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COMMUNITY SAFETY DEPARTMENT
OFFICE OF RESEARCH & OCCUPATIONAL SAFETY
LOS ANGELES, CALIFORNIA 90024

March 13, 1985

Mr. Harold Denton, Director
Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attn: SSPB

Docket No. 50-142
License No. R-71

Dear Mr. Denton:

This letter is in response to the letter from Mr. Cecil Thomas to me, dated February 21, 1985, and further expands on my previous letters to you of January 16 and February 15, 1985. UCLA is still in the process of developing detailed plans for dismantling and decommissioning our reactor. The attachment to this letter is excerpted from the third generation (draft) of a 'Request for Proposal' by which UCLA intends to solicit bids for the initial dismantling work.

Also attached is a brief synopsis of the present status of the reactor. We have removed a small amount of lead and graphite for analytical purposes, but such removal involved no operations that were different than those previously performed for normal core maintenance, i.e. no cutting or destructive disassembly of parts.

At this time, our basic plan is to proceed no further until we have obtained contractor bids and plans for the initial dismantling of the reactor core parts.

Sincerely,

Walter F. Wegst

Walter F. Wegst, Jr.
Director, Office of
Research & Occupational Safety

WFW:si
Enclosure
cc: Director, U.S. NRC Region V

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss

OFFICIAL SEAL
R. WANDA SOUKUP
NOTARY PUBLIC CALIFORNIA
LOS ANGELES COUNTY
My Commission Expires June 10, 1988

On March 14, 1985, before me, the undersigned, a Notary Public in and for said County and State, personnally appeared WALTER F. WEGST, JR. known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same.

WITNESS my hand and official seal

R. Wanda Soukup

Notary Public in and for said
County and State

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PRESENT STATUS OF THE REACTOR

The reactor fuel has been removed from the site. The control blade drive shafts have been severed at the exterior surface of the biological shield and the external drive systems removed. All primary water and shield tank water have been drained and removed.

The reactor core has been uncovered and fifteen graphite stringers have been removed from the central region of the core. The stringers are to be sampled for Wigner energy and specific activity measurements.

Removal of the central graphite created a void 12 inches by 20 inches by five feet deep which extends from the core top to the concrete pedestal. The radiation field in the void has a fairly uniform value of one rem per hour.

The staff and others are assembling a Request for Proposal to solicit bids for the continuation toward decommissioning.

The reactor operating staff remains at nearly full level, a level which will not be sustained very much longer. Meanwhile, the staff is acquiring some of the information essentail to an informed decision regarding decommissioning alternatives.

All concrete shielding remains on the site and could be readily restored to its normal position to create a SAFSTOR or ENTOMB mode of decommissioning.

PREPARATIONS FOR DECOMMISSIONING THE UCLA NUCLEAR REACTOR

1.0 OBJECTIVE:

To evaluate decommissioning alternatives and establish a decommissioning plan for the UCLA Argonaut reactor located on the UCLA campus in the School of Engineering and Applied Science.

2.0 INTRODUCTION:

The Argonaut reactor is a water cooled, water moderated, and graphite reflected reactor. ~~A brief description is given in Appendix A.~~ The principal constituents within the core are graphite and lead. There are fuel boxes, plumbing, and control blades in shrouds with steel supports embedded in the concrete base. These lesser materials consist of aluminium, magnesium, cadmium, structural steel and stainless steel. These are referred to as the "metallic parts." These metallic parts, although smaller in mass and volume than the graphite and lead, are likely to be more radioactive than the major constituents.

There are adjacent components; a graphite thermal column contiguous to the east face of the core, a shield tank contiguous to the west face of the core, and the surrounding concrete biological shield.

There are external components, primarily in the process pit. These include the reactor cooling system, a gas venting system, and a liquid waste handling system. All floor drains and decontamination facilities drain to a sump in the process pit. The decontamination facilities consist of an emergency shower, stall shower, and double sink.

3.0 WORK PLAN:

The work plan consists of the following four tasks:

1. Disassemble and remove the non-essential external equipment.
2. Disassemble the reactor core.
3. Conduct a radiation survey of the principal core constituents and the adjacent materials.
4. Prepare a report discussing decommissioning alternatives in terms of cost and man-rem exposures.

The individual tasks are described in greater detail in the following paragraphs.

3.1 Dismantlement of External, Non-Essential Equipment:

Peripheral equipment which is external to the reactor core is to be surveyed and classified as either radioactive or non-radioactive. Non-radioactive material is to be removed from the site. Radioactive material (if any) is to be packaged and shipped for burial. Non-essential equipment is described in Table I.

Table I: Non-Essential Equipment

1. The dump tank (which includes a heat exchanger).
2. The shield tank.
3. Primary water circulation system (except for primary pump) including flow meters, control valves, and demineralizer circuit components.
4. Secondary water system including flow control valve.
5. Air lines and gas vent lines.
6. Shield tank water purification system.

The following equipment is considered to be essential to the work which must resume after completion of the work described herein. Specifically the following facilities, utilities, and/or equipment, are to be left intact as essential equipment:

Table II: Essential Equipment

1. Sump pump
2. Holding tanks
3. Primary pump
4. Ten ton bridge crane
5. Area radiation monitor and alarm system
6. Ladders, stairways, walkways, platforms
7. Decontamination facilities
8. Ventilitation system

3.2 Disassembly of the Reactor Core:

Disassemble the reactor core, classify and stack like materials in catagories: graphite, lead, and other metals. The metallic parts (non-lead) are to be surveyed to the extent necessary to establish the shipping and burial requirements for those materials. The graphite and lead are to be palletized in such a way as to conveniently permit either:

a. Their packaging and transport to burial.

b. Their restacking in the empty core space for disposal at a later date (SAFESTOR or ENTOMB).

Removal of metallic parts is to include removal of the protruding portions of embedded parts but does not include removal of embedded parts. The metallic parts (non-lead) are to be packaged and shipped for burial. This will remove the most radioactive materials and provide ample space for restacking graphite and/or lead in the empty core space if either or both of those alternatives prove to be attractive.

3.3 Radiation Survey:

A radiation survey is to be conducted of the core constituents. The metallic parts (non-lead) are to be surveyed only to the extent necessary to provide a description sufficient for shipping and burial. Those materials are to be packaged and shipped for burial.

The graphite, lead, concrete, and embedded components; are to be sampled and surveyed in sufficient detail to provide:

1. A prognosis of the future radioactivity of these principal components.

2. Data for predicting man-rem exposure in hypothetical future decommissioning operations.

3. For long-lived materials which cannot be expected to decay in a reasonable period of time (say 20 to 50 years), a description suitable for satisfying transportation and burial requirements.

The concrete is to be sampled and assayed to the extent necessary to identify the principal radioisotopes present and the quantity, and to estimate the quantities of both radioactive and non-radioactive concrete.

3.4 ~~Contractor's~~ Report:

A report is to be prepared discussing decommissioning alternatives. Both prompt and deferred decommissioning are to be considered in terms of dollar cost and man-rem exposures. Deferred decommissioning is to be defined in terms of materials which are to be stored versus those which are to be removed for disposal.

Using the results of the radiation survey, the report is to discuss significant changes that would occur with time under a deferred decommissioning program. A significant change could be a reduction in worker radiation exposure or cost, or the passage of a material into a "low specific activity" or "exempt" status with attendent reduction in transport and burial cost.