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**VIACOM.**

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Subject: Viacom Inc.  
Westinghouse Test Reactor TR-2; Docket No. 50-22  
2004 Annual Report

In accordance with Section 6.5.1 of the Westinghouse Test Reactor (TR-2) Technical Specifications, a written annual report is attached. The report covers the period beginning January 1, 2004 through December 31, 2004.

If you have any questions regarding this matter, please write or call me at the above address and telephone number or contact Mr. Wayne Vogel at (724) 722-5924.

Sincerely,



Richard K. Smith  
Vice President - Environmental Remediation

Attachment

A020



cc: Regional Administrator  
U.S. Nuclear Regulatory Commission, Region I  
475 Allendale Road  
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Mr. Wayne Vogel, Radiation Safety Officer  
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**2004 Annual Report  
for the  
Waltz Mill Facility  
Westinghouse Test Reactor  
License No. TR-2  
Docket No. 50-22**

**Viacom Inc.**

**January 1, 2004 - December 31, 2004**

**2004 ANNUAL INSPECTION REPORT FOR RETIRED WESTINGHOUSE TEST REACTOR**

**U.S.N.R.C. LICENSE TR-2**

**DOCKET 50-22**

**EXECUTIVE SUMMARY**

Site radiological controls personnel continue to monitor the radiological conditions at the site to assure protection of the health and safety of the general public and site personnel.

This report reviews those activities as required by the Technical Specifications Section 6.5.1 and includes the following:

1. A narrative summary of facility activities.
2. Tabulation of the major preventative and corrective maintenance operations having safety significance.
3. A brief description of major changes in the reactor facility and procedures and activities significantly different from those performed previously and not described in the safety analysis report, and a summary of the safety evaluation that shows no unreviewed safety questions were involved (per 10 CFR 50.59 (2)).
4. A summary of the nature and amount of radioactive effluents released or discharged to the environs beyond the effective controls of the licensee as determined at or before the point of such releases or discharge. The summary shall include to the extent practical, an estimate of the major individual radionuclides present in the effluent. If the estimated average release after dilution or diffusion is less than 25% of the concentration allowed or recommended, a statement to this effect is sufficient.
5. A summarized result of the environmental survey performed outside the facility.

## 1. A Narrative Summary of Facility Activities.

### Facility Operations

In 2004, no decommissioning activities or significant maintenance activities occurred. Activities were limited to routine tours and inspections including an annual routine HP survey in July. Conditions were as expected, no abnormal conditions were observed. No waste shipments or restricted activities as defined by technical specifications occurred. The stack was not operated and there were no air or liquid effluent releases.

### Regulatory Interfaces

Throughout the year, the licensee communicated with the USNRC. These communications took place via written correspondence, telephone calls and meetings. Significant results are noted below:

- Viacom supplemental submittal to the NRC's Request for Additional Information dated February 6, 2004.
- 2003 Annual Report for the TR-2 License was issued on April 29, 2004.
- Viacom consented to the issuance of an order imposing requirements for protecting certain Safeguard Information in correspondence dated November 16, 2004.

### Radiation Safety Committee Activities

The Radiation Safety Committee (RSC) for the TR-2 license held one meeting on November 23, 2004 to review the status of the decommissioning project, results of audits and inspections, and performance against ALARA objectives. Since there were no decommissioning activities performed in 2003, no independent audits in accordance with Section 6.2.4 of the TR-2 Technical Specifications were performed and no additional RSC meetings were held.

### Organizational Changes

The current management organization relative to the administration of License TR-2 is as follows:

- Richard K. Smith, Viacom Decommissioning Project Director, is the senior site manager having responsibility for the retired WTR facilities.
- Russell G. Cline remains as the Westinghouse Nuclear Services Manager, Environment, Health and Safety (EHS)
- Wayne D. Vogel, Radiation Safety Officer, reports directly to Mr. Cline.

**1. Summary**

Work on the TR-2 Decommissioning Plan has been authorized by the NRC. Work on Phase I, Facility Preparations & Engineering; Phase II, Reactor Tank Removal, platform and structural interference and bioshield removal and Phase III, Building & Structures Remediation has been completed. Table A provides an ALARA summary of the previous decommissioning activities.

**2. Tabulation of the major preventative and corrective maintenance operations having safety significance.**

Since reactor fuel was removed from the reactor and the site decades ago, the Westinghouse Test Reactor as described in the Decommissioning Plan and in the Technical Specifications does not contain any nuclear safety related equipment.

**3. A brief description of major changes in the reactor facility and procedures and activities significantly different from those performed previously and not described in the safety analysis report, and a summary of the safety evaluation that shows no unreviewed safety questions were involved.**

In 2004 there were no decommissioning or other significant activities performed. Therefore no license reviews of work packages or safety evaluations pursuant to 10 CFR 50.59 were performed.

**4. A summary of the nature and amount of radioactive effluents released or discharged to the environs beyond the effective controls of the licensee as determined at or before the point of such releases or discharge. The summary shall include to the extent practical, an estimate of the major individual radionuclides present in the effluent. If the estimated average release after dilution or diffusion is less than 25% of the concentration allowed or recommended, a statement to this effect is sufficient.**

**Low Level Radioactive Waste**

No low-level radioactive, solid debris or dry active waste from the WTR was collected, packaged or transported for either processing or burial at a licensed facility in 2004.

**Airborne Releases**

In order to support decommissioning activities in the WTR, a HEPA ventilation unit was installed to maintain negative pressure in containment and to provide for a controlled and monitored discharge of airborne activity. In 2004 there were no decommissioning activities, the HEPA unit was not operated and there were no airborne releases.

**Liquid Effluent Releases**

There were no discharges of liquid effluents to the environs from the WTR in 2004.

**5. A summarized result of the environmental survey performed outside the facility.**

Environmental monitoring associated with the WTR decommissioning is in accordance with the programs and requirements of the SNM-770 license. Various environmental media and pathways are sampled under the SNM-770 License. Only media and pathways relevant to the WTR decommissioning are summarized in this report. Since there have been no discharges of liquids or airborne contaminants to the environs in 2004, the data presented is limited to direct radiation.

Direct radiation was measured with a series of TLDs deployed throughout the site and along the perimeter of the Central Operations Area. The TLDs contain aluminum oxide TL material with a dose reporting level of 0.1 mrem/quarter. Data collected from the TLDs near the WTR facility is summarized in Table B. Radiation levels recorded include those associated with activities under the SNM-770 license.

**Table A**  
**WTR Facilities Decommissioning Activities ALARA Summary**

WTR Facility Area	Proposed Decommissioning Activity	Estimated Exposure (Person-rem)	ALARA Exposure Goal (Person-rem)	Actual Exposure by SRD (Person-rem) (6)	Status
Pre-Decommissioning Activities	Establish Radiological Controls.	0.050	0.040	0	Complete
Reactor Vessel, Internal Contents, and Biological Shield	Biological Shield sectioning and removal, one piece Reactor Vessel & internal component removal	18.91 (5)	15.128	7.368 (4)	Complete
Sub Pile Room	Components removed, concrete decontamination and partial or full demolition.	0.850	0.680	0.292 (1), (2)	Complete
Rabbit Pump Room	Components removed, concrete decontamination and partial or full demolition.	0.080	0.064	0.017	Complete
Test Loop Cubicles/Dump Tank Pits	Components removed, concrete decontamination and partial or full demolition.	0.410	0.328	0.208 (1), (2)	Complete
Primary Coolant Pipe Tunnel	Piping removed, concrete decontamination and partial or full demolition.	1.880	1.504	0.683 (2)	Complete
Transfer Canal	Water drained, sediment removed, concrete decontaminated, and partial or full demolition.	7.930	6.344	4.945 (1), (2)	Complete
Vapor Containment Building and Misc. systems and components	Miscellaneous systems and components decontaminated and/or removed, concrete and structure surfaces decontaminated, and Polar Crane decontaminated.	0.890	0.712	0.527 (3)	Complete
Totals		31.000	24.800	14,040	

- (1) Dose attributed to the installation of temporary power and lighting, installation of new ventilation, routine tours, routine maintenance, asbestos removal, installation of the Truck Lock door, inspection and repair of the Polar Crane, and routine HEPA unit/vacuum maintenance prior to the year 2000 was divided equally between the major activities of Reactor Vessel/Bioshield, Sub Pile Room, Test Loop Cubicles/Dump Tank Pits, and Vapor Containment Building/misc. systems and components as they were preliminary or continuing integral parts of the major activities. Dose attributed to routine tours and HEPA unit/vacuum maintenance for the year 2000 was divided equally between Reactor Vessel/Bioshield and Transfer Canal. Dose attributed to routine maintenance for the year 2000 was divided equally between Reactor Vessel/Bioshield, Transfer Canal, and Vapor Containment Building/misc. systems and components. Dose attributed to routine tours, HEPA unit/vacuum maintenance, and routine maintenance for the year 2001 was divided equally between Transfer Canal, Primary Coolant Pipe Tunnel, and Vapor Containment Building/misc. systems and components.
- (2) Dose attributed to Health Physics support prior to the year 2000 was divided equally between the four identified active major activities in (1) and the Primary Coolant Pipe Tunnel. Dose attributed to Health Physics Support for the year 2000 was divided equally between Reactor Vessel/Bioshield and Transfer Canal. Dose attributed to Health Physics support for the year 2001 was divided equally between Transfer Canal, Primary Coolant Pipe Tunnel, and Vapor Containment Building/misc. systems and components.
- (3) Contains dose attributed to miscellaneous structural removal, existing electrical removal, miscellaneous piping and component removal, and existing ventilation removal in addition to (1) and (2) above.
- (4) Contains dose attributed to the major activity, exploratory work on the Reactor Vessel, core stabilization, and trunnion reinforcement in addition to (1) and (2) above.
- (5) Estimate is for Option (3), which includes the removal of the Biological Shield, attachment of shielding plates to the Reactor Vessel, and down-ending and removal of the Reactor Vessel, with internal components intact, out of the Containment Building through the Truck Lock.
- (6) Data through 11-08-01

**TABLE B**  
**ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY**

Facility: Westinghouse Test Reactor  
 Docket No.: 50-22

Location: Westmoreland County  
 Reporting Period: January 1 to December 31, 2004

Medium or pathway Sampled (Unit of Measurement)	Type and Number of Analyses Performed	Lower Limit Of Detection (LLD)	All Indicator Locations Mean (Range)	Control Location Result												
Direct Radiation (mrem/year)	TLD (5)	0.1 mrem/qtr	$56.0 \pm 10.5$ (40.3 – 68.3) <table border="0" style="margin-left: 20px;"> <tr> <td><u>Location</u></td> <td><u>mrem/yr</u></td> </tr> <tr> <td>500 ft S of Rx</td> <td>40.3</td> </tr> <tr> <td>90-ft W of Rx</td> <td>52.2</td> </tr> <tr> <td>200-ft NW of Rx</td> <td>57.7</td> </tr> <tr> <td>400-ft NE of Rx</td> <td>68.3</td> </tr> <tr> <td>1150-ft E of Rx</td> <td>66.8</td> </tr> </table>	<u>Location</u>	<u>mrem/yr</u>	500 ft S of Rx	40.3	90-ft W of Rx	52.2	200-ft NW of Rx	57.7	400-ft NE of Rx	68.3	1150-ft E of Rx	66.8	56.9 (5400-ft W of Rx)
<u>Location</u>	<u>mrem/yr</u>															
500 ft S of Rx	40.3															
90-ft W of Rx	52.2															
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