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RESEARCH & OCCUPATIONAL SAFETY/RADIATION SAFETY
A8-060J CENTER FOR THE HEALTH SCIENCES
LOS ANGELES, CALIFORNIA 90024

June 21, 1988

Mr. Alexander Adams
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attn: Document Control Desk
Docket Number 50-142

Dear Mr. Adams:

Please replace the enclosed four pages in the Phase II Plan for our former reactor facility, which was sent on June 10, 1988 from J.E. McLaughlin to A. Adams. Some editorial corrections were made on pages 6, 12, 15, and 16.

Sincerely yours,

James E. McLaughlin

James E. McLaughlin
Acting Director
Research & Occup. Safety

JEM:cm

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1.3.1 Pipes, Drainlines, and Ductwork

The primary water system has also been removed and the residual equipment in the process pit consists of a sump, a sump pump and two 250 gallon holding tanks. The sink and shower drainlines merge with three other floor drains to empty into the sump. A separate drain from the reactor core also passes to the sump. Swipes of inlets and outlets of these drainpipes and the accessible points of the exhaust system ductwork when counted on a beta counter, revealed all surface contamination levels below the limits prescribed in Table 1 of USNRC Regulatory Guide 1.86. However, it is possible that the pipes and drainlines may have been activated from neutron streaming. Further surveys will be performed during Phase II as we gain increased access.

The sump is a reservoir 24 inches wide, 24 inches long and 61 inches deep. At the bottom there is about an inch and a half of sludge covered by approximately 24 inches of water. Samples of the water and the sludge were individually counted on a high resolution Ge(Li) spectrometry system and a liquid scintillation spectrometer for possible contamination. The results are reported in Table 1.2.

Table 1.2. Activity of Radioisotopes in the Sump

Isotopes	Half-Life (years)	Water %	Water Activity* (μCi)	Concrete Sediment %	Concrete Activity** (μCi)	Total (μCi)
Co-60	5.27	---	---	10.3	50.0	50.0
Eu-152	13.6	---	---	26.0	127.0	127.0
H-3	12.3	100	18.3	52.1	253.8	272.1
C-14	5730.0	---	---	11.6	56.7	56.7
		100	18.3	100.0	487.5	505.8

* Volume of Sump water is approximately equal to 7.83 ft^3

** Volume of the sediment is approximately equal to 0.5 ft^3. Density of the sediment is taken to be that of concrete, i.e., 200 lbm/ft^3.

1.4 The Decommissioning Approach

For Phase II, UCLA intends to complete decommissioning of the facility for "unrestricted" use by availing the services of an outside contractor. "SAFSTOR" is no longer under consideration. The selected decommissioning alternative is "DECON". After the approval of this plan by the NRC, UCLA will soon distribute a Request for Proposal to potential commercial bidders.

removal, and transportation of radioactive and non radioactive material from the site in accordance with all governing regulations. However, UCLA shall oversee and review all tasks during the decommissioning project. UCLA will retain overall responsibility for health and safety considerations during decommissioning.

2.4 Cost Estimate and Funding

The cost of Phase II decommissioning is estimated to be $200,000 exclusive of internal personnel costs. This includes the estimated cost of the termination survey. The School of Engineering and Applied Sciences (SEAS) has approved this cost.

3.0 DISMANTLING AND DECONTAMINATION TASKS AND SCHEDULES

3.1 Tasks

The Contractor's tasks in Phase II will include the following:

a. razing the concrete monolith and pedestal to floor level,
b. excavation of the approximately 52 ft^3 of concrete down to about 22 inches below floor level,
c. removal of four large concrete blocks,
d. packaging materials for appropriate land burial,
e. transfer of such material to burial site,
f. decontamination of the reactor room and nearby areas, and
g. final release survey of the facility.

3.2 Schedule

The schedule for the decommissioning project after approval of this plan by the NRC is shown in Table 3.1

conventional concrete, the remainder is heavy concrete. The monolithic structures contain reinforcing bar, electrical conduit, three steel beam port liners (each wing), and a steel plate in the western, conventional concrete, region of each wing. The single drawing that refers to the plate specifies only a 24 inch width. The thickness scales to 1/2 inch, the height is not specified.

3.3.2.4 The Pedestal: The pedestal runs the entire east-west length of the shield at a width of approximately 5 feet and rises 14 to 16 inches above the floor level. The height and width change in discrete steps to reduce neutron streaming paths.

The pedestal contains the embedded part of the reactor "framework" which supported the control blade system within the core. It is rectangular in outline consisting of two parallel 5 inch 5.7 lb. channels, each about 76 inches long with 24 inches long end pieces of the same stock. The 21 inches inside distance between the long channels is further fixed by two angles 5 inches x 5 inches x 5/16 inches perpendicular and welded to the channels. One flange of each channel and one leg of each of the angles is visibly flush with the top surface of the pedestal. Because of mass and close proximity to the core center, this entity is likely to be the single most radioactive object to be encountered in the demolition work.

The pedestal contains some abandoned aluminum pipe and manifolding, and a centered floor drain which empties to the sump.

3.3.2.5 Removable Blocks: All of the removable blocks are fitted with lifting lugs and are manageable with the 10 ton crane and 4 chain sling. These blocks are described in Table 3.3.

Table 3.3. Removable Blocks

Type*	Dimension L x W x H (inches)	Volume (ft^3)	Density (lbm/ft^3)	Mass (tons)
C8	90 x 50 x 30	92.25	207	9.55
Embedded Steel		1.50	480	0.36
C9	84 x 48 x 30	68.79	247	8.50
Embedded Steel		1.21	480	0.29
A + B	66 x 20 x 69	37.93	247	4.68
Void (15 ports)		11.88	0	0.00
Embedded Steel		2.13	480	0.51
A + B Port Plugs				
Concrete		10.32	247	1.27
Steel		1.56	480	0.38
C + D	66 x 10 x 69	42.03	247	5.19
Void (15 ports)		7.46	0	0.00
Embedded Steel		3.21	480	0.77
C + D Port Plugs				
Concrete		6.18	247	0.76
Steel		1.28	480	0.31

* The location of these blocks are shown in Fig. 3.1.

All blocks are edged with 2 inches x 2 inches x 1/4 inches angle (3.19 lbm/ft^3) and contain varying amounts of reinforcing bar. The rebar is sometimes terminated by welds to the center of edge strips. Blocks C-8 and C-9 each contain three cylindrical, vertical steel beam port liners, 3.5 inches x 3.125 inches x 30 inches in C-8 and 2.5 inches x 2.125 inches x 30 inches in C-9.

Blocks A + B and C + D were cast as four separate entities each 10 inches thick and subsequently welded in pairs along adjacent edge strips to form two blocks each 20 inches thick. Block A + B and block C + D each contain 15 rectangular beam ports with matching plugs. The void volumes indicated in the table above are the volumes of the plugs, consequently if the plugs are regarded as a portion of the block, they do not contribute incremental volume to the amount of concrete to be removed.

3.3.2.6 Excavation: The volume is that of a spherical segment of base radius 49 inches extending to a depth of 22 inches below floor level.