

**WESTINGHOUSE ELECTRIC
CORPORATION**

**WESTINGHOUSE TEST
REACTOR**

TR-2

**CONCEPTUAL
DECOMMISSIONING
PLAN**

**Revision 0
April 4, 1997**

Prepared By NUMEGA

**A Team of:
Westinghouse Electric Corporation
Morrison Knudsen
Public Service Company of Colorado**

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LIST OF ACRONYMS

ALARA	As Low As Reasonably Achievable
CFR	Code of Federal Regulations
DOT	Department of Transportation
EPA	Environmental Protection Agency
GET	General Employee Training
HP	Health Physics
MWt	Megawatts (thermal)
NRC	Nuclear Regulatory Commission
NSD	Nuclear Services Division
PADEP	Pennsylvania Department of Environmental Protection
PCM	Project Control Manual
PMP	Project Management Plan
PQP	Project Quality Plan
RP	Radiation Protection
RCRA	Resource Conservation Recovery Act
RSO	Radiation Safety Officer
RWP	Radiation Work Permit
RWT	Radiation Worker Training
SEG	Scientific Ecology Group
SNM	Special Nuclear Material
TBD	To Be Determined
WTR	Westinghouse Test Reactor

**SECTION 1
GENERAL INFORMATION**

The Westinghouse Electric Corporation (Westinghouse) Test Reactor (WTR) is located on the Waltz Mill Site near Madison, Pennsylvania. The retired WTR is currently licensed under Nuclear Regulatory Commission (NRC) License TR-2. The balance of the Waltz Mill Site is licensed and operated under NRC License SNM-770.

Westinghouse is developing a detailed Decommissioning Plan ("Plan") to address the activities required to terminate the TR-2 License. It is considered reasonable and prudent that the activities required for license termination are: removal of the remaining reactor vessel internal contents, the reactor vessel, and the biological shield. Following these decommissioning activities, Westinghouse will be requesting transfer of the remaining residual radioactivity to the SNM-770 License. The Plan will describe these decommissioning activities and the required interfaces with the SNM-770 licensed site.

Prior to or during TR-2 license termination, the SNM-770 License will be amended to include the plans and costs for remediation of the structures, materials, and equipment transferred from the TR-2 License. Future use of these structures, materials, and equipment shall be in accordance with the SNM-770 license conditions and site procedures controlling occupational exposure and exposure to the public.

This document outlines the Plan being developed for the WTR, identifies the basic format/information to be provided and assumptions that will form the Plan. The Plan is being prepared using Draft Regulatory Guide DG-1005, "Standard Format and Content for Decommissioning Plans for Nuclear Reactors" (Ref. 1) and the applicable regulatory requirements associated with 10 CFR 50.82(b). Although DG-1005 is still in draft form, it is considered appropriate for the development and general format of the Plan. The standard format of DG-1005 has been slightly altered for consistency with the Waltz Mill Facility SNM-770 Remediation Plan, previously submitted to the NRC on November 27, 1996 (Ref. 2).

1.1 LICENSE INFORMATION

License: TR-2

Docket Number: 50-22

Location of Use: Westinghouse Electric Corporation
Waltz Mill Site
Interstate 70 - Madison Exit 25A
P.O. Box 158
Madison, PA 15663

Licensee of Use: Westinghouse Electric Corporation
P.O. Box 355
Pittsburgh, PA 15230

Licensee Contact: Mr. A. Joseph Nardi
Westinghouse Electric Corporation
P.O. Box 355
Pittsburgh, PA 15230

The initial WTR operating license was issued on June 19, 1959. Amendment Number 1 to the operating license, dated January 8, 1960, authorized maximum thermal power to be raised from 20 MWt to 60 MWt. Westinghouse informed the NRC that the WTR had permanently ceased operations on March 22, 1962. The following license amendments were issued after permanent cessation of operations:

Amendment Number 2 dated March 25, 1963 - The TR-2 License was amended to allow possession, but not use of the reactor (Possession Only License).

Amendment Number 3 dated April 22, 1970 - The TR-2 License was amended to transfer the Truck Lock Building to the SNM-770 License.

Amendment Number 4 dated June 24, 1970 - The TR-2 License was amended to transfer the Process Building to the SNM-770 License.

Amendment Number 5 dated April 17, 1974 - The TR-2 License was amended to extend the license termination to November 30, 1993. Since then a timely license renewal letter was sent to the NRC on December 8, 1992 requesting license extension to November 30, 2003. NRC action is pending on this request.

Amendment Number 6 dated June 14, 1993 - The TR-2 License was amended to transfer the three WTR Basins (No. 1, 2, and 3) to the SNM-770 License.

1.2 DECOMMISSIONING OVERVIEW

The Plan will describe the objectives, activities, and controls that will apply to the decommissioning of the WTR. The ultimate objective is to terminate the TR-2 License. To accomplish this, the following are the major decommissioning activities:

1. Remove the remaining reactor vessel internal contents, the reactor vessel, and the biological shield.
2. Provide the NRC with sufficient documentation to demonstrate that license termination requirements have been met. This would include all documentation that is required for transfer of the remaining residual activity to the SNM-770 License.

Additionally, decontamination and dismantlement activities of other structures and equipment associated with TR-2 may be performed. These other activities will be performed as resources are available and until such time as these areas are transferred to the SNM-770 License.

1.3 FACILITY AND SITE DESCRIPTION

The Waltz Mill site is located approximately 30 miles southeast of Pittsburgh in Westmoreland County, Pennsylvania. The site is approximately 850 acres and is located about three miles west of the town of New Stanton between the towns of Madison and Yukon. The WTR facility is located in the northwest portion of the Waltz Mill site, north of the G Building.

The Waltz Mill site is operated by the Nuclear Services Division of the Westinghouse Energy Systems Business Unit. The WTR is maintained under NRC License Number TR-2 (Possession Only), encompassing the requirements of 10 CFR 50. The WTR license includes the reactor structure, reactor systems, the reactor containment building, the rabbit pump room, the sub-pile room, the polar crane, the WTR portion of the transfer canal, and canal waters.

The WTR was a low pressure, low temperature, water cooled 60 MWt reactor housed in a cylindrical vapor containment structure. Since permanent shutdown in 1962, all fuel and some of the reactor internal contents have been removed from the reactor vessel and from the Waltz Mill site. The reactor vessel has been drained of all water and the vessel head is secured on the vessel. The Site, including the WTR facility, has been extensively characterized and is controlled to not pose a threat to the health and safety of the site worker or the general public.

1.4 ADMINISTRATION OF THE DECOMMISSIONING PLAN

The Plan will provide sufficient detail of the WTR decommissioning activities to allow NRC review and approval. The provisions of 10 CFR 50.59(e) shall apply to the NRC approved Decommissioning Plan, and the criteria to be used in evaluating changes to the Plan will be included in project procedures.

REFERENCES FOR SECTION 1

1. NRC Draft Regulatory Guide DG-1005, "Standard Format and Content for Decommissioning Plans for Nuclear Reactors," September 1989.
2. Westinghouse letter, Nardi to Bellamy (NRC), date November 27, 1996; Subject: "Submittal of Remediation Plan for the Westinghouse Waltz Mill Site, USNRC License Number SNM-770, Docket 70-698."

SECTION 2
CHOICE OF DECOMMISSIONING METHOD
AND DESCRIPTION OF ACTIVITIES

2.1 DECOMMISSIONING METHOD

Decommissioning, as described in this Plan, will be accomplished by removal and disposal of the remaining reactor vessel internal contents, the reactor vessel, and the biological shield. The balance of the WTR facility components and the remaining residual radioactivity will be transferred to the SNM-770 License. There are no radiological limits applicable to the transfer of structures, materials, and equipment to the SNM-770 License, other than the radioactive materials possession limits specified in the SNM-770 License. Prior to the transfer, the SNM-770 License will be amended as necessary to include the remaining WTR associated radioactive material inventory. Additionally, any other document revisions required as a result of this transfer will be performed. Future use of these structures, materials, and equipment shall be appropriately maintained in accordance with the SNM-770 license conditions and site procedures controlling occupational and public exposure.

The WTR facility is only part of the Waltz Mill site and the TR-2 non-power reactor license essentially forms a regulatory "island" on the SNM-770 site. The entire site, including the remaining WTR facility, will eventually be decommissioned and the SNM-770 License terminated. It is considered prudent and reasonable that, following decommissioning activities, the remaining residual radioactivity be transferred to the SNM-770 License.

Precedent for transferring the residual radioactivity to the SNM-770 License has already been established by Amendments Numbers 3, 4, and 6 to the TR-2 License. These Amendments transferred previous WTR facilities to the SNM-770 License (Truck Lock Building, Process Building, and WTR Basins).

2.2 DECOMMISSIONING OBJECTIVE, ACTIVITIES, METHODS AND SCHEDULE

2.2.1 Decommissioning Objectives

The objective of this Decommissioning Plan is to remove the TR-2 reactor vessel internal contents, the reactor vessel, and the biological shield, to the point where remaining structures are clearly not a "reactor" anymore, and then request transfer of the remaining residual radioactivity and WTR facilities from the 10 CFR 50 license to the SNM-770 License. Westinghouse would then request termination of the 10 CFR 50. Decommissioning will be by removal, dismantlement, decontamination, release of clean items and disposal of contaminated waste. Dismantlement and decontamination may also be performed on other equipment and structures within the containment building as resources permit.

2.2.2 Decommissioning Activities

The general activities needed to complete the Plan objectives are:

- Remove the remaining reactor vessel internal contents, the reactor vessel, and the biological shield.
- Prepare the decommissioning generated material for release or disposal; either decontaminate and release as non-radioactive waste, or package for transport as radioactive waste.
- Ship all radioactive waste off-site to a licensed waste processor or disposal facility. In the event that no acceptable licensed disposal facility is available, waste may be retained or, after processing, returned to the site for interim storage.
- Define the residual radioactivity remaining and prepare the necessary amendments to the SNM-770 license.
- Request transfer of the remaining residual radioactivity and WTR facilities to the SNM-770 License.
- Request termination of the 10 CFR 50 license.

The Plan will include examples of decontamination techniques, equipment and materials which may be used, a schedule, special training requirements for workers, radiation protection and occupational safety and health practices. Selection of decommissioning methods will be heavily influenced by worker and public ALARA considerations. A list of WTR facilities, planned remedial activities and estimated worker exposure (person-rem) will be presented in Table 2-1.

Work plans will address issues such as asbestos or other known hazards in the work areas. The decommissioning methods will utilize the most economical means to minimize the volume of hazardous, radioactive and mixed waste in consideration of ALARA. For cost-effective decommissioning, contaminated equipment, materials, etc., may be decontaminated, allowing release for unrestricted use, or packaged for transport and processing or disposal at a licensed

CHOICE OF DECOMMISSIONING METHOD AND DESCRIPTION OF ACTIVITIES

facility. The Plan will allow flexibility in the choice of decontamination procedure/technique and sequence of activities.

The Plan will provide a description of each of the areas covered by the TR-2 License.

The Plan will address removal of the reactor vessel internal contents, the reactor vessel, and the biological shield. Additionally, the Plan will address the required decommissioning for each area listed in Table 2-1.

2.2.3 Decommissioning Methods

Decommissioning methods are dependent on the area to be remediated, the type and extent of radionuclides, and the decommissioning objective. Contaminated areas will fall into one or more of the following categories for decommissioning:

1. Remove and dispose of as radioactive waste
2. Decontaminate for unrestricted release

Each WTR area will be evaluated to determine the best method for decommissioning. Criteria to be considered in the evaluations include: availability of a licensed disposal facility; the cost of decontamination versus the cost of processing and/or disposal; radiological and occupational hazards involved; and current or planned site operations.

Removal of structures, equipment and components can be achieved using proven mechanical/thermal cutting and demolition equipment. Mechanical methods such as diamond wire cutting, saw cutting, concrete scabbling, the use of jackhammers, and machining may be utilized. Thermal methods such as metal cutting with an oxy-acetylene torch, plasma arc cutting, or oxy-lance cutting methods may be utilized.

2.2.4 Decommissioning Schedule

The WTR Decommissioning Project is currently scheduled from January 1998 to 2003. The project schedule assumes NRC approval of the Plan by November 1997. See Figure 2-1, entitled "WTR Decommissioning Schedule."

Changes to the schedule may be made at Westinghouse's discretion as a result of resource allocation, availability of radioactive waste burial sites, interference with ongoing Waltz Mill operations, ALARA considerations, the potential for depositing radionuclides on adjacent facilities, further characterization measurements and/or temporary on-site radioactive waste storage operations.

2.3 DECOMMISSIONING WORK CONTROLS

Work controls will be established to ensure decommissioning work is safely performed in accordance with the Plan, Waltz Mill license requirements and established procedures.

A Project Management Plan (PMP) will be prepared that describes the approach and methods to be used to ensure the successful decommissioning of the WTR. The PMP will provide descriptions of the management philosophy, approach, and techniques to be used on the project. The system of work controls described above will be proceduralized in a Project Control Manual (PCM), which will include implementing procedures and supporting information for preparation of the Work Breakdown Structure, Work Specifications and Work Packages, in accordance with requirements of the Decommissioning Plan.

A General Work Specification will be developed to establish the basic requirements and provide the planning information for the performance of work activities. In addition to the General Work Specification, other Work Specifications may be prepared for activities that require special controls.

Work Packages will be prepared based upon the Work Specifications and will contain the detailed instructions for accomplishing the defined tasks.

2.4 DECOMMISSIONING ORGANIZATION AND RESPONSIBILITIES

The Decommissioning organization is integrated into the existing Westinghouse Waltz Mill facility organization and complies with the existing license and applicable regulatory requirements.

The direct responsibility for operational oversight of activities conducted under the SNM-770 License and the Waltz Mill Site Radiation Protection Program rests with the Waltz Mill Site Manager (current title is Manager-Resource and Support Operations Department and Waltz Mill Site) who reports directly to the Division Manager (current title is General Manager NSD). The Waltz Mill Site Manager will have overall responsibility for the facility and the functional groups for: operations, engineering, industrial hygiene, safety, security, environmental compliance, facilities support, radiation protection and quality assurance.

Reporting to the Waltz Mill Site Manager is the Radiation Protection Manager (current title is Industrial Hygiene, Safety and Environmental Compliance) to whom the Radiation Safety Officer (RSO) reports. The RSO is responsible for the establishment and guidance of programs in radiation protection. The RSO also evaluates potential and/or actual radiation exposures, establishes appropriate control measures, approves written procedures, and assures compliance with pertinent policies and regulations. Under the RSO's direction, health physics personnel administer the established site policy, collect samples, perform analyses, take measurements, maintain records, and generally assist in performing the technical aspects of the radiation protection program. The RSO will be supported by adequate staff, facilities and equipment and will hold a position within the organizational structure providing direct access to senior management. The health physics staff reports directly to the RSO.

The Remediation Project Manager reports to the Waltz Mill Site Manager. The Remediation Project Manager will coordinate the elements of the functional groups of the Waltz Mill organization, Remediation Team, and remediation contractors, as it applies to decommissioning activities. The Remediation Team reports to the Remediation Project Manager.

A Review Committee will be established to monitor decommissioning operations to ensure they are being performed safely and according to federal, state, and local regulatory requirements (NRC, EPA, PADEP, DOT, etc.). Members of this committee shall be appointed by the Division Manager. The Review Committee will review major decommissioning activities dealing with radioactive material and radiological controls. In addition, the Review Committee will review and approve changes to the Decommissioning Plan that do not require prior NRC approval.

CHOICE OF DECOMMISSIONING METHOD AND DESCRIPTION OF ACTIVITIES

An organization chart will be provided in the Decommissioning Plan. The following key positions will not be eliminated while decommissioning activities are in progress, without prior NRC approval:

- Waltz Mill Site Manager
- Radiation Safety Officer
- Remediation Project Manager
- Review Committee

2.5 CONTRACTOR ASSISTANCE

Westinghouse management has selected a team of qualified contractors to perform the WTR decommissioning project. The team consists of Westinghouse-Nuclear Service Division, Morrison Knudsen, Scientific Ecology Group (SEG), and Public Service Company of Colorado. Westinghouse NSD will be in charge of the overall project management and engineering; Morrison Knudsen will manage the craft labor which will do the physical work; and SEG is responsible for Health Physics (HP) support, radiation surveys, and waste packaging, processing, and shipping. Other contractors may be added to the team as needed throughout the project.

Contractors and subcontractors performing work under this Plan will be required to comply with the applicable project and Waltz Mill site procedures.

2.6 TRAINING PROGRAM

Individuals (employees, contractors, and visitors) who require access to the work areas or a radiologically restricted area shall receive training commensurate with the potential hazards to which they may be exposed.

Radiation protection training will be provided to personnel who will be performing decommissioning work in radiologically controlled areas or handling radioactive materials. The principle objective of the training program is to ensure that personnel understand the responsibilities and the required techniques for safe handling of radioactive materials and for minimizing exposure to radiation. The training will ensure that decommissioning project personnel have sufficient knowledge to perform work activities in accordance with the requirements of the radiation protection program and accomplish ALARA goals and objectives.

Records of training will be maintained which include trainees name, date of training, type of training, test results, authorization for protective equipment use, and instructor's name. Radiation protection training will provide the necessary information for workers to implement sound radiation protection practices. The following are examples of the training programs applicable to decommissioning activities.

2.6.1 General Employee Training

A general training program designed to provide orientation to project personnel and meet the requirements of 10 CFR 19 will be implemented. General Employee Training (GET) will be required for all personnel assigned on a regular basis to the decommissioning project. This training will include:

- Project orientation/access control
- Introduction to radiation protection
- Industrial safety
- Emergency procedures
- Quality assurance

2.6.2 Radiation Worker Training

Radiation Worker Training (RWT) will be required for decommissioning project personnel working in restricted areas and will be commensurate with the duties and responsibilities being performed. Personnel completing RWT will be required to pass a written examination on the material presented. Completion of this training will qualify an individual for unescorted access to radiologically controlled areas. RWT will include the following topics:

- Fundamentals of radiation
- Biological effects of radiation
- External radiation exposure limits and controls
- Internal radiation exposure limits and controls
- Contamination limits and controls
- Management and control of radioactive waste, including waste minimization practices
- Response to emergencies
- Worker rights and responsibilities

In addition to a presentation of the topics identified above, participants in RWT will be required to participate in the following demonstrations:

- The proper procedures for donning and removing a complete set of protective clothing (excluding respiratory protection equipment);
- The ability to read and interpret self-reading and/or electronic dosimeters;
- The proper procedures for entering and exiting a contaminated area, including use of proper contamination monitoring techniques, and;
- An understanding of the use of a Radiation Work Permit (RWP) by working within the requirements of a given RWP.

Personnel who have documented equivalent RWT from another site may be waived from taking training except for training on Waltz Mill administrative limits and emergency response, and will be required to pass the written examination and demonstration exercises. Documentation of this offsite training must be provided.

2.6.3 Respiratory Protection Training

Individuals whose work assignments require the use of respiratory protection devices will be medically qualified and will receive respiratory protection training in the devices and techniques that they will be required to use. The training program will comply with the requirements of 10 CFR 20 Subpart H, Regulatory Guide 8.15 (Ref. 1), NUREG-0041 (Ref. 2) and 29 CFR 1910.134. Training will consist of a lecture session and a simulated work session. Personnel who have documented equivalent respiratory protection training may be waived from this training.

REFERENCES FOR SECTION 2

1. NRC Regulatory Guide 8.15, "Acceptable Programs for Respiratory Protection," October 1976.
2. NUREG-0041, "Manual of Respiratory Protection Against Airborne Radioactivity Materials," October 1976.

Table 2-1
WTR FACILITIES, DECOMMISSIONING ACTIVITIES AND WORKER EXPOSURE

WTR FACILITY AREA	PROPOSED DECOMMISSIONING ACTIVITIES	EXPOSURE (Person-rem)
Pre-decommissioning Activities	Establish radiological controls.	TBD ⁽²⁾
Reactor Vessel, Internal Contents, and Biological Shield	Remove internal contents. Use a diamond wire saw to section the biological shield off into slabs and section reactor vessel	TBD
Rabbit Pump Room ⁽¹⁾	Components removed, concrete decontamination, and partial or full demolition	TBD
Test Loop Cribbles ⁽¹⁾	Components removed, concrete decontamination, and partial or full demolition	TBD
Test Loop Dump Tank Pits ⁽¹⁾	Components removed, concrete decontamination, and partial or full demolition	TBD
Transfer Canal ⁽¹⁾	Water drained, sediment removed, and concrete decontaminated, and partial or full demolition.	TBD
	TOTAL	

⁽¹⁾ Decommissioning of these and other structures may be undertaken as part of the WTR Decommissioning project, and will be completed in conjunction with remediation of SNM-770 facilities.

⁽²⁾ To Be Determined for Decommissioning Plan.

Figure 2-1
WTR Decommissioning
Schedule

MAJOR ACTIVITIES	1997	1998	1999	2000	2001	2002	2003
Project Preparation (SNM-770 & WTR)	■						
Remove Structures and Interferences (SNM-770)		■					
Remediate Contaminated Soil (SNM-770)		■	■				
Remediate Retired Facilities (SNM-770)		■	■	■			
Submit Conceptual WTR Decommissioning Plan (4/97)	◆						
NRC Conceptual Decommissioning Plan Concurrence (6/97)	◆						
Submit WTR Decommissioning Plan (6/97)	◆						
NRC Decommissioning Plan Approval (11/97)		◆					
Remove Reactor Vessel/Biological Shield		■	■	■	■		
Waste Packaging/Shipping		■	■	■	■	■	
WTR License Termination/Transfer to SNM-770			■	■	■	■	■

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**SECTION 3
PROTECTION OF OCCUPATIONAL AND PUBLIC
HEALTH AND SAFETY**

3.1 FACILITY RADIOLOGICAL STATUS

3.1.1 Facility Operating History

The WTR began operations in 1959, initially operating at a power level of 20 MWt. The WTR operated in support of commercial contracts in which various materials were inserted into the core and removed at the end of a 21-day fuel cycle. Additional capabilities, such as the rabbit facilities, allowed specimens to be inserted into the core and withdrawn during reactor operations, independent of the 21-day fuel cycle.

During the operating life of the WTR, a core disruption occurred in April, 1960. Over the six months following this event, repairs and modifications were made and the reactor was returned to service in December 1960. The WTR was permanently shut down in March 1962.

3.1.2 Current Radiological Status of Facility

Following final shutdown of the WTR in March 1962, all spent fuel was removed from the site and shipped to Idaho. Unirradiated fuel (new fuel in storage) was returned to vendors, and irradiated specimens were returned to experimenters or disposed of as radioactive waste. The reactor facility was partially dismantled, but not completely decontaminated. Some of the equipment and tooling was left in the transfer canal and reactor internals remained in the pressure vessel. The reactor head was reinstalled and secured in accordance with standard procedures. The vessel and primary coolant system were drained and filtered ventilation (passive) was established. All doors were sealed or secured to prevent unauthorized entry.

During 1993, a complete radiological characterization of the remaining WTR structures and components was conducted. The primary objective of this effort was to provide sufficient radiological information to develop the WTR Decommissioning Plan and support realistic cost benefit analysis to assess decontamination and decommissioning options.

Numerous measurements and samples were obtained and analyzed to characterize the extent of neutron activation, the radioactivity present on the internal surface of components, piping, etc., and the extent of fixed and transferable radioactivity present on internal and external surfaces of the WTR structures and systems. This included the radioactivity present in the WTR transfer canal water, in the canal sediment, and on the surfaces of the canal walls and components/materials present in the transfer canal.

The Decommissioning Plan will provide a summary of the radiological characterization of major WTR structures and systems.

3.2 RADIATION PROTECTION PROGRAM

The responsibility for the site radiation program rests with the Radiation Safety Officer and Radiation Safety Committee, as established for the SNM-770 license.

The Waltz Mill radiation protection program will ensure that all activities conducted within radiologically controlled areas during the Facility Decommissioning Project comply with regulatory requirements. Radiological hazards will be monitored and evaluated on a routine basis to maintain radiation exposures and the release of radioactive materials to unrestricted areas as far below specified limits as reasonably achievable.

The radiation protection program will be integrated into all decommissioning project work activities, and each element of the program will be defined and implemented by approved policies, procedures and guidelines.

The Waltz Mill Radiation Protection (RP) Manual describes the essential elements of the program. It provides the responsibilities, authorities and qualifications, administrative policies, program objectives and standards to implement the radiation protection program. Included in the RP manual is the commitment of management to incorporate ALARA principles and philosophy into all radiological work activities. This commitment will ensure that the occupational radiation exposures for individual and collective doses and the releases of radioactive effluents are ALARA.

Established health physics (HP) procedures will provide guidance for performing specific tasks and the application of methods used to maintain a radiologically safe working environment. HP procedures specify the types of instrumentation and the methods to be employed when performing surveys and obtaining samples. Examples of typical HP procedures for surveillance include:

- Radiation, surface and airborne radioactive material surveys
- Identification and posting of radiation, high radiation, surface and airborne radioactivity areas
- Access controls for radiation, high radiation, surface and airborne radioactivity areas
- Hot particle area posting and control
- Protective clothing selection, issue, donning and removal
- Protective clothing collection, cleaning, survey and reissue
- Personnel radioactivity monitoring and decontamination
- Radiological protection incidents and reports
- Radiation protection surveillance, evaluation and assessment programs

The decommissioning project may involve work activities which are not normally performed during site operations at Waltz Mill. To ensure the current Waltz Mill radiation protection program is adequate to protect the health and safety of the workers during the decommissioning project, a review of the current program has been performed. As necessary, program enhancements will be implemented prior to the start of decommissioning activities.

PROTECTION OF OCCUPATIONAL AND PUBLIC HEALTH AND SAFETY

The details of the Radiation Protection Program will be provided in the Decommissioning Plan.

3.3 RADIOACTIVE WASTE MANAGEMENT

This section addresses the technologies, equipment, and procedures to be implemented for the management of radioactive waste during the project. These technical approaches are based upon experience and address facets of planning, decontamination, packaging, storage, transportation, volume reduction or beneficial reuse, and final disposition of the waste materials, while minimizing secondary wastes (i.e., wastes created by decontamination or dismantlement activities) and radiation exposure.

In developing the radioactive waste management program, the following elements will be considered:

- Location and availability of disposal facilities
- Potential for off-site release during decommissioning operations
- Preventing contamination of uncontaminated areas
- Use of existing facilities to support the waste packaging operations
- Methods of approach related to waste type, waste class, and impact on safety
- Cost effectiveness
- Logical approach to decommissioning operations
- Ensuring that the occupational exposures are maintained ALARA
- Minimizing the impact on the health and safety of the general public
- Maintaining flexibility for waste management to allow for unexpected wastes and changes in available technology
- Minimization of radioactive waste
- Quality Control

On-site packaging or processing of radioactive waste will be performed in designated areas. Except for lead shielding, no sources of mixed waste have been identified. To reduce or avoid the generation of mixed wastes, project management will control the use of any chemical or other substance that could become a mixed waste concern.

If mixed wastes are generated during decommissioning, they will be classified and stored on-site until declassified or disposed. These materials will be managed according to Subtitle C of RCRA, while assuring consistency with NRC handling, storage and transportation regulations.

The details of the radioactive waste management program will be provided in the Decommissioning Plan.

3.4 ACCIDENT ANALYSIS

The Decommissioning Plan will include analysis of a postulated credible decommissioning accident scenario(s) considered to produce worst-case consequences to offsite individuals. The scenario(s) will be selected such that consequences bound those that could be associated with expected decommissioning conditions, off-normal occurrences, and decommissioning accidents. The quantity of radioactivity postulated to be released will be documented, along with dose consequences. The objective of the bounding decommissioning accident analysis is to show that decommissioning of the WTR facility and areas can be accomplished with no threat to the general public.

SECTION 4

PROPOSED FINAL SURVEY

The WTR decommissioning activities will result in the removal of the reactor biological shield, vessel and internal components. Also, decontamination and dismantlement activities of other structures and equipment associated with TR-2 may be performed under the provisions of the WTR Decommissioning Plan. After removal of the reactor vessel internal contents, the reactor vessel, and the biological shield, all remaining residual radioactivity and WTR facilities will be transferred to the SNM-770 License where it will be addressed by the SNM-770 Remediation Plan. Upon completion, no materials covered by the 10 CFR 50 license will exist.

The method for determining that the WTR facility has met the decommissioning objectives and prerequisites for license termination will be an independent verification that the reactor vessel internal contents, the reactor vessel, and the biological shield have been removed.

**SECTION 5
FUNDING**

Westinghouse has established one Financial Assurance Mechanism that encompasses all of the Westinghouse facilities that hold NRC licenses. The Financial Assurance Mechanism established by this approach meets all the requirements of the NRC's decommissioning financial assurance regulations contained in 10 CFR 50. Appropriate updates have been submitted to the NRC to maintain adequate levels of financial assurance.

In March of 1996, Westinghouse submitted to the NRC a revision to the Financial Assurance Mechanism for Decommissioning its NRC licensed facilities (Ref. 1). This submittal addressed the Westinghouse Test Reactor, NRC License Number TR-2. This submittal was reviewed by the NRC staff and found to be in compliance with the regulations (Ref. 2).

REFERENCES FOR SECTION 5

1. Westinghouse letter, Nardi to Weber (NRC), dated March 22, 1996; Subject: "Revised Financial Assurance Mechanism for Decommissioning."
2. NRC letter, Nelson to Nardi (Westinghouse), dated March 29, 1996; Subject: "Response to Revised Financial Assurance Mechanism for Decommissioning, Dated March 22, 1996."

SECTION 6
TECHNICAL AND ENVIRONMENTAL SPECIFICATIONS

This section of the Decommissioning Plan will identify the technical and environmental specifications appropriate for the WTR decommissioning. The WTR technical specifications will be consistent with 10 CFR 50.36(c)(6), which provides for case-by-case development of technical specifications for non-power reactors that are not authorized to operate.

Limiting conditions for operation and surveillance requirements will be identified for any equipment or facility features relied upon in the accident analyses provided in Section 3.4. The Applicability of any such requirements will be defined to be "self-deleting" as remediation activities progress. This self-deleting feature permits surveillance or inspection actions to be discontinued after they are no longer needed, without having to revise the technical specifications.

Administrative controls in the current Waltz Mill site materials license, SNM-770, will be adopted or adjusted as appropriate for WTR remediation activities. Current administrative controls include provisions for:

- Review Committee membership and responsibilities
- Procedure and program requirements
- Radiation protection program requirements
- Effluent release controls
- Radioactive waste management

Environmental monitoring and sampling requirements will be identified, consistent with the current program for the Waltz Mill site. Current requirements are identified in materials license SNM-770. This program periodically monitors the air, water, soil, sediment, and other representative environmental samples. This section will identify any changes in environmental measurement frequency, sample location, or sample type that may be required as a result of WTR decommissioning activities.

SECTION 7
QUALITY ASSURANCE PLAN

A Project Quality Plan (PQP) will be developed to incorporate applicable parts of the existing Westinghouse Quality Management System that governs the WTR facility. In addition, the PQP will identify additional procedures and requirements that are applicable based on government and regulatory requirements, contractual commitments and supplemental quality standards.

SECTION 8 ACCESS CONTROL PLAN

8.1 CURRENT PROVISIONS

Access to the Waltz Mill site is currently controlled in accordance with an industrial security program. The entire facility is surrounded by a security chain link fence and is protected by a security guard force.

Entrances into the WTR containment building are locked and access is controlled by the RSO. Entrances to certain areas within the containment building are also locked for radiological control purposes to preclude inadvertent entry.

The Access Control Plan described in this section will address controls related to decommissioning activities in the WTR containment building. Access control requirements into radiologically controlled areas are based on 10 CFR 20 requirements and are described in Section 3.2, Radiation Protection Program.

8.2 ACCESS CONTROL PLAN

The Decommissioning Plan will address the following:

8.2.1 WTR Access Control Organization

This section will identify the Waltz Mill manager responsible for gate house and vehicle access. Also, personnel training and use of local response personnel will be addressed.

8.2.2 Physical Security Measures

This section will address physical barriers such as fences and gate houses that will be used to control access to the WTR containment building. Access authorization and worker identification controls will also be addressed.

8.2.3 Communications

Communication services to local law enforcement, fire department, ambulance and other local emergency services will be addressed. On-site communications with access control personnel will also be addressed.

8.2.4 Procedures

Written procedures will provide guidance for access control personnel during routine and abnormal conditions. Procedures will include criteria for identifying abnormal occurrences, access control personnel actions, and notifications.

8.2.5 Changes to Current Program

This section will identify significant changes from the current access control program. Since the current program relies on locked doors in many areas and decommissioning activities will require extensive access through these doors, compensatory measures will be identified, where necessary. Any changes that may reduce the effectiveness of the current program will be specifically identified for NRC approval.

8.2.6 Access Control Transition

This section will address the process of transitioning access controls to the SNM-770 controls that are in effect for the rest of the Waltz Mill site, upon completion of decommissioning activities in the WTR containment building.