Mailing Address
Al_bama Power Company
600 North 18th Street
Post Office Box 2641
Birmingham, Alabama 35291
Telephone 205 783-6081

F. L. Clayton, Jr.
Senior Vice President
Flintridge Building

Alabama Power
the southern electric system

September 9, 1982

Docket No. 50-348

Director, Nuclear Reactor Regulation
Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. S. A. Varga

Joseph M. Farley Nuclear Plant - Unit 1
Spent Fuel Pool Modification Amendment 2

Gentlemen:

Enclosed is Amendment No. 2 to Alabama Power Company's Spent Fuel Pool Modification submitted on March 19, 1982 and amended in April 1982. This amendment responds to the questions identified in your July 26, 1982 letter and conversations with Mr. E. A. Reeves, the Farley Project Manager, and corrects minor typographical errors.

If you have any questions, please advise.

Yours very truly,

F. L. Clayton, Jr.

FLCJr/JAR:lsh-D27
cc: Mr. R. A. Thomas
Mr. G. F. Throwbridge
Mr. J. P. O'Reilly
Mr. E. A. Reeves
Mr. W. H. Bradford

SWORN TO AND SUBSCRIBED BEFORE ME
THIS 9th DAY OF September 1982.

Joyce S. Collins
Notary Public

My Commission Expires:

10-27-85

A001
1/AO
Encls Rec'd

FARLEY NUCLEAR PLANT UNIT 1

SPENT FUEL POOL MODIFICAITON
AMENDMENT 2

REVISION INSERTION INSTRUCTIONS

Section/Page	Instruction
Table of Contents	Replace
III/7	Replace
III/10—12	Replace
IV/5	Replace
IV/12	Replace
Responses to NRC Questions/tab	Add
Responses to NRC Questions/1—7	Add

TABLE OF CONTENTS

I. Introduction and Conclusions

II. Overall Description

III. Nuclear and Thermal-Hydraulic Considerations

1. Neutron Multiplication Factor
1.1 Normal Storage
1.2 Postulated Accidents
1.3 Calculation Methods
1.4 Rack Modification
1.5 Acceptance Criteria for Criticality

(1) Neutron Absorber Verification
(2) Decay Heat Calculations for the Spent Fuel
(3) Thermal-Hydraulic Analyses for Spent Fuel Cooling
(4) Potential Fuel and Rack Handling Accidents
(5) Technical Specifications

IV. Mechanical, Material and Structural Considerations

(1) Description of the Spent Fuel Pool and Racks
(a) Support of Spent Fuel Racks
(b) Fuel Handling
(2) Applicable Codes, Standards and Specifications
(3) Seismic and Impact Loads
(4) Loads, Load Combinations, and Structural Acceptance Criteria
(5) Design and Analyses Procedures
(6) Structural Acceptance Criteria
(7) Materials, Quality Control and Special Construction Techniques
(8) Testing and Inservice Surveillance

V.1. Cost/Benefit Assessment

V.2. Radiological Evaluation

V.3. Accident Evaluation

Q. Responses to NRC Questions

Appendix B. A detailed specification is part of the purchase order. This specification covers the neutron absorber sheet requirements, material requirements, quality assurance program requirements, documentation requirements, etc. PaR requires the manufacturer to submit his quality assurance program manual and operating procedures for approval before the start of production. PaR also audits the quality assurance program at the manufacturing facility at least once a year (or before the first order). After receipt of material, PaR reviews all documentation for conformance before incorporating the poison into the spent fuel racks. PaR maintains traceability of the poison material throughout the rack manufacturing process. Alabama Power Company or its agent is committed to periodically perform quality audits and inspection of the above described quality program.

III.1.5(2) Decay Heat Calculation for the Spent Fuel

The calculations for the amount of thermal energy that will have to be removed by the spent fuel pool cooling system are made in accordance with Branch Technical Position APCSB 9-2 entitled, "Residual Decay Energy for Light Water Reactors for Long Term Cooling." This Branch Technical Position is part of the Standard Review Plan (NUREG 78/087).

III.1.5.(3) Thermal Hydraulic Analysis of Spent Fuel Cooling

The computer code HPOOL is used to analyze the natural circulation cooling of the spent fuel under normal cooling conditions. HPOOL is a proprietary program of Nuclear Associates Incorporated (NAI). HPOOL calculates the pressure loss through a fuel assembly for a given flowrate. This pressure loss is compared with the buoyant head resulting from the difference between the average density of the fluid in the fuel channel and the average density of the fluid in the downcomer. The downcomer is the space between the wall of the pool and the racks. If the density difference results in a buoyant head greater than the pressure loss, the flowrate through the fuel assembly is increased and a new average density of the fluid is determined. This iterative process is continued until the buoyant head and pressure loss in the fuel assembly are equal. Using this flowrate, HPOOL determines the fuel temperature.

HPOOL was used to determine the spent fuel cladding temperature for the normal refueling case and the emergency full-core offload case. The full-core offload case represents the worst case heat loading condition which provides the maximum bulk spent fuel pool water temperature. The analysis and assumptions results for these two cases are presented below.

III.1.5.(4) Potential Fuel and Rack Handling Accidents

The high-density poison racks are of a free-standing design, utilizing bottom support pads, resting on the floor of the spent fuel pool. The installation of the high-density racks will include removal of the existing 13-in. center storage racks. The high-density racks will be installed wet since there is spent fuel in the storage pool.

The following is a sequence of events for installing the high-density poison racks.

Phase I — Install a temporary crane for removing and installing the racks. This seismically qualified crane, which has a rated capacity of 21,000 pounds, will be tested after installation using a load of 117 percent of rated capacity. The crane was shop tested using a load of 125 percent of rated capacity. This crane is manually moved to assure exact positioning. A pneumatic hoist is used to lift the racks. Upon loss of air, this hoist locks in position. A manual brake is also provided. The vendor-supplied lifting fixture as well as the temporary crane were both used for reracking Farley Unit 2 without incident.

Phase II — Remove and decontaminate a portion of the existing 13-in. center racks, leaving enough racks intact for existing spent fuel assemblies. At no time during this phase of work will the 13-in. spent fuel rack modules be moved over spent fuel assemblies.

Phase III — Remove all adapter plates.

Phase IV — Install the high-density poison racks into the pool areas vacated by the removal of the 13-inch center-to-center racks. This work will be done systematically to assure that at no time will the new spent fuel racks be moved over spent fuel assemblies.

Phase V — When existing fuel assemblies are transferred to new racks, then remove any remaining 13-in. center-to-center racks and adapter plates from the spent fuel pool.

Phase VI — Install the balance of high-density racks into the spent fuel pool to complete rack installation.

Phase VII — Remove temporary crane from the spent fuel pool area.

Throughout the above phases of work the spent fuel assemblies in the spent fuel pool will be moved and located so that no heavy loads will be carried over them. Strict administrative procedures will be imposed throughout the rerack program to assure protection against a rack module dropping on the spent fuel assemblies.

These phases of work will require support work; i.e. leveling of new racks, testing, etc.; to complete the reracking program.

The outdoor spent fuel cask crane will be used to bring the temporary crane into the cask area, where it will be assembled. The cask crane will also be used to bring the high-density poison racks from the delivery vehicle into the spent fuel cask area. Physical stops prohibit this crane from carrying loads over the spent fuel pool. The racks will then be moved from the spent fuel cask area, by the temporary crane, into the spent fuel pool. The reverse sequence will be performed to remove the existing 13-inch center storage racks from the spent fuel pool.

The installation of the high-density poison racks will not increase the potential for a fuel and rack handling accident for the following reasons:

- No heavy loads will be carried over any spent fuel assemblies during the rerack program. The spent fuel assemblies will be moved and located so that no heavy loads will be carried over them.

- The temporary crane, as with the spent fuel bridge crane, can carry loads over the spent fuel cask area and the spent fuel pool only. There is no safe shutdown equipment located in these areas. Therefore, there will not be any damage to safe shutdown equipment should a rack drop into these areas.

- The spent fuel cask crane, used to bring the racks into and out of the spent fuel cask area, is a single failure proof crane as described in subsection III.1.2.(2). Physical stops prohibit this crane from carrying loads over the spent fuel pool.

Protection against a rack drop is assured since the cask crane is single failure-proof, and a dual point attachment will be used between the spent fuel pool cask crane main hook and the lifted spent fuel rack module.

III.1.5.(5) Technical Specifications

To ensure against criticality, the following technical specifications are proposed in figure III-1 on spent fuel storage in the high-density poison racks.

III.1.5.(5).1 Paragraph 5.6.1.1 of the proposed revision to the Farley Unit 1 Technical Specifications requires that the spent fuel storage racks be designed and maintained such that the neutron multiplication factor (k_{eff}) in the fuel pool shall be less than or equal to 0.95 when flooded with unborated water. This represents the most conservative pool condition from a criticality standpoint.

III.1.5.(5).2 In addition, paragraph 5.6.1.1 of the proposed revision to the Farley Unit 1 Technical Specifications also specifies a maximum enrichment of 4.3 weight percent U-235 (which equates to 54.25 grams per axial centimeter of the fuel assembly) for fuel loading in the fuel assemblies. This limit is consistent with the design of the high-density poison racks to preclude criticality in the fuel pool.

treatment would be 1200°F for 2 hr; which will not be the case.

In addition to the above factors all welds will be made with 308L filler metal and the heaviest weldment (the foot corner casting) will have a 0.03-percent maximum carbon content. These factors also greatly reduce the level of susceptibility to stress corrosion.

PaR Systems has manufactured many spent fuel storage modules and other equipment of welded Type 304 stainless steel for nuclear applications with no indication of stress corrosion cracking problems.

The design of the spent fuel storage rack is in accordance with Section 5 of the AISC Steel Construction Manual with fabrication welding in compliance with ASME Section IX.

In as much as this is not a code stamp project the certification requirements of NF4000 of the ASME Code do not apply. This is also true for the design requirements of NF3000 and the marking requirements of NF8000. With these exceptions, GCA/PaR's quality and fabrication programs meet ASME Section III Subsection NF.

The racks were also designed and fabricated to meet and utilize the applicable portions of the following regulatory guides, safety review plan sections, published standards, and computer programs.

1. United States Nuclear Regulatory Commission (USNRC)

a.	Reg. Guide 1.13	Spent Fuel Storage Facility Design Basis, Rev. 1, Dec. 1975.
b.	Reg. Guide 1.29	Seismic Design Class, Rev. 2, Feb. 1976.
c.	Reg. Guide 1.92	Combination of Modes in Seismic Analysis, Rev. 1, Feb. 1976.
d.	Reg. Guide 1.38	"QA Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Water Cooled Nuclear Power Plants", Rev. 2, 1977.
e.	Reg. Guide 1.60	Design Response Spectra for Seismic Design of Nuclear Power Plants, Rev. 1, Dec. 1973.

The following table summarizes the maximum stresses of the rack components for each pertinent load combination. The following calculated seismic stresses are based on the cumulative conservations associated with bounding the OBE and DBE response spectra and using the 2-percent damping values. Figures II-4 and II-5 are structural drawings for the assembly of the spent fuel modules.

7 x 8 RACK MAXIMUM STRESS INTERACTIONS (ACTUAL/ ALLOWABLE) (a)

Load Combinations	.135 Cans	.120 Cans	Grid	Cruciform(b)	Foot	Perimeter Bar	Foot Stiffner
D + L + T + P	-	.26	.38	.31	.32	.21	.20
D + L + T + H	-	.08	.41	.32	.32	.22	.21
D + L + T + H	-	.07	.40	.32	.31	.23	.19
(c) D + L + T + H_1	-	.64	.58	.54	.47	.47	.32
(c) D + L + T + I_2	.52	.27	.46	.51	.46	.20	.24
(c) D + L + T + I_3	-	.90	.69	.69	.41	.31	.26
D + L + T + E	.65	.97	.51	.28	.38	.29	.36
D + L + T^1 + E^1	.47	.70	.36	.20	.26	.21	.26

6 x 7 RACK MAXIMUM STRESS INTERACTIONS (ACTUAL/ ALLOWABLE) (d)

Load Combinations	.135 Cans	.120 Cans	Grid	Cruciform(b)	Foot	Perimeter Bar	Foot Stiffner
D + L + T + E	.70	.87	.44	.28	.21	.15	.26
D + L + T^1 + E^1	.50	.63	.31	.19	.14	.12	.18

NOTES:

(a.) 7 x 7 rack bounded by the 7 x 8 rack.
(b.) Fuel support cruciform.
(c.) I_4 & I_5 are bounded by these drop conditions.
(d.) Static load cases are bounded by the 7 x 8 racks.

IV.(5) Design and Analysis Procedures

The following is a brief description of the methods used to structurally analyze the spent fuel storage rack design. This freestanding rack design was structurally qualified by a detailed time history and static analysis.

Simplified time history analysis was done at both 0.2 and 0.8 coefficients of friction (μ) conditions with 0, 1/4, 1/2, 3/4, and full eccentric fuel loading conditions. The low

Q. RESPONSES TO NRC QUESTIONS IDENTIFIED IN LETTER DATED JULY 26, 1982

NRC Question 1:

Outline by major tasks the methods to be used in the pool modification. You should specify the man-hours and average dose rate for each task and the expected total man-rem for the entire pool modification.

APC Response:

The Unit 1 Spent Fuel Pool will be reracked to install new high-density fuel storage racks. Following refueling at the end of the current cycle (cycle 4), spent fuel will occupy approximately one third of the storage locations. This fuel will be placed at one end of the Spent Fuel Pool with the newest spent fuel located adjacent to the wall and the oldest spent fuel located toward the pool center. Divers will then conduct underwater work to remove the existing racks and install new racks at the opposite end of the pool. The spent fuel will then be moved to the reracked end of the pool with the oldest fuel again located toward the pool center. Underwater work will then be conducted to remove old racks and install new racks at the unoccupied end of the pool. The following is a breakdown of this modification by task.

Task 1 - Initial Fuel Arrangement

At the completion of the Unit 1 cycle 5 refueling outage, the fuel stored in the pool will be arranged to minimize radiation dose rates in the area where divers will work. The actual configuration may vary slightly; however, the overall concept of the oldest fuel nearest the active work area and the newest fuel farthest from the work area will be maintained.

Requires 3 days
Man-hours 288
Average dose rate 0.1 mR/h
Expected total exposure 29 mR

Task 2 - Installation of Temporary Equipment

Installation of the temporary crane to be used for the rerack work plus scaffolding and other equipment to support removal of the old racks is estimated to require 1 week.

man-hours 1680
average dose rate 0.1 mR/h
expected exposure for task 168 mR

Task 3 - Removal of 15 Existing Racks (North End)

The 15 existing spent fuel racks in the north half of the spent fuel pool will be removed. Prior to this task commencing: (1) the water clarity and pool lighting will be verified as adequate, (2) the position of each fuel assembly in the pool will be verified, (3) the Health Physics Group will perform an underwater survey of the diver work area with two separate survey instruments.

During this task: (1) a daily underwater survey will be performed with two separate survey instruments, (2) prior to any diving operation a survey will be conducted in the diving area, (3) a minimum of one empty fuel rack as a physical barrier between the diver and the nearest spent fuel assembly will be maintained, (4) each diver will wear a calibrated alarming dosimeter, a remote readout detector continuously monitored poolside, and numerous TLDs and pocket ion chambers, (5) health physics will periodically monitor an underwater area in the diving vicinity, and (6) each diver will surface periodically to have his dosimetry checked.

man-hours (underwater) 120
man-hours (in S.F.P. room) 5520
man-hours total for task 5640
average dose rate (underwater) 5 mR/h
average dose rate (in S.F.P. room) 0.1 mR/h
expected exposure (underwater) 600 mR
expected exposure (in S.F.P. room) 552 mR
expected total exposure for task 1152 mR

Task 4 - Installation of 12 New Racks (North End)

The 12 high-density spent fuel racks will be installed in the north half of the pool. The precautions identified in Task 3 prior to beginning work and during the diving operation will apply during this activity.

man-hours (underwater) 48
man-hours (in S.F.P. room) 5520
man-hours total for task 5568
average dose rate (underwater) 2.5 mR/h
average dose rate (in S.F.P. room) 0.1 mR/h
expected exposure (underwater) 120 mR
expected exposure (in S.F.P. room) 552 mR
expected total exposure for task 672 mR

Task 5 - Spent Fuel Rearrangement

The spent fuel will be shifted to the new racks in the north half of the pool. The actual configuration may vary slightly; however, the concept of the oldest fuel nearest the active work area and the newest fuel farthest from the work area will be maintained.

man-hours 288
average dose rate 0.1 mR/h
expected exposure for task 29 mR

Task 6 - Removal of 12 Existing Racks (South End)

The 12 remaining spent fuel racks located in the south half of the pool will be removed. The precautions identified in Task 3 prior to beginning work and during the diving operation will apply during this activity.

man-hours (underwater) 96
man-hours (in S.F.P. room) 4416
man-hours total for task 4512
average dose rate (underwater) 2.5 mR/h
average dose rate (in S.F.P. room) 0.1 mR/h
expected exposure (underwater) 240 mR
expected exposure (in S.F.P. room) 442 mR
expected exposure total for task 682 mR

Task 7 - Installation of 16 New Racks (South End)

The 16 remaining high-density spent fuel racks will be installed in the south half of the pool. The precautions identified in Task 3 prior to beginning work and during the diving operation will apply during this activity.

man-hours (underwater) 64
man-hours (in S.F.P. room) 4600
man-hours total for task 4664
average dose rate (underwater) 2.5 mR/h
average dose rate (in S.F.P. room) 0.1 mR/h
expected exposure (underwater) 160 mR
expected exposure (in S.F.P. room) 460 mR
expected total exposure for task 620 mR

Task 8 - Drag Test New Racks

Drag testing of the new spent fuel storage racks is estimated to require 4 weeks.

man-hours (underwater)20
man-hours (in S.F.P. room) 7360
man-hours total for task 7380
average dose rate (underwater) 2.5 mR/h
average dose rate (in S.F.P. room) 0.1 mR/h
expected exposure (underwater) 50 mR
expected exposure (in S.F.P. room) 736 mR
expected total exposure for task 786 mR

Task 9 - Initial Survey, Rinse, Disassembly, and Decon of Existing Racks

As the existing spent fuel racks are removed from the spent fuel pool, the following general sequence will occur: (1) as the rack is raised from the water it will be surveyed and rinsed over the pool; (2) it will then be lowered into the cask wash pit (additional rinse will be conducted at this time if deemed necessary); (3) the rack will be disassembled and undergo final decontamination.

man-hours (for disassembly of racks) 432
man-hours (for rack decon) 162
man-hours total for task 594
average dose rate (during disassembly) 5 mR/h
average dose rate (during decon) 10 mR/h
expected exposure (for disassembly) 2160 mR
expected exposure (for decon) 1620 mR
expected total exposure for task 3780 mR

NOTE: The man-hour and exposure estimates are for the decon and dissasembly of all 27 existing fuel racks.

Task 9A - (Alternative) Initial Survey, Rinse, and Packaging of Existing Racks

As the existing spent fuel racks are removed from the spent fuel pool the following general sequence will occur: (1) as the rack is raised from the water it will be surveyed and rinsed over the pool; (2) it will then be lowered into the cask wash pit (additional rinse will be conducted at this time if deemed necessary); (3) the rack will undergo final decontamination and packaging for shipment to another utility for use in its spent fuel pool.

man-hours (for packaging of racks) 50
man-hours (for rack decon) 162
man-hours total for task 594
average dose rate (during packaging) 3 mR/h
average dose rate (during decon) 10 mR/h
expected exposure (for packaging) 160 mR
expected exposure (for decon) 1620 mR
expected total exposure for task 1780 mR

Task 10 - Disassembly and Decon of Temporary Equipment

Disassembly, decontamination, and removal of the temporary crane and the other equipment used during the spent fuel pool rack modification is estimated to require 1 week.

man-hours 1680
average dose rate 0.1 mR/h
expected exposure for task 168 mR

Total Exposure for Modification

man-hours (underwater) 348
man-hours (in S.F.P. room) 31,352
man-hours (for disassembly of racks) 432
man-hours (for rack decon) 162
man-hours total for job 32,294
average dose rate (underwater) 5 mR/h
(during removal of old racks)
average dose rate (underwater) 2.5 mR/h
(during installation of new racks)
average dose rate (in S.F.P. room) 0.1 mR/h
average dose rate (during disassembly of racks) 5 mR/h
average dose rate (during rack decon) 10 mR/h
expected exposure (underwater) 1170 mR
expected exposure (in S.F.P. room) 3136 mR
expected exposure (for disassembly of racks) 2160 mR
expected exposure (for rack decon) 1620 mR
expected total exposure for job 8086 mR

Total Exposure for Modification (Alternative - Packaging of Existing Racks)

man-hours (underwater) 348
man-hours (in S.F.P. room) 31,352
man-hours (for packaging of racks) 50
man-hours (for rack decon) 162
man-hours total for job 32,294
average dose rate (underwater) 5 mR/h
(during removal of old racks)
average dose rate (underwater) 2.5 mR/h
(during installation of new racks)
average dose rate (in S.F.P. room) 0.1 mR/h
average dose rate (during packaging of racks) 3 mR/h
average dose rate (during rack decon) 10 mR/h
expected exposure (underwater) 1170 mR
expected exposure (in S.F.P. room) 3136 mR
expected exposure (for packaging of racks) 160 mR
expected exposure (for rack decon) 1620 mR
expected total exposure for job 6086 mR

NRC Question 2:

Outline the actions that will be taken to assure that occupational doses during each task of the pool modification will be ALARA.

APC Response:

Summary of Actions To Ensure Occupational Exposures Are Maintained ALARA

(1) Job Planning

Prior to the start of the rerack modification, there will be a meeting of all groups involved in the modifications to discuss the sequence of work, radiological controls for the various portions of the job, radiological conditions anticipated during the various phases of the job, control of the fuel assembly storage locations, the clarity of the spent fuel pool, and any other identified potential problem areas.

(2) Radiation Surveys

Daily, an underwater survey will be conducted in the pool with two separate survey instruments. Prior to any diving operation (entry into pool), an extensive survey will be performed in the diving area. All survey results will be posted on a map of the pool to reflect the current status of the fuel rack modification.

(3) Verification of Fuel Location and Physical Barriers

Prior to commencement of the diving phase of this job and any time fuel is moved, the position of each fuel assembly will be verified. There will be a minimum of one empty fuel rack between the diver and the nearest spent fuel assembly as a physical barrier. The spent fuel will be arranged to ensure the oldest spent fuel is nearest to the active work area and the newest spent fuel is farthest from the active work area.

(4) Radiological Monitoring of Divers

Each diver will wear TLD badges and pocket io chambers positioned at the following body locations: head, chest, wrist, ankles, crotch, and back). The pocket ion chambers will be checked frequently during a dive to ensure the radiological protection is adequate. Each diver will be equipped with a calibrated alarming dosimeter set to alarm at an accumulated dose of 200 mR, which will be response checked daily during the diving operations. Additionally, each diver will be equipped with a remote readout detector continuously monitored poolside. Health physics personnel will also periodically monitor the dose rates in the dive area. The diver will be in contact with poolside personnel during the dive, and he will be secured by a tether line to ensure radiological and safety requirements are observed.

(5) Contamination Control During Diver Exists From Pool

Divers will exit from the pool via the underwater ladder and disrobe on the drip platform. Each diver will be rinsed with water while exiting from the pool to minimize the potential spread of contamination.

(6) Survey Instrument Response Checks

Survey instruments and alarming dosimeters used during the rerack work will be response checked daily.

(7) Disassembly and Decontamination of Existing Racks

As each old fuel rack is raised from the spent fuel pool, it will be rinsed with demineralized water to remove any loose contamination, thus reducing the potential for airborne contamination as well as reducing the beta radiation levels on the rack. The rack will then be moved to the cask wash pit for additional rinsing and drying. A filtered ventilation system will be available for use during disassembly of each rack if radiological conditions merit its use. Workers involved in the dismantling of each rack will wear full face respirators if necessary. Extremity dosimeters will be used when necessary.

NRC Question 3:

Discuss the volume of radwaste to be disposed of from existing racks.

APC Response:

Alabama Power Company is pursuing two avenues for dispositioning the existing spent fuel storage racks: (1) transfer of the racks to another utility for use as spent fuel racks and (2) decontamination and disposal.

If the racks are transferred to another utility, the amount of radwaste generated would be negligible, mainly miscellaneous studs, bolts, and plate of a volume under 5 cubic feet.

If the racks are not transferred to another utility, they will be decontaminated, either onsite or offsite, and sold as scrap. The racks will be cut into pieces for ease of handling and then electropolished. It is estimated that approximately 80 percent of the rack material will be decontaminated and sold as scrap. The remaining 20 percent will be economically unfeasible to completely decontaminate and will be disposed of as radwaste. This volume has been conservatively estimated to be less than 300 cubic feet.