

LICENSEE: University of Virginia (UVA)

FACILITIES: UVA Research Reactor and CAVALIER

SUBJECT: SUMMARY OF MEETING BETWEEN UVA AND THE NRC STAFF

On November 4, 1999, representatives of the NRC staff met at NRC Headquarters with representatives of UVA. Attachment one is a list of meeting attendees. Attachment two is the briefing material presented by the licensee at the meeting.

The purpose of the meeting was to discuss the status of activities to prepare for decommissioning of the UVA Research Reactor (UVAR) and the CAVALIER. The UVAR was a 2 MW(t) pool type reactor that was permanently shutdown in June 1998. The staff currently has under review an application from the licensee for a possession-only license amendment for the UVAR. The CAVALIER is a small (100 w) training reactor located in a separate room from the UVAR. Decommissioning of the CAVALIER was authorized by the Commission in February 1992. The licensee plans to decommissioning the CAVALIER while the decommissioning plan for the UVAR is under review by NRC.

The licensee presented a chronology of recent activities. All irradiated fuel has been removed from site and the cobalt irradiator removed from the UVAR pool. The licensee presented the preliminary results of the characterization survey that was performed at the site using the MARSSIM approach. The results of the survey show that most of the radioactive material on site is contained in the reactor components and the reactor pool.

The licensee presented a general outline of the decommissioning plan that is being developed. The licensee anticipates submitting the plan to NRC in February 2000. The licensee assumed in their time line a period of four months for review and approval of the plan by NRC. The NRC staff stated that reviews of decommissioning plans were taking the staff from between 6 to 12 months to complete. The licensee stated that their time line was based on a concern that the waste disposal facility in South Carolina could close to waste generators in Virginia. This could negatively impact decommissioning activities. The NRC staff stated that they would give review of the licensee's decommissioning plan priority given workload constraints and existing priorities. The NRC staff stated that the licensee could reduce review time by submitting a high quality plan that could be reviewed without requests for additional information. Also, the NRC staff stated that the sooner that the licensee could submit the plan, the sooner that the NRC review of the plan could start.

Docket Nos. 62 & 396
 Attachments: As stated
 cc w/attachments:
 See next page

Original signed by
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PDR ADOCK.

University of Virginia

Docket Nos. 50-62/396

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MEETING BETWEEN THE NRC STAFF AND UNIVERSITY OF VIRGINIA

November 4, 1999

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Paul Ely GTS Director 423-376-8243

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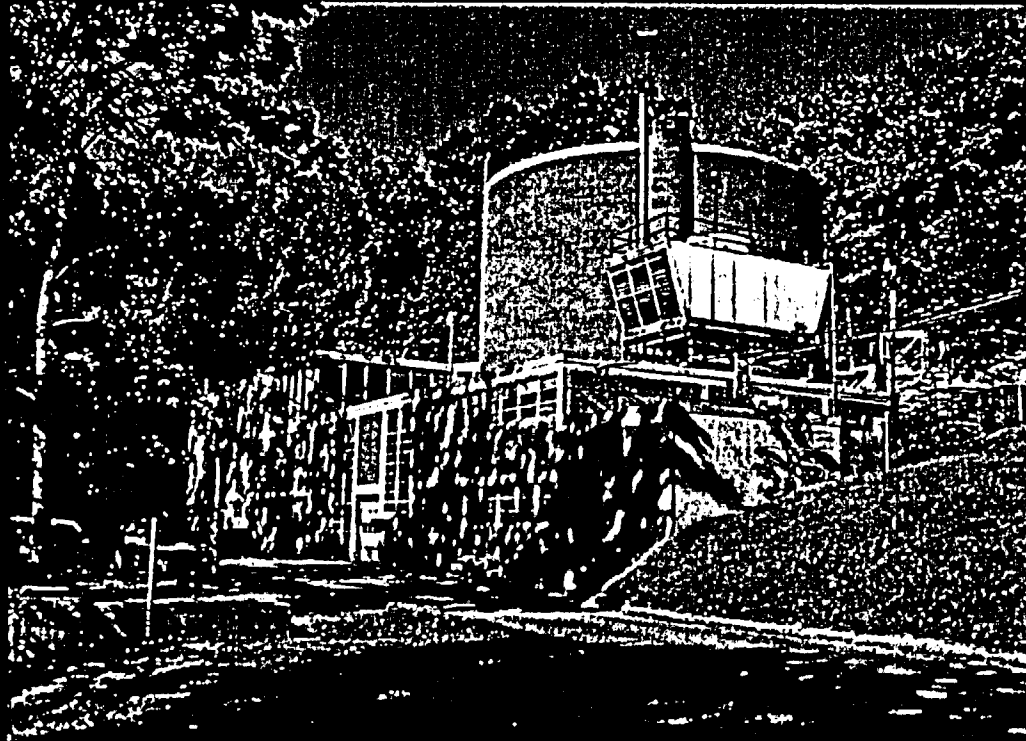
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 AND STAFF OFFICER

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Deborah Steva UNIV. OF VA. 804/982-4911

University of Virginia Reactor Decommissioning



University of Virginia Reactor Decommissioning



Introduction of Participants

UNIVERSITY OF VIRGINIA

- Mr. Ralph Allen
Director, Office of Environmental Health & Safety
Chair, Reactor Decommissioning Committee
- Mr. Robert Mulder
Director, Reactor Facility
Member, Reactor Decommissioning Committee
- Mr. Rick Piccolo
Radiation Safety Officer
Member, Reactor Decommissioning Committee
- Mr. Paul Benneche Reactor Supervisor
- Ms. Debby Steva Reactor Health Physicist

Participants

GTS-DURATEK

- Mr. Paul Ely
Senior Radiological Engineer
(Site Characterization Project Manager)
- Mr. Mark Kirshe
Project Sponsor

RECENT CHRONOLOGY OF EVENTS

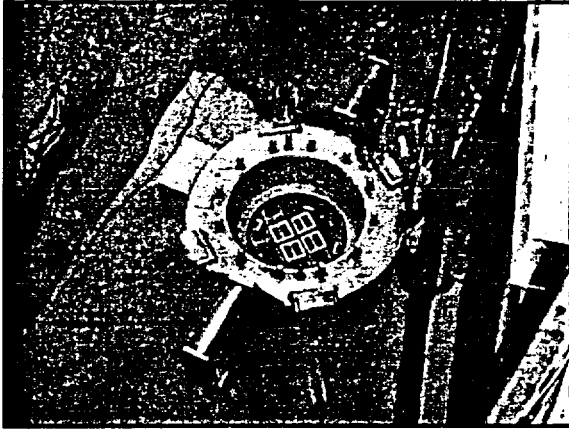
- ◊ Amendment #23 to UVAR (R-66) T.S. by NRC (org. structure) June 15, 1998
- ◊ NRC notified of UVA's intent to decommission UVAR June 22, 1998
- ◊ UVAR permanent shutdown June 30, 1998

Chronology

- ◊ Amendment #8 to CAVALIER (R-123) T.S. by NRC (org. structure) July 7, 1998
- ◊ UVA T.S. amendment request Sep. 29, 1998
- ◊ First spent fuel shipment, 4 of 20 elements, to SRP Nov. 13, 1998
- ◊ NRC R.A.I. concerning UVAR T.S. amendment Nov. 23, 1998
- ◊ Amendment #24 to UVAR T.S. by NRC (delete 2 surveillance req.) Dec. 21, 1998

Chronology

- ◊ UVA response to NRC's Nov. 23, 1998 R.A.I. Jan. 7, 1999
- ◊ Completion of Reactor staff reduction Feb. 1, 1999
- ◊ NRC R.A.I. on T.S. amendment request March 8, 1999
- ◊ Second fuel shipment, 8 of 16 elements, to SRP April 16, 1999
- ◊ Third and final spent fuel shipment, last 8 elements, to SRP June 3, 1999







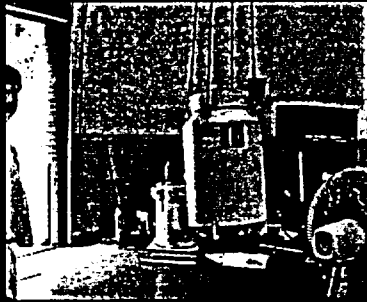
Chronology

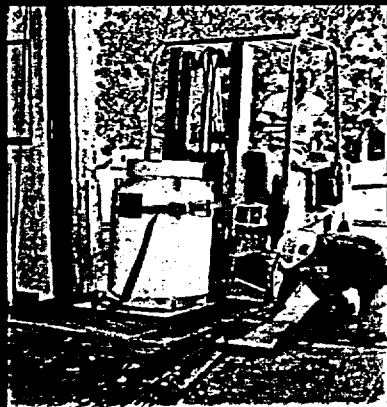
- Selection of GTS-Duratek for decommissioning cost estimation, characterization study and decommissioning planning June 14, 1999
- Start of on-site characterization study July 26, 1999
- Amendment #103 to UVA's BPL (removal of Co-60 from pool) Aug. 12, 1999
- UVA response to NRC's March 8, 1999 R.A.I. Aug. 16, 1999

Chronology

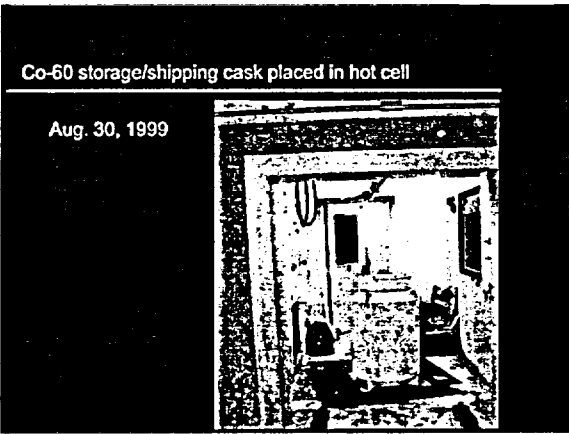
Aug. 27, 1999

- Co-60 pins removed from reactor pool





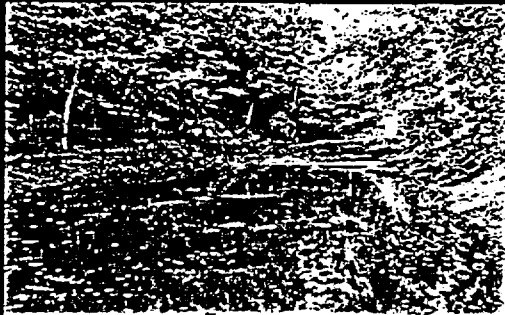




Chronology

- ◀ End of on-site characterization study
Sep. 22, 1999
- ◀ Possession-only license amendment
issuance expected
Dec. 1999

GTS Site Characterization



GTS Completed Activities

- Site Data Reviewed: Photos, Drawings, and Historical Information
- Draft D&D Estimate Completed
- Site Characterization Completed
- Preliminary Characterization Report Completed
- D-Plan Outline Prepared

Regulatory Guidance for UVAR Characterization Survey

- 10 CFR 20.1402, Subpart E, 25 mrem/yr TEDE and ALARA Radiological Criteria for Unrestricted Use
- U.S. NRC Regulatory Guide DG-4006, Demonstrating Compliance with the Radiological Criteria for License Termination
- MARSSIM Survey Design, NUREG-1575
- DCGL Based on 25 mrem/yr TEDE, Draft NUREG-1549

**Characterization
Data Quality Objectives**

- ◆ Verified Historical Characterization Data
- ◆ Produced an Accurate Assessment of Radioactive Contamination Levels
- ◆ Areas Previously Considered as Non-Impacted are Shown to be Non-Impacted
- ◆ Sample Data Sufficient to Determine Accurate Derived Concentration Guideline Levels (DCGL's)

Characterization Data Quality Objectives

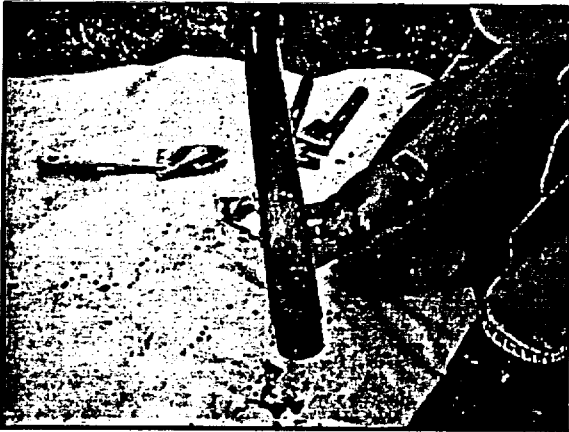
- ◆ Provided Analytical Data Capable of Identifying and Quantifying Transuranics and Other HTDR
- ◆ Provided Asbestos and Lead Analytical Data
- ◆ Provided State of Utah Certified Data for Potential Envirocare Waste Disposal
- ◆ Provided Data for Decommissioning Plan and Decommissioning Cost Estimate

**Characterization Survey Using
MARSSIM**

- ◆ Identified Radionuclides of Concern and Established Preliminary DCGLs
- ◆ Classified Areas by Contamination Potential
 - Impacted Class 1 areas
 - Impacted Class 2 areas
 - Impacted Class 3 areas
 - Non-Impacted areas
- ◆ Selected Background Reference Areas

Characterization Survey Using MARSSIM

- ◆ Identified Survey Units and Produced Survey Package Instructions
- ◆ Selected Instruments and Survey Techniques
- ◆ Prepared Each Area for Survey
- ◆ Performed Measurements
- ◆ Maintained Quality Control of Survey and Measurements
- ◆ Observed UVA Health and Safety Programs



Characterization Background Study

Environmental Background Study Performed

- Reference for Soils, Sediments and Water
- Ragged Mountain Reservoir Used as Reference Area

Structural Background Study Performed

- Reference for Direct Beta Measurements for Construction Materials
- UVA Zehmer Hall used as Reference Area

Environmental Background Results

Radionuclide	Surface Soil 0-6" Depth Avg. Conc.	Subsurface Soil 6-12" Depth Avg. Conc.	Sediment 0-6" Depth Avg. Conc.	Water Concentration
H-3				<MDA
Co-60	<MDA	<MDA	<MDA	<MDA
Cs-137	0.37 pCi/g	0.05 pCi/g	0.33 pCi/g	<MDA

Structures Background Results

Material Surface	Number of Measurements	Background dpm/100 cm ²
Asphalt	30	755
Brick	30	766
Ceramic Tile	30	1,035
Cinder Block	30	799
Concrete	30	588

Preliminary Characterization Results

- ↘ 5 of 1,142 Direct Beta Measurements > 12,730 dpm/100cm² (Preliminary DCGL)
- 18 of 198 Biased Characterization Samples > 1.32 pCi/g Co-60 and/or > 2.73 pCi/g Cs-137 (Preliminary DCGL's)
- ↙ Most of Site Will Not Require Remediation

Preliminary Characterization Results

- ↘ Reactor and Pool Contain Most of the Activity
- ↙ Minimal Environmental Remediation Required
 - Outside Tank Areas Will Require Remediation
 - Pond Area Results Not Complete (Remediation not Currently Indicated)
 - Area Surrounding Facility Will Not Require Remediation

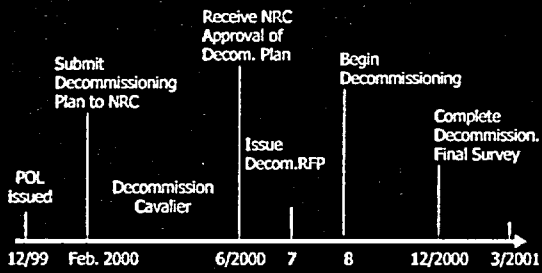
Proposed D-Plan Outline

- ↘ 1.0 General Information
- ↘ 2.0 Decommissioning Alternative and Activities
- ↘ 3.0 Occupational and Public Health and Safety
- ↙ 4.0 Final Radiation Survey Plan

Proposed D-Plan Outline

- 5.0 Updated Decommissioning Cost Estimate
- 6.0 Technical Specifications, Quality Assurance and Security

UVA Future Timeline



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