Building Historical Site Assessment and Classification Summary

Survey Area Name: TK#1 Base and Pipe Chase Designator: **NSY-12**

Survey Area Description

Survey Area NSY-12 consists of the reinforced concrete pad, pipe trench and subsurface structures that comprise the base Primary Water Storage Tank (TK-1) remaining after demolition of the tank and related system piping is complete. Although the tank is called "primary" it is designated as such because of the water grade, not for its connection with primary coolant system liquid inventories. This tank feeds make-up water to the Auxiliary Boilers and Steam Generators.

NSY-12 is located in the RCA yard area within the bounds of NOL-06.

Further division of this survey area into survey units as necessary is dependent upon the decommissioning end state configuration.

Survey Area Name: TK#1 Base and Pipe Chase Designator: **NSY-12**

Survey Area History

NSY-12, TK-1, was of original plant construction and was used to store de-mineralized water. The de-mineralized water system potentially became contaminated as a result of a valve line-up error, which allowed reactor coolant to flow into the de-mineralized water header.

NSY-12 is located within the RCA. There is no documented contamination of the NSY-12 structures.

Scoping/Characterization

Radiological contamination survey of the TK-1 base is not routinely performed.

Decommissioning Activities

Decommissioning activities performed in NSY-12 have removed the TK-1 and associated piping.

The remaining concrete tank base is presently the location of the temporary water storage tank that contains groundwater with tritium.

Survey Area Name: TK#1 Base and Pipe Chase Designator: **NSY-12**

Findings

Survey area NSY-12 was impacted by plant operations. Access to NSY-12 is through a radiation control area.

The radionuclide mix for the NSY-12 includes all radionuclides identified in the reactor radioactive systems of the plant (Ref 2). The primary radionuclides of concern for NSY-12 are Co-60, Cs-137, Ag-108m, Sr-90, and tritium.

Current Status

The TK-1 base is currently used as location for a water storage tank. No sampling was conducted in this area.

Classification Statement

Based upon the radiological condition of area surrounding this survey area NSY-12 is identified as a Class 1 Area.

Building Historical Site Assessment and Classification Summary

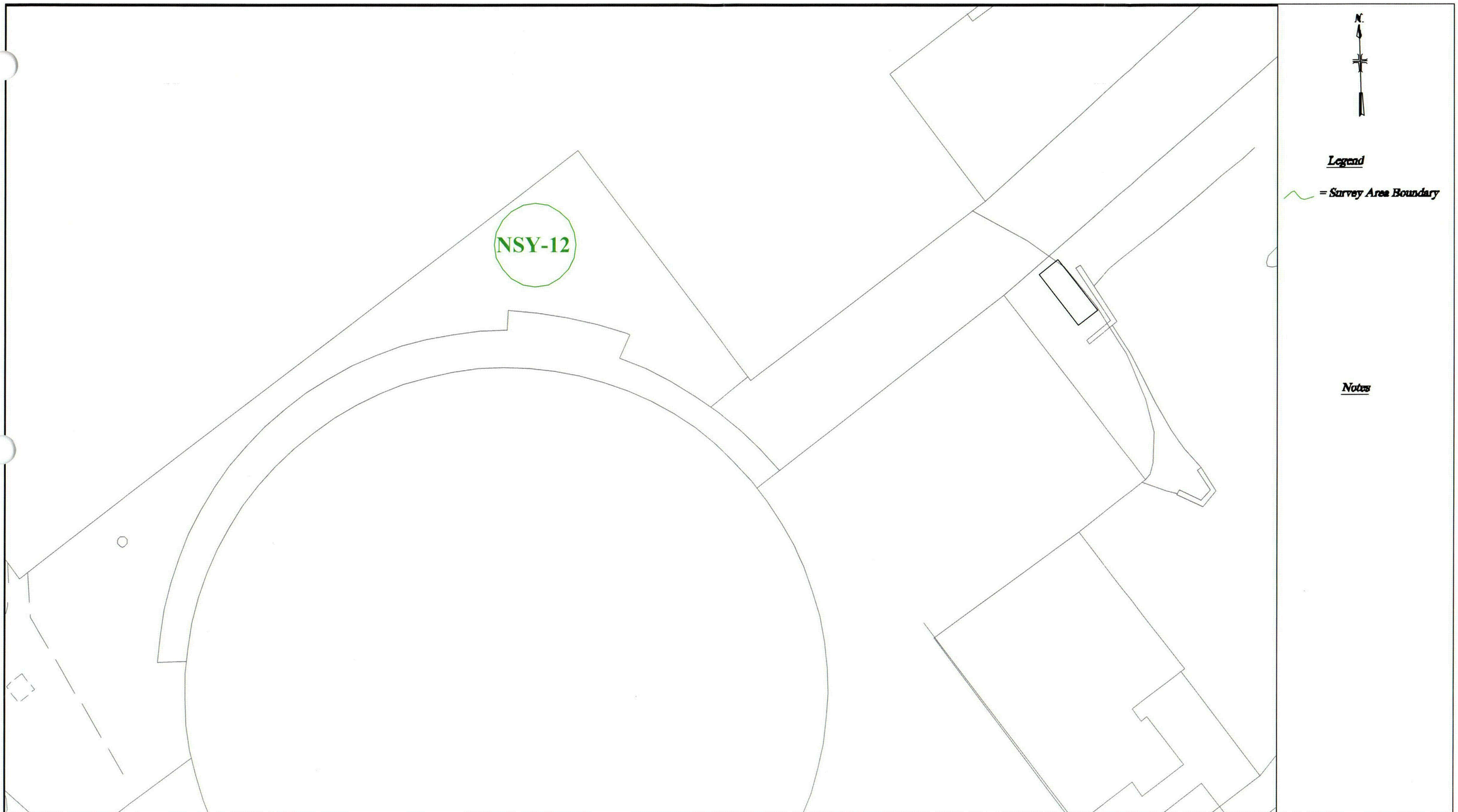
Survey Area Name: TK#1 Base and Pipe Chase Designator: **NSY-12**

Drawings

9699-FC-50 A

References

1.	Plant Information Report (PIR) 77-10, dated August 10, 1977.
2.	"Radionuclides for Building Surfaces and Soil DCGL Determinations," YA-REPT-00-001-03



Yankee Atomic Power Company
Soil Sample Locations - NSY-12

YANKEE

Date: October 2003

Revision: 4

Figure: 37

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Building Historical Site Assessment and Classification Summary

Survey Area Name: TK-39 Designator: **NSY-13**

Survey Area Description

Survey Area NSY-13 consists of the reinforced concrete pad, pipe trench and subsurface structures that comprise the base De-mineralized Water Storage Tank (TK-39) remaining after demolition of the tank and related system piping is complete. Although the tank contained "primary" water it is designated as such because of the water grade, not for its connection with primary coolant system liquid inventories.

NSY-13 is located in the RCA yard area within the bounds of NOL-02.

Further division of this survey area into survey units as necessary is dependent upon the decommissioning end state configuration.

Survey Area Name: TK-39 Designator: **NSY-13**

Survey Area History

NSY-13, TK-39 was of original plant construction and was used to store de-mineralized water. The de-mineralized water system became potentially contaminated as a result of backward flow through a check valve in the safety injection system (Ref 1).

NSY-13 is located within the RCA. There is no documented contamination of the NSY-13 structures.

Scoping/Characterization

Radiological contamination survey of the TK-39 is not routinely performed.

Decommissioning Activities

No decommissioning activities have been performed in NSY-13.

Survey Area Name: TK-39 Designator: **NSY-13**

Findings

Survey area NSY-13 was impacted by plant operations. Access to NSY-13 is through a radiation control area.

The radionuclide mix for the NSY-13 includes all radionuclides identified in the reactor radioactive systems of the plant (Ref 2). The primary radionuclides of concern for NSY-13 are Co-60, Cs-137, Ag-108m, Sr-90, and tritium.

Current Status

The TK-39 is currently still in service as a de-mineralized water storage tank. No sampling was conducted in this area.

Classification Statement

Based upon the radiological condition of area surrounding this survey area NSY-13 is identified as a Class 1 Area.

Building Historical Site Assessment and Classification Summary

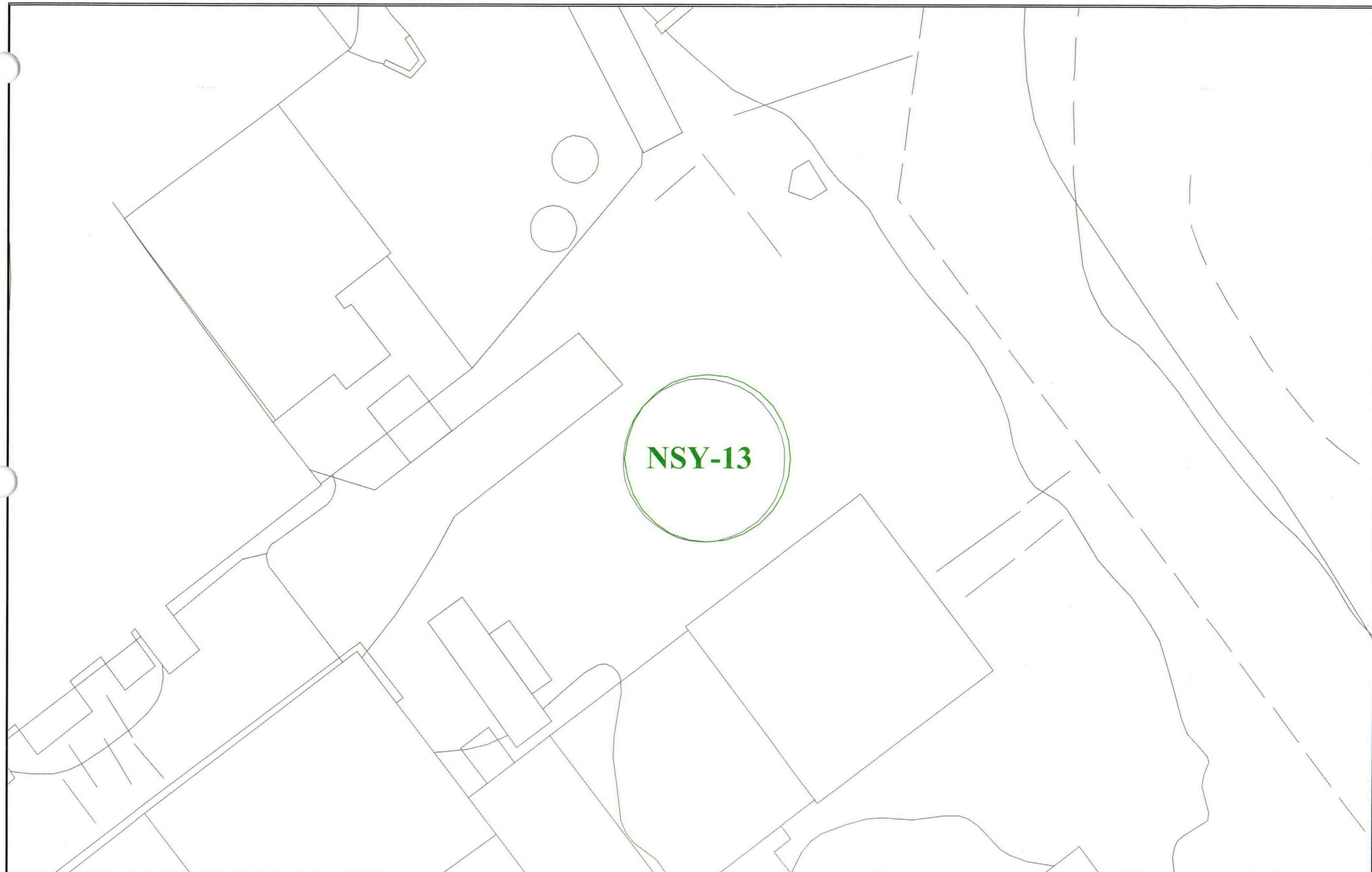
Survey Area Name: TK-39 Designator: **NSY-13**

Drawings

9699 -FC-50 B

References

1.	Plant Information Report (PIR) 77-10, dated August 10, 1977.
2.	"Radionuclides for Building Surfaces and Soil DCGL Determinations," YA-REPT-00-001-03



Legend

= *Survey Area Boundary*

Notes

Yankee Atomic Power Company
Soil Sample Locations - NSY-13

YANKEE

Date: October 2003

Revision: 4

Figure: 38

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Building Historical Site Assessment and Classification Summary

Survey Area Name: Screenwell and Pump House Designator: **OMB-01**

Survey Area Description

Based upon the projected end-state of decommissioning activities, Survey Area OMB-01 will consist of the reinforced concrete structures, floors, and walls, pump wells, intake structure and foundations of the Screenwell Pump House.

The footprint of OMB-01 is approximately 220 square meters. There are additional subsurface structures associated with the footprint of the OMB-01 that include walls, pump wells, foundation and the intake structure. (See drawings for details)

Survey area OMB-01 is bounded by survey area OOL-03, a Class 3 land survey area.

The intake piping of the circulating water system connects to Sherman Reservoir via a 10' diameter corrugated steel pipe. The circulating water pumps discharged through a 7' diameter concrete pipe that connects to the condensers located in the turbine building.

Survey Area Name: Screenwell and Pump House Designator: **OMB-01**

Survey Area History

Survey Area OMB-01 did not initially contain radioactive systems, was not used to store radioactive materials or package radioactive waste. Radioactive materials were not transported through or used in this area. Installation of the ASWS (Ref 1) return line channeled the monitored discharges of liquid radioactive wastes through OMB-01 on its way to OMB-06 (Seal Pit) where the wastes were discharged. This line is potentially internally contaminated but will be removed following the drain down of the spent fuel pit (SFP-01).

Radiological assessments of OMB-01 performed on a routine basis did not identify the present of radioactive contamination within the area.

Draft NUREG/CR-5849 based survey was performed in OMB-01, the results of which may be qualified as characterization data, if appropriate, in preparation of a characterization survey plan in accordance with the LTP (Ref 2).

Scoping/Characterization

A pre-demolition survey plan is developed in accordance with AP-0831 Administrative Program for Radiological and Non-Radiological Characterization Surveys prior to commencing demolition activities. The implementation of this plan creates a survey that will identify radiological contamination present within OMB-01. This survey also serves as the material survey for release in accordance with AP-0052 Radiation Protection Release of Equipment, Materials and Vehicles, if appropriate, for the OMB-01 demolition materials

Decommissioning Activities

Decommissioning Activities performed under Secondary Side Work Package (SSWP) SWH-01 have removed circulating water system and service water system components and the components of the traveling-screen water filtration system from OMB-01.

The ASWS was installed in OMB-01 in support of decommissioning of the original service water system. The ASWS discharge line enters OMB-01 on the south and exits on the north. The discharge side of the ASWS is the monitored release pathway for radioactive liquids releases.

Survey Area Name: Screenwell and Pump House Designator: **OMB-01**

Findings

Survey area OMB-01 is a structure that is bounded by OOL-03 a Class 3 land survey area.

Survey area OMB-01 is minimally impacted by plant operations and is not likely to contain residual radioactivity at levels greater than a small fraction of the DCGL.

If residual radioactivity is present, the radionuclide mix for the OMB-01 includes all radionuclides identified as present in the radioactive systems of the plant (Ref 3). The primary radionuclides of concern for OMB-01 are Co-60, Cs-137, Ag-108m, Sr-90, and tritium.

Current Status

OMB-01 currently houses portions of the auxiliary, service water system and the electrically driven fire protection pumps both of which are still in service. The discharge line of the ASWS is the monitored release pathway for radioactive liquid releases. No sampling was conducted in this area.

Classification Statement

Based upon the historical use and radiological conditions associated with this survey area OMB-01 is identified as a Class 3 Area.

Building Historical Site Assessment and Classification Summary

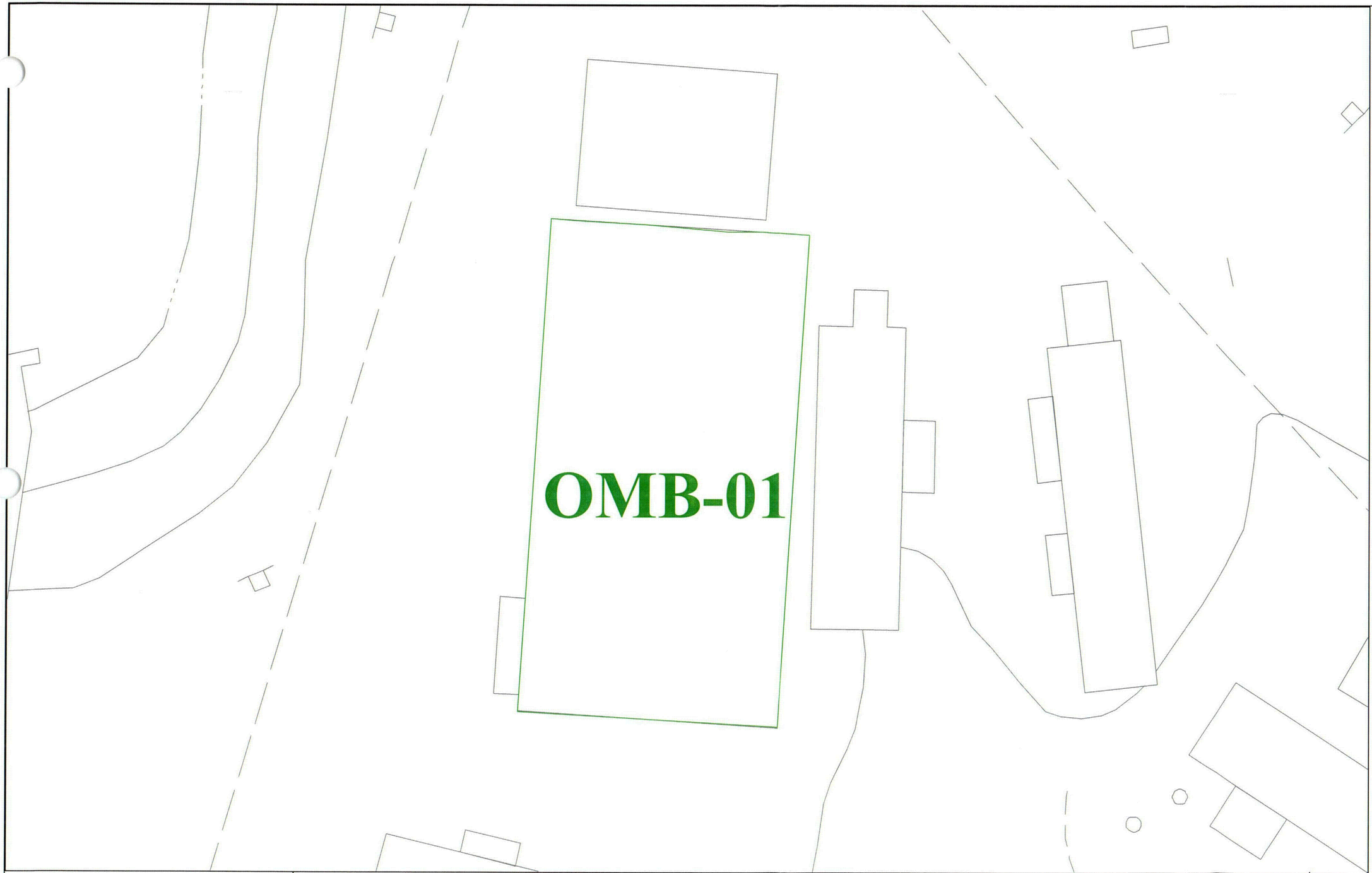
Survey Area Name: Screenwell and Pump House Designator: **OMB-01**

Drawings

9699-FA-13A
9699-FC-51A
9699-FC-51B
9699-FC-51C
9699-FC-52A
9699-FC-52B
9699-FC-52C
9699-FC-52D
9699-FC-52E
9699-FC-52F
9699-FC-52G

References

1.	Engineering Design Change Request (EDCR) 95-301, "Installation of Consolidated Spent Fuel Pool Cooling System," dated April 25, 1995.
2.	"Radionuclides for Building Surfaces and Soil DCGL Determinations," YA-REPT-00-001-03



Legend

= Survey Area Boundary

Notes

Yankee Atomic Power Company
Soil Sample Locations - OMB-01

YANKEE

Date: October 2003

Revision: 4

Figure: 39

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Building Historical Site Assessment and Classification Summary

Survey Area Name: Security Gatehouse & Diesel Generator Designator: **OMB-02**

Survey Area Description

Based upon the projected end-state of decommissioning activities, Survey Area OMB-02 consists of the reinforced concrete and concrete block walls, reinforced concrete floors and foundations of the Security Diesel Building, Security Gatehouse and Control Room Complex.

The footprint of OMB-02 is approximately 270 square meters.

Survey area OMB-02 is bounded by survey area OOL-02 and OOL-06, both of which are Class 3 land survey areas.

The west storm sewer system runs under the Security Gatehouse.

Survey Area Name: Security Gatehouse & Diesel Generator Designator: **OMB-02**

Survey Area History

The Security Gatehouse is an original plant structure, which has been modified numerous times over the life of the plant. These modifications include additions that have expanded the footprint of the structure and reconfiguration of the internal arrangement of the original structure (Ref 1, Ref 2). The latest modifications being the control room addition and recent changes implemented to address heightened security concerns (Ref 3).

The security diesel generator building was constructed as part of and to support the site security upgrades performed in the late 1970s that included replacement of the security boundary fence, installation of security cameras and improved site illumination. An addition attached to the security diesel building was constructed to house an uninterruptible power supply (UPS) to support the security system. This UPS was removed from service and the building now contains the diesel fuel storage tanks that supply the security diesel generator.

Survey Area OMB-02 did not contain radioactive systems, was not used to store radioactive materials or package radioactive waste. Radioactive materials in small packages ready for shipment may have been transported through OMB-02. Use of radioactive material in this area was limited to sealed check sources used for instrumentation operational checks.

The west storm sewer that runs under the security gatehouse portion of OMB-02 is known to have been contaminated (Ref 4) and will require further investigation.

Radiological assessments were performed on a routine basis in OMB-02. Radioactive contamination resulted from migration of contamination out of the RCA, when identified it was immediately cleaned-up.

Scoping/Characterization

A pre-demolition survey developed in accordance with AP-0831 Administrative Program for Radiological and Non-Radiological Characterization Surveys is implemented prior to commencing demolition activities. The results of this survey will identify radiological contamination present within the bounds of OMB-02. This survey also serves as the material survey for release in accordance with AP-0052 Radiation Protection Release of Equipment, Materials and Vehicles, if appropriate, for the OMB-02 demolition materials

Decommissioning Activities

No decommissioning activities have been performed in OMB-02

Survey Area Name: Security Gatehouse & Diesel Generator Designator: **OMB-02**

Findings

Survey area OMB-02 is a structure that is bounded by OOL-02 and OOL-06 Class 3 land survey areas.

Survey area OMB-02 was minimally impacted by plant operations and is not likely to contain residual radioactivity at levels greater than a small fraction of the DCGL.

If residual radioactivity is present, the radionuclide mix for the OMB-02 includes all radionuclides identified as present in the radioactive systems of the plant (Ref 5). The primary radionuclides of concern for OMB-02 are Co-60, Cs-137, Ag-108m, Sr-90, and tritium.

Current Status

All structures that make up OMB-02 are still in service and will remain so. No sampling was conducted in this area.

Classification Statement

Based upon the historical use and radiological conditions associated with this survey area OMB-02 is identified as a Class 3 Area.

Building Historical Site Assessment and Classification Summary

Survey Area Name: Security Gatehouse & Diesel Generator Designator: **OMB-02**

Drawings

9699-FA-14A

References

1.	Plant Modification 75-46, "Gate House Addition," dated January 26, 1976.
2.	Plant Alteration (PA) 85-013, "Addition to Gatehouse," dated May 20, 1985.
3.	Plant Design Change Request (PDCR) 91-06, "Gatehouse Access Modification," dated October 23, 1991.
4.	Abnormal Occurrence Report (AOR) 66-08, "Abnormal Activity in Storm Drains," dated December 27, 1966.
5.	"Radionuclides for Building Surfaces and Soil DCGL Determinations," YA-REPT-00-001-03

OMB-02

N

Legend

= Survey Area Boundary

Notes

	Yankee Atomic Power Company Soil Sample Locations - OMB-02	YANKEE	Date: October 2003 Revision: 4
			Figure: 40

CHH

Building Historical Site Assessment and Classification Summary

Survey Area Name: Training Center Designator: **OMB-03**

Survey Area Description

Survey Area OMB-03 consists of a metal frame and panel structure set on a reinforced concrete slab and foundations.

The footprint of OMB-03 is approximately 890 square meters.

Survey area OMB-03 is bounded by OOL-06, a Class 3 land survey area.

Survey Area Name: Training Center Designator: **OMB-03**

Survey Area History

The OMB-03 structure has been subject to a variety of uses. Originally it functioned as a training center for plant personnel prior to start-up. For a time it served as the visitor and information center. It was later converted to office space to support the training organization. Today the OMB-03 structure functions as the YNPS Administration Office Building.

Radiological assessments performed in OMB-03 did not indicate the present of plant related radioactivity.

Draft NUREG/CR-5849 based survey was performed in OMB-03, the results of which may be qualified as characterization data, if appropriate, at the time of FSS (Ref 1) .

Scoping/Characterization

A pre-demolition survey developed in accordance with AP-0831 Administrative Program for Radiological and Non-Radiological Characterization Surveys is implemented prior to commencing demolition activities in OMB-03. The results of this survey will identify radiological contamination present within the bounds of OMB-03. This survey also serves as the material survey for release in accordance with AP-0052 Radiation Protection Release of Equipment, Materials and Vehicles, if appropriate, for the OMB-03 demolition materials

Decommissioning Activities

No decommissioning activities have been performed in OMB-03.

Survey Area Name: Training Center Designator: **OMB-03**

Findings

Survey area OMB-03 is a structure that is bounded by OOL-06, a Class 3 land survey area.

Survey area OMB-03 was minimally impacted by plant operations and is not likely to contain residual radioactivity at levels greater than a small fraction of the DCGL.

If present, the radionuclide mix for the OMB-03 includes all radionuclides identified in the reactor radioactive systems of the plant (Ref 2). The primary radionuclides of concern for OMB-03 are Co-60, Cs-137, Sr-90, and tritium.

Current Status

OMB-03 currently houses the administration offices for the YNPS site and will remain occupied for some period of time.

Classification Statement

Based upon the historical use and radiological conditions associated with this survey area OMB-03 is identified as a Class 3 Area.

Survey Area Name: Training Center

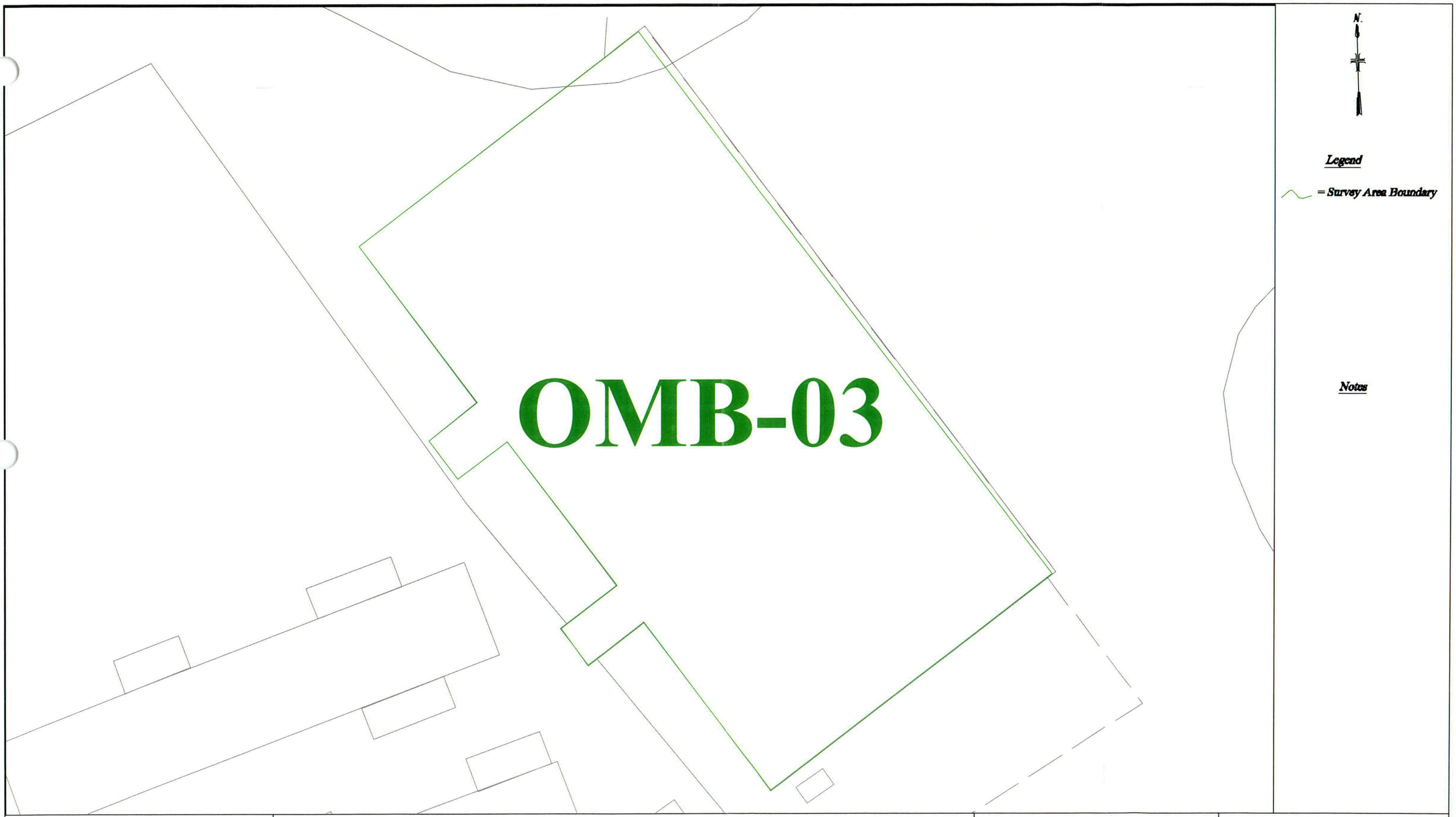
Designator: **OMB-03**

Drawings

No Plant Drawings Available
FSS Map OB002A

References

1.	"Radionuclides for Building Surfaces and Soil DCGL Determinations," YA-REPT-00-001-03



	Yankee Atomic Power Company Soil Sample Locations - OMB-03	Date: October 2003 Revision: 4	Figure: 41

045

Building Historical Site Assessment and Classification Summary

Survey Area Name: Warehouse and Loading Dock Designator: **OMB-04**

Survey Area Description

Survey Area OMB-04 consists of a concrete slab and foundations and the plant warehouse and loading dock structure.

The footprint of OMB-04 is approximately 625 square meters.

Survey area OMB-04 is bounded by survey area OOL-02, a Class 3 land survey area on the north and east, OOL-12, a Class 1 land survey area on the south, SVC-02, a Class 2 structure survey area on the west and SVC-03, a Class 3 survey area also on the west.

Survey Area Name: Warehouse and Loading Dock Designator: **OMB-04**

Survey Area History

The warehouse and loading dock are an original plant structure, which has been modified over the life of the plant. These modifications include additions that have expanded the footprint of the structure and reconfigured the internal arrangement of the original structure (Ref 1). A modification of particular interest was the raising of the height of the loading dock, which also resulted in application of two inches of concrete over the original concrete floor of the warehouse structure (Ref 2).

The most recent modification to OMB-04 was the installation of the auxiliary service water pipe under the west end of the warehouse floor slab (Ref 3). Soil samples collected along the line of excavation indicated no detectable plant related radioactivity.

Survey Area OMB-04 did not contain radioactive systems, was not used to store radioactive materials or to package radioactive waste. Radioactive materials package shipments may have been transported through OMB-04. Radioactive material packages were brought into the RCA prior to opening.

Radiological assessments were performed on a routine basis in OMB-04. Radioactive contamination of OMB-04 did occur, likely resulting from migration of contamination out of the RCA, when identified this contamination was immediately cleaned-up.

Scoping/Characterization

A pre-demolition survey developed in accordance with AP-0831 Administrative Program for Radiological and Non-Radiological Characterization Surveys was implemented prior to commencing demolition activities in OMB-04. The results of this survey identified no residual radiological contamination present within the bounds of OMB-04. This survey also serves as the material survey for release in accordance with AP-0052 Radiation Protection Release of Equipment, Materials and Vehicles, for the OMB-04 demolition materials

Decommissioning Activities

Decommissioning Activities performed DEM-TP-001 and 002 have removed the structure that was the original warehouse and the addition that connected the warehouse to the garage structure of OMB-04.

Findings

Survey area OMB-04 is bounded by survey area OOL-02, a Class 3 land survey area on the north and east, OOL-12, a Class 1 land survey area on the south, SVC-02, a Class 2 structure survey area on the west and SVC-03, a Class 3 survey area also on the west. Although OOL-12 is a Class 1 land survey area it is located down slope from OMB-04 making it unlikely that contamination would migrate into OMB-04. The radioactivity in OOL-12 is embedded within the ties and ballast beneath the rail-bed that has been paved over. This embedded radioactivity is not likely to be trans-located to OMB-04.

Survey area OMB-04 was minimally impacted by plant operations and is not likely to contain residual radioactivity at levels greater than a small fraction of the DCGL.

If residual radioactivity is present, the radionuclide mix for the OMB-04 includes all radionuclides identified as present in the radioactive systems of the plant (Ref 4). The primary radionuclides of concern for OMB-04 are Co-60, Cs-137, Ag-108m, Sr-90, and tritium.

Current Status

Decommissioning activities have removed the warehouse structure down to the top of the second layer of concrete floor. Additional investigation will be necessary to evaluate the original warehouse floor surface. No sampling was conducted in this area.

Classification Statement

Based upon the historical use and radiological conditions associated with this survey area OMB-04 is identified as a Class 3 Area.

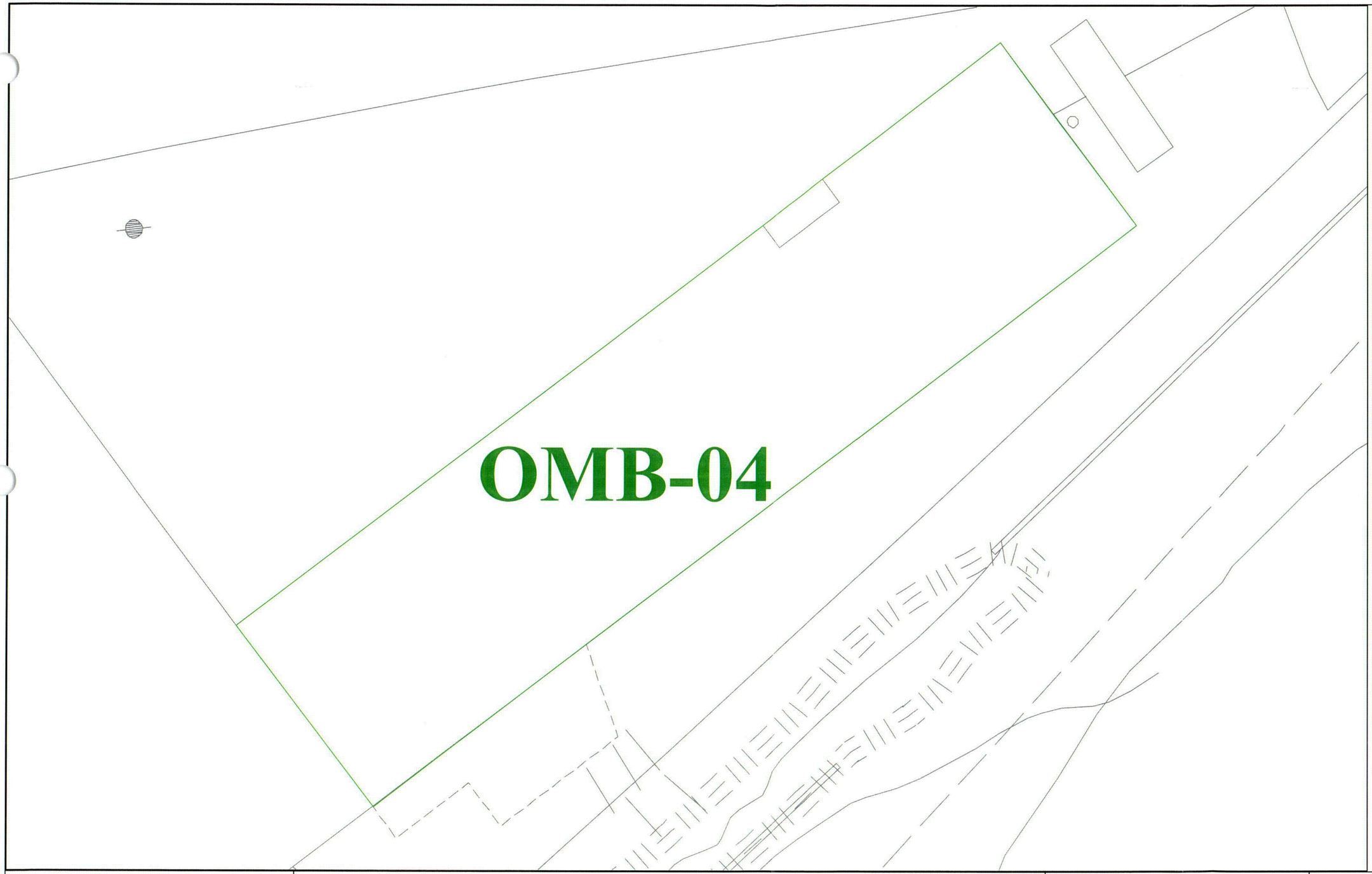
Survey Area Name: Warehouse and Loading Dock Designator: **OMB-04**

Drawings

PDCR 86-009 Attachment A1-A13

References

1.	Plant Alteration (PA) 83-024, "Modification to Warehouse Loading Dock," dated August 29, 1999.
2.	Plant Design Change Request (PDCR) 86-009, "Level 'B' Storage, Stores Warehouse," dated October 6, 1986.
3.	Engineering Design Change Request (EDCR) 95-301, "Installation of Consolidated Spent Fuel Pool Cooling System," dated April 25, 1995.
4.	"Radionuclides for Building Surfaces and Soil DCGL Determinations," YA-REPT-00-001-03



	Yankee Atomic Power Company Soil Sample Locations - OMB-04	YANKEE	Date: October 2003 Revision: 4	Figure: 42

CH6

Building Historical Site Assessment and Classification Summary

Survey Area Name: Furlon a.k.a. Yankee House Designator: **OMB-05**

Survey Area Description

Survey Area OMB-05 consists of a wood frame structure set on a foundation that is part reinforced concrete and part mortared rock.

The footprint of OMB-05 is approximately 432 square meters.

OMB-05 is bounded on all sides by OOL-16, a Class 3 land survey area.

Survey Area Name: Furlon a.k.a. Yankee House Designator: **OMB-05**

Survey Area History

The OMB-05 structure was, prior to purchase by YAEC, a private residence. It was purchased prior to construction of the YNPS facility. It has been subject to a variety of uses including storage of environmental sampling equipment and samples. It has been used to support emergency plan activities, which included storage of protective clothing, respirators, radiological survey and counting equipment. Although some of this emergency equipment had fixed contamination present, all contaminated equipment was stored in sealed storage containers.

Currently the OMB-05 functions as a visitor information center, office space and was established as the shipping and receiving point of contact for YNPS in response to heightened security concerns. Radioactive material packages received at the YNPS site are brought into the YNPS RCA prior to opening they are not opened in OMB-05. Radioactive material shipments are package at the YNPS site and do not pass through OMB-05.

Radiological assessments were performed on a routine basis in OMB-05. No documentation of contamination within survey area OMB-05 was identified in YNPS historical documents reviewed.

Draft NUREG/CR-5849 based survey was performed in OMB-05 the results indicate no plant related residual radioactivity identified.

Scoping/Characterization

Previously performed Draft NUREG/CR-5849 based surveys may subsequently be qualified as characterization surveys for OMB-05 as appropriate.

Decommissioning Activities

No decommissioning activities are planned for OMB-05

Building Historical Site Assessment and Classification Summary

Survey Area Name: Furlon a.k.a. Yankee House Designator: **OMB-05**

Findings

Survey area OMB-05 is a structure that is bounded on all sides by OOL-16, a Class 3 land survey area.

Survey area OMB-05 was minimally impacted by plant operations and is not likely to contain residual radioactivity at levels greater than a small fraction of the DCGL.

If present, the radionuclide mix for the OMB-05 includes all radionuclides identified in the reactor radioactive systems of the plant (Ref 1). The primary radionuclides of concern for OMB-05 are Co-60, Cs-137, Ag-108m and Sr-90.

Current Status

OMB-05 currently functions as the visitor information center, offices for YNPS staff and the shipping and receiving point of contact for the YNPS site. It is expected to remain occupied for some period of time.

Classification Statement

Based upon the historical use and radiological conditions associated with this survey area OMB-05 is identified as a Class 3 Area.

Building Historical Site Assessment and Classification Summary

Survey Area Name: Furlon a.k.a. Yankee House Designator: **OMB-05**

Drawings and References

Due to the age of the structure and the fact that it was not constructed as part of the YNPS facility no drawings of the Furlon/Yankee House are available.

FSS OB003 A,B,C,D

References

1.	"Radionuclides for Building Surfaces and Soil DCGL Determinations," YA-REPT-00-001-03

Building Historical Site Assessment and Classification Summary

Survey Area Name: Seal Pit Designator: **OMB-06**

Survey Area Description

Survey Area OMB-06 consists of the reinforced concrete structure located at the discharge end of the circulating water system.

The footprint of OMB-06 is approximately 282 square meters.

Survey area OMB-06 is bounded by survey area OOL-01, a Class 3 land survey area on the north and OOL-3, a Class 3 land survey area on east, south and west.

Survey Area Name: Seal Pit Designator: **OMB-06**

Survey Area History

Survey Area OMB-06 is located outside of the security fence at the edge of Sherman Reservoir a short distance west of the Screenwell Pump House. OMB-06 received the discharge of the circulating water system. The circulating water system received the discharge of the service water system, which was a portion of monitored discharge pathway for radioactive liquid releases. The service water and circulating water systems were taken out of service after the ASWS installation was complete (Ref 1). Consequently releases via this pathway were discontinued.

The ASWS discharge into the Seal Pit is currently the monitored discharge pathway for radioactive liquid releases

Scoping/Characterization

Radiological assessment of OMB-06 consists of a sediment sample collected from within the Seal Pit structure. Pipe scale and sediment samples were also collected from the circulating water system up-stream of the Seal Pit. The sediment sample from the Seal Pit and the pipe scale and sediment samples from the circulating water system piping identified low levels of residual radioactivity present.

Decommissioning Activities

Decommissioning activities performed in OMB-06 installed the Auxiliary Service Water System (ASWS) the discharge. The ASWS is the current discharge pathway for monitored radioactive liquid releases.

The projected end state of OMB-06 in removal of the entire structure. A pre-demolition survey developed in accordance with AP-0831 Administrative Program for Radiological and Non-Radiological Characterization Surveys is implemented prior to commencing demolition activities. The results of this survey will identify radiological contamination present within the bounds of OMB-06 and guide the demolition activities performed This survey also serves as the material survey for release in accordance with AP-0052 Radiation Protection Release of Equipment, Materials and Vehicles, if appropriate, for the OMB-06 demolition materials.

Survey Area Name: Seal Pit Designator: **OMB-06**

Findings

Survey area OMB-06 is bounded by survey area OOL-01, a Class 3 land survey area on the north and OOL-3, a Class 3 land survey area on east, south and west.

Survey area OMB-06 was impacted by the release of low levels of radioactivity through the ASWS monitored release pathway and the former service water system to circulating water system monitored release pathway. Survey area OMB-06 is likely to contain residual radioactivity at levels less the DCGL.

If residual radioactivity is present, the radionuclide mix for the OMB-06 includes all radionuclides identified as present in the radioactive systems of the plant (Ref 2). The primary radionuclides of concern to for OMB-06 include Co-60, Cs-137, Ag-108m, Sr-90 and tritium.

Current Status

The ASWS is the monitored discharge pathway for release of liquid radioactivity and remains in service.

A soil sample location map (Figure 44) has been prepared to show the distribution of sampling locations in OMB-06. Only samples representative of soils still present are included on the map (samples of soils representative of soils removed during remediation activities are not presented). One survey media was assessed in OMB-06, Soil. The results and analyses (Tables 1-4 in this section) of the samples plotted as "key numbers" on the map represent the radiological status at the time of sampling (a period spanning several years) as sums of fractions of the soil DCGL.

Only those samples with detectable results of the radionuclides of concern appear in Table 1. For this reason the number listed as minimum does not include samples that did not have detectable quantities of the radiological substances of concern. An assessment of the maximum, minimum and mean sum of fractions (SOF) for OMB-06 is presented at the end of Table 1 for each survey medium. The results are summarized below.

Soil: Mean SOF is 0.642.
Maximum SOF for a single soil sample is 0.642. (key# 3122)
Minimum SOF for a single soil sample is 0.642. (key# 3122)

Classification Statement

Based upon the historical use and radiological conditions associated with this survey area OMB-06 is identified as a Class 3 Area.

Building Historical Site Assessment and Classification Summary

Survey Area Name: Seal Pit Designator: **OMB-06**

Drawings

9699-FC-53A
9699-FC-54A
9699-FC-54B
9699-FP-12A

References

1.	Engineering Design Change Request (EDCR) 95-301, "Installation of Consolidated Spent Fuel Pool Cooling System," dated April 25, 1995.
2.	"Radionuclides for Building Surfaces and Soil DCGL Determinations," YA-REPT-00-001-03

Table 1
Sum of Fractions
OMB-06 -- Soil
Yankee Nuclear Power Station Rowe, MA

Station Key	Station	Sample ID		Sum Of Fractions
3122	SP001.1	SP001.1		0.642
			Min	0.642
			Max	0.642
			Mean	0.642

Table 2
Statistical Data Summary -- OMB-06 -- Soil
Yankee Nuclear Power Station Rowe, MA

Parameter	Units	# Detects	# Sample Results	Mean	Std. Dev	Minimum	Maximum	Median
Ac-228	pCi/g	1	1	2.563		2.563	2.563	2.563
Ag-108m	pCi/g	1	1	0.082		0.082	0.082	0.082
Ag-110m	pCi/g	0	1	0.000				
Am-241	pCi/g	0	1	0.000				
Bi-212	pCi/g	1	1	1.767		1.767	1.767	1.767
Bi-214	pCi/g	1	1	0.634		0.634	0.634	0.634
Ce-144	pCi/g	0	1	0.000				
Co-58	pCi/g	0	1	0.000				
Co-60	pCi/g	1	1	2.958		2.958	2.958	2.958
Cs-134	pCi/g	0	1	0.000				
Cs-137	pCi/g	1	1	0.253		0.253	0.253	0.253
Fe-59	pCi/g	1	1	0.159		0.159	0.159	0.159
K-40	pCi/g	1	1	1.566		1.566	1.566	1.566
Mn-54	pCi/g	0	1	0.000				
Nb-95	pCi/g	0	1	0.000				
Pb-212	pCi/g	1	1	3.045		3.045	3.045	3.045
Pb-214	pCi/g	1	1	0.784		0.784	0.784	0.784
Ra-226	pCi/g	1	1	5.430		5.430	5.430	5.430
Ru-103	pCi/g	0	1	0.000				
Ru-106	pCi/g	0	1	0.000				
Sb-124	pCi/g	0	1	0.000				
Tl-208	pCi/g	1	1	2.611		2.611	2.611	2.611
Zn-65	pCi/g	0	1	0.000				
Zr-95	pCi/g	0	1	0.000				

Table 3
Summary of Detected Results Above Criteria
OMB-06 -- Soil
Yankee Nuclear Power Station Rowe, MA
DCGL_Soil

Parameter	# Detects	# Sample Results	Criterion Concentration	Units	# Detects Above Criterion	Maximum Detected
Ac-228	1	1		pCi/g	0	2.56
Ag-108m	1	1	8.52	pCi/g	0	0.08
Ag-110m	0	1		pCi/g	0	
Am-241	0	1	44.35	pCi/g	0	
Bi-212	1	1		pCi/g	0	1.77
Bi-214	1	1		pCi/g	0	0.63
Ce-144	0	1		pCi/g	0	
Co-58	0	1		pCi/g	0	
Co-60	1	1	4.84	pCi/g	0	2.96
Cs-134	0	1	6.71	pCi/g	0	
Cs-137	1	1	12.24	pCi/g	0	0.25
Fe-59	1	1		pCi/g	0	0.16
K-40	1	1		pCi/g	0	1.57
Mn-54	0	1	21.66	pCi/g	0	
Nb-95	0	1		pCi/g	0	
Pb-212	1	1		pCi/g	0	3.05
Pb-214	1	1		pCi/g	0	0.78
Ra-226	1	1		pCi/g	0	5.43
Ru-103	0	1		pCi/g	0	
Ru-106	0	1	68.21	pCi/g	0	
Sb-124	0	1		pCi/g	0	
Tl-208	1	1		pCi/g	0	2.61
Zn-65	0	1		pCi/g	0	
Zr-95	0	1		pCi/g	0	

Table 4
Rad
OMB-06 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	**SP001.1 (3122)**
Sample ID	**SP001.1**
Date Sampled	**9/1/1998**
Ac-228	2.563
Ag-108m	0.08218
Ag-110m	0.0133 U
Am-241	0 U
Bi-212	1.767
Bi-214	0.6339
Ce-144	0.1326 U
Co-58	-0.02371 U
Co-60	2.958
Cs-134	-0.1582 U
Cs-137	0.2525
Fe-59	0.1591
K-40	1.566
Mn-54	0.03527 U
Nb-95	-0.0299 U
Pb-212	3.045
Pb-214	0.7839
Ra-226	5.43
Ru-103	-0.05034 U
Ru-106	-0.07772 U
Sb-124	0.02847 U
Tl-208	2.611
Zn-65	-0.2856 U
Zr-95	0.06911 U
SOF	0.642

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

Blank results indicate chemical not analyzed

OMB-06

3122

N.

Legend

= Survey Area Boundary

Notes

	Yankee Atomic Power Company Soil Sample Locations - OMB-06	YANKEE	Date: October 2003 Revision: 4	Figure: 44

CL7

Building Historical Site Assessment and Classification Summary

Survey Area Name: Spent Fuel Pool Designator: **SFP-01**

Information current as of October 31, 2003

Survey Area Description

Survey Area SFP-01 consists of the reinforced concrete floor, foundations and sub-grade structures of the Spent Fuel Pool expected to remain after demolition of the above-grade structure to elevation 1022' is complete. Survey area SFP-01 is located in the RCA and bounded by NOL-01 on the north, SFP-02 on the east, NSY-02 on the south and NOL-01 and NSY-09 on the west. The footprint of SFP-01 contains approximately 60 square meters.

Survey area SFP-01 includes the floor areas of varying elevations. (See referenced drawings). The operating floor area of SFP-01 consists of the floor area at elevation 1045' and the bottom of the SFP at elevation 1008'. The fuel transfer carriage follower pit extends down below elevation 1003'. The west exterior of the SFP includes the location of the spent fuel transfer chute and lower lock valve structure. The total surface area in square meters for SFP-01 may not be determined until demolition activities are complete. Survey Area SFP-01 will be divided into survey units as necessary.

The Spent Fuel Transfer Pit (SFP) was designed for the transfer of new fuel into the reactor and spent fuel out of the reactor. The spent fuel was then to remain in temporarily storage under water in the spent fuel pit. Routine shipments of fuel were intended to allow the SFP to be drained and decontaminated between re-fueling. In addition to spent fuel, the SFP was also used to store irradiated components such as control rods, shim rods and source vanes. The SFP annex was the location of the YNPS Special Nuclear Material storage area that was used to store sealed sources identified as Special Nuclear Material.

The SFP building was connected to the plant ventilation system that discharged to the Primary Vent Stack. A negative pressure gradient relative to atmospheric pressure was maintained within the building. The SFP-01 room air was drawn from inlets on the north side of the building toward the south side where the exhaust passed through the charcoal and HEPA filter banks in the AUX-01 fan room to the Primary Vent Stack (PVS) monitored discharge.

The operating floor area around the edge of the SFP was typically controlled as a contaminated area when spent fuel was stored in the SFP. The operating floor had a floor drain that ran to the gravity drain tank in AUX-01 for collection of radioactive liquids.

The soils present around and under the SFP structure include back fill, overburden and lodgment till. The lodgment till is relatively impermeable to groundwater flow. The overburden is more permeable. The backfill is the most permeable media and consequently areas containing backfill are the likely pathways for subsurface migration of radioactivity. Backfill is present at the perimeter of the subsurface structures including the deepest portion of the SFP.

Survey Area Name: Spent Fuel Pool Designator: **SFP-01**

Information current as of October 31, 2003

Survey Area History

In November of 1961 a coating of phenolic resin was applied to the surface of the SFP in preparation for the first refueling outage. Operations Report #11 (Ref. 1)

A significant operational event that led to the contamination of survey area SFP-01 was AOR 66-07, Spent Fuel Pit Water Spill (Ref. 2). About 33 gallons of the spent fuel pit water overflowed the edge of the pit and ran toward the northwest end of the building and down the exterior wall to earth. The event occurred as a fuel transfer cask was being removed from the pool which required water to be added to the pool.

In 1967 all of the spent fuel and irradiated components were shipped either for reprocessing or disposal and the spent fuel pit was drained and inspected. The inspection identified blisters in the phenolic coating on the walls of the SFP. Upon further inspection a crack was observed in the concrete of the SFP. An evaluation of the crack determined it was caused by shrinkage. The phenolic coating was removed from the walls of the SFP using sandblasting and was replaced with an epoxy coating. (Ref. 3)

Between uses the spent fuel pool was drained empty and inspected. The last spent fuel shipment was performed in 1971. A spent fuel shipment moratorium was instituted at that time.

In 1977 the plant experienced the first fuel cladding failures and fission products became a part of the radionuclide mixture in the SFP.

Between 1978 and 1980 EDCR 78-12 (Ref. 4) installed a stainless steel liner into the SFP, which facilitated the double stacking of spent fuel racks. The liner was installed in two sections with a temporary cofferdam used to facilitate the installation. The SFP Building annex was also constructed under EDCR 78-12. The annex is located on top of what was the roof of the New Fuel Storage Vault.

In 1992 all of the fuel was removed from the reactor and placed into storage in the SFP. During the Control Rod disposal process, an abrasive saw and shear cutter were employed to cut the control elements into manageable sized pieces. As a result, Ag-108m was deposited among the other radionuclides in the Spent Fuel Pit. Ag-108m has since been identified on a swipe taken from the surface of the SFP Liner.

In August of 2003 the transfer of all fuel to dry cask storage on the ISFSI pad was completed. In September of 2003, the bottom of the SFP was vacuumed and an underwater hydro-laser was applied for decontamination. In October of 2003 the final drain-down of the SFP was completed.

Translocation Pathways

During fuel transfer the water in the spent fuel pool would mix with the water in the shield tank cavity in the VC. The mixing of the waters resulted in radioactivity entering the water in the spent fuel pool.

In the colder months, condensation formed on the inside of the roof and un-insulated walls above the concrete portion of the structure due to evaporation from the liquid inventory, which was maintained at a temperature between 75 and 100° F, and the cooler walls. This condensation would typically drip down the walls and pass onto the exterior concrete walls of the building. This condensation is expected to have contained tritium.

Potential pathways exist for the liquid inventory to seep out of the pit directly to the exterior of the structure due to historically reported cracks during inspections between re-fueling in the early operational history prior to the lining of the pit. Careful monitoring of make-ups and additions of water to the pit did not identify a significant leakage concern. (Ref. 5, 6, 7 & 8) This circumstance is on the list of areas targeted for subsurface investigational activities.

Potential Contaminants

Contaminants present in SFP-01 include all potential contaminants in the radionuclide mix identified in Radionuclides for Building Surfaces and Soil DCGL Determinations, YA-REPT- 00-001-03 (Ref. 9). Historical concentrations of key radionuclides are shown on attached graphics (Ref. 10).

Scoping/Characterization Surveys (Historical)

Scoping surveys were performed and the data collected used to develop the YNPS Decommissioning Plan (Ref. 11). Samples of residue on the bottom of the SFP and swipes of spent fuel racks were analyzed under Part 61 protocols for waste stream and site radionuclide mix characterization information.

An investigation well was drilled in the northwest corner outside the SFP to evaluate the possibility of radionuclide contamination at depth and of the groundwater surrounding and beneath the structure. Tritium was detected at levels above the MCL for tritium in the groundwater; however, no gamma emitting radionuclides were detected in the water or soil column in this location. An investigational scoping survey consisting of geo-probe borings to a depth near the bottom of the SFP slab is in progress. Preliminary results from the east side borings indicate the presence of Cs-137 above the soil DCGLs but an absence of Ag-108m and Co-60.

Survey Area Name: Spent Fuel Pool Designator: **SFP-01**

Decommissioning Activities

Modifications performed to the SFP building since the shutdown of the YNPS and in support of decommissioning activities in other areas of the facility include:

- EDCR 92-303 SFP/Security Modifications
- EDCR 95-302 Installation of Consolidated SFP Cooling System,
- EDCR 95-303 Fuel Transfer Chute Isolation, NNS Mod 95-066 Construction Power Feed Installation SFP
- NNS Mod 96-003 Re-powering Electrical System from 13.8KV Mass Electric Line
- EDCR 96-304 and 304A SFP Building Modifications & Fuel Handing System Equipment Removals
- NNS 98-003 Installation of SFP Makeup Pump Flowmeter
- NNS 98-004 SFP/Annex Building Interior Upgrades
- NNS98-004 A SFP/Annex Building Insulation
- NNS Mod 00-001 SFP Filter/Demineralizer

Some decommissioning activities have been performed in survey area SFP-01 at the time of this assessment. At the conclusion of material transfer from the Shield Tank Cavity in the Vapor Container, the Fuel chute was isolated and the lower lock valve was encased in concrete. The fuel up-ender and follower carriage have been removed. The Spent Fuel Pit cooling system was removed during DWP-CCWS-01 (Ref. 12). An alternate cooling system was installed as part of the alternate liquid inventory clean-up system installation. This heat exchanger is supplied with cooling water by the installation of the Auxiliary Service Water (ASW) system. The ASW draws water from OMB-01 (screenwell house) and discharges to OMB-06 (seal pit).

Additional decommissioning activities to be performed will remove the pit liner and support systems associated with the structure. The lower lock valve and follower chute will be removed at a minimum with possible removal of the entire concrete mass. At a minimum, the above grade portions the structure will be removed.

Survey Area Name: Spent Fuel Pool Designator: **SFP-01**

Information current as of October 31, 2003

Findings

The history of SFP-01 indicates that this structure is radiologically impacted as a result of plant operations. The soils under and surrounding the footprint of SFP-01 were impacted by plant operations.

No remediations have taken place within the footprint of the structure; however, some remediation activity has been conducted in the soils surrounding the structure. The remediations were associated with the installation of a security wall around the base of the above grade structure. The source of this activity is presumed to be related to the significant contaminating event AOR 66-07 described in the history section above. Soils in excess of the soil DCGLs were removed. This remediation activity is documented under the NOL-01 Survey Area.

The radionuclide mix for survey area AUX-01 includes all radionuclides identified in the radioactive systems of the plant (Ref. 9). The primary radionuclides of concern for SFP-01 are Co-60, Cs-137, Ag-108m, Sr-90, and tritium.

Contaminated Media

These radionuclides are distributed in media including reinforced concrete, the steel liner, the grout between the liner and the SFP concrete wall, epoxy paint and soils under and surrounding the footprint of SFP-01. The extent of contamination of the exterior surface of the PAB structure below grade and sub-foundation soil will require further investigation.

Current Status

Survey Area SFP-01 is in an early stage of decommissioning with most associated systems still intact. Surface decontamination has been performed on the drained pit liner.

An assessment of core bores taken between the SFP and the IX pit obtained shortly after the pit was drained was conducted for the penetration depth of gamma emitters and tritium into the concrete. Both exterior ends of the cores contained activity; however, the central portion of the cores contained much less tritium and no gamma emitters. The exterior surface of sub-grade structures and foundation will be investigated for possible contamination. Continuing scoping/characterization surveys will be performed in support of further investigations of subsurface radioactivity if required.

Operational radiological surveys in this section represent the drained and decontaminated surface condition of the SFP liner inside the pit prior to removal. (Ref. 13)

Building Historical Site Assessment and Classification Summary

Survey Area Name: Spent Fuel Pool Designator: **SFP-01**

Spent Fuel Pit Dose Rate & Contamination Summary

Operating Floor (as of 9/18/03):

Large Area Wipes – 300 ccpm to 6000 ccpm
Smears – <50 dpm/100 cm^2 α
<1000 dpm/100 cm^2 to 18K dpm/100 cm^2 β-γ
Dose Rates – <0.2 mr/hr to 16 mr/hr

Pit:

Floor Contact Dose Rates (as of 9/15/03)

North 25% – 86 mr/hr to 6500 mr/hr
Next 25% – 70 mr/hr to 3900 mr/hr
Next 25% – 41 mr/hr to 10,000 mr/hr
South 25% – 29 mr/hr to 171 mr/hr

Floor Knee/Head Level (as of 9/23/03)

Northern third – 200/100 mr/hr to 500/200 mr/hr
Middle third – 40/42 mr/hr to 800/200 mr/hr
Southern third – 12/18 mr/hr to 32/32 mr/hr

Floor and Walls @1'

North half – 75 mr/hr to 600 mr/hr γ
0 mrad/hr to 500 mrad/hr β
South half – 5 mr/hr to 30 mr/hr γ
0 mrad/hr to 25 mrad/hr β

Building Historical Site Assessment and Classification Summary

Survey Area Name: Spent Fuel Pool Designator: **SFP-01**

Information current as of October 31, 2003

Classification Statement

Based upon the radiological conditions identified in the operating history and as a result of the decommissioning activities performed to date, survey area SFP-01 is identified as a Class 1 Survey Area.

Non-Radiological Concerns

PCB Paint application.

Historical Site Assessment and Classification Summary

Survey Area Name: Spent Fuel Pool Designator: SFP-01

Drawings

9699-FA-15A
9699-FA-18A
9699-FC-45B
9699-FC-45C
9699-FC-45D
9699-FC-45E
9699-FC-45F
9699-FM-21A

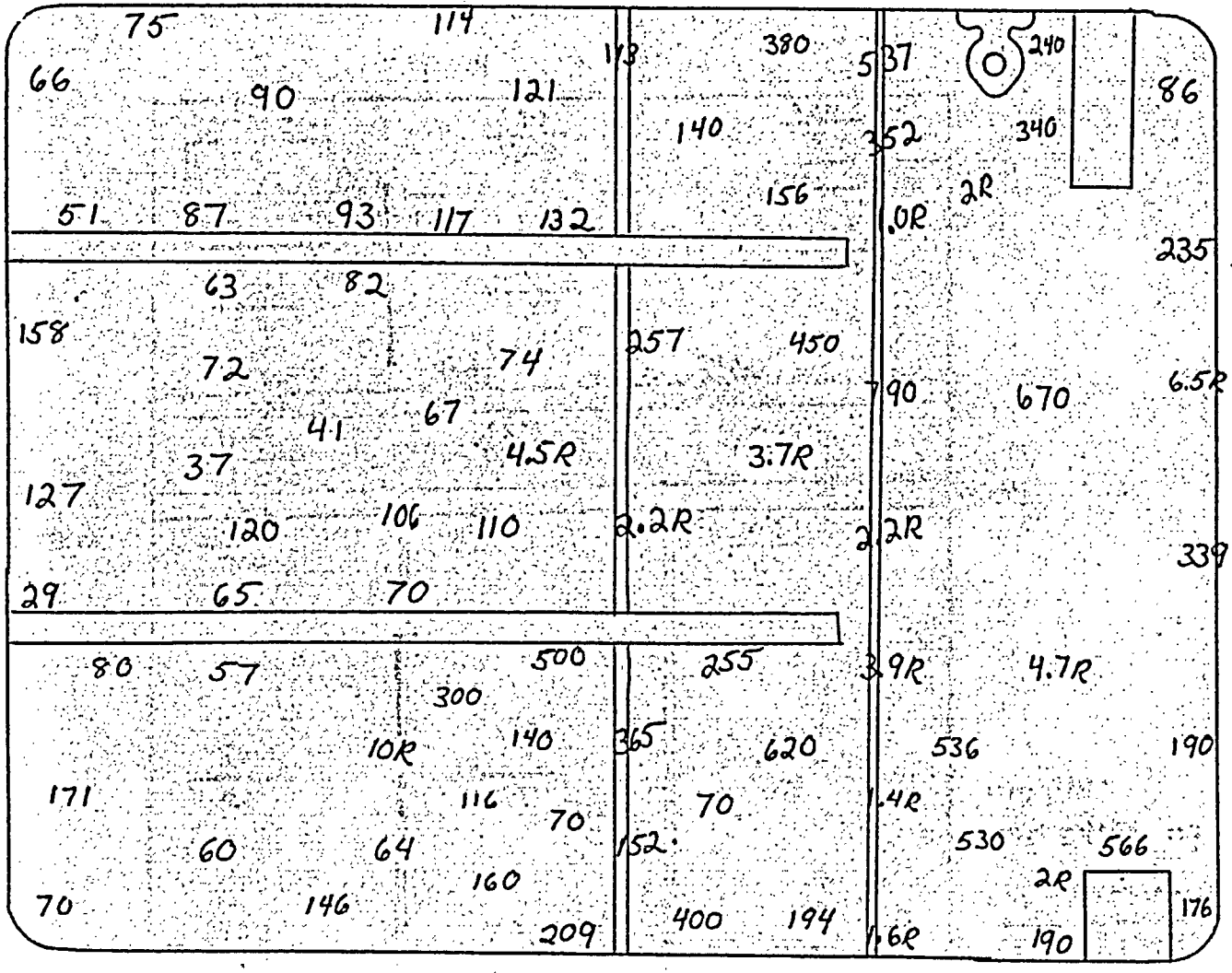
References

1.	OPs Report #11 for the Month of November 1961, dated December 15, 1961.
2.	Abnormal Occurrence Report (AOR) 66-07, "Spent Fuel Pit Water Spill," dated September 27, 1966.
3.	Operations Report # 84 for the Month of December 1967, dated January 22, 1968.
4.	OPs Report #85 for the Month of January 1968, dated February 26, 1968.
5.	Engineering Design Change Request (EDCR) 78-12, "1978-1980 Spent Fuel Pit Liner Installation," dated 1978.
6.	Calculation YRC-1060, Spent Fuel Pit Evaporation Rates, July 1994
7.	OP 2189 - SFP Make-up Logsheets
8.	CHM 01-012 "Spent Fuel Pit Wall Inspection and Calculated Through Wall Leakage," October 2001.
9.	MRT Review Team, "Two Year Review of Spent Fuel Pool Make-ups," dated April 5, 2001.
10.	"Radionuclides for Building Surfaces and Soil DCGL Determinations," YA-REPT- 00-001-03.
11.	Annual Spent Fuel Chemistry Data Evaluations 1996, 1997-1999, 2000
12.	Yankee Nuclear Power Station, Decommissioning Plan, Rev. 0.0, Section 3.
13.	Operational Surveys September 2003 (see attachment to summary)
14.	DWP-CCWS-01, "Component Cooling, Fuel Pit Cooling and Service Water (Primary Plant) Systems," dated September 5, 1995.

550

YANKEE ATOMIC ELECTRIC COMPANY

RADIATION PROTECTION SURVEY FORM



SPECIAL SURVEY FORM
LOCATION or EQUIPMENT Spent Fuel Pit

8101.6 REV. 28

DATE 9-15-03 TIME 0800

SURVEYOR Mayers/Packer

INSTRUMENT/#	CAL DUE
Amp 100 5975	11-15-03
NA	NA
NA	NA

KEY

- RADIATION GENERAL AREA
- RADIATION CONTACT
- SMEAR LOCATION
- BARRIER — MASSLINN
- (✓) DIRECT RADIATION READINGS IN MR/HR EXCEPT AS NOTED.
- ( ) CONTAMINATION
  - ( ) LESS THAN 1000 dpm/100cm² BETA-GAMMA UNLESS NOTED
  - ( ) LESS THAN 50 dpm/100cm² ALPHA UNLESS NOTED.
- ( ) HOT PARTICLE SURVEY NO HOT PARTICLES FOUND UNLESS NOTED.

SMEAR LOCATION & NET dpm/100 cm²

1 NA	11 NA	21 NA
2	12	22
3	13	23
4	14	24
5	15	25
6	16	26
7	17	27
8	18	28
9	19	29
10 ✓	20 ✓	30 ✓

COMMENTS: All readings are contact with the floor

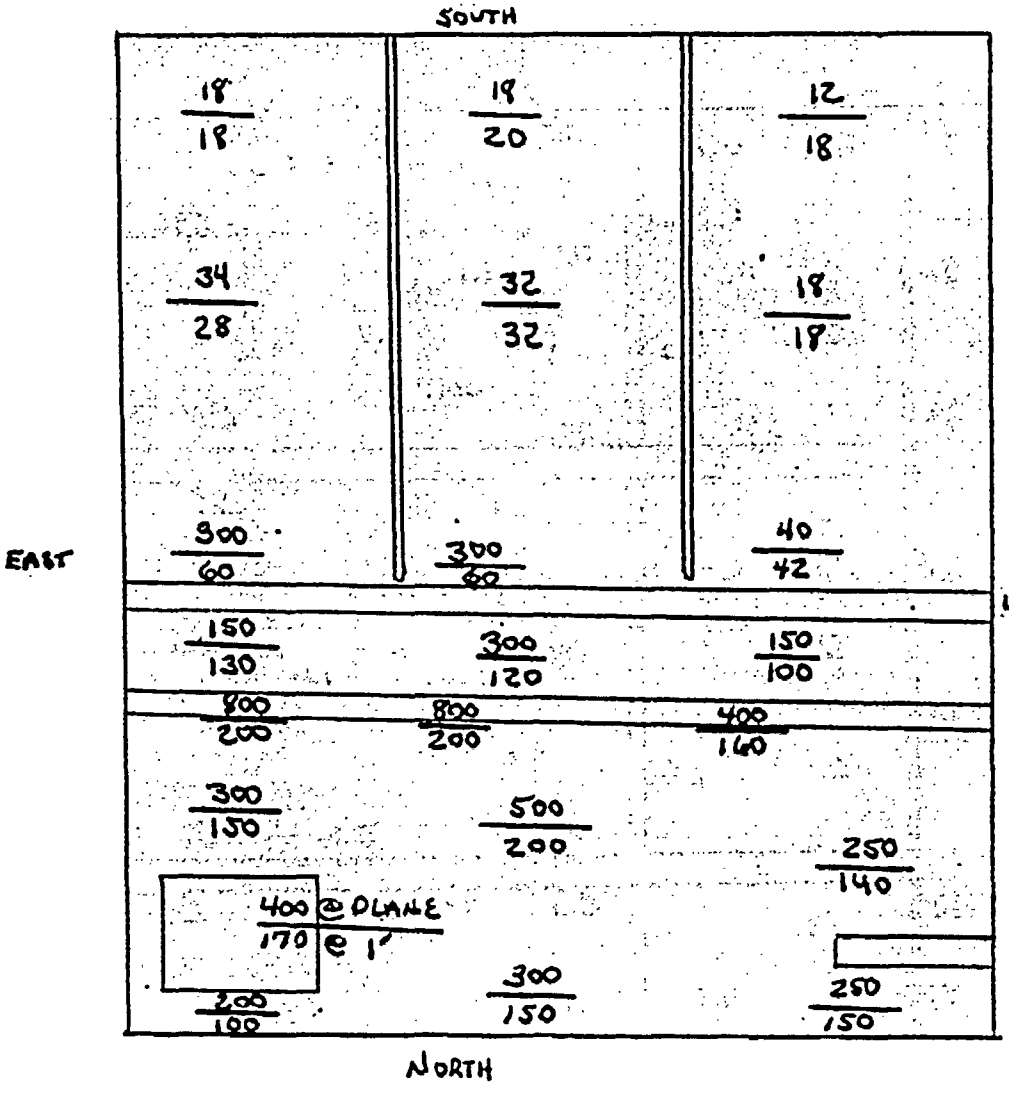
YANKEE ATOMIC ELECTRIC COMPANY

RADIATION PROTECTION SURVEY FORM

DATE 9-23-04 TIME 100

SURVEYOR Parker

INSTRUMENT/#	CAL I
RO2 #4448	3-11-
RM-14 #2151	7-15-
N/A	N/A



#KNEE LEVEL / # HEAD LEVEL

DOSE RATES IN MR/HR.

KEY

- RADIATION GENERAL ARE
- RADIATION CONTACT
- SMEAR LOCATION
- BARRIER
- (✓) DIRECT RADIATION READINGS IN MR/HR EXCE AS NOTED.
- (✓) CONTAMINATION
  - (✓) LESS THAN 1000 dpm/10C BETA-GAMMA UNLESS NOTI
  - (✓) LESS THAN 50 dpm/100cm ALPHA UNLESS NOTED.
- (✓) HOT PARTICLE SURVEY NO HOT PARTICLES FOUNI UNLESS NOTED.

SMEAR LOCATION & NET dpm/100

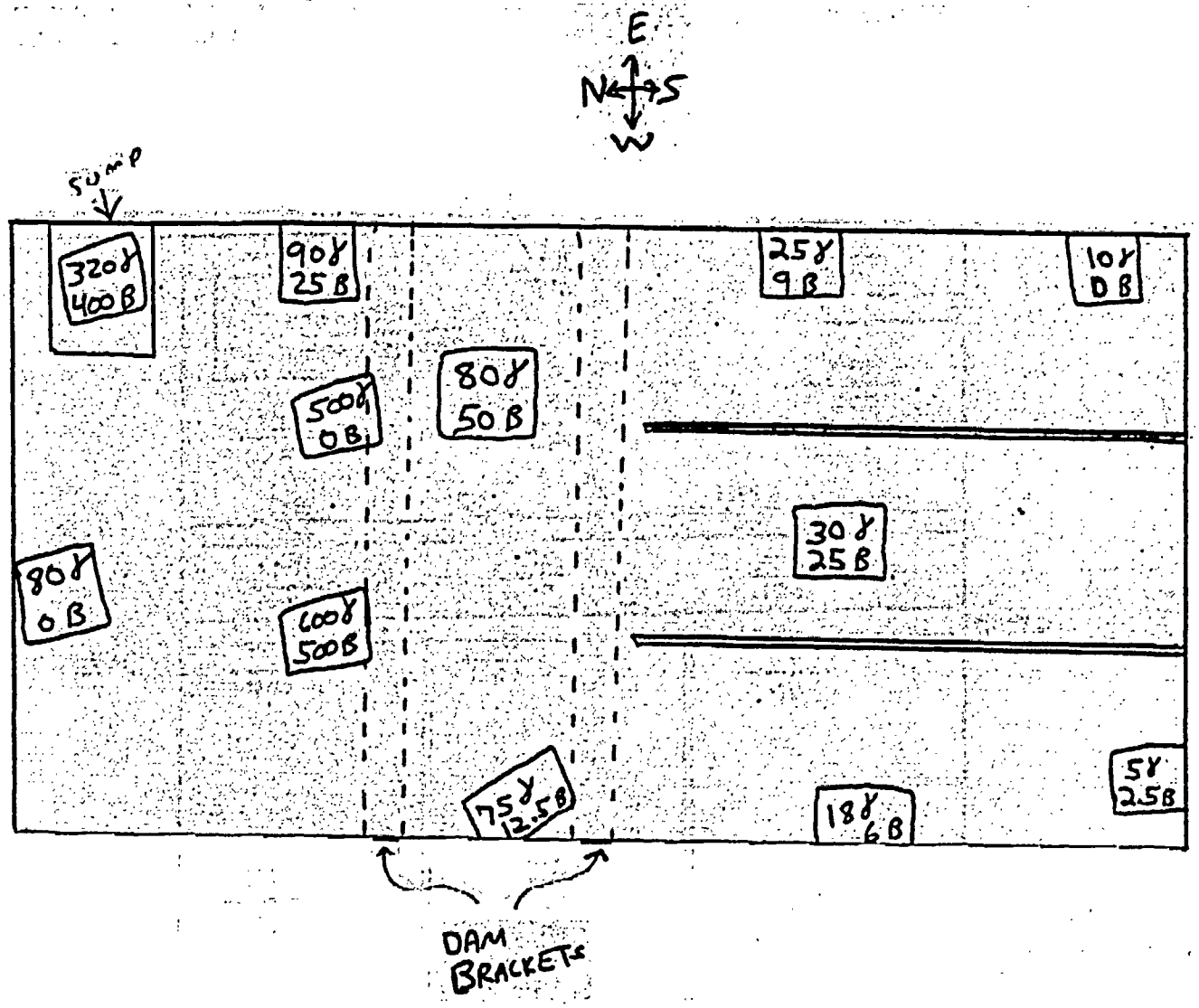
1 340 K	11 N/A	21 N/
2 120 K	12	22
3 240 K	13	23
4 N/A	14	24
5	15	25
6	16	26
7	17	27
8	18	28
9	19	29
10	20	30

COMMENTS: Smears #1 - #3 Taken on floor. #1 Sent to HP&I.

SPECIAL SURVEY FORM LOCATION or EQUIPMENT: SPENT FUEL POOL FLOOR GENERAL AREA SURVEY.

8101.6 REV. 28

RADIATION PROTECTION SURVEY FORM



DATE 9/24/03 PAGE 10

SURVEYOR Dente/Moyer

INSTRUMENT/#	CAL
RO2 5556	~~535~~ 3-11-03

KEY

- ▭ RADIATION GENERAL AR
- ○ RADIATION CONTACT
- △ SMEAR LOCATION
- -X-X- BARRIER
- (X) DIRECT RADIATION @ 1' READINGS IN MR/HR EXC AS NOTED.
- ( ) CONTAMINATION
  - ( ) LESS THAN 1000 dpm/10 BETA-GAMMA UNLESS NOT
  - ( ) LESS THAN 50 dpm/100c ALPHA UNLESS NOTED.
- ( ) HOT PARTICLE SURVEY NO HOT PARTICLES FOUN UNLESS NOTED.

SMEAR LOCATION & NET dpm/10

1	11	21
2	12	22
3	13	23
4	14	24
5	15	25
6	16	26
7	17	27
8	18	28
9	19	29
10	20	30

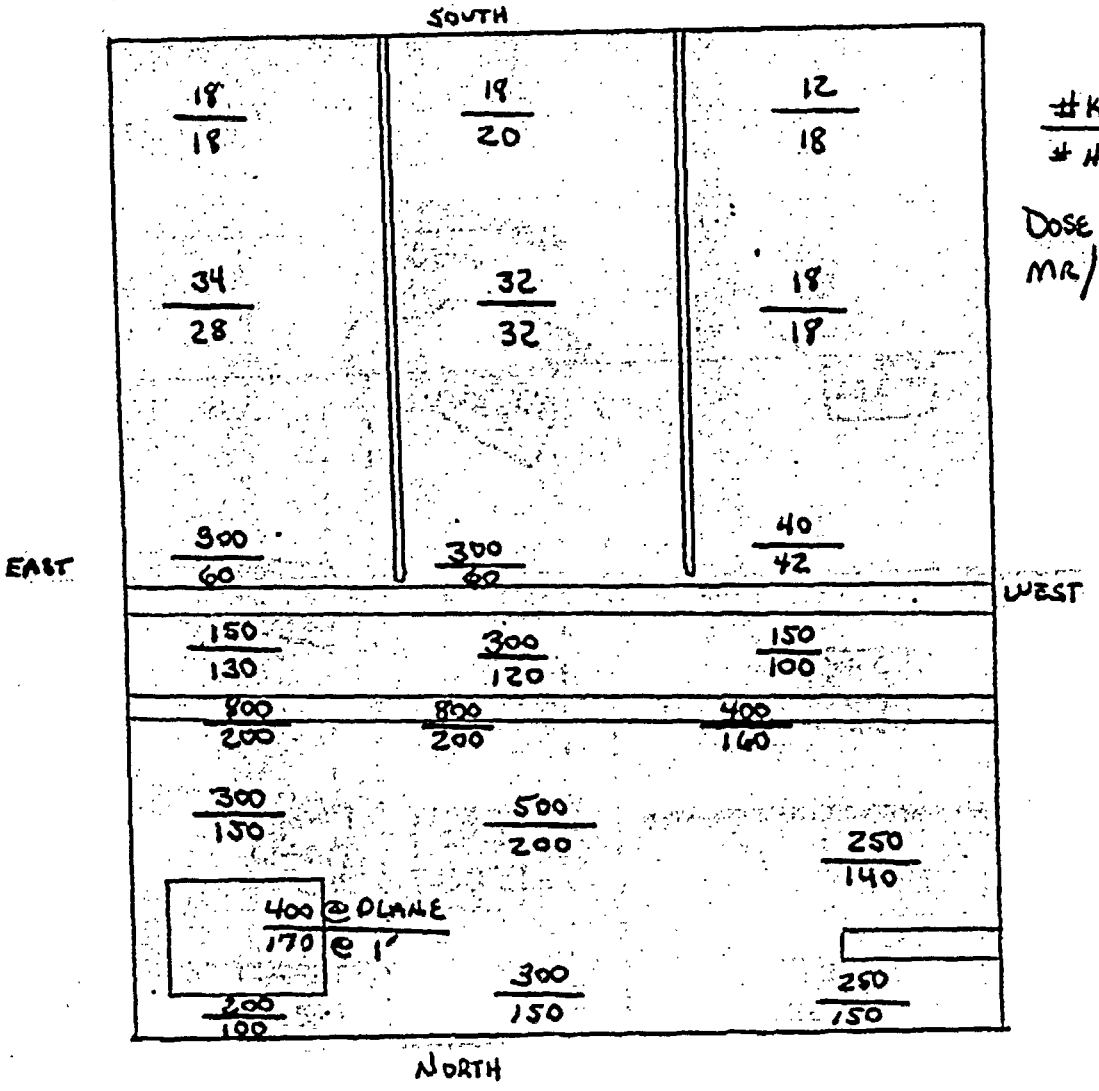
COMMENTS:

SPECIAL SURVEY FORM
LOCATION or EQUIPMENT
8101.6 REV. 28

Walls + Floor

YANKEE ATOMIC ELECTRIC COMPANY

RADIATION PROTECTION SURVEY FORM



KNEE LEVEL / # HEAD LEVEL

DOSE RATES IN MR/HR.

DATE 9-23-04 TIME 100

SURVEYOR Parker

INSTRUMENT/#	CAL I
RO2 #4448	3-11-4
RM-14 #2151	7-15-
N/A	N/A

KEY

- RADIATION GENERAL AREA
- RADIATION CONTACT
- SMEAR LOCATION
- BARRIER
- DIRECT RADIATION READINGS IN MR/HR EXCEPT AS NOTED.
- CONTAMINATION
  - LESS THAN 1000 dpm/100 BETA-GAMMA UNLESS NOTED
  - LESS THAN 50 dpm/100cm ALPHA UNLESS NOTED.
- HOT PARTICLE SURVEY NO HOT PARTICLES FOUND UNLESS NOTED.

SMEAR LOCATION & NET dpm/100

1	340 K	11	N/A	21	N/
2	120 K	12		22	
3	240 K	13		23	
4	N/A	14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

COMMENTS: Smears #1 - #3 Taken on floor. #1 Sent to HP Lab.

SPECIAL SURVEY FORM LOCATION or EQUIPMENT: SPENT FUEL ROOF FLOOR GENERAL AREA SURVEY.

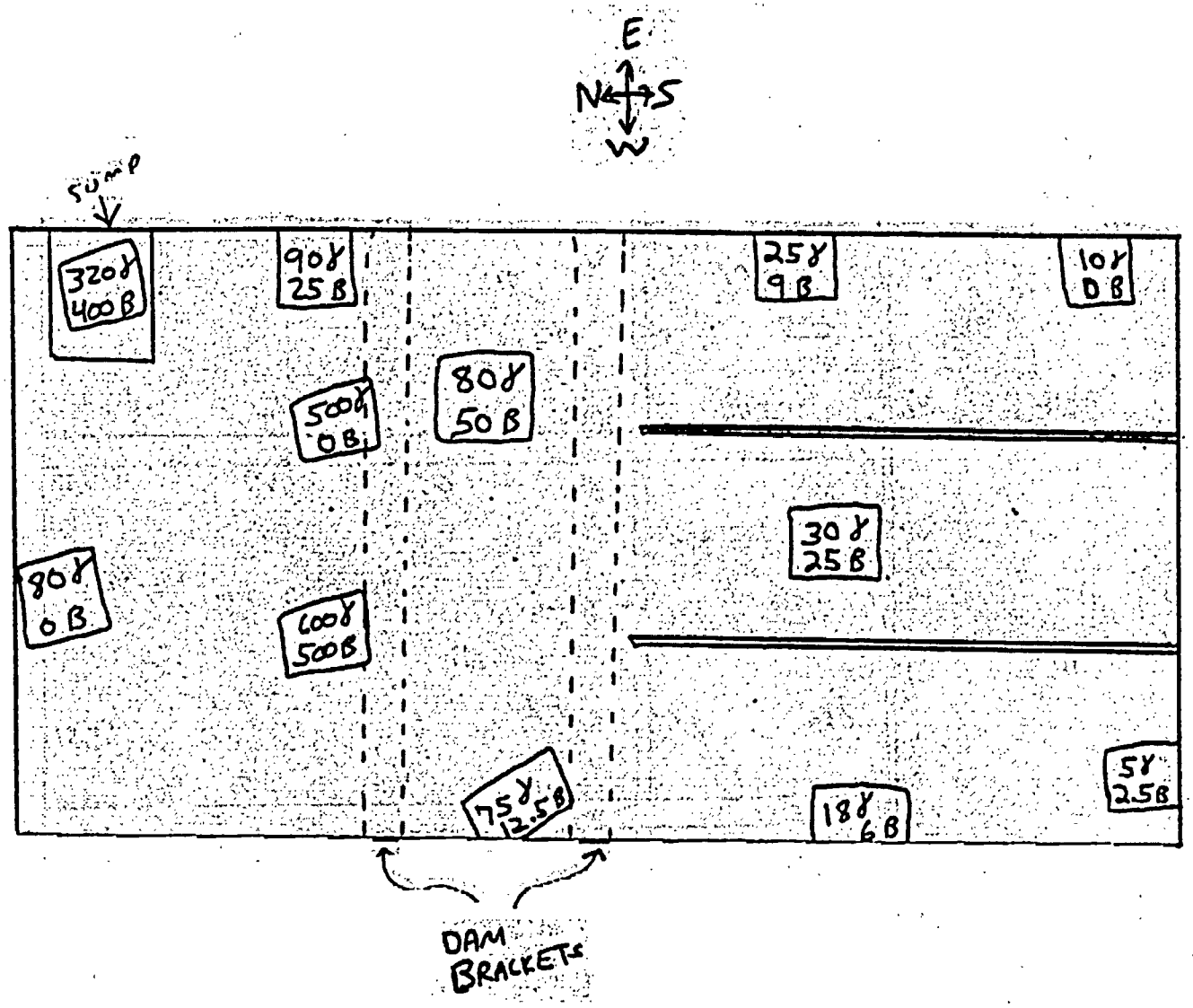
8101.6 REV. 28

RADIATION PROTECTION SURVEY FORM

DATE 9/24/03 SHT 10

SURVEYOR Dente/Moyers

INSTRUMENT/#	CAL
RO2 5556	~~5/5~~ 3-11-4



KEY

- RADIATION GENERAL AR
- RADIATION CONTACT
- SMEAR LOCATION
- BARRIER
- HOT

(X) DIRECT RADIATION @ 1'
READINGS IN MR/HR EXC AS NOTED.

( ) CONTAMINATION
( ) LESS THAN 1000 dpm/10 BETA-GAMMA UNLESS NOT
( ) LESS THAN 50 dpm/100c ALPHA UNLESS NOTED.

( ) HOT PARTICLE SURVEY
NO HOT PARTICLES FOUN UNLESS NOTED.

SMEAR LOCATION & NET dpm/10

1	11	21
2	12	22
3	13	23
4	14	24
5	15	25
6	16	26
7	17	27
8	18	28
9	19	29
10	20	30

COMMENTS:

SPECIAL SURVEY FORM
LOCATION or EQUIPMENT

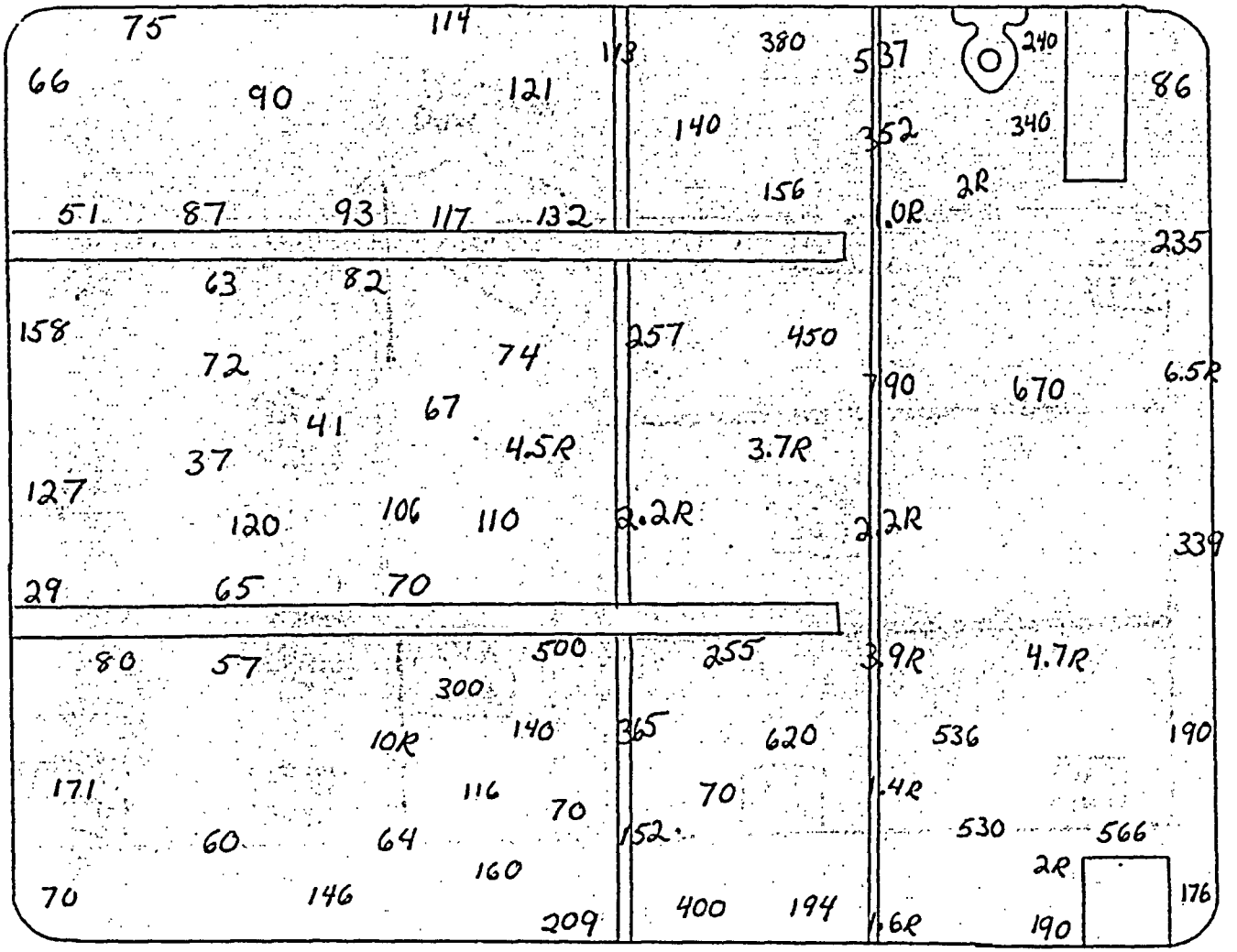
8101.6 REV. 28

1st F - Gamma + Beta Readings @ 1' from walls + Floor

550

YANKEE ATOMIC ELECTRIC COMPANY

RADIATION PROTECTION SURVEY FORM



DATE 9-15-03 TIME 0800

SURVEYOR Mayers / Parker

INSTRUMENT/#	CAL DUE
Amp 100 5975	11-15-03
NA	NA
NA	NA

KEY

- RADIATION GENERAL AREA
- RADIATION CONTACT
- SMEAR LOCATION
- BARRIER
- MASSLINN
- (✓) DIRECT RADIATION READINGS IN MR/HR EXCEPT AS NOTED.
- ( ) CONTAMINATION
  - ( ) LESS THAN 1000 dpm/100cm² BETA-GAMMA UNLESS NOTED
  - ( ) LESS THAN 50 dpm/100cm² ALPHA UNLESS NOTED.
- ( ) HOT PARTICLE SURVEY NO HOT PARTICLES FOUND UNLESS NOTED.

SMEAR LOCATION & NET dpm/100 cm²

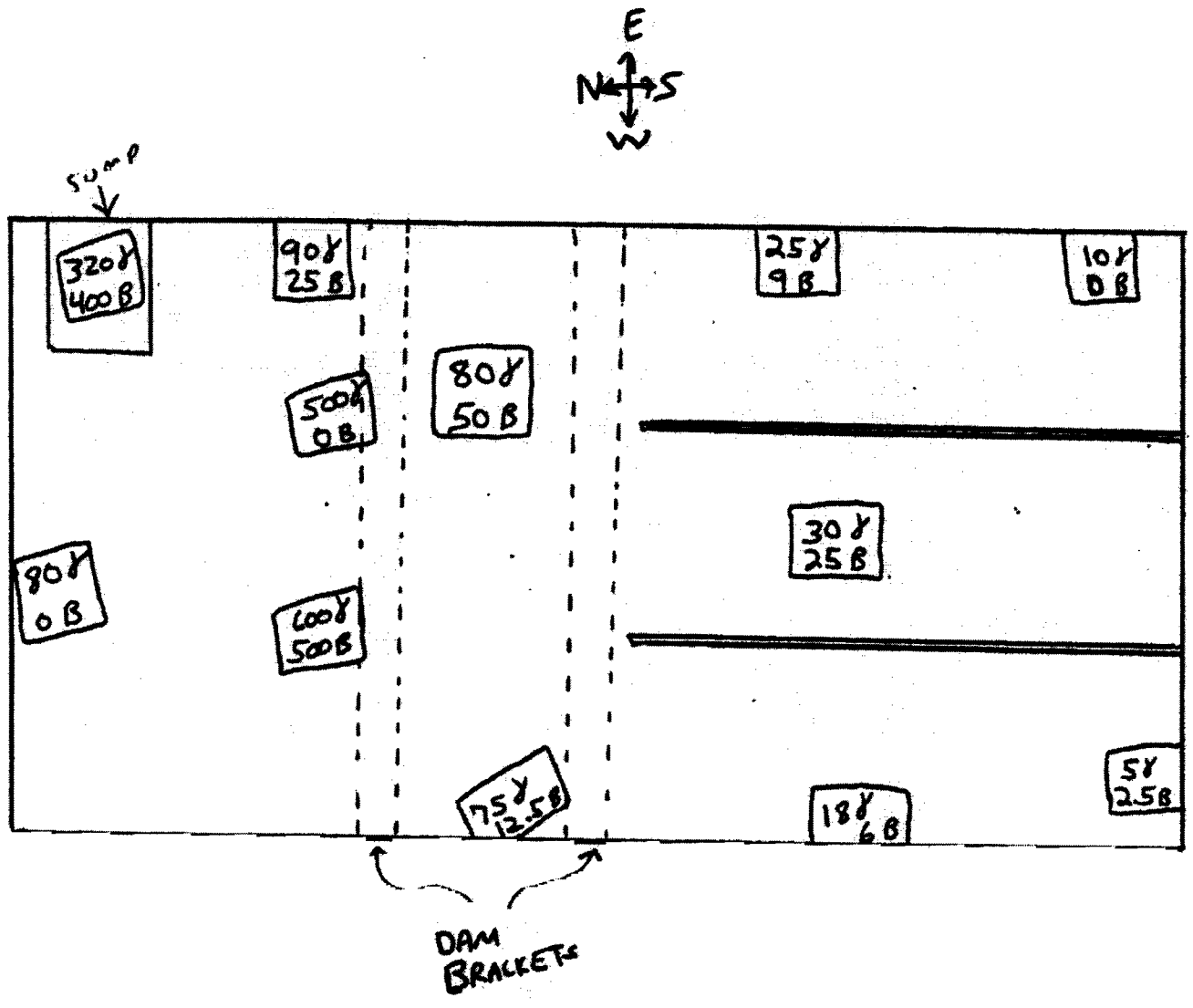
1 NA	11 NA	21 NA
2	12	22
3	13	23
4	14	24
5	15	25
6	16	26
7	17	27
8	18	28
9	19	29
10 ✓	20 ✓	30 ✓

COMMENTS: All readings are contact with the floor

SPECIAL SURVEY FORM
LOCATION or EQUIPMENT Spent Fuel Pit

8101.6 REV. 28

RADIATION PROTECTION SURVEY FORM



DATE 9/24/07 Rm 10

SURVEYOR Dents/Moyers

INSTRUMENT/#	CAL
RO2 5552	~~3-5~~ 3-11-07

KEY

- ▭ RADIATION GENERAL AR
- ○ RADIATION CONTACT
- △ SMEAR LOCATION
- -x-x- BARRIER

(X). DIRECT RADIATION @ 1' READINGS IN MR/HR EXC AS NOTED.

( ) CONTAMINATION
- ( ) LESS THAN 1000 dpm/100 BETA-GAMMA UNLESS NOT
- ( ) LESS THAN 50 dpm/100c ALPHA UNLESS NOTED.

( ) HOT PARTICLE SURVEY NO HOT PARTICLES FOUN UNLESS NOTED.

SMEAR LOCATION & NET dpm/10

1	11	21
2	12	22
3	13	23
4	14	24
5	15	25
6	16	26
7	17	27
8	18	28
9	19	29
10	20	30

COMMENTS:

SPECIAL SURVEY FORM
LOCATION or EQUIPMENT

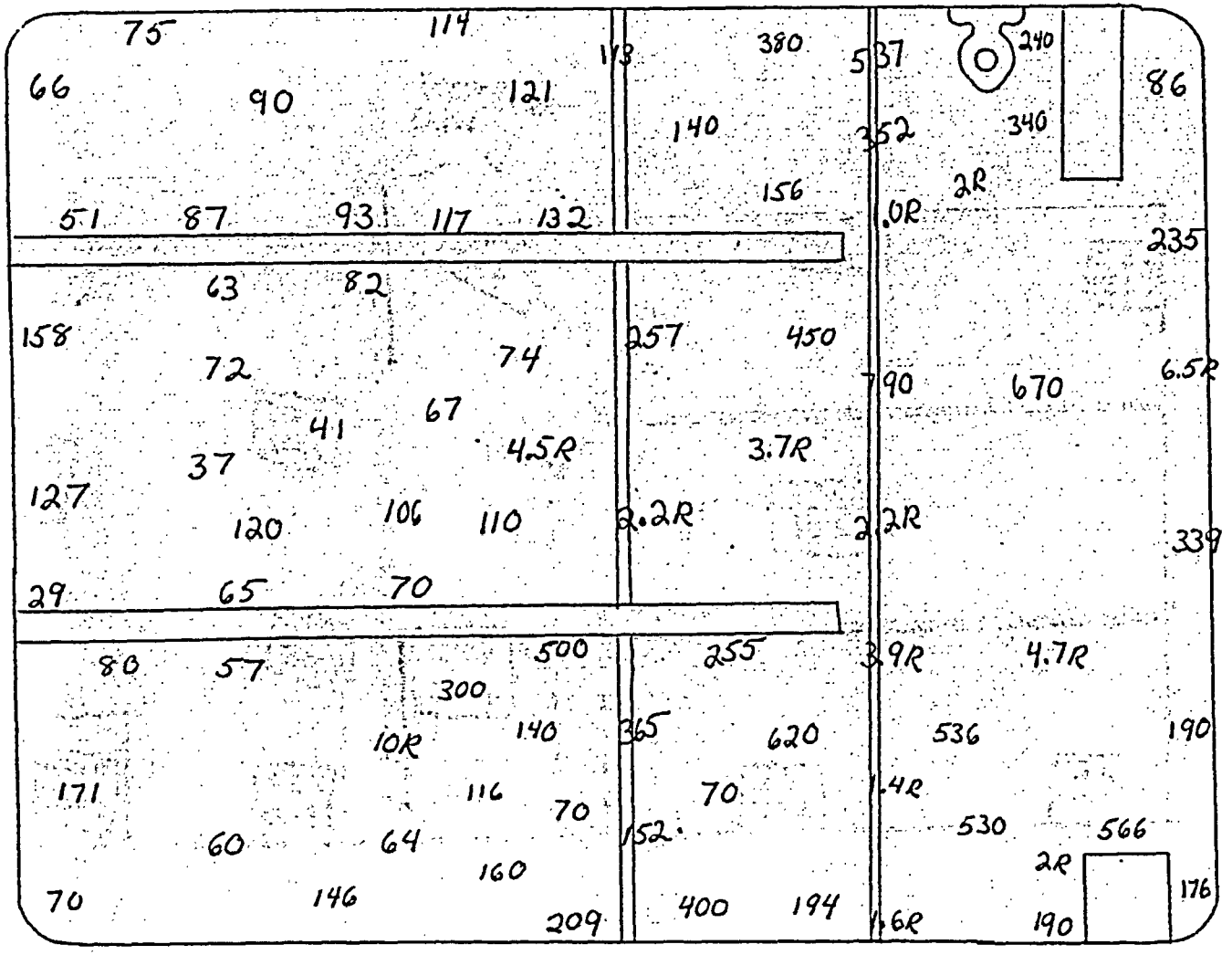
8101.6 REV. 28

ALT – [illegible] & Bkg @ 1' from walls + Floor

550

YANKEE ATOMIC ELECTRIC COMPANY

RADIATION PROTECTION SURVEY FORM



DATE 9-15-03 TIME 0800

SURVEYOR Moyers / Packer

INSTRUMENT/#	CAL DUE
Amp 100 5975	11-15-03
NA	NA
NA	NA

KEY

- RADIATION GENERAL AREA
- RADIATION CONTACT
- SMEAR LOCATION
- BARRIER
- MASSLINN
- DIRECT RADIATION READINGS IN MR/HR EXCEPT AS NOTED.
- ( ) CONTAMINATION
- ( ) LESS THAN 1000 dpm/100cm² BETA-GAMMA UNLESS NOTED
- ( ) LESS THAN 50 dpm/100cm² ALPHA UNLESS NOTED.
- ( ) HOT PARTICLE SURVEY NO HOT PARTICLES FOUND UNLESS NOTED.

SMEAR LOCATION & NET dpm/100 cm²

1 NA	11 NA	21 NA
2	12	22
3	13	23
4	14	24
5	15	25
6	16	26
7	17	27
8	18	28
9	19	29
10	20	30

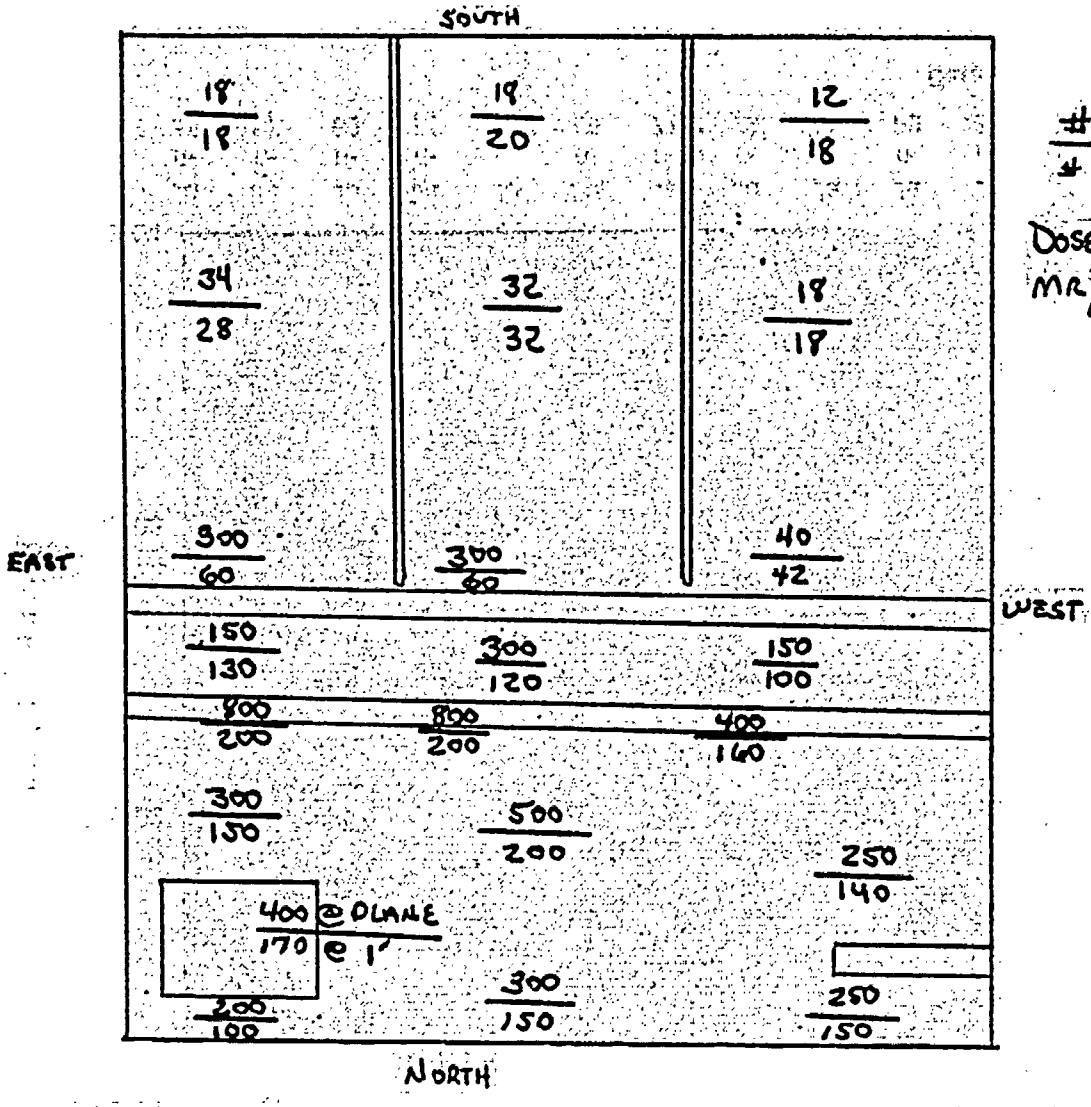
COMMENTS: All readings are contact with the floor

SPECIAL SURVEY FORM
LOCATION or EQUIPMENT Spent Fuel Pit

8101.6 REV. 28

YANKEE ATOMIC ELECTRIC COMPANY

RADIATION PROTECTION SURVEY FORM



KNEE LEVEL

HEAD LEVEL

DOSE RATES IN MR/HR.

DATE 9-23-04 TIME 100

SURVEYOR Parker

INSTRUMENT/#	CAL I
RO2 # 4448	3-11-
RM-14 # 2151	7-15-
N/A	N/A

KEY

- RADIATION GENERAL ARE
- RADIATION CONTACT
- SMEAR LOCATION
- BARRIER
- MAS
- (✓) DIRECT RADIATION READINGS IN MR/HR EXCE AS NOTED.
- (✓) CONTAMINATION
  - (✓) LESS THAN 1000 dpm/10C BETA-GAMMA UNLESS NOTE
  - (✓) LESS THAN 50 dpm/100cm ALPHA UNLESS NOTED.
- (✓) HOT PARTICLE SURVEY NO HOT PARTICLES FOUNI UNLESS NOTED.

SMEAR LOCATION & NET dpm/100

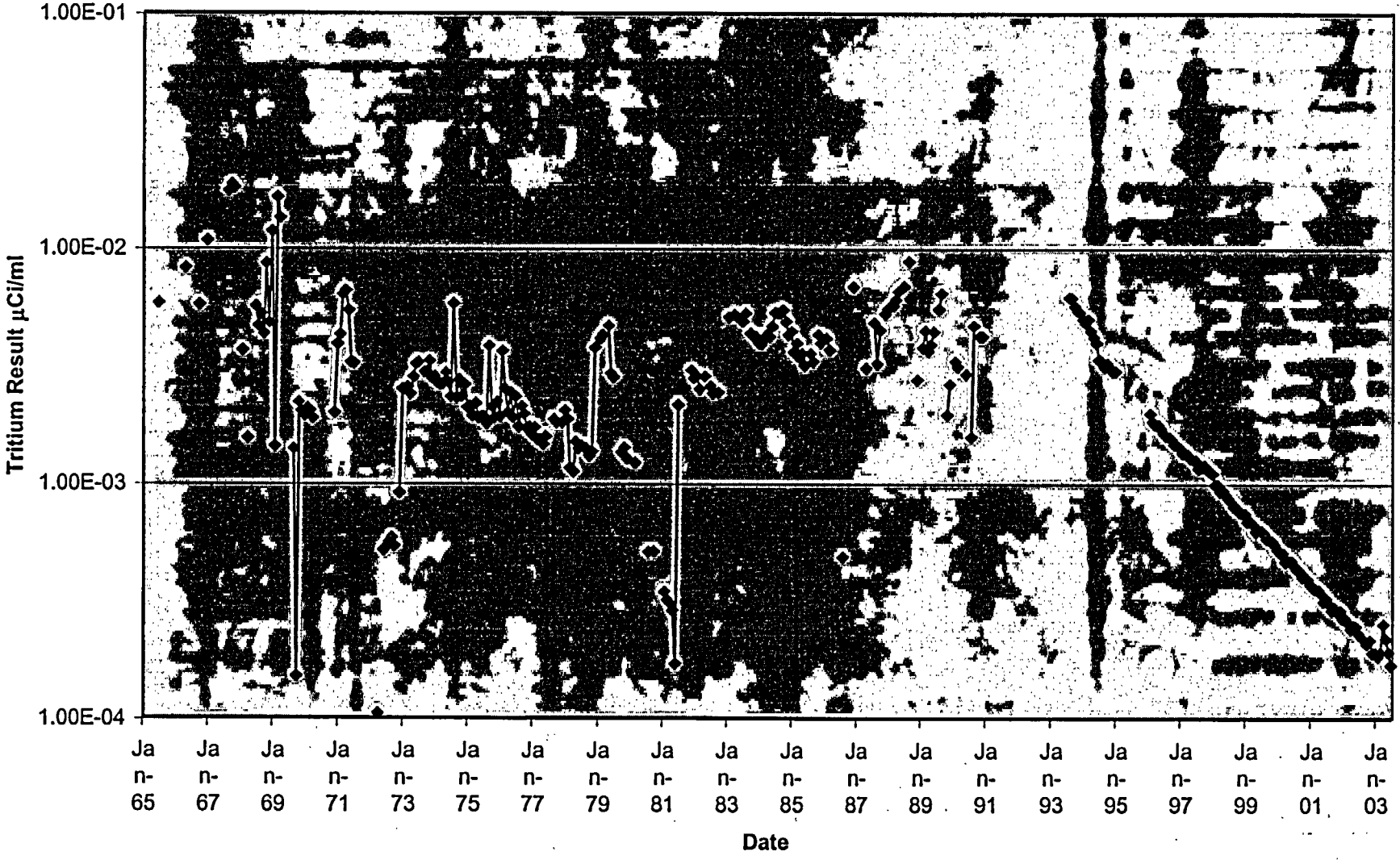
1	340 K	11	N/A	21	N/
2	120 K	12		22	
3	240 K	13		23	
4	N/A	14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

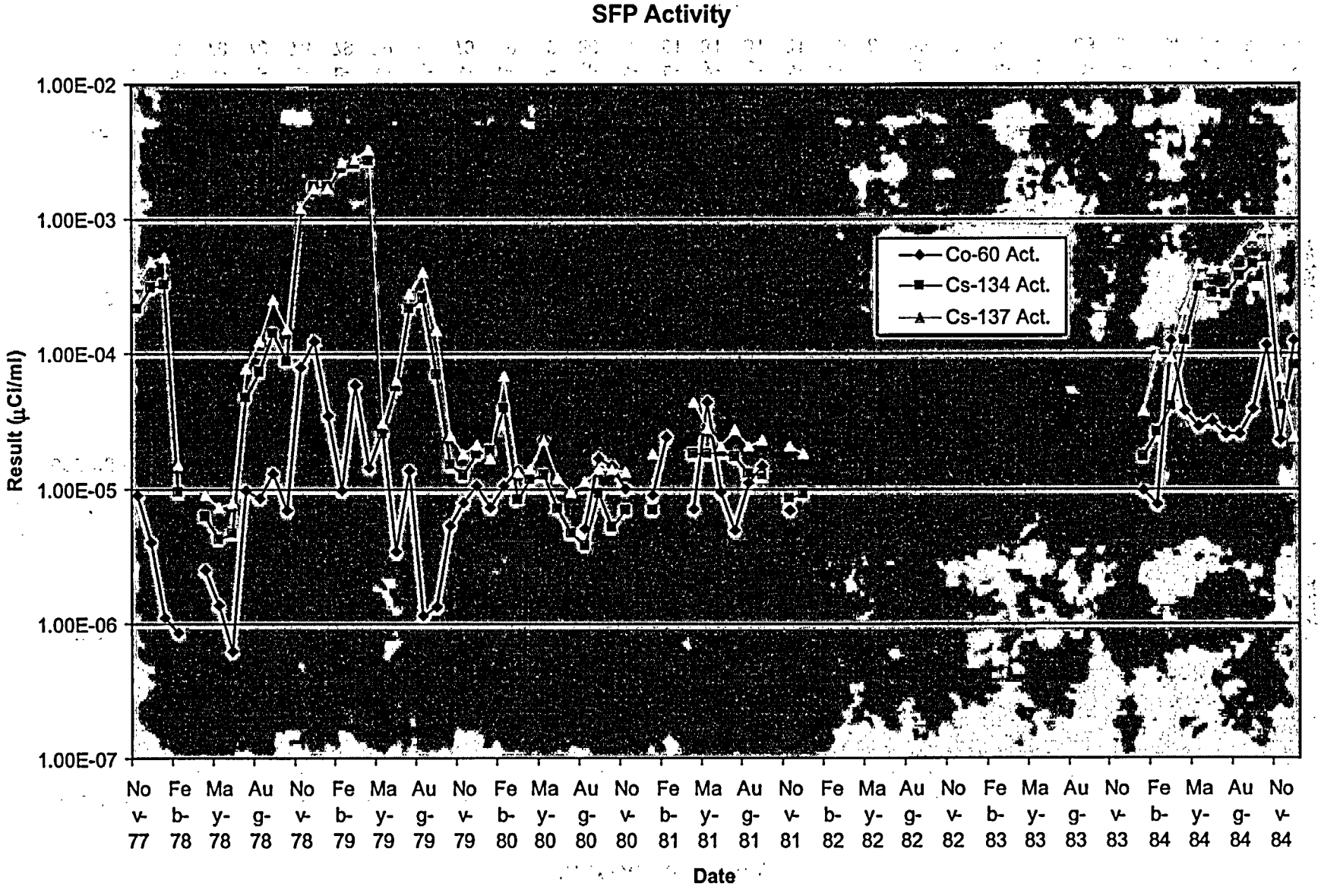
COMMENTS: Smears #1 - #3 Taken on floor. #1 Sent to HP&I.

SPECIAL SURVEY FORM LOCATION or EQUIPMENT: SPENT FUEL POOL FLOOR GENERAL AREA SURVEY.

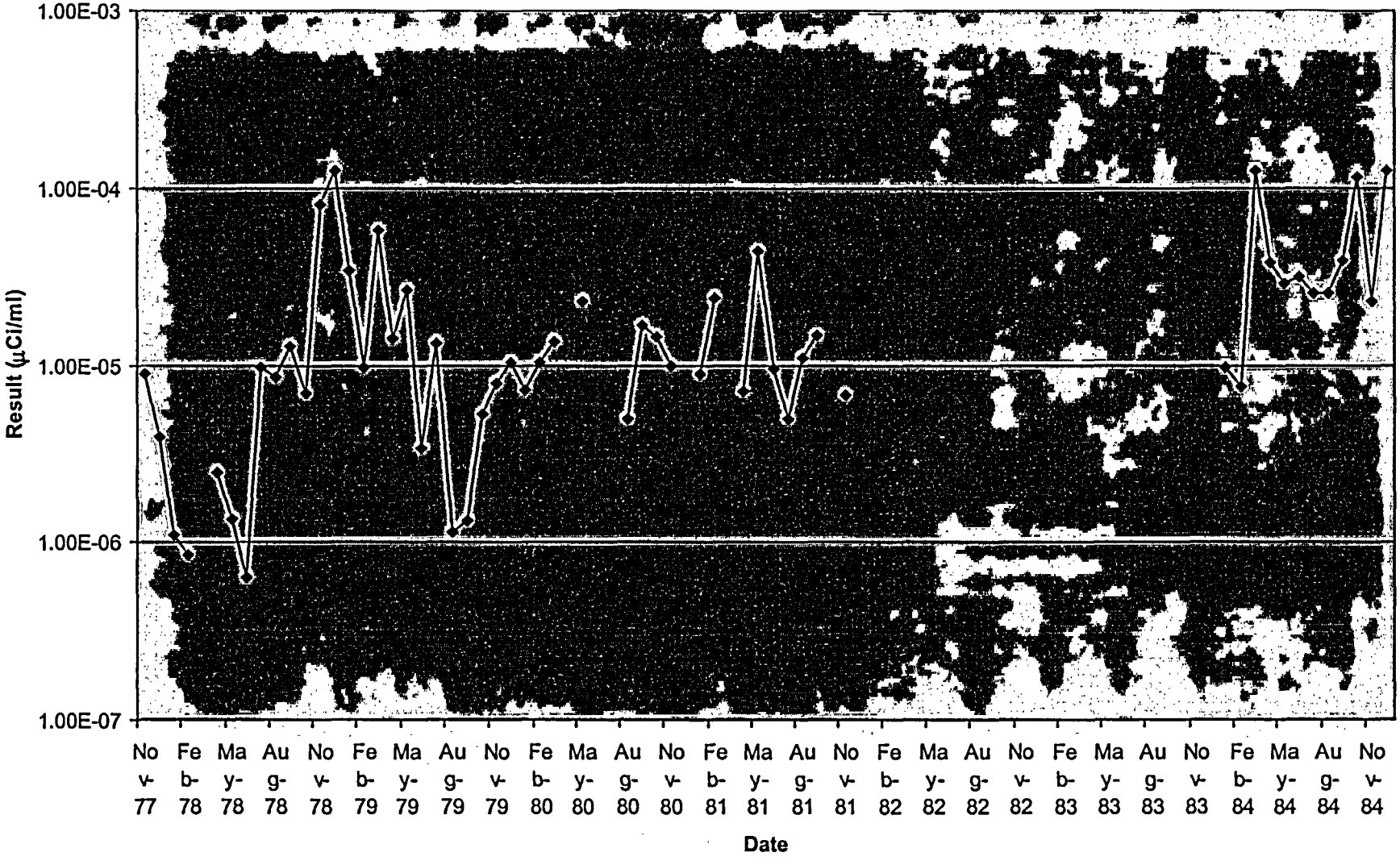
8101.6 REV. 28

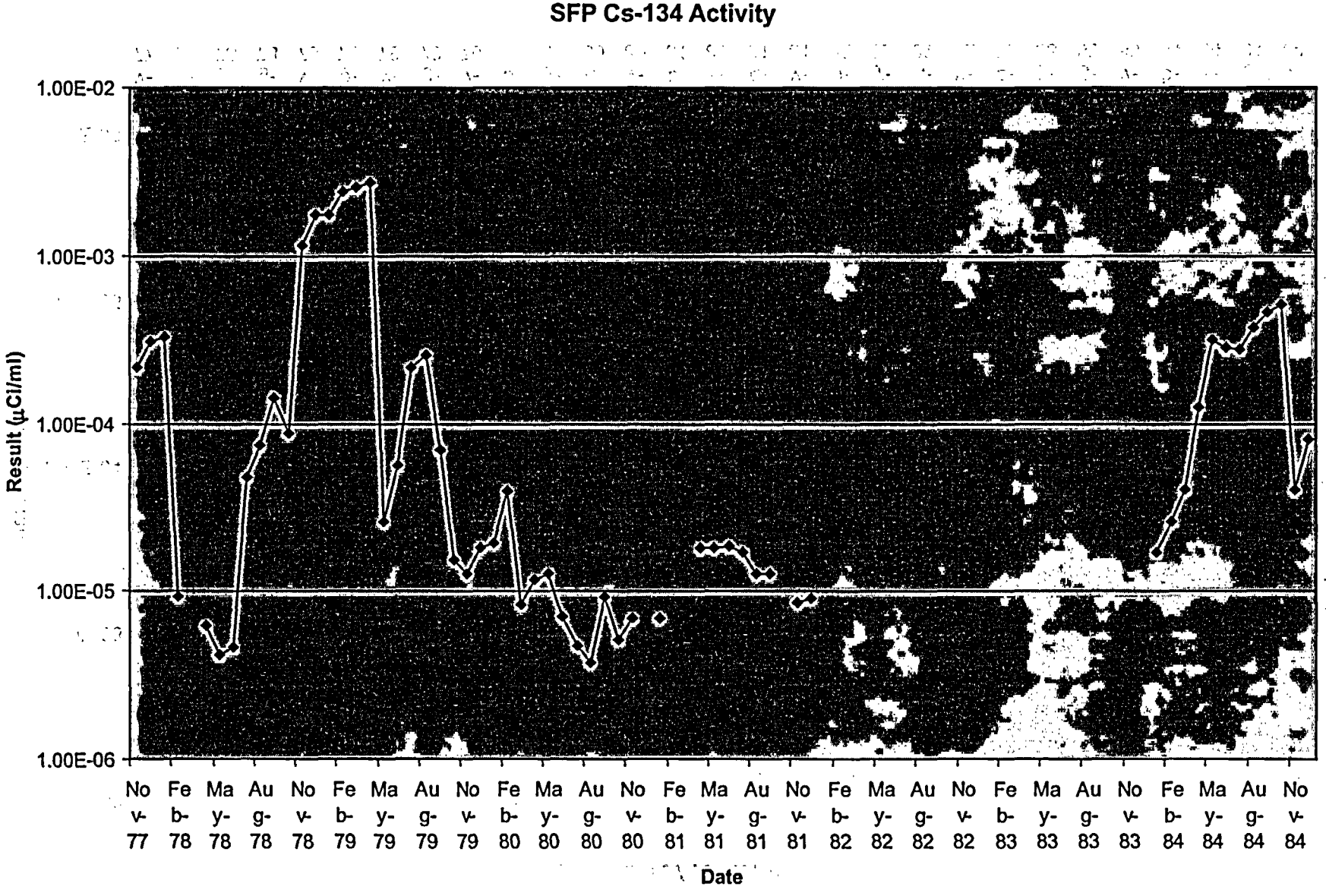
SFP Historical Tritium



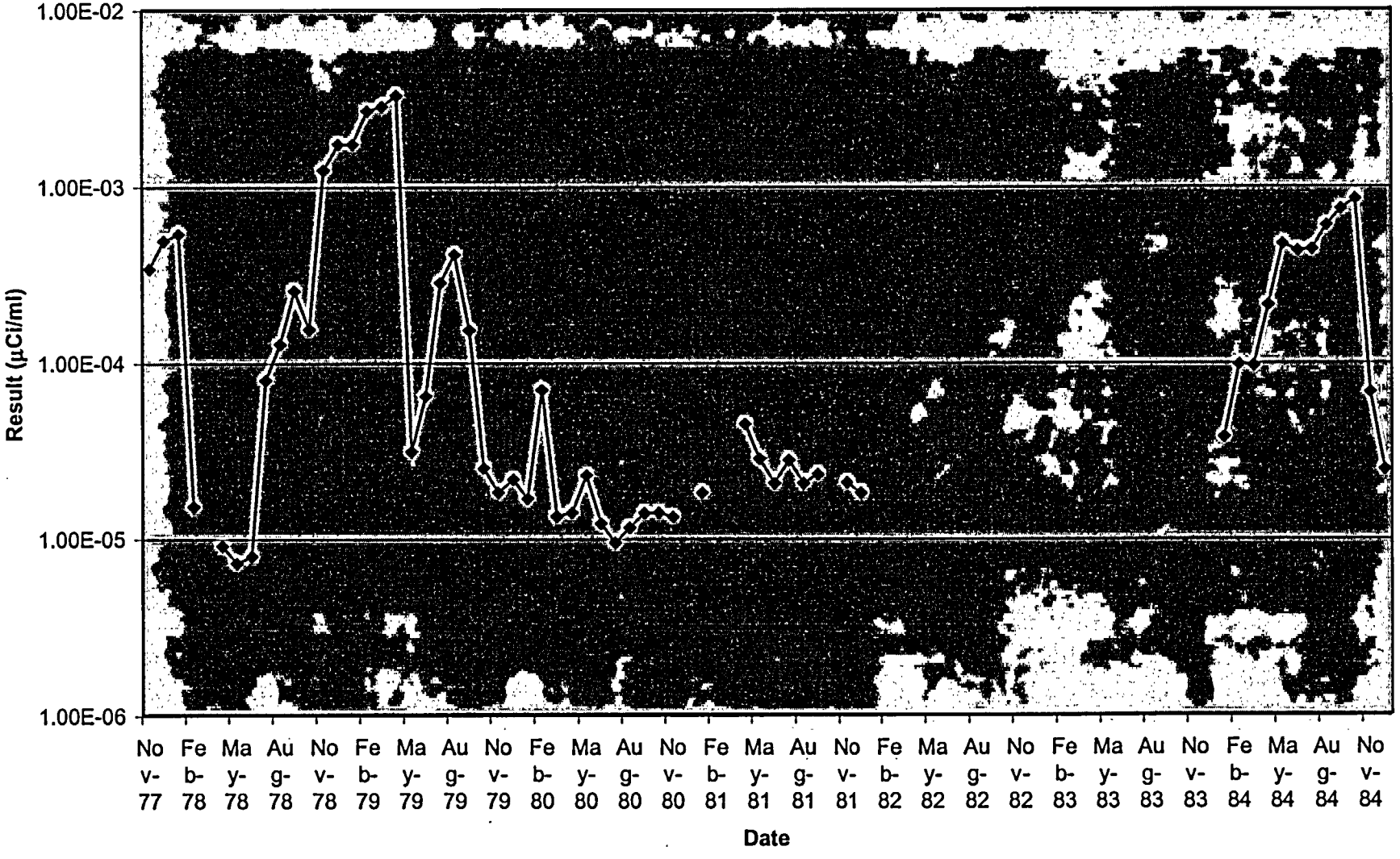

SFP Activity
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
Result (µCi/ml)
Co-60 Act.
Cs-134 Act.
Cs-137 Act.
Nov-77
Feb-78
May-78
Aug-78
Nov-78
Feb-79
May-79
Aug-79
Nov-79
Feb-80
May-80
Aug-80
Nov-80
Feb-81
May-81
Aug-81
Nov-81
Feb-82
May-82
Aug-82
Nov-82
Feb-83
May-83
Aug-83
Nov-83
Feb-84
May-84
Aug-84
Nov-84
Date

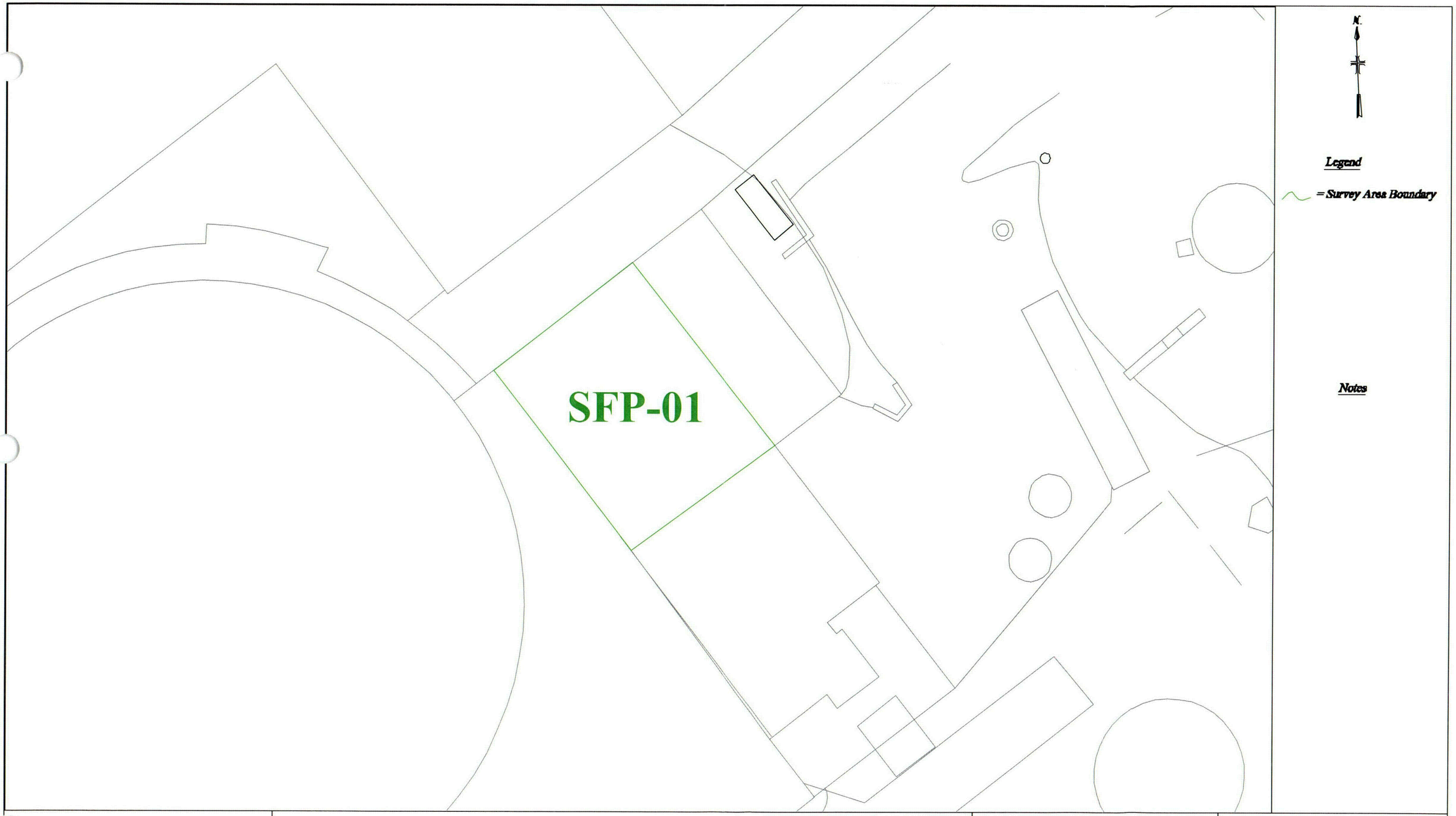
SFP Co-60 Activity




SFP Cs-134 Activity
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
Result (µCi/ml)
Nov-77
Feb-78
May-78
Aug-78
Nov-78
Feb-79
May-79
Aug-79
Nov-79
Feb-80
May-80
Aug-80
Nov-80
Feb-81
May-81
Aug-81
Nov-81
Feb-82
May-82
Aug-82
Nov-82
Feb-83
May-83
Aug-83
Nov-83
Feb-84
May-84
Aug-84
Nov-84
Date

SFP Cs-137 Activity





	Yankee Atomic Power Company *Soil Sample Locations - SFP-01*	YANKEE	*Date: October 2003* *Revision: 4*	*Figure: 45*

C48

Building Historical Site Assessment and Classification Summary

Survey Area Name: New Fuel Storage Vault Designator: **SFP-02**

Survey Area Description

Survey Area SFP-02 consists of the reinforced concrete floor slab and subsurface structures remaining after the demolition of the New Fuel Storage Vault is complete. The footprint of survey area SFP-02 is approximately 95 square meters of concrete surface area. There are additional subsurface structures within the footprint of the SFP-02 that include grade beams, foundation and column supports. (See drawings for details)

SFP-02 is bounded on the north by NOL-01, on the east by NOL-01, on the south by NOL-02 and NSY-02 and on the west by SFP-01.

Survey Area Name: New Fuel Storage Vault Designator: **SFP-02**

Survey Area History

Survey area SFP-02 was used for the receipt and opening of new fuel transport containers. After opening the containers the new fuel assemblies were inspected and placed into the storage racks until transferred to the reactor. There is no documentation indicating contamination of SFP-02 resulting from handling and inspection of new fuel received at YNPS.

SFP-02 was also used as a radioactive material storage area for storage of operations department equipment. Survey area SFP-02 was generally maintained as a non-contaminated area. The contaminating events were associated with the handling and storage of contaminated operation's equipment. When contamination was identified the area was decontaminated.

After permanent shutdown of the YNPS the NFSV was used as a radioactive material storage area for components used during the reactor internal segmentation project that resulted in contamination of this area with the radionuclide mix resulting from that project. This material was later removed and dispositioned and the area was decontaminated

Post shutdown modification to survey area SFP-02 include:

- NNS Mod 95-066 Construction Power Feed Installation SFP
- NNS Mod 96-003 Re-powering Electrical System from 13.8KV Mass Electric Line

Survey area SFP-02 is the present location of the YNPS Special Nuclear Material storage area that contained sealed sources identified as Special Nuclear Material.

Scoping/Characterization

Scoping surveys were performed and the data collected used to develop the YNPS Decommissioning Plan. (Ref 1)

Decommissioning Activities

No decommissioning activities have been performed in survey area SFP-02.

Survey Area Name: New Fuel Storage Vault Designator: **SFP-02**

Findings

Survey area SFP-02 was impacted by plant operations and is likely to contain residual radioactivity at levels greater than the DCGL.

The radionuclide mix for the SFP-02 includes all radionuclides identified in the reactor radioactive systems of the plant (Ref 2). The HSA for SFP-02 identifies the primary radionuclides of concern to be Co-60, Cs-137, Ag-108m, Sr-90, and tritium.

Current Status

SFP-02 currently houses the electrical systems and other support systems associated with the SFP.

The YNPS special Nuclear Material storage location remains in survey area SFP-02.

A soil sample location map (Figure 46) has been prepared to show the distribution of sampling locations in SFP-02. Only samples representative of soils still present are included on the map (samples of soils representative of soils removed during remediation activities are not presented). One survey media were assessed in SFP-02, Soil. The results and analyses (Tables 1-4 in this section) of the samples plotted as "key numbers" on the map represent the radiological status at the time of sampling (a period spanning several years) as sums of fractions of the soil DCGL.

Only those samples with detectable results of the radionuclides of concern appear in Table 1. For this reason the number listed as minimum does not include samples that did not have detectable quantities of the radiological substances of concern. An assessment of the maximum, minimum and mean sum of fractions (SOF) for SFP-02 is presented at the end of Table 1 for each survey medium. The results are summarized below.

Soil: Mean SOF is 0.011.
Maximum SOF for a single soil sample is 0.030. (key# 3020)
Minimum SOF for a single soil sample is 0.004. (key# 3022)

SFP-02 continues to be impacted by decommissioning activities.

An investigation is underway as of November of 2003 to sample deep soils beneath SFP-02. The source of the potential activity in these deep soils is associated with potential leakage from SFP-01 and residue from the NSY-02 (IX-Pit) leakage in the 1960's. A sample location below SFP-02 has turned up Cesium-137 in concentrations greater than the DCGL. The sub-surface investigation is continuing.

Building Historical Site Assessment and Classification Summary

Survey Area Name: New Fuel Storage Vault Designator: **SFP-02**

Classification Statement

Based upon the historical use and radiological conditions associated with this survey area SFP-02 is identified as a Class 1 Area.

Survey Area Name: New Fuel Storage Vault Designator: **SFP-02**

Drawings

9699-FA-15A
9699-FA-18A
9699-FC-45B
9699-FM-18A
9699-FM-21A

References

1.	YNPS Decommissioning Plan, Rev. 0.0.
2.	"Radionuclides for Building Surfaces and Soil DCGL Determinations," YA-REPT- 00-001-03.

Table 1
Sum of Fractions
SFP-02 -- Soil
Yankee Nuclear Power Station Rowe, MA

Station Key	Station	Sample ID		Sum Of Fractions
3022	NFV001.3	NFV001.3C		0.004
3021	NFV001.2	NFV001.2B		0.005
3021	NFV001.2	NFV001.2A		0.005
3020	NFV001.1	NFV001.1E		0.030
			Min	0.004
			Max	0.030
			Mean	0.011

Table 2
Statistical Data Summary – SFP-02 – Soil
Yankee Nuclear Power Station Rowe, MA

Parameter	Units	# Detects	# Sample Results	Mean	Std. Dev	Minimum	Maximum	Median
Ac-228	pCi/g	20	20	0.935	0.118	0.747	1.212	0.908
Ag-108m	pCi/g	2	20	0.146	0.160	0.032	0.259	0.146
Ag-110m	pCi/g	2	20	0.051	0.019	0.038	0.064	0.051
Am-241	pCi/g	0	20	0.000				
Bi-212	pCi/g	19	19	0.905	0.253	0.547	1.372	0.879
Bi-214	pCi/g	20	20	0.462	0.047	0.367	0.534	0.459
Ce-144	pCi/g	2	20	0.238	0.006	0.234	0.243	0.238
Co-58	pCi/g	2	20	0.033	0.004	0.031	0.036	0.033
Co-60	pCi/g	0	20	0.000				
Cs-134	pCi/g	0	20	0.000				
Cs-137	pCi/g	1	20	0.046		0.046	0.046	0.046
Eu-152	pCi/g	1	1	0.060		0.060	0.060	0.060
Fe-59	pCi/g	0	20	0.000				
I-132	pCi/g	0	1	0.000				
K-40	pCi/g	20	20	16.885	1.265	14.870	19.110	16.660
Mn-54	pCi/g	1	20	0.021		0.021	0.021	0.021
Mo-99	pCi/g	0	1	0.000				
Nb-94	pCi/g	0	2	0.000				
Nb-95	pCi/g	0	20	0.000				
Np-239	pCi/g	1	3	5.204		5.204	5.204	5.204
Pb-212	pCi/g	20	20	0.891	0.115	0.740	1.238	0.890
Pb-214	pCi/g	20	20	0.503	0.056	0.401	0.608	0.504
Ra-226	pCi/g	15	17	1.333	0.306	0.982	2.055	1.242
Ru-103	pCi/g	0	20	0.000				
Ru-106	pCi/g	0	20	0.000				
Sb-124	pCi/g	0	20	0.000				
Sb-125	pCi/g	0	1	0.000				
Tl-208	pCi/g	20	20	0.807	0.135	0.624	1.187	0.778
Zn-65	pCi/g	0	20	0.000				
Zr-95	pCi/g	1	20	0.068		0.068	0.068	0.068

Table 3
Summary of Detected Results Above Criteria
SFP-02 -- Soil
Yankee Nuclear Power Station Rowe, MA
DCGL_Soil

Parameter	# Detects	# Sample Results	Criterion Concentration	Units	# Detects Above Criterion	Maximum Detected
Ac-228	20	20		pCi/g	0	1.21
Ag-108m	2	20	8.52	pCi/g	0	0.26
Ag-110m	2	20		pCi/g	0	0.06
Am-241	0	20	44.35	pCi/g	0	
Bi-212	19	19		pCi/g	0	1.37
Bi-214	20	20		pCi/g	0	0.53
Ce-144	2	20		pCi/g	0	0.24
Co-58	2	20		pCi/g	0	0.04
Co-60	0	20	4.84	pCi/g	0	
Cs-134	0	20	6.71	pCi/g	0	
Cs-137	1	20	12.24	pCi/g	0	0.05
Eu-152	1	1	12.06	pCi/g	0	0.06
Fe-59	0	20		pCi/g	0	
I-132	0	1		pCi/g	0	
K-40	20	20		pCi/g	0	19.11
Mn-54	1	20	21.66	pCi/g	0	0.02
Mo-99	0	1		pCi/g	0	
Nb-94	0	2	8.53	pCi/g	0	
Nb-95	0	20		pCi/g	0	
Np-239	1	3		pCi/g	0	5.20
Pb-212	20	20		pCi/g	0	1.24
Pb-214	20	20		pCi/g	0	0.61
Ra-226	15	17		pCi/g	0	2.06
Ru-103	0	20		pCi/g	0	
Ru-106	0	20	68.21	pCi/g	0	
Sb-124	0	20		pCi/g	0	
Sb-125	0	1	37.73	pCi/g	0	
Tl-208	20	20		pCi/g	0	1.19
Zn-65	0	20		pCi/g	0	
Zr-95	1	20		pCi/g	0	0.07

Table 4
Rad
SFP-02 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	NFV001.1 (3020)	NFV001.1 (3020)	NFV001.1 (3020)	NFV001.1 (3020)	NFV001.1 (3020)
Sample ID	NFV001.1A	NFV001.1B	NFV001.1C	NFV001.1D	NFV001.1E
Date Sampled	7/22/1998	7/22/1998	7/22/1998	7/22/1998	7/22/1998
Ac-228	1.212	0.968	0.7528	1.027	0.7466
Ag-108m	0.002654 U	-0.01661 U	-0.009043 U	0.02637 U	0.259
Ag-110m	0.03802	0.02787 U	0.02987 U	0.006186 U	-0.007354 U
Am-241	0 U	0 U	0 U	0 U	0 U
Bi-212	0.755	0.6259	1.054	0.5474	0.5837
Bi-214	0.428	0.5198	0.4417	0.4622	0.4027
Ce-144	-0.0459 U	-0.1585 U	0.0906 U	0.1374 U	0.2092 U
Co-58	-0.0168 U	0.02478 U	0.006433 U	0.01011 U	-0.01891 U
Co-60	0.0148 U	0.009515 U	0.03047 U	0.0004506 U	0.009234 U
Cs-134	-0.111 U	-0.1346 U	-0.05498 U	-0.02748 U	0.02518 U
Cs-137	-0.01575 U	-0.01412 U	0.008938 U	-0.02173 U	-0.0212 U
Eu-152					
Fe-59	0.005014 U	0.005714 U	0.01084 U	-0.03163 U	0.01552 U
I-132					
K-40	16.63	16	15.97	16.99	16.27
Mn-54	0.01448 U	0.01549 U	-0.02827 U	0.01595 U	0.003929 U
Mo-99				1.484 U	
Nb-94				0.02129 U	
Nb-95	-0.01174 U	-0.000672 U	0.01072 U	0.01026 U	-0.02144 U
Np-239	5.204	-2.256 U			
Pb-212	1.238	0.9638	0.7738	0.8152	0.74
Pb-214	0.5431	0.6084	0.4962	0.5094	0.4245
Ra-226	1.077		1.242	1.258	
Ru-103	0.006771 U	-0.006238 U	-0.01193 U	-0.006311 U	-0.02224 U
Ru-106	-0.155 U	-0.05913 U	-0.03114 U	-0.05643 U	-0.0283 U
Sb-124	0.01663 U	0.002232 U	-0.02329 U	0.007552 U	-0.009586 U
Sb-125					
Tl-208	1.187	0.8056	0.7988	0.8253	0.6237
Zn-65	0.017 U	-0.04908 U	-0.05776 U	-0.01372 U	0.04671 U
Zr-95	0.00815 U	0.0342 U	-0.008111 U	-0.02761 U	-0.003864 U
SOF					0.03

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
SFP-02 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	NFV001.2 (3021)	NFV001.2 (3021)	NFV001.2 (3021)	NFV001.2 (3021)	NFV001.2 (3021)
Sample ID	NFV001.2A	NFV001.2B	NFV001.2C	NFV001.2D	NFV001.2E
Date Sampled	7/23/1998	7/23/1998	7/23/1998	7/23/1998	7/28/1998
Ac-228	0.9231	0.8809	0.8667	0.8893	0.8604
Ag-108m	0.03246	0.003314 U	-0.01624 U	-0.0007483 U	0.004133 U
Ag-110m	-0.01232 U	0.02663 U	0.02522 U	-0.001073 U	0.02669 U
Am-241	0 U	0 U	0 U	0 U	0 U
Bi-212	0.6725	0.8605	0.8818	0.683	0.7319
Bi-214	0.4888	0.4151	0.3669	0.509	0.4559
Ce-144	-0.0107 U	0.2425	-0.1507 U	0.2339	0.0007655 U
Co-58	0.003237 U	0.03597	-0.01998 U	-0.001823 U	-0.03732 U
Co-60	0.006699 U	-0.003825 U	-0.00713 U	0.02837 U	-0.006479 U
Cs-134	-0.0002004 U	-0.002962 U	-0.0758 U	0.02684 U	-0.1613 U
Cs-137	-0.00412 U	0.00217 U	0.006216 U	0.01304 U	-0.004173 U
Eu-152		0.06015			
Fe-59	-0.01477 U	0.02837 U	0.01486 U	-0.0104 U	-0.01361 U
I-132					
K-40	16.41	14.95	16.02	14.87	15.47
Mn-54	0.02115	-0.007577 U	-0.001489 U	-0.007138 U	0.005299 U
Mo-99					
Nb-94					
Nb-95	-0.01815 U	0.02375 U	0.02325 U	0.01358 U	0.002188 U
Np-239					
Pb-212	0.899	0.8251	0.8077	0.7665	0.7627
Pb-214	0.517	0.5389	0.5489	0.5066	0.4111
Ra-226	1.851	1.172	1.211	1.393	1.627
Ru-103	0.008648 U	0.001095 U	0.006267 U	-0.008999 U	0.01772 U
Ru-106	-0.07234 U	0.1452 U	-0.05371 U	-0.1272 U	-0.06614 U
Sb-124	-0.006757 U	0.002716 U	-0.007772 U	0.008836 U	0.01449 U
Sb-125					
Tl-208	0.732	0.6746	0.7045	0.713	0.7426
Zn-65	-0.1672 U	-0.03725 U	-0.02049 U	0.01574 U	0.04589 U
Zr-95	-0.0296 U	-0.02529 U	0.02606 U	-0.01954 U	-0.003557 U
SOF	0.005	0.005			

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
SFP-02 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	NFV001.3 (3022)		NFV001.3 (3022)		NFV001.3 (3022)		NFV001.3 (3022)		NFV001.4 (3023)	
Sample ID	NFV001.3A		NFV001.3B		NFV001.3C		NFV001.3D		NFV001.4A	
Date Sampled	7/27/1998		7/27/1998		7/27/1998		7/27/1998		7/27/1998	
Ac-228		1.09		1.065		0.9447		0.9525		0.8035
Ag-108m	0.01356 U		-0.02142 U		-0.01737 U		0.008325 U		0.01486 U	
Ag-110m	0.02985 U		0.01135 U		0.03482 U		0.01722 U		0.01139 U	
Am-241	0 U		0 U		0 U		0 U		0 U	
Bi-212		0.8787		0.8508		0.8988		1.112		1.166
Bi-214		0.4438		0.513		0.5337		0.4448		0.48
Ce-144	0.1112 U		-0.1625 U		0.05423 U		-0.0749 U		0.02887 U	
Co-58	-0.02091 U		0.02726 U		-0.006684 U		0.0171 U			0.0305
Co-60	-0.02407 U		0.02159 U		0.0168 U		-0.008261 U		0.002908 U	
Cs-134	0.04254 U		-0.04814 U		-0.008485 U		0.006389 U		-0.117 U	
Cs-137	-0.02951 U		-0.02512 U			0.04564	-0.02109 U		-0.02506 U	
Eu-152										
Fe-59	0.02443 U		-0.06202 U		-0.01103 U		-0.02345 U		0.01694 U	
I-132										
K-40		19.11		16.69		17.55		19.02		17.47
Mn-54	0.01355 U		0.007159 U		-0.007006 U		0.01584 U		0.005672 U	
Mo-99										
Nb-94	0.03452 U									
Nb-95	0.03722 U		-0.02531 U		-0.001621 U		0.00582 U		0.02237 U	
Np-239							-0.5725 U			
Pb-212		0.9184		0.928		0.9816		0.8885		0.8916
Pb-214		0.5456		0.4754		0.5735		0.4772		0.4493
Ra-226		1.486		1.164		1.059		2.055		1.087
Ru-103	-0.01258 U		0.005501 U		-0.003038 U		0.002451 U		0.005307 U	
Ru-106	-0.08038 U		-0.08862 U		0.04082 U		-0.1301 U		0.0849 U	
Sb-124	0.04439 U		0.001124 U		0.005497 U		0.005065 U		0.022 U	
Sb-125									-0.1026 U	
Tl-208		0.7576		1.002		0.9024		1.003		0.8467
Zn-65	-0.09857 U		0.1264 U		-0.01793 U		-0.0259 U		-0.04939 U	
Zr-95	0.05089 U		0.004321 U		-0.008452 U		0.02695 U		0.04337 U	
SOF						0.004				

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

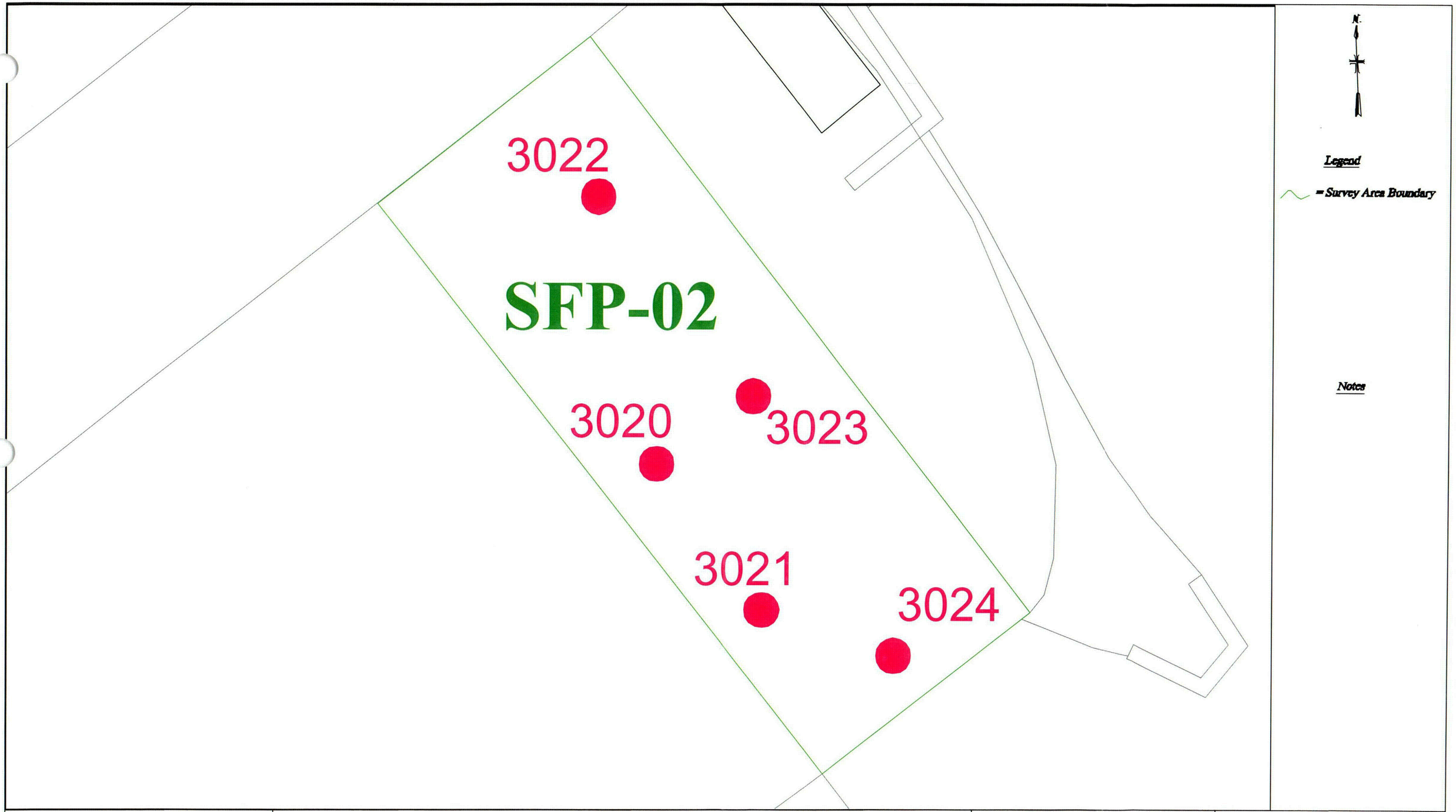
Blank results indicate chemical not analyzed

Table 4
Rad
SFP-02 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	NFV001.4 (3023)	NFV001.4 (3023)	NFV001.5 (3024)	NFV001.5 (3024)	NFV001.5 (3024)
Sample ID	NFV001.4B	NFV001.4C	NFV001.5A	NFV001.5B	NFV001.5C
Date Sampled	7/27/1998	7/27/1998	7/28/1998	7/28/1998	7/28/1998
Ac-228	0.8732	1.092	0.8769	0.8934	0.9782
Ag-108m	-0.008744 U	-0.005155 U	0.00547 U	-0.006522 U	-0.006211 U
Ag-110m	-0.04432 U	0.003654 U	0.06422	-0.01817 U	0.003998 U
Am-241	0 U	0 U	0 U	0 U	0 U
Bi-212	1.322	1.372	1.3	0.9006	
Bi-214	0.4947	0.4874	0.3886	0.5194	0.4496
Ce-144	-0.08103 U	-0.02965 U	-0.1243 U	-0.2251 U	0.2178 U
Co-58	0.01482 U	0.01783 U	-0.004947 U	-0.02131 U	0.01416 U
Co-60	-0.02258 U	-0.0132 U	-0.0006695 U	-0.01416 U	0.0187 U
Cs-134	-0.1639 U	-0.02612 U	-0.03103 U	-0.0533 U	0.004185 U
Cs-137	-0.002597 U	-0.02602 U	0.009408 U	-0.004886 U	-0.02311 U
Eu-152					
Fe-59	0.06472 U	-0.07319 U	-0.03661 U	-0.04706 U	0.005723 U
I-132	0.1931 U				
K-40	17.32	18.87	16.13	17.75	18.21
Mn-54	0 U	-0.005296 U	0.0241 U	0.02668 U	0.007831 U
Mo-99					
Nb-94					
Nb-95	-0.005469 U	0.004204 U	-0.01036 U	-0.02803 U	-0.006129 U
Np-239					
Pb-212	0.853	0.97	0.9262	0.8379	1.032
Pb-214	0.5018	0.4955	0.4006	0.4582	0.5732
Ra-226		0.8133 U	0.9823	1.336	0.9913 U
Ru-103	0.006632 U	-0.01039 U	0.01165 U	-0.008546 U	-0.02172 U
Ru-106	0.03241 U	-0.108 U	0.117 U	0 U	-0.3194 U
Sb-124	0.008462 U	-0.006988 U	0.01045 U	0.03349 U	0.006477 U
Sb-125					
Tl-208	0.7306	0.8411	0.6831	0.723	0.8487
Zn-65	-0.05899 U	-0.06986 U	-0.1526 U	0.02765 U	-0.104 U
Zr-95	0 U	0.06839	0.01768 U	0.01369 U	-0.03076 U
SOF					

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed



	Yankee Atomic Power Company *Soil Sample Locations - SFP-02*	YANKEE	*Date: October 2003* *Revision: 4*	*Figure: 46*

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Building Historical Site Assessment and Classification Summary

Survey Area Name: Service Building #1 Designator: **SVC-01**

Survey Area Description

The Service Building is a structure that, for the purpose of this Historical Site Assessment (HSA) and Classification Summary, will be divided into three survey areas: SVC-01, SVC-02 and SVC-03. These survey areas are delineated based upon their construction, systems present and operating/use histories.

Survey Area SVC-01 represents the original plant construction, non-Radiation Control Area (RCA) portion of the Service Building. Use of the spaces within the SVC-01 footprint includes the former location of the stockroom, small parcel shipping and receiving, and offices, which is now the maintenance department shop and offices. The current maintenance tool room was previously the Radiation Protection (RP) offices and prior to that was the location of the Instrumentation and Controls (I&C) department shop. The current RP whole body count room was formerly the plant break room located next to the plant locker room. The former location of the plant water treatment facility is now the temporary location of the stockroom.

The SVC-01 portion of the Service Building is a structural steel frame and concrete block structure built on a reinforced concrete floor slab and foundation. The footprint of SVC-01 is approximately 921 square meters. There are additional subsurface structures associated with the footprint of the SVC-01 that include trenches, sumps, tank pits, grade beams foundation and column supports. (See drawings for details)

SVC-01 represents that portion of the Service Building that was not part of the Radiation Control Area (RCA). SVC-01 is bounded on the north by OOL-02, on the east by SVC-03, on the south by SVC-02 and on the west by TBN-01.

The sanitary sewer line that begins at the hot side lavatory runs under the floor of the SVC-01, exiting the service building foundation on the north side.

Survey Area Name: Service Building #1 Designator: **SVC-01**

Survey Area History

The use of the Service Building spaces identified within survey area SVC-01 has changed over the life of the plant. The spaces identified as SCV-01 have always been maintained as a clean area having experienced only minor contaminating events resulting from migration of radioactive contamination out of the RCA. When the routine radiological survey program identified such contaminating events the impacted area was decontaminated and maintained as a non-contaminated area.

The sanitary sewer system that runs under SVC-01 is potentially impacted. Radioactivity has been identified in the leaching field at the end of the sanitary sewer system. The likely input source of this radioactivity was operation of a hot side lavatory and the deposit of mop water derived from routine cleaning of the area just outside the RCA access point into the floor drains and sinks within the non-contaminated area.

Radiological assessments of SVC-01 were performed on a routine basis. Surveys performed in July 1996 and in January, May and June 1998 did not identify radioactivity in excess of release criteria established at that time.

Scoping/Characterization

Prior to commencing demolition activities in SVC-01 a pre-demolition survey was developed in accordance with AP-0831 Administrative Program for Radiological and Non-Radiological Characterization Surveys. The results of this survey identified no radiological contamination present within the bounds of SVC-01. This survey also serves as the survey for release for the demolition materials if appropriate.

Decommissioning Activities

Decommissioning Activities performed in SVC-01 have removed the water treatment facility equipment, the secondary chemistry laboratory benches and equipment, and the equipment from mechanical operating equipment room.

Survey Area Name: Service Building #1 Designator: **SVC-01**

Findings

Survey area SVC-01 was minimally impacted by plant operations and is not likely to contain residual radioactivity at levels greater than a small fraction of the DCGL.

The radionuclide mix for the SVC-01 includes all radionuclides identified in the reactor radioactive systems of the plant (Ref. 1). The primary radionuclides of concern for SVC-01 are Co-60, Cs-137, Ag-108m, Sr-90, and tritium.

Current Status

SVC-01 currently is vacated and awaiting demolition. No sampling was conducted in this area.

Classification Statement

Based upon the historical use and radiological conditions associated with this survey area SVC-01 is identified as a Class 3 Area.

Building Historical Site Assessment and Classification Summary

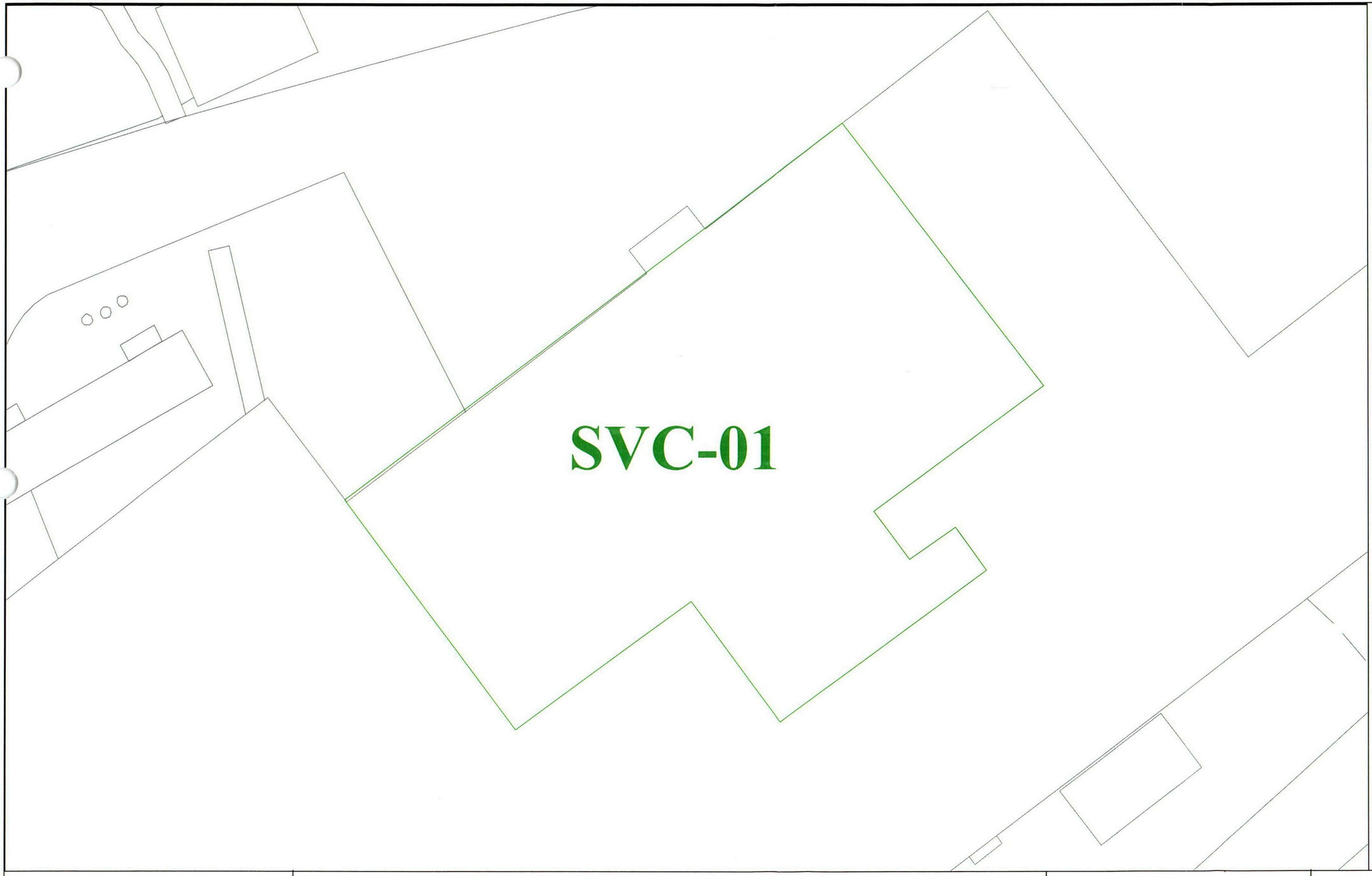
Survey Area Name: Service Building #1 Designator: **SVC-01**

Drawings

9699-FB-05B
9699-FB-05C
9699-FC-22A
9699-FC-22B
9699-FC-22C
9699-FC-23A
9699-FC-23B
9699-FC-23C
9699-FC-23D

References

1.	"Radionuclides for Building Surfaces and Soil DCGL Determinations," YA-REPT- 00-001-03



	Yankee Atomic Power Company *Soil Sample Locations - SVC-01*	YANKEE	*Date: October 2003* *Revision: 4* *Figure: 47*

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Building Historical Site Assessment and Classification Summary

Survey Area Name: Service Building #2 Designator: **SVC-02**

Survey Area Description

The Service Building is a structure that, for the purpose of this Historical Site Assessment (HSA) and Classification Summary, will be divided into three survey areas: SVC-01, SVC-02 and SVC-03. These survey areas are delineated based upon their construction, systems present and operating/use histories.

Survey Area SVC-02 represents the original plant construction, Radiation Control Area (RCA) portion of the Service Building. Use of the spaces within the SVC-02 footprint includes the hot side machine shop and welding booth, the hot side lavatory (Out Of Service), RP count room, personnel decontamination showers, RP control point (from the clean side locker room access too to the female locker room) the female locker room, the primary side chemistry lab, the dress-out area and the RP instrument and equipment cage. The hallway to the pass-through door and the hot side RP equipment shop and calibration facility in the service building annex.

Survey Area SVC-02 consists of the reinforced concrete floor slab and subsurface structures remaining after the demolition of the Service Building is complete. The footprint of SVC-02 is approximately 444 square meters of concrete surface area. There are additional subsurface structures associated with the footprint of the SVC-02 that include trenches, sumps, grade beams, foundation and column supports. (See drawings for details) SVC-02 is bounded on the north by SVC-01, on the east by SVC-03 and OMB-04, on the south by NOL-01 and OOL-12 and on the west by TBN-01.

Survey Area Name: Service Building #2 Designator: **SVC-02**

Survey Area History

Survey Area SVC-02 represents the original layout of the plant Radiation Control Area (RCA) portion of the Service Building. (Ref 1)

The hot side machine shop intermittently became contaminated as a result of maintenance work activities performed on contaminated plant equipment. The hot side machine shop area was maintained as a non-contaminated radioactive material area.

The welding booth portion of the hot side machine shop was originally set-up as a decontamination room. It was later outfitted as a welding booth after Decontamination Pad #1 was converted from an out of doors pad to a building. (See NSY-01)

The hot side lavatory was originally set-up with two toilets, two urinals, and two hand wash stations. One of the hand wash stations was removed and replaced with a double deep sink. The toilets and urinal were removed from service although the plumbing still remains.

Plant Modification 76-28 rerouted the drain piping for the floor drains hand wash stations and the personnel decontamination shower from the sanitary sewer system to the liquid radioactive waste system.

The radiation control area (RCA) access control point is located in SVC-02. The current configuration of the control point is the result of Plant Alteration (PA) 86-029. Prior to this the footprint of the control point consisted of the respirator storage room and the hot side locker room for plant personnel.

The female locker room was previously an RP storage room that contained supplies and surplus equipment, some of which was contaminated.

The present dress-out area was previously the contractor locker room. The RP instrument and equipment cage is the former location of the Protective Clothing (PC) storage area.

The primary chemistry lab is in its original location. It was surveyed on a routine basis when any portion of the primary chemistry lab was identified as contaminated and was decontaminated in order to maintain the area as a non- contaminated radioactive material area. The primary lab was renovated via PA 85-20; this replaced the laboratory benches, cabinets and flooring.

The RP instrument calibration lab and the hallway to the stockroom pass through window are located in the service building annex. The RP instrument calibration lab was formerly occupied by the I&C department as the hot side instrument shop. The hallway was, as is now, used for storage of material and equipment.

Survey Area Name: Service Building #2 Designator: **SVC-02**

All portions of SVC-02 are surveyed on a routine basis. These surveys have identified radioactive contamination present; when contaminated the control point area was decontaminated.

The sanitary sewer system that runs under SVC-02 is potentially impacted. Radioactivity has been identified in the leaching field at the end of the sanitary sewer system. The likely input source of this radioactivity was operation of a hot side lavatory resulting from deposition of mop water derived from routine cleaning of the area. Another likely input source of this radioactivity is the hot side lavatory.

Scoping/Characterization

Prior to commencing demolition activities in SVC-02 a pre-demolition survey was developed in accordance with AP-0831 Administrative Program for Radiological and Non-Radiological Characterization Surveys.

Decommissioning Activities

Decommissioning activities performed to date have removed the equipment from the hot side machine shop.

Survey Area Name: Service Building #2 Designator: **SVC-02**

Findings

Survey area SVC-02 was impacted by plant operations and is likely to contain residual radioactivity at levels greater than the DCGL.

The radionuclide mix for the SVC-02 includes all radionuclides identified in the reactor radioactive systems of the plant (Ref 2). The primary radionuclides of concern for SVC-02 are Co-60, Cs-137, Ag-108m, Sr-90 and tritium.

Current Status

SVC-02 currently continues to house the RP Control Point, Chemistry Laboratory, RP instrumentation storage and calibration facility and the hot side maintenance area. SVC-02 continues to be impacted by decommissioning activities.

A soil sample location map (Figure 48) has been prepared to show the distribution of sampling locations in SVC-02. Only samples representative of soils still present are included on the map (samples of soils representative of soils removed during remediation activities are not presented). One survey media was assessed in SVC-02, Soil. The results and analyses (Tables 1-4 in this section) of the samples plotted as "key numbers" on the map represent the radiological status at the time of sampling (a period spanning several years) as sums of fractions of the soil DCGL.

Only those samples with detectable results of the radionuclides of concern appear in Table 1. For this reason the number listed as minimum does not include samples that did not have detectable quantities of the radiological substances of concern. An assessment of the maximum, minimum and mean sum of fractions (SOF) for SVC-02 is presented at the end of Table 1 for each survey medium. The results are summarized below.

Soil: Mean SOF is none detectable.
Maximum SOF for a single soil sample is none detectable.
Minimum SOF for a single soil sample is none detectable.

Classification Statement

Based upon the historical use and radiological conditions associated with this survey area SVC-02 is identified as a Class 1 Area.

Survey Area Name: Service Building #2 Designator: **SVC-02**

Drawings

9699-FB-05C
9699-FC-22A
9699-FC-22B
9699-FC-22C
Service Building Addition, First Floor Plan + Details Drawing # A-1, RJ Donovan Inc.
Service Building Addition, First Floor Plan + Details Drawing # S-1, RJ Donovan Inc.

References

1.	Radiation Protection Memorandum RP 98-23, "Overview of the YNPS Historical Material Release Evaluation," dated March 5, 1998.
2.	"Radionuclides for Building Surfaces and Soil DCGL Determinations," YA-REPT- 00-001-03

Table 1
Sum of Fractions
SVC-02 -- Soil
Yankee Nuclear Power Station Rowe, MA

Radionuclides for which SOF is calculated were not present in samples.

Table 2
Statistical Data Summary – SVC-02 – Soil
Yankee Nuclear Power Station Rowe, MA

Parameter	Units	# Detects	# Sample Results	Mean	Std. Dev	Minimum	Maximum	Median
Ac-228	pCi/g	4	4	0.970	0.054	0.890	1.007	0.991
Ag-108m	pCi/g	0	4	0.000				
Ag-110m	pCi/g	0	4	0.000				
Am-241	pCi/g	0	4	0.000				
Bi-212	pCi/g	4	4	0.758	0.180	0.610	1.013	0.704
Bi-214	pCi/g	4	4	0.514	0.040	0.456	0.549	0.525
Ce-144	pCi/g	0	4	0.000				
Co-58	pCi/g	0	4	0.000				
Co-60	pCi/g	0	4	0.000				
Cs-134	pCi/g	0	4	0.000				
Cs-137	pCi/g	0	4	0.000				
Eu-152	pCi/g	0	1	0.000				
Fe-59	pCi/g	0	4	0.000				
K-40	pCi/g	4	4	17.338	1.477	15.690	18.610	17.525
Mn-54	pCi/g	0	4	0.000				
Nb-95	pCi/g	0	4	0.000				
Pb-212	pCi/g	4	4	0.919	0.083	0.819	1.008	0.924
Pb-214	pCi/g	4	4	0.525	0.040	0.502	0.585	0.505
Ra-226	pCi/g	3	4	2.215	0.743	1.651	3.057	1.937
Ru-103	pCi/g	0	4	0.000				
Ru-106	pCi/g	0	4	0.000				
Sb-124	pCi/g	0	4	0.000				
Tl-208	pCi/g	3	3	0.861	0.074	0.776	0.910	0.898
Zn-65	pCi/g	0	4	0.000				
Zr-95	pCi/g	0	4	0.000				

Table 3
Summary of Detected Results Above Criteria
SVC-02 -- Soil
Yankee Nuclear Power Station Rowe, MA
DCGL_Soil

Parameter	# Detects	# Sample Results	Criterion Concentration	Units	# Detects Above Criterion	Maximum Detected
Ac-228	4	4		pCi/g	0	1.01
Ag-108m	0	4	8.52	pCi/g	0	
Ag-110m	0	4		pCi/g	0	
Am-241	0	4	44.35	pCi/g	0	
Bi-212	4	4		pCi/g	0	1.01
Bi-214	4	4		pCi/g	0	0.55
Ce-144	0	4		pCi/g	0	
Co-58	0	4		pCi/g	0	
Co-60	0	4	4.84	pCi/g	0	
Cs-134	0	4	6.71	pCi/g	0	
Cs-137	0	4	12.24	pCi/g	0	
Eu-152	0	1	12.06	pCi/g	0	
Fe-59	0	4		pCi/g	0	
K-40	4	4		pCi/g	0	18.61
Mn-54	0	4	21.66	pCi/g	0	
Nb-95	0	4		pCi/g	0	
Pb-212	4	4		pCi/g	0	1.01
Pb-214	4	4		pCi/g	0	0.59
Ra-226	3	4		pCi/g	0	3.06
Ru-103	0	4		pCi/g	0	
Ru-106	0	4	68.21	pCi/g	0	
Sb-124	0	4		pCi/g	0	
Tl-208	3	3		pCi/g	0	0.91
Zn-65	0	4		pCi/g	0	
Zr-95	0	4		pCi/g	0	

Table 4
Rad
SVC-02 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	SB003.1 (3062)	SB003.2 (3063)	SB003.2 (3063)	SB003.2 (3063)
Sample ID	SB003.1C	SB003.2B	SB003.2C	SB003.2D
Date Sampled	7/15/1998	7/14/1998	7/14/1998	7/14/1998
Ac-228	0.9947	0.9872	0.8903	1.007
Ag-108m	-0.00268 U	-0.01666 U	0.01372 U	0.01473 U
Ag-110m	-0.005703 U	0.02037 U	-0.008758 U	0.00356 U
Am-241	0 U	0 U	0 U	0 U
Bi-212	0.6569	0.61	1.013	0.7518
Bi-214	0.5275	0.5234	0.4557	0.5488
Ce-144	-0.02106 U	-0.06196 U	-0.01346 U	0.1135 U
Co-58	0.009621 U	0.01401 U	-0.000873 U	0.01461 U
Co-60	0.02385 U	-0.02135 U	-0.01991 U	-0.008059 U
Cs-134	0.01293 U	-0.01124 U	0.005807 U	0.0194 U
Cs-137	-0.002596 U	-0.02525 U	-0.009319 U	-0.02294 U
Eu-152				0.2826 U
Fe-59	0.04836 U	0.07071 U	0.04416 U	-0.03279 U
K-40	18.61	16.49	15.69	18.56
Mn-54	0.01244 U	-0.004192 U	0.02977 U	0.01965 U
Nb-95	-0.009507 U	-0.08022 U	0.004885 U	-0.0206 U
Pb-212	1.008	0.8186	0.8895	0.959
Pb-214	0.5024	0.5052	0.5056	0.5851
Ra-226	3.057	1.937	1.23 U	1.651
Ru-103	-0.01511 U	0.02069 U	-0.01397 U	0.00718 U
Ru-106	-0.1346 U	0 U	0.1438 U	-0.09945 U
Sb-124	-0.008862 U	0.01455 U	-0.0188 U	-0.0314 U
Tl-208		0.91	0.776	0.8981
Zn-65	0.02751 U	0.04574 U	-0.08405 U	-0.00731 U
Zr-95	0.01679 U	0.03672 U	0.03558 U	0 U

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

Blank results indicate chemical not analyzed

N

Legend

= Survey Area Boundary

Notes

SVC-02

3063

3062

	Yankee Atomic Power Company Soil Sample Locations - SVC-02	YANKEE	Date: October 2003 Revision: 4
			Figure: 48

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Building Historical Site Assessment and Classification Summary

Survey Area Name: Service Building #3 Designator: **SVC-03**

Survey Area Description

The Service Building is a structure that, for the purpose of this Historical Site Assessment (HSA) and Classification Summary, will be divided into three survey areas: SVC-01, SVC-02 and SVC-03. These survey areas are delineated based upon their construction, systems present and operating/use histories.

Survey Area SVC-03 represents the non-Radiation Control Area (RCA) portion of the Service Building Annex constructed in 1974. Use of the area within the SVC-03 footprint includes the stockroom, small parcel shipping and receiving and the Document Control Center (DCC). The double door at the southeast corner of the stockroom provided access to the warehouse and main loading dock area. The Radiation Protection instrument shop located at the south end of the service building addition and the hallway adjacent to it that leads to the stock room pass through window are part of the RCA and are included in SVC-02.

Survey Area SVC-03 consists of the reinforced concrete floor and foundations that comprise the Service Building Addition expected to remain after demolition of the above-grade structures is complete. The SVC-03 footprint includes personnel access stairs and small loading dock combination located on the north side, the three bottom concrete steps of the exterior stairway that accesses the second floor and a concrete pad located at the double personnel door on the east side of SVC-03.

The Service Building Addition is a structural steel frame and concrete block structure built on a reinforced concrete floor slab and foundation. The footprint of SVC-03 is approximately 375 square meters. There are approximately 93 linear meters of foundation that extends to a depth of 1.35 meters associated with the footprint of the structure.

A portion of the sanitary sewer system and the east storm drain system run under the Service Building Addition.

Survey Area Name: Service Building #3 Designator: **SVC-03**

Survey Area History

The service building annex was constructed in 1974. It abuts the eastern end of the original service building and also connects the to the warehouse. The southwest corner of the service building addition was constructed on what had previously been a portion of the RCA that wrapped around the east end of the original service building (Ref 1). The footprint of this portion of the RCA under SVC-03 extends as far north as the former exterior door to the primary chemistry lab. The present location of the non-contaminated construction spoils generated during construction of the service building annex is thought to be within the SCF area (OOL-09) of the site. (Ref 2)

Radiological assessment of SVC-03 was performed on a routine basis. SVC-03 has always been maintained as a clean area having experienced only minor contaminating events resulting from migration of radioactive contamination out of the RCA. When contamination was identified the affected area was de-contaminated with a post decontamination survey performed and documented.

Radioactive material in the form of plant effluent samples sent offsite for analyses were normally shipped through the stockroom. These samples were packaged for shipment and surveyed prior to transfer to the stockroom for shipping. Packages of radioactive material received at the stockroom were surveyed upon receipt and then brought into the RCA prior to opening.

In 1977 a portion of the stockroom area of SVC-03 was designated as the location of Document Control Center. The DCC portion of SVC-03 was also surveyed on a routine basis and maintained as a clean area.

Scoping/Characterization

Prior to commencing demolition activities in SVC-03 a pre-demolition survey was developed in accordance with AP-0831 Administrative Program for Radiological and Non-Radiological Characterization Surveys. The results of this survey identified no radiological contamination present within the bounds of SVC-03. This survey also serves as the survey for release for the demolition materials.

Decommissioning Activities

Demolition activities performed in SVC-03 were performed under DEM-TP-003 and 004.

Survey Area Name: Service Building #3 Designator: **SVC-03**

Findings

Survey area SVC-03 was minimally impacted by plant operations and is not likely to contain residual radioactivity at levels greater than a small fraction of the DCGL.

The radionuclide mix for the SVC-03 includes all radionuclides identified in the reactor radioactive systems of the plant (Ref 3). The primary radionuclides of concern for SVC-03 are Co-60, Cs-137, Sr-90 and tritium.

Current Status

Decommissioning activities in SVC-03 have removed the Service Building Annex structure to elevation 1022'. No sampling was conducted in this area.

Classification Statement

Based upon the historical use and radiological conditions associated with this survey area SVC-03 is identified as a Class 3 Area.

Building Historical Site Assessment and Classification Summary

Survey Area Name: Service Building #3 Designator: **SVC-03**

Drawings

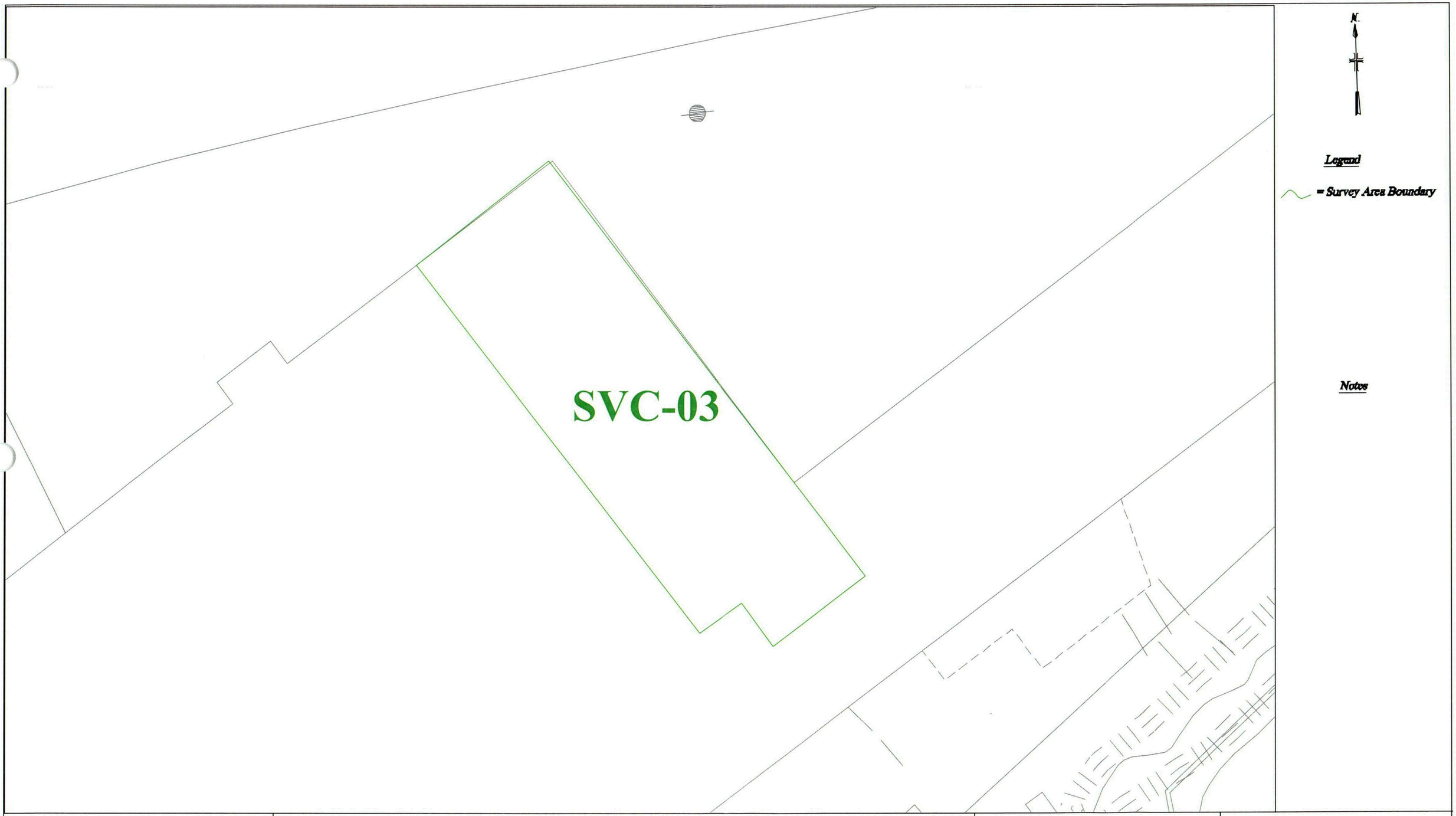
9699-FB-05C
9699-FC-22A
9699-FC-22B
9699-FC-22C
Service Building Addition, First Floor Plan + Details Drawing # A-1, RJ Donovan Inc.
Service Building Addition, First Floor Plan + Details Drawing # S-1, RJ Donovan Inc.

References

1.	Radiation Protection Memorandum RP 98-23, "Overview of the YNPS Historical Material Release Evaluation," dated March 5, 1998.
2.	"Summary of Excavation Volumes for YNPS Construction Performed During the Time Period of Plant Operation," dated October 1997.
3.	"Radionuclides for Building Surfaces and Soil DCGL Determinations," YA-REPT- 00-001-03

Underground Systems

SVC-03				
Structure / System	Component	Description	Location	Impacted?
Water		from OOL-12 N to tee W8; E from W8 ~40' to hose house; from W8 N ~50'	W8 - ~10' S and ~10' E of NW corner of SB addition	
Abandoned Street Lighting	electric cable	~8' from east wall running N & S		



	Yankee Atomic Power Company *Soil Sample Locations - SVC-03*	YANKEE	*Date: October 2003* *Revision: 4*	*Figure: 49*

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Building Historical Site Assessment and Classification Summary

Survey Area Name: Turbine Building #1 Designator: **TBN-01**

Survey Area Description

Based upon the projected end-state of decommissioning activities, Survey Area TBN-01 will consist of the reinforced concrete floors and foundations of the Turbine and Administration Buildings, turbine support pedestal, and control room shield wall (reduced to grade level).

The footprint of TBN-01 is approximately 1517 square meters of reinforced concrete floor slab minus that portion of the floor previously removed during demolition of the service water and floor drain systems. (See drawings for details of sections of the floor slab removed).

Survey area TBN-01 is bounded by survey area OOL-02, a Class 3 land survey area on the north, SVC-01 and SVC-02 on the east, NOL-06 on the south and OOL-10 and OOL-02 on the west.

Systems that traverse or connect to TBN-01 include:

- Potable water,
- Fire protection water,
- Circulating water,
- Steam condensate,
- Feed water,
- De-mineralized water,
- Sanitary sewers,
- Fuel oil supply to the auxiliary boilers,
- Service water,
- Floor and equipment drains,
- Electrical duct trays
- Electrical conduits.

Survey Area Name: Turbine Building #1 Designator: **TBN-01**

Survey Area History

Radiological assessments of TBN-01 were performed on a routine basis.

Survey area TBN-01 has always been maintained as a clean area having experienced only minor contaminating events resulting from migration of radioactive contamination out of the RCA and through the service building. One significant contaminating event occurred in 1967 resulting from repair work performed on a reactor-cooling pump in a temporary radiation control area established on the turbine deck.

Structural modifications performed in TBN-01 include:

- Removal of the railroad spur line within the turbine building. (PA-77-19)
- Construction of a missile shield wall on the control room side of the turbine hall.
- Reconfiguring of the auxiliary boiler room and turbine building floor drains and trench. (PA-80-009)

Scoping/Characterization

Scoping surveys were performed and the data collected used to develop the YNPS Decommissioning Plan. (Ref 1) Continuing characterization soil samples are also included in the TBN-01 soil sample data.

Remediations

A soil remediation activity was conducted in subsurface locations of TBN-01 near support pedestal #4 around the time of floor drain and service water system piping removals. Since the source of this activity is uncharacteristic of the remainder of the building and at some depth, investigations will be performed in the most likely translocation pathway nearby. This is the backfill surrounding the Recirculation piping. A summary of the results of "as found" soil sample data, results of samples taken during the progress of the remediation and results of "as left" soil sample data are included on the *remediated areas* spreadsheet attached to this section. Details of some of the floor drain excavations are also included.

Decommissioning Activities

A pre-demolition survey developed in accordance with AP-0831 Administrative Program for Radiological and Non-Radiological Characterization Surveys was implemented prior to commencing demolition activities in TBN-01. The results of this survey identified no residual radiological contamination present within the bounds of TBN-01. This survey also serves as the material survey for release in accordance with AP-0052 Radiation Protection Release of Equipment, Materials and Vehicles, for the TBN-01 demolition materials. Decommissioning Activities performed in TBN-01 have removed all operating systems

Survey Area Name: Turbine Building #1 Designator: **TBN-01**

Findings

Survey area TBN-01 was minimally impacted by plant operations and is not likely to contain residual radioactivity at levels greater than a small fraction of the DCGL.

The radionuclide mix for the TBN-01 includes all radionuclides identified in the reactor radioactive systems of the plant (Ref 2). The primary radionuclides of concern for TBN-01 are Co-60, Cs-137, Ag-108m, Sr-90, and tritium.

Current Status

TBN-01 currently is vacated and awaiting demolition.

A soil sample location map (Figure 50) has been prepared to show the distribution of sampling locations in TBN-01. Only samples representative of soils still present are included on the map (samples of soils representative of soils removed during remediation activities are not presented). Two survey media were assessed in TBN-01, Asphalt and Soil. The results and analyses (Tables 1-4 in this section) of the samples plotted as "key numbers" on the map represent the radiological status at the time of sampling (a period spanning several years) as sums of fractions of the soil DCGL. There are separate sets of Tables 1-4 for each survey media. All are evaluated as fractions of the soil DCGL.

Only those samples with detectable results of the radionuclides of concern appear in Table 1. For this reason the number listed as minimum does not include samples that did not have detectable quantities of the radiological substances of concern. An assessment of the maximum, minimum and mean sum of fractions (SOF) for TBN-01 is presented at the end of Table 1 for each survey medium. The results are summarized below.

Asphalt: Mean SOF is 0.038.
Maximum SOF for a single asphalt sample is 0.038. (key# 270)
Minimum SOF for a single asphalt sample is 0.038. (key# 270)

Soil: Mean SOF is 0.087.
Maximum SOF for a single soil sample is 0.923. (key# 3137)
Minimum SOF for a single soil sample is 0.001. (key# 3325, 3346)

Classification Statement

Based upon the historical use and radiological conditions associated with this survey area TBN-01 is identified as a Class 3 Area.

Building Historical Site Assessment and Classification Summary

Survey Area Name: Turbine Building #1 Designator: **TBN-01**

Drawings

9699-FB-01A
9699-FB-05B
9699-FB-05C
9699-FB-05D
9699-FC-22A
9699-FC-22B
9699-FC-22C
9699-FC-23A
9699-FC-23B
9699-FC-23C
9699-FC-23D
9699-RC-7A

References

1.	YNPS Decommissioning Plan, Rev. 0.0.
2.	"Radionuclides for Building Surfaces and Soil DCGL Determinations," YA-REPT- 00-001-03

Table 1
Sum of Fractions
TBN-01 – Asphalt
Yankee Nuclear Power Station Rowe, MA

Station Key	Station	Sample ID		Sum Of Fractions
270	TB001-001	TB001BAFA001		0.038
			Min	0.038
			Max	0.038
			Mean	0.038

Table 2
Statistical Data Summary – TBN-01 -- Asphalt
Yankee Nuclear Power Station Rowe, MA

Parameter	Units	# Detects	# Sample Results	Mean	Std. Dev	Minimum	Maximum	Median
Ac-228	pCi/g	1	1	1.965	1.965	1.965	1.965	
Ag-108m	pCi/g	0	1	0.000				
Ag-110m	pCi/g	0	1	0.000				
Bi-212	pCi/g	0	1	0.000				
Bi-214	pCi/g	1	1	1.503		1.503	1.503	1.503
Ce-144	pCi/g	0	1	0.000				
Co-58	pCi/g	0	1	0.000				
Co-60	pCi/g	1	1	0.183		0.183	0.183	0.183
Cs-134	pCi/g	0	1	0.000				
Cs-137	pCi/g	0	1	0.000				
Fe-59	pCi/g	0	1	0.000				
K-40	pCi/g	1	1	53.730		53.730	53.730	53.730
Kr-85	pCi/g	0	1	0.000				
Mn-54	pCi/g	0	1	0.000				
Nb-95	pCi/g	0	1	0.000				
Pb-212	pCi/g	1	1	2.513		2.513	2.513	2.513
Pb-214	pCi/g	1	1	1.844		1.844	1.844	1.844
Ra-226	pCi/g	1	1	3.783		3.783	3.783	3.783
Ru-103	pCi/g	0	1	0.000				
Ru-106	pCi/g	0	1	0.000				
Sb-124	pCi/g	0	1	0.000				
Sb-125	pCi/g	0	1	0.000				
Se-75	pCi/g	0	1	0.000				
Tl-208	pCi/g	1	1	2.008		2.008	2.008	2.008
Zn-65	pCi/g	0	1	0.000				
Zr-95	pCi/g	0	1	0.000				

Table 3
Summary of Detected Results Above Criteria
TBN-01 – Asphalt
Yankee Nuclear Power Station Rowe, MA
DCGL_Asphalt

Parameter	# Detects	# Sample Results	Criterion Concentration	Units	# Detects Above Criterion	Maximum Detected
Ac-228	1	1		pCi/g	0	1.97
Ag-108m	0	1	8.52	pCi/g	0	
Ag-110m	0	1		pCi/g	0	
Bi-212	0	1		pCi/g	0	
Bi-214	1	1		pCi/g	0	1.50
Ce-144	0	1		pCi/g	0	
Co-58	0	1		pCi/g	0	
Co-60	1	1	4.84	pCi/g	0	0.18
Cs-134	0	1	6.71	pCi/g	0	
Cs-137	0	1	12.24	pCi/g	0	
Fe-59	0	1		pCi/g	0	
K-40	1	1		pCi/g	0	53.73
Kr-85	0	1		pCi/g	0	
Mn-54	0	1	21.66	pCi/g	0	
Nb-95	0	1		pCi/g	0	
Pb-212	1	1		pCi/g	0	2.51
Pb-214	1	1		pCi/g	0	1.84
Ra-226	1	1		pCi/g	0	3.78
Ru-103	0	1		pCi/g	0	
Ru-106	0	1	68.21	pCi/g	0	
Sb-124	0	1		pCi/g	0	
Sb-125	0	1	37.73	pCi/g	0	
Se-75	0	1		pCi/g	0	
Tl-208	1	1		pCi/g	0	2.01
Zn-65	0	1		pCi/g	0	
Zr-95	0	1		pCi/g	0	

Table 4
Rad
TBN-01 – Asphalt (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TB001-001 (270)	
Sample ID	TB001BAFA001	
Date Sampled	12/18/1997	
Ac-228		1.965
Ag-108m	-0.009932 U	
Ag-110m	0.05815 U	
Bi-212	1.619 U	
Bi-214		1.503
Ce-144	-0.0525 U	
Co-58	0.0007857 U	
Co-60		0.1829
Cs-134	-0.1523 U	
Cs-137	0.01338 U	
Fe-59	-0.02543 U	
K-40		53.73
Kr-85	32.19 U	
Mn-54	-0.02004 U	
Nb-95	-0.03846 U	
Pb-212		2.513
Pb-214		1.844
Ra-226		3.783
Ru-103	-0.01133 U	
Ru-106	-0.06281 U	
Sb-124	-0.03083 U	
Sb-125	-0.01128 U	
Se-75	0.0416 U	
Tl-208		2.008
Zn-65	-0.09457 U	
Zr-95	0.0385 U	
SOF		0.038

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 1
Sum of Fractions
TBN-01 – Soil
Yankee Nuclear Power Station Rowe, MA

Station Key	Station	Sample ID	Sum Of Fractions
3315	TS99.16	TS99.16B	0.004
3126	TB001.14	TB001.14	0.002
3133	TB001.25	TB001.25A	0.014
3135	TB001.27	TB001.27A	0.418
3135	TB001.27	TB001.27B	0.008
3136	TB001.28	TB001.28	0.832
3137	TB001.29	TB001.29	0.923
3138	TB001.3	TB001.3	0.062
3140	TB001.33	TB001.33	0.007
3305	TS99.02	TS99.02C	0.002
3306	TS99.07	TS99.07A	0.006
3306	TS99.07	TS99.07B	0.006
3124	TB001.10	TB001.10	0.006
3310	TS99.11	TS99.11C	0.007
3347	TS99.49	TS99.49A	0.003
3319	TS99.20	TS99.20B	0.003
3322	TS99.23	TS99.23A	0.009
3323	TS99.24	TS99.24A	0.004
3325	TS99.26	TS99.26B	0.001
3326	TS99.27	TS99.27A	0.003
3326	TS99.27	TS99.27B	0.003
3338	TS99.39	TS99.39C	0.006
3339	TS99.40	TS99.40A	0.005
3342	TS99.43	TS99.43A	0.004
3343	TS99.44	TS99.44A	0.003
3346	TS99.48	TS99.48C	0.001
3309	TS99.10	TS99.10B	0.002
		Min	0.001
		Max	0.923
		Mean	0.087

Table 2
Statistical Data Summary – TBN-01 -- Soil
Yankee Nuclear Power Station Rowe, MA

Parameter	Units	# Detects	# Sample Results	Mean	Std. Dev	Minimum	Maximum	Median
Ac-228	pCi/g	138	138	0.805	0.134	0.312	1.131	0.814
Ag-108m	pCi/g	3	138	0.022	0.004	0.018	0.025	0.024
Ag-110m	pCi/g	3	138	0.045	0.007	0.037	0.049	0.048
Am-241	pCi/g	0	138	0.000				
Ba-133	pCi/g	1	6	0.034		0.034	0.034	0.034
Ba-140	pCi/g	0	1	0.000				
Bi-212	pCi/g	105	119	1.459	6.316	0.507	65.520	0.796
Bi-214	pCi/g	137	137	0.454	0.079	0.158	0.676	0.458
Ce-141	pCi/g	0	2	0.000				
Ce-144	pCi/g	0	138	0.000				
Co-58	pCi/g	1	138	0.033		0.033	0.033	0.033
Co-60	pCi/g	2	138	0.122	0.111	0.043	0.200	0.122
Cr-51	pCi/g	0	1	0.000				
Cs-134	pCi/g	3	138	0.073	0.074	0.022	0.158	0.040
Cs-136	pCi/g	2	5	0.444	0.176	0.319	0.569	0.444
Cs-137	pCi/g	10	138	2.703	4.439	0.040	11.300	0.133
Eu-152	pCi/g	1	11	0.075		0.075	0.075	0.075
Fe-59	pCi/g	3	138	0.068	0.009	0.060	0.078	0.067
I-131	pCi/g	0	2	0.000				
I-132	pCi/g	1	2	1.447		1.447	1.447	1.447
K-40	pCi/g	137	138	14.791	2.787	0.786	19.940	15.220
Kr-85	pCi/g	3	8	8.601	3.247	4.902	10.980	9.921
La-140	pCi/g	0	2	0.000				
Mn-54	pCi/g	6	138	0.036	0.007	0.028	0.046	0.036
Nb-94	pCi/g	1	1	0.038		0.038	0.038	0.038
Nb-95	pCi/g	5	138	0.044	0.013	0.033	0.065	0.043
Np-239	pCi/g	0	18	0.000				
Pb-212	pCi/g	138	138	0.795	0.138	0.299	1.155	0.812
Pb-214	pCi/g	138	138	0.492	0.081	0.212	0.687	0.491
Ra-226	pCi/g	67	97	1.418	0.360	0.828	2.844	1.376
Ru-103	pCi/g	8	138	0.031	0.003	0.027	0.035	0.030
Ru-106	pCi/g	4	138	0.318	0.060	0.273	0.405	0.297

Table 2
Statistical Data Summary – TBN-01 -- Soil
Yankee Nuclear Power Station Rowe, MA

Parameter	Units	# Detects	# Sample Results	Mean	Std. Dev	Minimum	Maximum	Median
Sb-124	pCi/g	3	138	0.054	0.020	0.031	0.072	0.059
Sb-125	pCi/g	1	11	0.261		0.261	0.261	0.261
Se-75	pCi/g	0	2	0.000				
Sn-113	pCi/g	0	2	0.000				
Tl-202	pCi/g	0	3	0.000				
Tl-208	pCi/g	132	132	0.739	0.141	0.339	1.165	0.745
Y-88	pCi/g	0	1	0.000				
Zn-65	pCi/g	0	138	0.000				
Zr-95	pCi/g	9	138	0.065	0.009	0.053	0.081	0.065

Table 3
Summary of Detected Results Above Criteria
TBN-01 – Soil
Yankee Nuclear Power Station Rowe, MA
DCGL_Soil

Parameter	# Detects	# Sample Results	Criterion Concentration	Units	# Detects Above Criterion	Maximum Detected
Ac-228	138	138		pCi/g	0	1.13
Ag-108m	3	138	8.52	pCi/g	0	0.02
Ag-110m	3	138		pCi/g	0	0.05
Am-241	0	138	44.35	pCi/g	0	
Ba-133	1	6		pCi/g	0	0.03
Ba-140	0	1		pCi/g	0	
Bi-212	105	119		pCi/g	0	65.52
Bi-214	137	137		pCi/g	0	0.68
Ce-141	0	2		pCi/g	0	
Ce-144	0	138		pCi/g	0	
Co-58	1	138		pCi/g	0	0.03
Co-60	2	138	4.84	pCi/g	0	0.20
Cr-51	0	1		pCi/g	0	
Cs-134	3	138	6.71	pCi/g	0	0.16
Cs-136	2	5		pCi/g	0	0.57
Cs-137	10	138	12.24	pCi/g	0	11.30
Eu-152	1	11	12.06	pCi/g	0	0.08
Fe-59	3	138		pCi/g	0	0.08
I-131	0	2		pCi/g	0	
I-132	1	2		pCi/g	0	1.45
K-40	137	138		pCi/g	0	19.94
Kr-85	3	8		pCi/g	0	10.98
La-140	0	2		pCi/g	0	
Mn-54	6	138	21.66	pCi/g	0	0.05
Nb-94	1	1	8.53	pCi/g	0	0.04
Nb-95	5	138		pCi/g	0	0.06
Np-239	0	18		pCi/g	0	
Pb-212	138	138		pCi/g	0	1.16
Pb-214	138	138		pCi/g	0	0.69
Ra-226	67	97		pCi/g	0	2.84
Ru-103	8	138		pCi/g	0	0.04
Ru-106	4	138	68.21	pCi/g	0	0.41
Sb-124	3	138		pCi/g	0	0.07
Sb-125	1	11	37.73	pCi/g	0	0.26
Se-75	0	2		pCi/g	0	
Sn-113	0	2		pCi/g	0	
Tl-202	0	3		pCi/g	0	
Tl-208	132	132		pCi/g	0	1.17

Table 3
Summary of Detected Results Above Criteria
TBN-01 – Soil
Yankee Nuclear Power Station Rowe, MA
DCGL_Soil

Parameter	#	# Sample Results	Criterion Concentration	Units	# Detects Above Criterion	Maximum Detected
Y-88	0	1		pCi/g	0	
Zn-65	0	138		pCi/g	0	
Zr-95	9	138		pCi/g	0	0.08

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TB001.10 (3124)		TB001.10 (3124)		TB001.12 (3125)		TB001.12 (3125)		TB001.14 (3126)	
Sample ID	TB001.10		TB001.11		TB001.12		TB001.13		TB001.14	
Date Sampled	3/5/1998		3/5/1998		3/9/1998		3/9/1998		3/9/1998	
Ac-228		0.8152		0.7455		0.6093		0.8566		0.6923
Ag-108m	-0.0118 U		0.001634 U		-0.006585 U		-0.009356 U			0.01806
Ag-110m	0.01477 U		-0.01046 U		-0.03285 U		-0.009192 U		-0.04117 U	
Am-241	0 U		0 U		0 U		0 U		0 U	
Ba-133										
Ba-140										
Bi-212		0.5786		0.9687		0.7163		0.7833		0.6606
Bi-214		0.417		0.3843		0.3901		0.4258		0.3124
Ce-141										
Ce-144	0.1074 U		0.003131 U		0.09727 U		-0.06457 U		0.0852 U	
Co-58	-0.006393 U		-0.0396 U		-0.01238 U		0.00507 U		-0.00795 U	
Co-60	0.01263 U		0.00306 U		-0.01583 U		-0.01822 U		0.006334 U	
Cr-51										
Cs-134	-0.01331 U		0.01086 U		0.02789 U		-0.1122 U		0.008909 U	
Cs-136										
Cs-137	0.0261 U		-0.01687 U		-0.008738 U		0.03134 U		-0.006554 U	
Eu-152										
Fe-59	-0.01627 U		-0.02018 U		-0.0247 U		-0.02844 U		-0.03856 U	
I-131										
I-132										
K-40		14.63		14.27		14.51		14.76		13.36
Kr-85										
La-140										
Mn-54	0.0231 U		0.01017 U		0.01491 U		0.002648 U		0.0143 U	
Nb-94										
Nb-95	0.01978 U		0.01774 U		0.0003615 U		0.03268 U		0.001213 U	
Np-239			0.6014 U							
Pb-212		0.8039		0.8273		0.6043		0.7529		0.5193
Pb-214		0.4266		0.4371		0.3585		0.501		0.3731
Ra-226		1.175		1.328		0.8278		1.559		
Ru-103	0.00279 U		0.007272 U		0.001468 U		-0.007897 U		0.01943 U	
Ru-106		0.4051	0.08816 U		-0.03629 U		0.1041 U		0.01814 U	
Sb-124	0 U		0.007914 U			0.03145	-0.01972 U		0.01619 U	
Sb-125										
Se-75										
Sn-113										
Tl-202										
Tl-208		0.6728		0.7773		0.544		0.8472		0.5483
Y-88										
Zn-65	0.06514 U		0.005085 U		-0.1146 U		0.04999 U		-0.009105 U	
Zr-95	0.03529 U		0.01782 U		-0.003776 U		0.01552 U		0.008826 U	
SOF		0.006								0.002

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TB001.14 (3126)		TB001.16 (3127)		TB001.16 (3127)		TB001.18 (3128)		TB001.18 (3128)	
Sample ID	TB001.15		TB001.16		TB001.17		TB001.18		TB001.19	
Date Sampled	3/10/1998		3/10/1998		3/11/1998		3/11/1998		3/11/1998	
Ac-228		0.8759		0.3122		0.8506		0.8903		0.7224
Ag-108m	0.007314 U		0.0002441 U		-0.01569 U		-0.01515 U		-0.01244 U	
Ag-110m	0.02233 U		-0.004701 U		-0.01906 U		-0.03157 U		0.002393 U	
Am-241	0 U		0 U		0 U		0 U		0 U	
Ba-133										
Ba-140										
Bi-212		0.7874				0.8814		0.6186	0.3494 U	
Bi-214		0.3049		0.1581		0.3765		0.4518		0.2916
Ce-141										
Ce-144	-0.09412 U		-0.03567 U		0.03146 U		0.0187 U		0.1305 U	
Co-58	-0.004 U		-0.001785 U		-0.00193 U		0.01581 U		0.005199 U	
Co-60	0.01179 U		0.01116 U		0.01242 U		-0.01255 U		0.008972 U	
Cr-51										
Cs-134	-0.004974 U		0.003767 U		-0.008034 U		-0.1352 U		0.02567 U	
Cs-136										
Cs-137	-0.02441 U		-0.01386 U		0.00643 U		0.006358 U		-0.01412 U	
Eu-152										
Fe-59	0 U		0.0173 U		-0.01427 U		-0.02072 U		-0.04171 U	
I-131										
I-132										
K-40		10.99		4.778		12.89		14.97		9.285
Kr-85										
La-140										
Mn-54	0.00455 U		0.0007837 U		0.009581 U		0.0006471 U		0.0003316 U	
Nb-94										
Nb-95	0.007426 U		0.006869 U		0.01474 U		0.009869 U		-0.0002001 U	
Np-239										
Pb-212		0.79		0.299		0.8523		0.7324		0.6093
Pb-214		0.4098		0.2123		0.513		0.4436		0.4437
Ra-226	0.6765 U		0.415 U						0.6896 U	
Ru-103	-0.006158 U		0.00312 U		-0.004966 U		-0.022 U		0.005976 U	
Ru-106	0.1888 U		0.03835 U		0.1099 U		0.05278 U		0.01713 U	
Sb-124	0.009057 U		0.003447 U		0.0252 U		0.02467 U		0 U	
Sb-125										
Se-75										
Sn-113										
Tl-202										
Tl-208		0.7505				0.8386		0.7534		0.4683
Y-88										
Zn-65	-0.0262 U		0.02965 U		-0.04278 U		0.08039 U		-0.02598 U	
Zr-95	0.03291 U		-0.00477 U		-0.01646 U		0.03064 U		0 U	
SOF										

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TB001.18 (3128)	TB001.1 (3123)	TB001.20 (3130)	TB001.20 (3130)	TB001.23 (3131)
Sample ID	TB001.199	TB001.1A	TB001.20	TB001.21	TB001.23A
Date Sampled	3/11/1998	1/28/1998	3/12/1998	3/12/1998	8/13/1998
Ac-228	0.6801	0.859	0.7493	0.787	0.8846
Ag-108m	-0.01514 U	0.01241 U	-0.01187 U	0.006994 U	0.001944 U
Ag-110m	0.008866 U	0.02082 U	0.02378 U	0.01484 U	-0.01284 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Ba-140					
Bi-212	0.9534	12.63 U	0.6926	0.8143	0.9406
Bi-214	0.3249		0.3972	0.3669	0.4581
Ce-141					
Ce-144	-0.006102 U	-0.0157 U	0.003114 U	-0.03321 U	0.05799 U
Co-58	-0.008992 U	-0.001234 U	0 U	-0.02508 U	-0.02333 U
Co-60	-0.01804 U	-0.01251 U	-0.02766 U	-0.0122 U	0.02181 U
Cr-51					
Cs-134	0.001473 U	-0.007337 U	-0.02153 U	0.009256 U	0.03623 U
Cs-136					
Cs-137	-0.02095 U	0.01351 U	-0.03181 U	0 U	-0.01799 U
Eu-152					
Fe-59	-0.02241 U	0.02996 U	0.05977	0.0002229 U	-0.01507 U
I-131					
I-132					
K-40	9.064	0.1312 U	13.47	15.96	15.82
Kr-85					
La-140					
Mn-54	-0.001098 U	0.004827 U	0.009916 U	0.005346 U	0.002803 U
Nb-94					
Nb-95	0.0159 U	-0.003223 U	0.001219 U	0.01169 U	0.01748 U
Np-239	-0.3336 U			-0.318 U	
Pb-212	0.6134	0.811	0.9416	0.7693	0.8785
Pb-214	0.4055	0.5689	0.446	0.4202	0.5177
Ra-226			1.227		0.9923
Ru-103	-0.004549 U	-0.006255 U	-0.01259 U	0.01596 U	-0.001131 U
Ru-106	-0.03444 U	0.01783 U	0.1407 U	-0.02791 U	-0.1455 U
Sb-124	0.01858 U	0.02496 U	0.02404 U	-0.005611 U	0.02671 U
Sb-125					
Se-75					
Sn-113					
Tl-202					
Tl-208	0.5199	0.83	0.7582	0.7909	0.8601
Y-88					
Zn-65	-0.03521 U	0 U	0.01628 U	-0.06904 U	-0.1469 U
Zr-95	0.0009521 U	0.001728 U	0.01595 U	0.01429 U	0.0398 U
SOF					

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TB001.23 (3131)		TB001.24 (3132)		TB001.25 (3133)		TB001.25 (3133)		TB001.26 (3134)	
Sample ID	TB001.23B		TB001.24A		TB001.25A		TB001.25B		TB001.26B	
Date Sampled	8/13/1998		8/12/1998		8/13/1998		8/13/1998		8/13/1998	
Ac-228		1.089		0.792		0.735		0.9504		0.6286
Ag-108m	0.002577 U		-0.00788 U		-0.003188 U		-0.01593 U		-0.02081 U	
Ag-110m	0.01699 U		0.01396 U		-0.006769 U		0.02718 U		-0.0286 U	
Am-241	0 U		0 U		0 U		0 U		0 U	
Ba-133										
Ba-140										
Bi-212		0.7284		0.7378				0.9867		0.5906
Bi-214		0.544		0.4522		0.5224		0.4321		0.4402
Ce-141										
Ce-144	0.09416 U		0.09341 U		0.04368 U		-0.04292 U		-0.0368 U	
Co-58	0.00393 U		-0.02405 U		-0.02692 U		0.02378 U		0.005409 U	
Co-60	-0.01659 U		-0.0007894 U		0.0000842 U		0.02398 U		0.003724 U	
Cr-51										
Cs-134	-0.01196 U		-0.07094 U		0.02585 U		0.0132 U		0.04761 U	
Cs-136										
Cs-137	0.01847 U		0.01017 U			0.1692	0.002719 U		0.00257 U	
Eu-152										
Fe-59	0.005816 U		0.004613 U		0.01177 U		-0.006976 U		-0.03433 U	
I-131										
I-132										
K-40		16.85		16.88		14.75		14.81		16.36
Kr-85										
La-140										
Mn-54	-0.01966 U		0.02341 U		-0.006584 U		-0.02321 U		0.009499 U	
Nb-94										
Nb-95	0.006675 U		0.01623 U		0.02054 U		0.01729 U		-0.007146 U	
Np-239										
Pb-212		0.9643		0.7125		0.8899		0.8784		0.7759
Pb-214		0.5556		0.5062		0.4593		0.405		0.4397
Ra-226		1.121	0.6841 U			1.218		1.571		2.066
Ru-103	0.02291 U		0.01056 U		0.008402 U		0.00555 U			0.02669
Ru-106	-0.08682 U		0.02288 U		0.2631 U		0.1578 U		0.1159 U	
Sb-124	-0.005812 U		0.01079 U		-0.05175 U		0.000805 U		-0.009525 U	
Sb-125										
Se-75										
Sn-113										
Tl-202									0.02146 U	
Tl-208		0.8054		0.7409		0.6393		0.8415		0.6538
Y-88										
Zn-65	-0.1347 U		-0.0413 U		-0.002597 U		-0.1083 U		-0.01934 U	
Zr-95	0.005364 U		0.04018 U		0.03482 U			0.05572	0.02609 U	
SOF						0.014				

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)
Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TB001.27 (3135)		TB001.27 (3135)		TB001.27 (3135)		TB001.28 (3136)		TB001.29 (3137)	
Sample ID	TB001.27A		TB001.27B		TB001.27C		TB001.28		TB001.29	
Date Sampled	8/17/1998		8/17/1998		8/17/1998		5/3/1999		5/4/1999	
Ac-228		0.6856		1.031		0.9745		0.6804		0.9507
Ag-108m	0.03345 U		-0.003498 U		0.006869 U		0.01094 U		-0.03895 U	
Ag-110m	0.006467 U		-0.01939 U		0.005772 U		-0.02716 U		0.02313 U	
Am-241	0 U		0 U		0 U		0 U		0 U	
Ba-133										
Ba-140										
Bi-212				1.117		0.7145		0.5956		0.5741
Bi-214		0.4532		0.5217		0.6596		0.4924		0.4407
Ce-141										
Ce-144	-0.05131 U		-0.05939 U		-0.2846 U		0.2653 U		0.04675 U	
Co-58	-0.03068 U		-0.003207 U		0.00149 U		-0.01918 U		0.00799 U	
Co-60		0.2003	-0.01064 U		-0.008563 U		-0.01073 U		-0.01448 U	
Cr-51										
Cs-134		0.1579	-0.005698 U		-0.1457 U		-0.04668 U		0.09086 U	
Cs-136										
Cs-137		4.295		0.0975	0.02926 U			10.18		11.3
Eu-152										
Fe-59	-0.03986 U		-0.01876 U		0.04863 U		-0.023 U		-0.03372 U	
I-131										
I-132										
K-40		15.67		17.12		18.58		16.23		16.27
Kr-85										
La-140										
Mn-54		0.04572	0.009922 U		0.01624 U		-0.007636 U		-0.01523 U	
Nb-94										
Nb-95	-0.009832 U			0.0645	-0.0174 U		-0.0188 U			0.03287
Np-239										
Pb-212		0.7807		0.8655		0.8126		0.8136		0.9067
Pb-214		0.4323		0.6346		0.6236		0.4949		0.4771
Ra-226		2.844				2.263				
Ru-103	-0.01449 U		0.01046 U		-0.02803 U		0.0084 U		-0.05644 U	
Ru-106	0.0632 U		-0.02312 U		0.2452 U		0.02148 U		0.03157 U	
Sb-124	-0.006812 U		0.03839 U		0.05429 U		0.01954 U		0.02797 U	
Sb-125										
Se-75										
Sn-113					1.042 U					
Tl-202										
Tl-208		0.74		0.7086		0.8164		0.8019		0.6366
Y-88										
Zn-65	-0.2792 U		-0.05704 U		-0.1201 U		0.03237 U		0.008341 U	
Zr-95	0.009601 U		0.05725 U		0.05954 U		-0.04067 U			0.06006
SOF		0.418		0.008				0.832		0.923

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TB001.2 (3129)	TB001.3 (3138)	TB001.31 (3139)	TB001.33 (3140)	TB001.35 (3141)
Sample ID	TB001.2A	TB001.3	TB001.31	TB001.33	TB001.35
Date Sampled	1/28/1998	5/4/1999	5/4/1999	5/4/1999	5/11/1999
Ac-228	0.7552	0.778	0.8154	0.9433	0.675
Ag-108m	0.002859 U	-0.0007865 U	-0.0221 U	0.008861 U	-0.01451 U
Ag-110m	-0.0007583 U	0.01672 U	-0.00865 U	0.00748 U	-0.01611 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Ba-140					
Bi-212	0.4266 U	0.5282	0.6797	0.6311	1.254
Bi-214	0.3797	0.4693	0.4726	0.4217	0.4727
Ce-141					
Ce-144	-0.1347 U	-0.03524 U	0.1132 U	-0.03753 U	-0.004756 U
Co-58	0.008297 U	-0.002298 U	0.01698 U	0.0006861 U	0.01223 U
Co-60	-0.00408 U	-0.01655 U	-0.008207 U	0.0194 U	-0.01234 U
Cr-51					
Cs-134	-0.02367 U	-0.04601 U	-0.05275 U	-0.06305 U	0.02323 U
Cs-136					
Cs-137	-0.01867 U	0.7626	0.01222 U	0.07033	0.01296 U
Eu-152					
Fe-59	-0.0184 U	-0.005119 U	0.0001523 U	-0.02039 U	-0.04604 U
I-131					
I-132					
K-40	0.7857	15.76	16.73	17.38	15.18
Kr-85					
La-140					
Mn-54	0.002436 U	0.03159 U	0.02263 U	0.03671	0.01896 U
Nb-94					
Nb-95	-0.03207 U	0.006773 U	0.02957 U	-0.005356 U	-0.002477 U
Np-239					-0.1461 U
Pb-212	0.6608	0.8265	0.8179	0.8162	0.8185
Pb-214	0.4388	0.5019	0.5287	0.4769	0.3926
Ra-226	0.887	1.254	0.8948 U	1.076	0.8318 U
Ru-103	0.01409 U	0.002014 U	0.0004669 U	-0.002487 U	0.006808 U
Ru-106	-0.1376 U	-0.05684 U	-0.01503 U	0.147 U	0.1719 U
Sb-124	-0.01932 U	-0.02143 U	0 U	0.002032 U	-0.02819 U
Sb-125					
Se-75					
Sn-113					
Tl-202					
Tl-208	0.5862	0.7885	0.6811	0.7975	0.7401
Y-88					
Zn-65	-0.02874 U	-0.04802 U	-0.008134 U	0.05519 U	-0.07894 U
Zr-95	-0.01062 U	0.03178 U	0.04159 U	0.04764 U	0.009733 U
SOF		0.062		0.007	

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TB001.3 (3138)	TB001.4 (3142)	TB001.4 (3142)	TB001.6 (3143)	TB001.6 (3143)
Sample ID	TB001.3A	TB001.4	TB001.5	TB001.6	TB001.7
Date Sampled	1/29/1998	3/5/1998	3/5/1998	3/5/1998	3/5/1998
Ac-228	0.5406	0.8955	0.9148	0.6848	0.8396
Ag-108m	-0.01073 U	-0.00908 U	0.005003 U	-0.01189 U	-0.01346 U
Ag-110m	-0.008436 U	0.01077 U	-0.0154 U	0.01186 U	-0.02279 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Ba-140					
Bi-212	0.6688	0.3265 U	0.6464	0.6747	0.7517
Bi-214	0.5542	0.5066	0.5216	0.3956	0.4063
Ce-141					
Ce-144	-0.2439 U	0.09456 U	-0.09464 U	0.001843 U	-0.002607 U
Co-58	-0.01108 U	-0.01637 U	0.02187 U	0.006781 U	-0.009736 U
Co-60	0.01242 U	-0.01743 U	-0.0303 U	-0.001455 U	-0.0028 U
Cr-51					
Cs-134	0.03261 U	-0.09678 U	-0.05972 U	-0.04679 U	-0.05231 U
Cs-136					
Cs-137	0.01616 U	-0.004908 U	0.004647 U	-0.01665 U	-0.004902 U
Eu-152					
Fe-59	-0.01664 U	0.01089 U	0.01031 U	0.03343 U	-0.01579 U
I-131					
I-132					
K-40	10.49	13.94	14.48	16.57	15.07
Kr-85					
La-140					
Mn-54	-0.01079 U	-0.00374 U	-0.01818 U	0.02015 U	0.02092 U
Nb-94					
Nb-95	0.01162 U	-0.01812 U	-0.004345 U	-0.03261 U	-0.006421 U
Np-239					
Pb-212	0.6555	0.631	0.8074	0.6864	0.9064
Pb-214	0.4664	0.4416	0.4875	0.4557	0.4392
Ra-226	0.7157 U		1.118		0.8869 U
Ru-103	-0.01301 U	-0.00815 U	-0.002153 U	-0.0009693 U	0.006958 U
Ru-106	-0.1148 U	0.08137 U	0.01926 U	0.06244 U	0.1374 U
Sb-124	-0.003584 U	0.02106 U	0.0189 U	0.01894 U	0.01788 U
Sb-125					
Se-75					
Sn-113					
Tl-202					
Tl-208	0.5784	0.6966	0.7036	0.6863	0.8426
Y-88					
Zn-65	-0.05785 U	0.1496 U	0.08427 U	0.07289 U	0.06947 U
Zr-95	0.03082 U	0.02726 U	0.02973 U	-0.007283 U	0.005441 U
SOF					

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TB001.8 (3144)	TB001.8 (3144)	TS99.02 (3305)	TS99.02 (3305)	TS99.02 (3305)
Sample ID	TB001.8	TB001.9	TS99.02A	TS99.02B	TS99.02C
Date Sampled	3/5/1998	3/5/1998	4/1/1999	4/1/1999	4/1/1999
Ac-228	0.6398	0.7675	0.7422	0.9171	0.8865
Ag-108m	-0.02068 U	-0.004355 U	0.01268 U	-0.01951 U	-0.005294 U
Ag-110m	-0.02305 U	0.03078 U	-0.005418 U	0.004821 U	0.00172 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Ba-140					
Bi-212	0.6976	0.798	1.445	0.9874	0.5795
Bi-214	0.3744	0.4199	0.5083	0.5705	0.5307
Ce-141					
Ce-144	-0.08672 U	0.1381 U	-0.1968 U	0.03521 U	-0.05174 U
Co-58	-0.004623 U	-0.01501 U	-0.01385 U	0.01859 U	-0.001696 U
Co-60	-0.003198 U	-0.002966 U	0.01054 U	0.004057 U	0.02421 U
Cr-51					
Cs-134	-0.008334 U	-0.08663 U	0.01605 U	-0.1814 U	0.006853 U
Cs-136					
Cs-137	-0.003041 U	0.004381 U	0.01389 U	0.01678 U	-0.008383 U
Eu-152					
Fe-59	-0.006856 U	0.009784 U	-0.0129 U	-0.000000006284 U	0.06707
I-131					
I-132					
K-40	14.21	14.7	17.31	15.31	15.71
Kr-85					
La-140					
Mn-54	-0.009051 U	0.003777 U	0.02626 U	0.01318 U	0.04279
Nb-94					
Nb-95	-0.01795 U	0.01913 U	-0.01224 U	-0.005703 U	0.01139 U
Np-239		0.3123 U			
Pb-212	0.6987	0.8582	0.9319	0.9233	0.8205
Pb-214	0.3124	0.5173	0.5763	0.6091	0.4973
Ra-226	0.8178 U	1.747	1.488	0.7781 U	
Ru-103	0.03355	-0.01599 U	-0.02323 U	-0.002542 U	0.01648 U
Ru-106	0.03686 U	-0.01709 U	0.05227 U	0.1167 U	0.1122 U
Sb-124	0.02027 U	-0.01534 U	0 U	-0.03372 U	0.03206 U
Sb-125					
Se-75					
Sn-113					
Tl-202					
Tl-208	0.6613	0.7965	0.6738	0.9343	0.7287
Y-88					
Zn-65	-0.08874 U	0.141 U	0.07141 U	-0.04694 U	-0.05109 U
Zr-95	0.07411	-0.0002557 U	0.0622 U	0.0587 U	0.02766 U
SOF					0.002

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TS99.07 (3306)	TS99.07 (3306)	TS99.08 (3307)	TS99.08 (3307)	TS99.09 (3308)
Sample ID	TS99.07A	TS99.07B	TS99.08A	TS99.08B	TS99.09A
Date Sampled	4/7/1999	4/8/1999	4/8/1999	4/8/1999	4/8/1999
Ac-228	0.7459	0.8615	0.8245	0.8862	0.7413
Ag-108m	-0.01656 U	-0.0007065 U	-0.03572 U	-0.006612 U	0.0145 U
Ag-110m	-0.03461 U	-0.004998 U	-0.01296 U	0.04782	0.0009566 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Ba-140					
Bi-212	1.225	0.9419	0.776	0.8645	1.211
Bi-214	0.4542	0.6079	0.5861	0.6057	0.5232
Ce-141					
Ce-144	-0.1085 U	0.02709 U	0.04568 U	0.01846 U	-0.03074 U
Co-58	-0.003787 U	0.006573 U	-0.002307 U	0.02726 U	-0.01731 U
Co-60	-0.02936 U	-0.01981 U	-0.01156 U	-0.02672 U	0.008303 U
Cr-51					
Cs-134	0.0401	-0.02907 U	-0.009425 U	-0.02349 U	-0.1054 U
Cs-136					
Cs-137	0.01157 U	-0.03828 U	-0.02658 U	-0.0283 U	-0.03472 U
Eu-152	1.013 U	0.07504			
Fe-59	-0.01297 U	0.04291 U	-0.04153 U	-0.01764 U	-0.04725 U
I-131					
I-132			6.784 U		
K-40	17.36	16.45	17.34	18.27	18.33
Kr-85					
La-140					
Mn-54	-0.007654 U	-0.0464 U	-0.002972 U	-0.01228 U	-0.01818 U
Nb-94					
Nb-95	0.03051 U	0.01028 U	0.0112 U	-0.02234 U	0.01406 U
Np-239		0.1597 U		-0.2362 U	
Pb-212	0.9324	0.8237	0.9118	0.9051	0.9129
Pb-214	0.632	0.6844	0.6874	0.6244	0.5478
Ra-226	0.9969 U	0.9654 U	1.423		0.9562 U
Ru-103	0.004973 U	-0.01352 U	-0.01385 U	-0.009412 U	0.006867 U
Ru-106	-0.1201 U	-0.0544 U	-0.05387 U	-0.02274 U	0.09556 U
Sb-124	-0.06339 U	-0.007284 U	0.02894 U	0.008228 U	0.01262 U
Sb-125		-0.1132 U			
Se-75					
Sn-113					
Tl-202					
Tl-208	0.7566	0.8128	0.6876	0.9139	0.6367
Y-88					
Zn-65	0.008144 U	-0.1212 U	0.01789 U	0.02548 U	0.07564 U
Zr-95	0.03133 U	0.01097 U	0.0386 U	0.008136 U	-0.02089 U
SOF	0.006	0.006			

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TS99.09 (3308)	TS99.09 (3308)	TS99.10 (3309)	TS99.10 (3309)	TS99.10 (3309)
Sample ID	TS99.09B	TS99.09C	TS99.10A	TS99.10B	TS99.10C
Date Sampled	4/8/1999	4/8/1999	4/19/1999	4/19/1999	4/19/1999
Ac-228	0.7808	0.7679	0.7396	0.7716	0.5574
Ag-108m	0.003746 U	-0.005347 U	0.003099 U	0.004183 U	0.00638 U
Ag-110m	-0.01005 U	-0.01205 U	0.04911	0.0271 U	0.007292 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Ba-140					
Bi-212	0.9166		1.031	1.113	0.384 U
Bi-214	0.4695	0.4184	0.4069	0.4164	0.3589
Ce-141					
Ce-144	-0.07197 U	-0.06376 U	-0.04361 U	0.02533 U	0.02136 U
Co-58	-0.02175 U	-0.004692 U	-0.005038 U	-0.008184 U	0.03337
Co-60	-0.004207 U	0.004094 U	0.01498 U	0.0177 U	-0.01027 U
Cr-51					
Cs-134	-0.02499 U	-0.04921 U	-0.07113 U	0.03988 U	0.006407 U
Cs-136					
Cs-137	0.0001547 U	0.03669 U	0.02091 U	0 U	-0.0296 U
Eu-152					
Fe-59	0.006841 U	0.01996 U	-0.02293 U	0.03136 U	-0.005879 U
I-131					
I-132					
K-40	18.49	16.89	17.38	15.93	16.11
Kr-85	9.921				
La-140					
Mn-54	-0.001783 U	0.0133 U	0.02467 U	0.03433	-0.01613 U
Nb-94					
Nb-95	0.001818 U	0.03319 U	0.01119 U	0.0105 U	-0.01392 U
Np-239					
Pb-212	0.7424	0.7439	0.4923	0.6842	0.5737
Pb-214	0.6694	0.5156	0.4176	0.4758	0.4945
Ra-226			1.436	1.805	
Ru-103	0.00048 U	0.01419 U	-0.006581 U	0.01365 U	-0.001131 U
Ru-106	-0.3147 U	-0.1178 U	0.1071 U	0.1271 U	0.1097 U
Sb-124	0.02639 U	-0.006548 U	0.01032 U	0.005673 U	-0.007637 U
Sb-125					
Se-75					
Sn-113					
Tl-202					
Tl-208	0.7074	0.5989	0.5689	0.7583	0.6224
Y-88					
Zn-65	0.01947 U	-0.01947 U	0.001663 U	-0.1675 U	0.02993 U
Zr-95	-0.0315 U	0.02813 U	0.02953 U	0.01658 U	0.009488 U
SOF				0.002	

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TS99.11 (3310)	TS99.11 (3310)	TS99.11 (3310)	TS99.12 (3311)	TS99.12 (3311)
Sample ID	TS99.11A	TS99.11B	TS99.11C	TS99.12A	TS99.12B
Date Sampled	4/19/1999	4/19/1999	4/19/1999	4/19/1999	4/19/1999
Ac-228	0.93	1.131	0.981	0.8999	0.7974
Ag-108m	-0.006647 U	0.00755 U	-0.007248 U	-0.02183 U	-0.01315 U
Ag-110m	0.0148 U	0.0128 U	-0.02005 U	0.01321 U	-0.002996 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133	0.03212 U				
Ba-140					
Bi-212	1.089	1.216	0.9788	1.309	1.187
Bi-214	0.6757	0.5322	0.5247	0.5015	0.3514
Ce-141					
Ce-144	0.1246 U	-0.02555 U	-0.04752 U	0.03672 U	-0.1573 U
Co-58	-0.03244 U	0.006452 U	0.006713 U	-0.02444 U	-0.01182 U
Co-60	-0.01997 U	-0.01121 U	-0.01173 U	0.01463 U	-0.01513 U
Cr-51					
Cs-134	-0.07354 U	-0.0514 U	-0.1589 U	-0.02823 U	-0.1374 U
Cs-136					
Cs-137	0.002572 U	-0.03941 U	0.01888 U	-0.0132 U	-0.009916 U
Eu-152					
Fe-59	0.04001 U	0.02292 U	-0.04837 U	-0.005914 U	0.01005 U
I-131					
I-132					
K-40	17.61	19.94	18.07	14.46	13.46
Kr-85					
La-140					
Mn-54	0.004966 U	0.01703 U	-0.006579 U	0.001343 U	0.02342 U
Nb-94					
Nb-95	0.01334 U	-0.006905 U	0.03454 U	0.01684 U	0.006875 U
Np-239	-0.4582 U			0.1262 U	
Pb-212	1.044	1.025	1.071	0.8766	0.7861
Pb-214	0.5729	0.4941	0.5417	0.6013	0.4816
Ra-226	1.376	1.711	1.53		1.616
Ru-103	-0.01195 U	-0.02492 U	0.006677 U	0.02369 U	0.01707 U
Ru-106	0.1279 U	0.0855 U	0.00342 U	-0.03067 U	-0.08082 U
Sb-124	-0.01828 U	-0.01832 U	0.00719 U	-0.002359 U	0.009764 U
Sb-125			0.2607		
Se-75				0.06131 U	
Sn-113					
Tl-202					
Tl-208	1.077	0.9693	0.8845	0.8519	0.8097
Y-88					
Zn-65	-0.122 U	-0.1271 U	0.06829 U	-0.09236 U	-0.03657 U
Zr-95	-0.01558 U	0.04804 U	0.03229 U	0.01496 U	-0.00344 U
SOF			0.007		

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TS99.12 (3311)	TS99.13 (3312)	TS99.14 (3313)	TS99.14 (3313)	TS99.14 (3313)
Sample ID	TS99.12C	TS99.13A	TS99.14A	TS99.14B	TS99.14C
Date Sampled	4/20/1999	4/20/1999	4/22/1999	4/26/1999	4/27/1999
Ac-228	0.9516	0.7541	0.774	0.8856	0.833
Ag-108m	-0.004279 U	-0.007813 U	0.001828 U	-0.01421 U	0.01015 U
Ag-110m	0.01311 U	-0.005738 U	-0.02612 U	-0.003471 U	0.03071 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Ba-140					
Bi-212	0.507	0.4011 U	0.5775	0.4472 U	
Bi-214	0.5065	0.5598	0.4225	0.443	0.5143
Ce-141					
Ce-144	0.08203 U	-0.1423 U	0.06678 U	0.09302 U	0.1789 U
Co-58	-0.009658 U	-0.01715 U	0.001357 U	0.001718 U	0.002467 U
Co-60	0.003688 U	-0.05608 U	0.003849 U	0.008244 U	0 U
Cr-51					
Cs-134	-0.01835 U	-0.1086 U	-0.01688 U	-0.1235 U	0.03604 U
Cs-136					
Cs-137	0.006047 U	0.01658 U	-0.01857 U	-0.01706 U	-0.02581 U
Eu-152	0.4449 U				
Fe-59	-0.02448 U	-0.03728 U	-0.0374 U	0 U	-0.02982 U
I-131					
I-132					1.447
K-40	17.77	15.66	13.56	15.41	18.83
Kr-85					
La-140					
Mn-54	0.003365 U	0.02166 U	-0.00163 U	-0.03646 U	0.003897 U
Nb-94					
Nb-95	-0.0192 U	0.008049 U	0.03324 U	0.01403 U	0.03298 U
Np-239		-0.3019 U			
Pb-212	0.9509	0.7823	0.7592	0.8598	0.911
Pb-214	0.5227	0.506	0.5082	0.5708	0.4166
Ra-226	0.885 U	1.401	1.149		1.436
Ru-103	-0.003808 U	0.0327	-0.001748 U	-0.003776 U	-0.006349 U
Ru-106	0.02288 U	-0.06883 U	-0.02214 U	0.0708 U	0.06911 U
Sb-124	-0.002448 U	0.03368 U	0.05894	-0.01398 U	-0.008511 U
Sb-125		-0.05709 U			
Se-75					
Sn-113					
Tl-202					
Tl-208	1.08	0.7916	0.6114	0.7479	0.7286
Y-88					
Zn-65	0.01951 U	0.04394 U	0.008155 U	-0.01029 U	-0.05468 U
Zr-95	-0.03591 U	0.02855 U	0.0537 U	0.04007 U	-0.003741 U
SOF					

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TS99.15 (3314)	TS99.15 (3314)	TS99.15 (3314)	TS99.16 (3315)	TS99.16 (3315)
Sample ID	TS99.15A	TS99.15B	TS99.15C	TS99.16A	TS99.16B
Date Sampled	4/27/1999	4/27/1999	4/27/1999	4/27/1999	4/27/1999
Ac-228	0.9722	0.9014	0.8578	1.014	0.8494
Ag-108m	-0.01119 U	0.004243 U	0.009166 U	0.01434 U	-0.01478 U
Ag-110m	-0.03258 U	0.02255 U	-0.02871 U	0.01866 U	-0.01005 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133	-0.02221 U				
Ba-140					
Bi-212	0.9404	0.8276	0.7204	0.7958	0.6919
Bi-214	0.4608	0.5035	0.5164	0.5737	0.5318
Ce-141					
Ce-144	0.07918 U	0.08939 U	-0.009937 U	-0.1375 U	0.1172 U
Co-58	-0.02932 U	-0.009195 U	-0.03042 U	-0.03246 U	-0.0005492 U
Co-60	0.01158 U	0.0119 U	-0.02354 U	-0.02374 U	-0.01912 U
Cr-51	0.2559 U				
Cs-134	-0.0127 U	-0.00894 U	-0.1005 U	-0.02655 U	-0.1758 U
Cs-136	0.2064 U				
Cs-137	-0.01066 U	-0.008989 U	-0.002482 U	-0.008189 U	-0.0109 U
Eu-152					
Fe-59	-0.06984 U	-0.01216 U	0.007269 U	0.04905 U	-0.04284 U
I-131					
I-132					
K-40	17.96	16.82	17.7	17.17	18.09
Kr-85					4.902
La-140					
Mn-54	-0.02544 U	0.004171 U	-0.003301 U	0.001389 U	0.0305 U
Nb-94					
Nb-95	0.02291 U	0.02459 U	0.02227 U	0.0155 U	-0.01982 U
Np-239			0.2171 U		
Pb-212	0.8348	0.8682	0.9063	0.856	0.8503
Pb-214	0.5059	0.5852	0.5686	0.6723	0.5006
Ra-226	1.453	0.9663 U	0.9852 U		1.057
Ru-103	0.0004445 U	0.01206 U	-0.01361 U	0.01453 U	-0.01133 U
Ru-106	0.1767 U	0.0825 U	0.08978 U	0.02719 U	0.2725
Sb-124	0.00946 U	-0.009113 U	0.02365 U	0.01222 U	-0.008539 U
Sb-125		-0.111 U			
Se-75					
Sn-113					
Tl-202					
Tl-208	1.056	0.7994	0.6972	0.8608	0.8848
Y-88					
Zn-65	-0.03116 U	-0.04339 U	-0.006756 U	-0.08186 U	0.1571 U
Zr-95	0.05184 U	-0.02149 U	0.02034 U	-0.04321 U	-0.001765 U
SOF					0.004

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TS99.16 (3315)	TS99.17 (3316)	TS99.17 (3316)	TS99.17 (3316)	TS99.18 (3317)
Sample ID	TS99.16C	TS99.17A	TS99.17B	TS99.17C	TS99.18A
Date Sampled	4/27/1999	4/27/1999	4/27/1999	4/27/1999	4/27/1999
Ac-228	0.7593	0.8493	0.842	0.7683	0.7959
Ag-108m	-0.008612 U	-0.01104 U	0.004121 U	-0.01893 U	-0.007541 U
Ag-110m	-0.04037 U	-0.02102 U	-0.01581 U	0.01842 U	-0.02413 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133				-0.06773 U	
Ba-140					
Bi-212	1.16		0.6808	0.5385	
Bi-214	0.4067	0.5394	0.5264	0.5116	0.5093
Ce-141					
Ce-144	0.1215 U	-0.04184 U	-0.1687 U	0.1074 U	0.04025 U
Co-58	-0.0178 U	0.02744 U	-0.02528 U	-0.0278 U	-0.001347 U
Co-60	0.01097 U	-0.04023 U	-0.008159 U	-0.004033 U	-0.01548 U
Cr-51					
Cs-134	-0.02962 U	-0.07194 U	-0.05784 U	-0.04822 U	-0.01444 U
Cs-136		0.5687			
Cs-137	0 U	0.02446 U	0.002815 U	0 U	0 U
Eu-152					
Fe-59	0.00677 U	0.04626 U	-0.005567 U	0.006264 U	-0.05951 U
I-131			0.04122 U		
I-132					
K-40	15.95	17.58	17.54	16.65	17.07
Kr-85					
La-140					
Mn-54	-0.01592 U	0.01582 U	0.03553 U	-0.007486 U	-0.00462 U
Nb-94					
Nb-95	0.02154 U	0.006445 U	0.02494 U	-0.008606 U	0.02753 U
Np-239					
Pb-212	0.6663	0.8237	0.9875	0.9669	0.7723
Pb-214	0.4641	0.5227	0.4905	0.5867	0.616
Ra-226		1.408	1.671	2.073	1.124
Ru-103	0.002173 U	0.003918 U	0.02849 U	0.02944	-0.007543 U
Ru-106	-0.176 U	0.1613 U	-0.02337 U	-0.06931 U	0.1995 U
Sb-124	0.00113 U	0.001866 U	0.001262 U	0.03057 U	-0.01556 U
Sb-125					
Se-75					
Sn-113					
Tl-202					
Tl-208	0.5873	0.8013	0.7678	0.9891	0.786
Y-88					
Zn-65	-0.04876 U	0.01988 U	-0.1328 U	0.1094 U	0.1335 U
Zr-95	-0.04473 U	-0.02414 U	0.02716 U	-0.01247 U	0.05453 U
SOF					

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TS99.18 (3317)	TS99.19 (3318)	TS99.19 (3318)	TS99.19 (3318)	TS99.20 (3319)
Sample ID	TS99.18B	TS99.19A	TS99.19B	TS99.19C	TS99.20A
Date Sampled	4/27/1999	4/27/1999	4/27/1999	4/27/1999	4/28/1999
Ac-228	0.9745	0.9112	0.8171	0.7015	0.9184
Ag-108m	0.01392 U	0.0004868 U	-0.009815 U	0.005119 U	0.0007164 U
Ag-110m	-0.02049 U	-0.03073 U	-0.03284 U	0.01461 U	0.0003387 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133		-0.04861 U			
Ba-140					
Bi-212	0.9027	65.52	0.6715	0.5775 U	1.006
Bi-214	0.4561	0.5954	0.444	0.4745	0.5249
Ce-141					
Ce-144	0.184 U	0.09043 U	-0.02149 U	-0.1429 U	-0.1662 U
Co-58	0.01084 U	-0.001141 U	0.01711 U	-0.01335 U	-0.01512 U
Co-60	0.00835 U	-0.03687 U	0.02118 U	0.008654 U	-0.01206 U
Cr-51					
Cs-134	0.0584 U	-0.06164 U	-0.2605 U	-0.01705 U	-0.02122 U
Cs-136					
Cs-137	-0.03299 U	-0.01978 U	-0.002922 U	-0.01367 U	-0.02912 U
Eu-152					
Fe-59	-0.02477 U	0.01459 U	0.04605 U	-0.02436 U	-0.01249 U
I-131		0.01456 U			
I-132					
K-40	17.14	16.13	16.43	16.25	14.3
Kr-85				2.803 U	0.2984 U
La-140					
Mn-54	-0.01036 U	0.01755 U	-0.005355 U	-0.005337 U	-0.004517 U
Nb-94					
Nb-95	0.03131 U	0.01063 U	0.02956 U	-0.03388 U	-0.006476 U
Np-239	-0.5138 U				
Pb-212	0.8467	0.8495	0.8301	0.7886	0.8168
Pb-214	0.4175	0.5834	0.5091	0.4688	0.5728
Ra-226		0.7937 U	1.451		
Ru-103	-0.002375 U	0.00451 U	0.02867	0.002373 U	0.01154 U
Ru-106	0.09132 U	0.04693 U	0.09705 U	-0.07982 U	-0.03881 U
Sb-124	-0.0259 U	0 U	-0.02097 U	0 U	0.006841 U
Sb-125					
Se-75					
Sn-113					
Tl-202					
Tl-208	0.8508	0.7876		0.6869	0.6769
Y-88					
Zn-65	-0.09327 U	0.06273 U	0.06865 U	-0.07622 U	-0.006006 U
Zr-95	0.05601 U	0.06458	0.02619 U	-0.03267 U	0.00717 U
SOF					

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TS99.20 (3319)	TS99.20 (3319)	TS99.21 (3320)	TS99.21 (3320)	TS99.21 (3320)
Sample ID	TS99.20B	TS99.20C	TS99.21A	TS99.21B	TS99.21C
Date Sampled	4/28/1999	4/28/1999	4/28/1999	4/28/1999	4/28/1999
Ac-228	0.8755	0.9164	0.9454	0.9007	0.9333
Ag-108m	0.0226 U	-0.006829 U	-0.009065 U	0.00486 U	0.002567 U
Ag-110m	-0.01374 U	-0.003494 U	-0.01117 U	-0.01482 U	-0.03089 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Ba-140					
Bi-212		0.6283	1.005	0.4436 U	0.7393
Bi-214	0.5039	0.5374	0.5756	0.5902	0.4806
Ce-141					
Ce-144	0.07879 U	0.06738 U	0.002037 U	0.01972 U	0.1032 U
Co-58	0.03244 U	-0.01297 U	-0.03156 U	0.01481 U	-0.007576 U
Co-60	-0.007763 U	-0.03567 U	0.00803 U	0.008179 U	0.004027 U
Cr-51					
Cs-134	0.01092 U	0.006689 U	0.004517 U	0.009203 U	-0.01359 U
Cs-136					
Cs-137	0.04017	-0.01367 U	-0.03047 U	-0.03104 U	-0.01627 U
Eu-152					
Fe-59	0.0005027 U	0.01231 U	-0.03743 U	-0.04447 U	-0.02504 U
I-131					
I-132					
K-40	14.31	15.93	15.17	15.08	16.63
Kr-85	4.813 U	-4.081 U	-2.064 U		
La-140					
Mn-54	0.02181 U	0.01222 U	-0.00423 U	0.0339 U	0.03055 U
Nb-94					
Nb-95	-0.006478 U	-0.01436 U	-0.01891 U	0.01592 U	-0.02029 U
Np-239				-0.5165 U	-0.5587 U
Pb-212	0.69	0.7456	0.8445	0.942	0.931
Pb-214	0.6048	0.549	0.6161	0.4127	0.5572
Ra-226		1.27	0.8674 U	1.28	
Ru-103	-0.02944 U	0.02919	0.006741 U	0.008195 U	-0.01884 U
Ru-106	0.04447 U	0.1362 U	0.138 U	0.2811 U	-0.04522 U
Sb-124	-0.01081 U	0.02882 U	-0.007454 U	0.0715	0.0346 U
Sb-125				-0.1303 U	
Se-75					
Sn-113					
Tl-202					
Tl-208	0.7009	0.7665	0.8217	0.8775	0.8178
Y-88					
Zn-65	-0.1519 U	-0.08208 U	-0.07028 U	-0.05831 U	-0.03313 U
Zr-95	0.05402 U	-0.005656 U	0.04488 U	0.02174 U	0.06708
SOF	0.003				

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TS99.22 (3321)	TS99.22 (3321)	TS99.22 (3321)	TS99.23 (3322)	TS99.23 (3322)
Sample ID	TS99.22A	TS99.22B	TS99.22C	TS99.23A	TS99.23B
Date Sampled	4/28/1999	4/28/1999	4/28/1999	4/28/1999	4/28/1999
Ac-228	0.8148	0.841	0.8728	1.046	1.011
Ag-108m	-0.001111 U	0.0006497 U	0.009781 U	0.006314 U	0.01893 U
Ag-110m	-0.00126 U	-0.02014 U	-0.01248 U	0.001985 U	-0.0287 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Ba-140	0.07874 U				
Bi-212	1.248	0.6754	0.8852	0.9709	0.8925
Bi-214	0.4673	0.4715	0.4602	0.5427	0.4547
Ce-141					
Ce-144	0.1489 U	-0.1331 U	-0.04732 U	-0.1165 U	-0.06632 U
Co-58	-0.00468 U	-0.02585 U	-0.01068 U	0.006828 U	-0.02425 U
Co-60	-0.002885 U	-0.02112 U	-0.0003135 U	0.04319	0.003961 U
Cr-51					
Cs-134	-0.01052 U	0.01266 U	0.004115 U	-0.008834 U	0.002228 U
Cs-136					
Cs-137	0.00258 U	-0.01933 U	0.003161 U	-0.01845 U	0.01913 U
Eu-152	0.05679 U				0.2922 U
Fe-59	-0.06954 U	-0.03852 U	0 U	-0.06089 U	0.04915 U
I-131					
I-132					
K-40	15.03	16.74	15.33	16.84	15.68
Kr-85					
La-140					
Mn-54	0.01536 U	0.03045 U	-0.002055 U	0.02178 U	-0.01197 U
Nb-94					
Nb-95	-0.01451 U	-0.02682 U	-0.01983 U	-0.009466 U	-0.009233 U
Np-239					
Pb-212	0.9531	0.9521	0.862	1.097	0.9497
Pb-214	0.585	0.5496	0.4851	0.5608	0.5757
Ra-226	2.142	1.843	1.497	1.87	0.7665 U
Ru-103	-0.01535 U	-0.002952 U	0.003953 U	0.008701 U	-0.009422 U
Ru-106	0.06576 U	0.03713 U	0.0419 U	0.1799 U	0.04538 U
Sb-124	-0.008085 U	0.02223 U	0.0113 U	-0.02184 U	-0.07285 U
Sb-125		0.105 U			
Se-75					
Sn-113					
Tl-202					
Tl-208	0.8808	0.8367	0.8132	1.165	0.8955
Y-88					
Zn-65	0.1223 U	0.07755 U	0.02203 U	0.1351 U	-0.05307 U
Zr-95	0.05327	0.01788 U	0.01591 U	-0.004197 U	0.01929 U
SOF				0.009	

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TS99.23 (3322)	TS99.24 (3323)	TS99.24 (3323)	TS99.24 (3323)	TS99.25 (3324)
Sample ID	TS99.23C	TS99.24A	TS99.24B	TS99.24C	TS99.25A
Date Sampled	4/28/1999	4/29/1999	4/29/1999	4/29/1999	4/29/1999
Ac-228	0.915	0.811	0.8509	0.8341	0.4971
Ag-108m	0.01294 U	0.02558 U	-0.001113 U	-0.01515 U	0.01601 U
Ag-110m	-0.01012 U	0.01316 U	0.03295 U	0.0151 U	0.003419 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Ba-140					
Bi-212	0.5819	1.448	0.4999 U	0.7153	0.8389
Bi-214	0.4673	0.4847	0.4662	0.4686	0.4108
Ce-141					
Ce-144	-0.07638 U	0.116 U	-0.01532 U	-0.1984 U	0.108 U
Co-58	0.02388 U	-0.02704 U	0.009411 U	0.004992 U	0.002887 U
Co-60	0.003879 U	0.01154 U	-0.002785 U	-0.003867 U	-0.02818 U
Cr-51					
Cs-134	-0.07215 U	-0.04819 U	0.04507 U	-0.08573 U	0.05107 U
Cs-136					
Cs-137	-0.02139 U	-0.00282 U	-0.005074 U	-0.02932 U	-0.0111 U
Eu-152					
Fe-59	-0.0168 U	-0.006267 U	-0.02879 U	0.002422 U	-0.03934 U
I-131					
I-132					
K-40	11.83	15.18	12.53	13.5	10.26
Kr-85					
La-140					
Mn-54	0.01854 U	-0.02447 U	0.01086 U	0.01721 U	-0.02219 U
Nb-94					
Nb-95	-0.03975 U	0.02195 U	-0.01684 U	-0.01489 U	0.0002871 U
Np-239					
Pb-212	0.8332	0.823	0.8507	0.7785	0.5881
Pb-214	0.4387	0.5762	0.5424	0.5384	0.3966
Ra-226	1.41	1.094	1.297	0.8917 U	1.393
Ru-103	0.002017 U	0.007036 U	-0.012 U	0.003978 U	0.009663 U
Ru-106	-0.02235 U	0.2821	0.1079 U	0.1033 U	-0.06257 U
Sb-124	0.009699 U	0 U	0.007207 U	-0.0223 U	-0.02709 U
Sb-125					
Se-75					
Sn-113					
Tl-202					0.01681 U
Tl-208	0.704	0.6853	0.7011	0.8109	0.3389
Y-88					
Zn-65	-0.02003 U	0.1058 U	-0.08957 U	0.09884 U	-0.0385 U
Zr-95	0.01055 U	0.002364 U	-0.0281 U	-0.006176 U	-0.009398 U
SOF		0.004			

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TS99.25 (3324)	TS99.25 (3324)	TS99.26 (3325)	TS99.26 (3325)	TS99.26 (3325)
Sample ID	TS99.25B	TS99.25C	TS99.26A	TS99.26B	TS99.26C
Date Sampled	4/29/1999	4/29/1999	4/29/1999	4/29/1999	4/29/1999
Ac-228	0.7127	0.7959	0.6659	0.6593	0.654
Ag-108m	-0.0009218 U	-0.002082 U	-0.01288 U	0.005393 U	-0.008407 U
Ag-110m	-0.008572 U	-0.0192 U	0.002958 U	-0.007872 U	-0.01875 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Ba-140					
Bi-212	0.4207 U		0.5359		0.8526
Bi-214	0.4124	0.4377	0.3617	0.3547	0.3685
Ce-141					
Ce-144	-0.05949 U	0.05638 U	0.04721 U	-0.05114 U	0.004026 U
Co-58	-0.00891 U	-0.00915 U	-0.01557 U	0.01235 U	0.008529 U
Co-60	0.01165 U	0.01169 U	0.0154 U	0.01278 U	-0.04329 U
Cr-51					
Cs-134	0.02523 U	-0.05887 U	-0.05357 U	0.009018 U	-0.0464 U
Cs-136					
Cs-137	-0.01873 U	-0.0188 U	-0.00554 U	0.01654 U	-0.008136 U
Eu-152					0.3966 U
Fe-59	-0.03794 U	-0.03969 U	0.02267 U	-0.05923 U	0.04524 U
I-131					
I-132					
K-40	11.26	11.97	10.97	11.76	11.49
Kr-85					
La-140					
Mn-54	0.01125 U	-0.007985 U	0.007382 U	0.02758	-0.000174 U
Nb-94					
Nb-95	-0.02574 U	0.02163 U	0.04347	-0.01065 U	0.001412 U
Np-239					
Pb-212	0.6967	0.636	0.6261	0.6533	0.6836
Pb-214	0.4149	0.4232	0.4923	0.4248	0.4702
Ra-226		1.199	1.143	0.7118 U	
Ru-103	-0.0005481 U	-0.02605 U	0.006204 U	0.01272 U	-0.003419 U
Ru-106	-0.02235 U	0.2243 U	0.0643 U	-0.1613 U	0.1587 U
Sb-124	0.02767 U	0.009992 U	0 U	0 U	-0.008902 U
Sb-125	-0.1016 U				
Se-75					0.0437 U
Sn-113				1.057 U	
Tl-202					
Tl-208	0.4174		0.5524	0.5566	
Y-88					
Zn-65	-0.08778 U	0.106 U	0.04016 U	0.006932 U	-0.048 U
Zr-95	-0.04198 U	-0.02539 U	0.03408 U	0.03959 U	0.01998 U
SOF				0.001	

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TS99.27 (3326)	TS99.27 (3326)	TS99.27 (3326)	TS99.28 (3327)	TS99.28 (3327)
Sample ID	TS99.27A	TS99.27B	TS99.27C	TS99.28A	TS99.28B
Date Sampled	4/29/1999	4/29/1999	4/29/1999	5/5/1999	5/5/1999
Ac-228	0.6291	0.6623	0.646	0.4483	0.5864
Ag-108m	0.001088 U	0.02458	-0.02484 U	-0.01875 U	0.01172 U
Ag-110m	-0.003879 U	0 U	-0.005098 U	-0.01757 U	-0.02176 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133			0.03402	0.02241 U	
Ba-140					
Bi-212	0.8287	0.5582	0.6656		0.4114 U
Bi-214	0.3504	0.3354	0.3376	0.38	0.3391
Ce-141					
Ce-144	0.1059 U	-0.003025 U	0.08584 U	0.06952 U	0.07346 U
Co-58	-0.002879 U	0.003258 U	-0.008563 U	-0.006222 U	-0.001984 U
Co-60	-0.003979 U	-0.00319 U	-0.01997 U	-0.01132 U	-0.01291 U
Cr-51					
Cs-134	0.02183	-0.03053 U	-0.02183 U	0.002304 U	-0.04463 U
Cs-136			0.133 U		
Cs-137	-0.005483 U	0.007733 U	-0.01101 U	-0.01697 U	0.002834 U
Eu-152					
Fe-59	-0.09862 U	0.07809	0.006596 U	0.01274 U	0.02515 U
I-131					
I-132					
K-40	12.53	10.04	11.14	7.537	9.412
Kr-85					
La-140		0.8634 U			
Mn-54	-0.01605 U	0.01478 U	0.02578 U	0.005631 U	0.005183 U
Nb-94					
Nb-95	0.02899 U	0.04541	0.002319 U	0.002699 U	0.01136 U
Np-239		3.353 U			
Pb-212	0.5385	0.4458	0.5921	0.5882	0.4552
Pb-214	0.4031	0.3884	0.4936	0.3401	0.3819
Ra-226	1.482	0.703 U	1.363		
Ru-103	0.02959	-0.00183 U	0 U	0.01201 U	0.009188 U
Ru-106	0.2016 U	0.04542 U	-0.02302 U	-0.06973 U	0.1175 U
Sb-124	-0.009018 U	0.01148 U	0.0181 U	0.008781 U	0.03458 U
Sb-125				0.04729 U	
Se-75					
Sn-113					
Tl-202					0.009738 U
Tl-208		0.479	0.5066	0.3833	
Y-88					
Zn-65	-0.05069 U	-0.006308 U	0.01042 U	0.0453 U	0.09833 U
Zr-95	0.007368 U	0.03479 U	0.02312 U	-0.01868 U	0.01823 U
SOF	0.003	0.003			

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TS99.29 (3328)	TS99.29 (3328)	TS99.29 (3328)	TS99.30 (3329)	TS99.30 (3329)
Sample ID	TS99.29A	TS99.29B	TS99.29C	TS99.30A	TS99.30B
Date Sampled	5/10/1999	5/10/1999	5/10/1999	5/10/1999	5/10/1999
Ac-228	0.6523	0.6513	0.715	0.7831	0.6425
Ag-108m	0.004878 U	0.005792 U	0.001404 U	-0.003403 U	-0.01151 U
Ag-110m	-0.01511 U	-0.01026 U	0.008486 U	0.000321 U	0.03256 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Ba-140					
Bi-212	0.7433	0.4137 U	0.8735	1.194	0.3802 U
Bi-214	0.3855	0.4156	0.4772	0.4145	0.3211
Ce-141					
Ce-144	0.04849 U	-0.04925 U	-0.07288 U	-0.1668 U	-0.04902 U
Co-58	-0.004854 U	-0.01422 U	-0.03096 U	-0.01528 U	-0.01336 U
Co-60	-0.007195 U	0.01265 U	0.01495 U	-0.006334 U	0.003007 U
Cr-51					
Cs-134	0.001686 U	-0.09396 U	0.05276 U	-0.05219 U	-0.1709 U
Cs-136					
Cs-137	-0.0006742 U	0.008011 U	0.007738 U	-0.03425 U	-0.01572 U
Eu-152					
Fe-59	0.03004 U	0.04674 U	0.01717 U	-0.01225 U	-0.005814 U
I-131					
I-132					
K-40	11.04	13.07	12.58	14.69	14.84
Kr-85					
La-140					
Mn-54	-0.02329 U	-0.003476 U	-0.002359 U	0.02085 U	-0.001863 U
Nb-94					
Nb-95	0.02538 U	-0.00176 U	-0.001109 U	0.01046 U	0.03278
Np-239					
Pb-212	0.693	0.69	0.7072	0.692	0.7308
Pb-214	0.408	0.3096	0.4218	0.4896	0.4206
Ra-226	1.615				1.373
Ru-103	0.00562 U	-0.009495 U	0.002938 U	0.01221 U	-0.01173 U
Ru-106	0.06705 U	0.02617 U	-0.0955 U	-0.1092 U	-0.1772 U
Sb-124	0.001794 U	0.004672 U	-0.03434 U	0.01286 U	0.01279 U
Sb-125					
Se-75					
Sn-113					
Tl-202					
Tl-208	0.5639	0.6326	0.5145	0.6939	0.6565
Y-88					
Zn-65	0.08342 U	0.03569 U	-0.148 U	0.1187 U	-0.09284 U
Zr-95	0.04601 U	0.0256 U	-0.03829 U	-0.02967 U	0.01341 U
SOF					

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TS99.30 (3329)	TS99.31 (3330)	TS99.31 (3330)	TS99.32 (3331)	TS99.37 (3336)
Sample ID	TS99.30C	TS99.31A	TS99.31B	TS99.32A	TS99.37A
Date Sampled	5/10/1999	5/10/1999	5/10/1999	5/10/1999	5/17/1999
Ac-228	0.7457	0.8241	0.7868	0.5128	1.075
Ag-108m	-0.028 U	0.003819 U	0.01714 U	0.00167 U	0.006132 U
Ag-110m	-0.009905 U	0.001261 U	-0.01471 U	0.006412 U	0.005512 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Ba-140					
Bi-212		1.062	1.108		1.213
Bi-214	0.3752	0.3643	0.3587	0.3399	0.56
Ce-141		0.02263 U		0.03263 U	
Ce-144	0.0943 U	0.04745 U	-0.001925 U	0.007129 U	-0.1435 U
Co-58	-0.01832 U	0.005463 U	-0.01443 U	0.002929 U	0.006657 U
Co-60	-0.0114 U	-0.02108 U	-0.01518 U	-0.01054 U	-0.02314 U
Cr-51					
Cs-134	-0.1128 U	0.01052 U	0.006405 U	0.008644 U	-0.01443 U
Cs-136		0.3193			
Cs-137	0.005244 U	0.002582 U	-0.01571 U	-0.002425 U	0.01597 U
Eu-152			0.5628 U		
Fe-59	-0.01165 U	-0.005798 U	0.02354 U	-0.05437 U	-0.04728 U
I-131					
I-132					
K-40	14.74	16.54	15.83	13.77	16.94
Kr-85		10.98			
La-140					
Mn-54	0.02035 U	-0.01445 U	-0.006662 U	0.001233 U	0.01893 U
Nb-94					
Nb-95	0.007768 U	-0.01101 U	-0.009908 U	-0.009386 U	-0.0234 U
Np-239		-0.5268 U			
Pb-212	0.7937	0.912	0.8453	0.5636	1.155
Pb-214	0.4044	0.5014	0.4717	0.3947	0.5099
Ra-226	1.571		1.92	1.097	1.281
Ru-103	-0.0002026 U	0.01616 U	-0.01353 U	0.002084 U	-0.008431 U
Ru-106	0.08694 U	0.2571 U	-0.1299 U	-0.002841 U	0.1166 U
Sb-124	0.009312 U	0.02119 U	0 U	-0.002168 U	0.02126 U
Sb-125					
Se-75					
Sn-113					
Tl-202					
Tl-208	0.7623	0.9264	0.7844	0.6459	0.7804
Y-88					
Zn-65	-0.09896 U	-0.05164 U	0.01042 U	-0.01818 U	-0.1289 U
Zr-95	0.03133 U	0.01164 U	0.003606 U	0.01584 U	0.04089 U
SOF					

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TS99.37 (3336)	TS99.37 (3336)	TS99.38 (3337)	TS99.39 (3338)	TS99.39 (3338)
Sample ID	TS99.37B	TS99.37C	TS99.38A	TS99.39A	TS99.39B
Date Sampled	5/17/1999	5/17/1999	5/17/1999	5/18/1999	5/18/1999
Ac-228	0.8528	1.064	1.103	0.8441	0.8507
Ag-108m	-0.02329 U	-0.00205 U	0.008281 U	-0.01376 U	0.00264 U
Ag-110m	0.01005 U	0.01901 U	0.03462 U	-0.006733 U	0.0186 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Ba-140					
Bi-212	1.09	0.8364	1.123	0.8507	0.9269
Bi-214	0.4376	0.4964	0.5509	0.504	0.427
Ce-141					
Ce-144	0.2148 U	-0.07527 U	-0.365 U	-0.1447 U	-0.01639 U
Co-58	0.01573 U	0.0007939 U	-0.004247 U	-0.007284 U	-0.009254 U
Co-60	-0.00942 U	-0.009237 U	-0.003842 U	0.02912 U	0.02814 U
Cr-51					
Cs-134	0.006297 U	0.02053 U	-0.03515 U	-0.1075 U	-0.162 U
Cs-136					
Cs-137	0.002655 U	0.0238 U	0.02917 U	0.02763 U	-0.005273 U
Eu-152			0.2914 U		
Fe-59	-0.04581 U	-0.01175 U	0.005893 U	-0.06501 U	0.001145 U
I-131					
I-132					
K-40	16.92	17.37	18.11	13.76	17.15
Kr-85					
La-140					
Mn-54	0.01361 U	0.01422 U	0.007006 U	0.006423 U	-0.01014 U
Nb-94					
Nb-95	0.02625 U	0.01593 U	-0.008625 U	0.01017 U	0.01877 U
Np-239					
Pb-212	0.9953	0.9345	1.004	0.9706	0.9012
Pb-214	0.5116	0.4821	0.6133	0.4665	0.5577
Ra-226	0.9927 U	0.764 U	1.362	0.9667	0.9897
Ru-103	-0.001594 U	-0.01133 U	-0.002871 U	0.006785 U	0.03549
Ru-106	-0.04057 U	-0.06576 U	0.2858 U	-0.1457 U	-0.0212 U
Sb-124	-0.001907 U	0.01409 U	0.001767 U	0.005571 U	-0.01655 U
Sb-125					-0.105 U
Se-75					
Sn-113					
Tl-202					
Tl-208	0.7895	1.007	0.951	0.6582	0.7708
Y-88					
Zn-65	0.001191 U	-0.1386 U	-0.06915 U	-0.1125 U	-0.1213 U
Zr-95	0.01538 U	0.05883	0.05234 U	0.01457 U	0.02852 U
SOF					

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TS99.39 (3338)	TS99.40 (3339)	TS99.40 (3339)	TS99.40 (3339)	TS99.41 (3340)
Sample ID	TS99.39C	TS99.40A	TS99.40B	TS99.40C	TS99.41A
Date Sampled	5/18/1999	5/27/1999	5/27/1999	5/27/1999	5/26/1999
Ac-228	0.8271	0.9368	0.8375	0.7442	0.7802
Ag-108m	-0.00817 U	-0.007878 U	-0.01656 U	0.01344 U	0.01766 U
Ag-110m	-0.05226 U	0.002296 U	0.03929 U	-0.01275 U	0.004943 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Ba-140					
Bi-212		0.6233	0.6878	0.7906	0.9341
Bi-214	0.4794	0.4097	0.5133	0.5057	0.398
Ce-141					
Ce-144	-0.06218 U	-0.02765 U	0.06761 U	-0.1547 U	-0.2378 U
Co-58	-0.01035 U	-0.0213 U	-0.0216 U	-0.01252 U	0.005347 U
Co-60	0.04087 U	0.007798 U	-0.000000001871 U	-0.01131 U	-0.01547 U
Cr-51					
Cs-134	0.02856 U	0.004789 U	-0.1321 U	-0.154 U	-0.0913 U
Cs-136				0.03941 U	
Cs-137	0.07179	-0.0101 U	0.002708 U	0.0156 U	0.01326 U
Eu-152					
Fe-59	-0.01149 U	-0.008649 U	-0.04828 U	0.005795 U	-0.03869 U
I-131					
I-132					
K-40	15.83	15.2	16.25	15.22	15.67
Kr-85					
La-140					
Mn-54	-0.01252 U	0.001094 U	0.01156 U	0.008459 U	0.001096 U
Nb-94					
Nb-95	0.007723 U	-0.0098 U	0.007279 U	0.01679 U	0.009662 U
Np-239			0.1639 U		
Pb-212	0.8802	0.9325	0.9028	0.739	0.6788
Pb-214	0.4377	0.65	0.5953	0.4914	0.4772
Ra-226	1.628	0.9801 U	1.045 U	1.115	1.238
Ru-103	-0.003604 U	0.006878 U	-0.02302 U	-0.02934 U	0.00908 U
Ru-106	-0.3191 U	0.3123	-0.04491 U	0.0207 U	0.1785 U
Sb-124	-0.004584 U	0.0323 U	0 U	0.02963 U	-0.005042 U
Sb-125				0.3107 U	
Se-75					
Sn-113					
Tl-202					
Tl-208	0.7515	0.7401	0.9036	0.9776	0.681
Y-88					
Zn-65	-0.07475 U	0.03311 U	0.1554 U	-0.05194 U	-0.03151 U
Zr-95	0.03039 U	-0.04232 U	0.01205 U	0.05073 U	0.08112
SOF	0.006	0.005			

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TS99.41 (3340)	TS99.41 (3340)	TS99.42 (3341)	TS99.43 (3342)	TS99.43 (3342)
Sample ID	TS99.41B	TS99.41C	TS99.42A	TS99.43A	TS99.43B
Date Sampled	5/26/1999	5/27/1999	5/26/1999	5/27/1999	5/27/1999
Ac-228	0.8127	0.7755	0.8125	0.742	0.6352
Ag-108m	0.006014 U	0.0004455 U	-0.002617 U	0.007253 U	0.001635 U
Ag-110m	0.03395 U	-0.02492 U	-0.003092 U	-0.006176 U	0.01055 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Ba-140					
Bi-212	0.9241	0.6881		0.7258	
Bi-214	0.4681	0.403	0.4188	0.4758	0.4599
Ce-141					
Ce-144	-0.07841 U	-0.02978 U	-0.1303 U	0.01075 U	-0.1067 U
Co-58	-0.00964 U	0.001901 U	0.004492 U	0.003591 U	0.01536 U
Co-60	0.003947 U	-0.01126 U	0.00734 U	-0.000000003643 U	-0.03006 U
Cr-51					
Cs-134	-0.1349 U	-0.2246 U	-0.02289 U	0.0118 U	0.05654 U
Cs-136					
Cs-137	-0.002636 U	-0.02302 U	-0.007596 U	0.02743 U	0.007768 U
Eu-152		0.2051 U			
Fe-59	-0.01915 U	0.03101 U	-0.07396 U	-0.03153 U	-0.006204 U
I-131					
I-132					
K-40	16.54	14.24	13.98	11.34	9.161
Kr-85					
La-140		1.402 U			
Mn-54	-0.009683 U	-0.009298 U	-0.0134 U	0.001081 U	0.007481 U
Nb-94				0.03751	
Nb-95	-0.01153 U	0.005723 U	0.01279 U	0.01302 U	0.01472 U
Np-239					
Pb-212	0.7502	0.7391	0.7949	0.6693	0.6593
Pb-214	0.4928	0.4398	0.5363	0.416	0.4592
Ra-226	0.956		0.9009		1.341
Ru-103	-0.03123 U	-0.01177 U	-0.004758 U	-0.0164 U	0.005235 U
Ru-106	0.1324 U	0.2596 U	0.1471 U	-0.03704 U	-0.06497 U
Sb-124	0.01123 U	0.02248 U	0.02721 U	0.02423 U	0.008512 U
Sb-125					
Se-75					
Sn-113					
Tl-202					
Tl-208	0.6535	0.7421	0.6972	0.5384	0.6451
Y-88					
Zn-65	0.07816 U	-0.1374 U	-0.007442 U	0.01298 U	-0.1255 U
Zr-95	-0.008124 U	-0.01025 U	0.04271 U	0.0189 U	0.01305 U
SOF				0.004	

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TS99.43 (3342)	TS99.44 (3343)	TS99.44 (3343)	TS99.44 (3343)	TS99.47 (3345)
Sample ID	TS99.43C	TS99.44A	TS99.44B	TS99.44C	TS99.47A
Date Sampled	5/27/1999	6/1/1999	6/1/1999	6/1/1999	6/2/1999
Ac-228	0.9596	0.6795	0.8018	0.7001	0.8486
Ag-108m	0.01001 U	0.007983 U	-0.005732 U	-0.00361 U	0.00798 U
Ag-110m	0.03148 U	0.03712	-0.01038 U	0.01469 U	-0.008066 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Ba-140					
Bi-212			0.7728	0.7804	
Bi-214	0.5119	0.4831	0.483	0.4059	0.4306
Ce-141					
Ce-144	0.04346 U	-0.07485 U	0.0684 U	0.1914 U	0.1244 U
Co-58	-0.00874 U	-0.005835 U	0.0002666 U	-0.006113 U	-0.01325 U
Co-60	-0.03594 U	-0.003837 U	-0.01569 U	-0.006327 U	-0.02012 U
Cr-51					
Cs-134	-0.1696 U	-0.001222 U	-0.09466 U	0.05626 U	0.02572 U
Cs-136					
Cs-137	0.002601 U	0.04237	0.01864 U	0.0131 U	-0.01588 U
Eu-152	0.1519 U				
Fe-59	-0.1179 U	0.01767 U	-0.00296 U	-0.05248 U	-0.01176 U
I-131					
I-132					
K-40	15.83	15.58	15.94	14.69	13.84
Kr-85					
La-140					
Mn-54	0.02831 U	-0.0298 U	-0.001623 U	0.009519 U	0.001076 U
Nb-94					
Nb-95	-0.00466 U	-0.01395 U	0.02065 U	0.007184 U	0.02051 U
Np-239					
Pb-212	1.028	0.704	0.7936	0.7439	0.7956
Pb-214	0.4957	0.4246	0.5316	0.4507	0.4559
Ra-226		1.531			
Ru-103	0.01491 U	0.006149 U	0.002433 U	-0.01507 U	0.01555 U
Ru-106	-0.1523 U	0.1149 U	-0.00302 U	0.0252 U	0 U
Sb-124	0.01466 U	0.003531 U	0.02839 U	0.01544 U	0 U
Sb-125		-0.02469 U			
Se-75					
Sn-113					
Tl-202					
Tl-208	0.8577	0.6569	0.7118	0.5869	0.823
Y-88					
Zn-65	0.1088 U	-0.04354 U	-0.06644 U	-0.1372 U	-0.05038 U
Zr-95	-0.003747 U	0.01629 U	0.01911 U	-0.002688 U	-0.02125 U
SOF		0.003			

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TS99.47 (3345)	TS99.47 (3345)	TS99.48 (3346)	TS99.48 (3346)	TS99.48 (3346)
Sample ID	TS99.47B	TS99.47C	TS99.48A	TS99.48B	TS99.48C
Date Sampled	6/2/1999	6/2/1999	6/2/1999	6/3/1999	6/3/1999
Ac-228	0.737	0.7763	0.6536	0.8907	0.61
Ag-108m	-0.01235 U	0.001992 U	0.008457 U	0.02188 U	-0.004379 U
Ag-110m	0.01615 U	-0.01535 U	-0.01541 U	-0.0006766 U	-0.02576 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Ba-140					
Bi-212	1.104	0.5905	0.5608	1.041	0.712
Bi-214	0.4702	0.3688	0.383	0.3881	0.4174
Ce-141					
Ce-144	-0.135 U	-0.03773 U	-0.06718 U	0.1039 U	-0.0009818 U
Co-58	0.01039 U	0.01431 U	0.003678 U	0.002468 U	0.000669 U
Co-60	0.01968 U	-0.02653 U	0.007906 U	-0.003664 U	0.01103 U
Cr-51					
Cs-134	0.01976 U	-0.02578 U	0.005192 U	-0.05167 U	-0.0507 U
Cs-136					
Cs-137	-0.01737 U	0 U	0.005455 U	-0.01052 U	0.01873 U
Eu-152		-0.05783 U			
Fe-59	0.03005 U	0.02285 U	0.03062 U	-0.01848 U	-0.01781 U
I-131					
I-132					
K-40	13.63	13.62	10.88	13.55	12
Kr-85					
La-140					
Mn-54	0.006597 U	-0.001492 U	0.02554 U	-0.002398 U	0.03072
Nb-94					
Nb-95	0.00552 U	0.01549 U	0.006873 U	0.0228 U	-0.00562 U
Np-239					
Pb-212	0.7477	0.7936	0.6657	0.8767	0.762
Pb-214	0.4244	0.3976	0.4761	0.4787	0.5022
Ra-226		0.7153 U		0.9203 U	0.8011 U
Ru-103	0.002301 U	0.004657 U	-0.006402 U	-0.009645 U	-0.0002066 U
Ru-106	-0.1345 U	0 U	-0.1494 U	-0.06904 U	-0.1109 U
Sb-124	-0.01201 U	0.002664 U	0.007934 U	0.0193 U	-0.05698 U
Sb-125					
Se-75					
Sn-113					
Tl-202					
Tl-208	0.8209	0.6891	0.5371	0.8663	0.5605
Y-88	0.02016 U				
Zn-65	-0.01841 U	-0.00578 U	0.09767 U	-0.0303 U	-0.1194 U
Zr-95	-0.00693 U	-0.03029 U	0.0183 U	0.07447	0.02054 U
SOF					0.001

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
TBN-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	TS99.49 (3347)	TS99.49 (3347)	TS99.49 (3347)
Sample ID	TS99.49A	TS99.49B	TS99.49C
Date Sampled	6/3/1999	6/3/1999	6/3/1999
Ac-228	0.8877	0.8251	0.9346
Ag-108m	0.02402	-0.005608 U	-0.0006752 U
Ag-110m	-0.02278 U	0.02681 U	-0.02863 U
Am-241	0 U	0 U	0 U
Ba-133			
Ba-140			
Bi-212	0.7311	0.6647	0.6321
Bi-214	0.4685	0.4932	0.4459
Ce-141			
Ce-144	0.04331 U	0.03011 U	0.05528 U
Co-58	-0.02357 U	-0.03709 U	-0.02678 U
Co-60	-0.003938 U	-0.00293 U	0.01138 U
Cr-51			
Cs-134	-0.002002 U	0.04558 U	0.03033 U
Cs-136			
Cs-137	-0.01375 U	-0.02356 U	-0.04705 U
Eu-152			
Fe-59	-0.05189 U	-0.02207 U	0.04366 U
I-131			
I-132			
K-40	13.95	14.56	13.43
Kr-85			
La-140			
Mn-54	-0.01135 U	-0.004638 U	0.004122 U
Nb-94			
Nb-95	0.003418 U	0.01837 U	0.02574 U
Np-239			-1.014 U
Pb-212	0.6506	0.7138	0.8803
Pb-214	0.5429	0.4612	0.4663
Ra-226	1.189	1.792	0.7628 U
Ru-103	-0.01277 U	0.005474 U	0.006794 U
Ru-106	-0.04539 U	0.1313 U	-0.1748 U
Sb-124	0.006361 U	0.01961 U	-0.007343 U
Sb-125			
Se-75			
Sn-113			
Tl-202			
Tl-208	0.6176	0.7757	0.7409
Y-88			
Zn-65	-0.08759 U	0.01163 U	-0.1513 U
Zr-95	0.05071 U	-0.02537 U	0.01267 U
SOF	0.003		

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

TBN-01

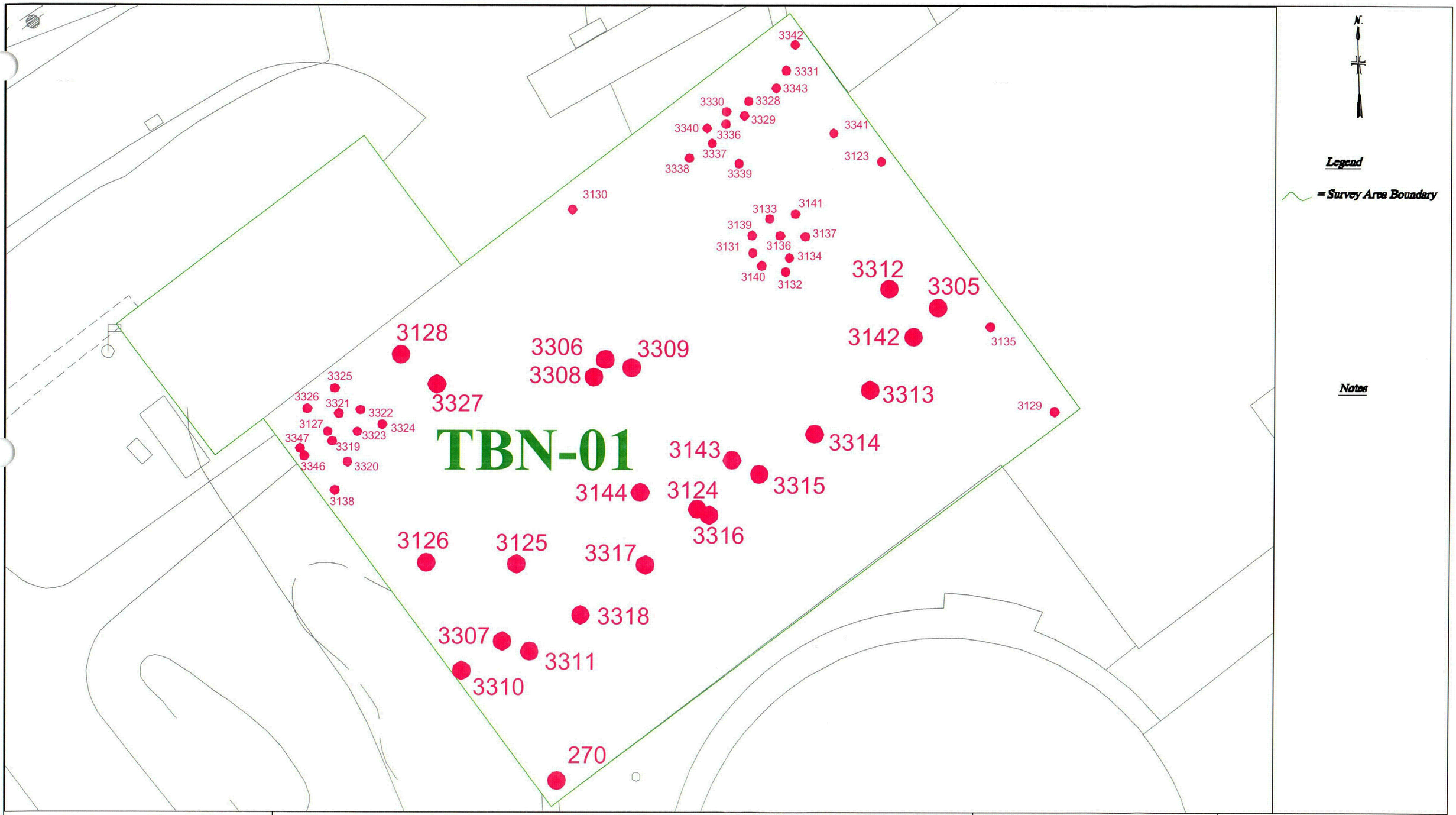
Remediated Areas								
Location	Sample #	Date	GLV SOF	Disposition	Nuclide	Conc. (pCi/gm)	Fraction of DCGL	DCGL SOF
TB Floor Drain Excavation	TB001.4	5-Mar-98	ND	AB				
TB Floor Drain Excavation	TB001.5	5-Mar-98	ND	AB				
TB Floor Drain Excavation	TB001.6	5-Mar-98	ND	AB				
TB Floor Drain Excavation	TB001.7	5-Mar-98	ND	AB				
TB Floor Drain Excavation	TB001.8	5-Mar-98	ND	AB				
TB Floor Drain Excavation	TB001.88	5-Mar-98	ND	AB				
TB Floor Drain Excavation	TB001.9	5-Mar-98	ND	AB				
TB Floor Drain Excavation	TB001.10	5-Mar-98	ND	AB				
TB Floor Drain Excavation	TB001.11	5-Mar-98	ND	AB				
TB Floor Drain Excavation	TB001.12	9-Mar-98	ND	AB				
TB Floor Drain Excavation	TB001.13	9-Mar-98	ND	AB				
TB Floor Drain Excavation	TB001.14	9-Mar-98	ND	AB				
TB Floor Drain Excavation	TB001.15	9-Mar-98	ND	AB				
TB Floor Drain Excavation	TB001.16	10-Mar-98	ND	AB				
TB Floor Drain Excavation	TB001.17	10-Mar-98	ND	AB				
TB Floor Drain Excavation	TB001.18	11-Mar-98	ND	AB				
TB Floor Drain Excavation	TB001.19	11-Mar-98	ND	AB				
TB Floor Drain Excavation	TB001.199	11-Mar-98	ND	AB				
TB Floor Drain Excavation	TB001.20	12-Mar-98	ND	AB				
TB Floor Drain Excavation	TB001.21	12-Mar-98	ND	AB				
TB Pedestal #4	TB001.22A	12-Aug-98	25.740	FR	Co-60	1.43E-01	0.030	16.417
					Cs-134	3.20E-01	0.048	
					Cs-137	2.00E+02	16.340	
TB Pedestal #4	TB001.22B	12-Aug-98	4.640	FR	Cs-137	3.62E+01	2.958	3.061
	TB001.22B	12-Aug-98			Sr-90	2.76E-01	0.103	
TB Pedestal #4	TB001.23A	13-Aug-98	ND	AL				
TB Pedestal #4	TB001.23B	13-Aug-98	ND	AL				
TB Pedestal #4	TB001.24A	12-Aug-98	ND	AL				
TB Pedestal #4	TB001.25A	13-Aug-98	0.022	AL	Cs-137	1.692E-01	0.014	0.014
TB Pedestal #4	TB001.25B	13-Aug-98	ND	AL				
TB Pedestal #4	TB001.26B	13-Aug-98	ND	AL				
TB Col #4 steam cut area comp 0" - 14"	TB001.28	3-May-99	1.305		Cs-137	1.018E+01	0.832	0.832
TB Col #4 steam cut area comp 0" - 14"	TB001.29	4-May-99	1.449		Cs-137	1.130E+01	0.923	0.923

TBN-01

TB Col #4 steam cut area S comp	TB001.31	4-May-99	ND					
TB Col #4 steam cut area E comp	TB001.32	4-May-99	3.925		Cs-134	7.456E-02	0.011	2.500
					Cs-137	3.046E+01	2.489	
TB Col #4 steam cut area W comp	TB001.33	4-May-99	0.009		Cs-137	7.033E-02	0.006	0.006
TB Col #4 steam cut area NE comp 0" - 14"	TB001.34	11-May-99	23.390		Co-60	1.522E-01	0.031	14.893
					Cs-134	1.690E-01	0.025	
					Cs-137	1.816E+02	14.837	
TB Col #4 steam cut area SE comp 0" - 14"	TB001.35	11-May-99	ND					
TB Col #4 steam cut area N comp 0" - 30"	UG005DUFD	17-May-99	ND					
TB Heating & Boiler Room	TB001.27A	17-Aug-98	0.670	AL	Co-60	2.000E-01	0.041	0.415
					Cs-134	1.580E-01	0.024	
					Cs-137	4.290E+00	0.350	
TB Heating & Boiler Room	TB001.27B	17-Aug-98	0.013	AL	Cs-137	9.750E-02	0.008	0.008
TB Heating & Boiler Room	TB001.27C	17-Aug-98	ND	AL				

UNK - unknown
AB - as area backfill
ABC - ABC storage area
AL - as left
ALAR - as left after remediation
FR - further remediation
RD - rad disposal
TS - temporary storage tk

DCGL (pCi/gm)		
Nuclide	25 mrem/yr	10 mrem/yr
Ag-108m	8.521E+00	3.408E+00
Co-60	4.838E+00	1.935E+00
Cs-134	6.706E+00	2.682E+00
Cs-137	1.224E+01	4.896E+00
Sr-90	2.68E+00	1.072E+00



	Yankee Atomic Power Company *Soil Sample Locations - TBN-01*	YANKEE	*Date: October 2003* *Revision: 4*
			Figure: 50

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Building Historical Site Assessment and Classification Summary

Survey Area Name: Old PCA Storage Building Designator: **WST-01**

Survey Area Description

Survey Area WST-01 consists of the reinforced concrete pad, pipe trench and subsurface structures that comprise the Old PCA Storage Building remaining after demolition of the structure is complete.

WST-01 is located in the RCA yard area and bounded by NOL-03 on the north, east, and south and by NOL-04 and WST-02 on the west.

Further division of this survey area into survey units as necessary is dependent upon the decommissioning end state configuration.

Survey Area Name: Old PCA Storage Building Designator: **WST-01**

Survey Area History

WST-01 was constructed for use as an equipment decontamination and storage facility. (Ref 1) It was subsequently converted to a contaminated area used for radioactive material storage only after it was determined that the drain line from the decon area was leaking. The building was later decontaminated and is now used as a hazardous and mixed waste storage location.

While it was used as a decontamination facility it was generally used for items considered heavily contaminated. These items include control rod drive shafts and dash-pots and other components of moderate size from the primary systems.

In 1984 construction of the RCA warehouse exposed the failed drain line where it crossed the RCA to the waste disposal building. An examination of the drain line identified leakage at each pipe joint indicating that the joints had failed. (Ref 2) The drain line, where it was exposed, was removed along with a volume of soil prior to construction of the warehouse. The drain line not removed during construction of the warehouse remains in place under the WST-01 structure.

Scoping/Characterization

Scoping surveys were performed and the data collected used to develop the YNPS Decommissioning Plan. (Ref 3)

Decommissioning Activities

No decommissioning activities have been performed for survey area WST-01.

Survey Area Name: Old PCA Storage Building Designator: **WST-01**

Findings

Survey area WST-01 was impacted by plant operations. Access to WST-01 is through a radiation control area.

The radionuclide mix likely to be present in WST-01 includes all radionuclides identified in the radioactive systems of the plant (Ref 4). The primary radionuclides of concern for survey area WST-01 are Co-60, Cs-137, Ag-108m, Sr-90 and tritium.

Current Status

Survey area WST-01 remains in use as a material storage area and potentially may be impacted by ongoing decommissioning activities.

A soil sample location map (Figure 51) has been prepared to show the distribution of sampling locations in WST-01. Only samples representative of soils still present are included on the map (samples of soils representative of soils removed during remediation activities are not presented). One survey media was assessed in WST-01, Soil. The results and analyses (Tables 1-4 in this section) of the samples plotted as "key numbers" on the map represent the radiological status at the time of sampling (a period spanning several years) as sums of fractions of the soil DCGL.

Only those samples with detectable results of the radionuclides of concern appear in Table 1. For this reason the number listed as minimum does not include samples that did not have detectable quantities of the radiological substances of concern. An assessment of the maximum, minimum and mean sum of fractions (SOF) for WST-01 is presented at the end of Table 1 for each survey medium. The results are summarized below.

Soil: Mean SOF is 0.022.
Maximum SOF for a single soil sample is 0.031. (key# 3358)
Minimum SOF for a single soil sample is 0.017. (key# 3359)

Classification Statement

Based upon the historical use of survey area WST-01 and the radiological condition of area surrounding this survey area WST-01 is identified as a Class 1 Area.

Building Historical Site Assessment and Classification Summary

Survey Area Name: Old PCA Storage Building Designator: **WST-01**

Drawings

YB-H-1-0
YR-C-10-008

References

1.	"Summary of Excavation Volumes for YNPS Construction Performed During the Time Period of Plant Operation," dated October 1997.
2.	Plant Information Report (PIR) 84-16, "Drain Pipe Failure," dated December 5, 1984.
3.	YNPS Decommissioning Plan, Rev. 0.0.
4.	"Radionuclides for Building Surfaces and Soil DCGL Determinations," YA-REPT-00-001-03.

Table 1
Sum of Fractions
WST-01 -- *Soil*
Yankee Nuclear Power Station Rowe, MA

Station Key	Station	Sample ID		Sum Of Fractions
3359	UG004.5	UG004.5B		0.017
3359	UG004.5	UG004.5A		0.020
3358	UG004.4	UG004.4B		0.031
3358	UG004.4	UG004.4A		0.024
3357	UG004.3	UG004.3B		0.019
			Min	0.017
			Max	0.031
			Mean	0.022

Table 2
Statistical Data Summary -- WST-01 -- Soil
Yankee Nuclear Power Station Rowe, MA

Parameter	Units	# Detects	# Sample Results	Mean	Std. Dev	Minimum	Maximum	Median
Ac-228	pCi/g	6	6	0.785	0.130	0.598	0.942	0.794
Ag-108m	pCi/g	0	6	0.000				
Ag-110m	pCi/g	0	6	0.000				
Am-241	pCi/g	0	6	0.000				
Bi-212	pCi/g	5	5	0.986	0.169	0.833	1.270	0.920
Bi-214	pCi/g	6	6	0.424	0.034	0.394	0.489	0.413
Ce-144	pCi/g	0	6	0.000				
Co-58	pCi/g	1	6	0.028		0.028	0.028	0.028
Co-60	pCi/g	4	6	0.110	0.029	0.081	0.148	0.105
Cs-134	pCi/g	1	6	0.094		0.094	0.094	0.094
Cs-137	pCi/g	1	6	0.039		0.039	0.039	0.039
Fe-59	pCi/g	1	6	0.099		0.099	0.099	0.099
I-131	pCi/g	0	1	0.000				
I-133	pCi/g	0	1	0.000				
K-40	pCi/g	6	6	14.747	1.819	11.530	16.790	14.940
Mn-54	pCi/g	1	6	0.042		0.042	0.042	0.042
Nb-95	pCi/g	0	6	0.000				
Np-239	pCi/g	0	1	0.000				
Pb-212	pCi/g	6	6	0.761	0.096	0.620	0.855	0.770
Pb-214	pCi/g	6	6	0.423	0.024	0.384	0.455	0.422
Ra-226	pCi/g	2	3	1.128	0.213	0.978	1.279	1.128
Ru-103	pCi/g	0	6	0.000				
Ru-106	pCi/g	0	6	0.000				
Sb-124	pCi/g	1	6	0.038		0.038	0.038	0.038
Sb-125	pCi/g	0	1	0.000				
Tl-208	pCi/g	6	6	0.719	0.085	0.586	0.817	0.733
Zn-65	pCi/g	0	6	0.000				
Zr-95	pCi/g	1	6	0.049		0.049	0.049	0.049

Table 3
Summary of Detected Results Above Criteria
WST-01 -- Soil
Yankee Nuclear Power Station Rowe, MA
DCGL_Soil

Parameter	# Detects	# Sample Results	Criterion Concentration	Units	# Detects Above Criterion	Maximum Detected
Ac-228	6	6		pCi/g	0	0.94
Ag-108m	0	6	8.52	pCi/g	0	
Ag-110m	0	6		pCi/g	0	
Am-241	0	6	44.35	pCi/g	0	
Bi-212	5	5		pCi/g	0	1.27
Bi-214	6	6		pCi/g	0	0.49
Ce-144	0	6		pCi/g	0	
Co-58	1	6		pCi/g	0	0.03
Co-60	4	6	4.84	pCi/g	0	0.15
Cs-134	1	6	6.71	pCi/g	0	0.09
Cs-137	1	6	12.24	pCi/g	0	0.04
Fe-59	1	6		pCi/g	0	0.10
I-131	0	1		pCi/g	0	
I-133	0	1		pCi/g	0	
K-40	6	6		pCi/g	0	16.79
Mn-54	1	6	21.66	pCi/g	0	0.04
Nb-95	0	6		pCi/g	0	
Np-239	0	1		pCi/g	0	
Pb-212	6	6		pCi/g	0	0.86
Pb-214	6	6		pCi/g	0	0.45
Ra-226	2	3		pCi/g	0	1.28
Ru-103	0	6		pCi/g	0	
Ru-106	0	6	68.21	pCi/g	0	
Sb-124	1	6		pCi/g	0	0.04
Sb-125	0	1	37.73	pCi/g	0	
Tl-208	6	6		pCi/g	0	0.82
Zn-65	0	6		pCi/g	0	
Zr-95	1	6		pCi/g	0	0.05

Table 4
Rad
WST-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	UG004.3 (3357)	UG004.3 (3357)	UG004.4 (3358)	UG004.4 (3358)	UG004.5 (3359)
Sample ID	UG004.3A	UG004.3B	UG004.4A	UG004.4B	UG004.5A
Date Sampled	2/3/1998	2/3/1998	2/4/1998	2/4/1998	2/3/1998
Ac-228	0.5981	0.8869	0.6951	0.9415	0.8511
Ag-108m	-0.01228 U	-0.006096 U	0.0109 U	-0.007517 U	-0.018 U
Ag-110m	0.008035 U	-0.01224 U	0.0205 U	-0.01484 U	-0.01044 U
Am-241	0 U	0 U	0 U	0 U	0 U
Bi-212		1.27	0.9977	0.833	0.9098
Bi-214	0.3937	0.4886	0.4085	0.4085	0.4295
Ce-144	-0.1788 U	-0.03435 U	0.1158 U	0.1847 U	-0.0069 U
Co-58	0.02786	0.006088 U	-0.008392 U	-0.02824 U	0.0008359 U
Co-60	0.008896 U	0.02765 U	0.1143	0.1483	0.09508
Cs-134	0.04698 U	0.09385	-0.03193 U	-0.1625 U	-0.02057 U
Cs-137	0.0234 U	0.03882	-0.01031 U	0.01218 U	0.01323 U
Fe-59	0.02831 U	0.09927	0.01372 U	-0.03865 U	-0.02333 U
I-131		-0.1181 U			
I-133			0.02041 U		
K-40	11.53	16.79	16.01	15.19	14.27
Mn-54	-0.001297 U	0.04175	-0.007542 U	0.003775 U	-0.01804 U
Nb-95	0.0109 U	-0.01059 U	0.01378 U	0.01532 U	0.02813 U
Np-239	-0.003568 U				
Pb-212	0.6196	0.8121	0.855	0.8552	0.7269
Pb-214	0.4175	0.4243	0.4188	0.4549	0.3838
Ra-226	0.9777		1.279		
Ru-103	-0.003611 U	0.01216 U	0.001273 U	0.01072 U	0.01532 U
Ru-106	0.03526 U	-0.2548 U	-0.06381 U	-0.08412 U	0.1833 U
Sb-124	0.03774	0.01722 U	-0.01189 U	-0.004502 U	-0.00927 U
Sb-125		0.2584 U			
Tl-208	0.6608	0.7865	0.8174	0.7472	0.7182
Zn-65	-0.1008 U	0.0412 U	-0.002027 U	0.03038 U	0.04317 U
Zr-95	0.03265 U	0.02697 U	0.01016 U	-0.01039 U	0.00713 U
SOF		0.019	0.024	0.031	0.02

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

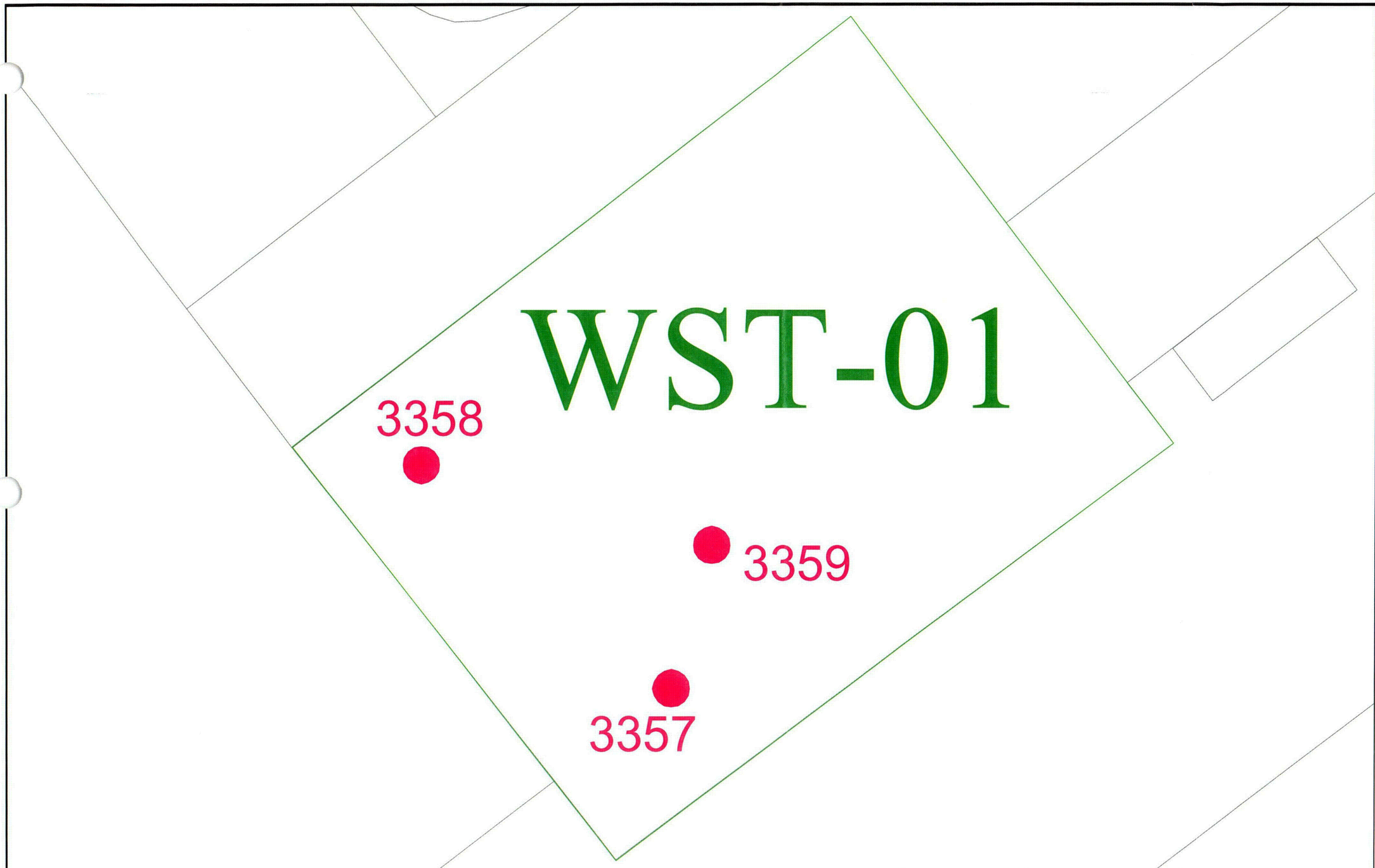
 Blank results indicate chemical not analyzed

Table 4
Rad
WST-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	UG004.5 (3359)
Sample ID	UG004.5B
Date Sampled	2/3/1998
Ac-228	0.7361
Ag-108m	-0.01011 U
Ag-110m	0.02019 U
Am-241	0 U
Bi-212	0.9196
Bi-214	0.417
Ce-144	0.1208 U
Co-58	-0.002097 U
Co-60	0.08105
Cs-134	-0.01738 U
Cs-137	0.01468 U
Fe-59	0 U
I-131	
I-133	
K-40	14.69
Mn-54	-0.001278 U
Nb-95	0.008008 U
Np-239	
Pb-212	0.6954
Pb-214	0.4373
Ra-226	0.7175 U
Ru-103	0.00345 U
Ru-106	-0.1043 U
Sb-124	0.03881 U
Sb-125	
Tl-208	0.5857
Zn-65	-0.03021 U
Zr-95	0.04854
SOF	0.017

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed



Yankee Atomic Power Company
Soil Sample Locations - WST-01

YANKEE

Date: October 2003
Revision: 4

Figure: 51

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Building Historical Site Assessment and Classification Summary

Survey Area Name: Plant Warehouse RCA Designator: **WST-02**

Survey Area Description

Survey Area WST-02 consists of the reinforced concrete pad and subsurface structures that comprise the RCA warehouse building remaining after demolition of the structure is complete.

WST-02 is located in the RCA yard area and is bounded by WST-03 and WST-04 on the north, NSY-7, NOL-03 and WST-01 on the east, NOL-04 on the south and NOL-05 on the west.

Further division of this survey area into survey units as necessary is dependent upon the decommissioning end state configuration

Survey Area Name: Plant Warehouse RCA Designator: **WST-02**

Survey Area History

WST-02, RCA Warehouse was constructed under Plant Alteration (PA) #84-017 in 1984.

The RCA Warehouse was primarily used to store packaged radioactive material. The survey history of survey area WST-02 documents conditions of loose contamination present. When identified as contaminated the survey area WST-02 was decontaminated.

During various phases of the YNPS decommissioning WST-02 was used as a contaminated work area.

Contaminated soil was identified, excavated and disposed of as radioactive waste during construction of the RCA warehouse (Ref 1). Residual radioactivity remains in the soils under a portion of the RCA warehouse structure.

The present location of the non-contaminated construction spoils generated during construction of the RCA Warehouse is thought to be within the SCF area (OOL-09) of the site. (Ref 2)

Scoping/Characterization

Scoping surveys were performed and the data collected used to develop the YNPS Decommissioning Plan. (Ref 3)

Decommissioning Activities

No decommissioning activities have been performed for survey area WST-02.

Survey Area Name: Plant Warehouse RCA Designator: **WST-02**

Findings

Survey area WST-02 was impacted by plant operations. Access to WST-02 is through the RCA.

The radionuclide mix likely to be present in WST-02 includes all radionuclides identified in the radioactive systems of the plant (Ref 4). The primary radionuclides of concern for survey area WST-02 are Co-60, Cs-137, Ag-108m, Sr-90 and tritium.

Current Status

Survey area WST-02 remains in use as a material storage area and potentially may be impacted by ongoing decommissioning activities.

A soil sample location map (Figure 52) has been prepared to show the distribution of sampling locations in WST-02. Only samples representative of soils still present are included on the map (samples of soils representative of soils removed during remediation activities are not presented). One survey media was assessed in WST-02, Soil. The results and analyses (Tables 1-4 in this section) of the samples plotted as "key numbers" on the map represent the radiological status at the time of sampling (a period spanning several years) as sums of fractions of the soil DCGL.

Only those samples with detectable results of the radionuclides of concern appear in Table 1. For this reason the number listed as minimum does not include samples that did not have detectable quantities of the radiological substances of concern. An assessment of the maximum, minimum and mean sum of fractions (SOF) for WST-02 is presented at the end of Table 1 for each survey medium. The results are summarized below.

Soil: Mean SOF is 0.147.
Maximum SOF for a single soil sample is 0.798. (key# 3361)
Minimum SOF for a single soil sample is 0.009. (key# 3362)

Classification Statement

Based upon the historical use of survey area WST-02 and the radiological condition of area surrounding this survey area WST-02 is identified as a Class 1 Area.

Survey Area Name: Plant Warehouse RCA Designator: **WST-02**

Drawings

H Loney Construction. Co. A-1
H Loney Construction. Co. S-1

References

1.	Plant Information Report (PIR) 84-16, "Drain Pipe Failure," dated December 5,1984.
2.	"Summary of Excavation Volumes for YNPS Construction Performed During the Time Period of Plant Operation," dated October 1997.
3.	YNPS Decommissioning Plan, Rev. 0.0.
4	"Radionuclides for Building Surfaces and Soil DCGL Determinations," YA-REPT-00-001-03.

Table 1
Sum of Fractions
WST-02 -- Soil
Yankee Nuclear Power Station Rowe, MA

Station Key	Station	Sample ID		Sum Of Fractions
3363	WD002.2	WD002.2A		0.052
3362	WD002.1	WD002.1E		0.013
3362	WD002.1	WD002.1D		0.009
3362	WD002.1	WD002.1C		0.063
3362	WD002.1	WD002.1B		0.061
3362	WD002.1	WD002.1A		0.344
3361	WD001.2	WD001.2B		0.012
3361	WD001.2	WD001.2A		0.798
3360	WD001.1	WD001.1C		0.110
3360	WD001.1	WD001.1B		0.074
3360	WD001.1	WD001.1A		0.082
			Min	0.009
			Max	0.798
			Mean	0.147

Table 2
Statistical Data Summary – WST-02 -- Soil
Yankee Nuclear Power Station Rowe, MA

Parameter	Units	# Detects	# Sample Results	Mean	Std. Dev	Minimum	Maximum	Median
Ac-228	pCi/g	17	17	0.786	0.140	0.415	0.969	0.796
Ag-108m	pCi/g	0	17	0.000				
Ag-110m	pCi/g	0	17	0.000				
Am-241	pCi/g	0	17	0.000				
Bi-212	pCi/g	15	16	0.872	0.194	0.481	1.213	0.857
Bi-214	pCi/g	17	17	0.444	0.080	0.290	0.583	0.446
Ce-144	pCi/g	0	17	0.000				
Co-58	pCi/g	0	17	0.000				
Co-60	pCi/g	11	17	0.686	1.094	0.046	3.712	0.284
Cs-134	pCi/g	0	17	0.000				
Cs-137	pCi/g	5	17	0.133	0.141	0.041	0.378	0.064
Fe-59	pCi/g	0	17	0.000				
K-40	pCi/g	17	17	17.561	1.485	14.470	19.380	18.040
Mn-54	pCi/g	0	17	0.000				
Mo-99	pCi/g	0	1	0.000				
Nb-95	pCi/g	0	17	0.000				
Np-239	pCi/g	0	4	0.000				
Pb-212	pCi/g	17	17	0.786	0.156	0.327	0.926	0.844
Pb-214	pCi/g	17	17	0.468	0.096	0.290	0.657	0.470
Ra-226	pCi/g	11	13	1.334	0.183	1.057	1.690	1.384
Ru-103	pCi/g	0	17	0.000				
Ru-106	pCi/g	1	17	0.317		0.317	0.317	0.317
Sb-124	pCi/g	1	17	0.048		0.048	0.048	0.048
Sb-125	pCi/g	0	3	0.000				
Tl-208	pCi/g	16	16	0.707	0.134	0.443	0.882	0.714
Zn-65	pCi/g	0	17	0.000				
Zr-95	pCi/g	1	17	0.069		0.069	0.069	0.069

Table 3
Summary of Detected Results Above Criteria
WST-02 -- Soil
Yankee Nuclear Power Station Rowe, MA
DCGL_Soil

Parameter	# Detects	# Sample Results	Criterion Concentration	Units	# Detects Above Criterion	Maximum Detected
Ac-228	17	17		pCi/g	0	0.97
Ag-108m	0	17	8.52	pCi/g	0	
Ag-110m	0	17		pCi/g	0	
Am-241	0	17	44.35	pCi/g	0	
Bi-212	15	16		pCi/g	0	1.21
Bi-214	17	17		pCi/g	0	0.58
Ce-144	0	17		pCi/g	0	
Co-58	0	17		pCi/g	0	
Co-60	11	17	4.84	pCi/g	0	3.71
Cs-134	0	17	6.71	pCi/g	0	
Cs-137	5	17	12.24	pCi/g	0	0.38
Fe-59	0	17		pCi/g	0	
K-40	17	17		pCi/g	0	19.38
Mn-54	0	17	21.66	pCi/g	0	
Mo-99	0	1		pCi/g	0	
Nb-95	0	17		pCi/g	0	
Np-239	0	4		pCi/g	0	
Pb-212	17	17		pCi/g	0	0.93
Pb-214	17	17		pCi/g	0	0.66
Ra-226	11	13		pCi/g	0	1.69
Ru-103	0	17		pCi/g	0	
Ru-106	1	17	68.21	pCi/g	0	0.32
Sb-124	1	17		pCi/g	0	0.05
Sb-125	0	3	37.73	pCi/g	0	
Tl-208	16	16		pCi/g	0	0.88
Zn-65	0	17		pCi/g	0	
Zr-95	1	17		pCi/g	0	0.07

Table 4
Rad
WST-02 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	WD001.1 (3360)	WD001.1 (3360)	WD001.1 (3360)	WD001.2 (3361)	WD001.2 (3361)
Sample ID	WD001.1A	WD001.1B	WD001.1C	WD001.2A	WD001.2B
Date Sampled	6/16/1998	6/16/1998	6/16/1998	6/16/1998	6/16/1998
Ac-228	0.4153	0.9693	0.8029	0.8349	0.9558
Ag-108m	-0.009578 U	0.0002772 U	-0.0293 U	0.01594 U	-0.01841 U
Ag-110m	0.008587 U	-0.03729 U	-0.02706 U	-0.03959 U	0.007855 U
Am-241	0 U	0 U	0 U	0 U	0 U
Bi-212	0.7602	1.08	0.701	0.648 U	1.076
Bi-214	0.3656	0.4455	0.4296	0.5605	0.4463
Ce-144	0.0811 U	-0.0668 U	0.06482 U	-0.04391 U	-0.09914 U
Co-58	-0.01922 U	-0.02612 U	-0.01475 U	0.04212 U	-0.02558 U
Co-60	0.3797	0.3573	0.5111	3.712	0.05834
Cs-134	0.003946 U	-0.03927 U	0.00734 U	-0.06965 U	0.03743 U
Cs-137	0.0411	0.03622 U	0.0504	0.3775	0.03461 U
Fe-59	-0.01637 U	-0.05544 U	-0.02258 U	0.09902 U	-0.0335 U
K-40	14.47	19.02	19.38	18.55	18.04
Mn-54	-0.004193 U	0.02687 U	0.02974 U	0.03076 U	-0.02039 U
Mo-99		0.4584 U			
Nb-95	-0.02589 U	-0.001204 U	0.01851 U	-0.0003425 U	-0.01164 U
Np-239					
Pb-212	0.3268	0.8547	0.8586	0.7434	0.8891
Pb-214	0.2898	0.4668	0.4807	0.4461	0.4785
Ra-226		1.057	1.302	0.9223 U	
Ru-103	-0.01371 U	-0.01279 U	0.01003 U	-0.02091 U	0.002921 U
Ru-106	-0.02011 U	0.08037 U	0.04182 U	0.08092 U	0.2258 U
Sb-124	0.04788	-0.02527 U	-0.03772 U	0.003284 U	-0.01445 U
Sb-125					
Tl-208	0.4428	0.5763	0.8764	0.6976	0.806
Zn-65	0.03008 U	-0.0002911 U	-0.1412 U	-0.1829 U	-0.0242 U
Zr-95	0.03203 U	-0.001688 U	0.06925	-0.02104 U	-0.002033 U
SOF	0.082	0.074	0.11	0.798	0.012

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
WST-02 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	WD001.2 (3361)		WD001.2 (3361)		WD002.1 (3362)		WD002.1 (3362)		WD002.1 (3362)	
Sample ID	WD001.2C		WD001.2D		WD002.1A		WD002.1B		WD002.1C	
Date Sampled	6/16/1998		6/16/1998		6/11/1998		6/11/1998		6/11/1998	
Ac-228		0.8762		0.7408		0.6149		0.7723		0.9444
Ag-108m	0.004496 U		-0.003647 U		0.01586 U		0.02485 U		-0.0137 U	
Ag-110m	0.02677 U		-0.01194 U		0.008631 U		0.008507 U		-0.004646 U	
Am-241	0 U		0 U		0 U		0 U		0 U	
Bi-212		1.01		1.06				0.8033		1.213
Bi-214		0.467		0.3818		0.3531		0.4824		0.5827
Ce-144	-0.002879 U		0.02932 U		-0.03758 U		-0.1148 U		0.1028 U	
Co-58	-0.01386 U		0.006446 U		-0.006073 U		-0.02552 U		-0.0288 U	
Co-60	0.007222 U		-0.01494 U			1.614		0.2691		0.2841
Cs-134	-0.06081 U		-0.00326 U		-0.01108 U		0.006273 U		-0.01501 U	
Cs-137	0.01827 U		0.01289 U			0.1325		0.06388	0.03775 U	
Fe-59	0.04554 U		0 U		-0.07511 U		0.03069 U		0.006336 U	
K-40		17.41		17.98		15.65		18.45		18.41
Mn-54	-0.01237 U		-0.004976 U		-0.00495 U		0.01155 U		-0.01822 U	
Mo-99										
Nb-95	-0.02761 U		0.02017 U		0.02387 U		0.005399 U		0.006957 U	
Np-239					1.048 U		-0.837 U			
Pb-212		0.8683		0.8295		0.5136		0.8654		0.9154
Pb-214		0.4432		0.3713		0.4698		0.4945		0.6027
Ra-226		1.407		1.075		1.384		1.441		1.198
Ru-103	-0.03639 U		-0.005772 U		-0.001625 U		-0.0009761 U		0.006078 U	
Ru-106	-0.1517 U		0.1709 U		-0.1008 U		0.1562 U			0.3172
Sb-124	-0.00789 U		0 U		0.009624 U		-0.01623 U		-0.01248 U	
Sb-125	-0.1103 U						-0.1055 U			
Tl-208		0.8089		0.8107		0.5483		0.8819		
Zn-65	0.04687 U		-0.03648 U		-0.06858 U		-0.1334 U		0.05615 U	
Zr-95	-0.07638 U		0.001822 U		0.04773 U		0.03686 U		0.02873 U	
SOF						0.344		0.061		0.063

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
WST-02 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	WD002.1 (3362)	WD002.1 (3362)	WD002.2 (3363)	WD002.2 (3363)	WD002.2 (3363)
Sample ID	WD002.1D	WD002.1E	WD002.2A	WD002.2B	WD002.2C
Date Sampled	6/11/1998	6/11/1998	6/15/1998	6/15/1998	6/15/1998
Ac-228	0.8933	0.7963	0.6449	0.7582	0.7174
Ag-108m	-0.008961 U	0.01863 U	0.007614 U	-0.009366 U	0.01766 U
Ag-110m	0.02697 U	0.03183 U	0.0045 U	-0.008542 U	0.008109 U
Am-241	0 U	0 U	0 U	0 U	0 U
Bi-212	0.7979	0.4812	0.8613	0.9282	0.6289
Bi-214	0.4597	0.5806	0.4451	0.4491	0.2896
Ce-144	0.03771 U	0.1338 U	-0.2186 U	0.03459 U	-0.0745 U
Co-58	0.001067 U	-0.0394 U	-0.005908 U	-0.02281 U	-0.01438 U
Co-60	0.04555	0.06125	0.2512	0.03002 U	-0.005101 U
Cs-134	-0.008308 U	-0.08126 U	-0.1333 U	-0.1592 U	-0.1204 U
Cs-137	-0.02284 U	-0.02111 U	0.01965 U	0.03625 U	-0.0059 U
Fe-59	0.01136 U	-0.02481 U	-0.02353 U	0.02924 U	-0.03702 U
K-40	18.44	18.87	15.99	17.16	14.71
Mn-54	0.004721 U	-0.01239 U	-0.00108 U	0.008964 U	0.01387 U
Mo-99					
Nb-95	-0.01082 U	0.01654 U	-0.009331 U	0.01135 U	0.01707 U
Np-239	-1.711 U	-0.9905 U			
Pb-212	0.9255	0.8378	0.6661	0.7948	0.7474
Pb-214	0.479	0.6574	0.3834	0.4097	0.3377
Ra-226	0.8871 U	1.437		1.427	
Ru-103	0.02251 U	-0.01653 U	-0.006747 U	-0.03291 U	0.0071 U
Ru-106	-0.1118 U	-0.2636 U	-0.02039 U	-0.001843 U	0.02273 U
Sb-124	-0.00836 U	0.02077 U	0 U	-0.004649 U	0.01044 U
Sb-125	0.07983 U				
Tl-208	0.6554	0.8569	0.5785	0.6423	0.5942
Zn-65	0.04536 U	-0.009466 U	-0.1167 U	-0.04535 U	-0.05478 U
Zr-95	0.03041 U	0.03749 U	-0.004236 U	0.004467 U	0.009443 U
SOF	0.009	0.013	0.052		

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
WST-02 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

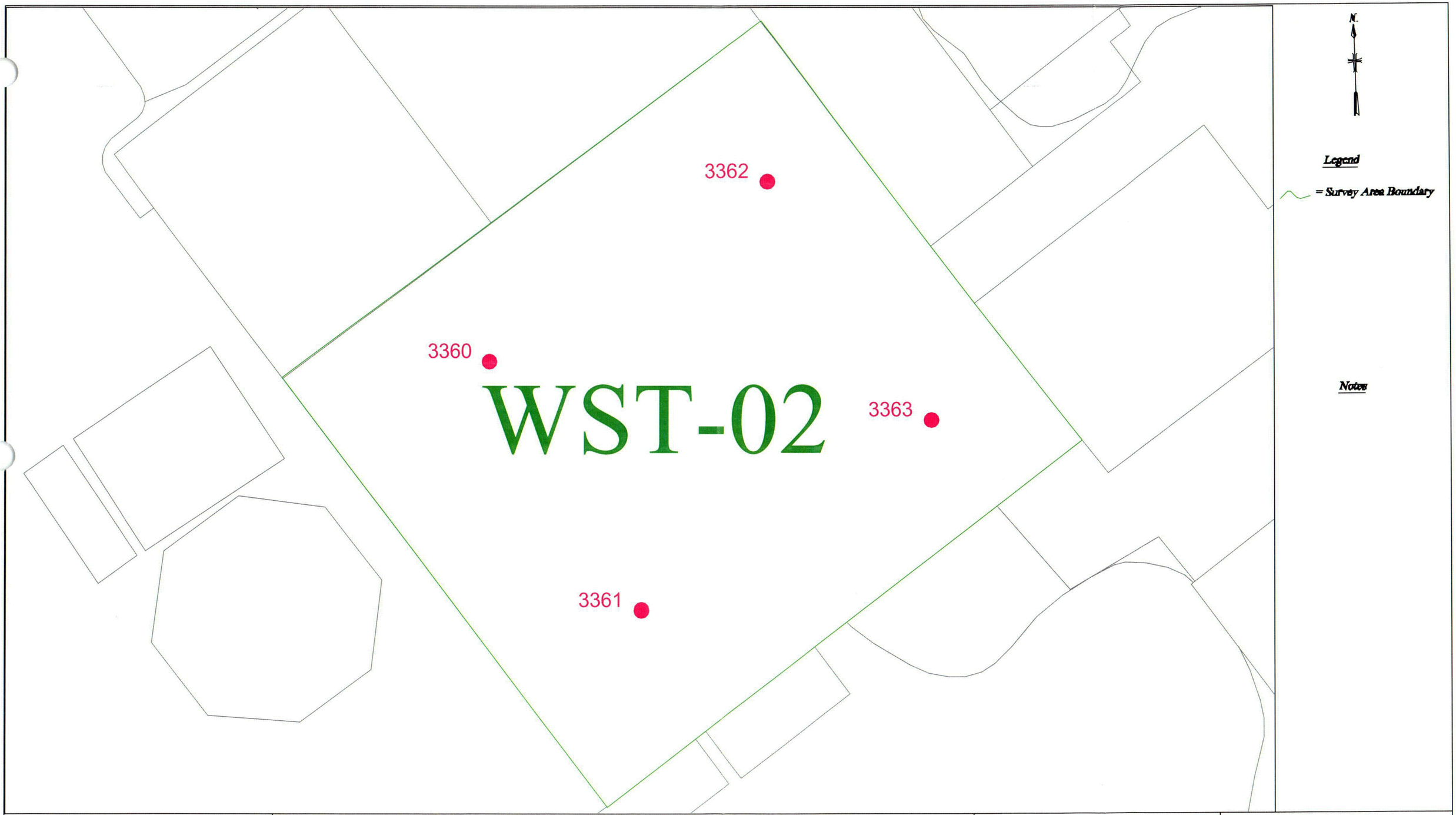
Station (Key)	WD002.2 (3363)	WD002.2 (3363)
Sample ID	WD002.2D	WD002.2E
Date Sampled	6/15/1998	6/15/1998
Ac-228	0.8767	0.7554
Ag-108m	-0.01802 U	-0.005004 U
Ag-110m	-0.02626 U	0.02252 U
Am-241	0 U	0 U
Bi-212	0.8571	0.825
Bi-214	0.4482	0.36
Ce-144	0.1005 U	-0.03251 U
Co-58	0.006905 U	-0.007645 U
Co-60	0.03441 U	-0.01099 U
Cs-134	0.009073 U	-0.06512 U
Cs-137	0.002531 U	0.01768 U
Fe-59	-0.02854 U	0.005682 U
K-40	17.8	18.21
Mn-54	-0.01624 U	-0.0144 U
Mo-99		
Nb-95	0.02393 U	0.002209 U
Np-239		
Pb-212	0.8774	0.8435
Pb-214	0.5757	0.577
Ra-226	1.259	1.69
Ru-103	0.009448 U	-0.009902 U
Ru-106	0.08407 U	0.1468 U
Sb-124	-0.01648 U	-0.004528 U
Sb-125		
Tl-208	0.73	0.7996
Zn-65	-0.07422 U	0.01082 U
Zr-95	0 U	0.0351 U
SOF		

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

Blank results indicate chemical not analyzed

Underground Systems

WST-02				
Structure / System	Component	Description	Location	Impacted?
Abandoned Street Lighting	electric cable	from ~35' N of SW corner of PCA warehouse going E to opposite side of bldg		



	Yankee Atomic Power Company *Soil Sample Locations - WST-02*	YANKEE	*Date: October 2003* *Revision: 4*	*Figure: 52*

Building Historical Site Assessment and Classification Summary

Survey Area Name: Waste Disposal Building Designator: **WST-03**

Survey Area Description

Survey Area WST-03 consists of reinforced concrete floor, foundations and sub-grade structures of the Waste Disposal Building expected to remain after demolition of the above-grade structure is complete.

The floor area of WST-03 is at elevation 1035'and includes the waste gas compressor room, the liquid waste transfer pump room, the drum drying area and the operator's station and motor control center. The WST-03 footprint includes the following below grade structures: the evaporator cubicle, drumming pit and three pipe chases.

The soils present within and under and around the Waste Disposal Building structure include back fill, overburden and lodgment till. The lodgment till is relatively impermeable to groundwater flow. The overburden is more permeable. The backfill is the most permeable media and consequently areas containing backfill are the likely pathways for subsurface migration of radioactivity.

The structures and systems present in WST-03 include:

- The electrical conduit duct tray
- Drumming area floor drain sump pit
- Floor drain piping,
- Service water piping,

Survey Area Name: Waste Disposal Building Designator: **WST-03**

Survey Area History

WST-03 was designed to contain radioactive operating systems and the leakage of radioactivity associated with such systems. WST-03 was specifically designed and constructed to contain and conduct radioactive liquid spills to waste collection tanks. Survey area WST-03 spaces were connected to the primary plant ventilation system that discharged to the Primary Vent Stack. The negative pressure maintained within the spaces channeled the release of airborne radioactivity through a monitored discharge to the environment.

This structure was subject to contaminating events involving leakage of radioactive liquids from pump seals, liquid waste spills and the general spread of contamination by operations and maintenance activities.

An incinerator used to dispose of combustible radioactive waste was located on an elevated platform at the west end of the drumming pit. The discharge of combustion gases was filtered and monitored via batch sampling. Operation of the incinerator continued through the mid 1970's when it was removed from service.

For the most part with the exclusion of the drum drying area, the 1035' elevation of the WST-03 was maintained as a non-contaminated area. The cubicles and pipe chases were, for much of the plant history, contaminated areas. Migration of contamination out of posted contaminated areas resulted in the occasional contamination of the 1035' elevation of WST-03. This area was decontaminated when contamination was identified in these areas.

Scoping/Characterization

Scoping surveys were performed and the data collected used to develop the YNPS Decommissioning Plan. (Ref 1)

Decommissioning Activities

Decommissioning Work Plans (DWP) activities performed in the WST-03 survey area included the following:

- WDBA-01 Removal of WD Building MCC5.
- WDBA-02Waste Disposal Bldg Area Clean Out.
- WDSR-01 Waste Disposal System Removal.
- WG-01 Removal of Waste Gas System.

The decommissioning activities performed have removed all radioactively contaminated piping, pumps, tanks, and other system components from WST-03. In addition reinforced concrete surfaces have been de-contaminated via surface removal techniques.

Removal of the floor drain system piping and sump pit also required removal of portion of the floor and sub-floor soils.

Findings

The history of the WST-03 indicates that this structure is impacted as a result of plant operations.

The radionuclide mix likely to be present in WST-03 includes all radionuclides identified in the radioactive systems of the plant (Ref 2). The primary radionuclides of concern for survey area WST-03 are Co-60, Cs-137, Ag-108m, Sr-90 and tritium.

Current Status

Survey area WST-03 remains in use as a material storage area and potentially may be impacted by ongoing decommissioning activities.

A soil sample location map (Figure 53) has been prepared to show the distribution of sampling locations in WST-03. Only samples representative of soils still present are included on the map (samples of soils representative of soils removed during remediation activities are not presented). One survey media was assessed in WST-03, Soil. The results and analyses (Tables 1-4 in this section) of the samples plotted as "key numbers" on the map represent the radiological status at the time of sampling (a period spanning several years) as sums of fractions of the soil DCGL.

Only those samples with detectable results of the radionuclides of concern appear in Table 1. For this reason the number listed as minimum does not include samples that did not have detectable quantities of the radiological substances of concern. An assessment of the maximum, minimum and mean sum of fractions (SOF) for WST-03 is presented at the end of Table 1 for each survey medium. The results are summarized below.

Soil: Mean SOF is 0.206.
Maximum SOF for a single soil sample is 3.526. (key# 3064)
Minimum SOF for a single soil sample is 0.002. (key# 3364)

Classification Statement

Based upon the historical use of survey area WST-03 and the radiological condition of area surrounding this survey area WST-03 is identified as a Class 1 Area.

Building Historical Site Assessment and Classification Summary

Survey Area Name: Waste Disposal Building Designator: **WST-03**

Drawings

9699-FA-17A
9699-FA-17B
9699-FA-17C
9699-FB-5 F
9699-FC-36A
9699-FC-36B
9699-RC-36C

References

1.	YNPS Decommissioning Plan, Revision 0.0.
2.	"Radionuclides for Building Surfaces and Soil DCGL Determinations," YA-REPT-00-001-03.

Table 1
Sum of Fractions
WST-03 -- Soil
Yankee Nuclear Power Station Rowe, MA

Station Key	Station	Sample ID	Sum Of Fractions
3068	SB9A	SB9A3	0.010
3002	CB12	CB12A	0.177
3367	WD004.3	WD004.3A	0.075
3366	WD004.2	WD004.2D	0.090
3366	WD004.2	WD004.2C	0.014
3366	WD004.2	WD004.2B	0.017
3366	WD004.2	WD004.2A	0.094
3365	WD004.1	WD004.1D	0.147
3365	WD004.1	WD004.1C	0.043
3365	WD004.1	WD004.1B	0.160
3368	WD004.4	WD004.4C	0.165
3364	WD003.1	WD003.1A	0.002
3368	WD004.4	WD004.4D	0.415
3064	SB10	SB10F	0.022
3064	SB10	SB10E	0.068
3064	SB10	SB10D	0.217
3064	SB10	SB10C	0.197
3064	SB10	SB10B	0.350
3064	SB10	SB10A	3.526
3002	CB12	CB12E	0.553
3002	CB12	CB12D	0.306
3002	CB12	CB12C	0.566
3002	CB12	CB12B	0.432
3365	WD004.1	WD004.1A	0.558
3385	WD008.1	WD008.1B	0.003
3400	WD011.6	WD011.6B	0.018
3400	WD011.6	WD011.6A	0.024

Table 1
Sum of Fractions
WST-03 -- Soil
Yankee Nuclear Power Station Rowe, MA

Station Key	Station	Sample ID	Sum Of Fractions
3398	WD011.4	WD011.4A	0.007
3397	WD011.3	WD011.3A	0.044
3396	WD011.2	WD011.2B	0.005
3396	WD011.2	WD011.2A	0.005
3394	WD010.3	WD010.3C	0.258
3393	WD010.2	WD010.2B	0.019
3393	WD010.2	WD010.2A	0.058
3368	WD004.4	WD004.4B	0.205
3389	WD008.5	WD008.5A	0.016
3401	WD012	WD012A	0.004
3384	WD007.9	WD007.9A	0.021
3383	WD007.8	WD007.8B	0.003
3380	WD007.3	WD007.3D	0.010
3380	WD007.3	WD007.3C	0.003
3372	WD005.3	WD005.3D	0.009
3372	WD005.3	WD005.3A	0.392
3371	WD005.2	WD005.2A	0.019
3370	WD005.1	WD005.1B	0.080
3370	WD005.1	WD005.1A	0.087
3369	WD004.5	WD004.5A	0.376
3391	WD008.7	WD008.7A	0.016
		Min	0.002
		Max	3.526
		Mean	0.206

Table 2
Statistical Data Summary – WST-03 -- Soil
Yankee Nuclear Power Station Rowe, MA

Parameter	Units	# Detects	# Sample Results	Mean	Std. Dev	Minimum	Maximum	Median
Ac-228	pCi/g	85	85	1.018	0.512	0.216	2.633	0.850
Ag-108m	pCi/g	1	85	0.040		0.040	0.040	0.040
Ag-110m	pCi/g	2	85	0.053	0.002	0.052	0.054	0.053
Am-241	pCi/g	0	59	0.000				
Ba-133	pCi/g	0	1	0.000				
Bi-212	pCi/g	56	72	3.005	14.368	0.256	108.500	0.900
Bi-214	pCi/g	81	81	0.616	0.337	0.150	1.667	0.480
Ce-144	pCi/g	5	85	0.578	0.541	0.243	1.512	0.288
Co-58	pCi/g	1	85	0.037		0.037	0.037	0.037
Co-60	pCi/g	34	85	0.735	1.063	0.040	4.928	0.281
Cr-51	pCi/g	0	1	0.000				
Cs-134	pCi/g	9	85	0.171	0.214	0.034	0.722	0.103
Cs-137	pCi/g	29	85	1.889	5.437	0.037	29.370	0.524
Fe-59	pCi/g	0	85	0.000				
I-131	pCi/g	0	1	0.000				
I-132	pCi/g	0	5	0.000				
I-133	pCi/g	0	2	0.000				
I-135	pCi/g	0	1	0.000				
K-40	pCi/g	82	85	20.637	11.297	0.428	52.870	17.035
Mn-54	pCi/g	1	85	0.035		0.035	0.035	0.035
Mo-99	pCi/g	0	1	0.000				
Nb-95	pCi/g	6	85	0.060	0.034	0.033	0.119	0.049
Np-239	pCi/g	0	14	0.000				
Pb-212	pCi/g	85	85	1.072	0.619	0.224	3.082	0.845
Pb-214	pCi/g	85	85	0.701	0.423	0.151	2.163	0.540
Ra-226	pCi/g	45	57	2.047	1.581	0.525	9.892	1.587
Ru-103	pCi/g	1	85	0.114		0.114	0.114	0.114
Ru-106	pCi/g	3	85	0.289	0.069	0.235	0.366	0.265
Sb-124	pCi/g	2	85	0.047	0.032	0.024	0.070	0.047
Sb-125	pCi/g	0	7	0.000				
Te-129m	pCi/g	1	1	1.656		1.656	1.656	1.656
Tl-208	pCi/g	78	78	0.967	0.527	0.223	2.731	0.789
Zn-65	pCi/g	0	85	0.000				
Zr-95	pCi/g	4	85	0.105	0.073	0.057	0.213	0.074

Table 3
Summary of Detected Results Above Criteria
WST-03 -- Soil
Yankee Nuclear Power Station Rowe, MA
DCGL_Soil

Parameter	# Detects	# Sample Results	Criterion Concentration	Units	# Detects Above Criterion	Maximum Detected
Ac-228	85	85		pCi/g	0	2.63
Ag-108m	1	85	8.52	pCi/g	0	0.04
Ag-110m	2	85		pCi/g	0	0.05
Am-241	0	59	44.35	pCi/g	0	
Ba-133	0	1		pCi/g	0	
Bi-212	56	72		pCi/g	0	108.50
Bi-214	81	81		pCi/g	0	1.67
Ce-144	5	85		pCi/g	0	1.51
Co-58	1	85		pCi/g	0	0.04
Co-60	34	85	4.84	pCi/g	1	4.93
Cr-51	0	1		pCi/g	0	
Cs-134	9	85	6.71	pCi/g	0	0.72
Cs-137	29	85	12.24	pCi/g	1	29.37
Fe-59	0	85		pCi/g	0	
I-131	0	1		pCi/g	0	
I-132	0	5		pCi/g	0	
I-133	0	2		pCi/g	0	
I-135	0	1		pCi/g	0	
K-40	82	85		pCi/g	0	52.87
Mn-54	1	85	21.66	pCi/g	0	0.04
Mo-99	0	1		pCi/g	0	
Nb-95	6	85		pCi/g	0	0.12
Np-239	0	14		pCi/g	0	
Pb-212	85	85		pCi/g	0	3.08
Pb-214	85	85		pCi/g	0	2.16
Ra-226	45	57		pCi/g	0	9.89
Ru-103	1	85		pCi/g	0	0.11
Ru-106	3	85	68.21	pCi/g	0	0.37
Sb-124	2	85		pCi/g	0	0.07
Sb-125	0	7	37.73	pCi/g	0	
Te-129m	1	1		pCi/g	0	1.66
Tl-208	78	78		pCi/g	0	2.73
Zn-65	0	85		pCi/g	0	
Zr-95	4	85		pCi/g	0	0.21

Table 4
Rad
WST-03 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	CB12 (3002)	CB12 (3002)	CB12 (3002)	CB12 (3002)	CB12 (3002)	SB10 (3064)
Sample ID	CB12A	CB12B	CB12C	CB12D	CB12E	SB10A
Date Sampled	12/10/1997	12/10/1997	12/10/1997	12/10/1997	12/10/1997	12/10/1997
Ac-228	2.532	2.102	2.203	1.842	1.14	2.633
Ag-108m	0.01043 U	0.05048 U	0.005961 U	0.02403 U	-0.01549 U	0.02604 U
Ag-110m	0.09367 U	0.06108 U	-0.003996 U	0.05304 U	-0.0207 U	0.08436 U
Am-241	0 U	0 U	0 U	0 U	0 U	0 U
Ba-133						
Bi-212	2.898	1.457 U	1.704 U	1.754		
Bi-214	1.667	1.171	1.234	1.339	1.074	1.483
Ce-144	0.05261 U	-0.1912 U	-0.5167 U	0.447 U	-0.2801 U	1.512
Co-58	0.0007895 U	-0.04502 U	0.05962 U	0.04979 U	-0.01212 U	-0.06082 U
Co-60	0.8561	2.089	2.74	1.481	2.674	4.928
Cr-51						
Cs-134	-0.06274 U	-0.1184 U	-0.3517 U	-0.1196 U	-0.05063 U	0.7223
Cs-137	0.03999 U	0.007131 U	-0.0373 U	-0.05616 U	0.02586 U	29.37
Fe-59	0.06865 U	0.107 U	-0.04232 U	-0.01304 U	0.05544 U	-0.1803 U
I-131						
I-132						
I-133						
I-135						
K-40	41.18	39.77	49.33	38.78	33.64	46.41
Mn-54	0.0208 U	0.04779 U	-0.0597 U	-0.06204 U	0.02974 U	0.07454 U
Mo-99						
Nb-95	-0.01449 U	0.008763 U	-0.01046 U	0.1194	-0.003667 U	-0.1202 U
Np-239			-0.2584 U			
Pb-212	3.026	2.464	2.296	2.024	1.025	2.479
Pb-214	1.997	1.473	1.539	1.32	1.287	2.163
Ra-226	4.283	2.355 U		2.285 U	3.386	9.892
Ru-103	-0.06171 U	-0.03457 U	0.114	0.0287 U	-0.02491 U	0.07716 U
Ru-106	-0.06657 U	-0.05935 U	0.1242 U	-0.1012 U	0.7486 U	0.4663 U
Sb-124	0.05553 U	0.1039 U	0.006213 U	-0.05316 U	0.01749 U	-0.02528 U
Sb-125						
Te-129m						
Tl-208	2.731	2.393	2.232	2.07		
Zn-65	0.1264 U	-0.1431 U	0.2272 U	0.03351 U	0.01073 U	-0.3036 U
Zr-95	-0.01026 U	0.0434 U	0.1981 U	0.01851 U	0.0623 U	-0.2795 U
SOF	0.177	0.432	0.566	0.306	0.553	3.526

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
WST-03 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	SB10 (3064)	SB10 (3064)	SB10 (3064)	SB10 (3064)	SB10 (3064)	SB10 (3064)
Sample ID	SB10B	SB10C	SB10D	SB10E	SB10F	SB10G
Date Sampled	12/10/1997	12/10/1997	12/10/1997	12/10/1997	12/11/1997	12/11/1997
Ac-228	1.758	1.445	1.218	2.001	1.76	1.332
Ag-108m	0.05377 U	0.05483 U	-0.001209 U	0.005217 U	0.006135 U	0.04901 U
Ag-110m	0.04576 U	0.03841 U	-0.06725 U	-0.02729 U	-0.02116 U	0.03704 U
Am-241	0 U	0 U	0 U	0 U	0 U	0 U
Ba-133						
Bi-212	1.41 U			1.339 U		
Bi-214	0.9218	1.248	0.8588	1.136	1.023	1.021
Ce-144	-0.00267 U	0.3867 U	0.481 U	-0.4446 U	-0.2839 U	-0.09492 U
Co-58	-0.1137 U	-0.03792 U	-0.0317 U	-0.04941 U	-0.04244 U	0.02425 U
Co-60	1.531	0.745	0.741	0.3311	0.1049	0.01768 U
Cr-51						
Cs-134	-0.01484 U	-0.0223 U	0.01765 U	-0.2123 U	-0.3942 U	0.1021 U
Cs-137	0.4141	0.5242	0.7853	0.007367 U	-0.03163 U	-0.02694 U
Fe-59	-0.2368 U	-0.1349 U	-0.05866 U	0.01579 U	-0.03905 U	0.01003 U
I-131						
I-132						
I-133						
I-135						
K-40	35.35	52.87	29.79	38.14	36.5	27.79
Mn-54	0.004833 U	0.06991 U	-0.0205 U	0.06189 U	-0.06264 U	0.03776 U
Mo-99						
Nb-95	0.01104 U	0.04229 U	-0.0537 U	-0.049 U	0.0317 U	0.07609
Np-239		0.2017 U				
Pb-212	1.888	1.97	1.527	2.114	1.631	1.315
Pb-214	1.197	1.444	1.083	1.638	1.633	0.9288
Ra-226	2.201 U	2.865	2.491	3.522	2.161 U	2.865
Ru-103	-0.008574 U	-0.01924 U	-0.03803 U	0.005792 U	0.005474 U	-0.01138 U
Ru-106	-0.3447 U	-0.01286 U	-0.5173 U	0.4905 U	-0.05265 U	-0.2056 U
Sb-124	0.02874 U	0 U	0.03131 U	0.02146 U	0.0856 U	0.002618 U
Sb-125	0.05144 U					
Te-129m						
Tl-208	1.638	1.937		2.166	1.484	1.193
Zn-65	0.09684 U	-0.1535 U	-0.1705 U	0.02072 U	0.07561 U	-0.285 U
Zr-95	-0.02918 U	0.2127	0.0272 U	0.08717 U	0.1227 U	0.08082 U
SOF	0.35	0.197	0.217	0.068	0.022	

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
WST-03 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	SB8 (3066)	SB9 (3067)	SB9A (3068)	SB9A (3068)	SB9A (3068)	WD003.1 (3364)
Sample ID	SB8	SB9	SB9A2	SB9A3	SB9A4	WD003.1A
Date Sampled	12/12/1997	12/12/1997	12/12/1997	12/12/1997	12/12/1997	10/2/1997
Ac-228	2.017	2.392	2.245	1.934	0.2164	0.8521
Ag-108m	-0.01161 U	0.0552 U	0.01121 U	0.001619 U	-0.0009126 U	-0.01095 U
Ag-110m	0.02031 U	-0.05413 U	-0.03814 U	0.005875 U	-0.001077 U	-0.001739 U
Am-241	0 U	0 U	0 U	0 U	0 U	0 U
Ba-133						
Bi-212	1.144	3.546	2.882	1.866	0.2561	0.4758 U
Bi-214	1.226	1.565	1.416	0.9929	0.1497	0.368
Ce-144	0.5885	0.2718 U	0.5794 U	0.2067 U	0.002947 U	-0.02354 U
Co-58	0.03267 U	0.003407 U	-0.0193 U	-0.07122 U	0.001257 U	-0.01413 U
Co-60	-0.01756 U	0.02783 U	-0.02628 U	0.05153 U	0.0007471 U	-0.02617 U
Cr-51						
Cs-134	0.1513 U	-0.05293 U	-0.1794 U	-0.0213 U	-0.01745 U	0.01979 U
Cs-137	0.05079 U	0.04793 U	0.06854 U	0.1219	-0.004124 U	0.03315 U
Fe-59	-0.04263 U	0.1189 U	0.1138 U	-0.02318 U	-0.006299 U	0.02707 U
I-131						
I-132						
I-133						
I-135						
K-40	32.42	36.19	43.44	42.15	3.899	15.65
Mn-54	0.02811 U	-0.0074 U	0.01849 U	-0.01473 U	-0.006575 U	0.03504
Mo-99						
Nb-95	-0.03361 U	-0.05116 U	-0.05718 U	-0.009787 U	0.0007201 U	0.02678 U
Np-239						
Pb-212	2.145	3.056	3.082	2.304	0.2241	0.7332
Pb-214	1.373	1.595	1.648	1.182	0.1514	0.4514
Ra-226	3.051	3.704		2.936	0.5251	1.38
Ru-103	-0.02862 U	0.01977 U	-0.04044 U	-0.05663 U	0.002111 U	-0.005244 U
Ru-106	-0.2124 U	0.5051 U	0.05299 U	0.5612 U	-0.005753 U	0.222 U
Sb-124	0.02456 U	-0.0318 U	-0.02638 U	-0.06831 U	-0.001926 U	-0.004207 U
Sb-125						
Te-129m						
Tl-208	1.595	2.522	2.171	1.843	0.2229	0.7043
Zn-65	-0.1874 U	0.1203 U	-0.1999 U	0.09325 U	-0.004227 U	-0.1163 U
Zr-95	0.06747 U	-0.008201 U	-0.02433 U	0.0291 U	0.001537 U	0.0184 U
SOF				0.01		0.002

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
WST-03 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	WD003.1 (3364)	WD004.1 (3365)	WD004.1 (3365)	WD004.1 (3365)	WD004.1 (3365)
Sample ID	WD003.1B	WD004.1A	WD004.1B	WD004.1C	WD004.1D
Date Sampled	10/2/1997	9/29/1997	9/29/1997	9/29/1997	9/29/1997
Ac-228	0.8292	1.054	1.045	1.124	0.9313
Ag-108m	-0.02221 U	-0.04466 U	0.02739 U	-0.01838 U	0.01858 U
Ag-110m	-0.003664 U	-0.05054 U	0.01166 U	0.00436 U	-0.001477 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Bi-212	0.5997 U		1.267	0.976	2.064
Bi-214	0.4871	0.5565		0.4478	0.4191
Ce-144	-0.07102 U	0.1799 U	-0.1404 U	-0.02769 U	0.004725 U
Co-58	-0.02404 U	-0.01319 U	-0.0315 U	-0.02393 U	-0.01159 U
Co-60	0.01919 U	0.2695	0.3949	0.1672	0.3094
Cr-51			0.298 U		
Cs-134	0.01351 U	0.1528	0.0321 U	0.01789 U	0.04872 U
Cs-137	0.002645 U	5.871	0.9597	0.1067	1.017
Fe-59	-0.03045 U	0.03303 U	0.01247 U	-0.0173 U	0.02388 U
I-131					
I-132					
I-133					
I-135					
K-40	18.15	0.6408	0.6558	0.9098	0.6565
Mn-54	-0.01186 U	-0.008376 U	0.02992 U	0.01401 U	0.04579 U
Mo-99					
Nb-95	0.0247 U	0.01409 U	0.04024 U	0.04956 U	-0.01075 U
Np-239					
Pb-212	0.956	0.9154	0.8937	1.034	1.09
Pb-214	0.5675	0.516	0.5486	0.5436	0.6261
Ra-226		1.914		1.641	2.064
Ru-103	0.03061 U	0.01333 U	-0.001736 U	-0.005602 U	0.007945 U
Ru-106	-0.1932 U	0.1563 U	-0.2099 U	-0.04314 U	-0.43 U
Sb-124	-0.009203 U	0.03518 U	-0.01622 U	0.01327 U	-0.003331 U
Sb-125					
Te-129m					
Tl-208	0.7938	0.7305	0.8205	0.8321	
Zn-65	0.01859 U	0 U	-0.0702 U	-0.1104 U	0.03691 U
Zr-95	0.06118	0.03269 U	-0.06716 U	0.05546 U	-0.02583 U
SOF		0.558	0.16	0.043	0.147

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

Blank results indicate chemical not analyzed

Table 4
Rad
WST-03 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	WD004.2 (3366)	WD004.2 (3366)	WD004.2 (3366)	WD004.2 (3366)	WD004.3 (3367)
Sample ID	WD004.2A	WD004.2B	WD004.2C	WD004.2D	WD004.3A
Date Sampled	9/29/1997	9/29/1997	9/29/1997	9/29/1997	9/22/1997
Ac-228	1.068	0.8499	1.005	0.9186	0.584
Ag-108m	0.0125 U	-0.02577 U	-0.0273 U	-0.01387 U	-0.00671 U
Ag-110m	-0.02163 U	-0.02177 U	0.0523	0.01498 U	0.007733 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Bi-212	0.4672 U	1.332	0.09758 U		0.6742
Bi-214			0.4654	0.4677	0.4505
Ce-144	0.03115 U	-0.1818 U	-0.01402 U	0.1203 U	0.258
Co-58	0.01828 U	0.01177 U	0.0197 U	-0.02136 U	-0.0148 U
Co-60	0.04023	0.03175 U	-0.01704 U	0.1895	0.1138
Cr-51					
Cs-134	-6.002 U	0.00511 U	0.09472	0.03715	0.03437
Cs-137	1.052	0.2038	0.03568 U	0.5504	0.5701
Fe-59	0.004554 U	0.0278 U	-0.0717 U	-0.006275 U	-0.005686 U
I-131					
I-132			1.352 U		
I-133					
I-135					0.8997 U
K-40	0.3192 U	0.09135 U	0.4283	18.93	14.54
Mn-54	0.03896 U	0.009238 U	0.00926 U	0.01071 U	-0.01504 U
Mo-99					
Nb-95	0.02142 U	-0.009565 U	0.01542 U	-0.02653 U	0.01603 U
Np-239			0.1333 U	1.345 U	
Pb-212	0.7705	0.8664	0.9219	0.9726	0.708
Pb-214	0.5028	0.5924	0.5429	0.5235	0.5443
Ra-226	2.137		1.822	2.315	1.092
Ru-103	0.008073 U	0.001209 U	-0.0112 U	-0.007452 U	-0.0007379 U
Ru-106	0.1816 U	0.02426 U	-0.3158 U	0.1213 U	0.08412 U
Sb-124	0.02423	0.01251 U	0.06974	0.01525 U	-0.03174 U
Sb-125					0.05304 U
Te-129m			1.656		
Tl-208	0.7916	0.7864	0.9131	0.9041	0.813
Zn-65	0.06833 U	-0.007822 U	-0.03709 U	-0.02695 U	0.04479 U
Zr-95	0.03409 U	0.05488 U	-0.01805 U	0.08747	0.03094 U
SOF	0.094	0.017	0.014	0.09	0.075

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

Blank results indicate chemical not analyzed

Table 4
Rad
WST-03 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	WD004.4 (3368)	WD004.4 (3368)	WD004.4 (3368)	WD004.5 (3369)	WD005.1 (3370)
Sample ID	WD004.4B	WD004.4C	WD004.4D	WD004.5A	WD005.1A
Date Sampled	9/22/1997	9/18/1997	9/18/1997	9/23/1997	8/21/1997
Ac-228	0.617	0.9122	2.052	0.6869	0.7655
Ag-108m	-0.01554 U	-0.007436 U	-0.00239 U	0.02225 U	-0.01406 U
Ag-110m	0.05443	-0.0439 U	0.001613 U	0.02972 U	-0.06148 U
Am-241	0 U	0 U	0 U	0 U	
Ba-133		0.06187 U			
Bi-212	0.6666	0.9362	1.896	0.9174	0.3027 U
Bi-214	0.3626	0.5306	1.286	0.4969	0.4193
Ce-144	-0.163 U	-0.07975 U	-0.3787 U	-0.2144 U	-0.1296 U
Co-58	-0.007061 U	-0.01728 U	0.00997 U	-0.01598 U	-0.03372 U
Co-60	0.06536	0.7453	1.908	0.9228	0.06233
Cr-51					
Cs-134	0.1029	-0.0589 U	-0.4087 U	0.07816	-0.174 U
Cs-137	2.157	0.1369	0.2565	2.124	0.9084
Fe-59	0.02808 U	0.05615 U	0.01449 U	0.03182 U	0.007737 U
I-131					
I-132					1.686 U
I-133					
I-135					
K-40	16.71	19.12	44.45	13.91	16.73
Mn-54	-0.01478 U	0.04014 U	-0.08104 U	-0.00787 U	0.01448 U
Mo-99					
Nb-95	0.01338 U	-0.00313 U	-0.01214 U	0.03578	0.02095 U
Np-239					
Pb-212	0.6516	1.191	2.359	0.694	0.9127
Pb-214	0.3157	0.5969	1.603	0.5462	0.4362
Ra-226			5.615	0.8982 U	1.618
Ru-103	-0.01135 U	0.0299 U	-0.009035 U	0.01123 U	-0.000229 U
Ru-106	-0.1871 U	0.1749 U	0.3933 U	-0.1529 U	0 U
Sb-124	0.00504 U	-0.03899 U	-0.03656 U	0.01788 U	0.03291 U
Sb-125					
Te-129m					
Tl-208	0.6281	0.9517	1.878	0.7025	0.7383
Zn-65	-0.0141 U	0.07554 U	-0.3232 U	-0.1114 U	0.1087 U
Zr-95	0.002583 U	0.0498 U	-0.00571 U	0.03458 U	-0.0008437 U
SOF	0.205	0.165	0.415	0.376	0.087

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
WST-03 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	WD005.1 (3370)	WD005.1 (3370)	WD005.2 (3371)	WD005.2 (3371)	WD005.3 (3372)
Sample ID	WD005.1B	WD005.1E	WD005.2A	WD005.2B	WD005.3A
Date Sampled	8/28/1997	10/1/1997	10/23/1997	10/23/1997	8/21/1997
Ac-228	0.7997	0.8684	0.6431	0.7629	0.7882
Ag-108m	-0.02443 U	0.01185 U	0.007073 U	0.01703 U	-0.02171 U
Ag-110m	-0.006707 U	0.0129 U	-0.01534 U	0.02344 U	0.03317 U
Am-241		0 U	0 U	0 U	
Ba-133					
Bi-212	-0.00000006048 U	1.11	0.7927	0.9581	0.6403
Bi-214	0.2881	0.3659	0.5751	0.6726	0.4007
Ce-144	0.06733 U	-0.06407 U	-0.02411 U	-0.2954 U	-0.04902 U
Co-58	0.0152 U	0.009278 U	0.01026 U	0.001702 U	-0.008821 U
Co-60	0.04803	0.02491 U	0.04121 U	-0.01429 U	0.2801
Cr-51					
Cs-134	-0.02692 U	-0.002494 U	-0.09733 U	0.01666 U	0.2089
Cs-137	0.852	0.02447 U	0.2379	0.03284 U	3.703
Fe-59	0.001939 U	0.01791 U	0.02925 U	-0.00771 U	0 U
I-131				0.04257 U	
I-132	2.379 U				
I-133					1.728 U
I-135					
K-40	18.25	18.66	16.54	15.16	15.02
Mn-54	-0.01248 U	0.004046 U	-0.004061 U	0.005044 U	-0.02228 U
Mo-99					
Nb-95	-0.01051 U	-0.03373 U	0.01221 U	0.0155 U	0.01371 U
Np-239					-0.07726 U
Pb-212	0.7752	0.777	0.7016	0.8683	0.7571
Pb-214	0.5403	0.4461	0.5033	0.7095	0.5272
Ra-226	1.85	0.9221 U			
Ru-103	0.00344 U	-0.001741 U	-0.01819 U	0.001788 U	-0.02762 U
Ru-106	-0.01716 U	-0.05077 U	-0.1468 U	-0.118 U	0.02089 U
Sb-124	0.01977 U	0.00547 U	-0.007863 U	-0.01519 U	0.008943 U
Sb-125					
Te-129m					
Tl-208	0.6405	0.5858	0.6381	0.8723	
Zn-65	-0.0116 U	0.01529 U	-0.1086 U	-0.04883 U	-0.09433 U
Zr-95	0.05724	-0.02628 U	-0.02865 U	0.02214 U	-0.004299 U
SOF	0.08		0.019		0.392

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
WST-03 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	WD005.3 (3372)		WD007.1 (3378)		WD007.2 (3379)		WD007.3 (3380)		WD007.3 (3380)	
Sample ID	WD005.3D		WD007.1		WD007.2		WD007.3A		WD007.3B	
Date Sampled	10/1/1997		8/4/1997		8/4/1997		8/5/1997		8/5/1997	
Ac-228		0.6549		0.5274		0.7427		0.6272		0.7187
Ag-108m	0.0178 U		-0.008532 U		-0.004328 U		0.004457 U		-0.01345 U	
Ag-110m	-0.009557 U		-0.03192 U		0.01301 U		0.01076 U		0.01755 U	
Am-241	0 U									
Ba-133										
Bi-212		0.9076		0.7138		0.6974		0.8136		0.7614
Bi-214		0.4638		0.2998		0.4522		0.4348		0.4526
Ce-144	0.06954 U		0.09067 U		0.0622 U		-0.003809 U			0.2434
Co-58	-0.008476 U		0.01211 U		0.005266 U		0.003668 U		0.01801 U	
Co-60	0.03783 U		0.02756 U		0.03953 U		-0.02559 U		0.00365 U	
Cr-51										
Cs-134	0.007979 U		-0.07215 U		-0.08148 U		-0.08698 U		-0.06079 U	
Cs-137		0.1109	-0.004216 U		-0.01091 U		0.007762 U		0.007555 U	
Fe-59	0.00731 U		-0.04264 U		-0.02627 U		-0.05765 U		0.009666 U	
I-131										
I-132										
I-133			2.386 U							
I-135										
K-40		20.15		13.17		15.64		15.19		15.26
Mn-54	0.004824 U		0.005363 U		0.01473 U		-0.02963 U		0.01591 U	
Mo-99										
Nb-95	0.007884 U		0.001637 U		-0.00269 U		0.03166 U		0.02576 U	
Np-239					-0.1124 U				-0.3922 U	
Pb-212		0.6634		0.5756		0.7272		0.7114		0.6327
Pb-214		0.5685		0.3952		0.5044		0.412		0.3613
Ra-226				0.8411		1.127		0.925	1.009 U	
Ru-103	0.01977 U		-0.00644 U		0.002168 U		0.0004085 U		0.0003976 U	
Ru-106	0.08122 U		0.1243 U		0.06007 U		0.02272 U		0.1883 U	
Sb-124	-0.002916 U		-0.001888 U		0.001233 U		0.03727 U		0.01247 U	
Sb-125	0.008522 U									
Te-129m										
Tl-208		0.866		0.5175		0.7808		0.6683		0.7079
Zn-65	0.004035 U		-0.05045 U		0.06434 U		-0.02819 U		-0.02142 U	
Zr-95	0.03673 U		0.001814 U		-0.002692 U		-0.02014 U		-0.02178 U	
SOF		0.009								

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
WST-03 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	WD007.3 (3380)	WD007.3 (3380)	WD007.5 (3381)	WD007.5 (3381)	WD007.5 (3381)
Sample ID	WD007.3C	WD007.3D	WD007.5A	WD007.5B	WD007.5C
Date Sampled	8/5/1997	8/6/1997	8/6/1997	8/6/1997	8/6/1997
Ac-228	0.7799	0.7628	0.9806	0.7867	0.7448
Ag-108m	-0.002985 U	-0.003149 U	0.0175 U	0.00632 U	-0.003089 U
Ag-110m	-0.006282 U	-0.002428 U	-0.0006044 U	0.007367 U	-0.01096 U
Am-241					
Ba-133					
Bi-212	0.8684		1.655	1.078	0.8676
Bi-214	0.4036	0.4377	0.4981	0.4197	0.3959
Ce-144	-0.1166 U	0.06701 U	-0.00728 U	0.04436 U	-0.07272 U
Co-58	-0.01454 U	-0.001117 U	0.0242 U	0.009542 U	0.01451 U
Co-60	0.0009789 U	0.04865	-0.000000003425 U	0.009769 U	0 U
Cr-51					
Cs-134	-0.1006 U	0.01164 U	0.06683 U	-0.1556 U	0.01188 U
Cs-137	0.03714	0.002759 U	0.009913 U	-0.02853 U	-0.01793 U
Fe-59	-0.02802 U	0.006234 U	-0.01413 U	0.006138 U	-0.00926 U
I-131					
I-132					
I-133					
I-135					
K-40	14.64	17.64	15.92	17.02	17.05
Mn-54	0.008324 U	-0.005996 U	-0.00907 U	-0.0003337 U	0.008872 U
Mo-99					
Nb-95	0.008023 U	0.01186 U	0.02784 U	-0.001536 U	0.002503 U
Np-239				-0.3223 U	
Pb-212	0.7224	0.7618	0.8644	0.7989	0.7136
Pb-214	0.3824	0.5259	0.4492	0.4738	0.375
Ra-226	0.6707	1.911		0.9925	
Ru-103	-0.008799 U	0.00336 U	-0.004807 U	0.0004129 U	-0.01574 U
Ru-106	-0.003756 U	-0.06876 U	0.2261 U	0.0653 U	0.1277 U
Sb-124	0 U	0.01241 U	0 U	0.0106 U	0.005759 U
Sb-125					
Te-129m					
Tl-208	0.6458	0.6555	0.919	0.6367	0.6954
Zn-65	-0.1736 U	-0.04049 U	-0.1058 U	-0.09704 U	-0.08231 U
Zr-95	-0.002998 U	-0.01764 U	0.03736 U	0.04753 U	-0.00177 U
SOF	0.003	0.01			

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
WST-03 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	WD007.5 (3381)	WD007.7 (3382)	WD007.8 (3383)	WD007.8 (3383)	WD007.8 (3383)
Sample ID	WD007.5D	WD007.7	WD007.8A	WD007.8B	WD007.8C
Date Sampled	8/6/1997	8/11/1997	8/12/1997	8/12/1997	8/12/1997
Ac-228	0.6672	0.6812	0.9371	0.8306	1.026
Ag-108m	0.001858 U	0.00336 U	-0.008745 U	0.001014 U	-0.001008 U
Ag-110m	-0.002344 U	0.01039 U	0.02482 U	-0.04411 U	0.04113 U
Am-241					
Ba-133					
Bi-212	0.4994	0.5459	0.8127	0.598	1.585
Bi-214	0.3338	0.4495	0.4456	0.5083	0.4762
Ce-144	-0.04498 U	0.06734 U	0.01651 U	-0.2157 U	-0.07406 U
Co-58	-0.01306 U	-0.02381 U	0.001671 U	-0.04143 U	-0.03243 U
Co-60	-0.01042 U	0.02321 U	-0.02396 U	-0.003413 U	0.03054 U
Cr-51					
Cs-134	-0.0176 U	-0.01479 U	-0.02244 U	0.001793 U	0.005239 U
Cs-137	-0.008483 U	0.02835 U	0.01653 U	-0.008285 U	-0.0117 U
Fe-59	-0.01051 U	-0.02224 U	0.02133 U	-0.002954 U	-0.0427 U
I-131					
I-132					
I-133					
I-135					
K-40	16.55	9.714	14.48	16.8	17.9
Mn-54	-0.002197 U	-0.0015 U	0.01467 U	-0.03333 U	0.007867 U
Mo-99					
Nb-95	-0.002257 U	0.02559 U	0.03712	-0.0223 U	0.006807 U
Np-239	0.1773 U				
Pb-212	0.7876	0.6445	0.935	0.8097	0.8861
Pb-214	0.4249	0.4876	0.477	0.5505	0.5693
Ra-226			1.124	1.248	1.064
Ru-103	0.008121 U	0.01222 U	-0.002789 U	-0.02708 U	-0.004978 U
Ru-106	0.1195 U	0 U	-0.06709 U	0.2347	-0.2916 U
Sb-124	-0.02371 U	-0.007782 U	-0.05731 U	0.01693 U	0 U
Sb-125					
Te-129m					
Tl-208	0.6797		0.8989	0.8678	0.9053
Zn-65	-0.02483 U	-0.08131 U	-0.03446 U	-0.1034 U	0.08943 U
Zr-95	0.02609 U	-0.03335 U	0.03548 U	-0.01974 U	0.03315 U
SOF				0.003	

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
WST-03 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	WD007.9 (3384)	WD007.9 (3384)	WD007.9 (3384)	WD008.1 (3385)	WD008.1 (3385)
Sample ID	WD007.9	WD007.9A	WD007.9B	WD008.1A	WD008.1B
Date Sampled	8/21/1997	8/14/1997	8/14/1997	8/18/1997	8/18/1997
Ac-228	0.7708	0.7998	0.5341	0.6395	0.7361
Ag-108m	0.01855 U	-0.009285 U	0.0001915 U	-0.007723 U	0.002939 U
Ag-110m	-0.007496 U	0.01313 U	-0.002741 U	0 U	-0.03202 U
Am-241					
Ba-133					
Bi-212	0.9921	0.6954	0.00000005131 U	0.8545	1.035
Bi-214	0.6498	0.3552	0.3325	0.333	0.3379
Ce-144	0.1317 U	0.04483 U	0.05385 U	0.0002496 U	-0.1551 U
Co-58	0.006155 U	-0.02035 U	0.002584 U	-0.01106 U	0.03689
Co-60	0.01857 U	0.1007	0.0254 U	0.003938 U	0.03557 U
Cr-51					
Cs-134	-0.1018 U	0.01952 U	0.01268 U	-0.02829 U	-0.02383 U
Cs-137	-0.00769 U	0.04312 U	0.01334 U	-0.01902 U	0.0414
Fe-59	-0.08434 U	-0.01062 U	-0.009861 U	0.01823 U	-0.03085 U
I-131					
I-132			1.662 U		
I-133					
I-135					
K-40	16.84	14.34	14.38	16.26	15.27
Mn-54	0.01432 U	0.001095 U	0.007681 U	0.01935 U	-0.01993 U
Mo-99					
Nb-95	0.005623 U	0.0007311 U	0.02237 U	-0.0234 U	-0.004524 U
Np-239					
Pb-212	1.044	0.7021	0.6772	0.8012	0.6022
Pb-214	0.7124	0.3531	0.3755	0.4342	0.4516
Ra-226	1.042			1.139	0.8602 U
Ru-103	0.01485 U	-0.002217 U	-0.0063 U	0.005079 U	0.0008597 U
Ru-106	-0.2573 U	-0.139 U	-0.105 U	0.1578 U	-0.1145 U
Sb-124	0.01024 U	0.007081 U	0.007888 U	0.03001 U	-0.04433 U
Sb-125			0.01045 U		
Te-129m					
Tl-208	0.8289	0.5364	0.5113	0.6115	0.6162
Zn-65	-0.1062 U	0.05825 U	-0.0421 U	0.00423 U	-0.03371 U
Zr-95	0.03281 U	0.03676 U	0.03678 U	-0.01398 U	0.03484 U
SOF		0.021			0.003

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
WST-03 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	WD008.2 (3386)		WD008.3 (3387)		WD008.3 (3387)		WD008.4 (3388)		WD008.5 (3389)	
Sample ID	WD008.2C		WD008.3A		WD008.3B		WD008.4		WD008.5A	
Date Sampled	8/18/1997		8/18/1997		8/18/1997		8/21/1997		8/24/1998	
Ac-228		0.6285		0.7707		0.5884		0.6229		0.8078
Ag-108m	0.009831 U		-0.012 U		-0.01623 U		-0.004923 U		0.002586 U	
Ag-110m	-0.009945 U		-0.01508 U		0.03103 U		-0.002322 U		-0.006479 U	
Am-241									0 U	
Ba-133										
Bi-212		0.4969		0.6657		0.8923		0.4609		0.7922
Bi-214		0.4081		0.4427		0.4982		0.4155		0.4621
Ce-144	0.003993 U		-0.0266 U		0.09625 U		-0.1573 U		0.06214 U	
Co-58	0.001638 U		0.002618 U		-0.01645 U		-0.0251 U		-0.01013 U	
Co-60	0.02276 U		0.008396 U		-0.02475 U		-0.01906 U		0.03164 U	
Cr-51										
Cs-134	-0.05486 U		0.02244 U		-0.05721 U		-0.04237 U			0.1072
Cs-137	0.01018 U		-0.01738 U		-0.02798 U		-0.00007328 U		-0.04367 U	
Fe-59	-0.06151 U		0 U		-0.0353 U		-0.05963 U		-0.02435 U	
I-131										
I-132										
I-133										
I-135										
K-40		16.66		15.69		15.01		21.3		20.99
Mn-54	0.01517 U		-0.02053 U		-0.01811 U		-0.000242 U		0.02137 U	
Mo-99										
Nb-95	0.02502 U		-0.0002789 U		-0.02646 U		0.01137 U		-0.009183 U	
Np-239							-0.2233 U			
Pb-212		0.7881		0.7652		0.6829		0.6577		0.8121
Pb-214		0.4307		0.5263		0.3852		0.3943		0.5822
Ra-226					0.7377 U			1.172	0.9372 U	
Ru-103	-0.005823 U		-0.0004507 U		-0.02494 U		-0.01398 U		0.01569 U	
Ru-106	0.1131 U		0.1442 U		-0.04891 U		0.03838 U		0 U	
Sb-124	0.02504 U		0.02066 U		-0.006239 U		0.00687 U		0 U	
Sb-125										
Te-129m										
Tl-208		0.6741		0.7185		0.8197		0.6523		0.8445
Zn-65	-0.1339 U		-0.02314 U		0.01864 U		-0.07725 U		-0.1227 U	
Zr-95	0.03833 U		-0.04171 U		-0.02922 U		0.0004064 U		0.01215 U	
SOF										0.016

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
WST-03 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	WD008.5 (3389)	WD008.6 (3390)	WD008.7 (3391)	WD010.1 (3392)	WD010.2 (3393)
Sample ID	WD008.5B	WD008.6A	WD008.7A	WD010.1B	WD010.2A
Date Sampled	8/24/1998	10/1/1997	8/24/1998	10/2/1997	10/6/1997
Ac-228	0.9456	0.6703	0.8513	0.9334	0.8082
Ag-108m	-0.03495 U	-0.005635 U	0.02323 U	0.002836 U	0.003022 U
Ag-110m	-0.04107 U	-0.01659 U	-0.0241 U	-0.02217 U	-0.01107 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Bi-212	108.5	0.716	0.5141 U	1.231	0.5381 U
Bi-214	0.4988	0.4112	0.431	0.5716	0.4339
Ce-144	-0.0365 U	0.2309 U	-0.06927 U	0.03437 U	-0.1935 U
Co-58	0.001108 U	-0.003736 U	-0.01422 U	-0.0122 U	0.02943 U
Co-60	0.012 U	-0.01297 U	0.07779	0.02606 U	0.2809
Cr-51					
Cs-134	0.02475 U	0.002538 U	-0.0797 U	0.01313 U	-0.05178 U
Cs-137	-0.002761 U	-0.01246 U	-0.002656 U	-0.008721 U	0.03554 U
Fe-59	-0.03694 U	0.04143 U	-0.04874 U	0.0141 U	-0.007335 U
I-131					
I-132	13.63 U				
I-133					
I-135					
K-40	20.71	18.29	19.5	21.58	14.48
Mn-54	0.01291 U	-0.02089 U	-0.008292 U	-0.00427 U	-0.001636 U
Mo-99					
Nb-95	0.06066	-0.03742 U	-0.01916 U	0.0006169 U	0.03031 U
Np-239	-0.3821 U	0.0231 U		0.3038 U	
Pb-212	1.014	0.8453	0.8074	1.013	0.8197
Pb-214	0.5533	0.485	0.5351	0.6654	0.521
Ra-226			1.055	1.466	
Ru-103	0.01144 U	-0.0197 U	-0.00289 U	0.002721 U	-0.01601 U
Ru-106	0.0229 U	-0.02582 U	0.02203 U	0.08705 U	0.09707 U
Sb-124	-0.02213 U	0.01427 U	-0.008285 U	-0.04026 U	0.004579 U
Sb-125		-0.05039 U			
Te-129m					
Tl-208	0.9797	0.5717	0.591	0.7661	0.6879
Zn-65	0.06572 U	-0.07771 U	0.05759 U	-0.151 U	0.1255 U
Zr-95	-0.02505 U	-0.04898 U	0.01775 U	-0.0213 U	-0.01509 U
SOF			0.016		0.058

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
WST-03 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	WD010.2 (3393)	WD010.3 (3394)	WD010.3 (3394)	WD010.3 (3394)	WD011.1 (3395)
Sample ID	WD010.2B	WD010.3A	WD010.3B	WD010.3C	WD011.1A
Date Sampled	10/6/1997	10/6/1997	10/6/1997	10/6/1997	9/30/1997
Ac-228	1.04	0.6848	0.7054	0.8598	0.8578
Ag-108m	0.003292 U	0.01049 U	0.004372 U	0.0151 U	0 U
Ag-110m	-0.01561 U	-0.02377 U	-0.01165 U	-0.01145 U	-0.01713 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Bi-212	1.991	1.144	0.7037		1.134
Bi-214	0.581	0.5193	0.5995	0.6116	0.4936
Ce-144	-0.04323 U	-0.0288 U	-0.005479 U	-0.167 U	-0.07954 U
Co-58	-0.004588 U	-0.00725 U	0.01052 U	-0.01124 U	0.008784 U
Co-60	0.06589	-0.00533 U	0.03974 U	0.4081	0.02722 U
Cr-51					
Cs-134	0.02876 U	-0.01698 U	0.04731 U	0.005042 U	0.004774 U
Cs-137	0.02646 U	0.006264 U	-0.01788 U	2.131	0.01154 U
Fe-59	0.02637 U	-0.05148 U	-0.01389 U	0.05564 U	-0.01299 U
I-131					
I-132					
I-133					
I-135					
K-40	19.53	15.44	20.09	36.78	19.29
Mn-54	-0.01244 U	-0.008716 U	-0.02875 U	0.0004054 U	-0.01786 U
Mo-99			0.1663 U		
Nb-95	-0.01163 U	-0.005403 U	-0.01427 U	0.05139 U	0.01864 U
Np-239					0.06431 U
Pb-212	0.8998	0.7868	0.7749	0.9361	0.8739
Pb-214	0.5115	0.5145	0.5992	0.6792	0.4915
Ra-226	1.203	1.41			1.471
Ru-103	0.005053 U	0.002308 U	-0.0004673 U	-0.006238 U	-0.01107 U
Ru-106	0.366	0.07503 U	-0.04948 U	0.1984 U	0.09712 U
Sb-124	-0.01052 U	0.01318 U	0.01202 U	0.03 U	-0.01905 U
Sb-125					-0.1292 U
Te-129m					
Tl-208	0.7636	0.7759	0.7544	0.8877	0.7157
Zn-65	-0.1932 U	-0.0387 U	-0.04471 U	0.1312 U	-0.1535 U
Zr-95	-0.001011 U	0.03989 U	0.04106 U	-0.006856 U	0.03496 U
SOF	0.019			0.258	

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
WST-03 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	WD011.2 (3396)	WD011.2 (3396)	WD011.3 (3397)	WD011.3 (3397)	WD011.3 (3397)
Sample ID	WD011.2A	WD011.2B	WD011.3A	WD011.3B	WD011.3C
Date Sampled	10/2/1997	10/2/1997	9/30/1997	9/30/1997	9/30/1997
Ac-228	0.9359	0.8954	1.001	0.8902	0.8778
Ag-108m	0.0101 U	0.04012	0.01471 U	0.002754 U	0.000613 U
Ag-110m	0.01526 U	0.01935 U	0.00749 U	0.00949 U	-0.01212 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Bi-212	1.443		0.8603	1.02	0.5776 U
Bi-214	0.4648	0.6051	0.4802	0.5619	0.5292
Ce-144	-0.1747 U	-0.068 U	-0.03744 U	0.0931 U	-0.03549 U
Co-58	0.02248 U	0.008879 U	-0.02442 U	0.0277 U	0.006947 U
Co-60	0.01908 U	0.03065 U	0.09028	0.005169 U	0.002855 U
Cr-51					
Cs-134	-0.02618 U	-0.06244 U	0.005112 U	-0.08312 U	-0.01864 U
Cs-137	0.06404	0.0204 U	0.3092	-0.0108 U	-0.005665 U
Fe-59	-0.04805 U	0.02404 U	0.01371 U	-0.0008547 U	-0.006192 U
I-131					
I-132					
I-133					
I-135					
K-40	18.4	21.68	16.8	20.01	19.36
Mn-54	0.01849 U	0.004528 U	0.003598 U	0.008638 U	0.01572 U
Mo-99					
Nb-95	0.009711 U	0.008411 U	-0.006782 U	0.03294	-0.008553 U
Np-239					
Pb-212	0.9136	1.003	0.7884	0.9011	1.054
Pb-214	0.6305	0.7953	0.5971	0.5536	0.4601
Ra-226	1.556	2.006		1.788	0.9214 U
Ru-103	0.006742 U	-0.02677 U	0.01025 U	-0.008533 U	-0.005286 U
Ru-106	0.1458 U	-0.08514 U	0.1025 U	0.1588 U	-0.1602 U
Sb-124	-0.008781 U	0.02681 U	-0.01097 U	0.02114 U	0.004937 U
Sb-125					
Te-129m					
Tl-208	1.028	0.765	0.88	0.9372	0.8192
Zn-65	-0.1048 U	0.01715 U	-0.08574 U	0.02359 U	-0.02578 U
Zr-95	-0.01036 U	0.07218 U	0.005272 U	0.02761 U	0.03795 U
SOF	0.005	0.005	0.044		

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
WST-03 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	WD011.4 (3398)	WD011.5 (3399)	WD011.6 (3400)	WD011.6 (3400)	WD012 (3401)
Sample ID	WD011.4A	WD011.5A	WD011.6A	WD011.6B	WD012A
Date Sampled	3/31/1998	3/31/1998	3/31/1998	3/31/1998	9/23/1997
Ac-228	0.694	0.5532	0.6871	0.8357	0.8234
Ag-108m	-0.01666 U	-0.01003 U	0 U	0 U	0.02377 U
Ag-110m	0.001741 U	0.006752 U	-0.01868 U	0.02351 U	-0.003835 U
Am-241	0 U	0 U	0 U	0 U	0 U
Ba-133					
Bi-212	0.4218		0.6572	0.6145	0.531 U
Bi-214	0.4189	0.5159	0.4199		0.5855
Ce-144	-0.03445 U	0.01089 U	-0.1909 U	0.07973 U	-0.008082 U
Co-58	0.01787 U	0.003785 U	-0.01056 U	-0.01773 U	0.007629 U
Co-60	0.03542 U	0.01717 U	0.1163	0.05418	0.01364 U
Cr-51					
Cs-134	-0.06322 U	-0.2665 U	-0.1234 U	0 U	-0.05856 U
Cs-137	0.08757	0.02369 U	0.03824 U	0.08598	-0.01568 U
Fe-59	0.004582 U	-0.004442 U	-0.06338 U	-0.02523 U	-0.007109 U
I-131					
I-132					
I-133					
I-135					
K-40	13.97	13.54	14.65	-0.1089 U	16.58
Mn-54	-0.0313 U	0.009646 U	0.01001 U	0.01522 U	0.01822 U
Mo-99					
Nb-95	0.002969 U	0.01497 U	0.01757 U	0.02162 U	-0.01169 U
Np-239					
Pb-212	0.6353	0.5606	0.5751	0.728	0.6576
Pb-214	0.5174	0.4756	0.464	0.4272	0.5731
Ra-226	0.7252 U			1.372	0.9864
Ru-103	-0.00346 U	0.002478 U	0.01001 U	-0.02162 U	0.0191 U
Ru-106	-0.01691 U	-0.01639 U	-0.01176 U	0.09191 U	0.2652
Sb-124	-0.01278 U	0.03186 U	0.02165 U	0.002514 U	0.007068 U
Sb-125					
Te-129m					
Tl-208	0.6226		0.5918	0.76	0.6897
Zn-65	0.07209 U	-0.05925 U	0.006013 U	-0.0374 U	-0.07069 U
Zr-95	0.01283 U	0.0295 U	0.006933 U	0.008243 U	-0.01688 U
SOF	0.007		0.024	0.018	0.004

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

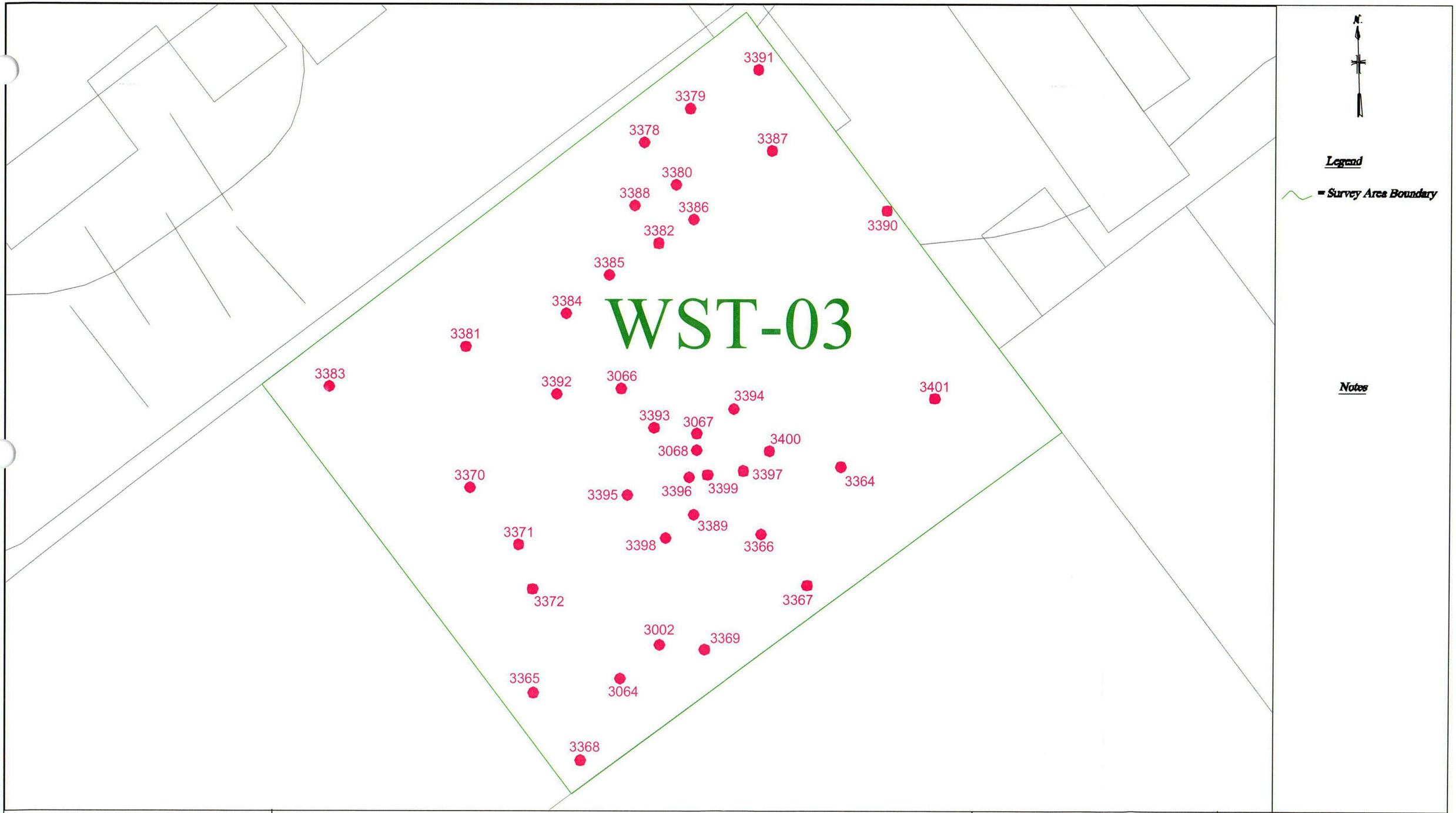
 Blank results indicate chemical not analyzed

Table 4
Rad
WST-03 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	WD012 (3401)	WD012 (3401)
Sample ID	WD012B	WD012C
Date Sampled	9/23/1997	9/23/1997
Ac-228	0.724	0.9622
Ag-108m	0.004696 U	-0.007911 U
Ag-110m	-0.01825 U	0.01057 U
Am-241	0 U	0 U
Ba-133		
Bi-212	0.4165 U	
Bi-214	0.5125	0.3885
Ce-144	0.2884	0.05171 U
Co-58	-0.01367 U	-0.003833 U
Co-60	-0.02496 U	0.003916 U
Cr-51		
Cs-134	-0.01154 U	-0.02225 U
Cs-137	-0.02649 U	0.01351 U
Fe-59	-0.05739 U	-0.07031 U
I-131		
I-132		
I-133		
I-135		
K-40	18.22	16.68
Mn-54	-0.01082 U	0.02367 U
Mo-99		
Nb-95	0.001408 U	0.03974 U
Np-239		
Pb-212	0.7159	0.897
Pb-214	0.5573	0.5281
Ra-226	1.587	
Ru-103	-0.009306 U	0.001614 U
Ru-106	-0.07154 U	-0.01771 U
Sb-124	0.008408 U	0.02952 U
Sb-125	0.08193 U	
Te-129m		
Tl-208	0.8253	0.8258
Zn-65	-0.03554 U	-0.00598 U
Zr-95	-0.003072 U	-0.02264 U
SOF		

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

Blank results indicate chemical not analyzed



	Yankee Atomic Power Company *Soil Sample Locations - WST-03*	YANKEE	*Date: October 2003* *Revision: 4*
			Figure: 53

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Building Historical Site Assessment and Classification Summary

Survey Area Name: Radioactive Waste Compactor Building Designator: **WST-04**

Survey Area Description

Survey Area WST-04 consists of the reinforced concrete pad and subsurface structures that comprise the radioactive waste compactor building remaining after demolition of the structure is complete.

WST-04 is located in the RCA yard area and is bounded by NOL-05 on the north, WST-03 on the east, WST-02 on the south and NOL-05 on the west.

Further division of this survey area into survey units as necessary is dependent upon the decommissioning end state configuration.

Survey Area Name: Radioactive Waste Compactor Building Designator: **WST-04**

Survey Area History

Survey area WST-04 was constructed under Plant Alteration (PA) #83-30 in 1983.

Survey area WST-04 was used to process (compact) and package radioactive waste. The survey history of the survey area WST-04 documents conditions of loose contamination present. When identified as contaminated survey area WST-04 was decontaminated.

The present location of the construction spoils generated by the Compactor Building is thought to be within the SCF area (OOL-09) of the sit. (Ref 1)

Scoping/Characterization

Scoping surveys were performed and the data collected used to develop the YNPS Decommissioning Plan. (Ref 2)

Decommissioning Activities

No decommissioning activities associated with the Compactor Building have been performed.

Survey Area Name: Radioactive Waste Compactor Building Designator: **WST-04**

Findings

The history of the WST-04 indicates that this structure is radiologically impacted as a result of plant operations.

The radionuclide mix likely to be present in WST-04 includes all radionuclides identified in the radioactive systems of the plant (Ref 3). The primary radionuclides of concern for survey area WST-04 are Co-60, Cs-137, Ag-108m, Sr-90 and tritium.

Current Status

Survey area WST-04 remains in use as a material storage area and potentially may be impacted by ongoing decommissioning activities.

A soil sample location map (Figure 54) has been prepared to show the distribution of sampling locations in WST-04. Only samples representative of soils still present are included on the map (samples of soils representative of soils removed during remediation activities are not presented). One survey media was assessed in WST-04, Soil. The results and analyses (Tables 1-4 in this section) of the samples plotted as "key numbers" on the map represent the radiological status at the time of sampling (a period spanning several years) as sums of fractions of the soil DCGL.

Only those samples with detectable results of the radionuclides of concern appear in Table 1. For this reason the number listed as minimum does not include samples that did not have detectable quantities of the radiological substances of concern. An assessment of the maximum, minimum and mean sum of fractions (SOF) for WST-04 is presented at the end of Table 1 for each survey medium. The results are summarized below.

Soil: Mean SOF is 0.011.
Maximum SOF for a single soil sample is 0.024. (key# 3377)
Minimum SOF for a single soil sample is 0.002. (key# 3374)

Classification Statement

Based upon the historical use of survey area WST-04 and the radiological condition of area surrounding this survey area WST-04 is identified as a Class 1 Area.

Building Historical Site Assessment and Classification Summary

Survey Area Name: Radioactive Waste Compactor Building Designator: **WST-04**

Drawings

9699-FB-02 A
9699-FC-36 C

References

1.	"Summary of Excavation Volumes for YNPS Construction Performed During the Time Period of Plant Operation," dated October 1997.
2.	YNPS Decommissioning Plan, Rev. 0.0.
3.	"Radionuclides for Building Surfaces and Soil DCGL Determinations," YA-REPT-00-001-03.

Table 1
Sum of Fractions
WST-04 -- Soil
Yankee Nuclear Power Station Rowe, MA

Station Key	Station	Sample ID		Sum Of Fractions
3377	WD006.6	WD006.6A		0.024
3376	WD006.5	WD006.5B		0.006
3376	WD006.5	WD006.5A		0.004
3375	WD006.4	WD006.4C		0.017
3375	WD006.4	WD006.4B		0.022
3375	WD006.4	WD006.4A		0.007
3374	WD006.3	WD006.3C		0.020
3374	WD006.3	WD006.3B		0.002
3374	WD006.3	WD006.3A		0.006
3373	WD006.1	WD006.1A		0.003
			Min	0.002
			Max	0.024
			Mean	0.011

Table 2
Statistical Data Summary – WST-04 -- Soil
Yankee Nuclear Power Station Rowe, MA

Parameter	Units	# Detects	# Sample Results	Mean	Std. Dev	Minimum	Maximum	Median
Ac-228	pCi/g	12	12	0.854	0.127	0.627	1.001	0.862
Ag-108m	pCi/g	1	12	0.023		0.023	0.023	0.023
Ag-110m	pCi/g	1	12	0.039		0.039	0.039	0.039
Am-241	pCi/g	0	12	0.000				
Bi-212	pCi/g	9	11	1.022	0.210	0.764	1.390	0.975
Bi-214	pCi/g	12	12	0.437	0.054	0.334	0.532	0.452
Ce-144	pCi/g	0	12	0.000				
Co-58	pCi/g	0	12	0.000				
Co-60	pCi/g	4	12	0.061	0.003	0.057	0.063	0.062
Cs-134	pCi/g	0	12	0.000				
Cs-137	pCi/g	8	12	0.083	0.035	0.049	0.151	0.076
Fe-59	pCi/g	0	12	0.000				
K-40	pCi/g	12	12	17.212	1.981	14.020	20.020	17.570
Mn-54	pCi/g	2	12	0.041	0.009	0.035	0.048	0.041
Nb-95	pCi/g	0	12	0.000				
Np-239	pCi/g	0	1	0.000				
Pb-212	pCi/g	12	12	0.841	0.117	0.627	0.995	0.858
Pb-214	pCi/g	12	12	0.486	0.063	0.378	0.583	0.490
Ra-226	pCi/g	6	6	1.187	0.088	1.070	1.298	1.203
Ru-103	pCi/g	0	12	0.000				
Ru-106	pCi/g	0	12	0.000				
Sb-124	pCi/g	0	12	0.000				
Tl-208	pCi/g	11	11	0.806	0.126	0.618	1.028	0.792
Zn-65	pCi/g	1	12	0.174		0.174	0.174	0.174
Zr-95	pCi/g	1	12	0.068		0.068	0.068	0.068

Table 3
Summary of Detected Results Above Criteria
WST-04 -- Soil
Yankee Nuclear Power Station Rowe, MA
DCGL_Soil

Parameter	# Detects	# Sample Results	Criterion Concentration	Units	# Detects Above Criterion	Maximum Detected
Ac-228	12	12		pCi/g	0	1.00
Ag-108m	1	12	8.52	pCi/g	0	0.02
Ag-110m	1	12		pCi/g	0	0.04
Am-241	0	12	44.35	pCi/g	0	
Bi-212	9	11		pCi/g	0	1.39
Bi-214	12	12		pCi/g	0	0.53
Ce-144	0	12		pCi/g	0	
Co-58	0	12		pCi/g	0	
Co-60	4	12	4.84	pCi/g	0	0.06
Cs-134	0	12	6.71	pCi/g	0	
Cs-137	8	12	12.24	pCi/g	0	0.15
Fe-59	0	12		pCi/g	0	
K-40	12	12		pCi/g	0	20.02
Mn-54	2	12	21.66	pCi/g	0	0.05
Nb-95	0	12		pCi/g	0	
Np-239	0	1		pCi/g	0	
Pb-212	12	12		pCi/g	0	1.00
Pb-214	12	12		pCi/g	0	0.58
Ra-226	6	6		pCi/g	0	1.30
Ru-103	0	12		pCi/g	0	
Ru-106	0	12	68.21	pCi/g	0	
Sb-124	0	12		pCi/g	0	
Tl-208	11	11		pCi/g	0	1.03
Zn-65	1	12		pCi/g	0	0.17
Zr-95	1	12		pCi/g	0	0.07

Table 4
Rad
WST-04 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	WD006.1 (3373)	WD006.1 (3373)	WD006.1 (3373)	WD006.3 (3374)	WD006.3 (3374)
Sample ID	WD006.1A	WD006.1B	WD006.1C	WD006.3A	WD006.3B
Date Sampled	6/8/1998	6/8/1998	6/8/1998	6/9/1998	6/9/1998
Ac-228	0.6773	0.7814	0.9728	0.6267	0.9201
Ag-108m	0.02342	-0.01321 U	0.0004407 U	-0.001038 U	0.001821 U
Ag-110m	0.03934	0.02997 U	0.005778 U	-0.004543 U	0.02609 U
Am-241	0 U	0 U	0 U	0 U	0 U
Bi-212		0.9587	1.273	0.3186 U	1.1
Bi-214	0.334	0.4571	0.4617	0.3823	0.4382
Ce-144	-0.07113 U	0.05921 U	-0.05643 U	-0.04661 U	0.03432 U
Co-58	0.004872 U	-0.0002575 U	-0.004897 U	-0.01571 U	-0.01061 U
Co-60	0.01081 U	0.0336 U	0.007323 U	0.02699 U	-0.007401 U
Cs-134	-0.05145 U	-0.01226 U	0.01031 U	0.009758 U	-0.03375 U
Cs-137	0.03796 U	0.005114 U	-0.008494 U	0.05268	0.009836 U
Fe-59	0 U	0.06312 U	0.005743 U	-0.03741 U	-0.05379 U
K-40	14.31	15.3	18.96	14.02	20.02
Mn-54	-0.01762 U	-0.01821 U	0.0328 U	0.03545	0.0475
Nb-95	-0.0005752 U	-0.003564 U	0.0004958 U	0.01359 U	0.01656 U
Np-239					
Pb-212	0.6573	0.8424	0.7966	0.6274	0.7496
Pb-214	0.3778	0.4479	0.4787	0.3969	0.4369
Ra-226	1.07		1.185		
Ru-103	-0.01294 U	-0.03199 U	0.0157 U	0.005582 U	-0.004395 U
Ru-106	-0.07185 U	0.09373 U	0.1062 U	0.01986 U	-0.1636 U
Sb-124	0.001139 U	-0.02059 U	-0.005724 U	0 U	-0.00767 U
Tl-208	0.6181	0.9405	1.028	0.6992	0.6906
Zn-65	-0.1082 U	-0.03196 U	0.1744	0.01387 U	-0.0001786 U
Zr-95	-0.0526 U	0.004397 U	-0.0352 U	-0.02461 U	0.06806
SOF	0.003			0.006	0.002

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
WST-04 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	WD006.3 (3374)	WD006.4 (3375)	WD006.4 (3375)	WD006.4 (3375)	WD006.5 (3376)
Sample ID	WD006.3C	WD006.4A	WD006.4B	WD006.4C	WD006.5A
Date Sampled	6/9/1998	6/8/1998	6/8/1998	6/8/1998	6/4/1998
Ac-228	0.9755	1.001	0.8183	1	0.7551
Ag-108m	-0.001301 U	0.003777 U	0.00445 U	0.01014 U	-0.004911 U
Ag-110m	-0.009827 U	-0.03714 U	-0.04891 U	-0.01708 U	0.00003945 U
Am-241	0 U	0 U	0 U	0 U	0 U
Bi-212	0.9746	0.5574 U	0.9152	1.39	1.051
Bi-214	0.4649	0.4663	0.4618	0.5323	0.4407
Ce-144	0.0185 U	0.1999 U	0.0009948 U	0.08567 U	-0.02016 U
Co-58	0.008339 U	0.002957 U	-0.002895 U	0.002776 U	-0.01766 U
Co-60	0.06195	0.02219 U	0.06268	0.06124	0.03547 U
Cs-134	-0.01847 U	-0.06223 U	0.01764 U	0 U	-0.03833 U
Cs-137	0.09317	0.08064	0.1108	0.04927	0.05432
Fe-59	0.003121 U	0.04588 U	-0.0717 U	-0.01881 U	-0.03249 U
K-40	16.21	17.03	18.62	18.74	16.29
Mn-54	0.008193 U	-0.02268 U	-0.01475 U	0.01283 U	0.002204 U
Nb-95	-0.01961 U	0.01878 U	0.02862 U	0.02636 U	0.0234 U
Np-239		-0.7086 U			
Pb-212	0.8989	0.8692	0.9551	0.9835	0.8535
Pb-214	0.5709	0.5004	0.5828	0.5204	0.4798
Ra-226				1.099	1.221
Ru-103	-0.007433 U	0.007437 U	0.02554 U	0.009317 U	-0.0137 U
Ru-106	0.05295 U	-0.04467 U	-0.04491 U	-0.09842 U	0.2347 U
Sb-124	0.02094 U	-0.009285 U	0.003247 U	-0.003703 U	-0.002229 U
Tl-208	0.7857	0.921	0.8915		0.7009
Zn-65	-0.06637 U	0.09656 U	-0.08121 U	-0.1059 U	0.03434 U
Zr-95	-0.01725 U	0.04721 U	0.01872 U	0.04743 U	0.02957 U
SOF	0.02	0.007	0.022	0.017	0.004

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

Blank results indicate chemical not analyzed

Table 4
Rad
WST-04 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

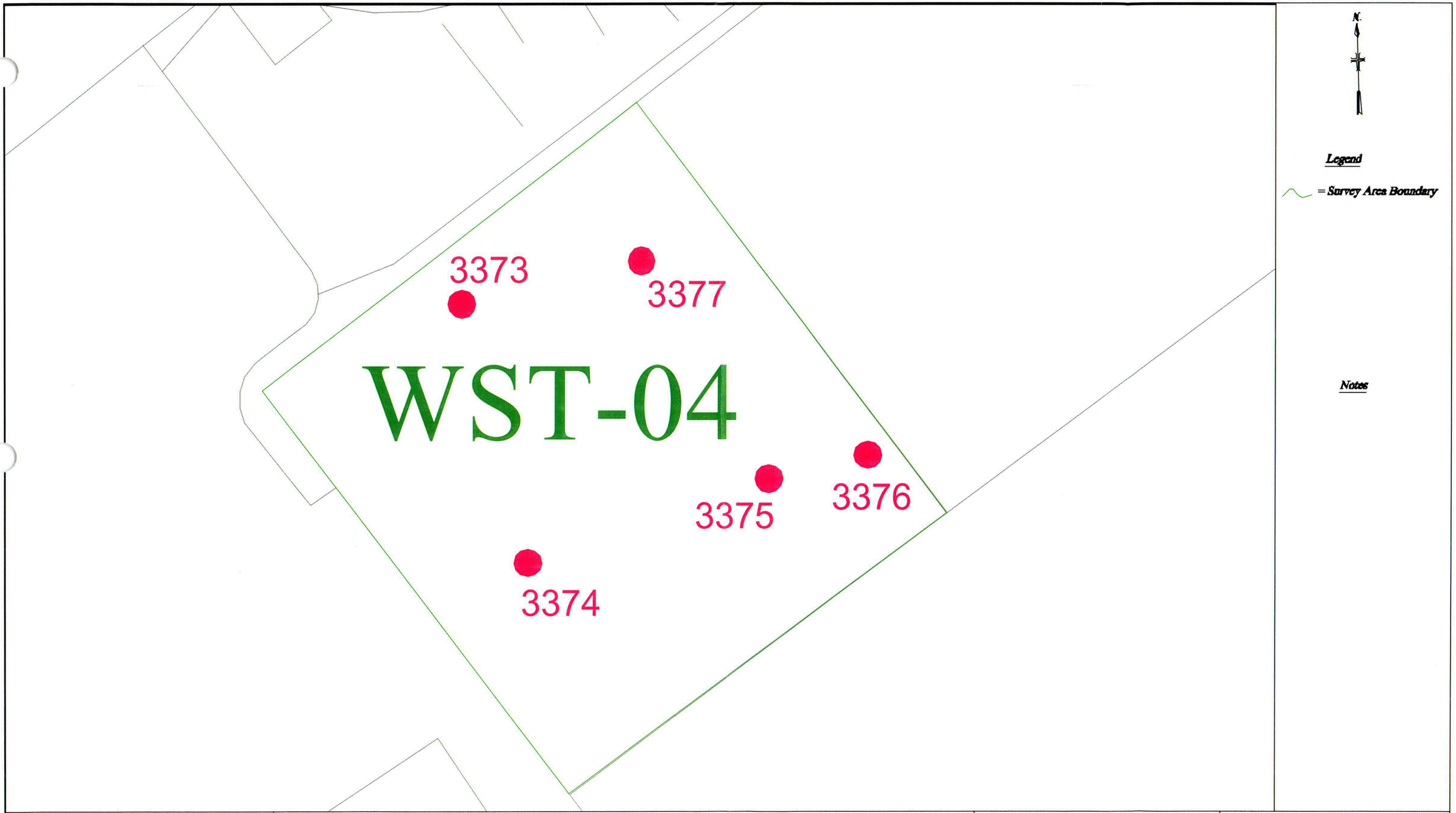
Station (Key)	WD006.5 (3376)	WD006.6 (3377)
Sample ID	WD006.5B	WD006.6A
Date Sampled	6/4/1998	6/8/1998
Ac-228	0.8323	0.891
Ag-108m	0.01521 U	0.002957 U
Ag-110m	0.002978 U	-0.004772 U
Am-241	0 U	0 U
Bi-212	0.7708	0.7638
Bi-214	0.363	0.4459
Ce-144	0.08324 U	-0.2174 U
Co-58	0.006368 U	0.001582 U
Co-60	0.003827 U	0.05657
Cs-134	0.05101 U	0.006366 U
Cs-137	0.07121	0.1509
Fe-59	-0.04425 U	-0.01769 U
K-40	18.93	18.11
Mn-54	-0.002519 U	0.009278 U
Nb-95	-0.01356 U	0.02884 U
Np-239		
Pb-212	0.8629	0.995
Pb-214	0.5362	0.5002
Ra-226	1.247	1.298
Ru-103	0.001111 U	0.01184 U
Ru-106	0.04412 U	0.06485 U
Sb-124	0.001239 U	-0.01583 U
Tl-208	0.7952	0.7916
Zn-65	-0.06607 U	-0.05863 U
Zr-95	-0.009496 U	0.01437 U
SOF	0.006	0.024

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

Blank results indicate chemical not analyzed

Underground Systems

WST-04				
Structure / System	Component	Description	Location	Impacted?
Storm Drains	WCB-008	depth = 98"; 4' dia at base, 28" at top; ladder access; 6" cast iron pipe 54" from top going N to ???, 9" corr pipe 64" from top going ~35' NW to WCB-009, 9" corr pipe 63" from top going S to ???; concrete bottom; good condition	waste compactor building	
Electrical	duct trays	from NOL-05 into NW corner and from NOL-03 into SE corner of bldg		



Yankee Atomic Power Company
Soil Sample Locations - WST-04

YANKEE

Date: October 2003

Revision: 4

Figure: 54

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Building Historical Site Assessment and Classification Summary

Survey Area Name: Vapor Container & Reactor Support Structures Designator: **BRT-01**

Survey Area Description

Survey Area BRT-01 consists of the reinforced concrete structures that comprise the foundations and support pedestals of the sixteen Vapor Container (VC) supports and the eight Reactor Support Structure (RSS) remaining after demolition of the VC and RSS is complete.

BRT-01 is located in the RCA yard area within the bounds of survey areas NOL-01 and NOL-06.

Further division of this survey area into survey units as necessary is dependent upon the decommissioning end state configuration.

Survey Area Name: Vapor Container & Reactor Support Structures Designator: **BRT-01**

Survey Area History

Survey area BRT-01 includes all concrete structures associated with the sixteen VC supports and eight RSS foundations. It also includes the concrete supports for the non-return valve house, the lower pipe chase support and the fuel transfer chute support. The structures have exterior surfaces only. There are no sources of radioactivity directly associated with the support structures. The primary mode of contamination of these structures is as a result of contamination spread within the RCA yard.

Scoping/Characterization

No scoping/characterization data is available for the anticipated end state of survey area BRT-01.

Decommissioning Activities

Decommissioning activities performed in BRT-01 have removed the non-return valve house and associated piping and secondary vent stack.

Planned decommissioning activities will removed all structures above grade 1022'.

Survey Area Name: Vapor Container & Reactor Support Structures Designator: **BRT-01**

Findings

Survey area BRT-01 was impacted by contamination spread within the RCA resulting from plant operations.

The radionuclide mix likely to be present in BRT-01 includes all radionuclides identified in the radioactive systems of the plant (Ref 1.). The primary radionuclides of concern for survey area NOL-06 are Co-60, Cs-137, Ag-108m, Sr-90 and tritium.

Current Status

Survey area BRT-01 potentially may be impacted by ongoing decommissioning activities.

Classification Statement

Based upon the historical use of survey area BRT-01 and the radiological condition of area surrounding this survey area BRT-01 is identified as a Class 1 Area.

Survey Area Name: Vapor Container & Reactor Support Structures Designator: **BRT-01**

Drawings

9699-FC-50 D
9699-FC-59 A
9699-FC-59 B

References

1.	"Radionuclides for Building Surfaces and Soil DCGL Determination," YA-REPT-00-001-13.

Historical Site Assessment and Classification Summary

Area Name: Non-Impacted Area Designator: **NIA-01**

Area Description

The data evaluation presented below represents samples taken in the non-impacted area. The locations of these samples are presented in Figure 7-5.

A soil sample location map (Figure 7-5) has been prepared to show the distribution of sampling locations in NIA-01. One survey media was assessed in NIA-01, Soil. The results and analyses (Tables 1-4 in this section) of the samples plotted as "key numbers" on the map represent the radiological status at the time of sampling as sums of fractions of the soil DCGL.

Only those samples with detectable results of the radionuclides of concern appear in Table 1. For this reason the number listed as minimum does not include samples that did not have detectable quantities of the radiological substances of concern. An assessment of the maximum, minimum and mean sum of fractions (SOF) for NIA-01 is presented at the end of Table 1 for each survey medium. The results are summarized below.

Soil: Mean SOF is 0.060.
Maximum SOF for a single soil sample is 0.134. (key# 341)
Minimum SOF for a single soil sample is 0.012. (key# 340)

Classification Statement

Based on the information evaluated in section 7.2.2 (Non-Impacted Area Justification) this area is classified as *Non-Impacted*

Table 1
Sum of Fractions
NIA-01 – Soil
Yankee Nuclear Power Station Rowe, MA

Station Key	Station	Sample ID	Sum Of Fractions
328	PR001-017	PR001GUFU017	0.042
314	PR001-003	PR001GUFD003	0.025
315	PR001-004	PR001GUFU004	0.015
316	PR001-005	PR001GUFU005	0.024
317	PR001-006	PR001GUFU006	0.068
318	PR001-007	PR001GUFU007	0.035
319	PR001-008	PR001GUFU008	0.020
320	PR001-009	PR001GUFU009	0.076
321	PR001-010	PR001GUFU010	0.060
322	PR001-011	PR001GUFU011	0.051
323	PR001-012	PR001GUFU012	0.043
324	PR001-013	PR001GUFU013	0.047
325	PR001-014	PR001GUFU014	0.059
313	PR001-001	PR001GUFU001	0.070
327	PR001-016	PR001GUFU016	0.075
342	PR001-032	PR001GUFU032	0.059
329	PR001-018	PR001GUFU018	0.098
330	PR001-019	PR001GUFU019	0.058
331	PR001-020	PR001GUFU020	0.131
332	PR001-021	PR001GUFU021	0.041
333	PR001-022	PR001GUFU022	0.069
334	PR001-023	PR001GUFU023	0.019
335	PR001-024	PR001GUFU024	0.089
337	PR001-026	PR001GUFU026	0.096
338	PR001-027	PR001GUFU027	0.085
339	PR001-028	PR001GUFU028	0.102
340	PR001-029	PR001GUFU029	0.012

Table 1
Sum of Fractions
NIA-01 -- Soil
Yankee Nuclear Power Station Rowe, MA

Station Key	Station	Sample ID		Sum Of Fractions
341	PR001-030	PR001GUFU030		0.134
326	PR001-015	PR001GUFU015		0.037
			Min	0.012
			Max	0.134
			Mean	0.060

Table 2
Statistical Data Summary – NIA-01 -- Soil
Yankee Nuclear Power Station Rowe, MA

Parameter	Units	# Detects	# Sample Results	Mean	Std. Dev	Minimum	Maximum	Median
Ac-228	pCi/g	27	28	0.678	0.217	0.354	1.203	0.640
Ag-108m	pCi/g	0	30	0.000				
Ag-110m	pCi/g	0	30	0.000				
Am-241	pCi/g	0	30	0.000				
Bi-212	pCi/g	12	16	0.978	0.715	0.517	3.140	0.741
Bi-214	pCi/g	24	24	0.444	0.072	0.343	0.559	0.444
Ce-144	pCi/g	2	30	0.267	0.030	0.246	0.289	0.267
Co-58	pCi/g	0	30	0.000				
Co-60	pCi/g	0	30	0.000				
Cs-134	pCi/g	1	30	0.179		0.179	0.179	0.179
Cs-137	pCi/g	29	30	0.718	0.397	0.148	1.643	0.709
Fe-59	pCi/g	1	30	0.113		0.113	0.113	0.113
I-133	pCi/g	0	1	0.000				
K-40	pCi/g	30	30	13.986	4.132	1.715	22.380	13.540
Kr-85	pCi/g	0	1	0.000				
La-140	pCi/g	0	1	0.000				
Mn-54	pCi/g	2	30	0.043	0.011	0.036	0.051	0.043
Mo-99	pCi/g	0	1	0.000				
Nb-94	pCi/g	1	1	0.051		0.051	0.051	0.051
Nb-95	pCi/g	0	30	0.000				
Np-239	pCi/g	0	2	0.000				
Pb-212	pCi/g	29	29	0.580	0.263	0.208	1.302	0.587
Pb-214	pCi/g	29	29	0.447	0.082	0.275	0.640	0.461
Ra-226	pCi/g	11	17	1.687	0.291	1.374	2.229	1.583
Ru-103	pCi/g	0	30	0.000				
Ru-106	pCi/g	0	30	0.000				
Sb-124	pCi/g	1	30	0.063		0.063	0.063	0.063
Sb-125	pCi/g	0	5	0.000				
Sn-113	pCi/g	0	1	0.000				
Tl-208	pCi/g	18	18	0.658	0.217	0.326	1.261	0.605
Zn-65	pCi/g	0	30	0.000				
Zr-95	pCi/g	2	30	0.074	0.015	0.063	0.084	0.074

Table 3
Summary of Detected Results Above Criteria
NIA-01 – Soil
Yankee Nuclear Power Station Rowe, MA
DCGL_Soil

Parameter	# Detects	# Sample Results	Criterion Concentration	Units	# Detects Above Criterion	Maximum Detected
Ac-228	27	28		pCi/g	0	1.20
Ag-108m	0	30	8.52	pCi/g	0	
Ag-110m	0	30		pCi/g	0	
Am-241	0	30	44.35	pCi/g	0	
Bi-212	12	16		pCi/g	0	3.14
Bi-214	24	24		pCi/g	0	0.56
Ce-144	2	30		pCi/g	0	0.29
Co-58	0	30		pCi/g	0	
Co-60	0	30	4.84	pCi/g	0	
Cs-134	1	30	6.71	pCi/g	0	0.18
Cs-137	29	30	12.24	pCi/g	0	1.64
Fe-59	1	30		pCi/g	0	0.11
I-133	0	1		pCi/g	0	
K-40	30	30		pCi/g	0	22.38
Kr-85	0	1		pCi/g	0	
La-140	0	1		pCi/g	0	
Mn-54	2	30	21.66	pCi/g	0	0.05
Mo-99	0	1		pCi/g	0	
Nb-94	1	1	8.53	pCi/g	0	0.05
Nb-95	0	30		pCi/g	0	
Np-239	0	2		pCi/g	0	
Pb-212	29	29		pCi/g	0	1.30
Pb-214	29	29		pCi/g	0	0.64
Ra-226	11	17		pCi/g	0	2.23
Ru-103	0	30		pCi/g	0	
Ru-106	0	30	68.21	pCi/g	0	
Sb-124	1	30		pCi/g	0	0.06
Sb-125	0	5	37.73	pCi/g	0	
Sn-113	0	1		pCi/g	0	
Tl-208	18	18		pCi/g	0	1.26
Zn-65	0	30		pCi/g	0	
Zr-95	2	30		pCi/g	0	0.08

Table 4
Rad
NIA-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	PR001-003 (314)	PR001-001 (313)	PR001-004 (315)	PR001-005 (316)	PR001-006 (317)
Sample ID	PR001GUFD003	PR001GUFU001	PR001GUFU004	PR001GUFU005	PR001GUFU006
Date Sampled	8/24/1998	8/24/1998	8/25/1998	8/24/1998	8/24/1998
Ac-228	0.5894	0.6403	0.786	0.3984	0.6449
Ag-108m	-0.02681 U	-0.03076 U	-0.0043 U	0.01296 U	-0.02624 U
Ag-110m	0.02602 U	0.04414 U	0.01956 U	0.009628 U	-0.01776 U
Am-241	0 U	0 U	0 U	0 U	0 U
Bi-212	1.117	0.5169	0.5835		
Bi-214	0.515	0.3712	0.5048	0.4587	0.4417
Ce-144	-0.135 U	-0.04514 U	0.08899 U	0.07789 U	0.105 U
Co-58	-0.007514 U	0.002696 U	0.02782 U	0.03958 U	0.02287 U
Co-60	0.007521 U	-0.009002 U	-0.05305 U	-0.02841 U	-0.0674 U
Cs-134	-0.04433 U	-0.04639 U	-0.03978 U	0.016 U	-0.01687 U
Cs-137	0.3018	0.8549	0.1782	0.289	0.7539
Fe-59	-0.001637 U	-0.01421 U	-0.0592 U	0.1134	0.01201 U
I-133					
K-40	14.66	14.45	18.65	18.26	11.88
Kr-85					
La-140					
Mn-54	0.02042 U	-0.005933 U	-0.007164 U	0.01803 U	-0.01531 U
Mo-99					
Nb-94					0.05059
Nb-95	0.007381 U	0.01233 U	-0.02259 U	0.0332 U	-0.04397 U
Np-239					
Pb-212	0.6791	0.6425	0.835	0.3631	0.52
Pb-214	0.4836	0.4341	0.5255	0.5337	0.4644
Ra-226			1.543		1.823
Ru-103	0.01676 U	-0.01492 U	0.007747 U	-0.02633 U	-0.0185 U
Ru-106	0.00000002524 U	-0.05089 U	-0.1236 U	0 U	-0.02071 U
Sb-124	-0.01019 U	0.03086 U	0 U	0.018 U	0.03795 U
Sb-125		0.01547 U			
Sn-113					
Tl-208		0.5761	0.7972	0.3256	
Zn-65	-0.01514 U	-0.07885 U	-0.06477 U	-0.03422 U	0.04617 U
Zr-95	0.07164 U	0.02584 U	0.05728 U	0.03486 U	0.009103 U
SOF	0.025	0.07	0.015	0.024	0.068

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

Blank results indicate chemical not analyzed

Table 4
Rad
NIA-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	PR001-007 (318)		PR001-008 (319)		PR001-009 (320)		PR001-010 (321)		PR001-011 (322)	
Sample ID	PR001GUFU007		PR001GUFU008		PR001GUFU009		PR001GUFU010		PR001GUFU011	
Date Sampled	8/24/1998		8/24/1998		8/24/1998		8/24/1998		8/24/1998	
Ac-228		1.063		0.7188		0.5197		1.203		0.7853
Ag-108m	0.0002096 U		-0.002759 U		0.003541 U		-0.01396 U		0.02559 U	
Ag-110m	-0.0002988 U		-0.01575 U		-0.01628 U		-0.02202 U		0.03384 U	
Am-241	0 U		0 U		0 U		0 U		0 U	
Bi-212		0.618			5.815 U		0.7289 U			
Bi-214		0.5456		0.4984				0.3505		0.4032
Ce-144	-0.08908 U		-0.1132 U		-0.03716 U		0.0471 U			0.2885
Co-58	-0.04205 U		0.01468 U		0.031 U		0 U		0.002213 U	
Co-60	0.02823 U		0.00378 U		-0.02651 U		-0.003418 U		-0.05621 U	
Cs-134	0.01988 U		-0.1071 U		0.0224 U		-0.1493 U		-0.01972 U	
Cs-137		0.4259		0.2492		0.9047		0.7287		0.6201
Fe-59	-0.0494 U		-0.04735 U		0.1064 U		-0.1506 U		0.01906 U	
I-133										
K-40		18.39		13.63		12.84		16.12		12.48
Kr-85										
La-140										
Mn-54	0.02911 U		0.02294 U			0.03599	0.02322 U		0.003681 U	
Mo-99			0.4452 U							
Nb-94										
Nb-95	0.0007378 U		0.03288 U		-0.05519 U		0.01818 U		-0.0008109 U	
Np-239										
Pb-212		0.9382		0.7492		0.3026		1.302		0.7028
Pb-214		0.5174		0.5164		0.4584		0.5176		0.4331
Ra-226		1.421		1.376	1.11 U			1.583		1.848
Ru-103	-0.009683 U		-0.005804 U		-0.01341 U		-0.004219 U		0.0004988 U	
Ru-106	0.2028 U		0.08902 U		0.3471 U		0.1304 U		0.229 U	
Sb-124	-0.04129 U		0.01309 U		0.004201 U		0.05857 U		-0.01282 U	
Sb-125	-0.1618 U									
Sn-113										
Tl-208		0.9667		0.5916				1.261		0.6717
Zn-65	0.1097 U		-0.1138 U		-0.09199 U		-0.1002 U		0.05538 U	
Zr-95	0.005996 U		0.02072 U		-0.03385 U		0.0551 U		0.0265 U	
SOF		0.035		0.02		0.076		0.06		0.051

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

Blank results indicate chemical not analyzed

Table 4
Rad
NIA-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	PR001-012 (323)		PR001-013 (324)		PR001-014 (325)		PR001-015 (326)		PR001-016 (327)	
Sample ID	PR001GUFU012		PR001GUFU013		PR001GUFU014		PR001GUFU015		PR001GUFU016	
Date Sampled	8/24/1998		8/24/1998		8/25/1998		8/25/1998		8/25/1998	
Ac-228		0.6126	0.1735 U			0.6461		0.4495		0.5528
Ag-108m	0.01365 U		-0.002616 U		0.01008 U		0.006894 U		0.01177 U	
Ag-110m	0.02237 U		-0.05268 U		0.01316 U		0.03643 U		0.005292 U	
Am-241	0 U		0 U		0 U		0 U		0 U	
Bi-212		0.9166				0.6004	0.461 U			1.175
Bi-214		0.3537				0.3769		0.343		
Ce-144	-0.2007 U		-0.02332 U		-0.1618 U		0.2165 U		-0.09754 U	
Co-58	-0.004918 U		-0.03607 U		0.02161 U		0.008687 U		-0.03509 U	
Co-60	-0.02498 U		-0.02752 U		0.0168 U		-0.01776 U		-0.03129 U	
Cs-134	0.007604 U		-0.01033 U		0.006173 U		0.009674 U			0.1792
Cs-137		0.5237		0.5758		0.7261		0.4536		0.5935
Fe-59	-0.007883 U		-0.01444 U		0 U		0.05239 U		-0.0124 U	
I-133										
K-40		22.38		8.201		16.36		13.71		9.9
Kr-85										
La-140										
Mn-54	-0.001758 U		-0.02323 U		0.002434 U		-0.02334 U		-0.04682 U	
Mo-99										
Nb-94										
Nb-95	-0.00171 U		-0.001252 U		0.04442 U		-0.01933 U		-0.03915 U	
Np-239			0.1537 U							
Pb-212		0.5626				0.3808		0.3112		0.6167
Pb-214		0.3328		0.3624		0.4085		0.3351		0.4024
Ra-226	0.8272 U							1.374	1.122 U	
Ru-103	0 U		0.03469 U		-0.02058 U		-0.009459 U		0.02817 U	
Ru-106	0.02866 U		-0.07367 U		-0.04695 U		-0.08562 U		-0.01257 U	
Sb-124	0.007818 U		0.06879 U		0 U		0 U		0 U	
Sb-125							0.04495 U			
Sn-113										
Tl-208						0.6189				0.5657
Zn-65	-0.1609 U		-0.006346 U		-0.04015 U		0.01991 U		-0.08128 U	
Zr-95	0.04804 U		-0.001101 U		0.02374 U		0 U		0.009434 U	
SOF		0.043		0.047		0.059		0.037		0.075

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
NIA-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	PR001-017 (328)		PR001-018 (329)		PR001-019 (330)		PR001-020 (331)		PR001-021 (332)	
Sample ID	PR001GUFU017		PR001GUFU018		PR001GUFU019		PR001GUFU020		PR001GUFU021	
Date Sampled	8/24/1998		8/24/1998		8/24/1998		8/24/1998		8/24/1998	
Ac-228		0.4307		0.9353		0.3544		0.4121		0.5315
Ag-108m	0.004206 U		-0.007407 U		0.02988 U		0.004631 U		-0.01937 U	
Ag-110m	-0.01795 U		0.0193 U		0.0395 U		0.0406 U		0.02421 U	
Am-241	0 U		0 U		0 U		0 U		0 U	
Bi-212										0.6496
Bi-214		0.4013						0.4365		0.5556
Ce-144		0.2456	-0.1887 U		-0.1207 U		0.2424 U		0.07019 U	
Co-58	-0.02283 U		-0.0594 U		-0.02945 U		-0.03302 U		-0.0159 U	
Co-60	-0.02575 U		0 U		-0.007929 U		-0.0401 U		-0.03636 U	
Cs-134	-0.2912 U		-0.1069 U		-0.01667 U		-0.02344 U		-0.09664 U	
Cs-137		0.5106		1.204		0.7093		1.605		0.505
Fe-59	0.01017 U		0.01525 U		-0.00132 U		-0.01204 U		0.04862 U	
I-133							22.64 U			
K-40		13.45		1.715		9.733		13.3		12.2
Kr-85										
La-140									0.1917 U	
Mn-54	0.02039 U		0.02767 U		0.01357 U		-0.03168 U		-0.02308 U	
Mo-99										
Nb-94										
Nb-95	-0.01589 U		-0.01596 U		0.03366 U		-0.02048 U		-0.0361 U	
Np-239										
Pb-212		0.3706		0.6056		0.2083		0.4073		0.5003
Pb-214		0.3949				0.3537		0.4758		0.64
Ra-226									0.9109 U	
Ru-103	0.017 U		0.05607 U		0.01539 U		0.005903 U		0.001415 U	
Ru-106	-0.03694 U		-0.4801 U		0.07656 U		0.1893 U		-0.2687 U	
Sb-124	0.002016 U		0.01204 U		-0.01173 U		0 U		-0.03134 U	
Sb-125										
Sn-113	0.03977 U									
Tl-208								0.3695		0.5769
Zn-65	-0.1448 U		0.05308 U		-0.07704 U		0.02515 U		0.02918 U	
Zr-95	-0.008517 U		0.0955 U			0.06301	0.02461 U		0.003164 U	
SOF		0.042		0.098		0.058		0.131		0.041

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
NIA-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	PR001-022 (333)		PR001-023 (334)		PR001-024 (335)		PR001-025 (336)		PR001-026 (337)	
Sample ID	PR001GUFU022		PR001GUFU023		PR001GUFU024		PR001GUFU025		PR001GUFU026	
Date Sampled	8/24/1998		8/24/1998		8/24/1998		8/24/1998		8/24/1998	
Ac-228		0.8117		0.6694		0.7645		1.028		
Ag-108m	-0.006974 U		0.00688 U		0.01022 U		-0.01008 U		-0.002721 U	
Ag-110m	0.009898 U		0.02471 U		-0.01831 U		-0.05412 U		0.01574 U	
Am-241	0 U		0 U		0 U		0 U		0 U	
Bi-212		3.14				0.9569		0.8324		
Bi-214		0.4642		0.3588		0.5585		0.5078		0.3527
Ce-144	0.1146 U		-0.1277 U		-0.05024 U		0.0241 U		-0.3766 U	
Co-58	0 U		-0.003107 U		0.01075 U		-0.01614 U		-0.02755 U	
Co-60	0.005842 U		-0.008143 U		0.005853 U		-0.02495 U		-0.007636 U	
Cs-134	-0.06158 U		0.009315 U		-0.04735 U		-0.08943 U		-0.02149 U	
Cs-137		0.8418		0.2321		1.09	0.006883 U			1.169
Fe-59	0.04689 U		-0.00872 U		-0.04021 U		-0.03148 U		0.0843 U	
I-133										
K-40		12.61		12.58		11.27		15.23		13.42
Kr-85							5.63 U			
La-140										
Mn-54	0.03296 U		-0.01915 U		0.01704 U		-0.02036 U		0.02579 U	
Mo-99										
Nb-94										
Nb-95	0.007016 U		-0.00454 U		0.01701 U		0.01193 U		0.03821 U	
Np-239			1.466 U							
Pb-212		0.7275		0.5867		0.849		0.9443		0.2293
Pb-214		0.5		0.3709		0.4819		0.5259		0.3079
Ra-226	1.156 U				1.103 U			1.464		
Ru-103	0.01806 U		0.002307 U		0.0003512 U		0.02173 U		-0.01253 U	
Ru-106	0.1343 U		0.1782 U		0.2278 U		-0.08587 U		-0.07593 U	
Sb-124	-0.05463 U		0.006916 U		0.01197 U		0.02904 U		0.01911 U	
Sb-125			-0.00008087 U							
Sn-113										
Tl-208		0.6385		0.4651		0.6857		0.826		
Zn-65	0.01459 U		-0.1021 U		-0.06383 U		-0.01635 U		-0.1266 U	
Zr-95	0.004264 U		0 U		0.04596 U			0.08445	0.01285 U	
SOF		0.069		0.019		0.089				0.096

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed

Table 4
Rad
NIA-01 -- Soil (pCi/g)
Yankee Nuclear Power Station Rowe, MA

Station (Key)	PR001-027 (338)		PR001-028 (339)		PR001-029 (340)		PR001-030 (341)		PR001-032 (342)	
Sample ID	PR001GUFU027		PR001GUFU028		PR001GUFU029		PR001GUFU030		PR001GUFU032	
Date Sampled	8/24/1998		8/24/1998		8/25/1998		8/25/1998		8/24/1998	
Ac-228				0.5575		0.6359		0.5826		0.9825
Ag-108m	-0.01494 U		-0.062 U		-0.006781 U		-0.01584 U		-0.01114 U	
Ag-110m	-0.04133 U		0.009048 U		-0.002056 U		-0.06035 U		-0.01767 U	
Am-241	0 U		0 U		0 U		0 U		0 U	
Bi-212			40.87 U							0.6257
Bi-214				0.4006		0.4468		0.4769		0.5418
Ce-144	-0.2015 U		-0.06533 U		-0.004842 U		-0.3158 U		-0.1335 U	
Co-58	-0.009833 U		0.003544 U		-0.0104 U		-0.01314 U		0.01056 U	
Co-60	0.009316 U		-0.0168 U		0.004757 U		0.0257 U		0.02084 U	
Cs-134	-0.02622 U		-0.1576 U		-0.02923 U		-0.2166 U		-0.07742 U	
Cs-137		1.041		1.222		0.1476		1.643		0.7272
Fe-59	0.03581 U		0.03314 U		-0.02263 U		-0.004549 U		0.03575 U	
I-133										
K-40		9.356		19.23		21.07		15.64		16.87
Kr-85										
La-140										
Mn-54	0.02054 U			0.05093	0.01943 U		-0.001821 U		0.01848 U	
Mo-99										
Nb-94										
Nb-95	0.01661 U		0.002301 U		0.01508 U		0.0004285 U		0.02996 U	
Np-239										
Pb-212		0.2331		0.3573		0.3393		0.6443		0.9209
Pb-214		0.2749		0.5023		0.4467		0.4874		0.4614
Ra-226						1.832		2.064		2.229
Ru-103	-0.01902 U		0.03196 U		-0.01029 U		-0.004199 U		0.004117 U	
Ru-106	0.07483 U		0.1446 U		0.06247 U		0.1781 U		0.02391 U	
Sb-124	0 U		0.03024 U		0 U		0.03253 U			0.06322
Sb-125					-0.002423 U					
Sn-113										
Tl-208				0.5446		0.5789				0.7893
Zn-65	-0.03224 U		0.03322 U		-0.0001651 U		0.1246 U		0.03826 U	
Zr-95	0.03362 U		0.02525 U		0.04074 U		0.06431 U		-0.002005 U	
SOF		0.085		0.102		0.012		0.134		0.059

U-not detected (value is not greater than 2 sigma); UM-nondetect (value is equal to MDA)

 Blank results indicate chemical not analyzed