without changeout. Samples will be frequently taken to evaluate resin performance and curie loadings. If there is unanticipated pool leakage resulting in higher (i.e., greater than 1 μCi/cc) ion exchange media loading, or if the service life is calculated to be so short that frequent changeout results in increased waste volume, then the ion exchange media will be allowed to load to less than 10 Ci/ft^3 and alternate methods for waste dispoaal (i.e., high integrity containers or solidification) will be employed.[1] Should inorganic material be used in the leakage containment ion exchanger, higher loadings than the above limit will be permitted.

Reactor Coolant System (RCS) water processing through the SDS is not expected to differ greatly from processing reactor building sump water. Water from the RCS will be held up in the tank farm for SDS processing, and the effluent will be collected in a bleed tank.

We intend to commence processing with radioactively contaminated fluids that are significantly lower in activity than the Reactor Building sump water. Because the lower activity water will have different chemical characteristics, we will not try to relate ion-exchange performance during this initial processing to later RB sump water processings. However, implementation of this operational philosophy will permit accomplishment of the following objectives:

1. Perform initial processing with low activity water to gain operator familiarity.

2. Permit the collection of data to provide a realistic basis for the prediction of general area radiation levels during processing of the reactor building sump water and the Reactor Coolant System water.

3. Reduce the flushwater inventory to permit water management flexibility.

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[1] In the event disposal utilizing high-integrity containers is required, applicable regulations for the disposal of such material will be followed.

integrity container (HIC). In the event that this is not practical, or results in excessive waste generation, curie loadings will be allowed to increase to less than 10 ci/ft^3, based upon organic resin usage, and burial will be in high integrity containers at shallow-land disposal sites. [1]

LEAKAGE CONTAINMENT LINERS:

It is intended that these liners will be loaded to less than 1 μCi/cc via administrative controls to permit dewatered shallow land disposal without solidification or without use of high integrity containers. In the event that this is not practical, or results in excessive waste generation, curie loadings will be allowed to increase to less than 10 ci/ft^3 (if they contain organic resins) and burial will be in high integrity containers at shallow-land disposal sites. [1]

SDS FILTERS:

From current information on suspended solids in the RB sump water, and the elemental and radioisotopic distribution in these suspended solids, we believe that the operating limit on SDS filters will be mechanical performance (i.e., differential pressure) with little radioactivity deposition, including transuranics. It is anticipated that these filters will be suitable for shallow land burial in commercial sites. In the event that sampling or calculations show the contents of any liner intended to be sent to shallow land burial to exceed the limit for transuranic nuclides the filters will be stored on-site until interim storage, possibly under the auspices of the DOE, can be arranged off-site. It is assumed that material exceeding shallow land burial limits for transuranic nuclides will be placed in an ultimate disposal location, probably a geological repository, when such is established by the Federal Government.

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1 In the event disposal utilizing high-integrity containers is required, applicable regulations for the disposal of such material will be followed.