UNIVERSITY OF VIRGINIA
NUCLEAR REACTOR FACILITY

U.S. MAIL ADDRESS
P.O. Box 400322
Charlottesville, VA
22904-4322

STREET ADDRESS
675 Old Reservoir Road
Charlottesville, VA 22903
Telephone: 804-982-5440
Fax: 804-982-5473

May 4, 2001
Docket No. 50-62, License R-66

Mr. Alexander Adams, Jr., Senior Project Manager
Events Assessment, Generic Communications and Non-Power Reactors Branch
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission M.S. 0-11-D-19
Rockville, MD 20852-2738

Subject: UNIVERSITY OF VIRGINIA – (Second) REQUEST FOR ADDITIONAL INFORMATION RE: DECOMMISSIONING AMENDMENT REQUEST (TAC NO. MA8186).

Dear Mr. Adams,

Please find enclosed the University's response package to the NRC's Request for Additional Information of April 13, 2001. In making our response we were assisted by GTS-Duratek, the contractor who performed the UVAR characterization survey, and CH2M-HILL, the company UVA is negotiating with to assist with the reactor decommissionings. Please note that no proprietary data has been included.

The response package was reviewed and approved by the University of Virginia's Nuclear Reactor Decommissioning Committee on April 30, 2001 and in accordance with 10CFR 50.30(b) the signed original and attachments are submitted by me under oath.

We appreciate the past NRC evaluations of our responses under an expedited schedule. Should you have questions regarding this document, please call me at (804) 982-5440.

Sincerely,

Robert U. Mulder

Robert U. Mulder, Director
UVa. Reactor Facility & Assoc. Prof. of Nuclear Eng.

Enc.: UVA's Response to NRC's RAI of April 13, 2001

cc: Mr. Craig Basset, NRC Region II, Atlanta, GA
Document Control Desk, NRC, Washington

City/County of Albemarle
Commonwealth of Virginia

I hereby certify that the attached document is a true and exact copy of a letter (type of document), presented before me this 4th day of May, ~~19~~ 2001.
by Robert Mulder
(name of person seeking acknowledgement)

Vickie S. Thomas
Notary Public

My commission expires 2/28 ~~19~~ 2002

A020

UVA RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION
UNIVERSITY OF VIRGINIA RESEARCH REACTOR
DOCKET NO. 50-62

(April 30, 2001)

1. **Iridium-192 is listed as a building surface contaminate Derived Concentration Guideline Limit (DCGL) in Table 2-6 of reference 1 but not in Table 7 of reference 2 or in the list of proposed soil DCGLs in Table 10 of reference 2. Please discuss.**

   Iridium-192 was listed because there were two spills of Ir-192 ceramic beads in the pool in September and October of 1992. Most of the beads were vacuumed up but some remained on bottom of pool and in the heat exchanger. Ir-192 was not detected during the characterization surveys and because of its short half-life (74 days), the Ir-192 activity will have decayed away and there will be no detectable Ir-192 activity. The acceptable screening limit is 7,400 dpm per 100 square centimeters. The maximum quantity spilled in 1992 was about 2 curies and 80 to 90 percent of the spill was recovered. The resulting maximum activity in April of 2001, if all the activity were located within 100 square centimeters, would be less than 1 dpm per 100 square centimeters. Therefore, Iridium-192 does not need to be listed in Table 7 of reference 2 or in the list of proposed soil DCGLs in Table 10 of reference 2 because there is no basis for it being a radionuclide of concern at the UVAR.

2. **There are apparent inconsistencies between the reference to number 28 of reference 1 and sections 2.3.1.1.3.1-4 of the Decommissioning Plan (DP) (Ref. 3). How will equipment, materials, instrumentation, and tools that are used during the decommissioning be processed? Please discuss.**

   The equipment, materials, instrumentation, and tools that are used during the decommissioning will be handled as described below:

   - The above items may be surveyed and released on site using the NRC standard for the release of materials as clean waste as provided in IE Circular 81-07, "Control of Radioactively Contaminated Material," May 14, 1981, and IE Information Notice 85-92, "Survey of Wastes Before Disposal From Nuclear Reactor Facilities," December 2, 1985.
   - The above items may be shipped directly for disposal as radioactive waste.
   - The above items may be shipped to a licensed radioactive material processing facility for survey and release, decontamination followed by survey and release, or shipment for disposal as radioactive waste.
   - The above items may be shipped to a licensed facility for holding until they are utilized on another project involving radioactive materials.
   - No contaminated items as listed above will be left on site.

3. **Please provide justification for not having a Technical Specification (TS) requiring the use of filtered ventilation in the reactor room to maintain the negative pressure while work is being done in the reactor room and pool. This condition is referred to in the note to the response to RAI number 13 of reference 1 and in section 2.3.1.2 of the DP (Page 2-13, Ref. 3).**

   Decommissioning procedures will be developed to implement the Decommissioning Plan. The procedures will require monitoring for airborne contamination within the UVAR room confinement, to verify that filtered ventilation of regions within the confinement is effective whenever decommissioning work is done involving a potential for airborne contamination and/or release. *Monitoring equipment provided by the decommissioning contractor company will be used to accomplish this.* This equipment shall be maintained and calibrated as necessary.

Note: The UVAR confinement was kept under a slightly negative ambient pressure by ventilation with the stack fan during operation of the reactor, for the removal of Ar-41. UVAR confinement air was never filtered, however.

4. **The position "UVA Industrial Hygiene (IH)" is referred to in the Respiratory Protection part of section of 3.1.2 of the DP (Page 3-8, Ref. 3). Please provide the position with supervisory control over the IH position. Please list the responsibilities of the IH position.**

The UVA industrial hygienist (certified by the American Board of Industrial Hygiene), serving as Biosafety, Laser Safety Officer and Industrial Hygienist Safety Engineer Sr., will be consulted to advise the decommissioning contractor on issues about air quality and the use of respiratory protection. The Director of Environmental Health and Safety, who also serves as Chairman of the Decommissioning Committee, has supervisory control over this position. (Please refer to Figure 2, in attachment, which depicts the organizational chart of the Office of Environmental Health and Safety.)

5. **The document "Disposal Site Waste Acceptance Criteria" is referred to in section 3.2.2 of the DP (Page 3-17, Ref. 3). Please provide the citation for this document.**

The "Disposal Site Waste Acceptance Criteria" referred to in section 3.2.2 of the DP is a generic reference because the contractor responsible for this work had not been selected at the time the DP was written. Therefore, the disposal site or sites to be used were not known. The statement should have said " Disposal Site Waste Acceptance Criteria for the contractor selected disposal site(s)".

Typical disposal site waste acceptance criteria include:

- *WASTE CONTROL SPECIALISTS LLC WASTE ACCEPTANCE CRITERIA*, CQ-100.
- *ENVIROCARE WASTE DISPOSAL CRITERIA, Waste Acceptance Guidelines.*
- *BARNWELL SITE DISPOSAL CRITERIA*, S20-AD-010.
- *DURATEK WASTE ACCEPTANCE GUIDELINES*, WM-ADM-I-101.

6. **What are the distinctions and relations between the Radiation Work Permit (RWP) and the Hazardous Work Permit (HWP)? Both are referenced in section 3.2.2 of the DP (Page 3-18, Ref. 3). With whom lie the responsibilities associated with HWPs?**

RWPs will be used when controls are imposed to protect against radiological hazards. Examples (non-inclusive) may be:

a. The opening of systems that carry or contain radioactive material.

b. Cutting, burning or welding on material that is radioactive or contaminated.

c. When the task involves working in an area where the general area radiation is greater than 2 mr/hr.

d. When the task involves working with material that is contaminated to a level that is greater than 2000 dpm/100 cm^2.

RWPs may describe either general or specific precautions and conditions. General conditions may be those found during the cleanup of an area where there is no specific and distinct radiological hazard. Specific conditions may be those found when working on a valve or tank.

An HWP will be used when controls are imposed to protect against non-radiological hazards. Depending on the hazard, the appropiate OEHS specialist will assist with the development of the HWP. The UVA Occupational Safety Environmental Inspector Sr. will be responsible for approval of HWPs. The Director of Environmental Health and Safety, who also serves as Chairman of the Decommissioning Committee, has supervisory control over the Environmental Inspector Sr. position. (Please refer to Figure 2, in attachment, which depicts the organizational chart of the Office of Environmental Health and Safety.)

7. The calculation of the Q_i values listed for the various nuclei in Table 7-2 and 7-3 of reference 4 do not follow the accompanying description. Please clarify.

The Q_i values listed for the various nuclei in Table 7-2 of reference 4 were correct. However, the inventory value of 0.362 curies in the second sentence of section 7.2, page 7, was incorrect. The value was incorrectly imported from the calculation sheet. This activity was based on a worst case hot spot activity of 12,593 dpm/100 cm^2 (125.93 dpm/cm^2) over an area of 6,871 square feet. The appropriate conversion factors of 2.22 x 10^{12} dpm per curie and 929 cm^2 per square foot were utilized to calculate the inventory as shown in the equation below:

$$\frac{(125.93\,dpm/cm^2)(6871\,ft^2)(929\,cm^2/ft^2)}{2.22\times10^{12}\,dpm/curie} = 3.62\times10^{-4}\,curies$$

Please change the inventory value in the second sentence of section 7.2, page 7 to 3.62 x 10^{-4} curies.

The Q_i values listed for the various nuclei in Table 7-3 of reference 4 were correct. However, the inventory value of 353 curies in the second sentence of section 7.3, page 8, was incorrect. The value was incorrectly imported from the calculation sheet. This activity was based on the worst case waste tank sample results shown in the table below.

West Buried Waste Tank Sediment Sample No. UVA 00355 Results

Mn-54 pCi/g	Co-57 pCi/g	Co-60 pCi/g	Zn-65 pCi/g	Sb-125 pCi/g	Cs-137 pCi/g	Eu-154 pCi/g	Total pCi/g
18.6	8.5	777.4	30.7	46.7	47.6	11.5	941.0

The sludge volume in the tank was estimated to be no more than 100 gallons at a density of 1.2 grams per cubic centimeter. The appropriate conversion factors of 3785 cm^3 per gallon and 1.2 grams per cm^3 were utilized to calculate the inventory of radionuclides as shown in the equation below for Co-60:

$$\frac{(777.4\,pCi/gram)(100\,gallons)(3785\,cm^3/gallon)(1.2\,grams/cm^3)}{1x10^{12}\,pCi/Ci} = 3.53\times10^{-4}\,Ci, Co-60$$

Please change the radionuclide inventory values in the second sentence of section 7.3, page 7 to 3.53 x 10^{-4} Ci of Co-60, 2.16 x 10^{-5} Ci of Cs-137, 2.12 x 10^{-5} Ci of Sb-125, 1.39 x 10^{-5} Ci of Zn-65, 8.45 x 10^{-6} Ci of Mn-54, and 5.22 x 10^{-6} Ci of Eu-154.

8. Please clarify the process for review and approval of the Final Status Survey Plan after it is developed.

UVA is utilizing Method 1 from section 14 of NUREG-1727, *NMSS Decommissioning Standard Review Plan* (SRP), to submit information to the NRC on facility radiation surveys. UVA has submitted information to the NRC on release criteria, characterization surveys, and operational surveys as part of the decommissioning plan. In addition UVA has committed to using the MARSSIM approach in developing the final radiological survey. UVA will then submit information to the NRC on *Final Status Survey Design*, when the design of the final radiological survey for the site has been completed. The Final Status Survey Report will be submitted after the final radiological survey has been performed.

The Final Status Survey Plan will be prepared by the decommissioning contractor who will review and approve the plan utilizing their internal review and approval process. Then, the plan will be presented for approval to the UVA Reactor Decommissioning Committee, together with a technical review, to ensure that the Final Release Survey Plan utilizes the guidance provided in DG-4006, *Demonstrating Compliance with the Radiological Criteria for License Termination* and NUREG-1575, *Multi-Agency Radiation Survey and Site Investigation Manual* (MARSSIM). Following the approval of this document by the UVA Decommissioning Committee, it will be submitted to the NRC for review and acceptance as being adequate to demonstrate compliance with radiological criteria for license termination.

The Final Status Survey Plan will include sufficient information to allow the NRC to determine that the final status survey design is adequate to demonstrate compliance with the radiological criteria for license termination. The information will include:

- A brief overview describing the final status survey design;
- A description and map or drawing of impacted areas of the site, area, or building classified by residual radioactivity levels (Class 1, Class 2, or Class 3) and divided into survey units, with an explanation of the basis for division into survey units. Maps will have compass headings indicated;
- A description of the background reference areas and materials, if they will be used, and a justification for their selection;
- A summary of the statistical tests that will be used to evaluate the survey results, including the elevated measurement comparison, if Class 1 survey units are present, a justification for any test methods not included in MARSSIM, and the values for the decision errors (and) with a justification for values greater than 0.05;
- A description of scanning instruments, methods, calibration, operational checks, coverage, and sensitivity for each media and radionuclide;
- For in-situ sample measurements made by field instruments, a description of the instruments, calibration, operational checks, sensitivity, and sampling methods, with a demonstration that the instruments, and methods, have adequate sensitivity;
- A description of the analytical instruments for measuring samples in the laboratory, including the calibration, sensitivity, and methodology for evaluation, with a demonstration that the instruments and methods have adequate sensitivity;
- A description of how the samples to be analyzed in the laboratory will be collected, controlled, and handled;
- A description of the final status survey investigation levels and how they were determined;
- A summary of any significant additional residual radioactivity that was not accounted for during site characterization;

- A summary of direct measurement results and/or soil concentration levels in units that are comparable to the DCGL and, if data is used to estimate or update the survey unit;
- A summary of the direct measurements or sample data used to both evaluate the success of remediation and to estimate the survey unit variance.

9. What guidance will be used for the development of the Quality Assurance Project Plan?

Additional specific guidance for the preparation of the Quality Assurance Project Plan (QAPP) is provided by changing the first paragraph of section 1.2.4 "Program Quality Assurance" in the DP, reference 3, to read as follows:

A Quality Assurance Project Plan (QAPP) will be developed to incorporate the applicable portions of 10 CFR 50, Appendix B, Code of Federal Regulations Title 10, Part 71 (10 CFR 71), "Packaging and Transportation of Radioactive Material," Subpart H. "Quality Assurance." In addition, the QAPP will utilize a graded approach that bases the level of controls on the intended use of the results and the degree of confidence needed in their quality. ANSI/ASQC E4-1994 (ASQC 1995) and Appendix K of MARSSIM will be used to provide guidance in quality systems, the collection and evaluation of environmental data, and for developing a QAPP.

10. Please describe the plan for characterizing the pool leakage pathways. Will this include an investigation of the hydrology present on the site? If not please justify. Will the characterization include sampling existing waterways, existing wells, and test wells? If not, please justify.

The hydrology of the UVAR site is reasonably well understood. As we explain below, additional investigations of the site hydrology will occur in concert with the decommissioning activities to confirm this understanding.

In preparation of this response, historical UVAR files and records related to reactor pool leaks and repairs, performed since 1960 until recent date, were collected and reviewed. In general, UVAR pool leakage rates have varied between about 50 to 1000 gallons/day. A maximum permissible leakage rate of 3000 gallons/day was at one time calculated to be acceptable. This calculation was reported to the NRC and an administrative limit requiring reactor shutdown and pool repair of 1000 gal/day was adopted. Repairs made to the unlined, painted concrete reactor pool involved pressure grout injections of areas surrounding such poolwall penetrations as experimental access facilities, primary water inlet and outlet piping and the center poolgate buttress. Small surface cracks were sealed during periodic re-paintings of the pool walls with epoxy-based paints. Except for the visible slight water leakage about the experimental access facilities, which are above ground level, the leaks from the pool to the building foundations were not visible.

Given that the pool was constructed in an excavation blasted from a rocky hillside, and is located above and next to a pond, the leakage pathway is believed to go from the reactor pool to reactor building foundations and then on to the pond, which is about 50 feet distant and hydrologically downgradient in a southeasterly direction. Documented evidence was found to support this position. In a letter dated August 8, 1977 from then UVAR director J.L. Meem, to Mr. F.J. Long in USNRC Region II, the situation involving a increasing poolwater makeup rate of about 700 gallons per day was discussed. UVA reported to the NRC that water samples taken of the pond at a location nearest to the reactor pool, following a period of reactor operation resulting in measured poolwater Na-24 activity of about 2×10^{-3} µCi/ml, did show a specific activity of about 4×10^{-8} µCi/ml. The decay of the pondwater activity was followed and it corresponded to the 15-hour half-life of Na-24.

More recent hydrological data is also available. In October 1997, a groundwater monitoring system was installed at the UVAR site by the University of Virginia's Office of Environmental Health and Safety. Monitoring wells were established between the Reactor Facility building and the pond, with the purpose of determining whether groundwater had been contaminated and to find the direction of groundwater flow beneath the Reactor Facility. Three 2" diameter monitoring wells were successfully drilled and reached groundwater. Soil samples taken from the well boring were analyzed to characterize the soil and rock formation, and to identify any radionuclides.

The hydrologic and radiological findings obtained were reported to the UVA Reactor Safety Committee by certified professional geologist Jeffry Sitler and Reactor Health Physicist Debby Steva [1)]. Based on water levels measured in the wells, it was concluded that groundwater flows in a SE direction from the pool to the pond. A hydraulic gradient of 5.45×10^{-3} ft/ft was calculated. Using a sapolite rock effective porosity of 40%, groundwater was calculated to move at the site at a rate of about 33 ft/yr. The soil samples taken from the auger borings were found to contain only natural radionuclides.

Since 1997, monitoring of groundwater has been conducted on a quarterly basis. Several times, when the UVAR reactor was still in operation, trace tritium levels were detected in the LLD range in water from the sampling well closest to the reactor pool, but well below the tritium release limit of 1×10^{-3} µCi/ml. The data collected thus far indicates that the poolwater leaks which occurred during the past 40 years have not impacted the local groundwater quality adversely.

Mr. Sitler re-visited the UVAR site in early April, 2001, to advise on how additional hydrological site characterization could be conducted. Suitable locations (please see Figure 1 in attachment) were found for two additional groundwater test sampling wells, one (MW4) directly north of the Reactor building (hydrologically upstream in unimpacted groundwater), and the other (MW5) near the pond retaining wall (hydrologically downstream, at a potentially impacted location). UVA is hereby committing to NRC that it will have these groundwater sampling wells drilled. The additional water table data to be obtained is expected to confirm the present understanding of the site hydrology. In addition, water samples from new and existing site wells, nearby wells on the other side of the hillside on which the UVAR site is located, and nearby surface waters, will be taken and evaluated for a potential UVAR poolwater leak impact.

[1)] Reference: Groundwater Monitoring System and Analytical Results, University of Virginia Nuclear Reactor, October 24, 1997, Jeffrey A. Sitler, CPG and Deborah P. Steva RHP, report to UVA Reactor Safety Committee of October 28, 1997.

11. Beginning on page A-3 of Appendix A of the DP (Ref. 3)" ...areas that will require remediation or further investigation and evaluation..." are listed. One sample, Location No. 14, was a composite sample of pond sediment taken at the outfall area of the liquid waste holding tank bunker. As indicated on page A-6 of the DP and in Table 7.4 of the UVAR Characterization Survey Report (CSR) (Ref. 5) levels above the DCGLs for Co-60 and Cs-137 were found. Please discuss the plan for further characterization, evaluation, and remediation of the pond sediment. Please provide the estimate of the impact this activity will have on the schedule, personnel dose, waste volume, and decommissioning cost.

The statement on page A-6 of the DP indicating that Cs-137 was in excess of the DCGLs was incorrect. The sample result for Cs-137 was 3.7 pCi/g and the DCGL for Cs-137 is 11 pCi/g. However the Co-60 result, 9.5 pCi/g, was in excess of the DCGL, 3.8 pCi/g, as indicated. The attached survey map (please refer to attached Figure 1) shows as circled numbers the sediment sample locations 1 to 5 plus sample locations EP1-1. Only sample location EP1-1 had activity in excess of the proposed DCGLs as indicated on the attached pond sample result table (please see Table 1 in attachment). The EP1-1 sample was taken in the immediate vicinity of the drainpipe from the reactor building. The 10-meter space on the map shown around sample location EP1-1 indicates the maximum anticipated extent of contamination.

Given the nature of the contamination, the MARSSIM data life cycle provides the decision framework to assess if activities in the pond sediments are significantly above the DCGLs and if remediation is necessary. The location of the pond sediment sample was biased at the inlet and represents the most likely location to detect contamination. The results from this sample do not indicate that hazardous constituents are present in concentrations above risk-based concentrations, thus additional characterization for hazardous chemicals is likely not necessary. However, because the DCGL for Co-60 was exceeded, additional measurements to delineate the lateral extent of contamination are necessary. The survey/sampling will indicate if the contamination is isolated near the inlet or uniform across the pond or if other areas of elevated measurements are present. At least one shallow subsurface sample should be collected to assess the vertical migration of contamination. Results from the shallow subsurface sample will be used to estimate remediation volumes, if appropriate.

Several outcomes are possible from further characterization of the pond sediments. If it is determined that remediation, whether partial to alleviate isolated areas of contamination or in full, the remediation waste will be handled as other similar waste (i.e., soil, tank sediments).

12. In section 7.5.1, page 7-17, of the UVAR CSR it is stated that Eu-152 was detected in the pond sediment sample. Table 7.4 of the UVAR CSR does not list the results for Eu-152. Please provide those results.

The pond sediment sample from location EP1-1 contained 0.67 pCi/g as indicated in the UVAR CSR. Please add the following line for Eu-152 to table 7.4 of the UVAR CSR.

Radionuclide	Type of Analysis	MDA (pCi/g)	Result (pCi/g)
Eu-152	Gamma Spec	0.3	0.67

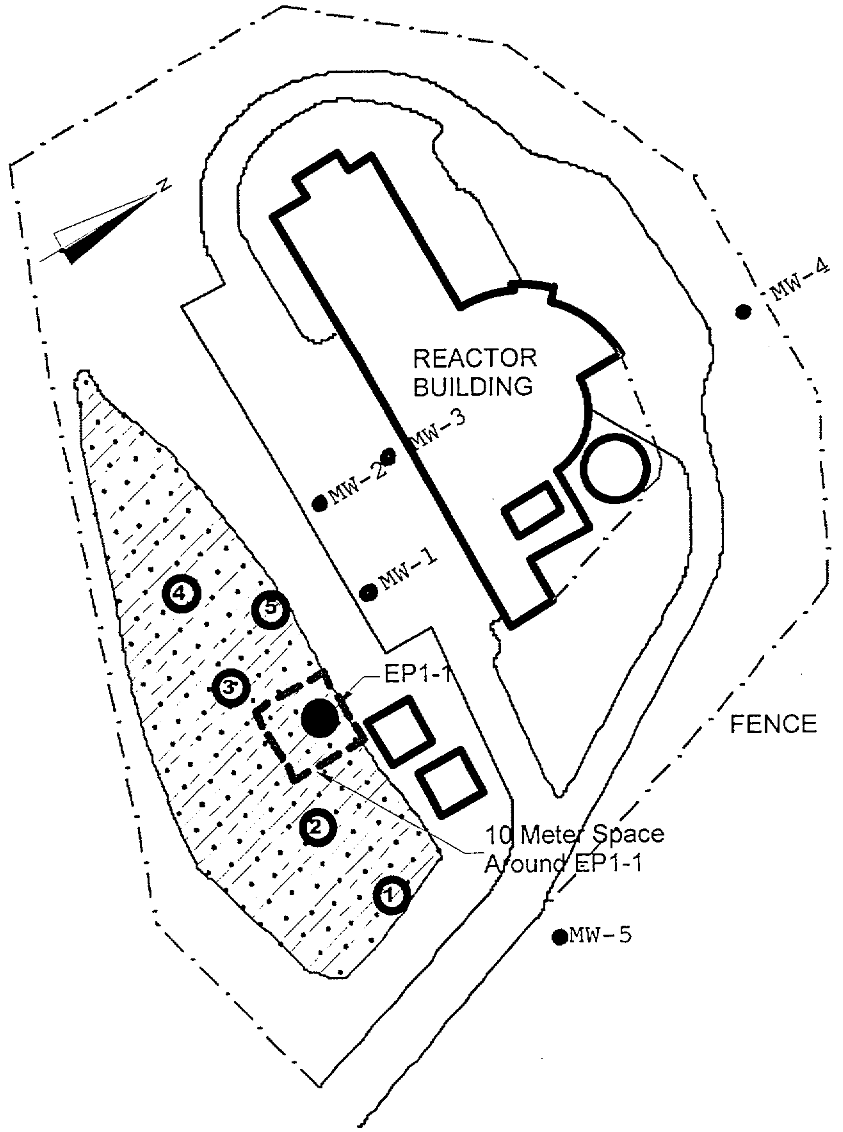
References:

1. University of Virginia (UVA), Response to Nuclear Regulatory Commission (NRC), November 2, 2000, Request for additional Information RE: Decommissioning Amendment Request (TAC No. MA8186). December 19, 2000.

2. Dose Assessment for the UVAR Decommissioning Plan, REFS-CALC-UVAR-001 Revision 0, Attachment of Reference 1, Prepared for the University of Virginia by GTS Duratek, December 12, 2000.

3. University of Virginia Reactor Decommissioning Plan, Prepared for the University of Virginia by GTS Duratek, February 2000.

4. Radiological Accident Analysis for UVAR Decommissioning Plan, REFS-CALC-UVAR-002, REVISION 0, Prepared for the University of Virginia by GTS Duratek, December 12, 2000.



MW = Groundwater Monitoring Wells
MW-1, MW-2 & MW-3 Are Existing Wells
MW-4 & MW-5 To Be Drilled During Decommissioning Period

Figure 1: Pond Sediment Sampling Locations And Groundwater Monitoring Well Locations

Figure 2: Office of Environmental Health and Safety Organizational Chart

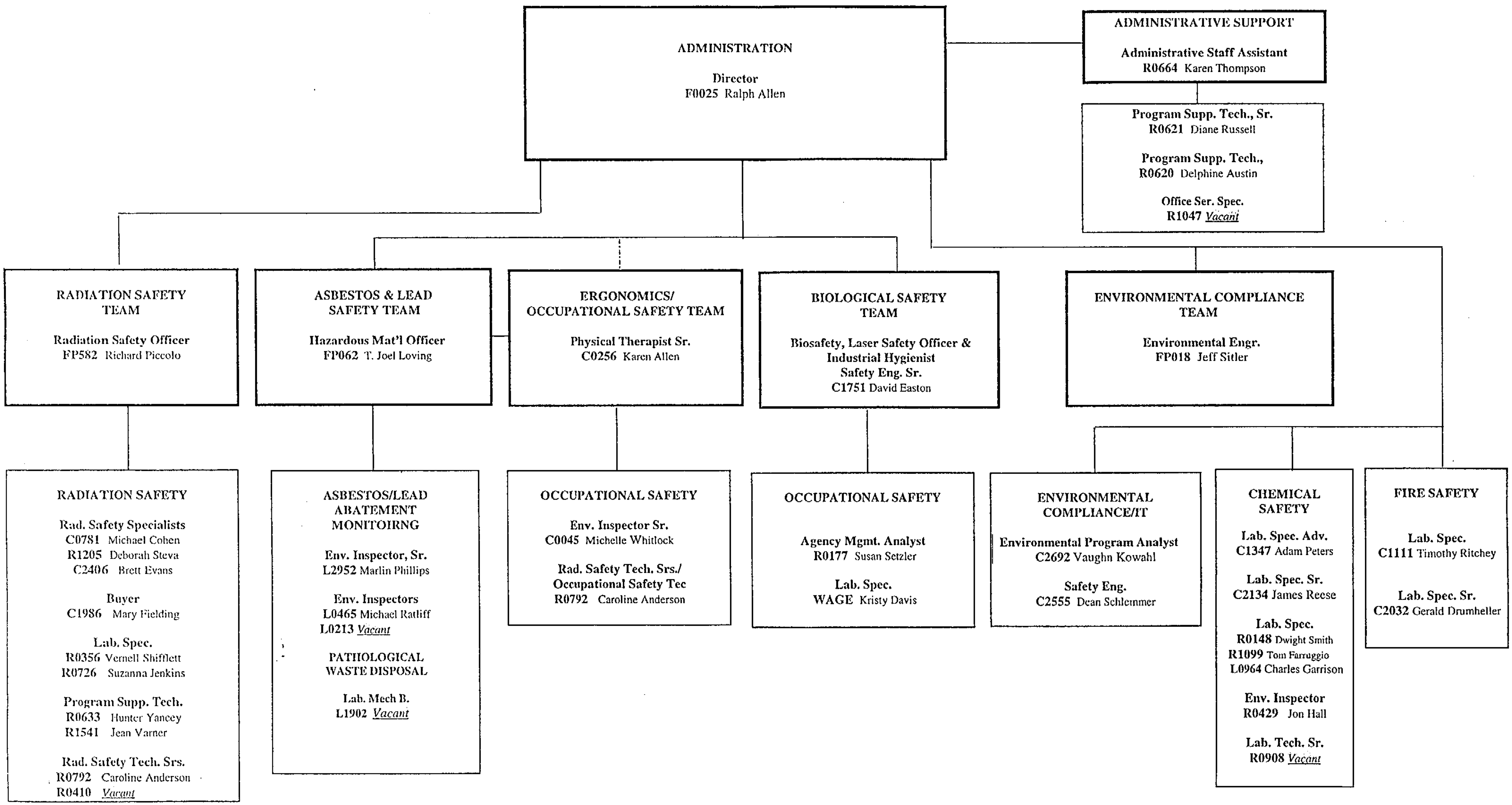


Table 1 : UVAR Pond Sediment Sample Data

(Note: Sample location numbers in this table can be correlated with circled numbers on Figure 1 showing sample locations.)

Lab Sample No.	Sample Location	Sample Depth inches	H-3 (pCi/g)	C-14 (pCi/g)	Fe-55 (pCi/g)	Co-60 (pCi/g)	Ni-63 (pCi/g)	Tc-99 (pCi/g)	Cs-137 (pCi/g)	U-233/234 (pCi/g)	U-238 (pCi/g)	Am-241 (pCi/g)	Pu-238 (pCi/g)	Pu-239/240 (pCi/g)	Pu-241 (pCi/g)	Cm-242 (pCi/g)	Cm-243/244 (pCi/g)
UVA00031	2	0-6"	-	-	-	<0.1	-	-	0.9	-	-	<3.3	-	-	-	-	-
UVA00033	3	0-6"	-	-	-	<0.1	-	-	<0.2	-	-	<3.3	-	-	-	-	-
UVA00035	4	0-6"	-	-	-	<0.1	-	-	<0.1	-	-	<2.7	-	-	-	-	-
UVA00037	5	0-6"	-	-	-	<0.1	-	-	<0.1	-	-	<1.3	-	-	-	-	-
UVA00046	1	0-6"	-	-	-	<0.3	-	-	1.6	-	-	<2.8	-	-	-	-	-
UVA00030	1	6" to refusal	-	-	-	<01.	-	-	<0.1	-	-	<2.8	-	-	-	-	-
UVA00032	2	6" to refusal	-	-	-	<0.9	-	-	<0.1	-	-	<3.6	-	-	-	-	-
UVA00034	3	6" to refusal	-	-	-	<0.1	-	-	<0.2	-	-	<3.3	-	-	-	-	-
UVA00036	4	6" to refusal	-	-	-	<0.1	-	-	<0.2	-	-	<2.3	-	-	-	-	-
UVA00038	5	6" to refusal	-	-	-	<0.1	-	-	<0.1	-	-	<2.4	-	-	-	-	-
H0100-02EP1-1	EP1-1	0-6"	<0.8	<20	<7	9.5	< 8	< 4	3.7	1.4	1	< 0.07	< 0.2	< 0.2	3.1	< 0.07	< 0.06