04/02/98

# CHARACTERIZATION SUMMARY

SURVEY PACKAGE NUMBER :A1400

SURFACES & STRUCTURES

PACKAGE DESCRIPTION
Includes: Personnel Hatch Area and Ventilation Room

Personnel Hatch Area - Elevation 21 ft.

SURVEY AREA DESCRIPTION
Personnel Hatch Area

GENERAL HISTORICAL INFORMATION (Operational history, etc.)

The Personnel hatch is an integral portion of the containment building. Construction is painted, epoxied concrete floor and painted concrete block walls and ceiling with some structural steel. Ventilation equipment and filter banks are in one concrete block room. There is a Steel containment access door.

SUMMARY OF CHARACTERIZATION ACTIVITIES

Survey units were established for the areas as listed in the following Summary of Survey Units. Maps with the survey measurement locations for this package are included on the following pages.

Collected 54 direct measurements for total beta activity at the survey measurement locations indicated in the results listing report. Due to elevated background radioactivity in the survey area, a scan of a two meter area encompassing each survey measurement location was not performed. Each direct measurement for total beta activity was accompanied by a corresponding background measurement at the same location. The background was used in the calculation of net dpm/100cm$^2$.

Collected smear samples to analyze for removable alpha and beta activity at the same 54 survey locations as the direct measurements for total beta activity.

Collected one meter exposure rate measurements at 15 survey locations indicated in the results listing report.

The survey result statistical summaries, graphs and results listings are shown in the following individual reports including calibration summaries for the instruments used for each measurement type.

CHARACTERIZATION SURVEY RESULTS

o There were 4 direct measurements for total beta activity above 2000 dpm/100cm$^2$. There were 5 direct measurements for total beta activity above the individual measurements' MDA (Maximum MDA was 2,198 dpm/100cm$^2$). The maximum measurement result was 6,758 dpm/100cm$^2$.

o There were 9 measurements for removable beta activity above MDA (35 dpm/100cm$^2$) and 6 results greater than 100 dpm/100cm$^2$. The maximum measurement result was 658 dpm/100cm$^2$.

o There were no measurements for removable alpha activity above MDA (8 dpm/100cm$^2$).

o The average and maximum exposure rate measurement results were 48 µR/hr and 180 µR/hr, respectively.

REFERENCES (Documents, Interviews)

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03/29/98

# CHARACTERIZATION SUMMARY

SURVEY PACKAGE NUMBER :A1400 — SURFACES & STRUCTURES

PACKAGE DESCRIPTION — Personnel Hatch Area - Elevation 21 ft.
Includes: Personnel Hatch Area and Ventilation Room

SURVEY AREA DESCRIPTION
Personnel Hatch Area

GENERAL HISTORICAL INFORMATION (Operational history, etc.)

The equipment hatch is an integral portion of the containment building. Construction is painted, epoxied concrete floor and painted concrete block walls and ceiling. Some structural steel. Ventilation equipment and filter banks in one concrete block room. Steel containment access door. Due to present use and/or presence of radioactive materials, this area has been classified as Affected. Area may be reclassified during or following characterization.

SUMMARY OF CHARACTERIZATION ACTIVITIES

A background measurement for direct beta activity measurements was made at each survey location.

A direct measurement of total beta activity and a removable surface contamination measurement was made at each survey location.

The wall measurements included the walls above and below 2 meters. The ceiling measurements included the interior overhead surfaces of the ceilings.

The measurements on exterior surfaces of piping, cable trays, duct work, plant equipment etc., were using "Plant Equipment" type surface code, i.e., EQ1-N.

Floor measurements were collected on the present day floor covering.

Radiation levels in some areas may have precluded direct measurement of total beta activity. These areas were assessed on a case by case basis for alternative sampling if this was applicable.

A 1-meter gamma exposure rate measurement was made at each survey measurement location on floor surfaces.

CHARACTERIZATION SURVEY RESULTS

Maps of the surveys for this package are included on the following pages. The results of the surveys and statistical summaries are shown in the following individual reports. Reports include summary statistics and graphs of the data followed by the values associated with the survey measurement location code. Reports include:

- o Direct Measurements for Total Beta Activity and Results Listing,
- o Removable Contamination - Gross Beta Activity and Removable Contamination - Gross Alpha Activity and Results Listing, and
- o Gamma Exposure Rate Measurements at 1 Meter and Results Listing.

If samples were collected for analysis by gamma spectrometry, the Gamma Spectrum Results Listing is also provided. In addition, instrument calibration summaries are provided for all instruments used for the reports.

REFERENCES (Documents, Interviews)

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# SUMMARY OF SURVEY UNIT(S)

03/29/98 OUTPUT BATCH SN = 271

**PACKAGE** A1400 SURFACES & STRUCTURES
Personnel Hatch Area - Elevation 21 ft.
Includes: Personnel Hatch Area and Ventilation Room

| UNIT(S) | SURFACE(S) |
|---|---|
| 01 - Personnel Hatch Area | CL1 (Ceiling)<br>EQ1 (Plant Equipment (exterior))<br>FL1 (Floor Surface)<br>WS1 (Wall Surface (interior)) |
| 02 - Ventilation Room | CL1 (Ceiling)<br>EQ1 (Plant Equipment (exterior))<br>FL1 (Floor Surface)<br>WS1 (Wall Surface (interior)) |

**REASON(S)** CHARACTERIZATION SURVEY (C01)

**MATERIALS**

| MAT'L CODE | MATERIAL DESCRIPTION | BETA BKGD (dpm/100 cm²) |
|---|---|---|
| B0001 | CONCRETE - PAINTED (INTERIOR) | 478.0 |
| B0036 | METAL - PAINTED | 0.0 |

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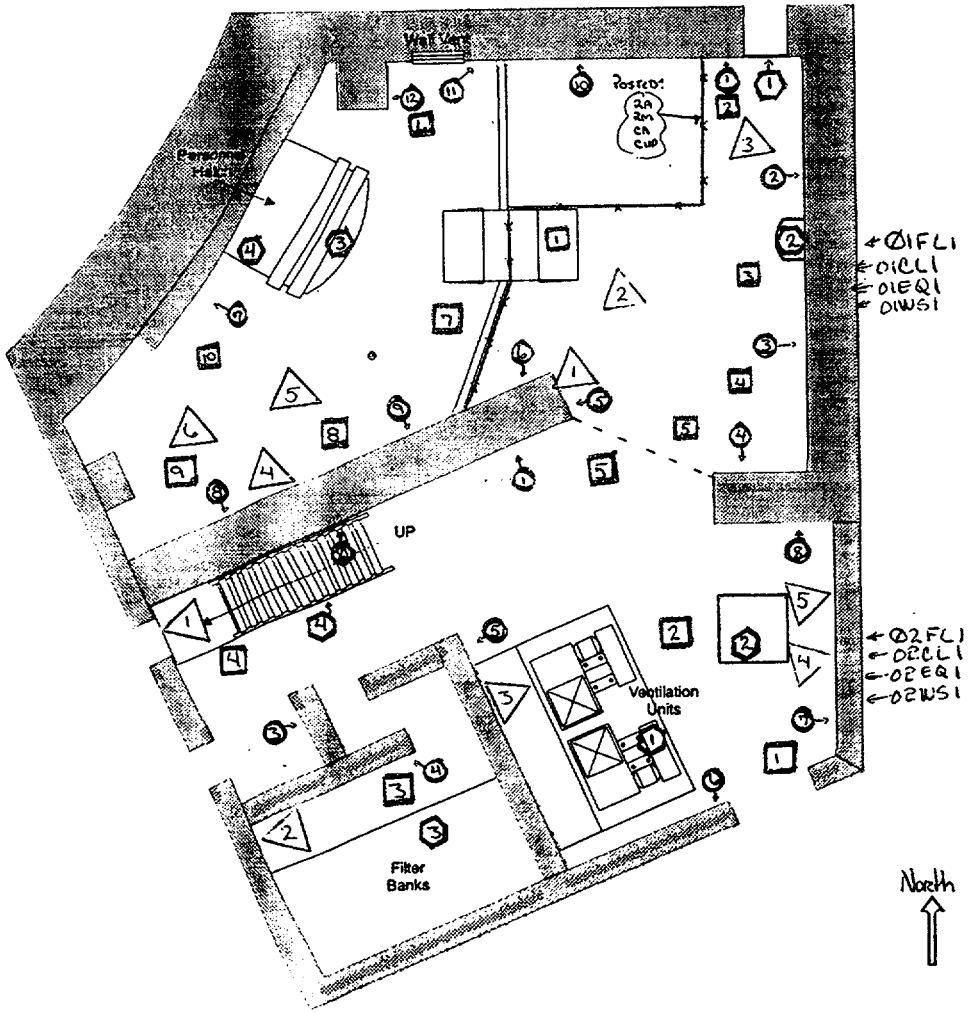
A1400 -

- survey points on walls
- survey points on floors
- survey points on equipment
- survey points on ceiling

## Personnel Hatch Area



Maine Yankee Atomic Power Plant Site Characterization

03/31/98

## Direct Measurements For Total Beta Activity

Survey Package A1400 SURFACES & STRUCTURES
Personnel Hatch Area - Elevation 21 ft.
Includes: Personnel Hatch Area and Ventilation Room

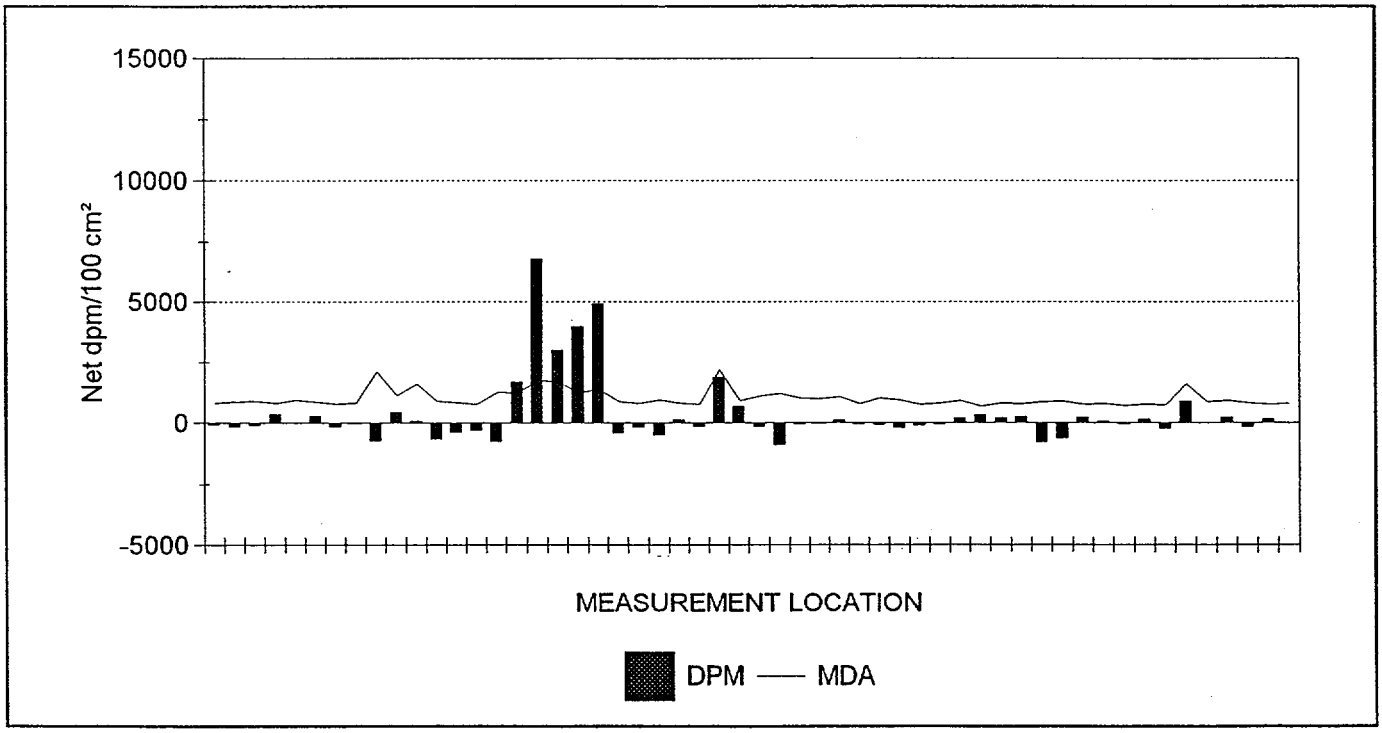
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | 350.2 |
| Maximum | 6,758.3 |
| Minimum | -894.2 |
| Standard Deviation | 1,379.9 |
| MDA | 2,197.8 |

| | |
|---|---|
| Samples Reported | 54 |
| Samples Prescribed | 54 |

### TESTS PERFORMED

| | |
|---|---|
| Samples reported satisfy samples prescribed | YES |
| MDA <2000 net dpm/100 cm² | NO |
| Results above 2000 net dpm/100 cm² | 4 |
| Number of results above MDA | 5 |




54 RESULTS ARE GRAPHED

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03/31/98

## Direct Measurements For Total Beta Activity

Survey Package : A1400 SURFACES & STRUCTURES
Personnel Hatch Area - Elevation 21 ft.
Includes: Personnel Hatch Area and Ventilation Room

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | MDA | RESULT |
|---|---|---|---|---|---|---|---|---|
| 385 (2) | 01 | CL1 | B0001 | C01 | 10 | 00001 | 823.3 | -85.0 |
| 385 (2) | 01 | CL1 | B0001 | C01 | 10 | 00002 | 874.8 | -154.3 |
| 385 (2) | 01 | CL1 | B0001 | C01 | 10 | 00003 | 923.2 | -108.1 |
| 385 (2) | 01 | CL1 | B0001 | C01 | 10 | 00004 | 845.8 | 354.3 |
| 385 (2) | 01 | CL1 | B0001 | C01 | 10 | 00005 | 975.4 | 7.5 |
| 385 (2) | 01 | CL1 | B0001 | C01 | 10 | 00006 | 874.8 | 284.9 |
| 385 (2) | 01 | EQ1 | B0036 | C01 | 10 | 00001 | 815.6 | -161.8 |
| 385 (2) | 01 | EQ1 | B0036 | C01 | 10 | 00002 | 823.3 | -23.1 |
| 385 (2) | 01 | EQ1 | B0036 | C01 | 10 | 00003 | 2,097.9 | -739.8 |
| 385 (2) | 01 | EQ1 | B0036 | C01 | 10 | 00004 | 1,154.3 | 439.3 |
| 385 (2) | 01 | FL1 | B0001 | C01 | 10 | 00001 | 1,625.2 | 76.9 |
| 385 (2) | 01 | FL1 | B0001 | C01 | 10 | 00002 | 916.4 | -663.0 |
| 385 (2) | 01 | FL1 | B0001 | C01 | 10 | 00003 | 867.6 | -385.5 |
| 385 (2) | 01 | FL1 | B0001 | C01 | 10 | 00004 | 784.2 | -316.2 |
| 385 (2) | 01 | FL1 | B0001 | C01 | 10 | 00005 | 1,274.9 | -755.4 |
| 385 (2) | 01 | FL1 | B0001 | C01 | 10 | 00006 | 1,255.6 | 1,695.2 |
| 385 (2) | 01 | FL1 | B0001 | C01 | 10 | 00007 | 1,739.5 | **6,758.3** |
| 385 (2) | 01 | FL1 | B0001 | C01 | 10 | 00008 | 1,722.1 | **2,989.9** |
| 385 (2) | 01 | FL1 | B0001 | C01 | 10 | 00009 | 1,245.9 | **3,960.9** |
| 385 (2) | 01 | FL1 | B0001 | C01 | 10 | 00010 | 1,410.5 | **4,931.9** |
| 385 (2) | 01 | WS1 | B0001 | C01 | 10 | 00001 | 881.9 | -408.6 |
| 385 (2) | 01 | WS1 | B0001 | C01 | 10 | 00002 | 838.3 | -177.5 |
| 385 (2) | 01 | WS1 | B0001 | C01 | 10 | 00003 | 956.2 | -501.1 |
| 385 (2) | 01 | WS1 | B0001 | C01 | 10 | 00004 | 830.8 | 123.1 |
| 385 (2) | 01 | WS1 | B0001 | C01 | 10 | 00005 | 792.2 | -154.3 |
| 385 (2) | 01 | WS1 | B0001 | C01 | 10 | 00006 | 2,197.8 | 1,880.2 |
| 385 (2) | 01 | WS1 | B0001 | C01 | 10 | 00007 | 943.1 | 701.1 |
| 385 (2) | 01 | WS1 | B0001 | C01 | 10 | 00008 | 1,127.5 | -154.3 |
| 385 (2) | 01 | WS1 | B0001 | C01 | 10 | 00009 | 1,216.2 | -894.1 |
| 385 (2) | 01 | WS1 | B0001 | C01 | 10 | 00010 | 1,042.6 | -61.9 |
| 385 (2) | 01 | WS1 | B0001 | C01 | 10 | 00011 | 1,006.6 | -38.7 |
| 385 (2) | 01 | WS1 | B0001 | C01 | 10 | 00012 | 1,105.6 | 123.1 |
| 385 (2) | 02 | CL1 | B0001 | C01 | 10 | 00001 | 807.9 | -61.9 |
| 385 (2) | 02 | CL1 | B0001 | C01 | 10 | 00002 | 1,054.4 | -85.0 |
| 385 (2) | 02 | CL1 | B0001 | C01 | 10 | 00003 | 969.0 | -200.6 |
| 385 (2) | 02 | CL1 | B0001 | C01 | 10 | 00004 | 784.2 | -108.1 |
| 385 (2) | 02 | CL1 | B0001 | C01 | 10 | 00005 | 830.8 | -61.9 |
| 385 (2) | 02 | EQ1 | B0036 | C01 | 10 | 00001 | 949.7 | 208.1 |
| 385 (2) | 02 | EQ1 | B0036 | C01 | 10 | 00002 | 699.0 | 346.8 |
| 385 (2) | 02 | EQ1 | B0036 | C01 | 10 | 00003 | 830.8 | 208.1 |

NOTES: Activity reported in net dpm/100 cm². Count times are reported in seconds.
Underlined values exceed the MDA.
Bold values exceed 2000 dpm/100 cm².

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03/31/98

## Direct Measurements For Total Beta Activity

Survey Package : A1400 SURFACES & STRUCTURES
Personnel Hatch Area - Elevation 21 ft.
Includes: Personnel Hatch Area and Ventilation Room

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | MDA | RESULT |
|---|---|---|---|---|---|---|---|---|
| 385 (2) | 02 | EQ1 | B0036 | C01 | 10 | 00004 | 815.6 | 254.3 |
| 385 (2) | 02 | FL1 | B0001 | C01 | 10 | 00001 | 881.9 | -778.5 |
| 385 (2) | 02 | FL1 | B0001 | C01 | 10 | 00002 | 916.4 | -616.7 |
| 385 (2) | 02 | FL1 | B0001 | C01 | 10 | 00003 | 776.2 | 238.7 |
| 385 (2) | 02 | FL1 | B0001 | C01 | 10 | 00004 | 815.6 | 53.7 |
| 385 (2) | 02 | FL1 | B0001 | C01 | 10 | 00005 | 725.7 | -61.9 |
| 385 (2) | 02 | WS1 | B0001 | C01 | 10 | 00001 | 776.2 | 146.2 |
| 385 (2) | 02 | WS1 | B0001 | C01 | 10 | 00002 | 759.8 | -223.7 |
| 385 (2) | 02 | WS1 | B0001 | C01 | 10 | 00003 | 1,621.5 | 909.2 |
| 385 (2) | 02 | WS1 | B0001 | C01 | 10 | 00004 | 895.9 | 7.5 |
| 385 (2) | 02 | WS1 | B0001 | C01 | 10 | 00005 | 929.9 | 238.7 |
| 385 (2) | 02 | WS1 | B0001 | C01 | 10 | 00006 | 845.8 | -177.5 |
| 385 (2) | 02 | WS1 | B0001 | C01 | 10 | 00007 | 784.2 | 146.2 |
| 385 (2) | 02 | WS1 | B0001 | C01 | 10 | 00008 | 807.9 | -15.6 |

NOTES: Activity reported in net dpm/100 cm². Count times are reported in seconds.
Underlined values exceed the MDA.
Bold values exceed 2000 dpm/100 cm².
54 results are listed.

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# DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

03/31/98 Direct Measurements For Total Beta Activity

Survey Package : A1400 SURFACES & STRUCTURES
Personnel Hatch Area - Elevation 21 ft.
Includes: Personnel Hatch Area and Ventilation Room

| SURVEY | | M2350 | | DETECTOR | | | PRE | |
|---|---|---|---|---|---|---|---|---|
| DATE | FILE # | INST S/N | CAL DUE | MODEL | S/N | CAL DUE | EFF | TECHNICIAN |
| 1/14/98 | 385 (2) | 129440 | 6/10/98 | 43-106 | 128926 | 6/5/98 | .21 | LAC4593 |

CALIBRATION DATES VERIFIED AS ACCEPTABLE

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Maine Yankee Atomic Power Plant Site Characterization

03/29/98

## Removable Contamination - Gross Beta Activity

Survey Package A1400 SURFACES & STRUCTURES
Personnel Hatch Area - Elevation 21 ft.
Includes: Personnel Hatch Area and Ventilation Room

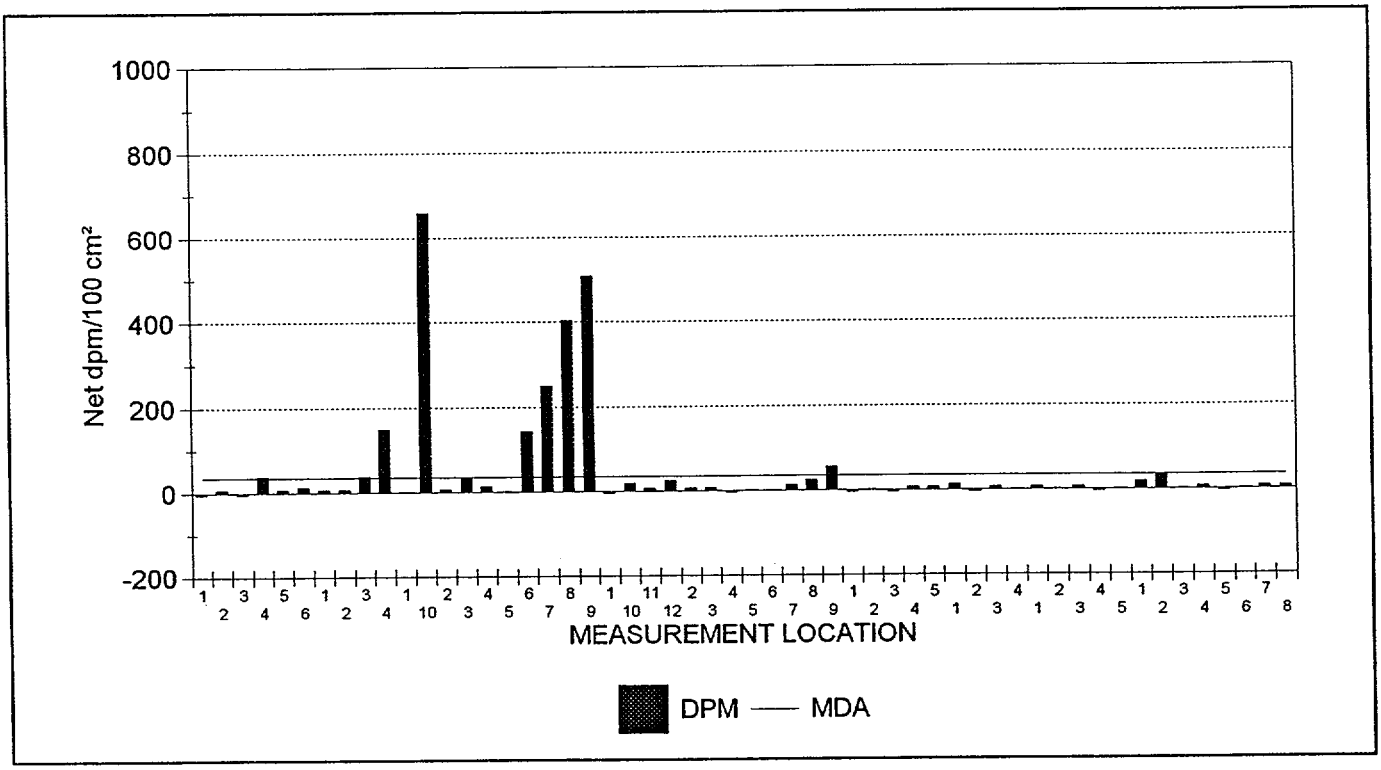
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | 47.1 |
| Maximum | 657.5 |
| Minimum | -4.9 |
| Standard Deviation | 126.8 |
| MDA | 35.1 |

| | |
|---|---|
| Samples Reported | 54 |
| Samples Prescribed | 54 |

### TESTS PERFORMED

| | |
|---|---|
| MDA <100 net dpm/100 cm² | YES |
| Results above 100 net dpm/100 cm² | 6 |
| Number of results above MDA | 9 |




54 RESULTS ARE GRAPHED

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Maine Yankee Atomic Power Plant Site Characterization

03/29/98

## Removable Contamination - Gross Alpha Activity

Survey Package A1400 SURFACES & STRUCTURES
Personnel Hatch Area - Elevation 21 ft.
Includes: Personnel Hatch Area and Ventilation Room

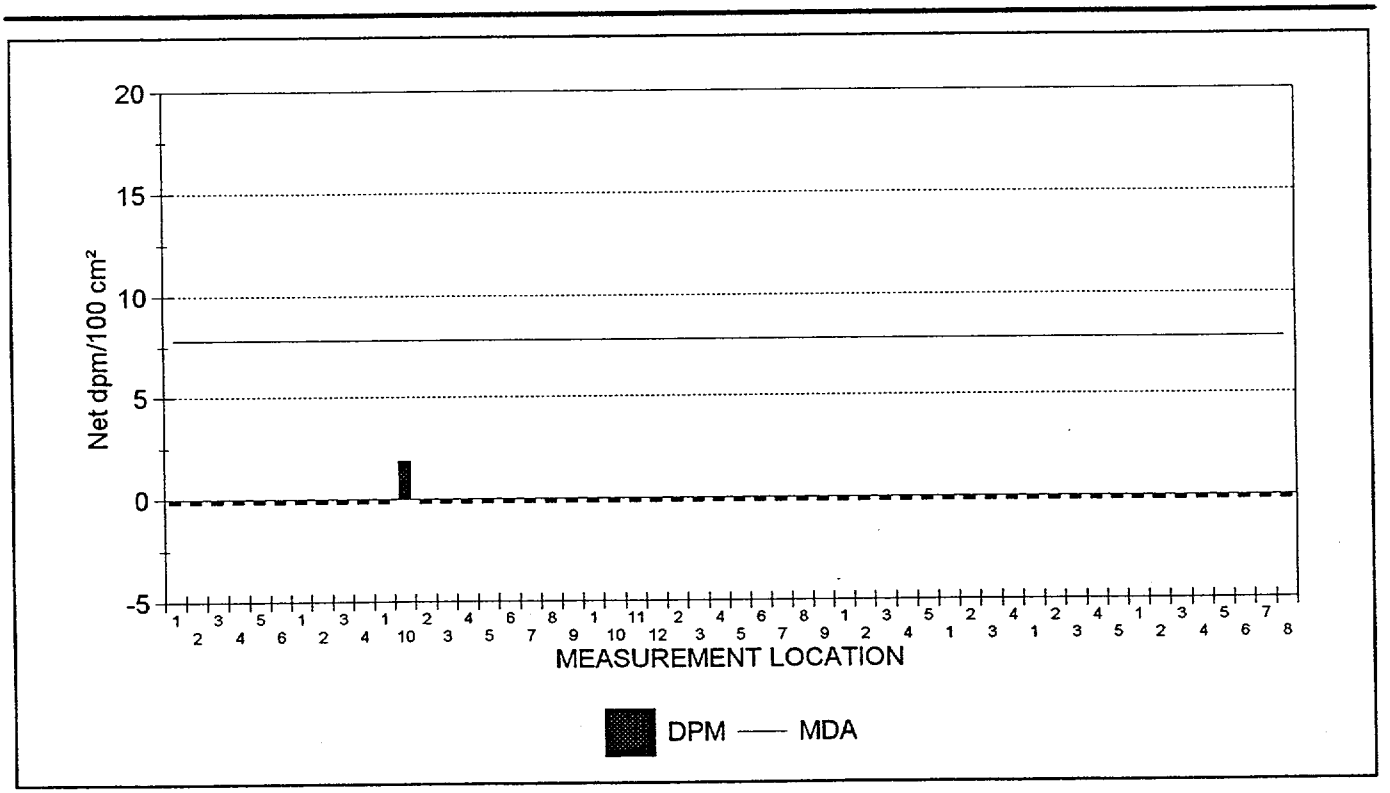
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | -0.2 |
| Maximum | 1.9 |
| Minimum | -0.2 |
| Standard Deviation | 0.3 |
| MDA | 7.8 |

| | |
|---|---|
| Samples Reported | 54 |
| Samples Prescribed | 54 |

### TESTS PERFORMED

| | |
|---|---|
| MDA <10 net dpm/100 cm² | YES |
| Results above 20 net dpm/100 cm² | 0 |
| Number of results above MDA | 0 |

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03/29/98 Removable Contamination

Survey Package : A1400 SURFACES & STRUCTURES
Personnel Hatch Area - Elevation 21 ft.
Includes: Personnel Hatch Area and Ventilation Room

## RESULTS LISTING - SORTED BY SURFACE CODE

| XLS FILE | UNIT | SURFACE | REASON | MSRMNT LOCATION | ALPHA | BETA |
|---|---|---|---|---|---|---|
| SME1E061.XLS | 02 | WS1 | C01 | 8 | -0.2 | 7.4 |
| SME1E061.XLS | 02 | WS1 | C01 | 7 | -0.2 | 7.4 |
| SME1E061.XLS | 02 | WS1 | C01 | 6 | -0.2 | 1.2 |
| SME1E061.XLS | 02 | WS1 | C01 | 5 | -0.2 | -5.0 |
| SME1E061.XLS | 02 | WS1 | C01 | 4 | -0.2 | 7.4 |
| SME1E061.XLS | 02 | WS1 | C01 | 3 | -0.2 | 1.2 |
| SME1E061.XLS | 02 | WS1 | C01 | 2 | -0.2 | 32.2 |
| SME1E061.XLS | 02 | WS1 | C01 | 1 | -0.2 | 19.8 |
| SME1E061.XLS | 02 | FL1 | C01 | 5 | -0.2 | 1.2 |
| SME1E061.XLS | 02 | FL1 | C01 | 4 | -0.2 | -5.0 |
| SME1E061.XLS | 02 | FL1 | C01 | 3 | -0.2 | 7.4 |
| SME1E061.XLS | 02 | FL1 | C01 | 2 | -0.2 | 1.2 |
| SME1E061.XLS | 02 | FL1 | C01 | 1 | -0.2 | 7.4 |
| SME1E061.XLS | 02 | EQ1 | C01 | 4 | -0.2 | 1.2 |
| SME1E061.XLS | 02 | EQ1 | C01 | 3 | -0.2 | 7.4 |
| SME1E061.XLS | 02 | EQ1 | C01 | 2 | -0.2 | -5.0 |
| SME1E061.XLS | 02 | EQ1 | C01 | 1 | -0.2 | 13.6 |
| SME1E061.XLS | 02 | CL1 | C01 | 5 | -0.2 | 7.4 |
| SME1E061.XLS | 02 | CL1 | C01 | 4 | -0.2 | 7.4 |
| SME1E061.XLS | 02 | CL1 | C01 | 3 | -0.2 | -5.0 |
| SME1E061.XLS | 02 | CL1 | C01 | 2 | -0.2 | 1.2 |
| SME1E061.XLS | 02 | CL1 | C01 | 1 | -0.2 | -5.0 |
| SME1E061.XLS | 01 | WS1 | C01 | 9 | -0.2 | 57.0 |
| SME1E061.XLS | 01 | WS1 | C01 | 8 | -0.2 | 26.0 |
| SME1E061.XLS | 01 | WS1 | C01 | 7 | -0.2 | 13.6 |
| SME1E061.XLS | 01 | WS1 | C01 | 6 | -0.2 | 1.2 |
| SME1E061.XLS | 01 | WS1 | C01 | 5 | -0.2 | 1.2 |
| SME1E061.XLS | 01 | WS1 | C01 | 4 | -0.2 | -5.0 |
| SME1E061.XLS | 01 | WS1 | C01 | 3 | -0.2 | 7.4 |
| SME1E061.XLS | 01 | WS1 | C01 | 2 | -0.2 | 7.4 |
| SME1E061.XLS | 01 | WS1 | C01 | 12 | -0.2 | 26.0 |
| SME1E061.XLS | 01 | WS1 | C01 | 11 | -0.2 | 7.4 |
| SME1E061.XLS | 01 | WS1 | C01 | 10 | -0.2 | 19.8 |
| SME1E061.XLS | 01 | WS1 | C01 | 1 | -0.2 | -5.0 |
| SME1E061.XLS | 01 | FL1 | C01 | 9 | -0.2 | ***508.9*** |
| SME1E061.XLS | 01 | FL1 | C01 | 8 | -0.2 | ***403.7*** |
| SME1E061.XLS | 01 | FL1 | C01 | 7 | -0.2 | ***248.9*** |
| SME1E061.XLS | 01 | FL1 | C01 | 6 | -0.2 | ***143.6*** |
| SME1E061.XLS | 01 | FL1 | C01 | 5 | -0.2 | 1.2 |
| SME1E061.XLS | 01 | FL1 | C01 | 4 | -0.2 | 13.6 |

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 100.00 dpm/100 cm² (beta activity) and/or 20.00 dpm/100 cm² (alpha activity).

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03/29/98 Removable Contamination

Survey Package : A1400 SURFACES & STRUCTURES
Personnel Hatch Area - Elevation 21 ft.
Includes: Personnel Hatch Area and Ventilation Room

## RESULTS LISTING - SORTED BY SURFACE CODE

| XLS FILE | UNIT | SURFACE | REASON | MSRMNT LOCATION | ALPHA | BETA |
|---|---|---|---|---|---|---|
| SME1E061.XLS | 01 | FL1 | C01 | 3 | -0.2 | 32.2 |
| SME1E061.XLS | 01 | FL1 | C01 | 2 | -0.2 | 7.4 |
| SME1E061.XLS | 01 | FL1 | C01 | 10 | 1.9 | ***657.5*** |
| SME1E061.XLS | 01 | FL1 | C01 | 1 | -0.2 | 1.2 |
| SME1E061.XLS | 01 | EQ1 | C01 | 4 | -0.2 | ***149.8*** |
| SME1E061.XLS | 01 | EQ1 | C01 | 3 | -0.2 | 38.4 |
| SME1E061.XLS | 01 | EQ1 | C01 | 2 | -0.2 | 7.4 |
| SME1E061.XLS | 01 | EQ1 | C01 | 1 | -0.2 | 7.4 |
| SME1E061.XLS | 01 | CL1 | C01 | 6 | -0.2 | 13.6 |
| SME1E061.XLS | 01 | CL1 | C01 | 5 | -0.2 | 7.4 |
| SME1E061.XLS | 01 | CL1 | C01 | 4 | -0.2 | 38.4 |
| SME1E061.XLS | 01 | CL1 | C01 | 3 | -0.2 | -5.0 |
| SME1E061.XLS | 01 | CL1 | C01 | 2 | -0.2 | 7.4 |
| SME1E061.XLS | 01 | CL1 | C01 | 1 | -0.2 | -5.0 |

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 100.00 dpm/100 cm² (beta activity) and/or 20.00 dpm/100 cm² (alpha activity).
54 results are listed.

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Maine Yankee Atomic Power Plant Site Characterization

# DATAFILE & TENNELEC CALIBRATION SUMMARY

03/29/98

Removable Contamination

Survey Package : A1400 SURFACES & STRUCTURES
Personnel Hatch Area - Elevation 21 ft.
Includes: Personnel Hatch Area and Ventilation Room

| SURVEYDATE | XLS FILE | INST ID | S/N | CAL DUE | LAB TECHNICIAN |
|---|---|---|---|---|---|
| 3/6/98 | SME1E061.XLS | 1 | 15632 | 8/5/98 | JWD |
| | | | | CALIBRATION DATE VERIFIED AS ACCEPTABLE | |

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03/29/98

## Exposure Rate Measurements

Survey Package A1400 SURFACES & STRUCTURES
Personnel Hatch Area - Elevation 21 ft.
Includes: Personnel Hatch Area and Ventilation Room

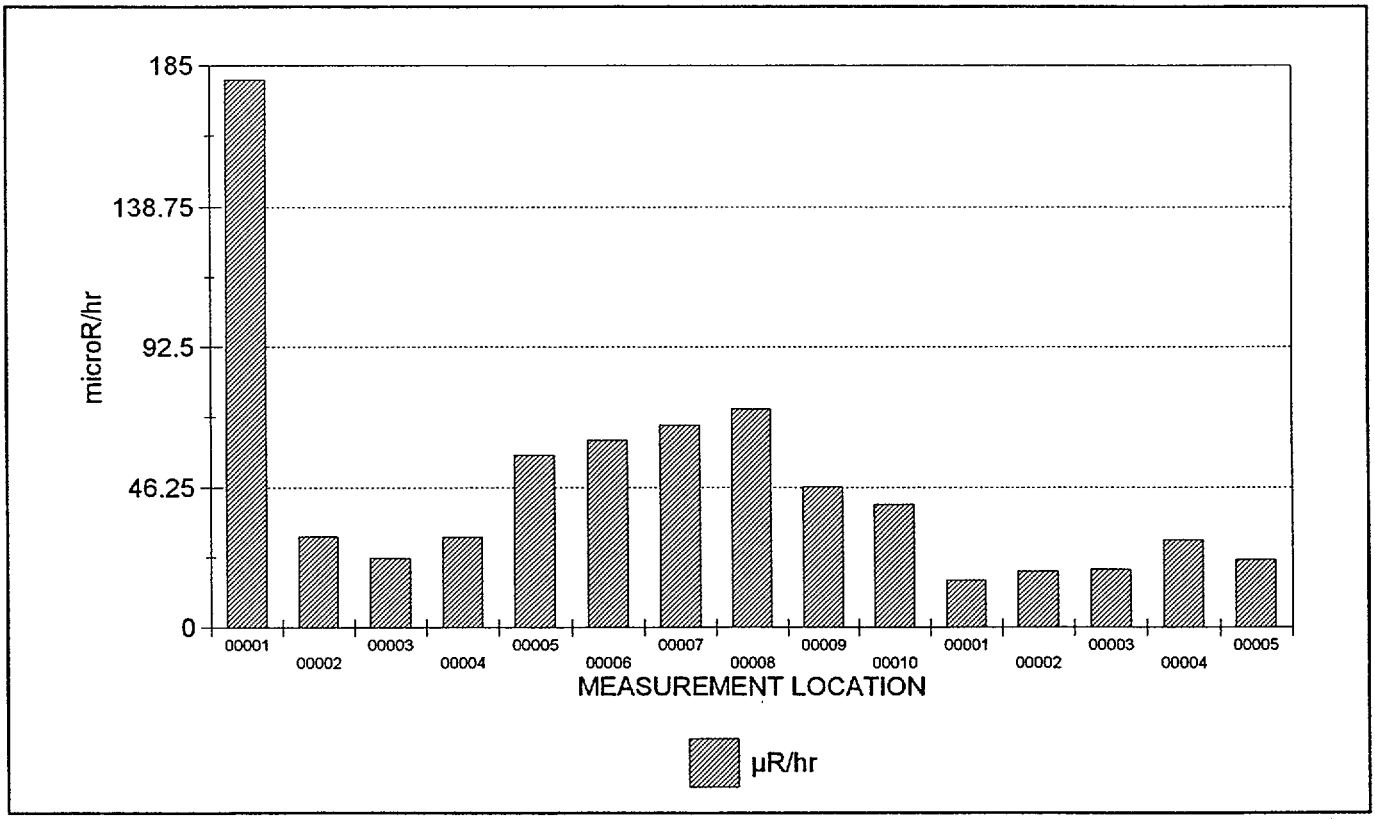
### STATISTICAL SUMMARY

| | µR/hr |
|---|---|
| Mean | 47.5 |
| Maximum | 180.2 |
| Minimum | 15.6 |
| Standard Deviation | 41.2 |

| | |
|---|---|
| Samples Reported | 15 |
| Samples Prescribed | 15 |

### TESTS PERFORMED

| | |
|---|---|
| Samples reported satisfy samples prescribed | YES |




15 RESULTS ARE GRAPHED

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03/29/98

## Exposure Rate Measurements

Survey Package : A1400 SURFACES & STRUCTURES
Personnel Hatch Area - Elevation 21 ft.
Includes: Personnel Hatch Area and Ventilation Room

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | RESULT |
|---|---|---|---|---|---|---|---|
| 514 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00001 | ***180.2*** |
| 514 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00002 | ***30.3*** |
| 514 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00003 | ***23.0*** |
| 514 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00004 | ***30.0*** |
| 514 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00005 | ***57.0*** |
| 514 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00006 | ***61.9*** |
| 514 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00007 | ***66.8*** |
| 514 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00008 | ***72.2*** |
| 514 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00009 | ***46.6*** |
| 514 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00010 | ***40.7*** |
| 514 (2) | 02 | FL1 | B0001 | C01 | 60.00 | 00001 | ***15.6*** |
| 514 (2) | 02 | FL1 | B0001 | C01 | 60.00 | 00002 | ***18.6*** |
| 514 (2) | 02 | FL1 | B0001 | C01 | 60.00 | 00003 | ***19.2*** |
| 514 (2) | 02 | FL1 | B0001 | C01 | 60.00 | 00004 | ***28.9*** |
| 514 (2) | 02 | FL1 | B0001 | C01 | 60.00 | 00005 | ***22.3*** |

NOTES: Exposure rates reported in net µR/hr. Count times are reported in seconds.
Underlined results did not meet the minimum required count time.
Bold values exceed 15 µR/hr.
15 results are listed.

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# DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

03/29/98

## Exposure Rate Measurements

Survey Package : A1400 SURFACES & STRUCTURES
Personnel Hatch Area - Elevation 21 ft.
Includes: Personnel Hatch Area and Ventilation Room

| SURVEY | | M2350 | | DETECTOR | | | |
|---|---|---|---|---|---|---|---|
| DATE | FILE # | INST S/N | CAL DUE | MODEL | S/N | CAL DUE | TECHNICIAN |
| 1/29/98 | 514 (2) | 098639 | 4/16/98 | 44-2 | 129770 | 5/12/98 | JJP1813 |

CALIBRATION DATES VERIFIED AS ACCEPTABLE

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Maine Yankee Atomic Power Plant Site Characterization

04/02/98

# CHARACTERIZATION SUMMARY

SURVEY PACKAGE NUMBER :A1500 — SURFACES & STRUCTURES

PACKAGE DESCRIPTION — Mechanical Penetration Room - Elevation 21 ft.

SURVEY AREA DESCRIPTION
Mechanical Pentration Room

GENERAL HISTORICAL INFORMATION (Operational history, etc.)

This room contains main steam piping from containment and Auxilary water feed pump systems. Construction is painted, epoxied concrete floor, and concrete walls and overhead. The area has been used in the past an an exit pathway from containment. The Auxilary feed pump has a sump and a drain.

SUMMARY OF CHARACTERIZATION ACTIVITIES

Survey units were established for the areas as listed in the following Summary of Survey Units. Maps with the survey measurement locations for this package are included on the following pages.

Collected 54 direct measurements for total beta activity at the survey measurement locations indicated in the results listing report. Due to elevated background radioactivity in the survey area, a scan of a two meter area encompassing each survey measurement location was not performed. Each direct measurement for total beta activity was accompanied by a corresponding background measurement at the same location. The background was used in the calculation of net dpm/100cm².

Collected smear samples to analyze for removable alpha and beta activity at the same 54 survey locations as the direct measurements for total beta activity.

Collected one meter exposure rate measurements at 23 survey locations indicated in the results listing report.

The survey result statistical summaries, graphs and results listings are shown in the following individual reports including calibration summaries for the instruments used for each measurement type.

CHARACTERIZATION SURVEY RESULTS

- There were 2 direct measurements for total beta activity above 2000 dpm/100cm². There were 7 direct measurements for total beta activity above the individual measurements' MDA (Maximum MDA was 661 dpm/100cm²). The maximum measurement result was 3,678 dpm/100cm².
- There were no measurements for removable beta activity above MDA (38 dpm/100cm²).
- There were no measurements for removable alpha activity above MDA (8.4 dpm/100cm²).
- The average and maximum exposure rate measurement results were 9.4 µR/hr and 14 µR/hr, respectively.

REFERENCES (Documents, Interviews)

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# SUMMARY OF SURVEY UNIT(S)

03/29/98 OUTPUT BATCH SN = 272

**PACKAGE** A1500 SURFACES & STRUCTURES
Mechanical Penetration Room - Elevation 21 ft.

| UNIT(S) | SURFACE(S) |
|---|---|
| 01 - First Floor | CL1 (Ceiling)<br>EQ1 (Plant Equipment (exterior))<br>EQ2 (Equipment)<br>FD1 (Aux Feed Pump Sump)<br>FL1 (Floor Surface)<br>WS1 (Wall Surface (interior)) |
| 02 - Second Floor | EQ1 (Plant Equipment (exterior))<br>EQ2 (Plant Equipment (exterior))<br>FL1 (Floor Surface) |
| 03 - Third Floor | FL1 (Floor Surface) |
| 04 - Fourth Floor | EQ1 (Plant Equipment (exterior))<br>EQ2 (Plant Equipment (exterior))<br>EQ3 (Plant Equipment (exterior))<br>FL1 (Floor Surface) |
| 05 - Fifth Floor | EQ1 (Plant Equipment (exterior))<br>EQ2 (Plant Equipment (exterior))<br>EQ3 (Plant Equipment (exterior))<br>FL1 (Floor Surface) |

**REASON(S)** CHARACTERIZATION SURVEY (C01)

**MATERIALS**

| MAT'L CODE | MATERIAL DESCRIPTION | BETA BKGD (dpm/100 cm²) |
|---|---|---|
| B0001 | CONCRETE - PAINTED (INTERIOR) | 478.0 |
| B0002 | CONCRETE - BARE (INTERIOR) | 665.0 |
| B0031 | METAL - BARE | 0.0 |
| B0036 | METAL - PAINTED | 0.0 |
| B0047 | BLANKET INSULATION | 0.0 |

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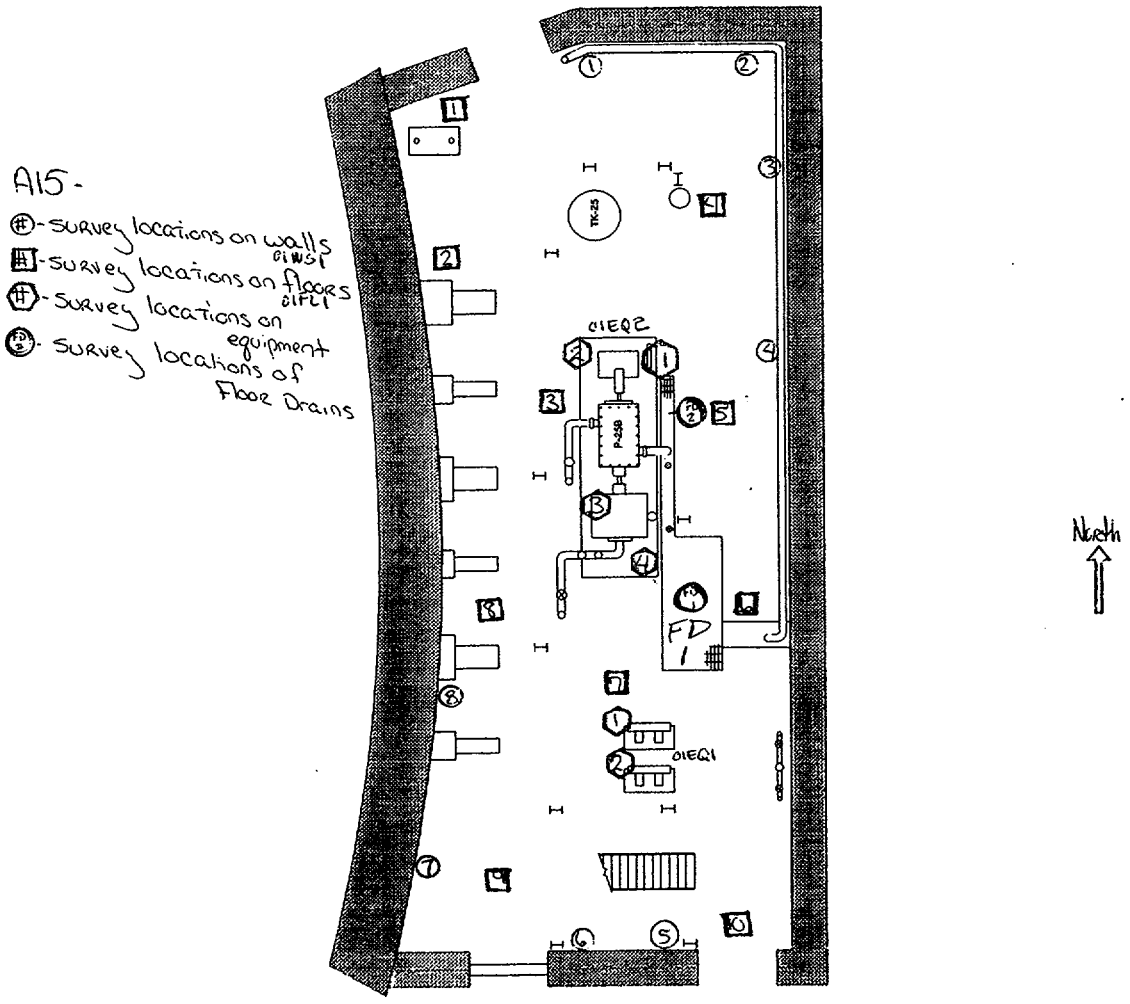
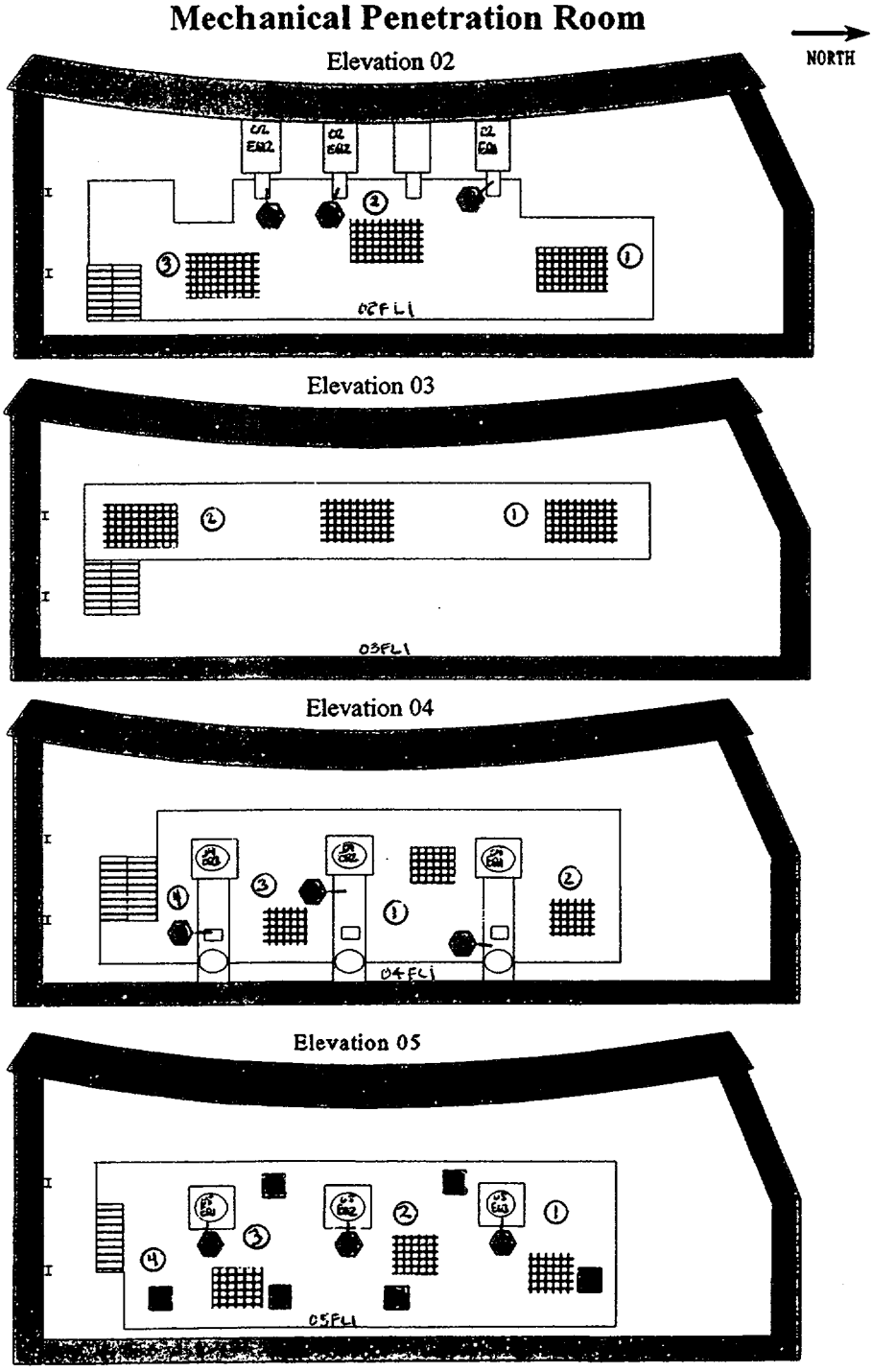
## Mechanical Penetration Room



## Mechanical Penetration Room




A1500

O- Survey locations on floor ● - Survey locations on equipment ■ - Survey locations on ceiling (circa)

DURATEK

Maine Yankee Atomic Power Plant Site Characterization

03/31/98

## Direct Measurements For Total Beta Activity

Survey Package A1500 SURFACES & STRUCTURES
Mechanical Penetration Room - Elevation 21 ft.

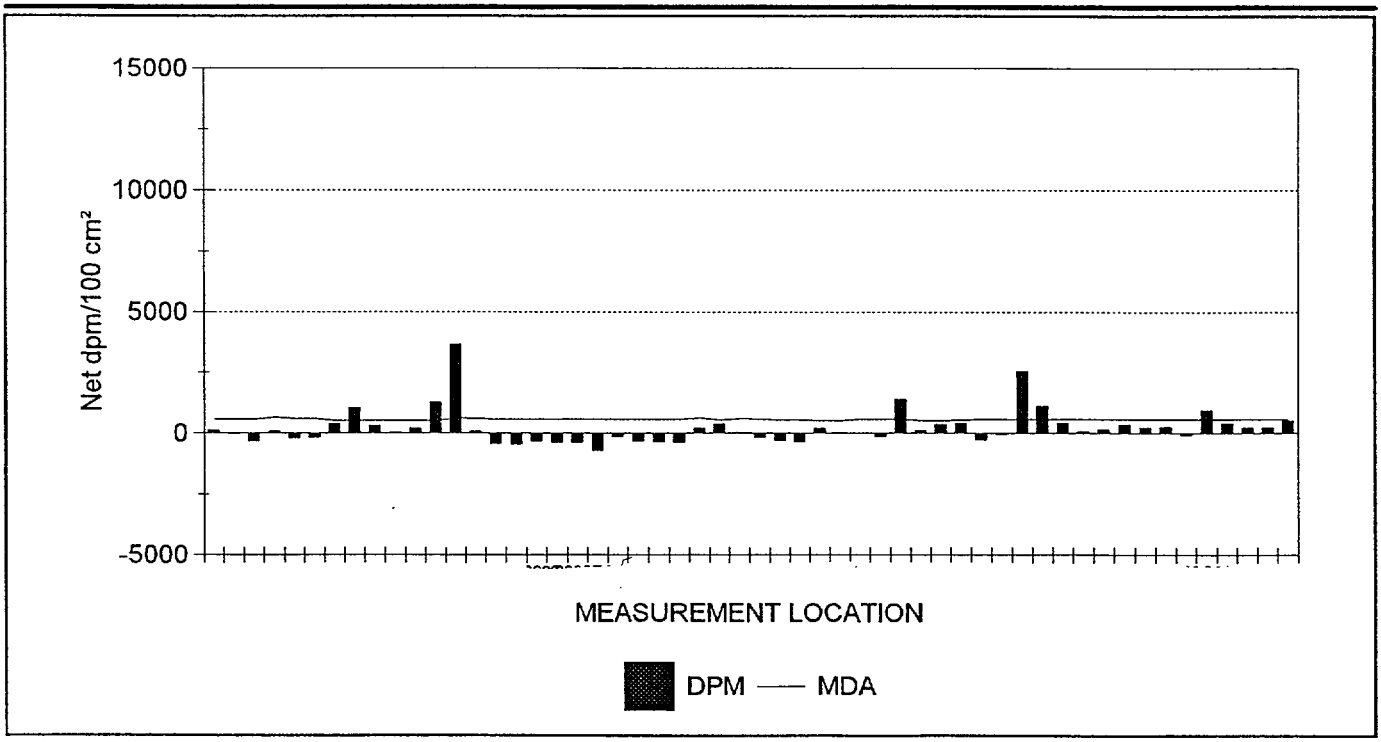
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | 214.9 |
| Maximum | 3,677.6 |
| Minimum | -723.8 |
| Standard Deviation | 734.3 |
| MDA | 661.1 |

| | |
|---|---|
| Samples Reported | 54 |
| Samples Prescribed | 54 |

### TESTS PERFORMED

| | |
|---|---|
| Samples reported satisfy samples prescribed | YES |
| MDA <2000 net dpm/100 cm² | YES |
| Results above 2000 net dpm/100 cm² | 2 |
| Number of results above MDA | 7 |




54 RESULTS ARE GRAPHED

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03/31/98

## Direct Measurements For Total Beta Activity

Survey Package : A1500 SURFACES & STRUCTURES
Mechanical Penetration Room - Elevation 21 ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | MDA | RESULT |
|---|---|---|---|---|---|---|---|---|
| 424 (2) | 01 | CL1 | B0001 | C01 | 10 | 00001 | 578.5 | 125.4 |
| 424 (2) | 01 | CL1 | B0001 | C01 | 10 | 00002 | 578.5 | -15.2 |
| 424 (2) | 01 | CL1 | B0001 | C01 | 10 | 00003 | 578.5 | -343.3 |
| 424 (2) | 01 | CL1 | B0001 | C01 | 10 | 00004 | 661.1 | 72.7 |
| 424 (2) | 01 | CL1 | B0001 | C01 | 10 | 00005 | 605.3 | -204.6 |
| 424 (2) | 01 | CL1 | B0001 | C01 | 10 | 00006 | 605.3 | -181.2 |
| 426 (2) | 01 | EQ1 | B0036 | C01 | 10 | 00001 | 529.8 | 394.2 |
| 426 (2) | 01 | EQ1 | B0036 | C01 | 10 | 00002 | 529.8 | 1,037.2 |
| 426 (2) | 01 | EQ2 | B0036 | C01 | 10 | 00001 | 529.8 | 302.4 |
| 426 (2) | 01 | EQ2 | B0036 | C01 | 10 | 00002 | 529.8 | 26.8 |
| 426 (2) | 01 | EQ2 | B0036 | C01 | 10 | 00003 | 529.8 | 210.5 |
| 426 (2) | 01 | EQ2 | B0036 | C01 | 10 | 00004 | 529.8 | 1,266.9 |
| 431 (2) | 01 | FD1 | B0002 | C01 | 10 | 00001 | 628.0 | **3,677.6** |
| 431 (2) | 01 | FD1 | B0002 | C01 | 10 | 00002 | 586.1 | 66.4 |
| 416 (2) | 01 | FL1 | B0001 | C01 | 10 | 00001 | 585.6 | -451.1 |
| 416 (2) | 01 | FL1 | B0001 | C01 | 10 | 00002 | 580.3 | -478.0 |
| 416 (2) | 01 | FL1 | B0001 | C01 | 10 | 00003 | 575.9 | -347.4 |
| 416 (2) | 01 | FL1 | B0001 | C01 | 10 | 00004 | 567.2 | -385.8 |
| 416 (2) | 01 | FL1 | B0001 | C01 | 10 | 00005 | 570.5 | -397.4 |
| 416 (2) | 01 | FL1 | B0001 | C01 | 10 | 00006 | 578.1 | -723.8 |
| 416 (2) | 01 | FL1 | B0001 | C01 | 10 | 00007 | 576.3 | -164.4 |
| 416 (2) | 01 | FL1 | B0001 | C01 | 10 | 00008 | 576.3 | -348.7 |
| 416 (2) | 01 | FL1 | B0001 | C01 | 10 | 00009 | 576.3 | -371.8 |
| 416 (2) | 01 | FL1 | B0001 | C01 | 10 | 00010 | 576.3 | -394.8 |
| 415 (2) | 01 | WS1 | B0001 | C01 | 10 | 00001 | 626.5 | 204.8 |
| 415 (2) | 01 | WS1 | B0001 | C01 | 10 | 00002 | 551.2 | 387.9 |
| 415 (2) | 01 | WS1 | B0001 | C01 | 10 | 00003 | 589.1 | 25.5 |
| 415 (2) | 01 | WS1 | B0001 | C01 | 10 | 00004 | 577.5 | -184.3 |
| 415 (2) | 01 | WS1 | B0001 | C01 | 10 | 00005 | 536.3 | -317.8 |
| 415 (2) | 01 | WS1 | B0001 | C01 | 10 | 00006 | 556.8 | -363.6 |
| 426 (2) | 01 | WS1 | B0001 | C01 | 10 | 00007 | 529.8 | 214.8 |
| 426 (2) | 01 | WS1 | B0001 | C01 | 10 | 00008 | 529.8 | 31.0 |
| 424 (2) | 02 | EQ1 | B0047 | C01 | 10 | 00001 | 578.5 | -5.9 |
| 424 (2) | 02 | EQ2 | B0031 | C01 | 10 | 00002 | 578.5 | -146.5 |
| 424 (2) | 02 | EQ2 | B0047 | C01 | 10 | 00001 | 578.5 | 1,400.2 |
| 424 (2) | 02 | FL1 | B0031 | C01 | 10 | 00001 | 517.1 | 101.5 |
| 424 (2) | 02 | FL1 | B0031 | C01 | 10 | 00002 | 525.9 | 355.4 |
| 424 (2) | 02 | FL1 | B0031 | C01 | 10 | 00003 | 540.7 | 425.7 |
| 424 (2) | 03 | FL1 | B0031 | C01 | 10 | 00001 | 578.5 | -287.1 |
| 424 (2) | 03 | FL1 | B0031 | C01 | 10 | 00002 | 578.5 | -52.7 |

NOTES: Activity reported in net dpm/100 cm². Count times are reported in seconds.
Underlined values exceed the MDA.
Bold values exceed 2000 dpm/100 cm².

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03/31/98

## Direct Measurements For Total Beta Activity

Survey Package : A1500 SURFACES & STRUCTURES
Mechanical Penetration Room - Elevation 21 ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | MDA | RESULT |
|---|---|---|---|---|---|---|---|---|
| 424 (2) | 04 | EQ1 | B0047 | C01 | 10 | 00001 | 578.5 | ***2,548.4*** |
| 424 (2) | 04 | EQ2 | B0047 | C01 | 10 | 00001 | 578.5 | 1,119.0 |
| 424 (2) | 04 | EQ3 | B0047 | C01 | 10 | 00001 | 578.5 | 415.9 |
| 424 (2) | 04 | FL1 | B0031 | C01 | 10 | 00001 | 578.5 | 87.9 |
| 424 (2) | 04 | FL1 | B0031 | C01 | 10 | 00002 | 578.5 | 158.2 |
| 424 (2) | 04 | FL1 | B0031 | C01 | 10 | 00003 | 578.5 | 369.1 |
| 424 (2) | 04 | FL1 | B0031 | C01 | 10 | 00004 | 578.5 | 228.5 |
| 424 (2) | 05 | EQ1 | B0031 | C01 | 10 | 00001 | 578.5 | 251.9 |
| 424 (2) | 05 | EQ2 | B0031 | C01 | 10 | 00001 | 578.5 | -76.2 |
| 424 (2) | 05 | EQ3 | B0031 | C01 | 10 | 00001 | 578.5 | 931.5 |
| 424 (2) | 05 | FL1 | B0031 | C01 | 10 | 00001 | 578.5 | 415.9 |
| 424 (2) | 05 | FL1 | B0031 | C01 | 10 | 00002 | 578.5 | 228.5 |
| 424 (2) | 05 | FL1 | B0031 | C01 | 10 | 00003 | 578.5 | 228.5 |
| 424 (2) | 05 | FL1 | B0031 | C01 | 10 | 00004 | 578.5 | 533.1 |

NOTES: Activity reported in net dpm/100 cm². Count times are reported in seconds.
Underlined values exceed the MDA.
Bold values exceed 2000 dpm/100 cm².
54 results are listed.

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# DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

03/31/98 Direct Measurements For Total Beta Activity

Survey Package : A1500 SURFACES & STRUCTURES
Mechanical Penetration Room - Elevation 21 ft.

| SURVEY | | M2350 | | DETECTOR | | | PRE | |
|---|---|---|---|---|---|---|---|---|
| DATE | FILE # | INST S/N | CAL DUE | MODEL | S/N | CAL DUE | EFF | TECHNICIAN |
| 1/15/98 | 415 (2) | 126201 | 4/15/98 | 43-106 | 133858 | 5/3/98 | .21 | BSM0490 |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | | |
| 1/15/98 | 416 (2) | 98620 | 3/20/98 | 43-106 | 128919 | 3/20/98 | .21 | DRK2986 |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | | |
| 1/16/98 | 424 (2) | 98620 | 3/20/98 | 43-106 | 128919 | 3/20/98 | .20 | DRK2986 |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | | |
| 1/16/98 | 426 (2) | 126201 | 4/15/98 | 43-106 | 133858 | 5/3/98 | .21 | BSM0490 |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | | |
| 1/19/98 | 431 (2) | 126201 | 4/15/98 | 43-106 | 133858 | 5/3/98 | .21 | BSM0490 |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | | |

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Maine Yankee Atomic Power Plant Site Characterization

03/29/98

## Removable Contamination - Gross Beta Activity

Survey Package A1500 SURFACES & STRUCTURES
Mechanical Penetration Room - Elevation 21 ft.

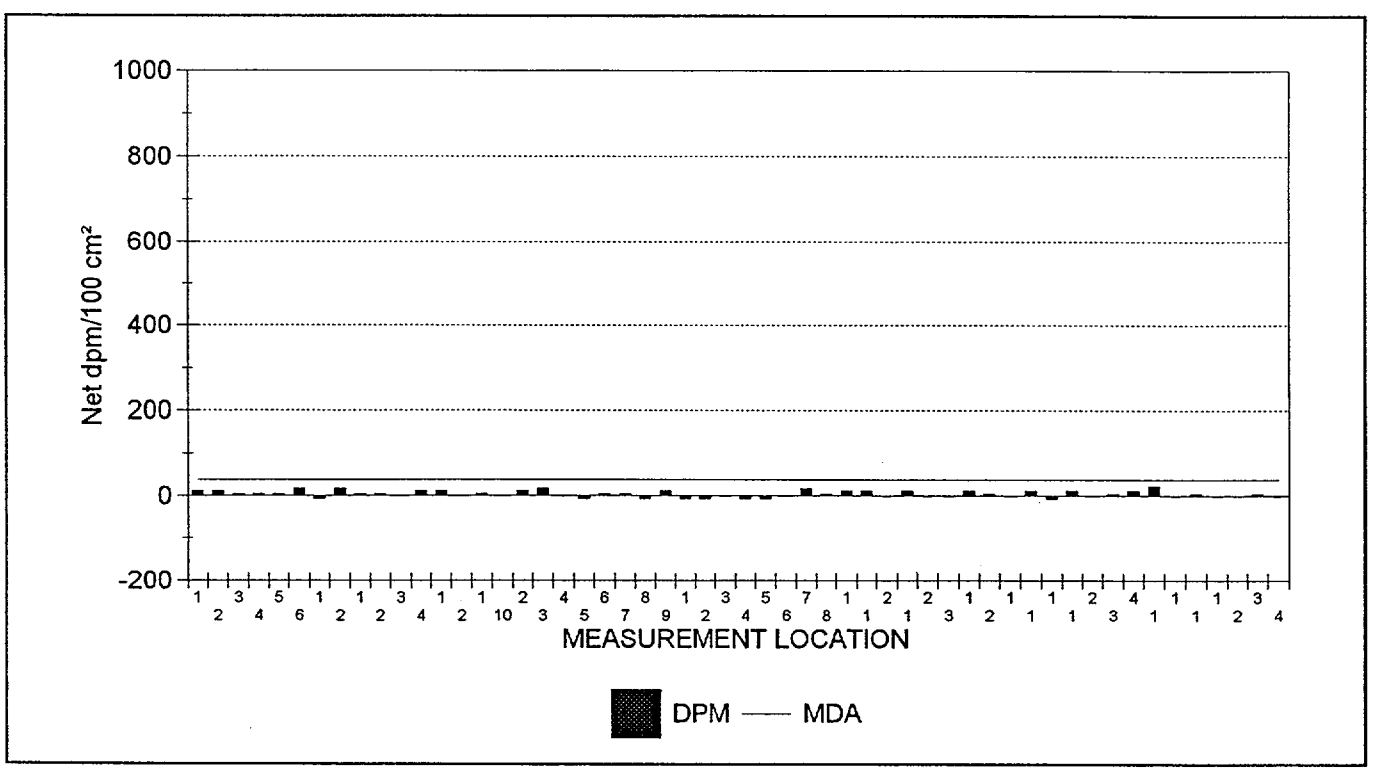
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | 4.4 |
| Maximum | 23.5 |
| Minimum | -7.0 |
| Standard Deviation | 7.7 |
| MDA | 38.3 |

| | |
|---|---|
| Samples Reported | 54 |
| Samples Prescribed | 54 |

### TESTS PERFORMED

| | |
|---|---|
| MDA <100 net dpm/100 cm² | YES |
| Results above 100 net dpm/100 cm² | 0 |
| Number of results above MDA | 0 |




54 RESULTS ARE GRAPHED

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Maine Yankee Atomic Power Plant Site Characterization

03/29/98

## Removable Contamination - Gross Alpha Activity

Survey Package A1500 SURFACES & STRUCTURES
Mechanical Penetration Room - Elevation 21 ft.

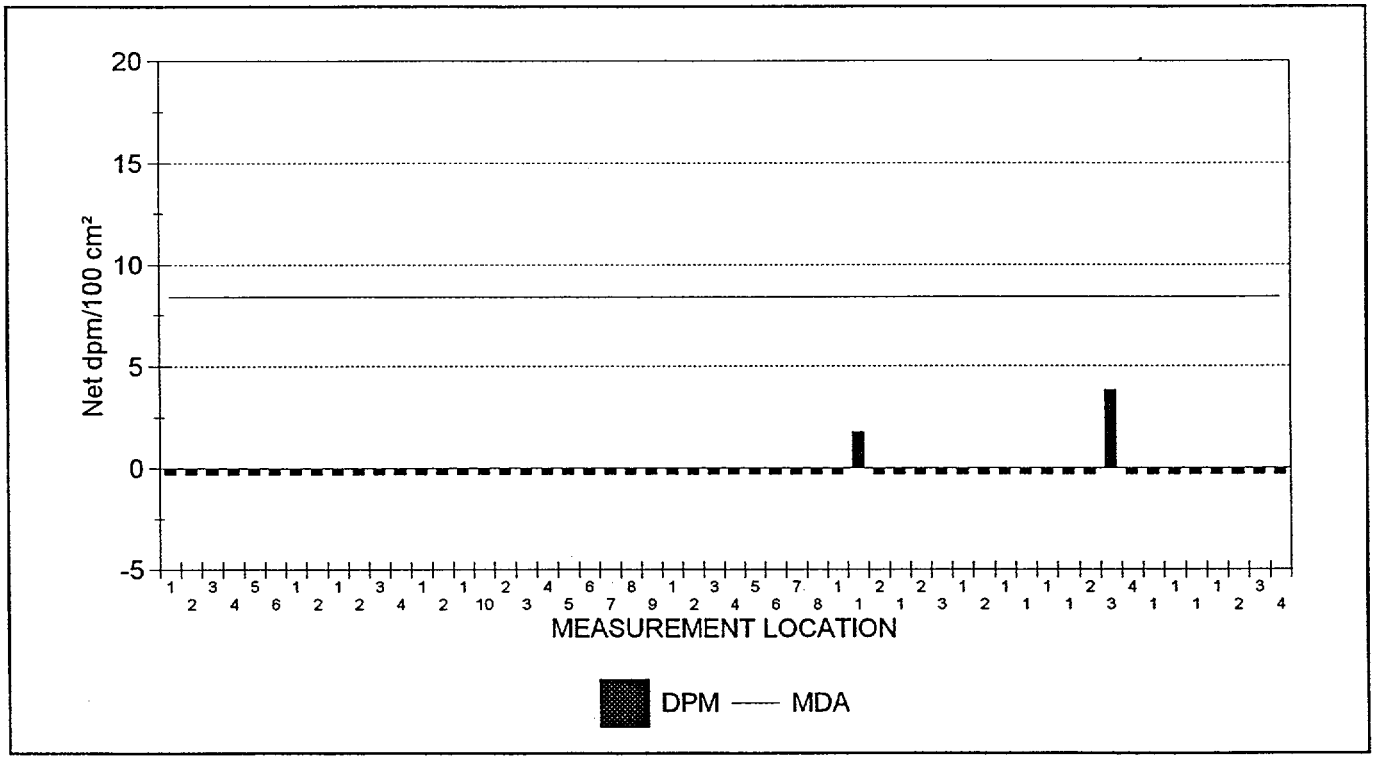
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | -0.2 |
| Maximum | 3.9 |
| Minimum | -0.3 |
| Standard Deviation | 0.6 |
| MDA | 8.4 |

| | |
|---|---|
| Samples Reported | 54 |
| Samples Prescribed | 54 |

### TESTS PERFORMED

| | |
|---|---|
| MDA <10 net dpm/100 cm² | YES |
| Results above 20 net dpm/100 cm² | 0 |
| Number of results above MDA | 0 |




54 RESULTS ARE GRAPHED

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03/29/98 Removable Contamination

Survey Package : A1500 SURFACES & STRUCTURES
Mechanical Penetration Room - Elevation 21 ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| XLS FILE | UNIT | SURFACE | REASON | MSRMNT LOCATION | ALPHA | BETA |
|---|---|---|---|---|---|---|
| SME1E088.XLS | 05 | FL1 | C01 | 4 | -0.3 | -0.9 |
| SME1E088.XLS | 05 | FL1 | C01 | 3 | -0.3 | 5.2 |
| SME1E088.XLS | 05 | FL1 | C01 | 2 | -0.3 | -0.9 |
| SME1E088.XLS | 05 | FL1 | C01 | 1 | -0.3 | -0.9 |
| SME1E088.XLS | 05 | EQ3 | C01 | 1 | -0.3 | 5.2 |
| SME1E088.XLS | 05 | EQ2 | C01 | 1 | -0.3 | -0.9 |
| SME1E088.XLS | 05 | EQ1 | C01 | 1 | -0.3 | 23.5 |
| SME1E088.XLS | 04 | FL1 | C01 | 4 | -0.3 | 11.3 |
| SME1E088.XLS | 04 | FL1 | C01 | 3 | 3.9 | 5.2 |
| SME1E088.XLS | 04 | FL1 | C01 | 2 | -0.3 | -0.9 |
| SME1E088.XLS | 04 | FL1 | C01 | 1 | -0.3 | 11.3 |
| SME1E088.XLS | 04 | EQ3 | C01 | 1 | -0.3 | -7.0 |
| SME1E088.XLS | 04 | EQ2 | C01 | 1 | -0.3 | 11.3 |
| SME1E088.XLS | 04 | EQ1 | C01 | 1 | -0.3 | -0.9 |
| SME1E088.XLS | 03 | FL1 | C01 | 2 | -0.3 | 5.2 |
| SME1E088.XLS | 03 | FL1 | C01 | 1 | -0.3 | 11.3 |
| SME1E088.XLS | 02 | FL1 | C01 | 3 | -0.3 | -0.9 |
| SME1E088.XLS | 02 | FL1 | C01 | 2 | -0.3 | -0.9 |
| SME1E088.XLS | 02 | FL1 | C01 | 1 | -0.3 | 11.3 |
| SME1E088.XLS | 02 | EQ2 | C01 | 2 | -0.3 | -0.9 |
| SME1E088.XLS | 02 | EQ2 | C01 | 1 | 1.8 | 11.3 |
| SME1E088.XLS | 02 | EQ1 | C01 | 1 | -0.3 | 11.3 |
| SME1E088.XLS | 01 | WS1 | C01 | 8 | -0.3 | 5.2 |
| SME1E088.XLS | 01 | WS1 | C01 | 7 | -0.3 | 17.4 |
| SME1E088.XLS | 01 | WS1 | C01 | 6 | -0.3 | -0.9 |
| SME1E088.XLS | 01 | WS1 | C01 | 5 | -0.3 | -7.0 |
| SME1E088.XLS | 01 | WS1 | C01 | 4 | -0.3 | -7.0 |
| SME1E088.XLS | 01 | WS1 | C01 | 3 | -0.3 | -0.9 |
| SME1E088.XLS | 01 | WS1 | C01 | 2 | -0.3 | -7.0 |
| SME1E088.XLS | 01 | WS1 | C01 | 1 | -0.3 | -7.0 |
| SME1E088.XLS | 01 | FL1 | C01 | 9 | -0.3 | 11.3 |
| SME1E088.XLS | 01 | FL1 | C01 | 8 | -0.3 | -7.0 |
| SME1E088.XLS | 01 | FL1 | C01 | 7 | -0.3 | 5.2 |
| SME1E088.XLS | 01 | FL1 | C01 | 6 | -0.3 | 5.2 |
| SME1E088.XLS | 01 | FL1 | C01 | 5 | -0.3 | -7.0 |
| SME1E088.XLS | 01 | FL1 | C01 | 4 | -0.3 | -0.9 |
| SME1E088.XLS | 01 | FL1 | C01 | 3 | -0.3 | 17.4 |
| SME1E088.XLS | 01 | FL1 | C01 | 2 | -0.3 | 11.3 |
| SME1E088.XLS | 01 | FL1 | C01 | 10 | -0.3 | -0.9 |
| SME1E088.XLS | 01 | FL1 | C01 | 1 | -0.3 | 5.2 |

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 100.00 dpm/100 cm² (beta activity) and/or 20.00 dpm/100 cm² (alpha activity).

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03/29/98 Removable Contamination

Survey Package : A1500 SURFACES & STRUCTURES
Mechanical Penetration Room - Elevation 21 ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| XLS FILE | UNIT | SURFACE | REASON | MSRMNT LOCATION | ALPHA | BETA |
|---|---|---|---|---|---|---|
| SME1E088.XLS | 01 | FD1 | C01 | 2 | -0.3 | -0.9 |
| SME1E088.XLS | 01 | FD1 | C01 | 1 | -0.3 | 11.3 |
| SME1E088.XLS | 01 | EQ2 | C01 | 4 | -0.3 | 11.3 |
| SME1E088.XLS | 01 | EQ2 | C01 | 3 | -0.3 | -0.9 |
| SME1E088.XLS | 01 | EQ2 | C01 | 2 | -0.3 | 5.2 |
| SME1E088.XLS | 01 | EQ2 | C01 | 1 | -0.3 | 5.2 |
| SME1E088.XLS | 01 | EQ1 | C01 | 2 | -0.3 | 17.4 |
| SME1E088.XLS | 01 | EQ1 | C01 | 1 | -0.3 | -7.0 |
| SME1E088.XLS | 01 | CL1 | C01 | 6 | -0.3 | 17.4 |
| SME1E088.XLS | 01 | CL1 | C01 | 5 | -0.3 | 5.2 |
| SME1E088.XLS | 01 | CL1 | C01 | 4 | -0.3 | 5.2 |
| SME1E088.XLS | 01 | CL1 | C01 | 3 | -0.3 | 5.2 |
| SME1E088.XLS | 01 | CL1 | C01 | 2 | -0.3 | 11.3 |
| SME1E088.XLS | 01 | CL1 | C01 | 1 | -0.3 | 11.3 |

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 100.00 dpm/100 cm² (beta activity) and/or 20.00 dpm/100 cm² (alpha activity).
54 results are listed.

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Maine Yankee Atomic Power Plant Site Characterization

# DATAFILE & TENNELEC CALIBRATION SUMMARY

03/29/98

Removable Contamination

Survey Package : A1500 SURFACES & STRUCTURES
Mechanical Penetration Room - Elevation 21 ft.

| SURVEYDATE | XLS FILE | INST ID | S/N | CAL DUE | LAB TECHNICIAN |
|---|---|---|---|---|---|
| 3/11/98 | SME1E088.XLS | 1 | 15632 | 8/5/98 | JWD |
| | | | | CALIBRATION DATE VERIFIED AS ACCEPTABLE | |

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Maine Yankee Atomic Power Plant Site Characterization

03/29/98

## Exposure Rate Measurements

Survey Package A1500 SURFACES & STRUCTURES
Mechanical Penetration Room - Elevation 21 ft.

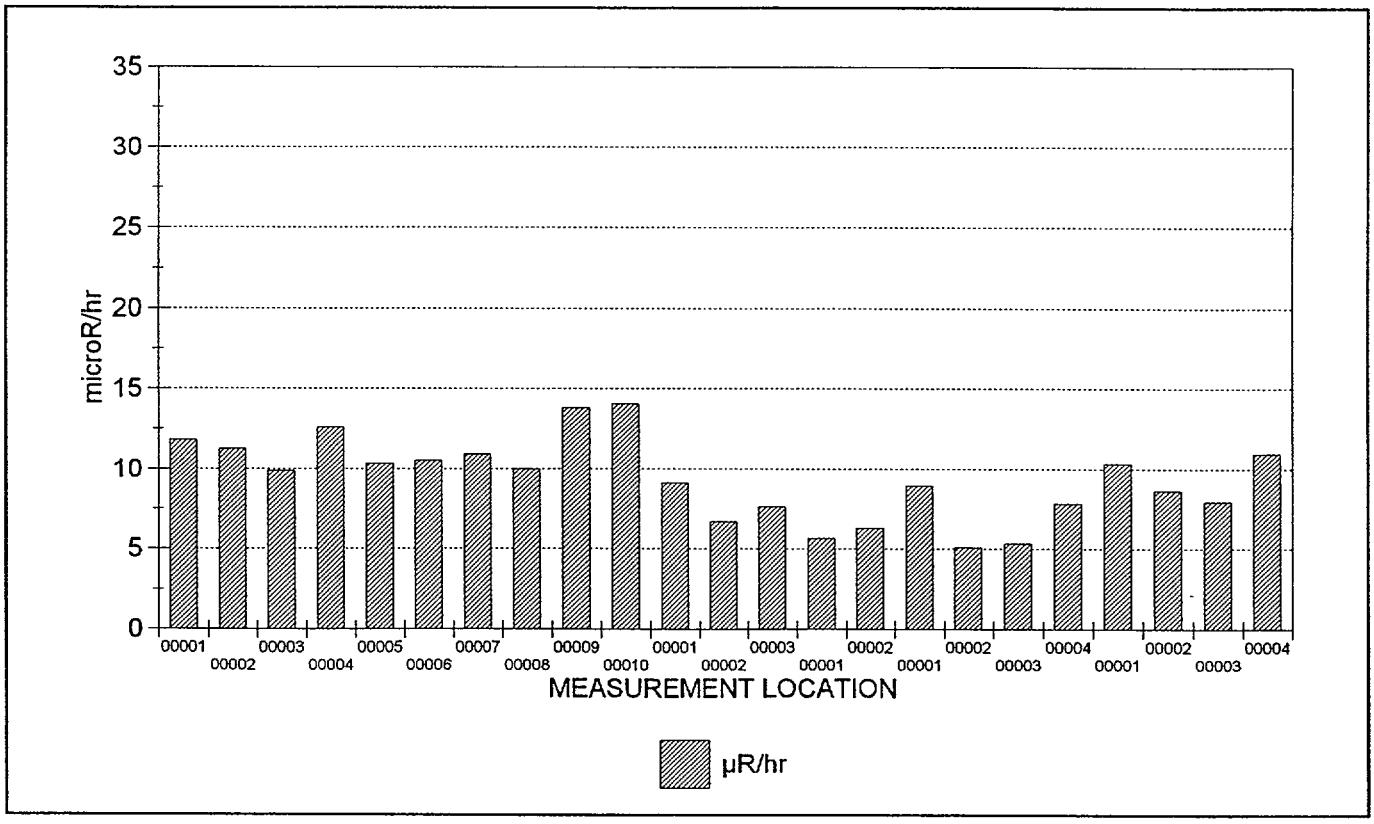
### STATISTICAL SUMMARY

| | µR/hr |
|---|---|
| Mean | 9.4 |
| Maximum | 14.0 |
| Minimum | 5.1 |
| Standard Deviation | 2.6 |

| | |
|---|---|
| Samples Reported | 23 |
| Samples Prescribed | 23 |

### TESTS PERFORMED

| | |
|---|---|
| Samples reported satisfy samples prescribed | YES |




23 RESULTS ARE GRAPHED

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03/29/98 Exposure Rate Measurements

Survey Package: A1500 SURFACES & STRUCTURES
Mechanical Penetration Room - Elevation 21 ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | RESULT |
|---|---|---|---|---|---|---|---|
| 567 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00001 | 11.8 |
| 567 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00002 | 11.2 |
| 567 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00003 | 9.9 |
| 567 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00004 | 12.6 |
| 567 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00005 | 10.4 |
| 567 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00006 | 10.5 |
| 567 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00007 | 10.9 |
| 567 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00008 | 10.0 |
| 567 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00009 | 13.8 |
| 567 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00010 | 14.0 |
| 586 (2) | 02 | FL1 | B0031 | C01 | 60.00 | 00001 | 9.1 |
| 586 (2) | 02 | FL1 | B0031 | C01 | 60.00 | 00002 | 6.7 |
| 586 (2) | 02 | FL1 | B0031 | C01 | 60.00 | 00003 | 7.6 |
| 586 (2) | 03 | FL1 | B0031 | C01 | 60.00 | 00001 | 5.6 |
| 586 (2) | 03 | FL1 | B0031 | C01 | 60.00 | 00002 | 6.3 |
| 586 (2) | 04 | FL1 | B0031 | C01 | 60.00 | 00001 | 8.9 |
| 586 (2) | 04 | FL1 | B0031 | C01 | 60.00 | 00002 | 5.1 |
| 586 (2) | 04 | FL1 | B0031 | C01 | 60.00 | 00003 | 5.3 |
| 586 (2) | 04 | FL1 | B0031 | C01 | 60.00 | 00004 | 7.8 |
| 586 (2) | 05 | FL1 | B0031 | C01 | 60.00 | 00001 | 10.3 |
| 586 (2) | 05 | FL1 | B0031 | C01 | 60.00 | 00002 | 8.6 |
| 586 (2) | 05 | FL1 | B0031 | C01 | 60.00 | 00003 | 7.9 |
| 586 (2) | 05 | FL1 | B0031 | C01 | 60.00 | 00004 | 11.0 |

NOTES: Exposure rates reported in net µR/hr. Count times are reported in seconds.
Underlined results did not meet the minimum required count time.
Bold values exceed 15 µR/hr.
23 results are listed.

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# DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

03/29/98

Exposure Rate Measurements

Survey Package : A1500 SURFACES & STRUCTURES
Mechanical Penetration Room - Elevation 21 ft.

| SURVEY | | M2350 | | DETECTOR | | | |
|---|---|---|---|---|---|---|---|
| DATE | FILE # | INST S/N | CAL DUE | MODEL | S/N | CAL DUE | TECHNICIAN |
| 2/9/98 | 567 (2) | 98620 | 3/20/98 | 44-2 | 129304 | 4/19/98 | DRK2986 |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | |
| 2/11/98 | 586 (2) | 098620 | 3/20/98 | 44-2 | 129304 | 4/19/98 | DRK2986 |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | |

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04/02/98

# CHARACTERIZATION SUMMARY

SURVEY PACKAGE NUMBER :A1600

SURFACES & STRUCTURES

PACKAGE DESCRIPTION
Includes: Elevations -2 ft., 20 ft. and 46 ft.

Electrical Penetration Room - All Elevations

SURVEY AREA DESCRIPTION
Electrical Penetration Room

GENERAL HISTORICAL INFORMATION (Operational history, etc.)

The Electrical Penetration Room is a three-level room adjacent to the containment building. Construction of all elevations is painted concrete floor, and concrete walls and overhead. The first and second elevation contain mostly energized panels and busses. Cable trays are in the overhead. The third elevation is containment building penetrations. All elevations are accessed by a spiral staircase.

SUMMARY OF CHARACTERIZATION ACTIVITIES

Survey units were established for the areas as listed in the following Summary of Survey Units. Maps with the survey measurement locations for this package are included on the following pages.

Collected 32 direct measurements for total beta activity at the survey measurement locations indicated in the results listing report. Due to elevated background radioactivity in the survey area, a scan of a two meter area encompassing each survey measurement location was not performed. Each direct measurement for total beta activity was accompanied by a corresponding background measurement at the same location. The background was used in the calculation of net dpm/100cm$^2$.

Collected smear samples to analyze for removable alpha and beta activity at the same 32 survey locations as the direct measurements for total beta activity.

Collected one meter exposure rate measurements at 9 survey locations indicated in the results listing report.

The survey result statistical summaries, graphs and results listings are shown in the following individual reports including calibration summaries for the instruments used for each measurement type.

CHARACTERIZATION SURVEY RESULTS

- There were no direct measurements for total beta activity above the individual measurements' MDA (Maximum MDA was 654 dpm/100cm$^2$).
- There were no measurements for removable beta activity above MDA (37 dpm/100cm$^2$).
- There were no measurements for removable alpha activity above MDA (8 dpm/100cm$^2$).
- The average and maximum exposure rate measurement results were 12.7 µR/hr and 14 µR/hr, respectively.

REFERENCES (Documents, Interviews)

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# SUMMARY OF SURVEY UNIT(S)

03/29/98 OUTPUT BATCH SN = 273

**PACKAGE** A1600 SURFACES & STRUCTURES
Electrical Penetration Room - All Elevations
Includes: Elevations -2 ft., 20 ft. and 46 ft.

| UNIT(S) | SURFACE(S) |
|---|---|
| 01 - Electrical Penetration Room Elevation -2 ft. | CL1 (Ceiling)<br>EQ1 (Breaker Panel)<br>EQ2 (Cable Tray)<br>FL1 (Floor)<br>WS1 (Wall) |
| 02 - Electrical Penetration Room Elevation 20 ft. | CL1 (Ceiling)<br>EQ1 (Equipment -Breaker Panel)<br>EQ2 (Equipment -Vent Duct)<br>FL1 (Floor)<br>WS1 (Wall) |
| 03 - Electrical Penetration Room Elevation 46 ft. | CL1 (Ceiling)<br>EQ1 (Equipment)<br>EQ2 (Equipment -Breaker Panel)<br>FL1 (Floor)<br>WS1 (Wall) |

**REASON(S)** CHARACTERIZATION SURVEY (C01)

**MATERIALS**

| MAT'L CODE | MATERIAL DESCRIPTION | BETA BKGD (dpm/100 cm²) |
|---|---|---|
| B0001 | CONCRETE - PAINTED (INTERIOR) | 478.0 |
| B0031 | METAL - BARE | 0.0 |
| B0036 | METAL - PAINTED | 0.0 |

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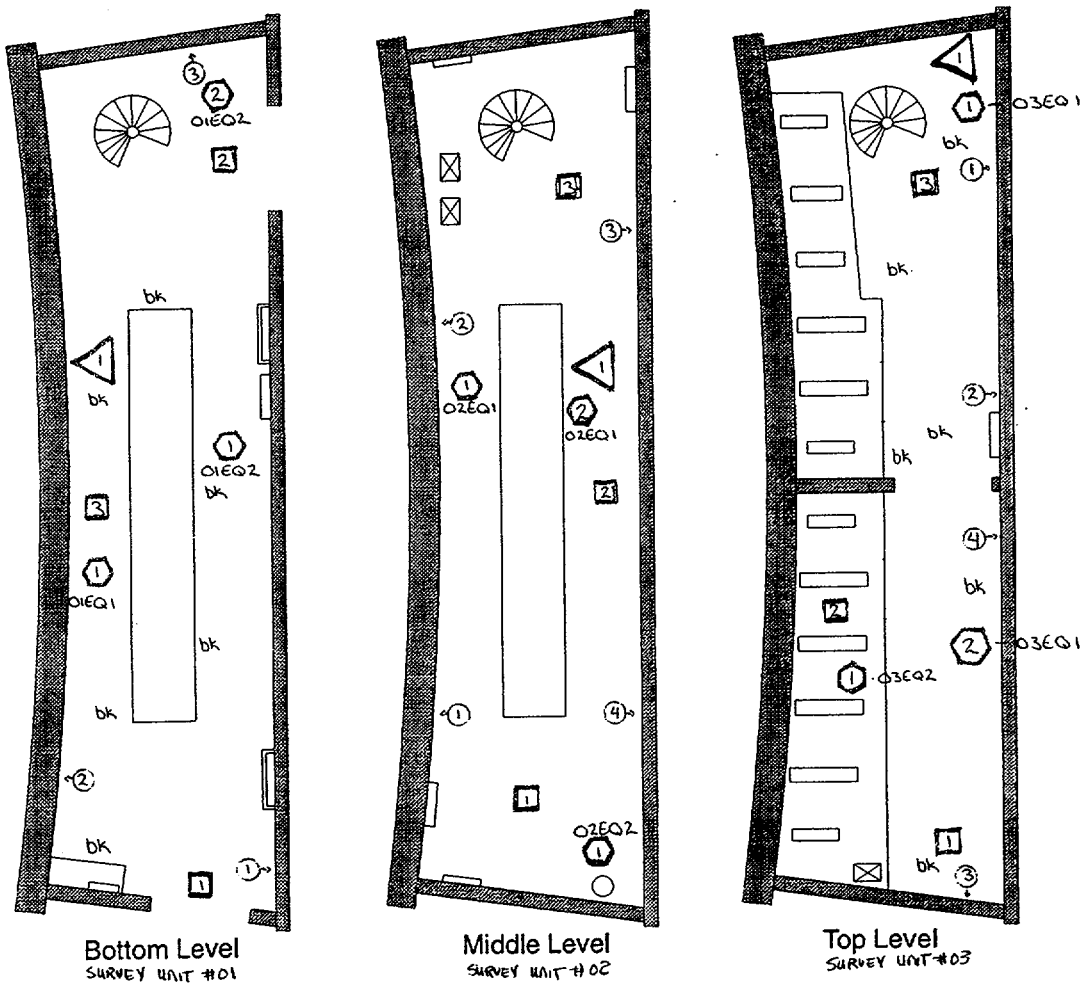
## Electrical Penetration Room




Bottom Level
SURVEY UNIT #01

Middle Level
SURVEY UNIT #02

Top Level
SURVEY UNIT #03

All 6 -
(#) - survey locations on walls
[#] - survey locations on floors
#) - survey locations on equipment
#> - survey locations on ceiling
bk - background locations

Maine Yankee Atomic Power Plant Site Characterization

03/31/98

## Direct Measurements For Total Beta Activity

Survey Package A1600 SURFACES & STRUCTURES
Electrical Penetration Room - All Elevations
Includes: Elevations -2 ft., 20 ft. and 46 ft.

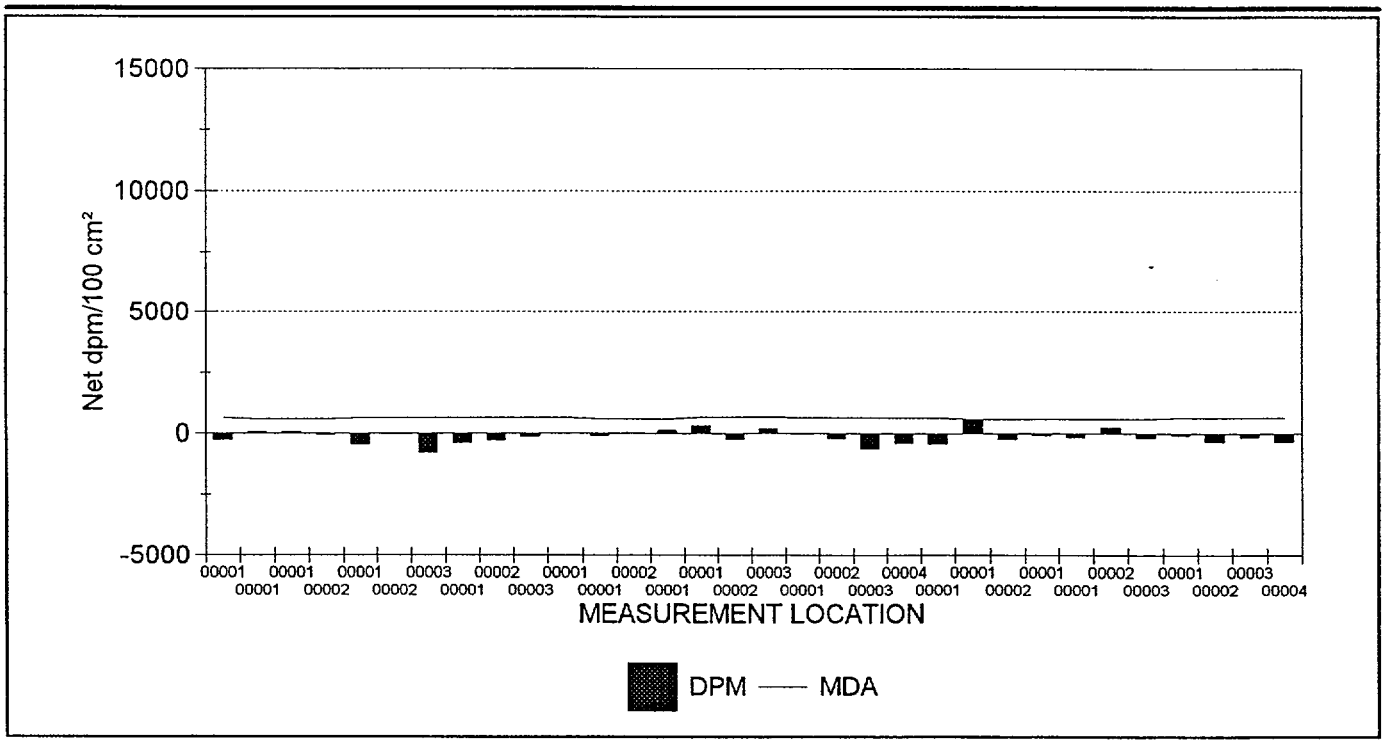
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | -138.0 |
| Maximum | 557.1 |
| Minimum | -789.7 |
| Standard Deviation | 269.7 |
| MDA | 653.8 |

| | |
|---|---|
| Samples Reported | 32 |
| Samples Prescribed | 32 |

### TESTS PERFORMED

| | |
|---|---|
| Samples reported satisfy samples prescribed | YES |
| MDA <2000 net dpm/100 cm² | YES |
| Results above 2000 net dpm/100 cm² | 0 |
| Number of results above MDA | 0 |




32 RESULTS ARE GRAPHED

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03/31/98

## Direct Measurements For Total Beta Activity

Survey Package : A1600 SURFACES & STRUCTURES
Electrical Penetration Room - All Elevations
Includes: Elevations -2 ft., 20 ft. and 46 ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | MDA | RESULT |
|---|---|---|---|---|---|---|---|---|
| 411 (2) | 01 | CL1 | B0001 | C01 | 10 | 00001 | 628.6 | -252.2 |
| 418 (2) | 01 | EQ1 | B0036 | C01 | 10 | 00001 | 561.1 | 43.3 |
| 418 (2) | 01 | EQ2 | B0036 | C01 | 10 | 00001 | 583.4 | 61.6 |
| 418 (2) | 01 | EQ2 | B0036 | C01 | 10 | 00002 | 583.4 | -56.4 |
| 411 (2) | 01 | FL1 | B0001 | C01 | 10 | 00001 | 628.6 | -453.7 |
| 411 (2) | 01 | FL1 | B0001 | C01 | 10 | 00002 | 628.6 | -28.2 |
| 411 (2) | 01 | FL1 | B0001 | C01 | 10 | 00003 | 628.6 | -789.7 |
| 411 (2) | 01 | WS1 | B0001 | C01 | 10 | 00001 | 628.6 | -386.5 |
| 411 (2) | 01 | WS1 | B0001 | C01 | 10 | 00002 | 628.6 | -274.6 |
| 411 (2) | 01 | WS1 | B0001 | C01 | 10 | 00003 | 628.6 | -117.8 |
| 411 (2) | 02 | CL1 | B0001 | C01 | 10 | 00001 | 628.6 | -5.8 |
| 418 (2) | 02 | EQ1 | B0036 | C01 | 10 | 00001 | 583.4 | -103.5 |
| 418 (2) | 02 | EQ1 | B0036 | C01 | 10 | 00002 | 583.4 | 14.4 |
| 418 (2) | 02 | EQ2 | B0036 | C01 | 10 | 00001 | 583.4 | 132.4 |
| 418 (2) | 02 | FL1 | B0001 | C01 | 10 | 00001 | 650.8 | 300.6 |
| 418 (2) | 02 | FL1 | B0001 | C01 | 10 | 00002 | 653.8 | -230.3 |
| 418 (2) | 02 | FL1 | B0001 | C01 | 10 | 00003 | 640.8 | 174.8 |
| 411 (2) | 02 | WS1 | B0001 | C01 | 10 | 00001 | 628.6 | -28.2 |
| 411 (2) | 02 | WS1 | B0001 | C01 | 10 | 00002 | 628.6 | -207.4 |
| 411 (2) | 02 | WS1 | B0001 | C01 | 10 | 00003 | 628.6 | -632.9 |
| 411 (2) | 02 | WS1 | B0001 | C01 | 10 | 00004 | 628.6 | -386.5 |
| 411 (2) | 03 | CL1 | B0001 | C01 | 10 | 00001 | 628.6 | -408.9 |
| 418 (2) | 03 | EQ1 | B0031 | C01 | 10 | 00001 | 583.4 | 557.1 |
| 418 (2) | 03 | EQ1 | B0031 | C01 | 10 | 00002 | 583.4 | -245.1 |
| 418 (2) | 03 | EQ2 | B0036 | C01 | 10 | 00001 | 583.4 | -80.0 |
| 418 (2) | 03 | FL1 | B0001 | C01 | 10 | 00001 | 583.4 | -156.9 |
| 418 (2) | 03 | FL1 | B0001 | C01 | 10 | 00002 | 583.4 | 244.2 |
| 418 (2) | 03 | FL1 | B0001 | C01 | 10 | 00003 | 583.4 | -180.5 |
| 411 (2) | 03 | WS1 | B0001 | C01 | 10 | 00001 | 628.6 | -73.0 |
| 411 (2) | 03 | WS1 | B0001 | C01 | 10 | 00002 | 628.6 | -341.8 |
| 411 (2) | 03 | WS1 | B0001 | C01 | 10 | 00003 | 628.6 | -162.6 |
| 411 (2) | 03 | WS1 | B0001 | C01 | 10 | 00004 | 628.6 | -341.8 |

NOTES: Activity reported in net dpm/100 cm². Count times are reported in seconds.
Underlined values exceed the MDA.
Bold values exceed 2000 dpm/100 cm².
32 results are listed.

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# DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

03/31/98 Direct Measurements For Total Beta Activity

Survey Package : A1600 SURFACES & STRUCTURES
Electrical Penetration Room - All Elevations
Includes: Elevations -2 ft., 20 ft. and 46 ft.

| SURVEY | | M2350 | | DETECTOR | | | PRE | |
|---|---|---|---|---|---|---|---|---|
| DATE | FILE # | INST S/N | CAL DUE | MODEL | S/N | CAL DUE | EFF | TECHNICIAN |
| 1/15/98 | 411 (2) | 126170 | 6/10/98 | 43-106 | 133878 | 6/8/98 | .21 | MBK5187 |
| | | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | |
| 1/15/98 | 418 (2) | 129433 | 6/10/98 | 43-106 | 133864 | 6/5/98 | .20 | MEW9813 |
| | | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | |

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Maine Yankee Atomic Power Plant Site Characterization

03/29/98

## Removable Contamination - Gross Beta Activity

Survey Package A1600 SURFACES & STRUCTURES
Electrical Penetration Room - All Elevations
Includes: Elevations -2 ft., 20 ft. and 46 ft.

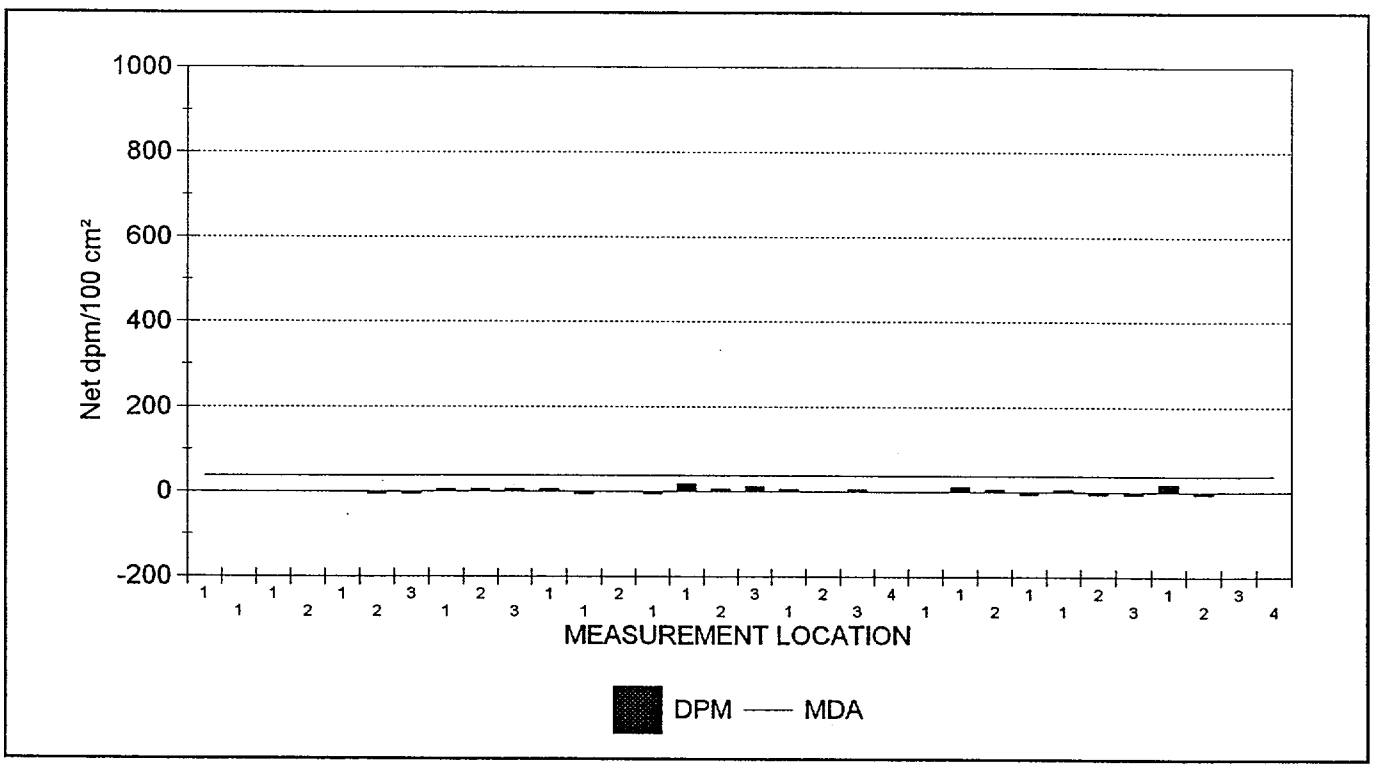
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | 1.9 |
| Maximum | 18.2 |
| Minimum | -6.3 |
| Standard Deviation | 6.9 |
| MDA | 37.3 |

| | |
|---|---|
| Samples Reported | 32 |
| Samples Prescribed | 32 |

### TESTS PERFORMED

| | |
|---|---|
| MDA <100 net dpm/100 cm² | YES |
| Results above 100 net dpm/100 cm² | 0 |
| Number of results above MDA | 0 |




32 RESULTS ARE GRAPHED

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DURATEK

Maine Yankee Atomic Power Plant Site Characterization

03/29/98

## Removable Contamination - Gross Alpha Activity

Survey Package A1600 SURFACES & STRUCTURES
Electrical Penetration Room - All Elevations
Includes: Elevations -2 ft., 20 ft. and 46 ft.

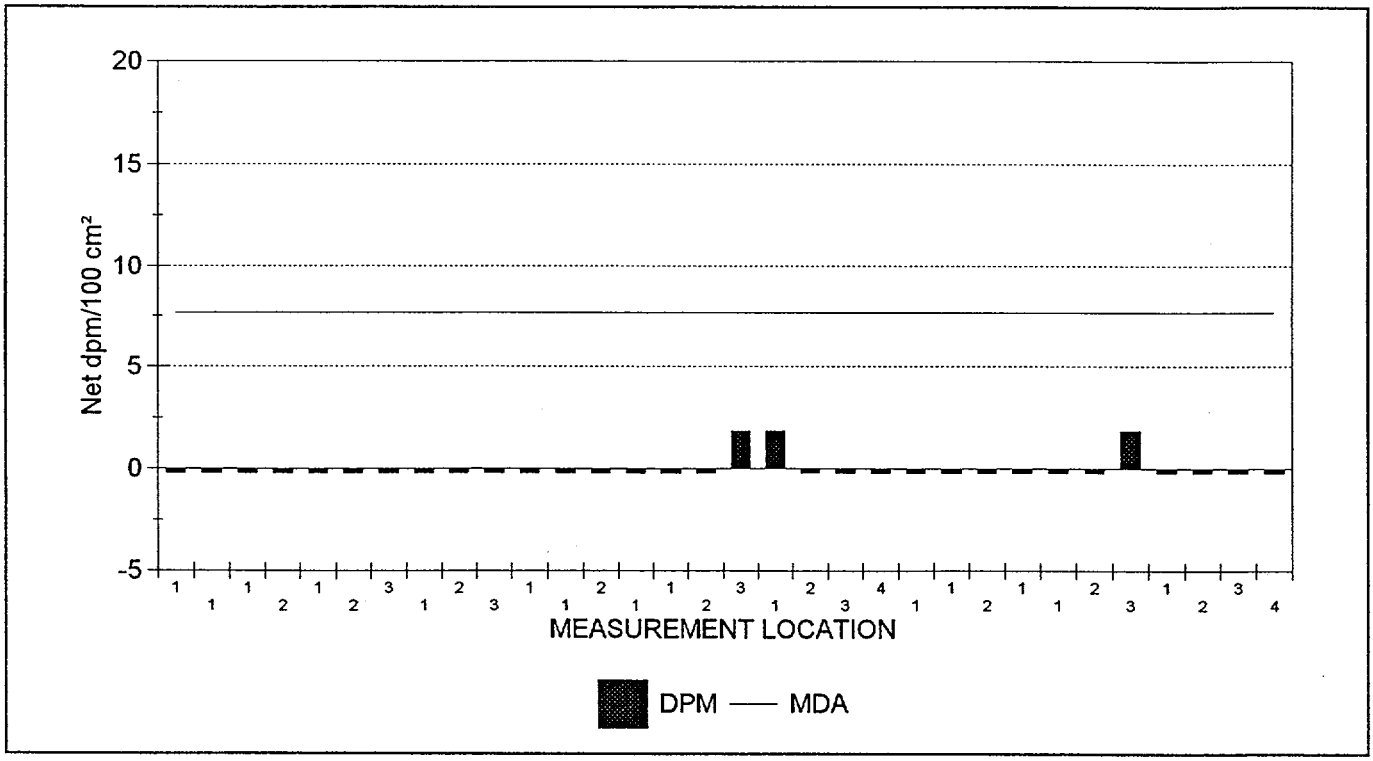
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | -0.0 |
| Maximum | 1.8 |
| Minimum | -0.2 |
| Standard Deviation | 0.6 |
| MDA | 7.7 |

| | |
|---|---|
| Samples Reported | 32 |
| Samples Prescribed | 32 |

### TESTS PERFORMED

| | |
|---|---|
| MDA <10 net dpm/100 cm² | YES |
| Results above 20 net dpm/100 cm² | 0 |
| Number of results above MDA | 0 |




32 RESULTS ARE GRAPHED

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03/29/98

Removable Contamination

Survey Package : A1600 SURFACES & STRUCTURES
Electrical Penetration Room - All Elevations
Includes: Elevations -2 ft., 20 ft. and 46 ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| XLS FILE | UNIT | SURFACE | REASON | MSRMNT LOCATION | ALPHA | BETA |
|---|---|---|---|---|---|---|
| SME1E096.XLS | 03 | WS1 | C01 | 4 | -0.2 | -0.2 |
| SME1E096.XLS | 03 | WS1 | C01 | 3 | -0.2 | -0.2 |
| SME1E096.XLS | 03 | WS1 | C01 | 2 | -0.2 | -6.3 |
| SME1E096.XLS | 03 | WS1 | C01 | 1 | -0.2 | 18.2 |
| SME1E096.XLS | 03 | FL1 | C01 | 3 | 1.8 | -6.3 |
| SME1E096.XLS | 03 | FL1 | C01 | 2 | -0.2 | -6.3 |
| SME1E096.XLS | 03 | FL1 | C01 | 1 | -0.2 | 5.9 |
| SME1E096.XLS | 03 | EQ2 | C01 | 1 | -0.2 | -6.3 |
| SME1E096.XLS | 03 | EQ1 | C01 | 2 | -0.2 | 5.9 |
| SME1E096.XLS | 03 | EQ1 | C01 | 1 | -0.2 | 12.1 |
| SME1E096.XLS | 03 | CL1 | C01 | 1 | -0.2 | -0.2 |
| SME1E096.XLS | 02 | WS1 | C01 | 4 | -0.2 | -0.2 |
| SME1E096.XLS | 02 | WS1 | C01 | 3 | -0.2 | 5.9 |
| SME1E096.XLS | 02 | WS1 | C01 | 2 | -0.2 | -0.2 |
| SME1E096.XLS | 02 | WS1 | C01 | 1 | 1.8 | 5.9 |
| SME1E096.XLS | 02 | FL1 | C01 | 3 | 1.8 | 12.1 |
| SME1E096.XLS | 02 | FL1 | C01 | 2 | -0.2 | 5.9 |
| SME1E096.XLS | 02 | FL1 | C01 | 1 | -0.2 | 18.2 |
| SME1E096.XLS | 02 | EQ2 | C01 | 1 | -0.2 | -6.3 |
| SME1E096.XLS | 02 | EQ1 | C01 | 2 | -0.2 | -0.2 |
| SME1E096.XLS | 02 | EQ1 | C01 | 1 | -0.2 | -6.3 |
| SME1E096.XLS | 02 | CL1 | C01 | 1 | -0.2 | 5.9 |
| SME1E096.XLS | 01 | WS1 | C01 | 3 | -0.2 | 5.9 |
| SME1E096.XLS | 01 | WS1 | C01 | 2 | -0.2 | 5.9 |
| SME1E096.XLS | 01 | WS1 | C01 | 1 | -0.2 | 5.9 |
| SME1E096.XLS | 01 | FL1 | C01 | 3 | -0.2 | -6.3 |
| SME1E096.XLS | 01 | FL1 | C01 | 2 | -0.2 | -6.3 |
| SME1E096.XLS | 01 | FL1 | C01 | 1 | -0.2 | -0.2 |
| SME1E096.XLS | 01 | EQ2 | C01 | 2 | -0.2 | -0.2 |
| SME1E096.XLS | 01 | EQ2 | C01 | 1 | -0.2 | -0.2 |
| SME1E096.XLS | 01 | EQ1 | C01 | 1 | -0.2 | -0.2 |
| SME1E096.XLS | 01 | CL1 | C01 | 1 | -0.2 | -0.2 |

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 100.00 dpm/100 cm² (beta activity) and/or 20.00 dpm/100 cm² (alpha activity).
32 results are listed.

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Maine Yankee Atomic Power Plant Site Characterization

# DATAFILE & TENNELEC CALIBRATION SUMMARY

03/29/98

Removable Contamination

Survey Package : A1600 SURFACES & STRUCTURES
Electrical Penetration Room - All Elevations
Includes: Elevations -2 ft., 20 ft. and 46 ft.

| SURVEYDATE | XLS FILE | INST ID | S/N | CAL DUE | LAB TECHNICIAN |
|---|---|---|---|---|---|
| 3/13/98 | SME1E096.XLS | 1 | 15632 | 8/5/98 | JWD |
| | | | | CALIBRATION DATE VERIFIED AS ACCEPTABLE | |

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DURATEK

Maine Yankee Atomic Power Plant Site Characterization

03/29/98

## Exposure Rate Measurements

Survey Package A1600 SURFACES & STRUCTURES
Electrical Penetration Room - All Elevations
Includes: Elevations -2 ft., 20 ft. and 46 ft.

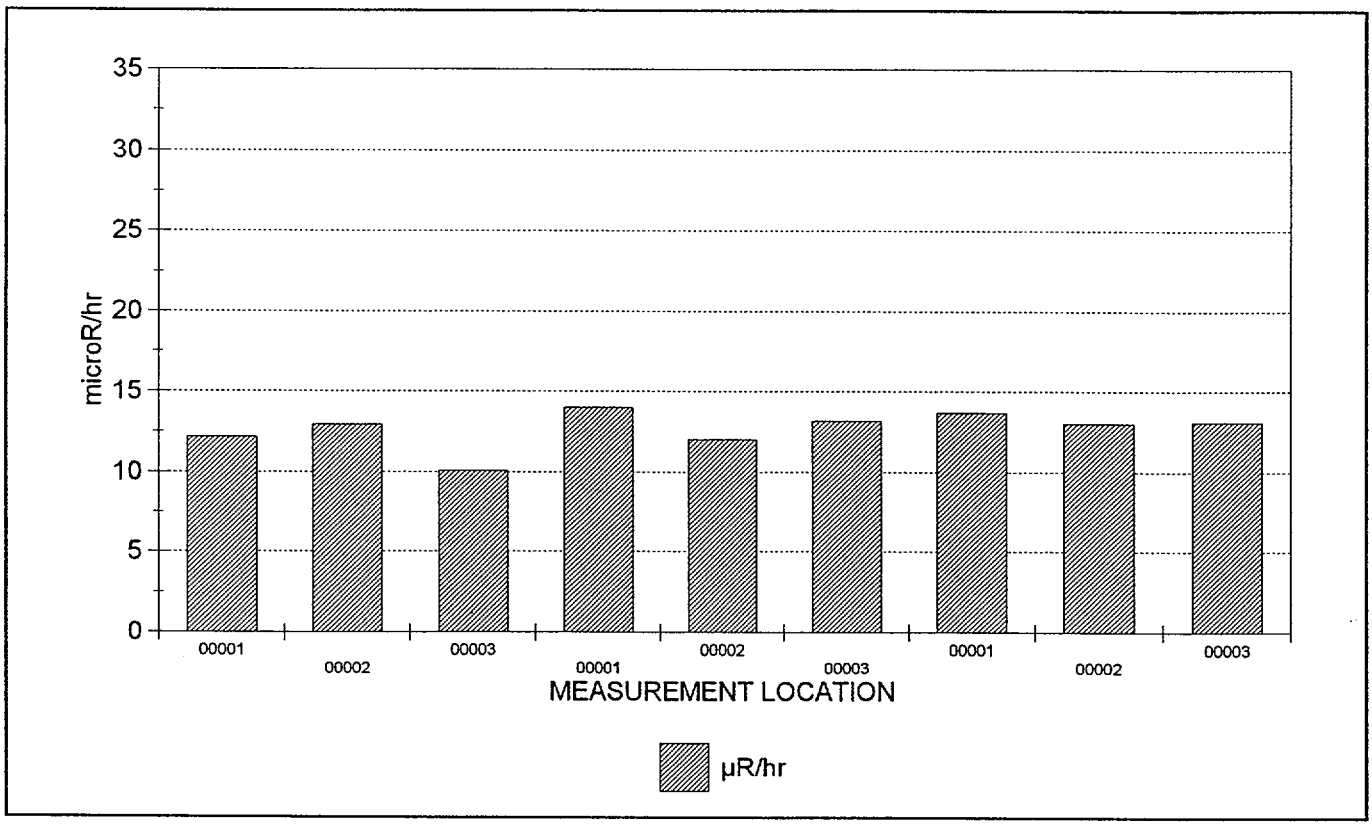
### STATISTICAL SUMMARY

| | µR/hr |
|---|---|
| Mean | 12.7 |
| Maximum | 14.0 |
| Minimum | 10.1 |
| Standard Deviation | 1.2 |

| | |
|---|---|
| Samples Reported | 9 |
| Samples Prescribed | 9 |

### TESTS PERFORMED

| | |
|---|---|
| Samples reported satisfy samples prescribed | YES |




9 RESULTS ARE GRAPHED

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Maine Yankee Atomic Power Plant Site Characterization

03/29/98

Exposure Rate Measurements

Survey Package : A1600 SURFACES & STRUCTURES
Electrical Penetration Room - All Elevations
Includes: Elevations -2 ft., 20 ft. and 46 ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | RESULT |
|---|---|---|---|---|---|---|---|
| 608 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00001 | 12.2 |
| 608 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00002 | 12.9 |
| 608 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00003 | 10.1 |
| 608 (2) | 02 | FL1 | B0001 | C01 | 60.00 | 00001 | 14.0 |
| 608 (2) | 02 | FL1 | B0001 | C01 | 60.00 | 00002 | 12.0 |
| 608 (2) | 02 | FL1 | B0001 | C01 | 60.00 | 00003 | 13.2 |
| 608 (2) | 03 | FL1 | B0001 | C01 | 60.00 | 00001 | 13.7 |
| 608 (2) | 03 | FL1 | B0001 | C01 | 60.00 | 00002 | 13.0 |
| 608 (2) | 03 | FL1 | B0001 | C01 | 60.00 | 00003 | 13.1 |

NOTES: Exposure rates reported in net µR/hr. Count times are reported in seconds.
Underlined results did not meet the minimum required count time.
Bold values exceed 15 µR/hr.
9 results are listed.

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# DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

03/29/98

Exposure Rate Measurements

Survey Package : A1600 SURFACES & STRUCTURES
Electrical Penetration Room - All Elevations
Includes: Elevations -2 ft., 20 ft. and 46 ft.

| SURVEY | | M2350 | | DETECTOR | | | |
|---|---|---|---|---|---|---|---|
| DATE | FILE # | INST S/N | CAL DUE | MODEL | S/N | CAL DUE | TECHNICIAN |
| 2/17/98 | 608 (2) | 126201 | 4/15/98 | 44-2 | 129300 | 5/12/98 | BSM0490 |

CALIBRATION DATES VERIFIED AS ACCEPTABLE

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04/02/98

# CHARACTERIZATION SUMMARY

SURVEY PACKAGE NUMBER A1700

SURFACES & STRUCTURES

PACKAGE DESCRIPTION

Containment Spray Building - All Elevations

Includes: Elevations 30ft, 21ft, 14ft, 12 ft., 4 ft., -6 ft and -11ft.

SURVEY AREA DESCRIPTION

Containment Spray Building

GENERAL HISTORICAL INFORMATION (Operational history, etc.)

The Containment Spray Building is a multi-level concrete structure housing pumps, valves and piping associated with emergency containment spray. The system used reactor water; therefore, all systems are contaminated. The lower elevations are posted Radiation, High Radiation and Contaminated areas. The floor, where concrete, is painted epoxy.

SUMMARY OF CHARACTERIZATION ACTIVITIES

Survey units were established for the areas as listed in the following Summary of Survey Units. Maps with the survey measurement locations for this package are included on the following pages.

Collected 194 direct measurements for total beta activity at the survey measurement locations indicated in the results listing report. Due to elevated background radioactivity in the survey area, a scan of a two meter area encompassing each survey measurement location was not performed. Each direct measurement for total beta activity was accompanied by a corresponding background measurement at the same location. The background was used in the calculation of net dpm/100cm².

Collected smear samples to analyze for removable alpha and beta activity at the same 194 survey locations as the direct measurements for total beta activity.

Collected one meter exposure rate measurements at 59 survey locations indicated in the results listing report.

The survey result statistical summaries, graphs and results listings are shown in the following individual reports including calibration summaries for the instruments used for each measurement type.

CHARACTERIZATION SURVEY RESULTS

o There were 107 direct measurements for total beta activity above 2000 dpm/100cm². There were 88 direct measurements for total beta activity above the individual measurements' MDA (Maximum MDA was 24,797 dpm/100cm²). The maximum measurement result was 4,968,088 dpm/100cm².

o There were 38 measurements for removable beta activity above MDA (37.3 dpm/100cm²) and 20 results greater than 100 dpm/100cm². The maximum measurement result was 19,727 dpm/100cm².

o There were no measurements for removable alpha activity above MDA (7 dpm/100cm²).

o The average and maximum exposure rate measurement results were 1.6 mR/hr and 9 mR/hr, respectively.

REFERENCES (Documents, Interviews)

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# SUMMARY OF SURVEY UNIT(S)

03/29/98 OUTPUT BATCH SN = 274

**PACKAGE** A1700 SURFACES & STRUCTURES
Containment Spray Building - All Elevations
Includes: Elevations 30ft, 21ft, 14ft, 12 ft., 4 ft., -6 ft and -11ft.

| UNIT(S) | SURFACE(S) |
|---|---|
| 01 - Elevation 30 ft. of Containment Spray Building | CL1 (Ceiling)<br>EQ1 (Equipment)<br>FL1 (Floor)<br>WS1 (Wall) |
| 02 - Elevation 21 ft. of Containment Spray Building | CL1 (Ceiling)<br>EQ1 (Equipment)<br>FL1 (Floor)<br>SW1 (Stairway)<br>SW2 (Stairway)<br>WS1 (Wall) |
| 03 - Elevation 12 ft. of Containment Spray Building | CL1 (Ceiling)<br>EQ1 (Equipment)<br>FL1 (Floor)<br>SW1 (Stairs)<br>WS1 (Wall) |
| 04 - Elevation 4 ft. of Containment Spray Building | CL1 (Ceiling)<br>EQ1 (Equipment)<br>FL1 (Floor)<br>WS1 (Wall) |
| 05 - Elevation -6 ft. of Containment Spray Building | CL1 (Ceiling)<br>EQ1 (Equipment)<br>FL1 (Floor)<br>SW1 (Stairs)<br>WS1 (Wall) |
| 06 - Elevation 14 ft. of Containment Spray Building | CL1 (Ceiling)<br>EQ1 (Equipment)<br>FL1 (Floor)<br>WS1 (Walls) |

**REASON(S)** CHARACTERIZATION SURVEY (C01)

**MATERIALS**

| MAT'L CODE | MATERIAL DESCRIPTION | BETA BKGD (dpm/100 cm²) |
|---|---|---|
| B0001 | CONCRETE - PAINTED (INTERIOR) | 478.0 |
| B9999 | OTHER | 0.0 |

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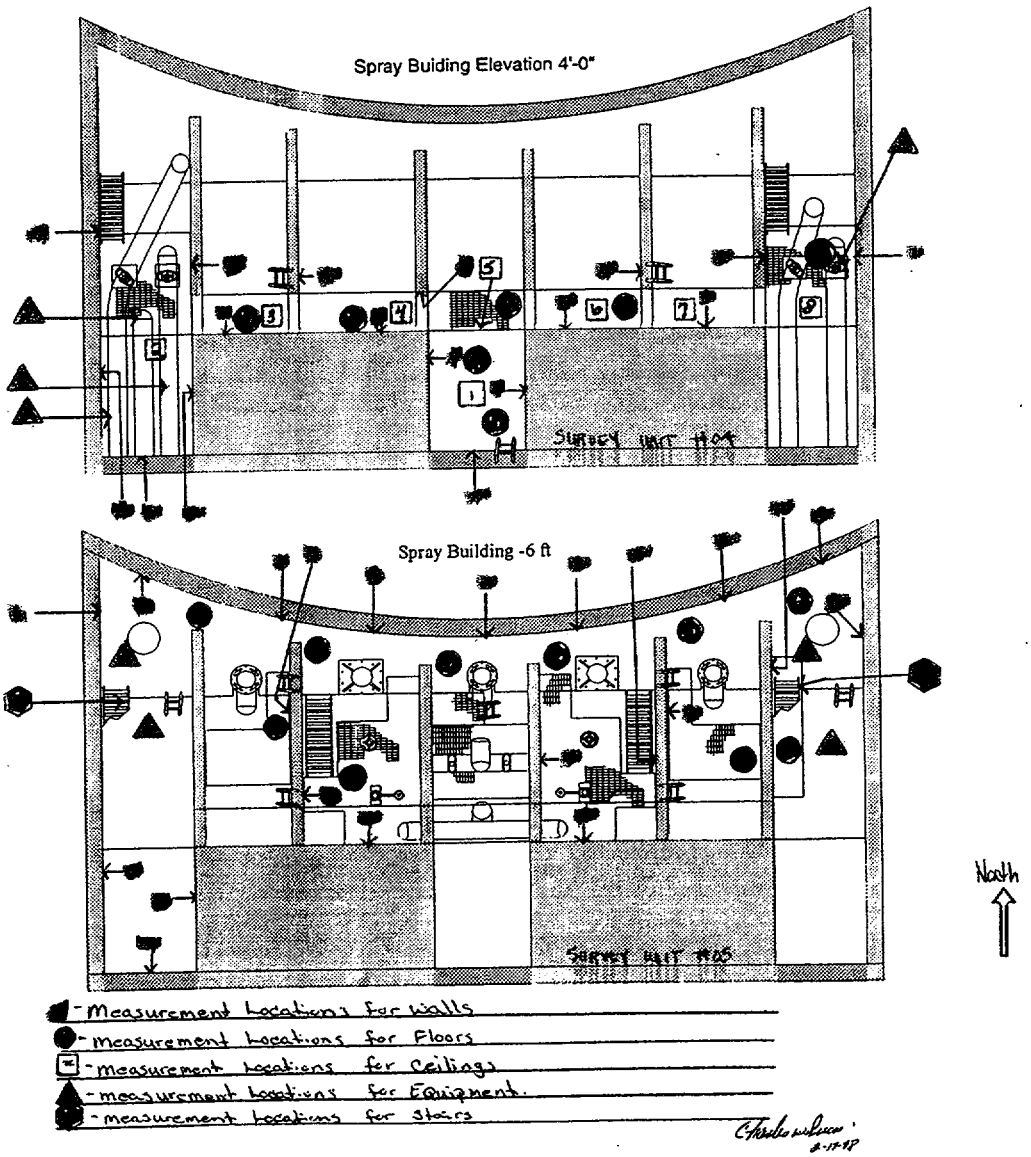
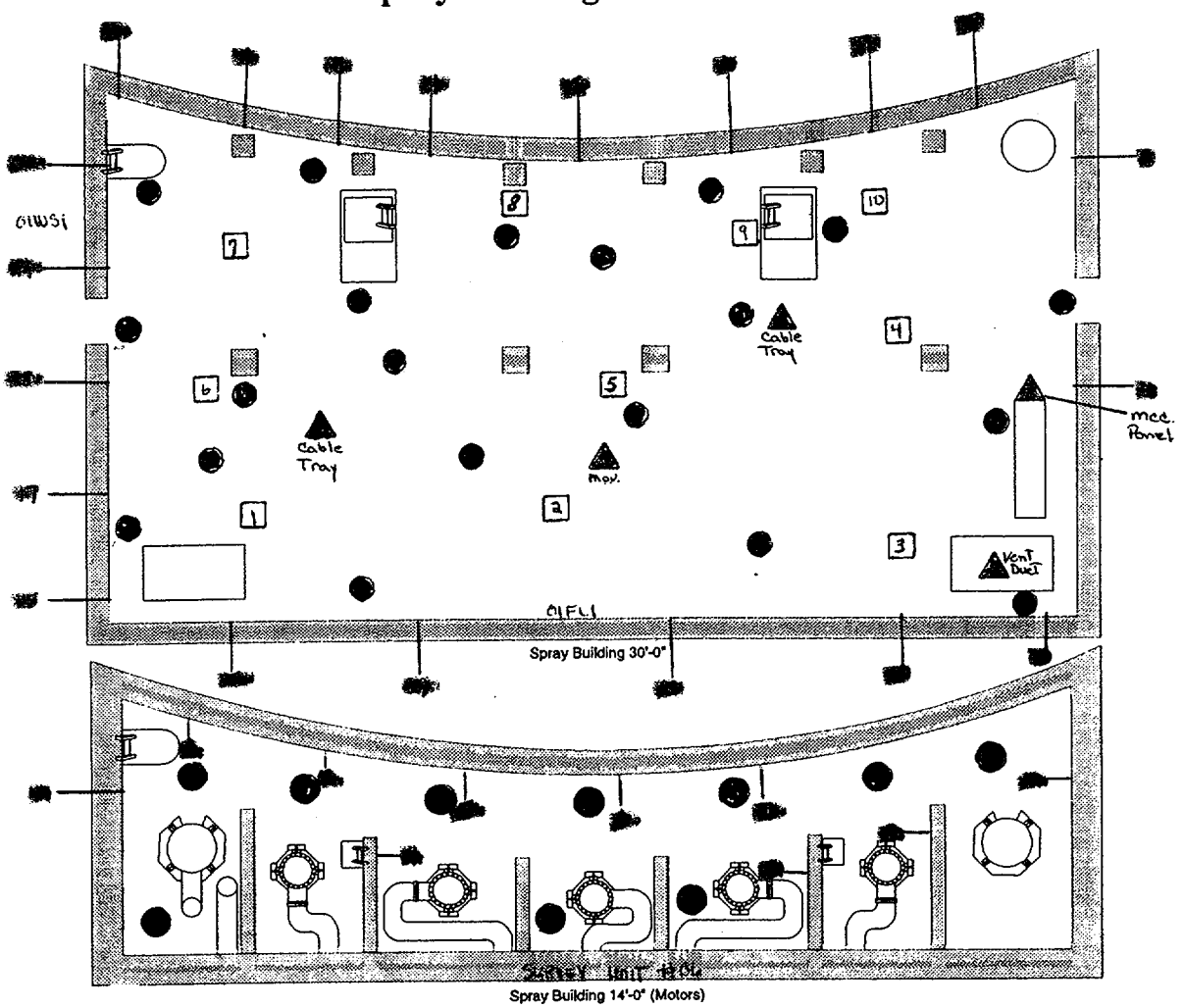
Package # A1700

## Containment Spray Building
Elevation 4 ft and -6 ft



Package # A1700

## Spray Building 14 ft and 30 ft




- Measurement Locations for Floors
- Measurement Locations for Walls
- Measurement Locations for Ceiling-01CIL
- Measurement Locations for Equipment-01EQ

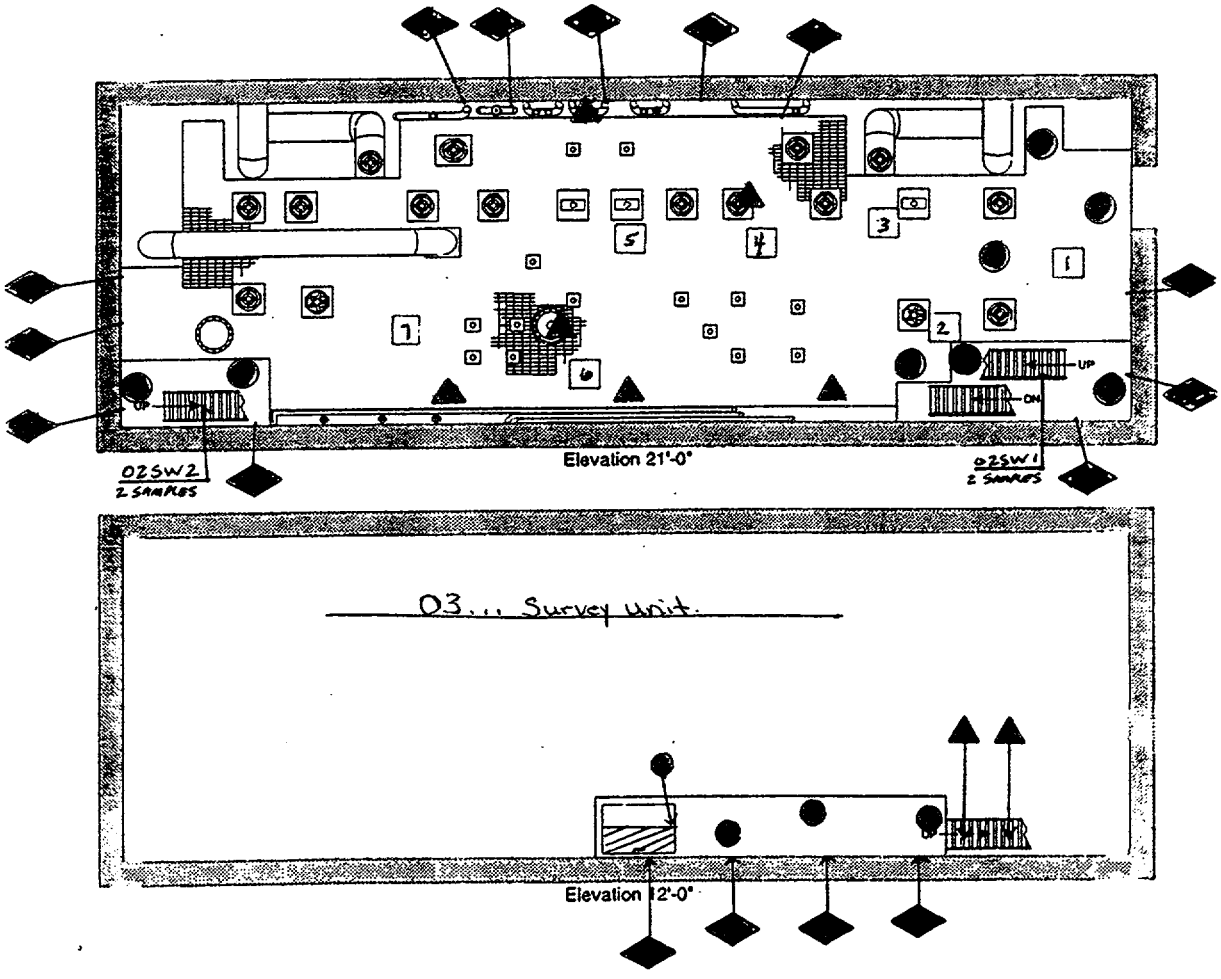
North

Charles W. Lucas 2-17-98

A1700

02CL1 - CEILINGS

## Spray Building 12 ft and 21 ft




- Denotes Floor Locations (03FL1)
- Denotes Wall Locations (03WS1)
- Denotes Stair Locations (03SW1)
- Denotes opening in floor

North

# Maine Yankee Atomic Power Plant Site Characterization

03/31/98

## Direct Measurements For Total Beta Activity

Survey Package A1700 SURFACES & STRUCTURES
Containment Spray Building - All Elevations
Includes: Elevations 30ft, 21ft, 14ft, 12 ft., 4 ft., -6 ft and -11ft.

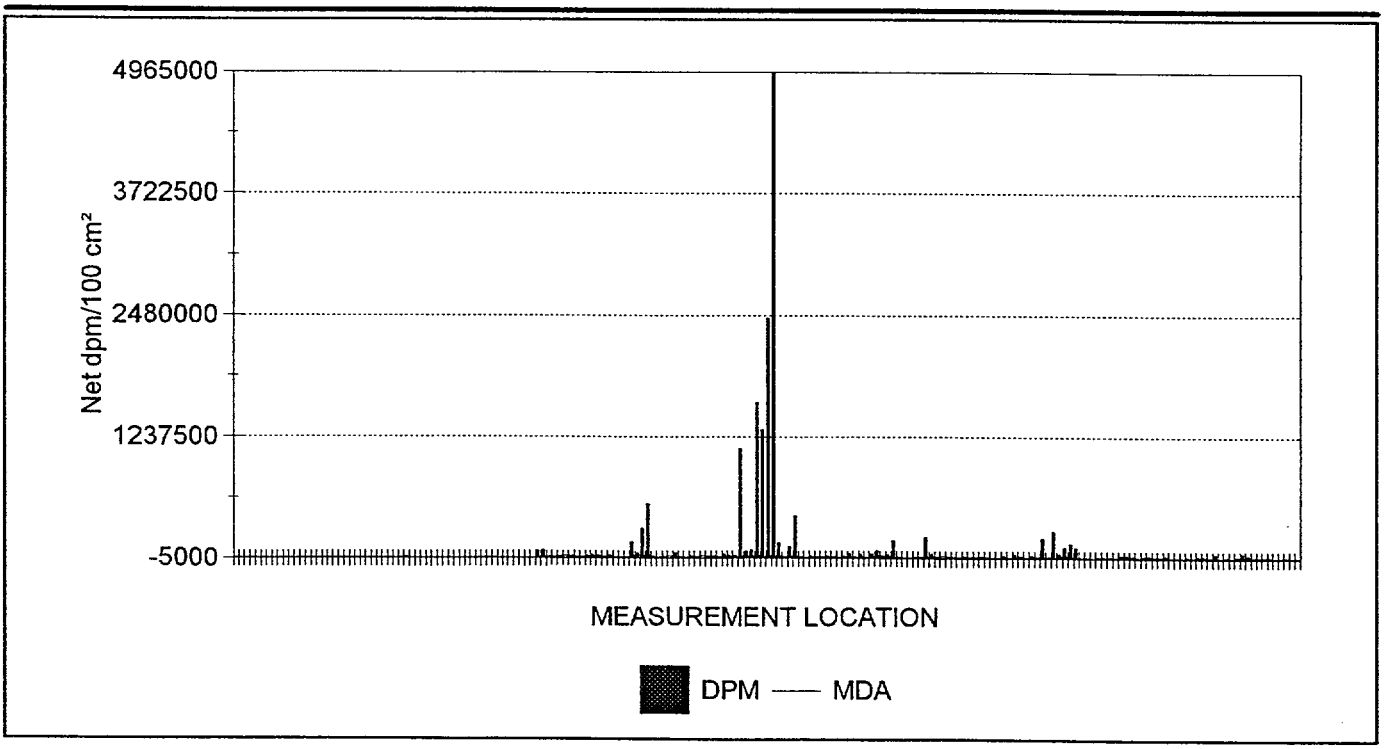
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | 83,248.5 |
| Maximum | 4,968,087.8 |
| Minimum | -87,887.3 |
| Standard Deviation | 431,253.4 |
| MDA | 24,796.5 |

| | |
|---|---|
| Samples Reported | 194 |
| Samples Prescribed | 194 |

### TESTS PERFORMED

| | |
|---|---|
| Samples reported satisfy samples prescribed | YES |
| MDA <2000 net dpm/100 cm² | NO |
| Results above 2000 net dpm/100 cm² | 107 |
| Number of results above MDA | 88 |




194 RESULTS ARE GRAPHED

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Maine Yankee Atomic Power Plant Site Characterization

03/31/98

Direct Measurements For Total Beta Activity

Survey Package : A1700 SURFACES & STRUCTURES
Containment Spray Building - All Elevations
Includes: Elevations 30ft, 21ft, 14ft, 12 ft., 4 ft., -6 ft and -11ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | MDA | RESULT |
|---|---|---|---|---|---|---|---|---|
| 487 (2) | 01 | CL1 | B0001 | C01 | 60 | 00001 | 1,811.8 | 896.7 |
| 487 (2) | 01 | CL1 | B0001 | C01 | 60 | 00002 | 1,679.6 | 473.7 |
| 487 (2) | 01 | CL1 | B0001 | C01 | 60 | 00003 | 2,371.0 | 50.7 |
| 487 (2) | 01 | CL1 | B0001 | C01 | 60 | 00004 | 1,967.8 | 209.4 |
| 487 (2) | 01 | CL1 | B0001 | C01 | 60 | 00005 | 1,847.7 | 156.5 |
| 487 (2) | 01 | CL1 | B0001 | C01 | 60 | 00006 | 1,934.3 | 103.6 |
| 487 (2) | 01 | CL1 | B0001 | C01 | 60 | 00007 | 1,619.4 | 949.6 |
| 487 (2) | 01 | CL1 | B0001 | C01 | 60 | 00008 | 1,556.5 | 1,161.1 |
| 487 (2) | 01 | CL1 | B0001 | C01 | 60 | 00009 | 1,490.7 | 1,055.4 |
| 487 (2) | 01 | CL1 | B0001 | C01 | 60 | 00010 | 1,373.3 | 843.9 |
| 492 (2) | 01 | EQ1 | B9999 | C01 | 60 | 00001 | 1,967.6 | 651.1 |
| 492 (2) | 01 | EQ1 | B9999 | C01 | 60 | 00002 | 2,304.1 | -596.9 |
| 492 (2) | 01 | EQ1 | B9999 | C01 | 60 | 00003 | 4,670.4 | -1,844.9 |
| 492 (2) | 01 | EQ1 | B9999 | C01 | 60 | 00004 | 1,840.6 | 922.4 |
| 492 (2) | 01 | EQ1 | B9999 | C01 | 60 | 00005 | 2,633.6 | -976.7 |
| 484 (2) | 01 | FL1 | B0001 | C01 | 60 | 00001 | 2,158.6 | -812.2 |
| 484 (2) | 01 | FL1 | B0001 | C01 | 60 | 00002 | 2,716.7 | 1,360.3 |
| 484 (2) | 01 | FL1 | B0001 | C01 | 60 | 00003 | 1,769.6 | 1,973.0 |
| 484 (2) | 01 | FL1 | B0001 | C01 | 60 | 00004 | 2,303.9 | 1,137.4 |
| 484 (2) | 01 | FL1 | B0001 | C01 | 60 | 00005 | 2,540.5 | ***2,363.0*** |
| 484 (2) | 01 | FL1 | B0001 | C01 | 60 | 00006 | 2,856.9 | 1,081.7 |
| 484 (2) | 01 | FL1 | B0001 | C01 | 60 | 00007 | 2,319.4 | 1,081.7 |
| 484 (2) | 01 | FL1 | B0001 | C01 | 60 | 00008 | 2,090.5 | 1,583.1 |
| 484 (2) | 01 | FL1 | B0001 | C01 | 60 | 00009 | 2,001.9 | 858.9 |
| 484 (2) | 01 | FL1 | B0001 | C01 | 60 | 00010 | 2,224.4 | 1,527.4 |
| 484 (2) | 01 | FL1 | B0001 | C01 | 60 | 00011 | 2,319.4 | 301.9 |
| 484 (2) | 01 | FL1 | B0001 | C01 | 60 | 00012 | 2,175.2 | 79.1 |
| 492 (2) | 01 | FL1 | B0001 | C01 | 60 | 00013 | 2,182.5 | 1,475.4 |
| 484 (2) | 01 | FL1 | B0001 | C01 | 60 | 00014 | 2,240.6 | 79.1 |
| 484 (2) | 01 | FL1 | B0001 | C01 | 60 | 00015 | 2,609.8 | 1,694.5 |
| 492 (2) | 01 | FL1 | B0001 | C01 | 60 | 00016 | 2,228.9 | 10.4 |
| 492 (2) | 01 | FL1 | B0001 | C01 | 60 | 00017 | 2,086.3 | ***12,816.1*** |
| 492 (2) | 01 | FL1 | B0001 | C01 | 60 | 00018 | 1,914.3 | 878.5 |
| 492 (2) | 01 | FL1 | B0001 | C01 | 60 | 00019 | 2,182.5 | 1,312.6 |
| 492 (2) | 01 | FL1 | B0001 | C01 | 60 | 00020 | 1,859.4 | 1,366.9 |
| 485 (2) | 01 | WS1 | B0001 | C01 | 60 | 00001 | 1,755.1 | 10.4 |
| 485 (2) | 01 | WS1 | B0001 | C01 | 60 | 00002 | 1,551.4 | 547.6 |
| 485 (2) | 01 | WS1 | B0001 | C01 | 60 | 00003 | 1,457.4 | 401.1 |
| 485 (2) | 01 | WS1 | B0001 | C01 | 60 | 00004 | 1,587.4 | -38.4 |
| 485 (2) | 01 | WS1 | B0001 | C01 | 60 | 00005 | 1,417.8 | 645.3 |

NOTES: Activity reported in net dpm/100 cm². Count times are reported in seconds.
Underlined values exceed the MDA.
Bold values exceed 2000 dpm/100 cm².

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03/31/98

Direct Measurements For Total Beta Activity

Survey Package : A1700 SURFACES & STRUCTURES
Containment Spray Building - All Elevations
Includes: Elevations 30ft, 21ft, 14ft, 12 ft., 4 ft., -6 ft and -11ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | MDA | RESULT |
|---|---|---|---|---|---|---|---|---|
| 485 (2) | 01 | WS1 | B0001 | C01 | 60 | 00006 | 1,569.5 | -87.3 |
| 485 (2) | 01 | WS1 | B0001 | C01 | 60 | 00007 | 1,605.0 | 694.1 |
| 485 (2) | 01 | WS1 | B0001 | C01 | 60 | 00008 | 1,739.2 | 401.1 |
| 485 (2) | 01 | WS1 | B0001 | C01 | 60 | 00009 | 1,673.5 | -819.9 |
| 485 (2) | 01 | WS1 | B0001 | C01 | 60 | 00010 | 1,495.8 | 59.2 |
| 485 (2) | 01 | WS1 | B0001 | C01 | 60 | 00011 | 1,847.9 | 401.1 |
| 485 (2) | 01 | WS1 | B0001 | C01 | 60 | 00012 | 2,047.1 | 59.2 |
| 485 (2) | 01 | WS1 | B0001 | C01 | 60 | 00013 | 1,706.7 | -526.8 |
| 485 (2) | 01 | WS1 | B0001 | C01 | 60 | 00014 | 1,587.4 | 59.2 |
| 485 (2) | 01 | WS1 | B0001 | C01 | 60 | 00015 | 2,416.0 | -1,210.6 |
| 487 (2) | 01 | WS1 | B0001 | C01 | 60 | 00016 | 2,064.7 | 843.9 |
| 487 (2) | 01 | WS1 | B0001 | C01 | 60 | 00017 | 1,882.9 | -55.0 |
| 487 (2) | 01 | WS1 | B0001 | C01 | 60 | 00018 | 1,534.9 | 473.7 |
| 487 (2) | 01 | WS1 | B0001 | C01 | 60 | 00019 | 1,556.5 | 262.2 |
| 487 (2) | 01 | WS1 | B0001 | C01 | 60 | 00020 | 2,186.8 | -266.5 |
| 568 (2) | 02 | CL1 | B0001 | C01 | 60 | 00001 | 9,314.4 | ***73,564.2*** |
| 568 (2) | 02 | CL1 | B0001 | C01 | 60 | 00002 | 9,806.6 | ***81,699.4*** |
| 568 (2) | 02 | CL1 | B0001 | C01 | 60 | 00003 | 14,704. | ***14,495.5*** |
| 568 (2) | 02 | CL1 | B0001 | C01 | 60 | 00004 | 15,282. | ***11,724.8*** |
| 568 (2) | 02 | CL1 | B0001 | C01 | 60 | 00005 | 20,139. | ***9,484.6*** |
| 568 (2) | 02 | CL1 | B0001 | C01 | 60 | 00006 | 19,670. | -6,785.7 |
| 568 (2) | 02 | CL1 | B0001 | C01 | 60 | 00007 | 18,853. | ***7,716.2*** |
| 568 (2) | 02 | EQ1 | B9999 | C01 | 60 | 00001 | 10,853. | ***12,026.0*** |
| 568 (2) | 02 | EQ1 | B9999 | C01 | 60 | 00002 | 11,902. | 943.2 |
| 568 (2) | 02 | EQ1 | B9999 | C01 | 60 | 00003 | 16,782. | ***28,296.4*** |
| 568 (2) | 02 | EQ1 | B9999 | C01 | 60 | 00004 | 13,694. | ***35,665.2*** |
| 568 (2) | 02 | EQ1 | B9999 | C01 | 60 | 00005 | 21,462. | ***30,241.8*** |
| 568 (2) | 02 | EQ1 | B9999 | C01 | 60 | 00006 | 15,716. | -46,983.8 |
| 316 (2) | 02 | FL1 | B0001 | C01 | 60 | 00005 | 13,249. | ***28,324.3*** |
| 316 (2) | 02 | FL1 | B0001 | C01 | 60 | 00006 | 10,959. | -1,805.6 |
| 316 (2) | 02 | FL1 | B0001 | C01 | 60 | 00007 | 5,079.2 | -535.7 |
| 316 (2) | 02 | FL1 | B0001 | C01 | 60 | 00008 | 3,868.0 | ***8,584.1*** |
| 316 (2) | 02 | FL1 | B9999 | C01 | 60 | 00001 | 21,136. | ***163,636.5*** |
| 316 (2) | 02 | FL1 | B9999 | C01 | 60 | 00002 | 24,796. | ***55,122.6*** |
| 316 (2) | 02 | FL1 | B9999 | C01 | 60 | 00003 | 19,726. | ***299,971.3*** |
| 316 (2) | 02 | FL1 | B9999 | C01 | 60 | 00004 | 18,957. | ***550,245.7*** |
| 316 (2) | 02 | SW1 | B9999 | C01 | 60 | 00001 | 6,767.5 | ***21,587.3*** |
| 316 (2) | 02 | SW1 | B9999 | C01 | 60 | 00002 | 9,358.2 | -230.9 |
| 568 (2) | 02 | SW2 | B9999 | C01 | 60 | 00001 | 15,495. | ***17,213.7*** |
| 568 (2) | 02 | SW2 | B9999 | C01 | 60 | 00002 | 19,005. | -16,211.4 |

NOTES: Activity reported in net dpm/100 cm². Count times are reported in seconds.
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Bold values exceed 2000 dpm/100 cm².

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Maine Yankee Atomic Power Plant Site Characterization

03/31/98

## Direct Measurements For Total Beta Activity

Survey Package: A1700 SURFACES & STRUCTURES
Containment Spray Building - All Elevations
Includes: Elevations 30ft, 21ft, 14ft, 12 ft., 4 ft., -6 ft and -11ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | MDA | RESULT |
|---|---|---|---|---|---|---|---|---|
| 316 (2) | 02 | WS1 | B0001 | C01 | 60 | 00001 | 5,020.2 | ***53,317.1*** |
| 316 (2) | 02 | WS1 | B0001 | C01 | 60 | 00002 | 8,969.9 | ***13,028.5*** |
| 316 (2) | 02 | WS1 | B0001 | C01 | 60 | 00003 | 10,016. | ***6,737.0*** |
| 316 (2) | 02 | WS1 | B0001 | C01 | 60 | 00004 | 14,090. | ***20,416.7*** |
| 316 (2) | 02 | WS1 | B0001 | C01 | 60 | 00005 | 12,658. | -13,522.7 |
| 316 (2) | 02 | WS1 | B0001 | C01 | 60 | 00006 | 18,667. | 791.8 |
| 316 (2) | 02 | WS1 | B0001 | C01 | 60 | 00007 | 17,415. | ***23,071.8*** |
| 316 (2) | 02 | WS1 | B0001 | C01 | 60 | 00008 | 18,614. | -11,444.8 |
| 316 (2) | 02 | WS1 | B0001 | C01 | 60 | 00009 | 13,354. | -4,403.0 |
| 316 (2) | 02 | WS1 | B0001 | C01 | 60 | 00010 | 14,306. | ***40,965.0*** |
| 316 (2) | 02 | WS1 | B0001 | C01 | 60 | 00011 | 14,809. | ***26,188.7*** |
| 316 (2) | 02 | WS1 | B0001 | C01 | 60 | 00012 | 5,581.0 | ***28,266.6*** |
| 525 (2) | 03 | FL1 | B0001 | C01 | 60 | 00001 | 16,612. | ***1,122,412.3*** |
| 525 (2) | 03 | FL1 | B0001 | C01 | 60 | 00002 | 15,322. | ***71,649.4*** |
| 525 (2) | 03 | FL1 | B0001 | C01 | 60 | 00003 | 15,285. | ***84,449.4*** |
| 525 (2) | 03 | FL1 | B9999 | C01 | 60 | 00004 | 19,652. | ***1,592,351.1*** |
| 525 (2) | 03 | SW1 | B0001 | C01 | 60 | 00001 | 13,987. | ***1,318,451.4*** |
| 525 (2) | 03 | SW1 | B9999 | C01 | 60 | 00002 | 18,490. | ***2,457,539.7*** |
| 525 (2) | 03 | WS1 | B0001 | C01 | 60 | 00001 | 15,305. | ***4,968,087.8*** |
| 525 (2) | 03 | WS1 | B0001 | C01 | 60 | 00002 | 16,592. | ***156,625.5*** |
| 525 (2) | 03 | WS1 | B0001 | C01 | 60 | 00003 | 12,859. | ***14,317.4*** |
| 525 (2) | 03 | WS1 | B0001 | C01 | 60 | 00004 | 16,347. | ***117,738.9*** |
| 574 (2) | 04 | CL1 | B0001 | C01 | 60 | 00001 | 12,292. | ***431,490.2*** |
| 574 (2) | 04 | CL1 | B0001 | C01 | 60 | 00002 | 11,212. | -13,264.4 |
| 574 (2) | 04 | CL1 | B0001 | C01 | 60 | 00003 | 7,014.0 | ***3,229.0*** |
| 574 (2) | 04 | CL1 | B0001 | C01 | 60 | 00004 | 17,163. | ***20,205.8*** |
| 574 (2) | 04 | CL1 | B0001 | C01 | 60 | 00005 | 12,042. | -2,788.1 |
| 574 (2) | 04 | CL1 | B0001 | C01 | 60 | 00006 | 11,928. | -1,498.8 |
| 574 (2) | 04 | CL1 | B0001 | C01 | 60 | 00007 | 7,411.8 | ***18,379.2*** |
| 574 (2) | 04 | CL1 | B0001 | C01 | 60 | 00008 | 15,750. | -48,937.2 |
| 574 (2) | 04 | EQ1 | B9999 | C01 | 60 | 00001 | 7,407.5 | ***9,939.0*** |
| 574 (2) | 04 | EQ1 | B9999 | C01 | 60 | 00002 | 12,475. | ***23,638.7*** |
| 574 (2) | 04 | EQ1 | B9999 | C01 | 60 | 00003 | 10,992. | ***46,525.2*** |
| 574 (2) | 04 | EQ1 | B9999 | C01 | 60 | 00004 | 8,819.1 | ***14,935.3*** |
| 525 (2) | 04 | FL1 | B0001 | C01 | 60 | 00001 | 9,032.7 | ***39,819.9*** |
| 525 (2) | 04 | FL1 | B0001 | C01 | 60 | 00002 | 10,471. | -1,597.4 |
| 525 (2) | 04 | FL1 | B0001 | C01 | 60 | 00003 | 6,834.1 | ***45,076.1*** |
| 525 (2) | 04 | FL1 | B0001 | C01 | 60 | 00004 | 19,849. | ***76,954.3*** |
| 525 (2) | 04 | FL1 | B0001 | C01 | 60 | 00005 | 22,716. | ***26,143.9*** |
| 525 (2) | 04 | FL1 | B0001 | C01 | 60 | 00006 | 14,333. | ***38,895.2*** |

NOTES: Activity reported in net dpm/100 cm². Count times are reported in seconds.
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03/31/98

## Direct Measurements For Total Beta Activity

Survey Package : A1700 SURFACES & STRUCTURES
Containment Spray Building - All Elevations
Includes: Elevations 30ft, 21ft, 14ft, 12 ft., 4 ft., -6 ft and -11ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | MDA | RESULT |
|---|---|---|---|---|---|---|---|---|
| 525 (2) | 04 | FL1 | B0001 | C01 | 60 | 00007 | 8,365.3 | ***184,464.1*** |
| 574 (2) | 04 | WS1 | B0001 | C01 | 60 | 00001 | 10,859. | ***17,573.3*** |
| 574 (2) | 04 | WS1 | B0001 | C01 | 60 | 00002 | 9,729.4 | ***6,989.7*** |
| 574 (2) | 04 | WS1 | B0001 | C01 | 60 | 00003 | 8,156.2 | ***6,989.7*** |
| 574 (2) | 04 | WS1 | B0001 | C01 | 60 | 00004 | 12,993. | -5,474.4 |
| 574 (2) | 04 | WS1 | B0001 | C01 | 60 | 00005 | 14,557. | ***14,887.1*** |
| 574 (2) | 04 | WS1 | B0001 | C01 | 60 | 00006 | 12,141. | ***217,051.4*** |
| 574 (2) | 04 | WS1 | B0001 | C01 | 60 | 00007 | 12,621. | ***48,035.0*** |
| 574 (2) | 04 | WS1 | B0001 | C01 | 60 | 00008 | 11,627. | ***16,982.4*** |
| 574 (2) | 04 | WS1 | B0001 | C01 | 60 | 00009 | 21,888. | -87,887.3 |
| 574 (2) | 04 | WS1 | B0001 | C01 | 60 | 00010 | 15,663. | ***19,238.8*** |
| 574 (2) | 04 | WS1 | B0001 | C01 | 60 | 00011 | 14,285. | ***11,448.8*** |
| 574 (2) | 04 | WS1 | B0001 | C01 | 60 | 00012 | 6,409.7 | 1,509.8 |
| 574 (2) | 04 | WS1 | B0001 | C01 | 60 | 00013 | 11,616. | ***23,536.7*** |
| 574 (2) | 04 | WS1 | B0001 | C01 | 60 | 00014 | 13,457. | ***2,638.0*** |
| 574 (2) | 04 | WS1 | B0001 | C01 | 60 | 00015 | 12,144. | -2,143.5 |
| 574 (2) | 04 | WS1 | B0001 | C01 | 60 | 00016 | 10,246. | ***23,160.7*** |
| 574 (2) | 04 | WS1 | B0001 | C01 | 60 | 00017 | 9,431.4 | ***12,577.0*** |
| 574 (2) | 05 | EQ1 | B9999 | C01 | 60 | 00001 | 5,801.7 | ***7,252.8*** |
| 574 (2) | 05 | EQ1 | B9999 | C01 | 60 | 00002 | 6,982.1 | ***3,707.0*** |
| 574 (2) | 05 | EQ1 | B9999 | C01 | 60 | 00003 | 4,665.8 | ***27,130.7*** |
| 574 (2) | 05 | EQ1 | B9999 | C01 | 60 | 00004 | 5,043.9 | 913.3 |
| 574 (2) | 05 | FL1 | B0001 | C01 | 60 | 00002 | 7,446.1 | ***43,468.4*** |
| 574 (2) | 05 | FL1 | B0001 | C01 | 60 | 00003 | 11,933. | ***19,883.5*** |
| 574 (2) | 05 | FL1 | B0001 | C01 | 60 | 00004 | 5,231.6 | ***7,526.9*** |
| 574 (2) | 05 | FL1 | B0001 | C01 | 60 | 00006 | 11,382. | ***29,392.7*** |
| 574 (2) | 05 | FL1 | B0001 | C01 | 60 | 00008 | 16,203. | -34,968.9 |
| 574 (2) | 05 | FL1 | B0001 | C01 | 60 | 00009 | 6,469.3 | ***200,934.0*** |
| 574 (2) | 05 | FL1 | B0001 | C01 | 60 | 00010 | 13,659. | -46,304.7 |
| 574 (2) | 05 | FL1 | B9999 | C01 | 60 | 00001 | 7,286.0 | ***270,555.2*** |
| 574 (2) | 05 | FL1 | B9999 | C01 | 60 | 00005 | 16,913. | ***47,760.9*** |
| 574 (2) | 05 | FL1 | B9999 | C01 | 60 | 00007 | 20,731. | ***111,209.1*** |
| 574 (2) | 05 | SW1 | B9999 | C01 | 60 | 00001 | 7,484.6 | ***148,171.4*** |
| 574 (2) | 05 | SW1 | B9999 | C01 | 60 | 00002 | 8,026.5 | ***108,952.7*** |
| 574 (2) | 05 | WS1 | B0001 | C01 | 60 | 00001 | 6,749.6 | ***5,216.8*** |
| 574 (2) | 05 | WS1 | B0001 | C01 | 60 | 00002 | 6,248.0 | ***4,249.7*** |
| 574 (2) | 05 | WS1 | B0001 | C01 | 60 | 00003 | 3,609.2 | 1,993.3 |
| 574 (2) | 05 | WS1 | B0001 | C01 | 60 | 00004 | 3,733.3 | ***13,114.2*** |
| 574 (2) | 05 | WS1 | B0001 | C01 | 60 | 00005 | 4,335.8 | ***13,060.5*** |
| 574 (2) | 05 | WS1 | B0001 | C01 | 60 | 00006 | 11,183. | ***12,362.1*** |

NOTES: Activity reported in net dpm/100 cm². Count times are reported in seconds.
Underlined values exceed the MDA.
Bold values exceed 2000 dpm/100 cm².

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Maine Yankee Atomic Power Plant Site Characterization

03/31/98

Direct Measurements For Total Beta Activity

Survey Package : A1700 SURFACES & STRUCTURES
Containment Spray Building - All Elevations
Includes: Elevations 30ft, 21ft, 14ft, 12 ft., 4 ft., -6 ft and -11ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | MDA | RESULT |
|---|---|---|---|---|---|---|---|---|
| 574 (2) | 05 | WS1 | B0001 | C01 | 60 | 00007 | 7,797.2 | 1,348.6 |
| 574 (2) | 05 | WS1 | B0001 | C01 | 60 | 00008 | 23,078. | ***34,335.3*** |
| 574 (2) | 05 | WS1 | B0001 | C01 | 60 | 00009 | 19,873. | ***31,165.6*** |
| 574 (2) | 05 | WS1 | B0001 | C01 | 60 | 00010 | 18,595. | ***21,548.9*** |
| 574 (2) | 05 | WS1 | B0001 | C01 | 60 | 00011 | 11,144. | -3,970.1 |
| 574 (2) | 05 | WS1 | B0001 | C01 | 60 | 00012 | 19,375. | ***16,015.3*** |
| 574 (2) | 05 | WS1 | B0001 | C01 | 60 | 00013 | 17,309. | ***29,446.4*** |
| 574 (2) | 05 | WS1 | B0001 | C01 | 60 | 00014 | 15,641. | ***14,564.8*** |
| 574 (2) | 05 | WS1 | B0001 | C01 | 60 | 00015 | 16,339. | -4,614.8 |
| 574 (2) | 05 | WS1 | B0001 | C01 | 60 | 00016 | 6,253.2 | ***27,888.4*** |
| 574 (2) | 05 | WS1 | B0001 | C01 | 60 | 00017 | 5,735.0 | ***2,691.7*** |
| 574 (2) | 05 | WS1 | B0001 | C01 | 60 | 00018 | 6,029.1 | ***6,130.1*** |
| 574 (2) | 05 | WS1 | B0001 | C01 | 60 | 00019 | 4,546.7 | ***7,795.5*** |
| 574 (2) | 05 | WS1 | B0001 | C01 | 60 | 00020 | 7,424.7 | ***11,717.4*** |
| 603 (2) | 06 | FL1 | B0001 | C01 | 60 | 00001 | 7,778.0 | 1,263.6 |
| 603 (2) | 06 | FL1 | B0001 | C01 | 60 | 00002 | 4,029.4 | ***19,278.4*** |
| 603 (2) | 06 | FL1 | B0001 | C01 | 60 | 00003 | 14,355. | ***17,917.8*** |
| 603 (2) | 06 | FL1 | B0001 | C01 | 60 | 00004 | 10,075. | ***3,876.0*** |
| 603 (2) | 06 | FL1 | B0001 | C01 | 60 | 00005 | 16,389. | ***47,579.6*** |
| 603 (2) | 06 | FL1 | B0001 | C01 | 60 | 00006 | 4,285.3 | 610.5 |
| 603 (2) | 06 | FL1 | B0001 | C01 | 60 | 00007 | 15,207. | -4,342.2 |
| 603 (2) | 06 | FL1 | B0001 | C01 | 60 | 00008 | 3,746.5 | -967.8 |
| 603 (2) | 06 | FL1 | B0001 | C01 | 60 | 00009 | 12,209. | ***22,054.1*** |
| 603 (2) | 06 | FL1 | B0001 | C01 | 60 | 00010 | 14,054. | ***56,450.9*** |
| 603 (2) | 06 | WS1 | B0001 | C01 | 60 | 00001 | 15,504. | ***32,721.5*** |
| 603 (2) | 06 | WS1 | B0001 | C01 | 60 | 00002 | 12,666. | -13,648.9 |
| 603 (2) | 06 | WS1 | B0001 | C01 | 60 | 00003 | 6,942.3 | ***12,801.8*** |
| 603 (2) | 06 | WS1 | B0001 | C01 | 60 | 00004 | 17,552. | -24,697.2 |
| 603 (2) | 06 | WS1 | B0001 | C01 | 60 | 00005 | 10,777. | ***15,849.6*** |
| 603 (2) | 06 | WS1 | B0001 | C01 | 60 | 00006 | 4,663.2 | ***4,420.3*** |
| 603 (2) | 06 | WS1 | B0001 | C01 | 60 | 00007 | 7,786.4 | ***10,896.9*** |
| 603 (2) | 06 | WS1 | B0001 | C01 | 60 | 00008 | 10,995. | ***12,203.1*** |
| 603 (2) | 06 | WS1 | B0001 | C01 | 60 | 00009 | 3,516.5 | ***2,080.0*** |
| 603 (2) | 06 | WS1 | B0001 | C01 | 60 | 00010 | 10,929. | 392.8 |

NOTES: Activity reported in net dpm/100 cm². Count times are reported in seconds.
Underlined values exceed the MDA.
Bold values exceed 2000 dpm/100 cm².
194 results are listed.

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# DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

03/31/98 Direct Measurements For Total Beta Activity

Survey Package : A1700 SURFACES & STRUCTURES
Containment Spray Building - All Elevations
Includes: Elevations 30ft, 21ft, 14ft, 12 ft., 4 ft., -6 ft and -11ft.

| SURVEY | | M2350 | | DETECTOR | | | PRE | |
|---|---|---|---|---|---|---|---|---|
| DATE | FILE # | INST S/N | CAL DUE | MODEL | S/N | CAL DUE | EFF | TECHNICIAN |
| 2/2/98 | 316 (2) | 126196 | 4/15/98 | 44-40 | 119453 | 4/16/98 | .11 | DJH2236 |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | | |
| 1/26/98 | 484 (2) | 98620 | 3/20/98 | 44-40 | 125861 | 3/22/98 | .12 | DRK2986 |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | | |
| 1/26/98 | 485 (2) | 126170 | 6/10/98 | 44-40 | 126170 | 4/29/98 | .13 | CWI5440 |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | | |
| 1/27/98 | 487 (2) | 126170 | 6/10/98 | 44-40 | 092644 | 4/29/98 | .12 | CWI5440 |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | | |
| 1/27/98 | 492 (2) | 98620 | 3/20/98 | 44-40 | 125861 | 3/22/98 | .12 | CWI5440 |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | | |
| 2/2/98 | 525 (2) | 080498 | 4/8/98 | 44-40 | PR090001 | 4/8/98 | .13 | CWI5440 |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | | |
| 2/9/98 | 568 (2) | 126196 | 4/15/98 | 44-40 | 119453 | 4/16/98 | .11 | DJH2236 |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | | |
| 2/9/98 | 574 (2) | 080498 | 4/8/98 | 44-40 | PR090001 | 4/8/98 | .12 | CWI5440 |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | | |
| 2/16/98 | 603 (2) | 080498 | 4/8/98 | 44-40 | PR090001 | 4/8/98 | .12 | CWI5440 |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | | |

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Maine Yankee Atomic Power Plant Site Characterization

03/29/98

## Removable Contamination - Gross Beta Activity

Survey Package A1700 SURFACES & STRUCTURES
Containment Spray Building - All Elevations
Includes: Elevations 30ft, 21ft, 14ft, 12 ft., 4 ft., -6 ft and -11ft.

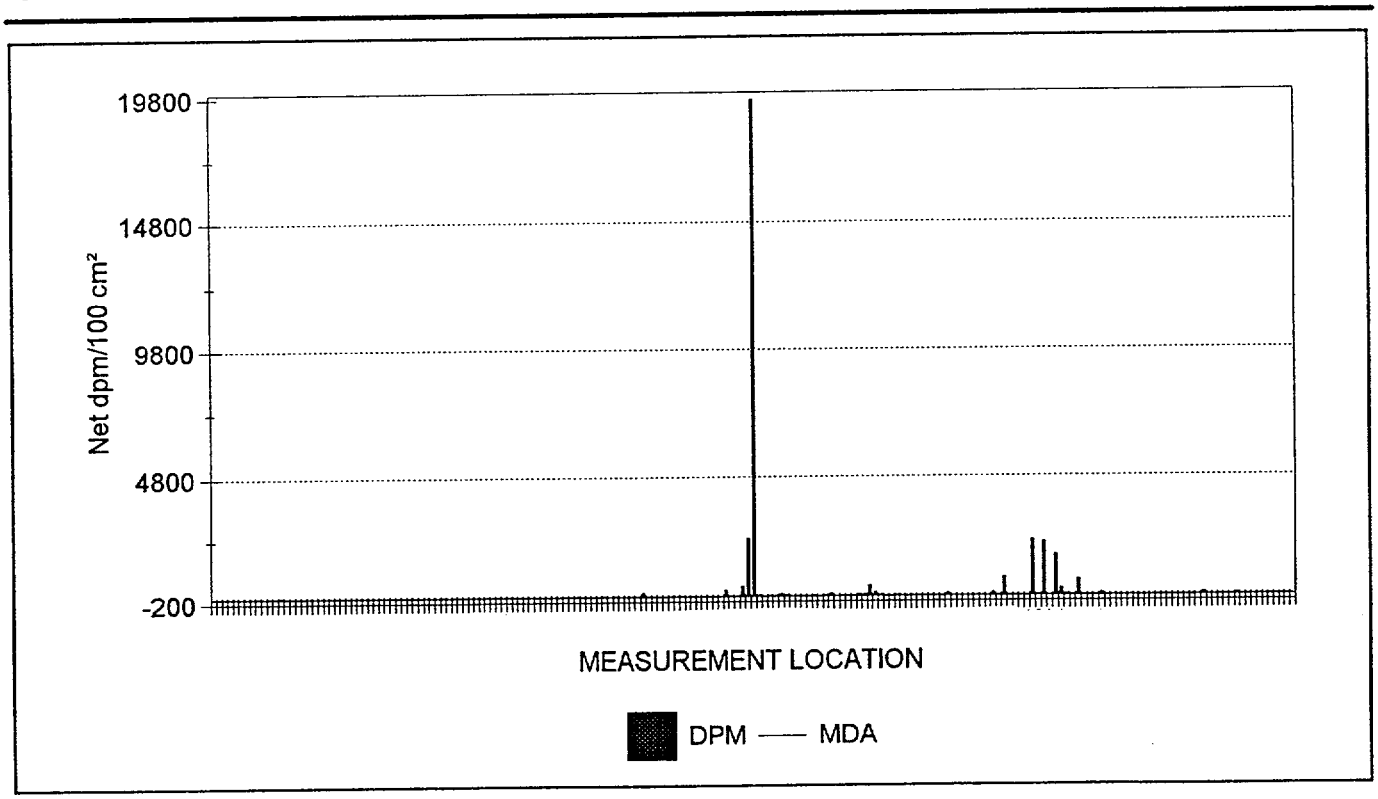
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | 177.5 |
| Maximum | 19,727.0 |
| Minimum | -6.3 |
| Standard Deviation | 1,445.2 |
| MDA | 37.3 |

| | |
|---|---|
| Samples Reported | 194 |
| Samples Prescribed | 194 |

### TESTS PERFORMED

| | |
|---|---|
| MDA <100 net dpm/100 cm² | YES |
| Results above 100 net dpm/100 cm² | 20 |
| Number of results above MDA | 38 |




194 RESULTS ARE GRAPHED

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Maine Yankee Atomic Power Plant Site Characterization

03/29/98

## Removable Contamination - Gross Alpha Activity

Survey Package A1700 SURFACES & STRUCTURES
Containment Spray Building - All Elevations
Includes: Elevations 30ft, 21ft, 14ft, 12 ft., 4 ft., -6 ft and -11ft.

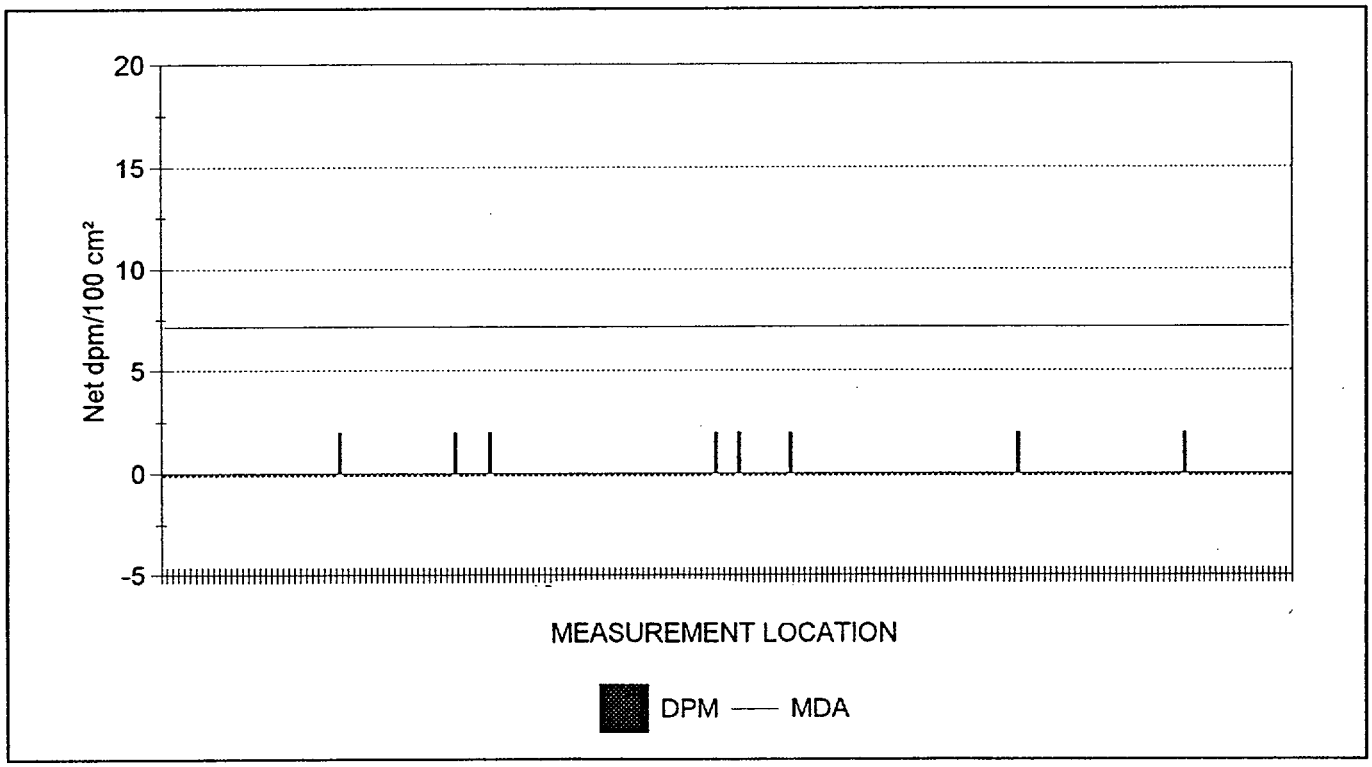
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | -0.0 |
| Maximum | 2.0 |
| Minimum | -0.1 |
| Standard Deviation | 0.4 |
| MDA | 7.2 |

| | |
|---|---|
| Samples Reported | 194 |
| Samples Prescribed | 194 |

### TESTS PERFORMED

| | |
|---|---|
| MDA <10 net dpm/100 cm² | YES |
| Results above 20 net dpm/100 cm² | 0 |
| Number of results above MDA | 0 |




194 RESULTS ARE GRAPHED

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03/29/98

Removable Contamination

Survey Package : A1700 SURFACES & STRUCTURES
Containment Spray Building - All Elevations
Includes: Elevations 30ft, 21ft, 14ft, 12 ft., 4 ft., -6 ft and -11ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| XLS FILE | UNIT | SURFACE | REASON | MSRMNT LOCATION | ALPHA | BETA |
|---|---|---|---|---|---|---|
| SME1E093.XLS | 06 | WS1 | C01 | 9 | -0.1 | 5.9 |
| SME1E093.XLS | 06 | WS1 | C01 | 8 | -0.1 | -0.2 |
| SME1E093.XLS | 06 | WS1 | C01 | 7 | -0.1 | 30.5 |
| SME1E093.XLS | 06 | WS1 | C01 | 6 | -0.1 | 5.9 |
| SME1E093.XLS | 06 | WS1 | C01 | 5 | -0.1 | -0.2 |
| SME1E093.XLS | 06 | WS1 | C01 | 4 | -0.1 | 5.9 |
| SME1E093.XLS | 06 | WS1 | C01 | 3 | -0.1 | -0.2 |
| SME1E093.XLS | 06 | WS1 | C01 | 2 | -0.1 | -6.3 |
| SME1E093.XLS | 06 | WS1 | C01 | 10 | -0.1 | -0.2 |
| SME1E093.XLS | 06 | WS1 | C01 | 1 | -0.1 | 5.9 |
| SME1E093.XLS | 06 | FL1 | C01 | 9 | -0.1 | 79.5 |
| SME1E093.XLS | 06 | FL1 | C01 | 8 | -0.1 | -0.2 |
| SME1E093.XLS | 06 | FL1 | C01 | 7 | -0.1 | -0.2 |
| SME1E093.XLS | 06 | FL1 | C01 | 6 | -0.1 | 18.2 |
| SME1E093.XLS | 06 | FL1 | C01 | 5 | -0.1 | 5.9 |
| SME1E093.XLS | 06 | FL1 | C01 | 4 | -0.1 | 24.3 |
| SME1E093.XLS | 06 | FL1 | C01 | 3 | -0.1 | ***128.6*** |
| SME1E093.XLS | 06 | FL1 | C01 | 2 | -0.1 | 12.1 |
| SME1E093.XLS | 06 | FL1 | C01 | 10 | 2.0 | 5.9 |
| SME1E093.XLS | 06 | FL1 | C01 | 1 | -0.1 | 24.3 |
| SME1E093.XLS | 05 | WS1 | C01 | 9 | -0.1 | 30.5 |
| SME1E093.XLS | 05 | WS1 | C01 | 8 | -0.1 | -0.2 |
| SME1E093.XLS | 05 | WS1 | C01 | 7 | -0.1 | 5.9 |
| SME1E093.XLS | 05 | WS1 | C01 | 6 | -0.1 | 5.9 |
| SME1E093.XLS | 05 | WS1 | C01 | 5 | -0.1 | -0.2 |
| SME1E093.XLS | 05 | WS1 | C01 | 4 | -0.1 | -0.2 |
| SME1E093.XLS | 05 | WS1 | C01 | 3 | -0.1 | 12.1 |
| SME1E093.XLS | 05 | WS1 | C01 | 20 | -0.1 | -6.3 |
| SME1E093.XLS | 05 | WS1 | C01 | 2 | -0.1 | 18.2 |
| SME1E093.XLS | 05 | WS1 | C01 | 19 | -0.1 | -0.2 |
| SME1E093.XLS | 05 | WS1 | C01 | 18 | -0.1 | 18.2 |
| SME1E093.XLS | 05 | WS1 | C01 | 17 | -0.1 | -0.2 |
| SME1E093.XLS | 05 | WS1 | C01 | 16 | -0.1 | -0.2 |
| SME1E093.XLS | 05 | WS1 | C01 | 15 | -0.1 | 30.5 |
| SME1E093.XLS | 05 | WS1 | C01 | 14 | -0.1 | ***134.7*** |
| SME1E093.XLS | 05 | WS1 | C01 | 13 | -0.1 | 36.6 |
| SME1E093.XLS | 05 | WS1 | C01 | 12 | -0.1 | 12.1 |
| SME1E093.XLS | 05 | WS1 | C01 | 11 | -0.1 | 5.9 |
| SME1E093.XLS | 05 | WS1 | C01 | 10 | -0.1 | ***656.1*** |
| SME1E093.XLS | 05 | WS1 | C01 | 1 | -0.1 | 5.9 |

NOTES: Activity reported in net dpm/100 cm².
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Bold values exceed 100.00 dpm/100 cm² (beta activity) and/or 20.00 dpm/100 cm² (alpha activity).

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Maine Yankee Atomic Power Plant Site Characterization

03/29/98 Removable Contamination

Survey Package: A1700 SURFACES & STRUCTURES
Containment Spray Building - All Elevations
Includes: Elevations 30ft, 21ft, 14ft, 12 ft., 4 ft., -6 ft and -11ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| XLS FILE | UNIT | SURFACE | REASON | MSRMNT LOCATION | ALPHA | BETA |
|---|---|---|---|---|---|---|
| SME1E093.XLS | 05 | SW1 | C01 | 2 | -0.1 | 79.5 |
| SME1E093.XLS | 05 | SW1 | C01 | 1 | -0.1 | ***312.6*** |
| SME1E093.XLS | 05 | FL1 | C01 | 9 | -0.1 | ***1,649.9*** |
| SME1E093.XLS | 05 | FL1 | C01 | 8 | -0.1 | 30.5 |
| SME1E093.XLS | 05 | FL1 | C01 | 7 | -0.1 | ***2,189.7*** |
| SME1E093.XLS | 05 | FL1 | C01 | 6 | -0.1 | 55.0 |
| SME1E093.XLS | 05 | FL1 | C01 | 5 | 2.0 | ***2,263.3*** |
| SME1E093.XLS | 05 | FL1 | C01 | 4 | -0.1 | 5.9 |
| SME1E093.XLS | 05 | FL1 | C01 | 3 | -0.1 | 24.3 |
| SME1E093.XLS | 05 | FL1 | C01 | 2 | -0.1 | 12.1 |
| SME1E093.XLS | 05 | FL1 | C01 | 10 | -0.1 | 36.6 |
| SME1E093.XLS | 05 | FL1 | C01 | 1 | -0.1 | ***748.2*** |
| SME1E093.XLS | 05 | EQ1 | C01 | 4 | -0.1 | 5.9 |
| SME1E093.XLS | 05 | EQ1 | C01 | 3 | -0.1 | ***147.0*** |
| SME1E093.XLS | 05 | EQ1 | C01 | 2 | -0.1 | 5.9 |
| SME1E093.XLS | 05 | EQ1 | C01 | 1 | -0.1 | 12.1 |
| SME1E093.XLS | 04 | WS1 | C01 | 9 | -0.1 | -6.3 |
| SME1E093.XLS | 04 | WS1 | C01 | 8 | -0.1 | 30.5 |
| SME1E093.XLS | 04 | WS1 | C01 | 7 | -0.1 | 12.1 |
| SME1E093.XLS | 04 | WS1 | C01 | 6 | -0.1 | -0.2 |
| SME1E093.XLS | 04 | WS1 | C01 | 5 | -0.1 | -0.2 |
| SME1E093.XLS | 04 | WS1 | C01 | 4 | -0.1 | ***116.3*** |
| SME1E093.XLS | 04 | WS1 | C01 | 3 | -0.1 | 18.2 |
| SME1E093.XLS | 04 | WS1 | C01 | 2 | -0.1 | 5.9 |
| SME1E093.XLS | 04 | WS1 | C01 | 17 | -0.1 | 5.9 |
| SME1E093.XLS | 04 | WS1 | C01 | 16 | -0.1 | 12.1 |
| SME1E093.XLS | 04 | WS1 | C01 | 15 | -0.1 | -0.2 |
| SME1E093.XLS | 04 | WS1 | C01 | 14 | -0.1 | 5.9 |
| SME1E093.XLS | 04 | WS1 | C01 | 13 | -0.1 | 5.9 |
| SME1E093.XLS | 04 | WS1 | C01 | 12 | -0.1 | 12.1 |
| SME1E093.XLS | 04 | WS1 | C01 | 11 | -0.1 | 48.9 |
| SME1E093.XLS | 04 | WS1 | C01 | 10 | -0.1 | 5.9 |
| SME1E093.XLS | 04 | WS1 | C01 | 1 | -0.1 | 5.9 |
| SME1E093.XLS | 04 | FL1 | C01 | 7 | -0.1 | 73.4 |
| SME1E093.XLS | 04 | FL1 | C01 | 6 | -0.1 | ***177.7*** |
| SME1E093.XLS | 04 | FL1 | C01 | 5 | -0.1 | ***423.0*** |
| SME1E093.XLS | 04 | FL1 | C01 | 4 | -0.1 | 97.9 |
| SME1E093.XLS | 04 | FL1 | C01 | 3 | -0.1 | ***110.2*** |
| SME1E093.XLS | 04 | FL1 | C01 | 2 | -0.1 | 12.1 |
| SME1E093.XLS | 04 | FL1 | C01 | 1 | -0.1 | 5.9 |

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 100.00 dpm/100 cm² (beta activity) and/or 20.00 dpm/100 cm² (alpha activity).

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Maine Yankee Atomic Power Plant Site Characterization

03/29/98 Removable Contamination

Survey Package : A1700 SURFACES & STRUCTURES
Containment Spray Building - All Elevations
Includes: Elevations 30ft, 21ft, 14ft, 12 ft., 4 ft., -6 ft and -11ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| XLS FILE | UNIT | SURFACE | REASON | MSRMNT LOCATION | ALPHA | BETA |
|---|---|---|---|---|---|---|
| SME1E093.XLS | 04 | EQ1 | C01 | 4 | -0.1 | 5.9 |
| SME1E093.XLS | 04 | EQ1 | C01 | 3 | -0.1 | 24.3 |
| SME1E093.XLS | 04 | EQ1 | C01 | 2 | -0.1 | ***128.6*** |
| SME1E093.XLS | 04 | EQ1 | C01 | 1 | -0.1 | 42.7 |
| SME1E093.XLS | 04 | CL1 | C01 | 8 | -0.1 | 36.6 |
| SME1E093.XLS | 04 | CL1 | C01 | 7 | 2.0 | 42.7 |
| SME1E093.XLS | 04 | CL1 | C01 | 6 | -0.1 | 18.2 |
| SME1E093.XLS | 04 | CL1 | C01 | 5 | -0.1 | -0.2 |
| SME1E093.XLS | 04 | CL1 | C01 | 4 | -0.1 | -0.2 |
| SME1E093.XLS | 04 | CL1 | C01 | 3 | -0.1 | -0.2 |
| SME1E093.XLS | 04 | CL1 | C01 | 2 | -0.1 | 73.4 |
| SME1E093.XLS | 04 | CL1 | C01 | 1 | -0.1 | ***134.7*** |
| SME1E093.XLS | 03 | WS1 | C01 | 4 | -0.1 | 48.9 |
| SME1E093.XLS | 03 | WS1 | C01 | 3 | -0.1 | 55.0 |
| SME1E093.XLS | 03 | WS1 | C01 | 2 | 2.0 | 30.5 |
| SME1E093.XLS | 03 | WS1 | C01 | 1 | -0.1 | 73.4 |
| SME1E093.XLS | 03 | SW1 | C01 | 2 | -0.1 | ***19,727.0*** |
| SME1E093.XLS | 03 | SW1 | C01 | 1 | -0.1 | ***2,373.7*** |
| SME1E093.XLS | 03 | FL1 | C01 | 4 | 2.0 | ***423.0*** |
| SME1E093.XLS | 03 | FL1 | C01 | 3 | -0.1 | 48.9 |
| SME1E093.XLS | 03 | FL1 | C01 | 2 | -0.1 | 48.9 |
| SME1E093.XLS | 03 | FL1 | C01 | 1 | -0.1 | ***275.8*** |
| SME1E093.XLS | 02 | WS1 | C01 | 9 | -0.1 | -0.2 |
| SME1E093.XLS | 02 | WS1 | C01 | 8 | -0.1 | -0.2 |
| SME1E093.XLS | 02 | WS1 | C01 | 7 | -0.1 | -0.2 |
| SME1E093.XLS | 02 | WS1 | C01 | 6 | -0.1 | -0.2 |
| SME1E093.XLS | 02 | WS1 | C01 | 5 | -0.1 | -6.3 |
| SME1E093.XLS | 02 | WS1 | C01 | 4 | -0.1 | 12.1 |
| SME1E093.XLS | 02 | WS1 | C01 | 3 | -0.1 | -6.3 |
| SME1E093.XLS | 02 | WS1 | C01 | 2 | -0.1 | -0.2 |
| SME1E093.XLS | 02 | WS1 | C01 | 12 | -0.1 | 5.9 |
| SME1E093.XLS | 02 | WS1 | C01 | 11 | -0.1 | -0.2 |
| SME1E093.XLS | 02 | WS1 | C01 | 10 | -0.1 | -0.2 |
| SME1E093.XLS | 02 | WS1 | C01 | 1 | -0.1 | 5.9 |
| SME1E093.XLS | 02 | SW2 | C01 | 2 | -0.1 | 18.2 |
| SME1E093.XLS | 02 | SW2 | C01 | 1 | -0.1 | 12.1 |
| SME1E093.XLS | 02 | SW1 | C01 | 2 | -0.1 | ***183.8*** |
| SME1E093.XLS | 02 | SW1 | C01 | 1 | -0.1 | 18.2 |
| SME1E093.XLS | 02 | FL1 | C01 | 8 | -0.1 | -0.2 |
| SME1E093.XLS | 02 | FL1 | C01 | 7 | -0.1 | 12.1 |

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 100.00 dpm/100 cm² (beta activity) and/or 20.00 dpm/100 cm² (alpha activity).

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03/29/98

## Removable Contamination

Survey Package : A1700 SURFACES & STRUCTURES
Containment Spray Building - All Elevations
Includes: Elevations 30ft, 21ft, 14ft, 12 ft., 4 ft., -6 ft and -11ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| XLS FILE | UNIT | SURFACE | REASON | MSRMNT LOCATION | ALPHA | BETA |
|---|---|---|---|---|---|---|
| SME1E093.XLS | 02 | FL1 | C01 | 6 | -0.1 | -0.2 |
| SME1E093.XLS | 02 | FL1 | C01 | 5 | -0.1 | 48.9 |
| SME1E093.XLS | 02 | FL1 | C01 | 4 | -0.1 | 5.9 |
| SME1E093.XLS | 02 | FL1 | C01 | 3 | -0.1 | 42.7 |
| SME1E093.XLS | 02 | FL1 | C01 | 2 | -0.1 | -0.2 |
| SME1E093.XLS | 02 | FL1 | C01 | 1 | -0.1 | -0.2 |
| SME1E093.XLS | 02 | EQ1 | C01 | 6 | -0.1 | 30.5 |
| SME1E093.XLS | 02 | EQ1 | C01 | 5 | -0.1 | 18.2 |
| SME1E093.XLS | 02 | EQ1 | C01 | 4 | -0.1 | 42.7 |
| SME1E093.XLS | 02 | EQ1 | C01 | 3 | -0.1 | -6.3 |
| SME1E093.XLS | 02 | EQ1 | C01 | 2 | -0.1 | 18.2 |
| SME1E093.XLS | 02 | EQ1 | C01 | 1 | -0.1 | -6.3 |
| SME1E093.XLS | 02 | CL1 | C01 | 7 | -0.1 | -6.3 |
| SME1E093.XLS | 02 | CL1 | C01 | 6 | -0.1 | -6.3 |
| SME1E093.XLS | 02 | CL1 | C01 | 5 | -0.1 | -0.2 |
| SME1E093.XLS | 02 | CL1 | C01 | 4 | -0.1 | -0.2 |
| SME1E093.XLS | 02 | CL1 | C01 | 3 | -0.1 | -0.2 |
| SME1E093.XLS | 02 | CL1 | C01 | 2 | 2.0 | 12.1 |
| SME1E093.XLS | 02 | CL1 | C01 | 1 | -0.1 | 18.2 |
| SME1E093.XLS | 01 | WS1 | C01 | 9 | -0.1 | -6.3 |
| SME1E093.XLS | 01 | WS1 | C01 | 8 | -0.1 | -6.3 |
| SME1E093.XLS | 01 | WS1 | C01 | 7 | -0.1 | -0.2 |
| SME1E093.XLS | 01 | WS1 | C01 | 6 | -0.1 | -0.2 |
| SME1E093.XLS | 01 | WS1 | C01 | 5 | 2.0 | -0.2 |
| SME1E093.XLS | 01 | WS1 | C01 | 4 | -0.1 | 5.9 |
| SME1E093.XLS | 01 | WS1 | C01 | 3 | -0.1 | -6.3 |
| SME1E093.XLS | 01 | WS1 | C01 | 20 | -0.1 | 5.9 |
| SME1E093.XLS | 01 | WS1 | C01 | 2 | -0.1 | -6.3 |
| SME1E093.XLS | 01 | WS1 | C01 | 19 | -0.1 | -6.3 |
| SME1E093.XLS | 01 | WS1 | C01 | 18 | -0.1 | -0.2 |
| SME1E093.XLS | 01 | WS1 | C01 | 17 | -0.1 | -0.2 |
| SME1E093.XLS | 01 | WS1 | C01 | 16 | -0.1 | -0.2 |
| SME1E093.XLS | 01 | WS1 | C01 | 15 | -0.1 | 36.6 |
| SME1E093.XLS | 01 | WS1 | C01 | 14 | -0.1 | 5.9 |
| SME1E093.XLS | 01 | WS1 | C01 | 13 | -0.1 | 12.1 |
| SME1E093.XLS | 01 | WS1 | C01 | 12 | -0.1 | 5.9 |
| SME1E093.XLS | 01 | WS1 | C01 | 11 | -0.1 | -0.2 |
| SME1E093.XLS | 01 | WS1 | C01 | 10 | -0.1 | -6.3 |
| SME1E093.XLS | 01 | WS1 | C01 | 1 | -0.1 | -6.3 |
| SME1E093.XLS | 01 | FL1 | C01 | 9 | -0.1 | -6.3 |

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 100.00 dpm/100 cm² (beta activity) and/or 20.00 dpm/100 cm² (alpha activity).

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03/29/98 Removable Contamination

Survey Package : A1700 SURFACES & STRUCTURES
Containment Spray Building - All Elevations
Includes: Elevations 30ft, 21ft, 14ft, 12 ft., 4 ft., -6 ft and -11ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| XLS FILE | UNIT | SURFACE | REASON | MSRMNT LOCATION | ALPHA | BETA |
|---|---|---|---|---|---|---|
| SME1E093.XLS | 01 | FL1 | C01 | 8 | -0.1 | 12.1 |
| SME1E093.XLS | 01 | FL1 | C01 | 7 | -0.1 | 5.9 |
| SME1E093.XLS | 01 | FL1 | C01 | 6 | -0.1 | -6.3 |
| SME1E093.XLS | 01 | FL1 | C01 | 5 | 2.0 | -0.2 |
| SME1E093.XLS | 01 | FL1 | C01 | 4 | -0.1 | 5.9 |
| SME1E093.XLS | 01 | FL1 | C01 | 3 | -0.1 | 5.9 |
| SME1E093.XLS | 01 | FL1 | C01 | 20 | -0.1 | 5.9 |
| SME1E093.XLS | 01 | FL1 | C01 | 2 | -0.1 | 12.1 |
| SME1E093.XLS | 01 | FL1 | C01 | 19 | -0.1 | -0.2 |
| SME1E093.XLS | 01 | FL1 | C01 | 18 | -0.1 | -0.2 |
| SME1E093.XLS | 01 | FL1 | C01 | 17 | -0.1 | -0.2 |
| SME1E093.XLS | 01 | FL1 | C01 | 16 | -0.1 | 24.3 |
| SME1E093.XLS | 01 | FL1 | C01 | 15 | -0.1 | 30.5 |
| SME1E093.XLS | 01 | FL1 | C01 | 14 | -0.1 | 5.9 |
| SME1E093.XLS | 01 | FL1 | C01 | 13 | -0.1 | -0.2 |
| SME1E093.XLS | 01 | FL1 | C01 | 12 | -0.1 | 5.9 |
| SME1E093.XLS | 01 | FL1 | C01 | 11 | -0.1 | -0.2 |
| SME1E093.XLS | 01 | FL1 | C01 | 10 | -0.1 | -0.2 |
| SME1E093.XLS | 01 | FL1 | C01 | 1 | -0.1 | 5.9 |
| SME1E093.XLS | 01 | EQ1 | C01 | 5 | -0.1 | 12.1 |
| SME1E093.XLS | 01 | EQ1 | C01 | 4 | -0.1 | 5.9 |
| SME1E093.XLS | 01 | EQ1 | C01 | 3 | -0.1 | 61.1 |
| SME1E093.XLS | 01 | EQ1 | C01 | 2 | -0.1 | 24.3 |
| SME1E093.XLS | 01 | EQ1 | C01 | 1 | -0.1 | 5.9 |
| SME1E093.XLS | 01 | CL1 | C01 | 9 | -0.1 | -6.3 |
| SME1E093.XLS | 01 | CL1 | C01 | 8 | -0.1 | 12.1 |
| SME1E093.XLS | 01 | CL1 | C01 | 7 | -0.1 | -0.2 |
| SME1E093.XLS | 01 | CL1 | C01 | 6 | -0.1 | 5.9 |
| SME1E093.XLS | 01 | CL1 | C01 | 5 | -0.1 | 12.1 |
| SME1E093.XLS | 01 | CL1 | C01 | 4 | -0.1 | -0.2 |
| SME1E093.XLS | 01 | CL1 | C01 | 3 | -0.1 | 12.1 |
| SME1E093.XLS | 01 | CL1 | C01 | 2 | -0.1 | 5.9 |
| SME1E093.XLS | 01 | CL1 | C01 | 10 | -0.1 | 12.1 |
| SME1E093.XLS | 01 | CL1 | C01 | 1 | -0.1 | -6.3 |

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 100.00 dpm/100 cm² (beta activity) and/or 20.00 dpm/100 cm² (alpha activity).
194 results are listed.

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Maine Yankee Atomic Power Plant Site Characterization

# DATAFILE & TENNELEC CALIBRATION SUMMARY

03/29/98 Removable Contamination

Survey Package : A1700 SURFACES & STRUCTURES
Containment Spray Building - All Elevations
Includes: Elevations 30ft, 21ft, 14ft, 12 ft., 4 ft., -6 ft and -11ft.

| SURVEYDATE | XLS FILE | INST ID | S/N | CAL DUE | LAB TECHNICIAN |
|---|---|---|---|---|---|
| 3/13/98 | SME1E093.XLS | 1 | 15632 | 8/5/98 | JWD |
| | | | | CALIBRATION DATE VERIFIED AS ACCEPTABLE | |

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Maine Yankee Atomic Power Plant Site Characterization

03/31/98

## Exposure Rate Measurements

Survey Package A1700 SURFACES & STRUCTURES
Containment Spray Building - All Elevations
Includes: Elevations 30ft, 21ft, 14ft, 12 ft., 4 ft., -6 ft and -11ft.

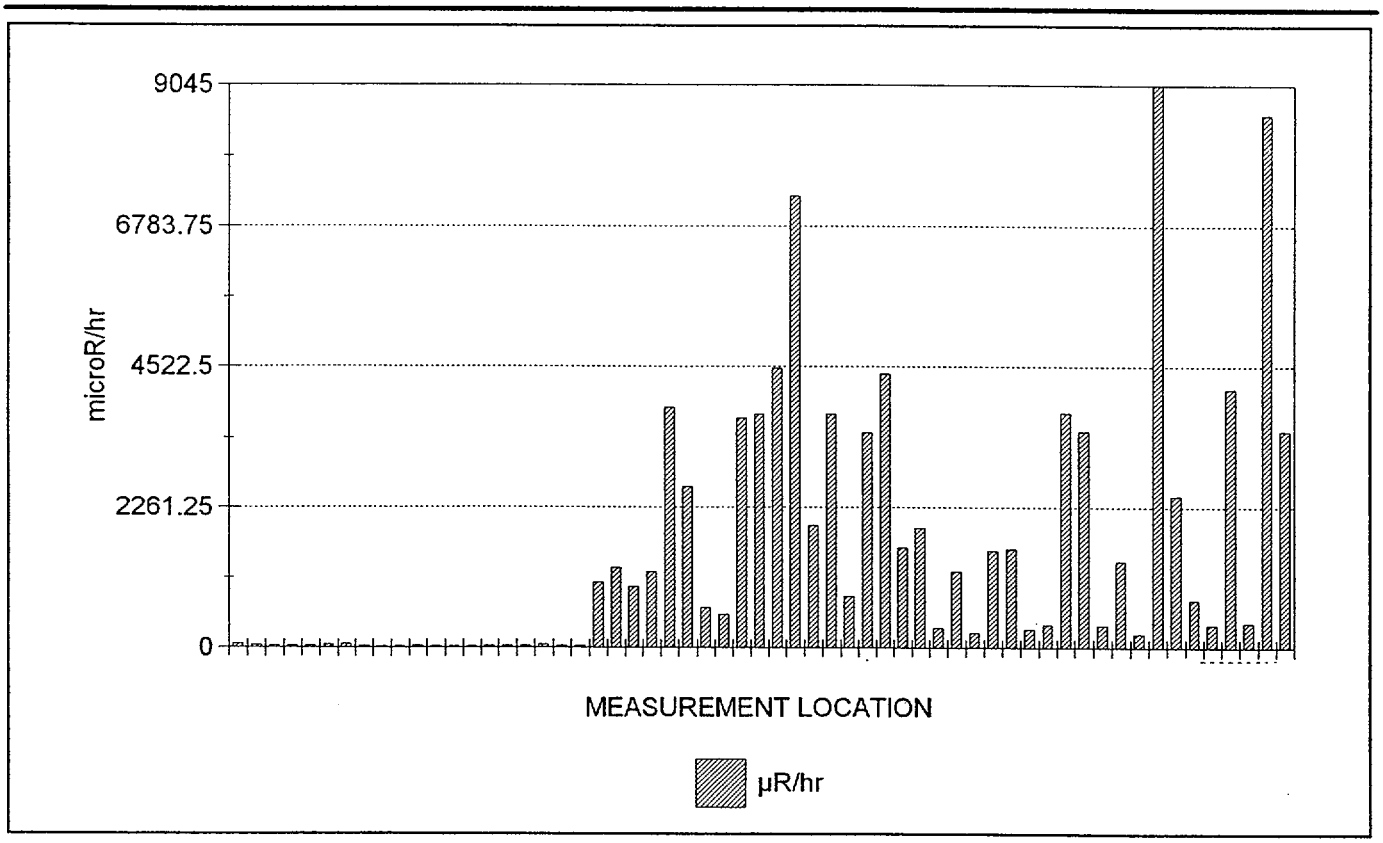
### STATISTICAL SUMMARY

| | µR/hr |
|---|---|
| Mean | 1,597.6 |
| Maximum | 9,040.8 |
| Minimum | 21.6 |
| Standard Deviation | 2,124.1 |

| | |
|---|---|
| Samples Reported | 59 |
| Samples Prescribed | 59 |

### TESTS PERFORMED

| | |
|---|---|
| Samples reported satisfy samples prescribed | YES |




59 RESULTS ARE GRAPHED

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03/31/98

## Exposure Rate Measurements

Survey Package : A1700 SURFACES & STRUCTURES
Containment Spray Building - All Elevations
Includes: Elevations 30ft, 21ft, 14ft, 12 ft., 4 ft., -6 ft and -11ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | RESULT |
|---|---|---|---|---|---|---|---|
| 573 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00001 | ***59.8*** |
| 573 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00002 | ***43.7*** |
| 573 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00003 | ***28.5*** |
| 573 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00004 | ***30.5*** |
| 573 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00005 | ***29.0*** |
| 573 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00006 | ***48.0*** |
| 573 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00007 | ***62.7*** |
| 573 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00008 | ***33.8*** |
| 573 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00009 | ***21.6*** |
| 573 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00010 | ***25.1*** |
| 573 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00011 | ***26.3*** |
| 573 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00012 | ***24.0*** |
| 573 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00013 | ***25.2*** |
| 573 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00014 | ***25.2*** |
| 573 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00015 | ***30.5*** |
| 573 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00016 | ***28.1*** |
| 573 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00017 | ***27.8*** |
| 573 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00018 | ***46.5*** |
| 573 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00019 | ***30.1*** |
| 573 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00020 | ***32.9*** |
| 610 (2) | 02 | FL1 | B0001 | C01 | 0.00 | 00001 | ***1053.1*** |
| 610 (2) | 02 | FL1 | B0001 | C01 | 0.00 | 00002 | ***1288.2*** |
| 610 (2) | 02 | FL1 | B0001 | C01 | 0.00 | 00003 | ***980.9*** |
| 610 (2) | 02 | FL1 | B0001 | C01 | 0.00 | 00004 | ***1223.7*** |
| 610 (2) | 02 | FL1 | B0001 | C01 | 0.00 | 00005 | ***3863.3*** |
| 610 (2) | 02 | FL1 | B0001 | C01 | 0.00 | 00006 | 2607.8 |
| 610 (2) | 02 | FL1 | B0001 | C01 | 0.00 | 00007 | ***639.5*** |
| 610 (2) | 02 | FL1 | B0001 | C01 | 0.00 | 00008 | ***540.0*** |
| 610 (2) | 03 | FL1 | B0001 | C01 | 0.00 | 00001 | ***3705.1*** |
| 610 (2) | 03 | FL1 | B0001 | C01 | 0.00 | 00002 | ***3763.6*** |
| 610 (2) | 03 | FL1 | B0001 | C01 | 0.00 | 00003 | ***4487.1*** |
| 610 (2) | 03 | FL1 | B0001 | C01 | 0.00 | 00004 | ***7274.6*** |
| 610 (2) | 04 | FL1 | B0001 | C01 | 0.00 | 00001 | ***1973.8*** |
| 610 (2) | 04 | FL1 | B0001 | C01 | 0.00 | 00002 | ***3763.4*** |
| 610 (2) | 04 | FL1 | B9999 | C01 | 0.00 | 00003 | ***822.7*** |
| 610 (2) | 04 | FL1 | B9999 | C01 | 0.00 | 00004 | ***3473.8*** |
| 610 (2) | 04 | FL1 | B9999 | C01 | 0.00 | 00005 | ***4405.6*** |
| 610 (2) | 04 | FL1 | B9999 | C01 | 0.00 | 00006 | ***1606.8*** |
| 610 (2) | 04 | FL1 | B9999 | C01 | 0.00 | 00007 | ***1940.8*** |
| 610 (2) | 05 | FL1 | B0001 | C01 | 0.00 | 00002 | ***322.0*** |

NOTES: Exposure rates reported in net µR/hr. Count times are reported in seconds.
Underlined results did not meet the minimum required count time.
Bold values exceed 15 µR/hr.

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03/31/98 Exposure Rate Measurements

Survey Package : A1700 SURFACES & STRUCTURES
Containment Spray Building - All Elevations
Includes: Elevations 30ft, 21ft, 14ft, 12 ft., 4 ft., -6 ft and -11ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | RESULT |
|---|---|---|---|---|---|---|---|
| 610 (2) | 05 | FL1 | B0001 | C01 | 0.00 | 00003 | ***1231.0*** |
| 610 (2) | 05 | FL1 | B0001 | C01 | 0.00 | 00004 | ***248.1*** |
| 610 (2) | 05 | FL1 | B0001 | C01 | 0.00 | 00006 | ***1557.0*** |
| 610 (2) | 05 | FL1 | B0001 | C01 | 0.00 | 00008 | ***1588.5*** |
| 610 (2) | 05 | FL1 | B0001 | C01 | 0.00 | 00010 | ***306.5*** |
| 610 (2) | 05 | FL1 | B9999 | C01 | 0.00 | 00001 | ***373.7*** |
| 610 (2) | 05 | FL1 | B9999 | C01 | 0.00 | 00005 | ***3786.6*** |
| 610 (2) | 05 | FL1 | B9999 | C01 | 0.00 | 00007 | ***3498.3*** |
| 610 (2) | 05 | FL1 | B9999 | C01 | 0.00 | 00009 | ***366.3*** |
| 610 (2) | 06 | FL1 | B0001 | C01 | 0.00 | 00001 | ***1396.5*** |
| 610 (2) | 06 | FL1 | B0001 | C01 | 0.00 | 00002 | ***223.8*** |
| 610 (2) | 06 | FL1 | B0001 | C01 | 0.00 | 00003 | ***9040.8*** |
| 610 (2) | 06 | FL1 | B0001 | C01 | 0.00 | 00004 | ***2451.1*** |
| 610 (2) | 06 | FL1 | B0001 | C01 | 0.00 | 00005 | ***762.8*** |
| 610 (2) | 06 | FL1 | B0001 | C01 | 0.00 | 00006 | ***377.3*** |
| 610 (2) | 06 | FL1 | B0001 | C01 | 0.00 | 00007 | ***4162.8*** |
| 610 (2) | 06 | FL1 | B0001 | C01 | 0.00 | 00008 | ***409.1*** |
| 610 (2) | 06 | FL1 | B0001 | C01 | 0.00 | 00009 | ***8562.6*** |
| 610 (2) | 06 | FL1 | B0001 | C01 | 0.00 | 00010 | ***3497.6*** |

NOTES: Exposure rates reported in net µR/hr. Count times are reported in seconds.
Underlined results did not meet the minimum required count time.
Bold values exceed 15 µR/hr.
59 results are listed.

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# DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

03/31/98

Exposure Rate Measurements

Survey Package : A1700 SURFACES & STRUCTURES
Containment Spray Building - All Elevations
Includes: Elevations 30ft, 21ft, 14ft, 12 ft., 4 ft., -6 ft and -11ft.

| SURVEY | | M2350 | | DETECTOR | | | |
|---|---|---|---|---|---|---|---|
| DATE | FILE # | INST S/N | CAL DUE | MODEL | S/N | CAL DUE | TECHNICIAN |
| 2/9/98 | 573 (2) | 98620 | 3/20/98 | 44-2 | 129304 | 4/19/98 | DRK2986 |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | |
| 2/17/98 | 610 (2) | 098620 | 3/20/98 | 44-38 | 091090 | 7/23/98 | DRK2986 |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | |

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04/28/98

# CHARACTERIZATION SUMMARY

SURVEY PACKAGE NUMBER A1800 — SURFACES & STRUCTURES

PACKAGE DESCRIPTION — Aux Feed Pump Rm - Elevation 21 ft.

SURVEY AREA DESCRIPTION
Auxiliary Feed Pump Room

GENERAL HISTORICAL INFORMATION (Operational history, etc.)
Constructed in 1968 to house the Auxilary Feed Pump, this small room has a large diameter gravel floor and painted concrete walls and ceiling as well as a steel sliding door.

SUMMARY OF CHARACTERIZATION ACTIVITIES
Survey units were established for the areas as listed in the following Summary of Survey Units. Maps with the survey measurement locations for this package are included on the following pages.

Collected 32 direct measurements for total beta activity at the survey measurement locations indicated in the results listing report. Due to elevated background radioactivity in the survey area, a scan of a two meter area encompassing each survey measurement location was not performed. Each direct measurement for total beta activity was accompanied by a corresponding background measurement at the same location. The background was used in the calculation of net dpm/100cm².

Collected smear samples to analyze for removable alpha and beta activity at the same 32 survey locations as the direct measurements for total beta activity.

Collected one meter exposure rate measurements at 10 survey locations indicated in the results listing report.

Collected 1 composite surface debris sample from floor surface for gamma spectral analysis.

The survey result statistical summaries, graphs and results listings are shown in the following individual reports including calibration summaries for the instruments used for each measurement type.

CHARACTERIZATION SURVEY RESULTS

o There were 3 direct measurements for total beta activity above the individual measurements' MDA (Maximum MDA was 2,019 dpm/100cm²). There were no direct measurements for total beta activity above 2000 dpm/100cm².

o There were no measurements for removable beta activity above MDA (37 dpm/100cm²).

o There were no measurements for removable alpha activity above MDA (7 dpm/100cm²).

o The average and maximum exposure rate measurement results were 19 µR/hr and 35 µR/hr, respectively.

o The sample analyzed by gamma spectroscopy indicated plant-derived radionuclide activity above MDA. The analysis of the sample indicated the presence of Co-60 and Cs-137.

REFERENCES (Documents, Interviews)

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# SUMMARY OF SURVEY UNIT(S)

03/29/98 OUTPUT BATCH SN = 275

**PACKAGE** A1800 SURFACES & STRUCTURES
Aux Feed Pump Rm - Elevation 21 ft.

| UNIT(S) | SURFACE(S) |
|---|---|
| 01 - Aux Feed Pump Rm | CL1 (Ceiling)<br>EQ1 (Plant Equipment (exterior))<br>FL1 (Floor Surface)<br>WS1 (Wall Surface (interior)) |

**REASON(S)** CHARACTERIZATION SURVEY (C01)

**MATERIALS**

| MAT'L CODE | MATERIAL DESCRIPTION | BETA BKGD (dpm/100 cm²) |
|---|---|---|
| B0001 | CONCRETE - PAINTED (INTERIOR) | 478.0 |
| B0031 | METAL - BARE | 0.0 |
| B0036 | METAL - PAINTED | 0.0 |
| B9999 | OTHER | 0.0 |

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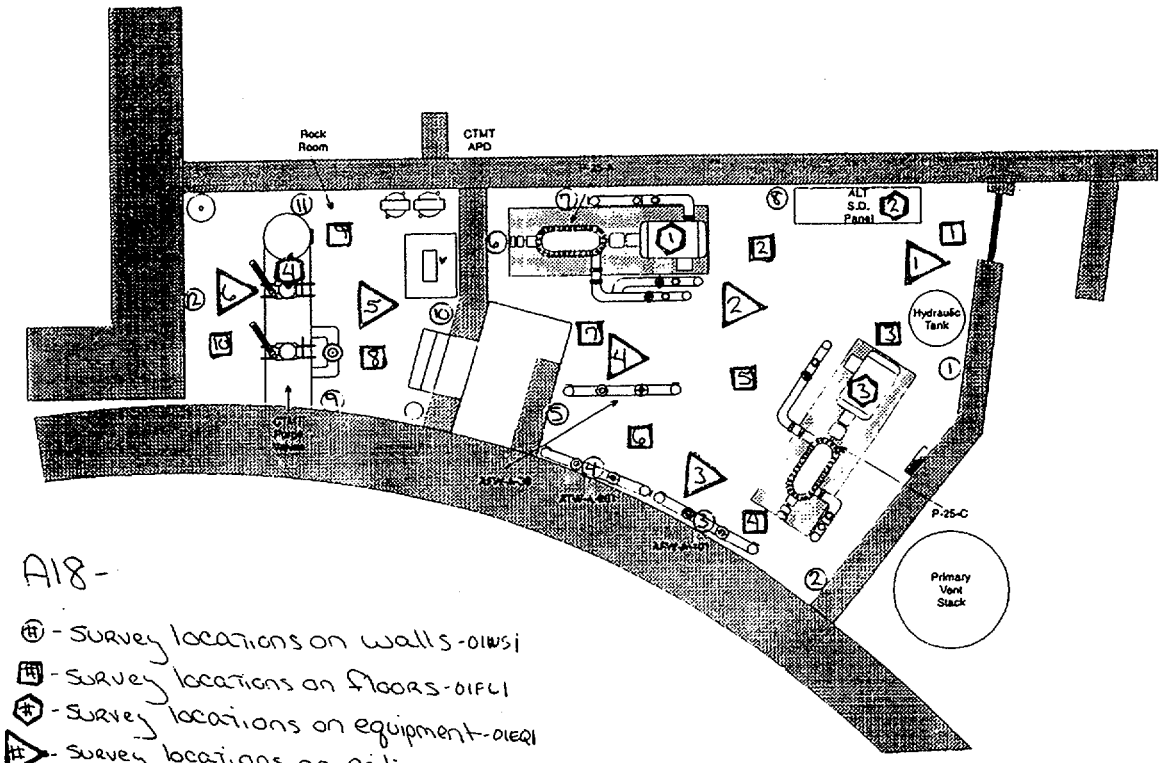
# Auxiliary Feed Pump Room



Maine Yankee Atomic Power Plant Site Characterization

04/02/98

## Direct Measurements For Total Beta Activity

Survey Package A1800 SURFACES & STRUCTURES
Aux Feed Pump Rm - Elevation 21 ft.

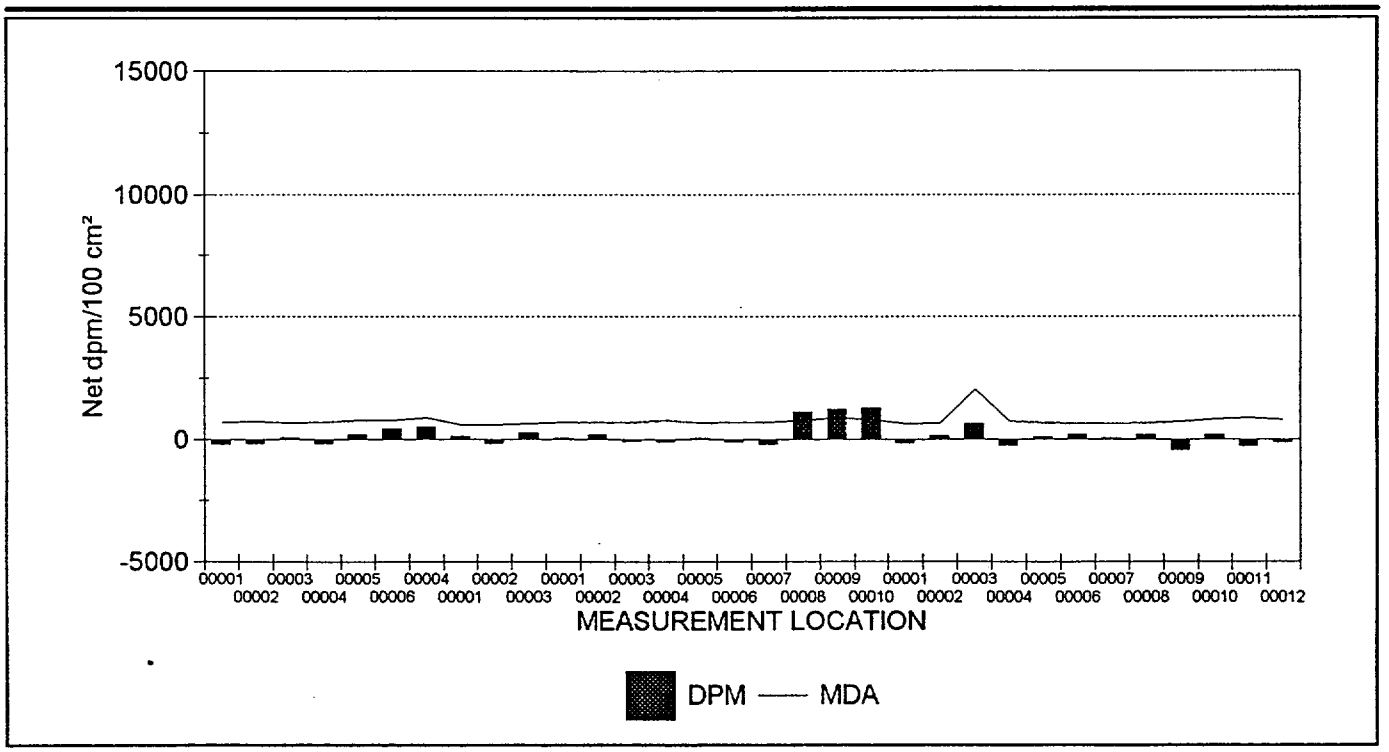
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | 147.5 |
| Maximum | 1,278.4 |
| Minimum | -446.2 |
| Standard Deviation | 422.4 |
| MDA | 2,018.6 |

| | |
|---|---|
| Samples Reported | 32 |
| Samples Prescribed | 32 |

### TESTS PERFORMED

| | |
|---|---|
| Samples reported satisfy samples prescribed | YES |
| MDA <2000 net dpm/100 cm² | NO |
| Results above 2000 net dpm/100 cm² | 0 |
| Number of results above MDA | 3 |




32 RESULTS ARE GRAPHED

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04/02/98

## Direct Measurements For Total Beta Activity

Survey Package : A1800 SURFACES & STRUCTURES
Aux Feed Pump Rm - Elevation 21 ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | MDA | RESULT |
|---|---|---|---|---|---|---|---|---|
| 519 (2) | 01 | CL1 | B0001 | C01 | 10 | 00001 | 715.7 | -196.1 |
| 519 (2) | 01 | CL1 | B0001 | C01 | 10 | 00002 | 722.1 | -176.3 |
| 519 (2) | 01 | CL1 | B0001 | C01 | 10 | 00003 | 681.8 | 89.7 |
| 519 (2) | 01 | CL1 | B0001 | C01 | 10 | 00004 | 698.0 | -192.1 |
| 519 (2) | 01 | CL1 | B0001 | C01 | 10 | 00005 | 791.1 | 220.8 |
| 519 (2) | 01 | CL1 | B0001 | C01 | 10 | 00006 | 791.9 | 455.0 |
| 519 (2) | 01 | EQ1 | B0031 | C01 | 10 | 00004 | 872.8 | 520.1 |
| 519 (2) | 01 | EQ1 | B0036 | C01 | 10 | 00001 | 602.2 | 135.0 |
| 519 (2) | 01 | EQ1 | B0036 | C01 | 10 | 00002 | 587.5 | -170.7 |
| 519 (2) | 01 | EQ1 | B0036 | C01 | 10 | 00003 | 663.1 | 285.9 |
| 519 (2) | 01 | FL1 | B0001 | C01 | 10 | 00001 | 700.8 | 58.0 |
| 519 (2) | 01 | FL1 | B0001 | C01 | 10 | 00002 | 696.1 | 220.8 |
| 519 (2) | 01 | FL1 | B0001 | C01 | 10 | 00003 | 702.7 | -69.1 |
| 519 (2) | 01 | FL1 | B0001 | C01 | 10 | 00004 | 781.2 | -112.7 |
| 519 (2) | 01 | FL1 | B0001 | C01 | 10 | 00005 | 680.8 | 46.1 |
| 519 (2) | 01 | FL1 | B0001 | C01 | 10 | 00006 | 708.3 | -92.9 |
| 519 (2) | 01 | FL1 | B0001 | C01 | 10 | 00007 | 709.2 | -216.0 |
| 519 (2) | 01 | FL1 | B9999 | C01 | 10 | 00008 | 778.7 | 1,115.6 |
| 519 (2) | 01 | FL1 | B9999 | C01 | 10 | 00009 | 880.2 | 1,218.8 |
| 519 (2) | 01 | FL1 | B9999 | C01 | 10 | 00010 | 809.0 | 1,278.4 |
| 519 (2) | 01 | WS1 | B0001 | C01 | 10 | 00001 | 641.8 | -156.4 |
| 519 (2) | 01 | WS1 | B0001 | C01 | 10 | 00002 | 667.1 | 149.3 |
| 519 (2) | 01 | WS1 | B0001 | C01 | 10 | 00003 | 2,018.6 | 645.6 |
| 519 (2) | 01 | WS1 | B0001 | C01 | 10 | 00004 | 754.9 | -251.7 |
| 519 (2) | 01 | WS1 | B0001 | C01 | 10 | 00005 | 666.1 | 105.6 |
| 519 (2) | 01 | WS1 | B0001 | C01 | 10 | 00006 | 645.9 | 208.8 |
| 519 (2) | 01 | WS1 | B0001 | C01 | 10 | 00007 | 653.1 | 61.9 |
| 519 (2) | 01 | WS1 | B0001 | C01 | 10 | 00008 | 664.1 | 208.8 |
| 519 (2) | 01 | WS1 | B0001 | C01 | 10 | 00009 | 718.4 | -446.2 |
| 519 (2) | 01 | WS1 | B0001 | C01 | 10 | 00010 | 829.5 | 196.9 |
| 519 (2) | 01 | WS1 | B0001 | C01 | 10 | 00011 | 885.3 | -287.4 |
| 519 (2) | 01 | WS1 | B0001 | C01 | 10 | 00012 | 814.6 | -132.6 |

NOTES: Activity reported in net dpm/100 cm². Count times are reported in seconds.
Underlined values exceed the MDA.
Bold values exceed 2000 dpm/100 cm².
32 results are listed.

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Maine Yankee Atomic Power Plant Site Characterization

# DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

04/02/98 Direct Measurements For Total Beta Activity

Survey Package : A1800 SURFACES & STRUCTURES
Aux Feed Pump Rm - Elevation 21 ft.

| SURVEY | | M2350 | | DETECTOR | | | POST | |
|---|---|---|---|---|---|---|---|---|
| DATE | FILE # | INST S/N | CAL DUE | MODEL | S/N | CAL DUE | EFF | TECHNICIAN |
| 1/30/98 | 519 (2) | 98620 | 3/20/98 | 43-106 | 128919 | 3/20/98 | .20 | DRK2986 |

CALIBRATION DATES VERIFIED AS ACCEPTABLE

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Maine Yankee Atomic Power Plant Site Characterization

03/29/98

## Removable Contamination - Gross Beta Activity

Survey Package A1800 SURFACES & STRUCTURES
Aux Feed Pump Rm - Elevation 21 ft.

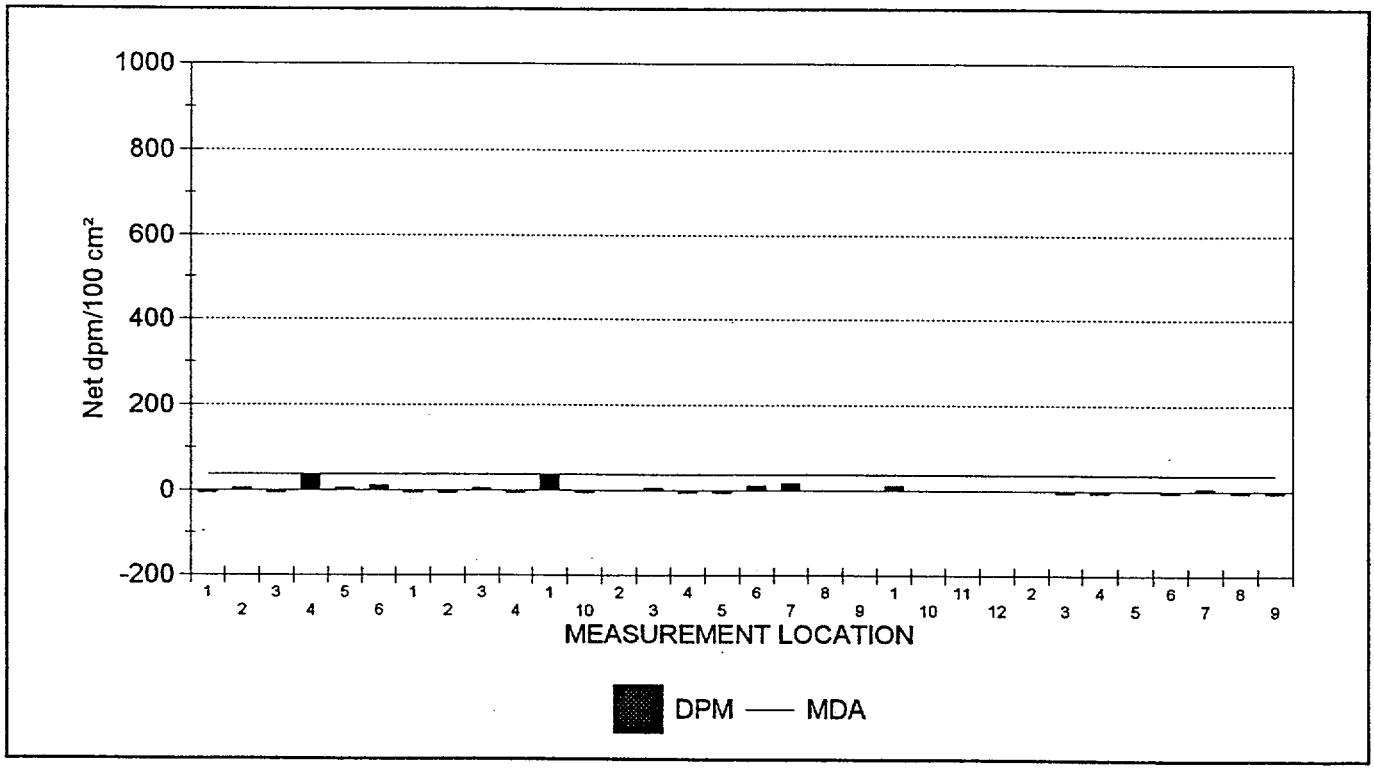
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | 2.3 |
| Maximum | 36.6 |
| Minimum | -6.3 |
| Standard Deviation | 11.3 |
| MDA | 37.3 |

| | |
|---|---|
| Samples Reported | 32 |
| Samples Prescribed | 32 |

### TESTS PERFORMED

| | |
|---|---|
| MDA <100 net dpm/100 cm² | YES |
| Results above 100 net dpm/100 cm² | 0 |
| Number of results above MDA | 0 |




32 RESULTS ARE GRAPHED

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Maine Yankee Atomic Power Plant Site Characterization

03/29/98

## Removable Contamination - Gross Alpha Activity

Survey Package A1800 SURFACES & STRUCTURES
Aux Feed Pump Rm - Elevation 21 ft.

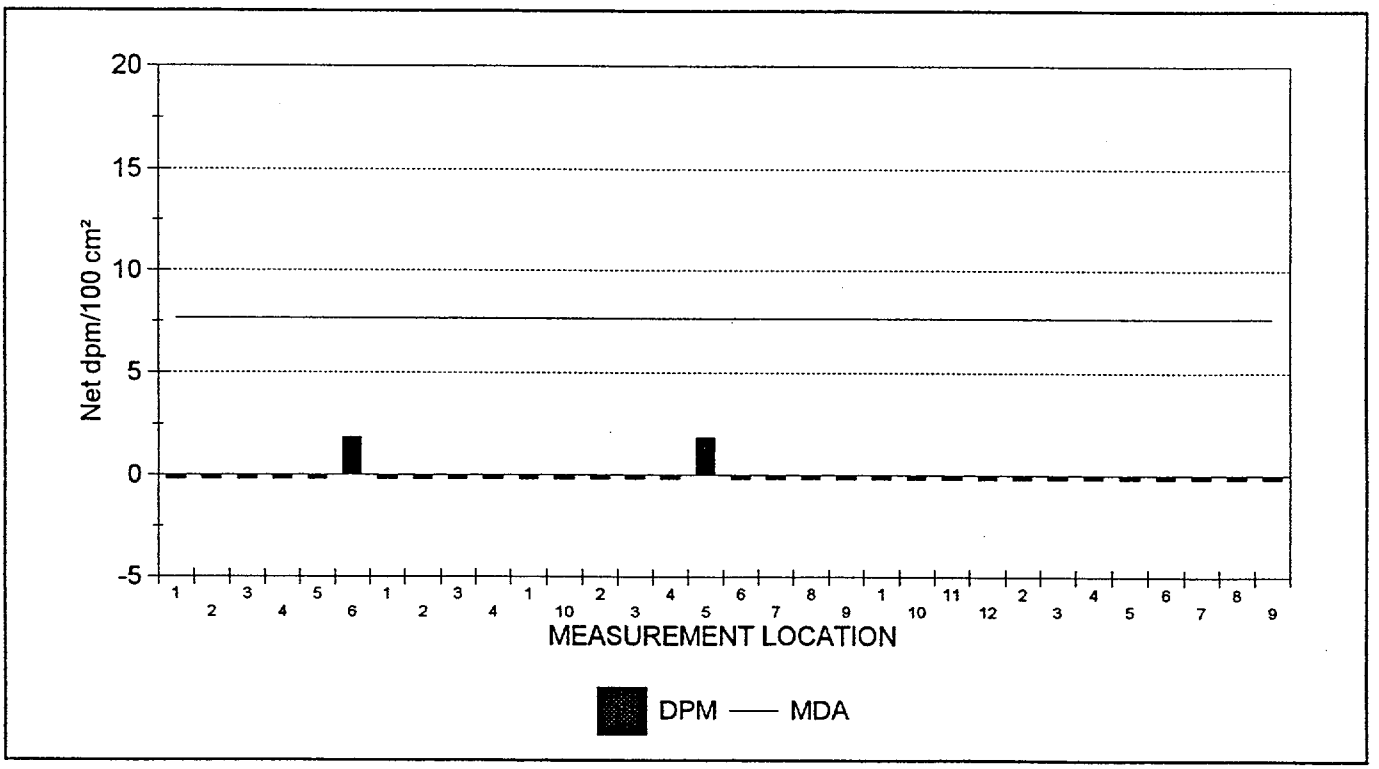
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | -0.1 |
| Maximum | 1.8 |
| Minimum | -0.2 |
| Standard Deviation | 0.5 |
| MDA | 7.7 |

| | |
|---|---|
| Samples Reported | 32 |
| Samples Prescribed | 32 |

### TESTS PERFORMED

| | |
|---|---|
| MDA <10 net dpm/100 cm² | YES |
| Results above 20 net dpm/100 cm² | 0 |
| Number of results above MDA | 0 |




32 RESULTS ARE GRAPHED

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03/29/98 Removable Contamination

Survey Package : A1800 SURFACES & STRUCTURES
Aux Feed Pump Rm - Elevation 21 ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| XLS FILE | UNIT | SURFACE | REASON | MSRMNT LOCATION | ALPHA | BETA |
|---|---|---|---|---|---|---|
| SME1E098.XLS | 01 | WS1 | C01 | 9 | -0.2 | -6.3 |
| SME1E098.XLS | 01 | WS1 | C01 | 8 | -0.2 | -6.3 |
| SME1E098.XLS | 01 | WS1 | C01 | 7 | -0.2 | 5.9 |
| SME1E098.XLS | 01 | WS1 | C01 | 6 | -0.2 | -6.3 |
| SME1E098.XLS | 01 | WS1 | C01 | 5 | -0.2 | -0.2 |
| SME1E098.XLS | 01 | WS1 | C01 | 4 | -0.2 | -6.3 |
| SME1E098.XLS | 01 | WS1 | C01 | 3 | -0.2 | -6.3 |
| SME1E098.XLS | 01 | WS1 | C01 | 2 | -0.2 | -0.2 |
| SME1E098.XLS | 01 | WS1 | C01 | 12 | -0.2 | -0.2 |
| SME1E098.XLS | 01 | WS1 | C01 | 11 | -0.2 | -0.2 |
| SME1E098.XLS | 01 | WS1 | C01 | 10 | -0.2 | -0.2 |
| SME1E098.XLS | 01 | WS1 | C01 | 1 | -0.2 | 12.1 |
| SME1E098.XLS | 01 | FL1 | C01 | 9 | -0.2 | -0.2 |
| SME1E098.XLS | 01 | FL1 | C01 | 8 | -0.2 | -0.2 |
| SME1E098.XLS | 01 | FL1 | C01 | 7 | -0.2 | 18.2 |
| SME1E098.XLS | 01 | FL1 | C01 | 6 | -0.2 | 12.1 |
| SME1E098.XLS | 01 | FL1 | C01 | 5 | 1.8 | -6.3 |
| SME1E098.XLS | 01 | FL1 | C01 | 4 | -0.2 | -6.3 |
| SME1E098.XLS | 01 | FL1 | C01 | 3 | -0.2 | 5.9 |
| SME1E098.XLS | 01 | FL1 | C01 | 2 | -0.2 | -0.2 |
| SME1E098.XLS | 01 | FL1 | C01 | 10 | -0.2 | -6.3 |
| SME1E098.XLS | 01 | FL1 | C01 | 1 | -0.2 | 36.6 |
| SME1E098.XLS | 01 | EQ1 | C01 | 4 | -0.2 | -6.3 |
| SME1E098.XLS | 01 | EQ1 | C01 | 3 | -0.2 | 5.9 |
| SME1E098.XLS | 01 | EQ1 | C01 | 2 | -0.2 | -6.3 |
| SME1E098.XLS | 01 | EQ1 | C01 | 1 | -0.2 | -6.3 |
| SME1E098.XLS | 01 | CL1 | C01 | 6 | 1.8 | 12.1 |
| SME1E098.XLS | 01 | CL1 | C01 | 5 | -0.2 | 5.9 |
| SME1E098.XLS | 01 | CL1 | C01 | 4 | -0.2 | 36.6 |
| SME1E098.XLS | 01 | CL1 | C01 | 3 | -0.2 | -6.3 |
| SME1E098.XLS | 01 | CL1 | C01 | 2 | -0.2 | 5.9 |
| SME1E098.XLS | 01 | CL1 | C01 | 1 | -0.2 | -6.3 |

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 100.00 dpm/100 cm² (beta activity) and/or 20.00 dpm/100 cm² (alpha activity).
32 results are listed.

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# DATAFILE & TENNELEC CALIBRATION SUMMARY

03/29/98

Removable Contamination

Survey Package : A1800 SURFACES & STRUCTURES
Aux Feed Pump Rm - Elevation 21 ft.

| SURVEYDATE | XLS FILE | INST ID | S/N | CAL DUE | LAB TECHNICIAN |
|---|---|---|---|---|---|
| 3/13/98 | SME1E098.XLS | 1 | 15632 | 8/5/98 | JWD |
| | | | | CALIBRATION DATE VERIFIED AS ACCEPTABLE | |

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Maine Yankee Atomic Power Plant Site Characterization

03/29/98

## Exposure Rate Measurements

Survey Package A1800 SURFACES & STRUCTURES
Aux Feed Pump Rm - Elevation 21 ft.

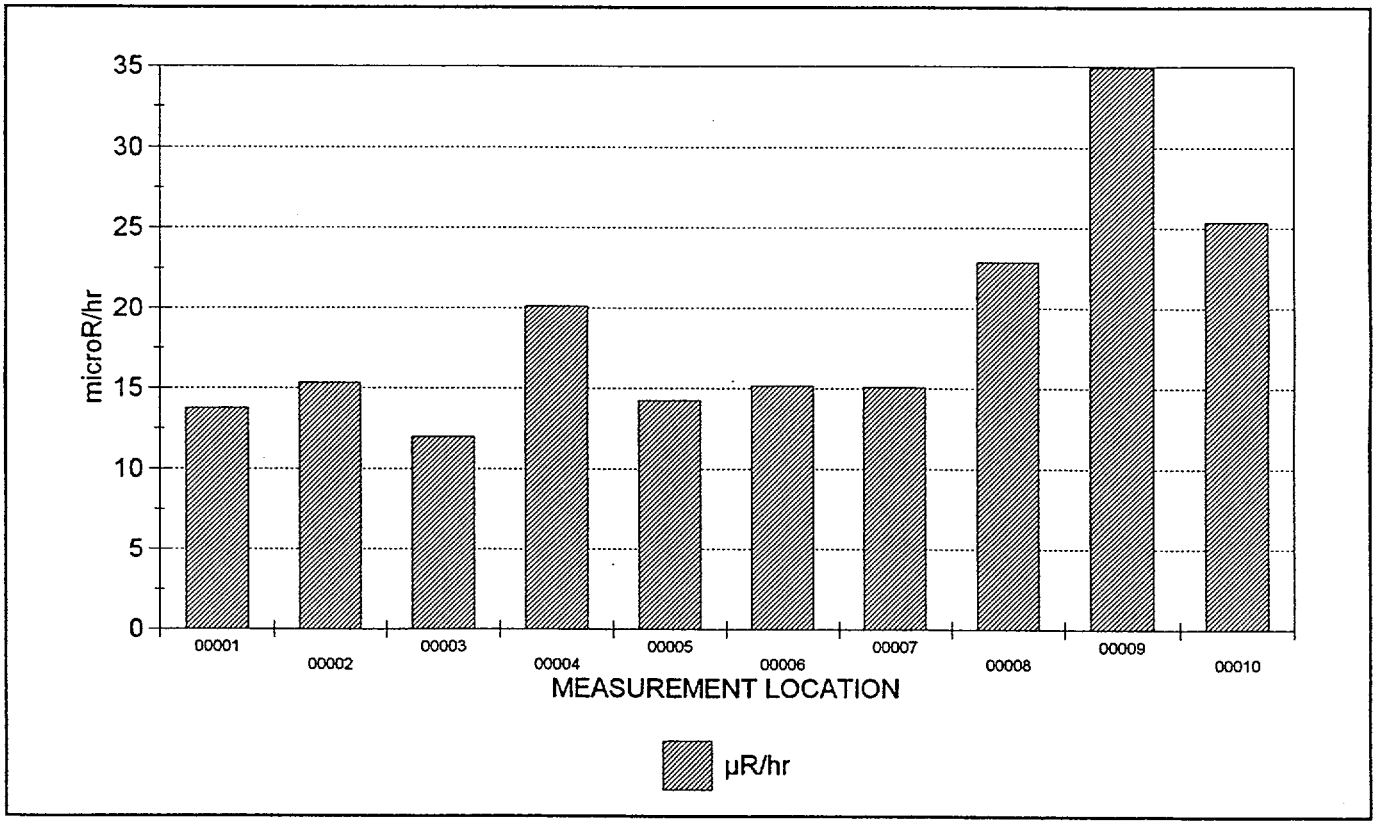
### STATISTICAL SUMMARY

| | µR/hr |
|---|---|
| Mean | 18.9 |
| Maximum | 34.9 |
| Minimum | 12.0 |
| Standard Deviation | 7.1 |

| | |
|---|---|
| Samples Reported | 10 |
| Samples Prescribed | 10 |

### TESTS PERFORMED

| | |
|---|---|
| Samples reported satisfy samples prescribed | YES |




10 RESULTS ARE GRAPHED

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03/29/98

## Exposure Rate Measurements

Survey Package : A1800 SURFACES & STRUCTURES
Aux Feed Pump Rm - Elevation 21 ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | RESULT |
|---|---|---|---|---|---|---|---|
| 521 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00001 | 13.8 |
| 521 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00002 | ***15.3*** |
| 521 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00003 | 12.0 |
| 521 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00004 | ***20.1*** |
| 521 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00005 | 14.3 |
| 521 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00006 | ***15.1*** |
| 521 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00007 | ***15.1*** |
| 521 (2) | 01 | FL1 | B9999 | C01 | 60.00 | 00008 | ***22.9*** |
| 521 (2) | 01 | FL1 | B9999 | C01 | 60.00 | 00009 | ***34.9*** |
| 521 (2) | 01 | FL1 | B9999 | C01 | 60.00 | 00010 | ***25.4*** |

NOTES: Exposure rates reported in net µR/hr. Count times are reported in seconds.
Underlined results did not meet the minimum required count time.
Bold values exceed 15 µR/hr.
10 results are listed.

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# DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

03/29/98 Exposure Rate Measurements

Survey Package : A1800 SURFACES & STRUCTURES
Aux Feed Pump Rm - Elevation 21 ft.

| SURVEY | | M2350 | | DETECTOR | | | |
|---|---|---|---|---|---|---|---|
| DATE | FILE # | INST S/N | CAL DUE | MODEL | S/N | CAL DUE | TECHNICIAN |
| 1/30/98 | 521 (2) | 126201 | 4/15/98 | 44-2 | 129300 | 5/12/98 | BSM0490 |

CALIBRATION DATES VERIFIED AS ACCEPTABLE

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Maine Yankee Atomic Power Plant Site Characterization

# GAMMA SPECTRAL ANALYSIS RESULTS LISTING

NUMBER OF SAMPLES REPORTED =1

04/28/98 OUTPUT BATCH SN = 211

Survey Package A1800 SURFACES & STRUCTURES
Aux Feed Pump Rm - Elevation 21 ft.

UNIT : 01 SURFACE : FL1 REASON : C01 ANALYSIS TYPE CODE : LAB06

SAMPLE TYPE OR SURFACE SAMPLED: Surface Code description not located
SAMPLE LOCATOR: 00001

| LAB ID | SPECTRUM | MASS (grams) | COUNT TIME (seconds) | NUCLIDE | ACTIVITY (pCi/g) | MDA (pCi/g) | ERROR (± pCi/g) |
|---|---|---|---|---|---|---|---|
| MYX19 | ENV00352 | 1.00 | 1200 | Co-57 | < 134.00 | 134.00 | 0.00 |
| | | | | Co-60 | 215.00 | 129.00 | 89.30 |
| | | | | Cs-134 | < 162.00 | 162.00 | 0.00 |
| | | | | Cs-137 | 921.00 | 145.00 | 138.00 |
| | | | | K-40 | 46200.00 | 967.00 | ,160.00 |
| | | | | Mn-54 | < 123.00 | 123.00 | 0.00 |

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# CHARACTERIZATION SUMMARY

04/02/98

SURVEY PACKAGE NUMBER A1900

SURFACES & STRUCTURES

PACKAGE DESCRIPTION

HV-9 Area - Elevation 21 ft.

SURVEY AREA DESCRIPTION

HV-9 Area

GENERAL HISTORICAL INFORMATION (Operational history, etc.)

Constructed in 1968, the HV-9 structure has painted concrete floor and walls, and corrugated metal ceiling. It contains the condensate return pit (approximately 9m deep).

SUMMARY OF CHARACTERIZATION ACTIVITIES

Survey units were established for the areas as listed in the following Summary of Survey Units. Maps with the survey measurement locations for this package are included on the following pages.

Collected 60 direct measurements for total beta activity at the survey measurement locations indicated in the results listing report. Due to elevated background radioactivity in the survey area, a scan of a two meter area encompassing each survey measurement location was not performed. Each direct measurement for total beta activity was accompanied by a corresponding background measurement at the same location. The background was used in the calculation of net dpm/100cm².

Collected smear samples to analyze for removable alpha and beta activity at the same 60 survey locations as the direct measurements for total beta activity.

Collected one meter exposure rate measurements at 15 survey locations indicated in the results listing report.

The survey result statistical summaries, graphs and results listings are shown in the following individual reports including calibration summaries for the instruments used for each measurement type.

CHARACTERIZATION SURVEY RESULTS

o There were 1 direct measurements for total beta activity above 2000 dpm/100cm². There were 2 direct measurements for total beta activity above the individual measurements' MDA (Maximum MDA was 6,318 dpm/100cm²). The maximum measurement result was 2,563 dpm/100cm².

o There were no measurements for removable beta activity above MDA (36 dpm/100cm²).

o There were no measurements for removable alpha activity above MDA (8 dpm/100cm²).

o The average and maximum exposure rate measurement results were 91 µR/hr and 183 µR/hr, respectively.

REFERENCES (Documents, Interviews)

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# SUMMARY OF SURVEY UNIT(S)

03/29/98 OUTPUT BATCH SN = 276

**PACKAGE** A1900 SURFACES & STRUCTURES
HV-9 Area - Elevation 21 ft.

| UNIT(S) | SURFACE(S) |
|---|---|
| 01 - HV-9 Area | CL1 (Ceiling)<br>EQ1 (Equipment: HV-9)<br>EQ2 (Equipment: HV-7)<br>FL1 (Floor Surface)<br>WS1 (Wall Surface (interior)) |

**REASON(S)** CHARACTERIZATION SURVEY (C01)

**MATERIALS**

| MAT'L CODE | MATERIAL DESCRIPTION | BETA BKGD (dpm/100 cm²) |
|---|---|---|
| B0001 | CONCRETE - PAINTED (INTERIOR) | 478.0 |
| B0031 | METAL - BARE | 0.0 |
| B0036 | METAL - PAINTED | 0.0 |
| B9999 | OTHER | 0.0 |

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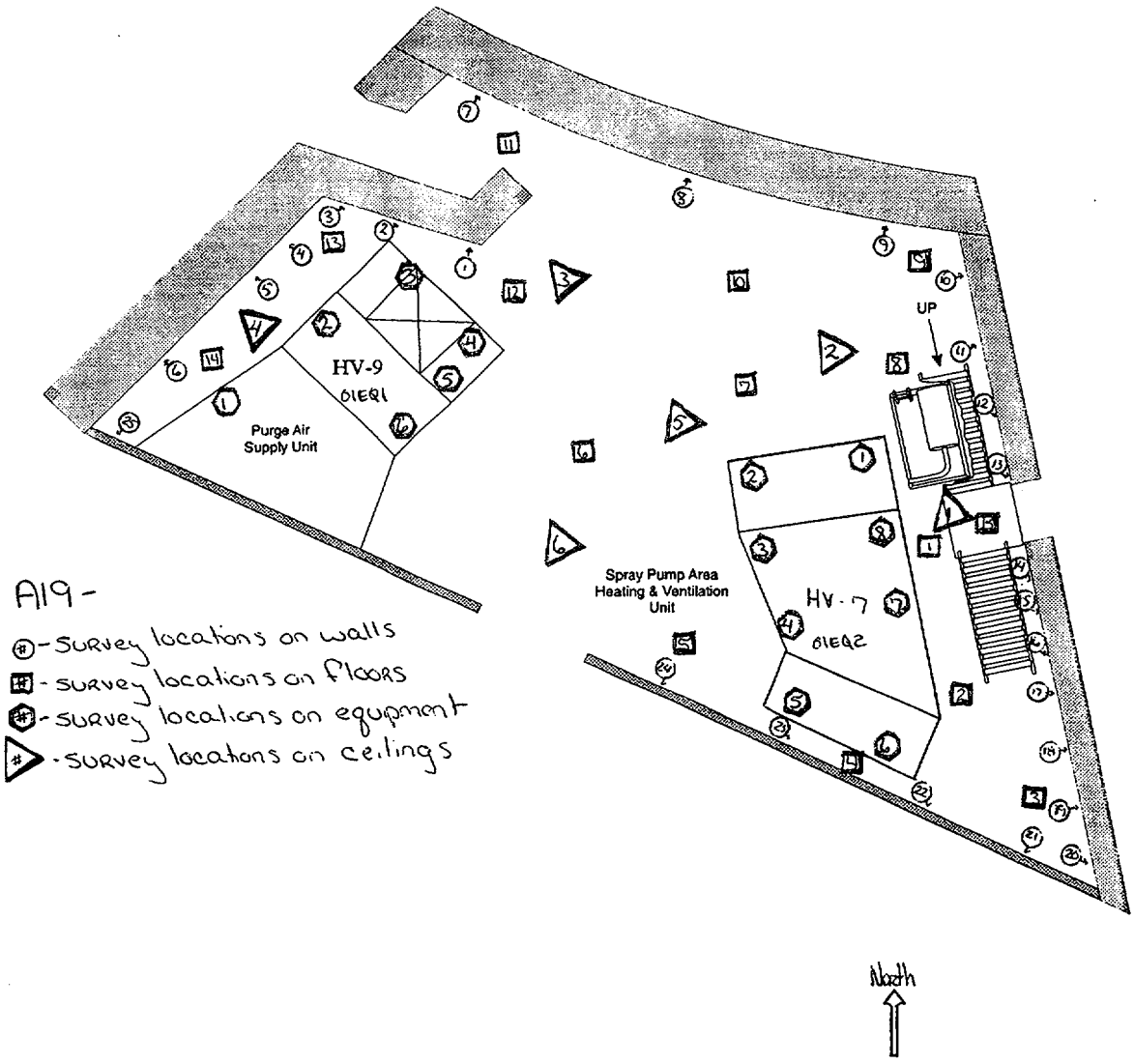
## Equipment Access Area (HV-9)




A19-

#-Survey locations on walls

#-Survey locations on floors

#-Survey locations on equipment

#-Survey locations on ceilings

Maine Yankee Atomic Power Plant Site Characterization

03/31/98

## Direct Measurements For Total Beta Activity

Survey Package A1900 SURFACES & STRUCTURES
HV-9 Area - Elevation 21 ft.

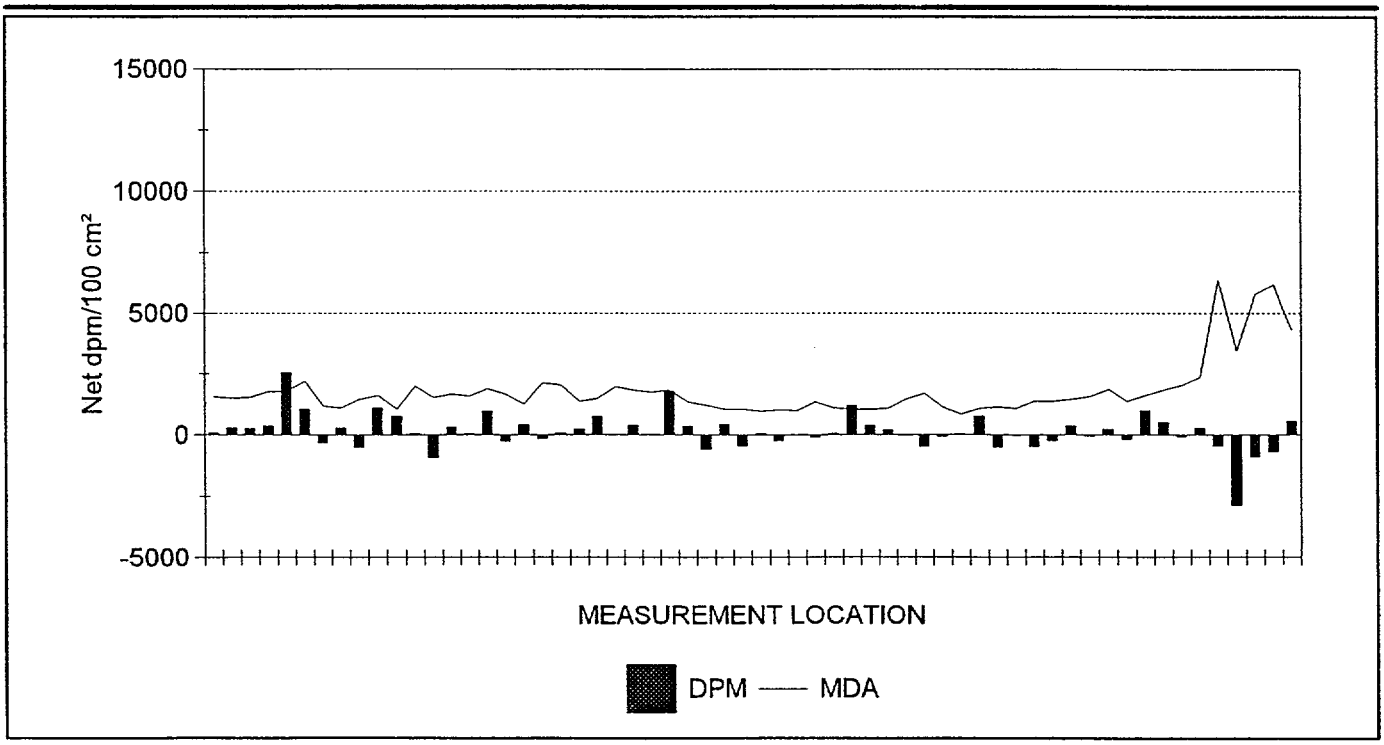
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | 130.6 |
| Maximum | 2,563.4 |
| Minimum | -2,861.2 |
| Standard Deviation | 725.3 |
| MDA | 6,318.1 |

| | |
|---|---|
| Samples Reported | 60 |
| Samples Prescribed | 60 |

### TESTS PERFORMED

| | |
|---|---|
| Samples reported satisfy samples prescribed | YES |
| MDA <2000 net dpm/100 cm² | NO |
| Results above 2000 net dpm/100 cm² | 1 |
| Number of results above MDA | 2 |




60 RESULTS ARE GRAPHED

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03/31/98

## Direct Measurements For Total Beta Activity

Survey Package : A1900 SURFACES & STRUCTURES
HV-9 Area - Elevation 21 ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | MDA | RESULT |
|---|---|---|---|---|---|---|---|---|
| 386 (2) | 01 | CL1 | B0036 | C01 | 10 | 00001 | 1,552.1 | 70.6 |
| 386 (2) | 01 | CL1 | B0036 | C01 | 10 | 00002 | 1,503.0 | 282.2 |
| 386 (2) | 01 | CL1 | B0036 | C01 | 10 | 00003 | 1,531.8 | 258.7 |
| 386 (2) | 01 | CL1 | B0036 | C01 | 10 | 00004 | 1,762.4 | 376.3 |
| 386 (2) | 01 | CL1 | B0036 | C01 | 10 | 00005 | 1,762.4 | ***2,563.5*** |
| 386 (2) | 01 | CL1 | B0036 | C01 | 10 | 00006 | 2,194.0 | 1,058.3 |
| 386 (2) | 01 | EQ1 | B0031 | C01 | 10 | 00002 | 1,190.3 | -305.7 |
| 386 (2) | 01 | EQ1 | B0031 | C01 | 10 | 00003 | 1,107.6 | 282.2 |
| 386 (2) | 01 | EQ1 | B0031 | C01 | 10 | 00004 | 1,447.8 | -493.9 |
| 386 (2) | 01 | EQ1 | B0031 | C01 | 10 | 00005 | 1,622.8 | 1,128.9 |
| 386 (2) | 01 | EQ1 | B0031 | C01 | 10 | 00006 | 1,060.6 | 776.1 |
| 386 (2) | 01 | EQ1 | B9999 | C01 | 10 | 00001 | 1,987.2 | 47.0 |
| 386 (2) | 01 | EQ2 | B0031 | C01 | 10 | 00001 | 1,531.8 | -917.2 |
| 386 (2) | 01 | EQ2 | B0031 | C01 | 10 | 00002 | 1,660.7 | 305.7 |
| 386 (2) | 01 | EQ2 | B0031 | C01 | 10 | 00003 | 1,583.9 | 47.0 |
| 386 (2) | 01 | EQ2 | B0031 | C01 | 10 | 00004 | 1,871.7 | 987.8 |
| 386 (2) | 01 | EQ2 | B0031 | C01 | 10 | 00007 | 1,671.9 | -258.7 |
| 386 (2) | 01 | EQ2 | B0031 | C01 | 10 | 00008 | 1,277.3 | 423.3 |
| 386 (2) | 01 | EQ2 | B9999 | C01 | 10 | 00005 | 2,099.1 | -164.6 |
| 386 (2) | 01 | EQ2 | B9999 | C01 | 10 | 00006 | 2,024.2 | 70.6 |
| 386 (2) | 01 | FL1 | B0001 | C01 | 10 | 00001 | 1,376.8 | 227.5 |
| 386 (2) | 01 | FL1 | B0001 | C01 | 10 | 00002 | 1,490.4 | 792.0 |
| 386 (2) | 01 | FL1 | B0001 | C01 | 10 | 00003 | 1,965.3 | -7.6 |
| 386 (2) | 01 | FL1 | B0001 | C01 | 10 | 00004 | 1,817.9 | 392.2 |
| 386 (2) | 01 | FL1 | B0001 | C01 | 10 | 00005 | 1,751.8 | 15.9 |
| 386 (2) | 01 | FL1 | B0001 | C01 | 10 | 00006 | 1,834.9 | 1,779.7 |
| 386 (2) | 01 | FL1 | B0001 | C01 | 10 | 00007 | 1,363.1 | 368.6 |
| 386 (2) | 01 | FL1 | B0001 | C01 | 10 | 00008 | 1,226.9 | -572.1 |
| 386 (2) | 01 | FL1 | B0001 | C01 | 10 | 00009 | 1,066.6 | 439.2 |
| 386 (2) | 01 | FL1 | B0001 | C01 | 10 | 00010 | 1,078.5 | -454.5 |
| 386 (2) | 01 | FL1 | B0001 | C01 | 10 | 00011 | 979.2 | 62.9 |
| 386 (2) | 01 | FL1 | B0001 | C01 | 10 | 00012 | 1,030.1 | -242.8 |
| 386 (2) | 01 | FL1 | B0001 | C01 | 10 | 00013 | 1,011.4 | -7.6 |
| 386 (2) | 01 | FL1 | B0001 | C01 | 10 | 00014 | 1,349.2 | -101.7 |
| 386 (2) | 01 | FL1 | B0031 | C01 | 10 | 00015 | 1,130.3 | 47.0 |
| 386 (2) | 01 | WS1 | B0001 | C01 | 10 | 00001 | 1,078.5 | 1,215.3 |
| 386 (2) | 01 | WS1 | B0001 | C01 | 10 | 00002 | 1,072.6 | 392.2 |
| 386 (2) | 01 | WS1 | B0001 | C01 | 10 | 00003 | 1,101.8 | 204.0 |
| 386 (2) | 01 | WS1 | B0001 | C01 | 10 | 00004 | 1,452.2 | -31.2 |
| 386 (2) | 01 | WS1 | B0001 | C01 | 10 | 00005 | 1,686.7 | -478.0 |

NOTES: Activity reported in net dpm/100 cm². Count times are reported in seconds.
Underlined values exceed the MDA.
Bold values exceed 2000 dpm/100 cm².

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03/31/98

## Direct Measurements For Total Beta Activity

Survey Package : A1900 SURFACES & STRUCTURES
HV-9 Area - Elevation 21 ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | MDA | RESULT |
|---|---|---|---|---|---|---|---|---|
| 386 (2) | 01 | WS1 | B0001 | C01 | 10 | 00006 | 1,147.0 | -78.2 |
| 386 (2) | 01 | WS1 | B0001 | C01 | 10 | 00007 | 867.8 | 15.9 |
| 386 (2) | 01 | WS1 | B0001 | C01 | 10 | 00008 | 1,084.4 | 792.0 |
| 386 (2) | 01 | WS1 | B0001 | C01 | 10 | 00009 | 1,152.5 | -501.5 |
| 386 (2) | 01 | WS1 | B0001 | C01 | 10 | 00010 | 1,090.2 | -31.2 |
| 386 (2) | 01 | WS1 | B0001 | C01 | 10 | 00011 | 1,376.8 | -478.0 |
| 386 (2) | 01 | WS1 | B0001 | C01 | 10 | 00012 | 1,376.8 | -242.8 |
| 386 (2) | 01 | WS1 | B0001 | C01 | 10 | 00013 | 1,465.0 | 368.6 |
| 386 (2) | 01 | WS1 | B0001 | C01 | 10 | 00014 | 1,564.1 | -54.7 |
| 386 (2) | 01 | WS1 | B0001 | C01 | 10 | 00015 | 1,848.4 | 227.5 |
| 386 (2) | 01 | WS1 | B0001 | C01 | 10 | 00016 | 1,376.8 | -172.3 |
| 386 (2) | 01 | WS1 | B0001 | C01 | 10 | 00017 | 1,615.1 | 1,027.1 |
| 386 (2) | 01 | WS1 | B0001 | C01 | 10 | 00018 | 1,817.9 | 509.8 |
| 386 (2) | 01 | WS1 | B0001 | C01 | 10 | 00019 | 1,999.6 | -78.2 |
| 386 (2) | 01 | WS1 | B0001 | C01 | 10 | 00020 | 2,332.8 | 274.6 |
| 398 (2) | 01 | WS1 | B0036 | C01 | 60 | 00021 | 6,318.1 | -448.8 |
| 398 (2) | 01 | WS1 | B0036 | C01 | 60 | 00022 | 3,443.5 | -2,861.2 |
| 398 (2) | 01 | WS1 | B0036 | C01 | 60 | 00023 | 5,750.5 | -897.6 |
| 398 (2) | 01 | WS1 | B0036 | C01 | 60 | 00024 | 6,138.7 | -673.2 |
| 398 (2) | 01 | WS1 | B0036 | C01 | 60 | 00025 | 4,262.7 | 561.0 |

NOTES: Activity reported in net dpm/100 cm². Count times are reported in seconds.
Underlined values exceed the MDA.
Bold values exceed 2000 dpm/100 cm².
60 results are listed.

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Maine Yankee Atomic Power Plant Site Characterization

# DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

03/31/98 Direct Measurements For Total Beta Activity

Survey Package : A1900 SURFACES & STRUCTURES
HV-9 Area - Elevation 21 ft.

| SURVEY | | M2350 | | DETECTOR | | | PRE | |
|---|---|---|---|---|---|---|---|---|
| DATE | FILE # | INST S/N | CAL DUE | MODEL | S/N | CAL DUE | EFF | TECHNICIAN |
| 1/14/98 | 386 (2) | 126201 | 4/15/98 | 43-106 | 133858 | 5/3/98 | .20 | BSM0490 |
| | | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | |
| 1/15/98 | 398 (2) | 98620 | 3/20/98 | 44-40 | 125861 | 3/22/98 | .11 | DRK2986 |
| | | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | |

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Maine Yankee Atomic Power Plant Site Characterization

03/29/98

## Removable Contamination - Gross Beta Activity

Survey Package A1900 SURFACES & STRUCTURES
HV-9 Area - Elevation 21 ft.

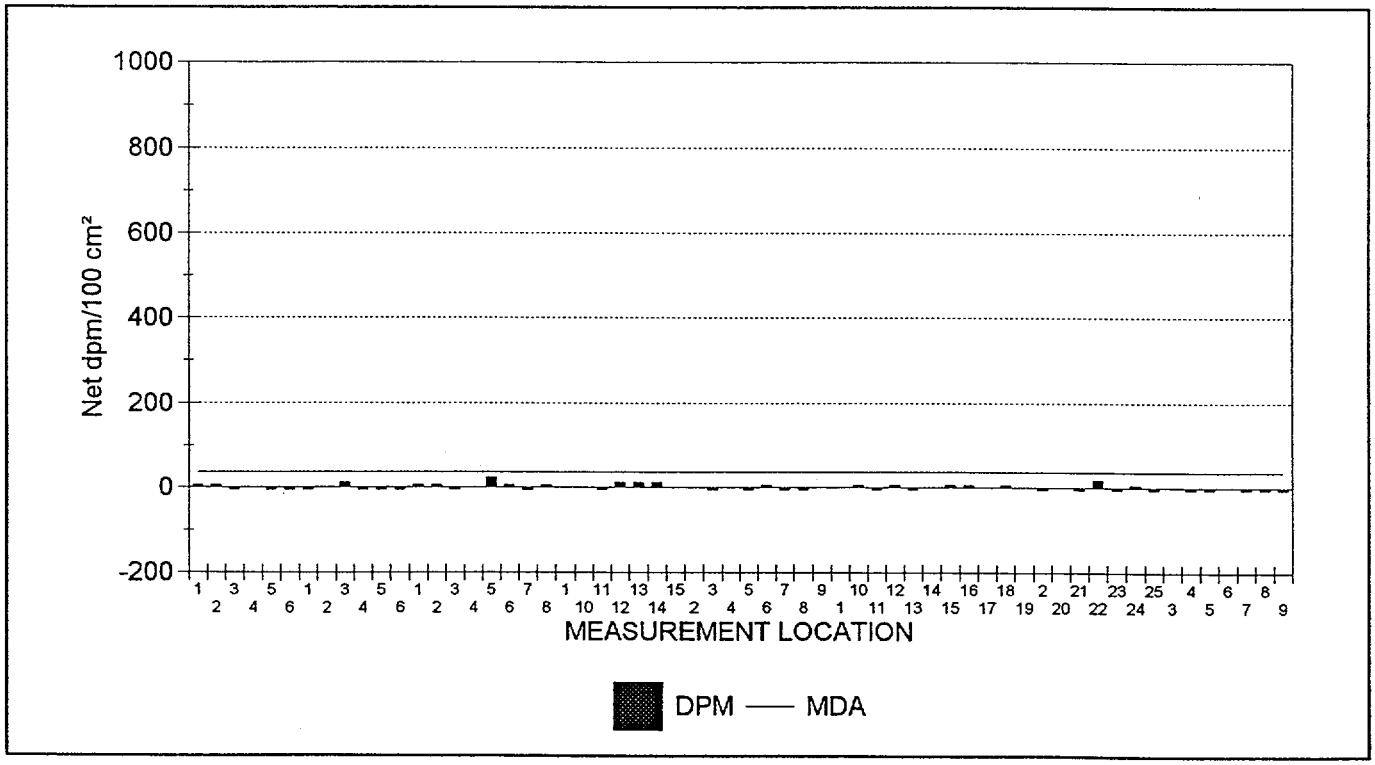
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | 0.6 |
| Maximum | 24.6 |
| Minimum | -5.8 |
| Standard Deviation | 7.0 |
| MDA | 36.1 |

| | |
|---|---|
| Samples Reported | 60 |
| Samples Prescribed | 60 |

### TESTS PERFORMED

| | |
|---|---|
| MDA <100 net dpm/100 cm² | YES |
| Results above 100 net dpm/100 cm² | 0 |
| Number of results above MDA | 0 |




60 RESULTS ARE GRAPHED

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Maine Yankee Atomic Power Plant Site Characterization

03/29/98

## Removable Contamination - Gross Alpha Activity

Survey Package A1900 SURFACES & STRUCTURES
HV-9 Area - Elevation 21 ft.

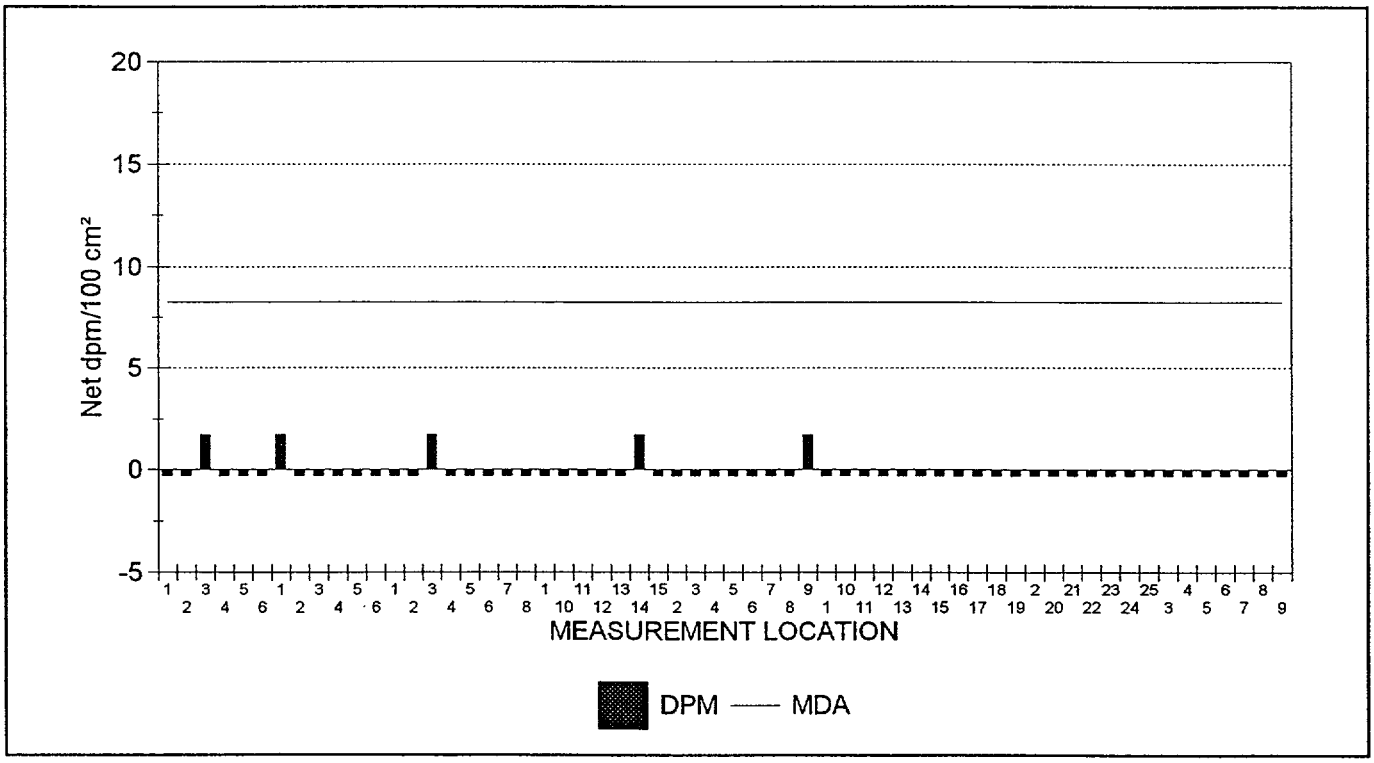
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | -0.1 |
| Maximum | 1.8 |
| Minimum | -0.3 |
| Standard Deviation | 0.6 |
| MDA | 8.2 |

| | |
|---|---|
| Samples Reported | 60 |
| Samples Prescribed | 60 |

### TESTS PERFORMED

| | |
|---|---|
| MDA <10 net dpm/100 cm² | YES |
| Results above 20 net dpm/100 cm² | 0 |
| Number of results above MDA | 0 |




60 RESULTS ARE GRAPHED

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03/29/98

Removable Contamination

Survey Package : A1900 SURFACES & STRUCTURES
HV-9 Area - Elevation 21 ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| XLS FILE | UNIT | SURFACE | REASON | MSRMNT LOCATION | ALPHA | BETA |
|---|---|---|---|---|---|---|
| SME1E081.XLS | 01 | WS1 | C01 | 9 | -0.3 | -5.8 |
| SME1E081.XLS | 01 | WS1 | C01 | 8 | -0.3 | -5.8 |
| SME1E081.XLS | 01 | WS1 | C01 | 7 | -0.3 | -5.8 |
| SME1E081.XLS | 01 | WS1 | C01 | 6 | -0.3 | 0.3 |
| SME1E081.XLS | 01 | WS1 | C01 | 5 | -0.3 | -5.8 |
| SME1E081.XLS | 01 | WS1 | C01 | 4 | -0.3 | -5.8 |
| SME1E081.XLS | 01 | WS1 | C01 | 3 | -0.3 | 0.3 |
| SME1E081.XLS | 01 | WS1 | C01 | 25 | -0.3 | -5.8 |
| SME1E081.XLS | 01 | WS1 | C01 | 24 | -0.3 | 6.4 |
| SME1E081.XLS | 01 | WS1 | C01 | 23 | -0.3 | -5.8 |
| SME1E081.XLS | 01 | WS1 | C01 | 22 | -0.3 | 18.5 |
| SME1E081.XLS | 01 | WS1 | C01 | 21 | -0.3 | -5.8 |
| SME1E081.XLS | 01 | WS1 | C01 | 20 | -0.3 | 0.3 |
| SME1E081.XLS | 01 | WS1 | C01 | 2 | -0.3 | -5.8 |
| SME1E081.XLS | 01 | WS1 | C01 | 19 | -0.3 | 0.3 |
| SME1E081.XLS | 01 | WS1 | C01 | 18 | -0.3 | 6.4 |
| SME1E081.XLS | 01 | WS1 | C01 | 17 | -0.3 | 0.3 |
| SME1E081.XLS | 01 | WS1 | C01 | 16 | -0.3 | 6.4 |
| SME1E081.XLS | 01 | WS1 | C01 | 15 | -0.3 | 6.4 |
| SME1E081.XLS | 01 | WS1 | C01 | 14 | -0.3 | 0.3 |
| SME1E081.XLS | 01 | WS1 | C01 | 13 | -0.3 | -5.8 |
| SME1E081.XLS | 01 | WS1 | C01 | 12 | -0.3 | 6.4 |
| SME1E081.XLS | 01 | WS1 | C01 | 11 | -0.3 | -5.8 |
| SME1E081.XLS | 01 | WS1 | C01 | 10 | -0.3 | 6.4 |
| SME1E081.XLS | 01 | WS1 | C01 | 1 | -0.3 | 0.3 |
| SME1E081.XLS | 01 | FL1 | C01 | 9 | 1.7 | 0.3 |
| SME1E081.XLS | 01 | FL1 | C01 | 8 | -0.3 | -5.8 |
| SME1E081.XLS | 01 | FL1 | C01 | 7 | -0.3 | -5.8 |
| SME1E081.XLS | 01 | FL1 | C01 | 6 | -0.3 | 6.4 |
| SME1E081.XLS | 01 | FL1 | C01 | 5 | -0.3 | -5.8 |
| SME1E081.XLS | 01 | FL1 | C01 | 4 | -0.3 | 0.3 |
| SME1E081.XLS | 01 | FL1 | C01 | 3 | -0.3 | -5.8 |
| SME1E081.XLS | 01 | FL1 | C01 | 2 | -0.3 | 0.3 |
| SME1E081.XLS | 01 | FL1 | C01 | 15 | -0.3 | 0.3 |
| SME1E081.XLS | 01 | FL1 | C01 | 14 | 1.7 | 12.4 |
| SME1E081.XLS | 01 | FL1 | C01 | 13 | -0.3 | 12.4 |
| SME1E081.XLS | 01 | FL1 | C01 | 12 | -0.3 | 12.4 |
| SME1E081.XLS | 01 | FL1 | C01 | 11 | -0.3 | -5.8 |
| SME1E081.XLS | 01 | FL1 | C01 | 10 | -0.3 | 0.3 |
| SME1E081.XLS | 01 | FL1 | C01 | 1 | -0.3 | 0.3 |

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 100.00 dpm/100 cm² (beta activity) and/or 20.00 dpm/100 cm² (alpha activity).

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Maine Yankee Atomic Power Plant Site Characterization

03/29/98 Removable Contamination

Survey Package : A1900 SURFACES & STRUCTURES
HV-9 Area - Elevation 21 ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| XLS FILE | UNIT | SURFACE | REASON | MSRMNT LOCATION | ALPHA | BETA |
|---|---|---|---|---|---|---|
| SME1E081.XLS | 01 | EQ2 | C01 | 8 | -0.3 | 6.4 |
| SME1E081.XLS | 01 | EQ2 | C01 | 7 | -0.3 | -5.8 |
| SME1E081.XLS | 01 | EQ2 | C01 | 6 | -0.3 | 6.4 |
| SME1E081.XLS | 01 | EQ2 | C01 | 5 | -0.3 | 24.6 |
| SME1E081.XLS | 01 | EQ2 | C01 | 4 | -0.3 | 0.3 |
| SME1E081.XLS | 01 | EQ2 | C01 | 3 | 1.7 | -5.8 |
| SME1E081.XLS | 01 | EQ2 | C01 | 2 | -0.3 | 6.4 |
| SME1E081.XLS | 01 | EQ2 | C01 | 1 | -0.3 | 6.4 |
| SME1E081.XLS | 01 | EQ1 | C01 | 6 | -0.3 | -5.8 |
| SME1E081.XLS | 01 | EQ1 | C01 | 5 | -0.3 | -5.8 |
| SME1E081.XLS | 01 | EQ1 | C01 | 4 | -0.3 | -5.8 |
| SME1E081.XLS | 01 | EQ1 | C01 | 3 | -0.3 | 12.4 |
| SME1E081.XLS | 01 | EQ1 | C01 | 2 | -0.3 | 0.3 |
| SME1E081.XLS | 01 | EQ1 | C01 | 1 | 1.7 | -5.8 |
| SME1E081.XLS | 01 | CL1 | C01 | 6 | -0.3 | -5.8 |
| SME1E081.XLS | 01 | CL1 | C01 | 5 | -0.3 | -5.8 |
| SME1E081.XLS | 01 | CL1 | C01 | 4 | -0.3 | 0.3 |
| SME1E081.XLS | 01 | CL1 | C01 | 3 | 1.7 | -5.8 |
| SME1E081.XLS | 01 | CL1 | C01 | 2 | -0.3 | 6.4 |
| SME1E081.XLS | 01 | CL1 | C01 | 1 | -0.3 | 6.4 |

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 100.00 dpm/100 cm² (beta activity) and/or 20.00 dpm/100 cm² (alpha activity).
60 results are listed.

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Maine Yankee Atomic Power Plant Site Characterization

# DATAFILE & TENNELEC CALIBRATION SUMMARY

03/29/98

Removable Contamination

Survey Package : A1900 SURFACES & STRUCTURES
HV-9 Area - Elevation 21 ft.

| SURVEYDATE | XLS FILE | INST ID | S/N | CAL DUE | LAB TECHNICIAN |
|---|---|---|---|---|---|
| 3/9/98 | SME1E081.XLS | 1 | 15632 | 8/5/98 | JWD |
| | | | | CALIBRATION DATE VERIFIED AS ACCEPTABLE | |

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03/29/98

## Exposure Rate Measurements

Survey Package A1900 SURFACES & STRUCTURES
HV-9 Area - Elevation 21 ft.

### STATISTICAL SUMMARY

| | µR/hr |
|---|---|
| Mean | 90.6 |
| Maximum | 182.9 |
| Minimum | 45.0 |
| Standard Deviation | 45.9 |

| | |
|---|---|
| Samples Reported | 15 |
| Samples Prescribed | 15 |

### TESTS PERFORMED

| | |
|---|---|
| Samples reported satisfy samples prescribed | YES |


15 RESULTS ARE GRAPHED

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03/29/98

## Exposure Rate Measurements

Survey Package : A1900 SURFACES & STRUCTURES
HV-9 Area - Elevation 21 ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | RESULT |
|---|---|---|---|---|---|---|---|
| 609 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00001 | ***77.2*** |
| 609 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00002 | ***130.5*** |
| 609 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00003 | ***182.9*** |
| 609 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00004 | ***180.4*** |
| 609 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00005 | ***140.7*** |
| 609 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00006 | ***80.4*** |
| 609 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00007 | ***63.3*** |
| 609 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00008 | ***52.2*** |
| 609 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00009 | ***51.9*** |
| 609 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00010 | ***70.8*** |
| 609 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00011 | ***45.0*** |
| 609 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00012 | ***56.2*** |
| 609 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00013 | ***59.1*** |
| 609 (2) | 01 | FL1 | B0001 | C01 | 60.00 | 00014 | ***88.3*** |
| 609 (2) | 01 | FL1 | B0031 | C01 | 60.00 | 00015 | ***80.4*** |

NOTES: Exposure rates reported in net µR/hr. Count times are reported in seconds.
Underlined results did not meet the minimum required count time.
Bold values exceed 15 µR/hr.
15 results are listed.

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# DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

03/29/98 Exposure Rate Measurements

Survey Package : A1900 SURFACES & STRUCTURES
HV-9 Area - Elevation 21 ft.

| SURVEY | | M2350 | | DETECTOR | | | |
|---|---|---|---|---|---|---|---|
| DATE | FILE # | INST S/N | CAL DUE | MODEL | S/N | CAL DUE | TECHNICIAN |
| 2/17/98 | 609 (2) | 126201 | 4/15/98 | 44-2 | 129300 | 5/12/98 | BSM0490 |

CALIBRATION DATES VERIFIED AS ACCEPTABLE

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04/28/98

# CHARACTERIZATION SUMMARY

SURVEY PACKAGE NUMBER A2100

SURFACES & STRUCTURES

PACKAGE DESCRIPTION
Includes: RWST TK-4 and RWST Greenhouse

RWST TK-4 - Elevation 21 ft.

SURVEY AREA DESCRIPTION
Reactor Water Storage Tank TK-4 (RWST)

GENERAL HISTORICAL INFORMATION (Operational history, etc.)

The Reactor Water Storage Tank (RWST) is a 325,000 gallon tank used for the storage or reactor cavity water when the cavity is not flooded. A structural steel and fiberglass building adjacent to the tank contains piping and valves RWST Greenhouse (Greenhouse) has a sealed asphalt floor. Valves and piping in the Greenhouse are posted Radiation/Contaminated Areas. It also contains the 18,000 gallon SCAT tank. Construction is a stainless steel tank with an = 20' concrete (bioshield) base.

SUMMARY OF CHARACTERIZATION ACTIVITIES

Survey units were established for the areas as listed in the following Summary of Survey Units. Maps with the survey measurement locations for this package are included on the following pages.

Collected 46 direct measurements for total beta activity at the survey measurement locations indicated in the results listing report. Due to elevated background radioactivity in the survey area, a scan of a two meter area encompassing each survey measurement location was not performed. Each direct measurement for total beta activity was accompanied by a corresponding background measurement at the same location. The background was used in the calculation of net dpm/100cm².

Collected smear samples to analyze for removable alpha and beta activity at the same 46 survey locations as the direct measurements for total beta activity.

Collected one meter exposure rate measurements at 6 survey locations indicated in the results listing report.

Collected 2 composite surface debris samples from floor surface for gamma spectral analysis.

The survey result statistical summaries, graphs and results listings are shown in the following individual reports including calibration summaries for the instruments used for each measurement type.

CHARACTERIZATION SURVEY RESULTS

o There were 24 direct measurements for total beta activity above 2000 dpm/100cm². There were 11 direct measurements for total beta activity above the individual measurements' MDA (Maximum MDA was 21,587 dpm/100cm²). The maximum measurement result was 54,719 dpm/100cm².

o There was 1 measurement for removable beta activity above MDA (38 dpm/100cm²) and no results greater than 100 dpm/100cm². The maximum measurement result was 72.4 dpm/100cm².

o There were no measurements for removable alpha activity above MDA (8.4 dpm/100cm²).

o The average and maximum exposure rate measurement results were 0.7 mR/hr and 1.1 mR/hr, respectively.

o Of the 2 samples analyzed by gamma spectroscopy, both samples indicated plant-derived radionuclide

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activity above MDA. The analysis of the samples indicated the presence of Co-60, Cs-134 and Cs-137 in one sample and Co-60 and Cs-137 in the other.

REFERENCES (Documents, Interviews)

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# SUMMARY OF SURVEY UNIT(S)

03/29/98 OUTPUT BATCH SN = 277

**PACKAGE** A2100 SURFACES & STRUCTURES
RWST TK-4 - Elevation 21 ft.
Includes: RWST TK-4 and RWST Greenhouse

| UNIT(S) | SURFACE(S) |
|---|---|
| 01 - RWST TK-4 | WE1 (Includes Tank, Bioshield, and Base) |
| 02 - RWST Greenhouse | CL1 (Ceiling: Plastic)<br>CL2 (Ceiling: I Beams)<br>EQ1 (Equipment: Pipe and insulation (blanket, fiberglass, reflective))<br>FL1 (Floor Surface)<br>WE1 (Exterior Walls)<br>WS1 (Wall Surface (interior)) |

**REASON(S)** CHARACTERIZATION SURVEY (C01)

**MATERIALS**

| MAT'L CODE | MATERIAL DESCRIPTION | BETA BKGD (dpm/100 cm²) |
|---|---|---|
| B0016 | ASPHALT | 925.0 |
| B0031 | METAL - BARE | 0.0 |
| B0039 | CONCRETE - BARE (EXTERIOR) | 665.0 |
| B0047 | BLANKET INSULATION | 0.0 |
| B9999 | OTHER | 0.0 |

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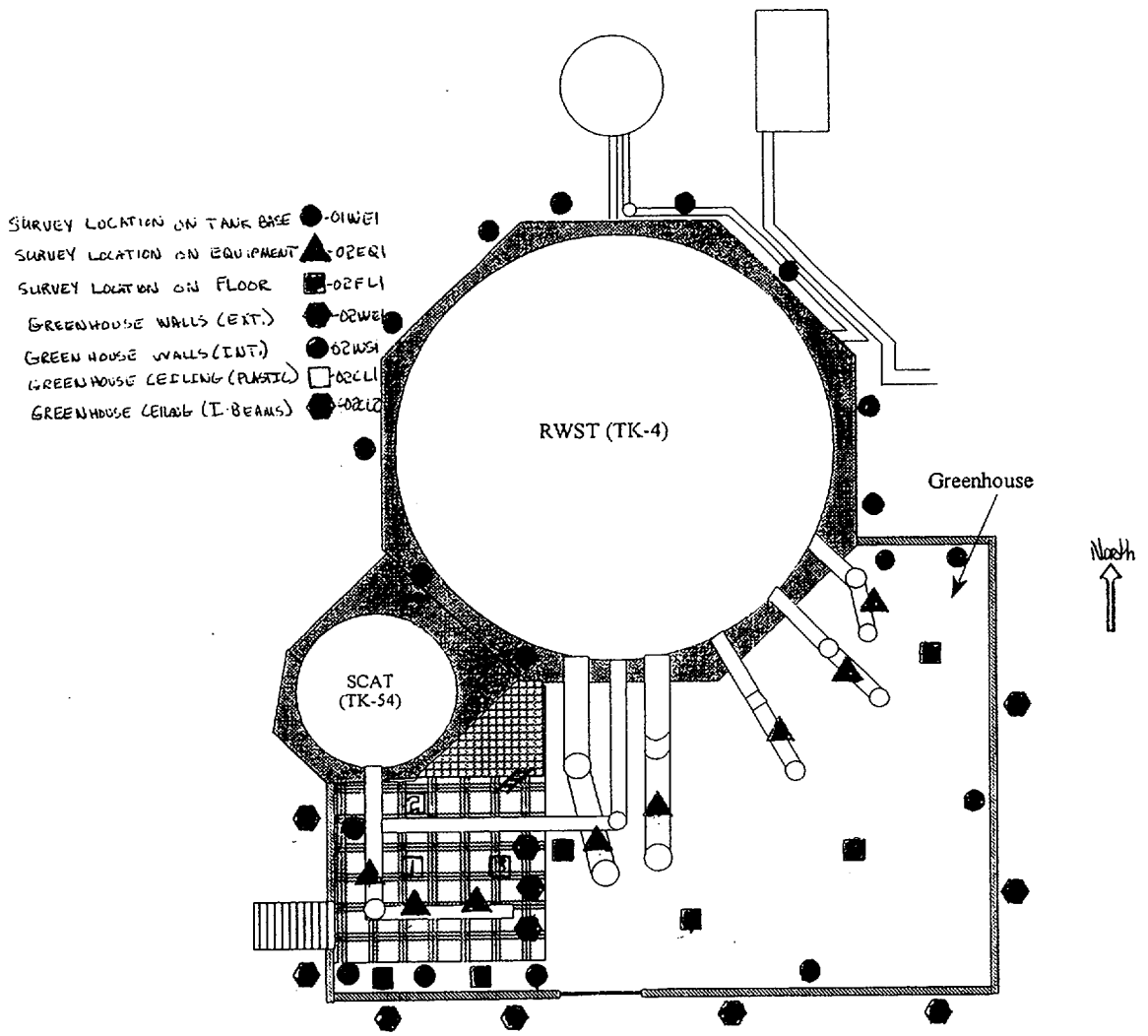
## Reactor Water Storage Tank (RWST) and Greenhouse

PACKAGE - A2100



# Maine Yankee Atomic Power Plant Site Characterization

03/31/98

## Direct Measurements For Total Beta Activity

Survey Package A2100 SURFACES & STRUCTURES
RWST TK-4 - Elevation 21 ft.
Includes: RWST TK-4 and RWST Greenhouse

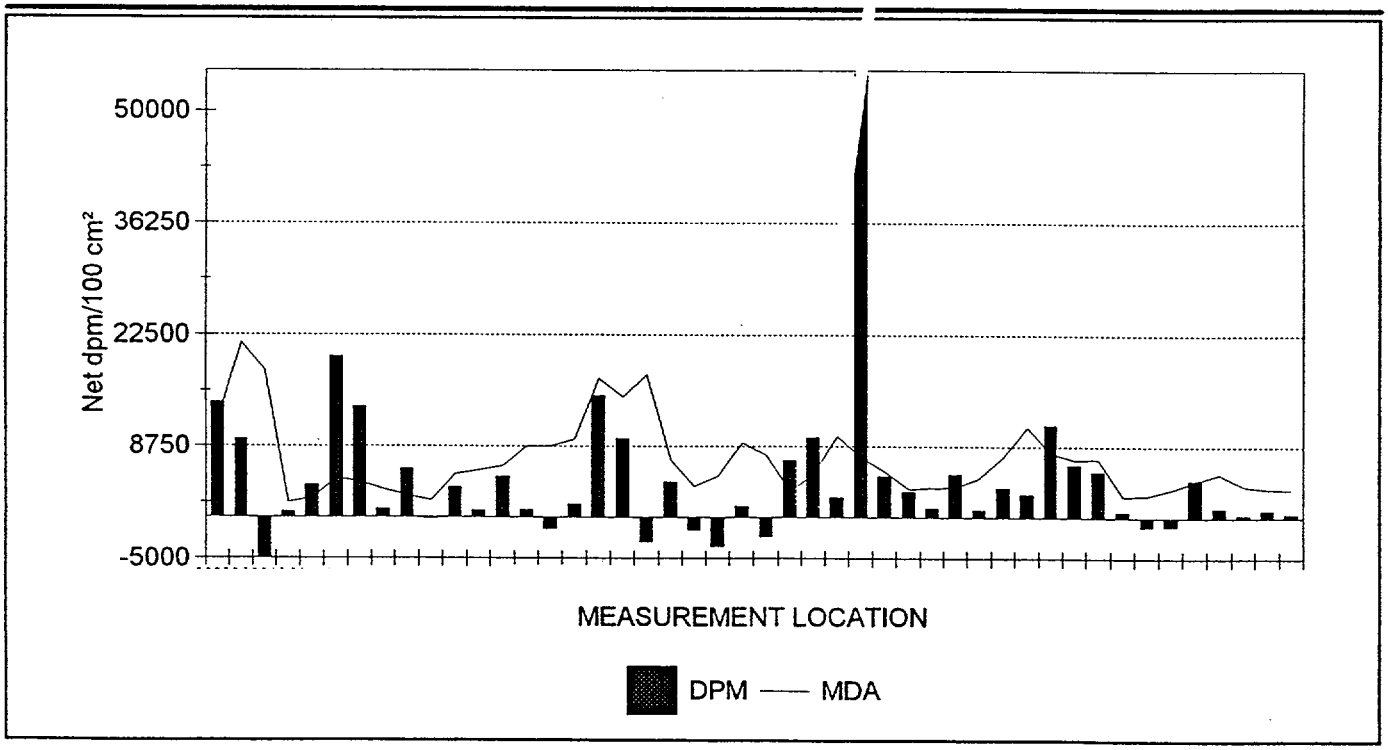
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | 3,602.4 |
| Maximum | 54,719.1 |
| Minimum | -59,883.3 |
| Standard Deviation | 13,158.9 |
| MDA | 21,586.8 |

| | |
|---|---|
| Samples Reported | 46 |
| Samples Prescribed | 46 |

### TESTS PERFORMED

| | |
|---|---|
| Samples reported satisfy samples prescribed | YES |
| MDA <2000 net dpm/100 cm² | NO |
| Results above 2000 net dpm/100 cm² | 24 |
| Number of results above MDA | 11 |




46 RESULTS ARE GRAPHED

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03/31/98

## Direct Measurements For Total Beta Activity

Survey Package : A2100 SURFACES & STRUCTURES
RWST TK-4 - Elevation 21 ft.
Includes: RWST TK-4 and RWST Greenhouse

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | MDA | RESULT |
|---|---|---|---|---|---|---|---|---|
| 576 (2) | 01 | WE1 | B0031 | C01 | 60 | 00008 | 12,180. | ***14,157.3*** |
| 576 (2) | 01 | WE1 | B0031 | C01 | 60 | 00009 | 21,586. | ***9,590.4*** |
| 576 (2) | 01 | WE1 | B0031 | C01 | 60 | 00010 | 18,155. | -59,883.2 |
| 576 (2) | 01 | WE1 | B0039 | C01 | 60 | 00001 | 1,855.4 | 705.1 |
| 576 (2) | 01 | WE1 | B0039 | C01 | 60 | 00002 | 2,439.5 | ***3,959.0*** |
| 576 (2) | 01 | WE1 | B0039 | C01 | 60 | 00003 | 4,876.2 | ***19,828.9*** |
| 576 (2) | 01 | WE1 | B0039 | C01 | 60 | 00004 | 4,396.1 | ***13,606.5*** |
| 576 (2) | 01 | WE1 | B0039 | C01 | 60 | 00005 | 3,429.3 | 1,047.6 |
| 576 (2) | 01 | WE1 | B0039 | C01 | 60 | 00006 | 2,702.3 | ***5,957.0*** |
| 576 (2) | 01 | WE1 | B0039 | C01 | 60 | 00007 | 2,106.5 | -151.2 |
| 585 (2) | 02 | CL1 | B9999 | C01 | 60 | 00001 | 5,283.5 | ***3,784.9*** |
| 585 (2) | 02 | CL1 | B9999 | C01 | 60 | 00002 | 5,765.8 | 847.4 |
| 585 (2) | 02 | CL1 | B9999 | C01 | 60 | 00003 | 6,361.9 | ***5,027.7*** |
| 585 (2) | 02 | CL2 | B0031 | C01 | 60 | 00001 | 8,718.7 | 960.4 |
| 585 (2) | 02 | CL2 | B0031 | C01 | 60 | 00002 | 8,742.8 | -1,412.3 |
| 585 (2) | 02 | CL2 | B0031 | C01 | 60 | 00003 | 9,640.9 | 1,638.3 |
| 585 (2) | 02 | EQ1 | B0031 | C01 | 60 | 00003 | 17,091. | ***15,026.7*** |
| 585 (2) | 02 | EQ1 | B0031 | C01 | 60 | 00004 | 14,811. | ***9,660.0*** |
| 585 (2) | 02 | EQ1 | B0031 | C01 | 60 | 00005 | 17,597. | -2,994.0 |
| 585 (2) | 02 | EQ1 | B0031 | C01 | 60 | 00006 | 7,027.3 | ***4,349.8*** |
| 585 (2) | 02 | EQ1 | B0047 | C01 | 60 | 00001 | 3,832.9 | -1,581.8 |
| 585 (2) | 02 | EQ1 | B0047 | C01 | 60 | 00002 | 5,112.4 | -3,502.5 |
| 585 (2) | 02 | EQ1 | B0047 | C01 | 60 | 00007 | 9,197.3 | 1,412.3 |

REMAINING RESULTS PRINTED ON NEXT PAGE

NOTES: Activity reported in net dpm/100 cm². Count times are reported in seconds.
Underlined values exceed the MDA.
Bold values exceed 2000 dpm/100 cm².

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03/31/98

## Direct Measurements For Total Beta Activity

Survey Package : A2100 SURFACES & STRUCTURES
RWST TK-4 - Elevation 21 ft.
Includes: RWST TK-4 and RWST Greenhouse

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | MDA | RESULT |
|---|---|---|---|---|---|---|---|---|
| 585 (2) | 02 | EQ1 | B0047 | C01 | 60 | 00008 | 7,624.4 | -2,316.1 |
| 585 (2) | 02 | FL1 | B0016 | C01 | 60 | 00001 | 3,195.7 | ***7,040.3*** |
| 585 (2) | 02 | FL1 | B0016 | C01 | 60 | 00002 | 5,297.0 | ***9,864.9*** |
| 585 (2) | 02 | FL1 | B0016 | C01 | 60 | 00003 | 10,026. | ***2,521.0*** |
| 585 (2) | 02 | FL1 | B0016 | C01 | 60 | 00004 | 7,384.8 | ***54,719.1*** |
| 585 (2) | 02 | FL1 | B0016 | C01 | 60 | 00005 | 5,603.5 | ***5,063.1*** |
| 585 (2) | 02 | FL1 | B0016 | C01 | 60 | 00006 | 3,477.8 | ***3,198.9*** |
| 576 (2) | 02 | WE1 | B9999 | C01 | 60 | 00001 | 3,648.2 | 1,141.7 |
| 576 (2) | 02 | WE1 | B9999 | C01 | 60 | 00002 | 3,718.2 | ***5,309.0*** |
| 576 (2) | 02 | WE1 | B9999 | C01 | 60 | 00003 | 4,876.2 | 970.5 |
| 576 (2) | 02 | WE1 | B9999 | C01 | 60 | 00004 | 7,501.1 | ***3,710.6*** |
| 576 (2) | 02 | WE1 | B9999 | C01 | 60 | 00005 | 11,064. | ***2,854.3*** |
| 576 (2) | 02 | WE1 | B9999 | C01 | 60 | 00006 | 7,957.4 | ***11,303.0*** |
| 576 (2) | 02 | WE1 | B9999 | C01 | 60 | 00007 | 7,146.8 | ***6,507.8*** |
| 576 (2) | 02 | WE1 | B9999 | C01 | 60 | 00008 | 7,182.0 | ***5,651.5*** |
| 576 (2) | 02 | WS1 | B9999 | C01 | 60 | 00001 | 2,688.4 | 742.1 |
| 576 (2) | 02 | WS1 | B9999 | C01 | 60 | 00002 | 2,729.9 | -1,084.6 |
| 576 (2) | 02 | WS1 | B9999 | C01 | 60 | 00003 | 3,503.9 | -1,027.5 |
| 576 (2) | 02 | WS1 | B9999 | C01 | 60 | 00004 | 4,527.2 | ***4,624.0*** |
| 585 (2) | 02 | WS1 | B9999 | C01 | 60 | 00005 | 5,390.2 | 1,186.3 |
| 585 (2) | 02 | WS1 | B9999 | C01 | 60 | 00006 | 3,870.2 | 282.5 |
| 585 (2) | 02 | WS1 | B9999 | C01 | 60 | 00007 | 3,590.2 | 960.4 |
| 585 (2) | 02 | WS1 | B9999 | C01 | 60 | 00008 | 3,508.8 | 451.9 |

NOTES: Activity reported in net dpm/100 cm². Count times are reported in seconds.
Underlined values exceed the MDA.
Bold values exceed 2000 dpm/100 cm².
46 results are listed.

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# DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

03/31/98 Direct Measurements For Total Beta Activity

Survey Package : A2100 SURFACES & STRUCTURES
RWST TK-4 - Elevation 21 ft.
Includes: RWST TK-4 and RWST Greenhouse

| SURVEY | | M2350 | | DETECTOR | | | PRE | |
|---|---|---|---|---|---|---|---|---|
| DATE | FILE # | INST S/N | CAL DUE | MODEL | S/N | CAL DUE | EFF | TECHNICIAN |
| 2/10/98 | 576 (2) | 126201 | 4/15/98 | 44-40 | 119455 | 4/29/98 | .11 | |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | | |
| 2/11/98 | 585 (2) | 126201 | 4/15/98 | 44-40 | 119455 | 4/29/98 | .11 | |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | | |

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DURATEK

Maine Yankee Atomic Power Plant Site Characterization

03/29/98

## Removable Contamination - Gross Beta Activity

Survey Package A2100 SURFACES & STRUCTURES
RWST TK-4 - Elevation 21 ft.
Includes: RWST TK-4 and RWST Greenhouse

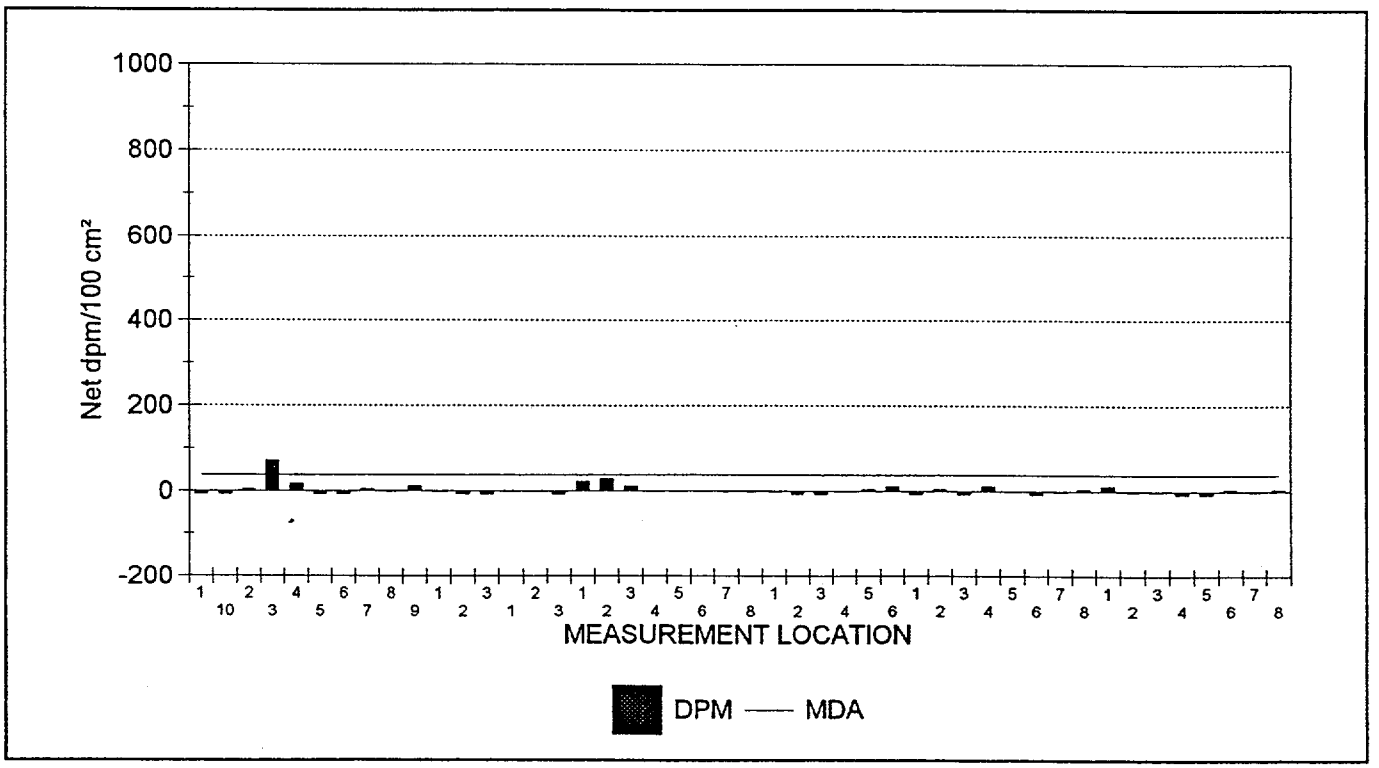
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | 2.7 |
| Maximum | 72.4 |
| Minimum | -7.0 |
| Standard Deviation | 13.5 |
| MDA | 38.3 |

| | |
|---|---|
| Samples Reported | 46 |
| Samples Prescribed | 46 |

### TESTS PERFORMED

| | |
|---|---|
| MDA <100 net dpm/100 cm² | YES |
| Results above 100 net dpm/100 cm² | 0 |
| Number of results above MDA | 1 |




46 RESULTS ARE GRAPHED

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Maine Yankee Atomic Power Plant Site Characterization

03/29/98

## Removable Contamination - Gross Alpha Activity

Survey Package A2100 SURFACES & STRUCTURES
RWST TK-4 - Elevation 21 ft.
Includes: RWST TK-4 and RWST Greenhouse

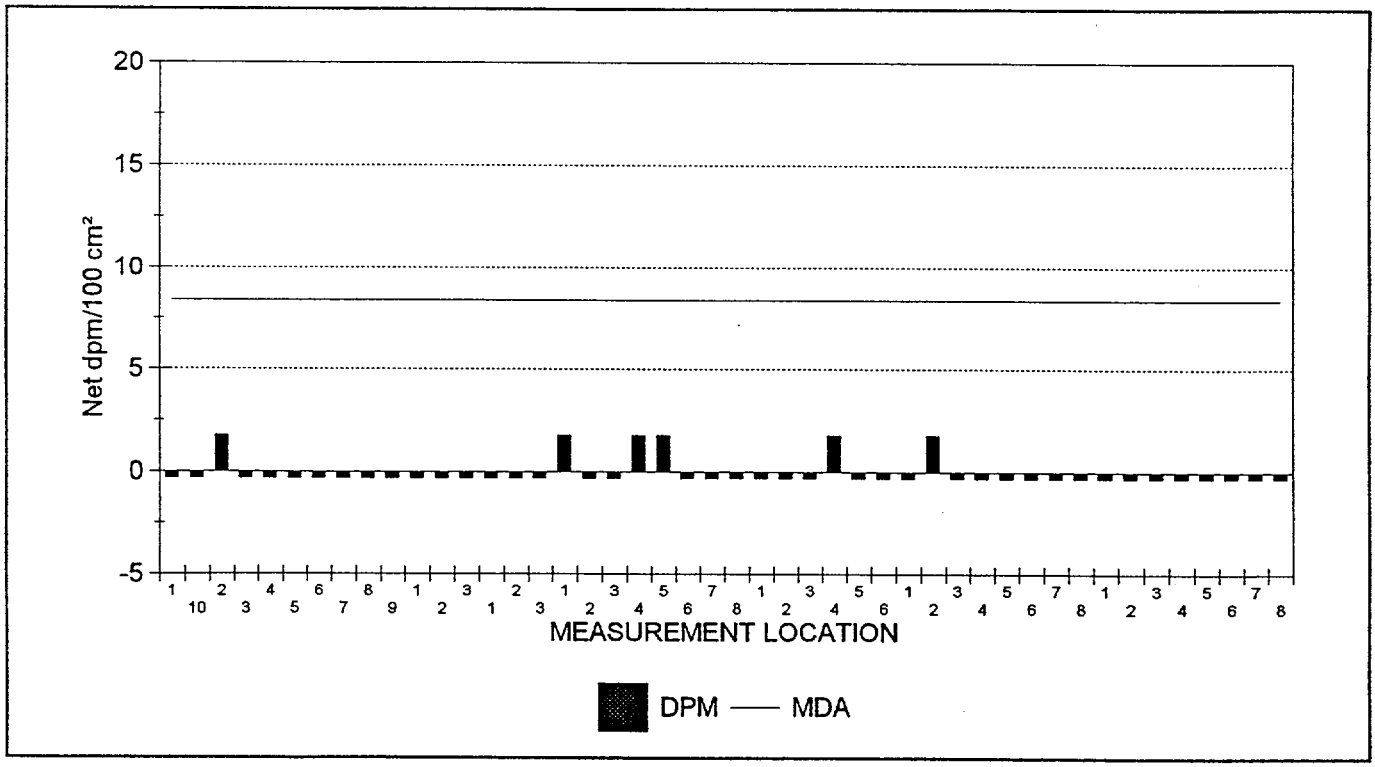
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | -0.0 |
| Maximum | 1.8 |
| Minimum | -0.3 |
| Standard Deviation | 0.7 |
| MDA | 8.4 |

| | |
|---|---|
| Samples Reported | 46 |
| Samples Prescribed | 46 |

### TESTS PERFORMED

| | |
|---|---|
| MDA <10 net dpm/100 cm² | YES |
| Results above 20 net dpm/100 cm² | 0 |
| Number of results above MDA | 0 |




46 RESULTS ARE GRAPHED

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Survey Package : A2100 SURFACES & STRUCTURES
RWST TK-4 - Elevation 21 ft.
Includes: RWST TK-4 and RWST Greenhouse

## RESULTS LISTING - SORTED BY SURFACE CODE

| XLS FILE | UNIT | SURFACE | REASON | MSRMNT LOCATION | ALPHA | BETA |
|---|---|---|---|---|---|---|
| SME1E090.XLS | 02 | WS1 | C01 | 8 | -0.3 | 5.2 |
| SME1E090.XLS | 02 | WS1 | C01 | 7 | -0.3 | -0.9 |
| SME1E090.XLS | 02 | WS1 | C01 | 6 | -0.3 | 5.2 |
| SME1E090.XLS | 02 | WS1 | C01 | 5 | -0.3 | -7.0 |
| SME1E090.XLS | 02 | WS1 | C01 | 4 | -0.3 | -7.0 |
| SME1E090.XLS | 02 | WS1 | C01 | 3 | -0.3 | -0.9 |
| SME1E090.XLS | 02 | WS1 | C01 | 2 | -0.3 | -0.9 |
| SME1E090.XLS | 02 | WS1 | C01 | 1 | -0.3 | 11.3 |
| SME1E090.XLS | 02 | WE1 | C01 | 8 | -0.3 | 5.2 |
| SME1E090.XLS | 02 | WE1 | C01 | 7 | -0.3 | -0.9 |
| SME1E090.XLS | 02 | WE1 | C01 | 6 | -0.3 | -7.0 |
| SME1E090.XLS | 02 | WE1 | C01 | 5 | -0.3 | -0.9 |
| SME1E090.XLS | 02 | WE1 | C01 | 4 | -0.3 | 11.3 |
| SME1E090.XLS | 02 | WE1 | C01 | 3 | -0.3 | -7.0 |
| SME1E090.XLS | 02 | WE1 | C01 | 2 | 1.8 | 5.2 |
| SME1E090.XLS | 02 | WE1 | C01 | 1 | -0.3 | -7.0 |
| SME1E090.XLS | 02 | FL1 | C01 | 6 | -0.3 | 11.3 |
| SME1E090.XLS | 02 | FL1 | C01 | 5 | -0.3 | 5.2 |
| SME1E090.XLS | 02 | FL1 | C01 | 4 | 1.8 | -0.9 |
| SME1E090.XLS | 02 | FL1 | C01 | 3 | -0.3 | -7.0 |
| SME1E090.XLS | 02 | FL1 | C01 | 2 | -0.3 | -7.0 |
| SME1E090.XLS | 02 | FL1 | C01 | 1 | -0.3 | -0.9 |
| SME1E090.XLS | 02 | EQ1 | C01 | 8 | -0.3 | -0.9 |

REMAINING RESULTS PRINTED ON NEXT PAGE

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 100.00 dpm/100 cm² (beta activity) and/or 20.00 dpm/100 cm² (alpha activity).

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03/29/98 Removable Contamination

Survey Package : A2100 SURFACES & STRUCTURES
RWST TK-4 - Elevation 21 ft.
Includes: RWST TK-4 and RWST Greenhouse

## RESULTS LISTING - SORTED BY SURFACE CODE

| XLS FILE | UNIT | SURFACE | REASON | MSRMNT LOCATION | ALPHA | BETA |
|---|---|---|---|---|---|---|
| SME1E090.XLS | 02 | EQ1 | C01 | 7 | -0.3 | -0.9 |
| SME1E090.XLS | 02 | EQ1 | C01 | 6 | -0.3 | -0.9 |
| SME1E090.XLS | 02 | EQ1 | C01 | 5 | 1.8 | -0.9 |
| SME1E090.XLS | 02 | EQ1 | C01 | 4 | 1.8 | -0.9 |
| SME1E090.XLS | 02 | EQ1 | C01 | 3 | -0.3 | 11.3 |
| SME1E090.XLS | 02 | EQ1 | C01 | 2 | -0.3 | 29.7 |
| SME1E090.XLS | 02 | EQ1 | C01 | 1 | 1.8 | 23.5 |
| SME1E090.XLS | 02 | CL2 | C01 | 3 | -0.3 | -7.0 |
| SME1E090.XLS | 02 | CL2 | C01 | 2 | -0.3 | -0.9 |
| SME1E090.XLS | 02 | CL2 | C01 | 1 | -0.3 | -0.9 |
| SME1E090.XLS | 02 | CL1 | C01 | 3 | -0.3 | -7.0 |
| SME1E090.XLS | 02 | CL1 | C01 | 2 | -0.3 | -7.0 |
| SME1E090.XLS | 02 | CL1 | C01 | 1 | -0.3 | -0.9 |
| SME1E090.XLS | 01 | WE1 | C01 | 9 | -0.3 | 11.3 |
| SME1E090.XLS | 01 | WE1 | C01 | 8 | -0.3 | -0.9 |
| SME1E090.XLS | 01 | WE1 | C01 | 7 | -0.3 | 5.2 |
| SME1E090.XLS | 01 | WE1 | C01 | 6 | -0.3 | -7.0 |
| SME1E090.XLS | 01 | WE1 | C01 | 5 | -0.3 | -7.0 |
| SME1E090.XLS | 01 | WE1 | C01 | 4 | -0.3 | 17.4 |
| SME1E090.XLS | 01 | WE1 | C01 | 3 | -0.3 | 72.5 |
| SME1E090.XLS | 01 | WE1 | C01 | 2 | 1.8 | 5.2 |
| SME1E090.XLS | 01 | WE1 | C01 | 10 | -0.3 | -7.0 |
| SME1E090.XLS | 01 | WE1 | C01 | 1 | -0.3 | -7.0 |

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 100.00 dpm/100 cm² (beta activity) and/or 20.00 dpm/100 cm² (alpha activity).
46 results are listed.

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# DATAFILE & TENNELEC CALIBRATION SUMMARY

03/29/98

Removable Contamination

Survey Package : A2100 SURFACES & STRUCTURES
RWST TK-4 - Elevation 21 ft.
Includes: RWST TK-4 and RWST Greenhouse

| SURVEYDATE | XLS FILE | INST ID | S/N | CAL DUE | LAB TECHNICIAN |
|---|---|---|---|---|---|
| 3/11/98 | SME1E090.XLS | 1 | 15632 | 8/5/98 | JWD |
| | | | | CALIBRATION DATE VERIFIED AS ACCEPTABLE | |

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Maine Yankee Atomic Power Plant Site Characterization

03/30/98

## Exposure Rate Measurements

Survey Package A2100 SURFACES & STRUCTURES
RWST TK-4 - Elevation 21 ft.
Includes: RWST TK-4 and RWST Greenhouse

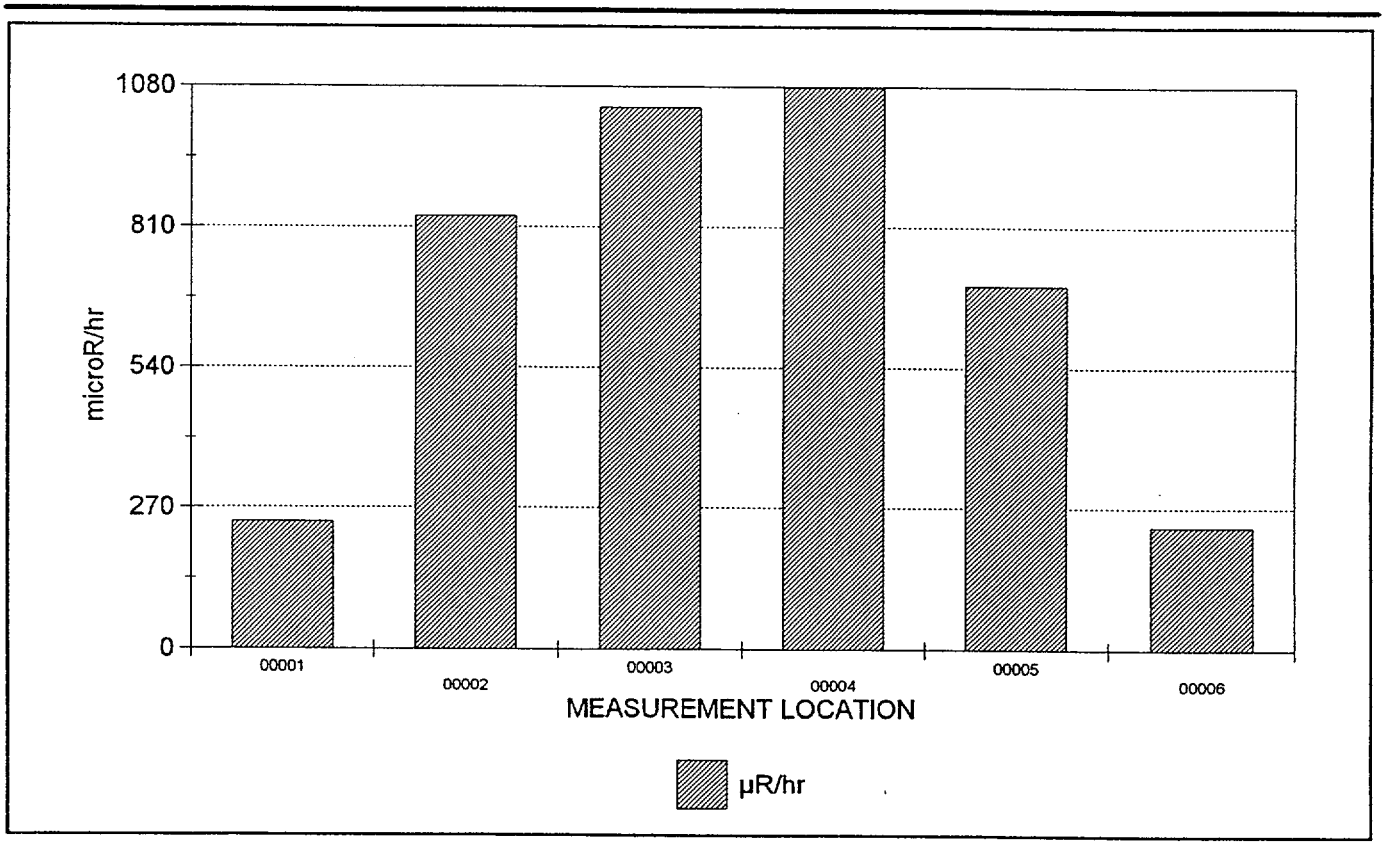
### STATISTICAL SUMMARY

| | µR/hr |
|---|---|
| Mean | 687.5 |
| Maximum | 1,078.4 |
| Minimum | 234.5 |
| Standard Deviation | 374.0 |

| | |
|---|---|
| Samples Reported | 6 |
| Samples Prescribed | 6 |

### TESTS PERFORMED

| | |
|---|---|
| Samples reported satisfy samples prescribed | YES |




6 RESULTS ARE GRAPHED

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03/30/98

## Exposure Rate Measurements

Survey Package : A2100 SURFACES & STRUCTURES
RWST TK-4 - Elevation 21 ft.
Includes: RWST TK-4 and RWST Greenhouse

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | RESULT |
|---|---|---|---|---|---|---|---|
| 584 (2) | 02 | FL1 | B0016 | C01 | 60.00 | 00001 | ***244.1*** |
| 584 (2) | 02 | FL1 | B0016 | C01 | 60.00 | 00002 | ***830.8*** |
| 584 (2) | 02 | FL1 | B0016 | C01 | 60.00 | 00003 | ***1039.8*** |
| 584 (2) | 02 | FL1 | B0016 | C01 | 60.00 | 00004 | ***1078.4*** |
| 584 (2) | 02 | FL1 | B0016 | C01 | 60.00 | 00005 | ***697.3*** |
| 584 (2) | 02 | FL1 | B0016 | C01 | 60.00 | 00006 | ***234.5*** |

NOTES: Exposure rates reported in net µR/hr. Count times are reported in seconds.
Underlined results did not meet the minimum required count time.
Bold values exceed 15 µR/hr.
6 results are listed.

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# DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

03/30/98

Exposure Rate Measurements

Survey Package : A2100 SURFACES & STRUCTURES
RWST TK-4 - Elevation 21 ft.
Includes: RWST TK-4 and RWST Greenhouse

| SURVEY | | M2350 | | DETECTOR | | | |
|---|---|---|---|---|---|---|---|
| DATE | FILE # | INST S/N | CAL DUE | MODEL | S/N | CAL DUE | TECHNICIAN |
| 2/11/98 | 584 (2) | 098620 | 3/20/98 | 44-2 | 129304 | 4/19/98 | |

CALIBRATION DATES VERIFIED AS ACCEPTABLE

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Maine Yankee Atomic Power Plant Site Characterization

# GAMMA SPECTRAL ANALYSIS RESULTS LISTING

NUMBER OF SAMPLES REPORTED =2

04/28/98 OUTPUT BATCH SN = 212

Survey Package A2100 SURFACES & STRUCTURES
RWST TK-4 - Elevation 21 ft.
Includes: RWST TK-4 and RWST Greenhouse

UNIT : 02 SURFACE : FL1 REASON : C01 ANALYSIS TYPE CODE : LAB06

SAMPLE TYPE OR SURFACE SAMPLED: Surface Code description not located
SAMPLE LOCATOR: 00001

| LAB ID | SPECTRUM | MASS (grams) | COUNT TIME (seconds) | NUCLIDE | ACTIVITY (pCi/g) | MDA (pCi/g) | ERROR (± pCi/g) |
|---|---|---|---|---|---|---|---|
| MY1074 | ENV00282 | 1,960.00 | 3600 | Co-57 | < .06 | 0.06 | 0.00 |
| | | | | Co-60 | 3.47 | 0.05 | 0.17 |
| | | | | Cs-134 | < .06 | 0.06 | 0.00 |
| | | | | Cs-137 | 14.40 | 0.07 | 1.05 |
| | | | | K-40 | 19.20 | 0.42 | 1.56 |
| | | | | Mn-54 | < .06 | 0.06 | 0.00 |

SAMPLE TYPE OR SURFACE SAMPLED: Surface Code description not located
SAMPLE LOCATOR: 00002

| LAB ID | SPECTRUM | MASS (grams) | COUNT TIME (seconds) | NUCLIDE | ACTIVITY (pCi/g) | MDA (pCi/g) | ERROR (± pCi/g) |
|---|---|---|---|---|---|---|---|
| MY1075 | ENV00281 | 1,760.00 | 3600 | Co-57 | < .07 | 0.07 | 0.00 |
| | | | | Co-60 | 2.53 | 0.05 | 0.12 |
| | | | | Cs-134 | .05 | 0.04 | 0.01 |
| | | | | Cs-137 | 37.70 | 0.10 | 2.61 |
| | | | | K-40 | 21.40 | 0.30 | 1.55 |
| | | | | Mn-54 | < .05 | 0.05 | 0.00 |

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04/02/98

# CHARACTERIZATION SUMMARY

SURVEY PACKAGE NUMBER A2200

SURFACES & STRUCTURES

PACKAGE DESCRIPTION
Includes: BWST "A" Area and BWST "B" Area

Borated Water Storage Tank (BWST) - Elevation 21 ft.

SURVEY AREA DESCRIPTION
Borated Water Storage Tanks Area

GENERAL HISTORICAL INFORMATION (Operational history, etc.)

The Borated Water Storage Tanks are two 148,000 gallon stainless steel tanks (A&B) separated and enclosed by a concrete floored and walled berm. There is some grating over the tanks base. Access is from the Fuel Building catwalk, down a ladder into tank enclosure. Both enclosures are posted Radiation Area/Contaminated Areas. There is a common sump in both enclosures.

SUMMARY OF CHARACTERIZATION ACTIVITIES

Survey units were established for the areas as listed in the following Summary of Survey Units. Maps with the survey measurement locations for this package are included on the following pages.

Collected 62 direct measurements for total beta activity at the survey measurement locations indicated in the results listing report. Due to elevated background radioactivity in the survey area, a scan of a two meter area encompassing each survey measurement location was not performed. Each direct measurement for total beta activity was accompanied by a corresponding background measurement at the same location. The background was used in the calculation of net dpm/100cm$^2$.

Collected smear samples to analyze for removable alpha and beta activity at the same 62 survey locations as the direct measurements for total beta activity.

Collected one meter exposure rate measurements at 22 survey locations indicated in the results listing report.

The survey result statistical summaries, graphs and results listings are shown in the following individual reports including calibration summaries for the instruments used for each measurement type.

CHARACTERIZATION SURVEY RESULTS

o There were 37 direct measurements for total beta activity above 2000 dpm/100cm$^2$. There were 18 direct measurements for total beta activity above the individual measurements' MDA (Maximum MDA was 21,255 dpm/100cm$^2$). The maximum measurement result was 43,189 dpm/100cm$^2$.

o There were 5 measurements for removable beta activity above MDA (36 dpm/100cm$^2$) and no results greater than 100 dpm/100cm$^2$. The maximum measurement result was 73 dpm/100cm$^2$.

o There were no measurements for removable alpha activity above MDA (8 dpm/100cm$^2$).

o The average and maximum exposure rate measurement results were 0.7 mR/hr and 1.2 mR/hr, respectively.

REFERENCES (Documents, Interviews)

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# SUMMARY OF SURVEY UNIT(S)

03/31/98 OUTPUT BATCH SN = 341

**PACKAGE** A2200 SURFACES & STRUCTURES
Borated Water Storage Tank (BWST) - Elevation 21 ft.
Includes: BWST "A" Area and BWST "B" Area

| UNIT(S) | SURFACE(S) |
|---|---|
| 01 - BWST "A" Area | CL1 (*Note* There is no ceiling.)<br>EQ1 (Plant Equipment (exterior))<br>FD1 (Sump)<br>FL1 (Floor Surface)<br>WS1 (Wall Surface (interior)) |
| 02 - BWST "B" Area | CL1 (*Note* There is no ceiling.)<br>EQ1 (Plant Equipment (exterior))<br>FD1 (Sump)<br>FL1 (Floor Surface)<br>WS1 (Wall Surface (interior)) |

**REASON(S)** CHARACTERIZATION SURVEY (C01)

**MATERIALS**

| MAT'L CODE | MATERIAL DESCRIPTION | BETA BKGD (dpm/100 cm²) |
|---|---|---|
| B0031 | METAL - BARE | 0.0 |
| B0038 | CONCRETE - PAINTED (EXTERIOR) | 478.0 |
| B0039 | CONCRETE - BARE (EXTERIOR) | 665.0 |

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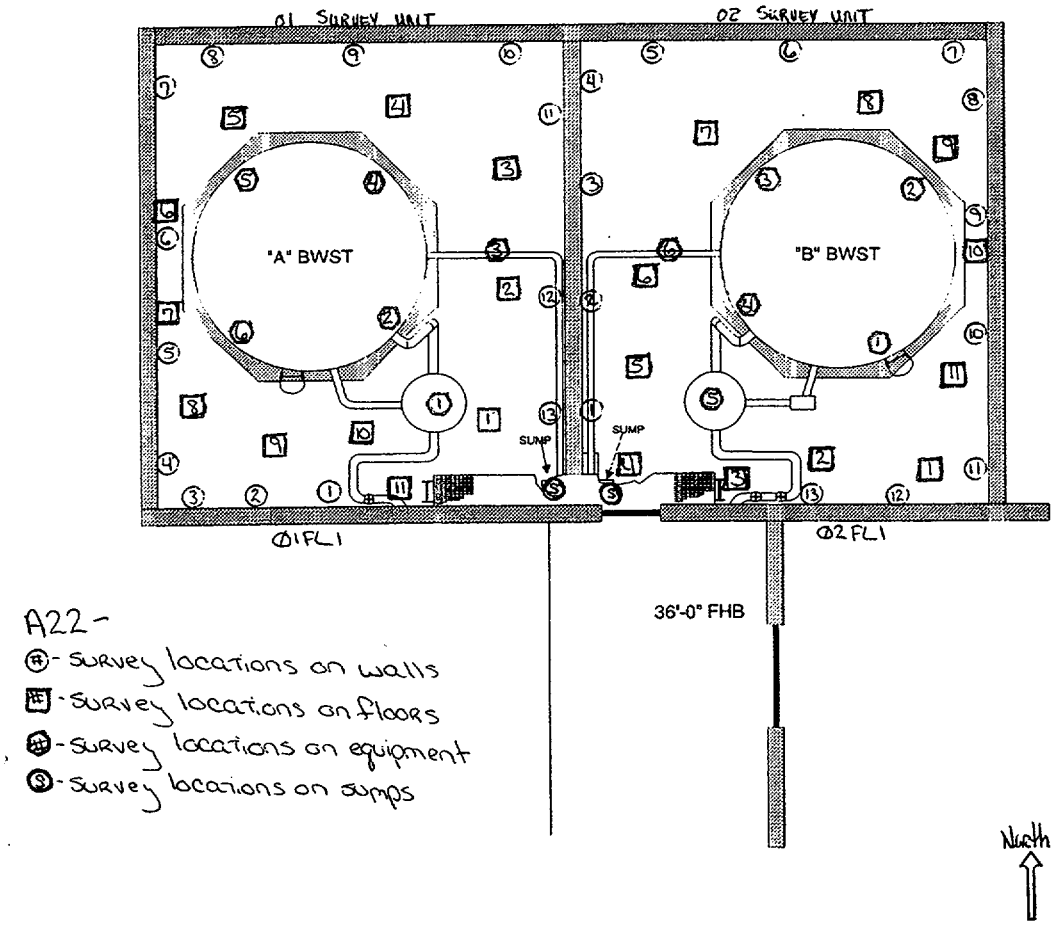
# A and B Borated Water Storage Tanks (BWST)




A22-
- Survey locations on walls
- Survey locations on floors
- Survey locations on equipment
- Survey locations on sumps

# Maine Yankee Atomic Power Plant Site Characterization

04/01/98

## Direct Measurements For Total Beta Activity

Survey Package A2200 SURFACES & STRUCTURES
Borated Water Storage Tank (BWST) - Elevation 21 ft.
Includes: BWST "A" Area and BWST "B" Area

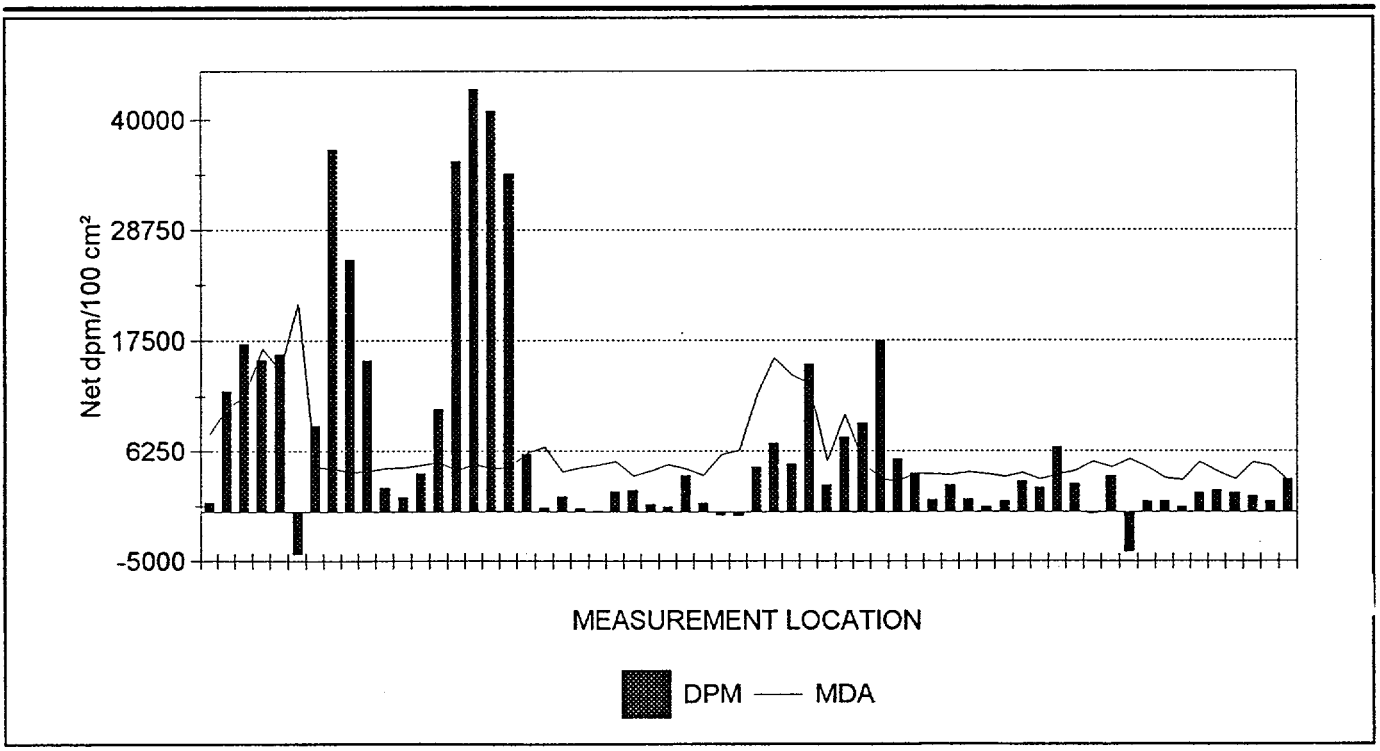
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | 7,269.8 |
| Maximum | 43,189.1 |
| Minimum | -4,301.7 |
| Standard Deviation | 10,883.4 |
| MDA | 21,255.2 |

| | |
|---|---|
| Samples Reported | 62 |
| Samples Prescribed | 62 |

### TESTS PERFORMED

| | |
|---|---|
| Samples reported satisfy samples prescribed | YES |
| MDA <2000 net dpm/100 cm² | NO |
| Results above 2000 net dpm/100 cm² | 37 |
| Number of results above MDA | 18 |




62 RESULTS ARE GRAPHED

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04/01/98

## Direct Measurements For Total Beta Activity

Survey Package: A2200 SURFACES & STRUCTURES
Borated Water Storage Tank (BWST) - Elevation 21 ft.
Includes: BWST "A" Area and BWST "B" Area

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | MDA | RESULT |
|---|---|---|---|---|---|---|---|---|
| 537 (2) | 01 | EQ1 | B0031 | C01 | 60 | 00001 | 7,927.5 | 1,005.6 |
| 537 (2) | 01 | EQ1 | B0031 | C01 | 60 | 00002 | 10,706. | ***12,402.0*** |
| 537 (2) | 01 | EQ1 | B0031 | C01 | 60 | 00003 | 11,856. | ***17,206.4*** |
| 537 (2) | 01 | EQ1 | B0031 | C01 | 60 | 00004 | 16,772. | ***15,586.4*** |
| 537 (2) | 01 | EQ1 | B0031 | C01 | 60 | 00005 | 14,494. | ***16,145.0*** |
| 537 (2) | 01 | EQ1 | B0031 | C01 | 60 | 00006 | 21,255. | -4,301.7 |
| 537 (2) | 01 | FD1 | B0031 | C01 | 60 | 00001 | 4,585.4 | ***8,770.8*** |
| 537 (2) | 01 | FL1 | B0039 | C01 | 60 | 00001 | 4,374.7 | ***36,988.1*** |
| 537 (2) | 01 | FL1 | B0039 | C01 | 60 | 00002 | 4,076.2 | ***25,759.2*** |
| 537 (2) | 01 | FL1 | B0039 | C01 | 60 | 00003 | 4,084.8 | ***15,480.0*** |
| 537 (2) | 01 | FL1 | B0039 | C01 | 60 | 00004 | 4,430.3 | ***2,519.3*** |
| 537 (2) | 01 | FL1 | B0039 | C01 | 60 | 00005 | 4,508.6 | 1,513.7 |
| 537 (2) | 01 | FL1 | B0039 | C01 | 60 | 00006 | 4,764.6 | ***3,915.9*** |
| 537 (2) | 01 | FL1 | B0039 | C01 | 60 | 00007 | 5,083.2 | ***10,563.9*** |
| 537 (2) | 01 | FL1 | B0039 | C01 | 60 | 00008 | 4,194.9 | ***35,814.9*** |
| 537 (2) | 01 | FL1 | B0039 | C01 | 60 | 00009 | 4,901.7 | ***43,189.1*** |
| 537 (2) | 01 | FL1 | B0039 | C01 | 60 | 00010 | 4,350.6 | ***40,954.5*** |
| 537 (2) | 01 | FL1 | B0039 | C01 | 60 | 00011 | 4,485.2 | ***34,530.0*** |
| 537 (2) | 01 | WS1 | B0038 | C01 | 60 | 00001 | 6,050.1 | ***5,946.5*** |
| 537 (2) | 01 | WS1 | B0038 | C01 | 60 | 00002 | 6,665.1 | 415.8 |
| 537 (2) | 01 | WS1 | B0038 | C01 | 60 | 00003 | 4,050.3 | 1,589.0 |
| 537 (2) | 01 | WS1 | B0039 | C01 | 60 | 00004 | 4,531.8 | 340.6 |
| 537 (2) | 01 | WS1 | B0039 | C01 | 60 | 00005 | 4,735.3 | 61.2 |
| 537 (2) | 01 | WS1 | B0039 | C01 | 60 | 00006 | 5,157.9 | ***2,128.3*** |
| 537 (2) | 01 | WS1 | B0039 | C01 | 60 | 00007 | 3,658.0 | ***2,240.0*** |
| 537 (2) | 01 | WS1 | B0039 | C01 | 60 | 00008 | 4,161.4 | 787.5 |
| 537 (2) | 01 | WS1 | B0039 | C01 | 60 | 00009 | 4,858.9 | 564.0 |
| 537 (2) | 01 | WS1 | B0039 | C01 | 60 | 00010 | 4,342.6 | ***3,748.3*** |
| 537 (2) | 01 | WS1 | B0039 | C01 | 60 | 00011 | 3,705.8 | 955.1 |
| 537 (2) | 01 | WS1 | B0039 | C01 | 60 | 00012 | 5,881.6 | -329.8 |
| 537 (2) | 01 | WS1 | B0039 | C01 | 60 | 00013 | 6,357.1 | -385.7 |
| 529 (2) | 02 | EQ1 | B0031 | C01 | 60 | 00001 | 11,911. | ***4,558.9*** |
| 529 (2) | 02 | EQ1 | B0031 | C01 | 60 | 00002 | 15,777. | ***7,072.1*** |
| 529 (2) | 02 | EQ1 | B0031 | C01 | 60 | 00003 | 14,035. | ***4,909.6*** |
| 529 (2) | 02 | EQ1 | B0031 | C01 | 60 | 00004 | 13,106. | ***15,137.9*** |
| 529 (2) | 02 | EQ1 | B0031 | C01 | 60 | 00005 | 5,209.5 | ***2,747.0*** |
| 529 (2) | 02 | EQ1 | B0031 | C01 | 60 | 00006 | 9,993.5 | ***7,656.6*** |
| 537 (2) | 02 | FD1 | B0031 | C01 | 60 | 00001 | 5,048.8 | ***9,050.1*** |
| 529 (2) | 02 | FL1 | B0039 | C01 | 60 | 00001 | 3,318.1 | ***17,512.2*** |
| 529 (2) | 02 | FL1 | B0039 | C01 | 60 | 00002 | 3,124.9 | ***5,413.5*** |

NOTES: Activity reported in net dpm/100 cm². Count times are reported in seconds.
Underlined values exceed the MDA.
Bold values exceed 2000 dpm/100 cm².

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04/01/98

## Direct Measurements For Total Beta Activity

Survey Package : A2200 SURFACES & STRUCTURES
Borated Water Storage Tank (BWST) - Elevation 21 ft.
Includes: BWST "A" Area and BWST "B" Area

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | MDA | RESULT |
|---|---|---|---|---|---|---|---|---|
| 529 (2) | 02 | FL1 | B0039 | C01 | 60 | 00003 | 3,906.9 | ***3,893.9*** |
| 529 (2) | 02 | FL1 | B0039 | C01 | 60 | 00004 | 3,847.2 | 1,263.8 |
| 529 (2) | 02 | FL1 | B0039 | C01 | 60 | 00005 | 3,776.3 | ***2,725.0*** |
| 529 (2) | 02 | FL1 | B0039 | C01 | 60 | 00006 | 4,023.4 | 1,322.2 |
| 529 (2) | 02 | FL1 | B0039 | C01 | 60 | 00007 | 3,857.2 | 562.4 |
| 529 (2) | 02 | FL1 | B0039 | C01 | 60 | 00008 | 3,587.5 | 1,088.4 |
| 529 (2) | 02 | FL1 | B0039 | C01 | 60 | 00009 | 3,975.3 | ***3,134.1*** |
| 529 (2) | 02 | FL1 | B0039 | C01 | 60 | 00010 | 3,318.1 | ***2,491.2*** |
| 529 (2) | 02 | FL1 | B0039 | C01 | 60 | 00011 | 3,817.0 | ***6,640.9*** |
| 529 (2) | 02 | WS1 | B0038 | C01 | 60 | 00012 | 4,182.8 | ***2,853.5*** |
| 529 (2) | 02 | WS1 | B0038 | C01 | 60 | 00013 | 5,135.8 | -127.3 |
| 529 (2) | 02 | WS1 | B0039 | C01 | 60 | 00001 | 4,551.8 | ***3,660.1*** |
| 529 (2) | 02 | WS1 | B0039 | C01 | 60 | 00002 | 5,445.6 | -3,996.5 |
| 529 (2) | 02 | WS1 | B0039 | C01 | 60 | 00003 | 4,543.3 | 1,146.9 |
| 529 (2) | 02 | WS1 | B0039 | C01 | 60 | 00004 | 3,433.0 | 1,146.9 |
| 529 (2) | 02 | WS1 | B0039 | C01 | 60 | 00005 | 3,282.8 | 503.9 |
| 529 (2) | 02 | WS1 | B0039 | C01 | 60 | 00006 | 5,060.9 | 1,965.1 |
| 529 (2) | 02 | WS1 | B0039 | C01 | 60 | 00007 | 4,145.8 | ***2,257.4*** |
| 529 (2) | 02 | WS1 | B0039 | C01 | 60 | 00008 | 3,329.8 | 1,965.1 |
| 529 (2) | 02 | WS1 | B0039 | C01 | 60 | 00009 | 5,120.9 | 1,672.9 |
| 529 (2) | 02 | WS1 | B0039 | C01 | 60 | 00010 | 4,708.9 | 1,088.4 |
| 529 (2) | 02 | WS1 | B0039 | C01 | 60 | 00011 | 3,223.0 | ***3,309.4*** |

NOTES: Activity reported in net dpm/100 cm². Count times are reported in seconds.
Underlined values exceed the MDA.
Bold values exceed 2000 dpm/100 cm².
62 results are listed.

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# DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

04/01/98 Direct Measurements For Total Beta Activity

Survey Package : A2200 SURFACES & STRUCTURES
Borated Water Storage Tank (BWST) - Elevation 21 ft.
Includes: BWST "A" Area and BWST "B" Area

| SURVEY | | M2350 | | DETECTOR | | | PRE | |
|---|---|---|---|---|---|---|---|---|
| DATE | FILE # | INST S/N | CAL DUE | MODEL | S/N | CAL DUE | EFF | TECHNICIAN |
| 2/3/98 | 529 (2) | 126201 | 4/15/98 | 44-40 | 119455 | 4/29/98 | .11 | BSM0490 |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | | |
| 2/4/98 | 537 (2) | 126201 | 4/15/98 | 44-40 | 119455 | 4/29/98 | .12 | BSM0490 |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | | |

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Maine Yankee Atomic Power Plant Site Characterization

03/29/98

## Removable Contamination - Gross Beta Activity

Survey Package A2200 SURFACES & STRUCTURES
Borated Water Storage Tank (BWST) - Elevation 21 ft.
Includes: BWST "A" Area and BWST "B" Area

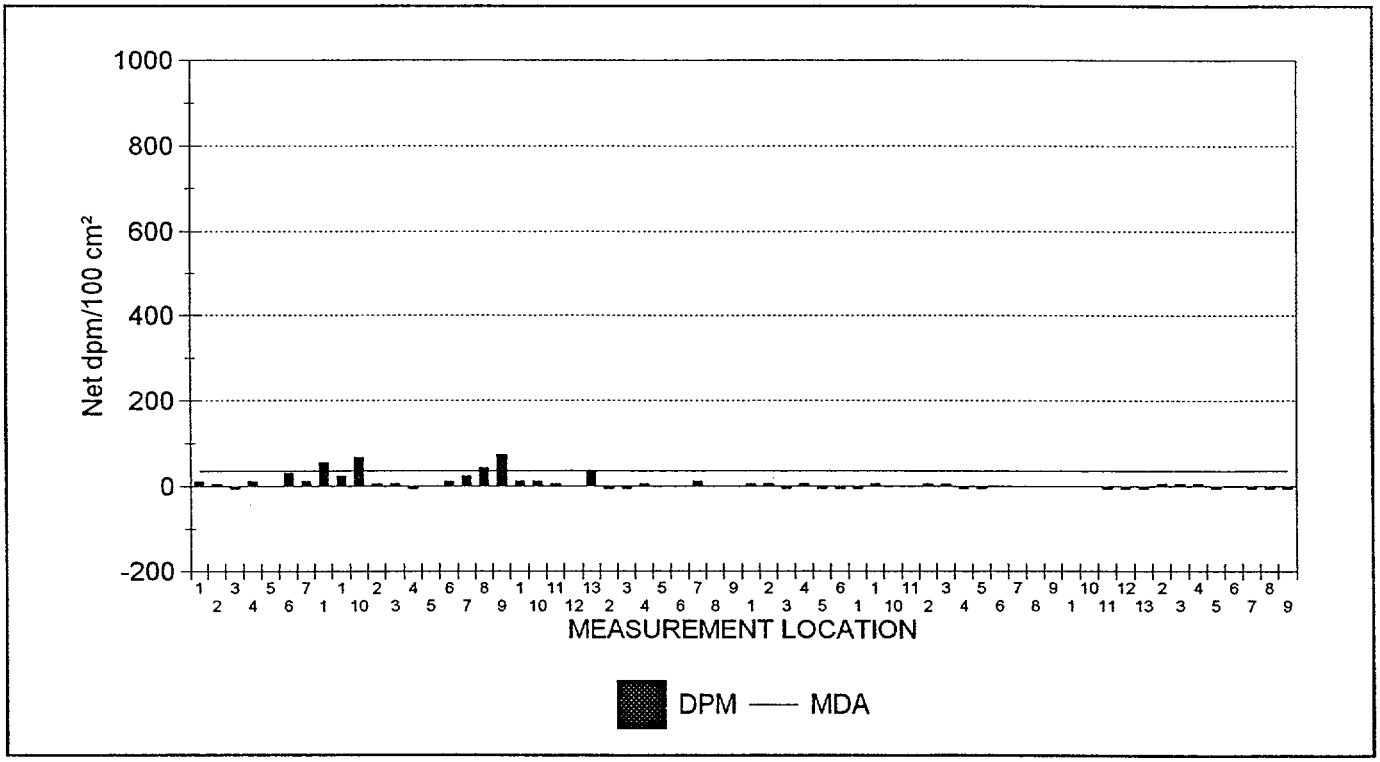
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | 7.1 |
| Maximum | 73.2 |
| Minimum | -5.8 |
| Standard Deviation | 16.9 |
| MDA | 36.1 |

| | |
|---|---|
| Samples Reported | 62 |
| Samples Prescribed | 62 |

### TESTS PERFORMED

| | |
|---|---|
| MDA <100 net dpm/100 cm² | YES |
| Results above 100 net dpm/100 cm² | 0 |
| Number of results above MDA | 5 |




62 RESULTS ARE GRAPHED

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Maine Yankee Atomic Power Plant Site Characterization

03/29/98

## Removable Contamination - Gross Alpha Activity

Survey Package A2200 SURFACES & STRUCTURES
Borated Water Storage Tank (BWST) - Elevation 21 ft.
Includes: BWST "A" Area and BWST "B" Area

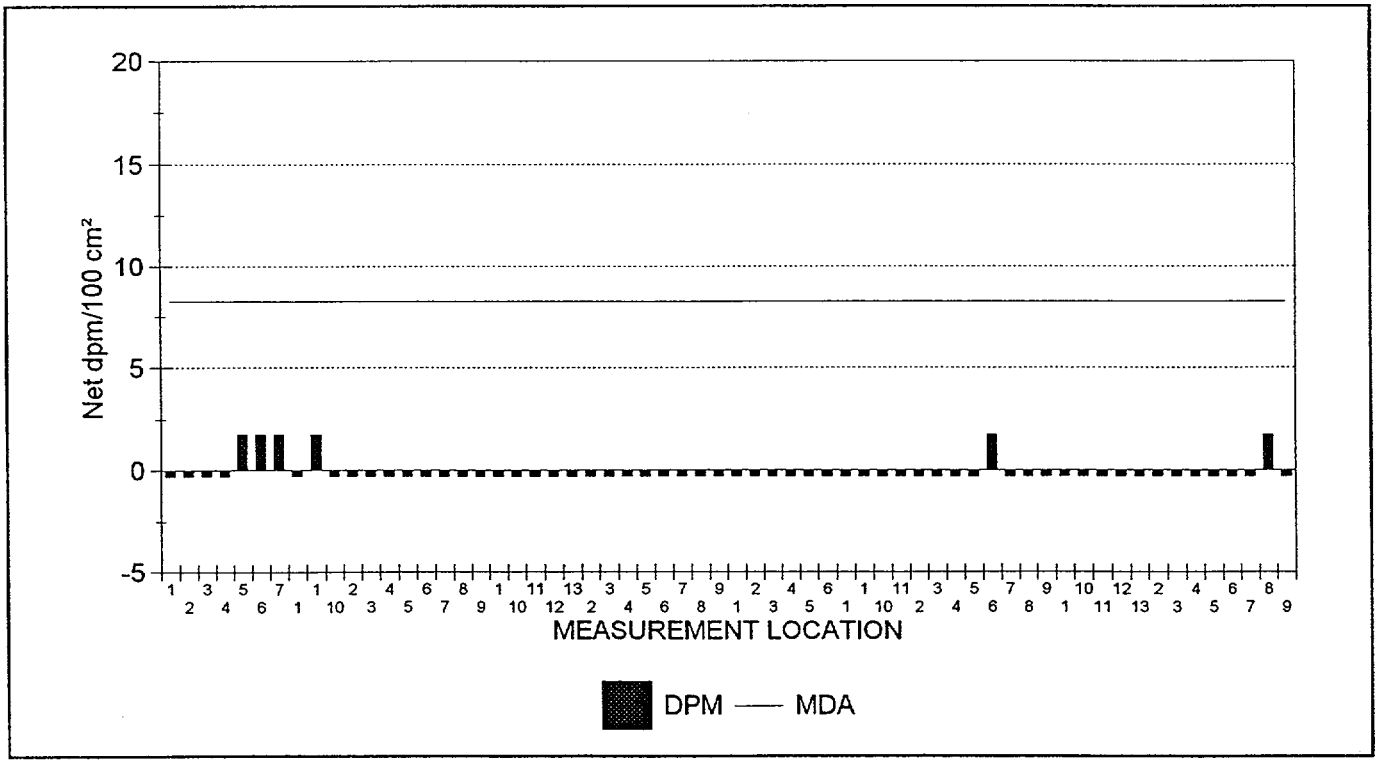
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | -0.1 |
| Maximum | 1.8 |
| Minimum | -0.3 |
| Standard Deviation | 0.6 |
| MDA | 8.2 |

| | |
|---|---|
| Samples Reported | 62 |
| Samples Prescribed | 62 |

### TESTS PERFORMED

| | |
|---|---|
| MDA <10 net dpm/100 cm² | YES |
| Results above 20 net dpm/100 cm² | 0 |
| Number of results above MDA | 0 |




62 RESULTS ARE GRAPHED

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03/29/98

## Removable Contamination

Survey Package : A2200 SURFACES & STRUCTURES
Borated Water Storage Tank (BWST) - Elevation 21 ft.
Includes: BWST "A" Area and BWST "B" Area

## RESULTS LISTING - SORTED BY SURFACE CODE

| XLS FILE | UNIT | SURFACE | REASON | MSRMNT LOCATION | ALPHA | BETA |
|---|---|---|---|---|---|---|
| SME1E079.XLS | 02 | WS1 | C01 | 9 | -0.3 | -5.8 |
| SME1E079.XLS | 02 | WS1 | C01 | 8 | 1.7 | -5.8 |
| SME1E079.XLS | 02 | WS1 | C01 | 7 | -0.3 | -5.8 |
| SME1E079.XLS | 02 | WS1 | C01 | 6 | -0.3 | 0.3 |
| SME1E079.XLS | 02 | WS1 | C01 | 5 | -0.3 | -5.8 |
| SME1E079.XLS | 02 | WS1 | C01 | 4 | -0.3 | 6.4 |
| SME1E079.XLS | 02 | WS1 | C01 | 3 | -0.3 | 6.4 |
| SME1E079.XLS | 02 | WS1 | C01 | 2 | -0.3 | 6.4 |
| SME1E079.XLS | 02 | WS1 | C01 | 13 | -0.3 | -5.8 |
| SME1E079.XLS | 02 | WS1 | C01 | 12 | -0.3 | -5.8 |
| SME1E079.XLS | 02 | WS1 | C01 | 11 | -0.3 | -5.8 |
| SME1E079.XLS | 02 | WS1 | C01 | 10 | -0.3 | 0.3 |
| SME1E079.XLS | 02 | WS1 | C01 | 1 | -0.3 | 0.3 |
| SME1E079.XLS | 02 | FL1 | C01 | 9 | -0.3 | 0.3 |
| SME1E079.XLS | 02 | FL1 | C01 | 8 | -0.3 | 0.3 |
| SME1E079.XLS | 02 | FL1 | C01 | 7 | -0.3 | 0.3 |
| SME1E079.XLS | 02 | FL1 | C01 | 6 | 1.7 | 0.3 |
| SME1E079.XLS | 02 | FL1 | C01 | 5 | -0.3 | -5.8 |
| SME1E079.XLS | 02 | FL1 | C01 | 4 | -0.3 | -5.8 |
| SME1E079.XLS | 02 | FL1 | C01 | 3 | -0.3 | 6.4 |
| SME1E079.XLS | 02 | FL1 | C01 | 2 | -0.3 | 6.4 |
| SME1E079.XLS | 02 | FL1 | C01 | 11 | -0.3 | 0.3 |
| SME1E079.XLS | 02 | FL1 | C01 | 10 | -0.3 | 0.3 |
| SME1E079.XLS | 02 | FL1 | C01 | 1 | -0.3 | 6.4 |
| SME1E079.XLS | 02 | FD1 | C01 | 1 | -0.3 | -5.8 |
| SME1E079.XLS | 02 | EQ1 | C01 | 6 | -0.3 | -5.8 |
| SME1E079.XLS | 02 | EQ1 | C01 | 5 | -0.3 | -5.8 |
| SME1E079.XLS | 02 | EQ1 | C01 | 4 | -0.3 | 6.4 |
| SME1E079.XLS | 02 | EQ1 | C01 | 3 | -0.3 | -5.8 |
| SME1E079.XLS | 02 | EQ1 | C01 | 2 | -0.3 | 6.4 |
| SME1E079.XLS | 02 | EQ1 | C01 | 1 | -0.3 | 6.4 |
| SME1E079.XLS | 01 | WS1 | C01 | 9 | -0.3 | 0.3 |
| SME1E079.XLS | 01 | WS1 | C01 | 8 | -0.3 | 0.3 |
| SME1E079.XLS | 01 | WS1 | C01 | 7 | -0.3 | 12.4 |
| SME1E079.XLS | 01 | WS1 | C01 | 6 | -0.3 | 0.3 |
| SME1E079.XLS | 01 | WS1 | C01 | 5 | -0.3 | 0.3 |
| SME1E079.XLS | 01 | WS1 | C01 | 4 | -0.3 | 6.4 |
| SME1E079.XLS | 01 | WS1 | C01 | 3 | -0.3 | -5.8 |
| SME1E079.XLS | 01 | WS1 | C01 | 2 | -0.3 | -5.8 |
| SME1E079.XLS | 01 | WS1 | C01 | 13 | -0.3 | 36.7 |

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 100.00 dpm/100 cm² (beta activity) and/or 20.00 dpm/100 cm² (alpha activity).

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03/29/98

## Removable Contamination

Survey Package : A2200 SURFACES & STRUCTURES
Borated Water Storage Tank (BWST) - Elevation 21 ft.
Includes: BWST "A" Area and BWST "B" Area

## RESULTS LISTING - SORTED BY SURFACE CODE

| XLS FILE | UNIT | SURFACE | REASON | MSRMNT LOCATION | ALPHA | BETA |
|---|---|---|---|---|---|---|
| SME1E079.XLS | 01 | WS1 | C01 | 12 | -0.3 | 0.3 |
| SME1E079.XLS | 01 | WS1 | C01 | 11 | -0.3 | 6.4 |
| SME1E079.XLS | 01 | WS1 | C01 | 10 | -0.3 | 12.4 |
| SME1E079.XLS | 01 | WS1 | C01 | 1 | -0.3 | 12.4 |
| SME1E079.XLS | 01 | FL1 | C01 | 9 | -0.3 | 73.2 |
| SME1E079.XLS | 01 | FL1 | C01 | 8 | -0.3 | 42.8 |
| SME1E079.XLS | 01 | FL1 | C01 | 7 | -0.3 | 24.6 |
| SME1E079.XLS | 01 | FL1 | C01 | 6 | -0.3 | 12.4 |
| SME1E079.XLS | 01 | FL1 | C01 | 5 | -0.3 | 0.3 |
| SME1E079.XLS | 01 | FL1 | C01 | 4 | -0.3 | -5.8 |
| SME1E079.XLS | 01 | FL1 | C01 | 3 | -0.3 | 6.4 |
| SME1E079.XLS | 01 | FL1 | C01 | 2 | -0.3 | 6.4 |
| SME1E079.XLS | 01 | FL1 | C01 | 10 | -0.3 | 67.1 |
| SME1E079.XLS | 01 | FL1 | C01 | 1 | 1.7 | 24.6 |
| SME1E079.XLS | 01 | FD1 | C01 | 1 | -0.3 | 54.9 |
| SME1E079.XLS | 01 | EQ1 | C01 | 7 | 1.7 | 12.4 |
| SME1E079.XLS | 01 | EQ1 | C01 | 6 | 1.7 | 30.7 |
| SME1E079.XLS | 01 | EQ1 | C01 | 5 | 1.7 | 0.3 |
| SME1E079.XLS | 01 | EQ1 | C01 | 4 | -0.3 | 12.4 |
| SME1E079.XLS | 01 | EQ1 | C01 | 3 | -0.3 | -5.8 |
| SME1E079.XLS | 01 | EQ1 | C01 | 2 | -0.3 | 6.4 |
| SME1E079.XLS | 01 | EQ1 | C01 | 1 | -0.3 | 12.4 |

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 100.00 dpm/100 cm² (beta activity) and/or 20.00 dpm/100 cm² (alpha activity).
62 results are listed.

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Maine Yankee Atomic Power Plant Site Characterization

# DATAFILE & TENNELEC CALIBRATION SUMMARY

03/29/98

Removable Contamination

Survey Package : A2200 SURFACES & STRUCTURES
Borated Water Storage Tank (BWST) - Elevation 21 ft.
Includes: BWST "A" Area and BWST "B" Area

| SURVEYDATE | XLS FILE | INST ID | S/N | CAL DUE | LAB TECHNICIAN |
|---|---|---|---|---|---|
| 3/9/98 | SME1E079.XLS | 1 | 15632 | 8/5/98 | JWD |
| | | | | CALIBRATION DATE VERIFIED AS ACCEPTABLE | |

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Maine Yankee Atomic Power Plant Site Characterization

03/31/98

## Exposure Rate Measurements

Survey Package A2200 SURFACES & STRUCTURES
Borated Water Storage Tank (BWST) - Elevation 21 ft.
Includes: BWST "A" Area and BWST "B" Area

### STATISTICAL SUMMARY

| | µR/hr |
|---|---|
| Mean | 667.6 |
| Maximum | 1,196.7 |
| Minimum | 291.8 |
| Standard Deviation | 246.6 |

| | |
|---|---|
| Samples Reported | 22 |
| Samples Prescribed | 22 |

### TESTS PERFORMED

| | |
|---|---|
| Samples reported satisfy samples prescribed | YES |


22 RESULTS ARE GRAPHED

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03/31/98

## Exposure Rate Measurements

Survey Package : A2200 SURFACES & STRUCTURES
Borated Water Storage Tank (BWST) - Elevation 21 ft.
Includes: BWST "A" Area and BWST "B" Area

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | RESULT |
|---|---|---|---|---|---|---|---|
| 538 (2) | 01 | FL1 | B0039 | C01 | 60.00 | 00001 | ***600.0*** |
| 538 (2) | 01 | FL1 | B0039 | C01 | 60.00 | 00002 | ***784.6*** |
| 538 (2) | 01 | FL1 | B0039 | C01 | 60.00 | 00003 | ***634.6*** |
| 538 (2) | 01 | FL1 | B0039 | C01 | 60.00 | 00004 | ***940.9*** |
| 538 (2) | 01 | FL1 | B0039 | C01 | 60.00 | 00005 | ***850.5*** |
| 538 (2) | 01 | FL1 | B0039 | C01 | 60.00 | 00006 | ***642.7*** |
| 538 (2) | 01 | FL1 | B0039 | C01 | 60.00 | 00007 | ***892.4*** |
| 538 (2) | 01 | FL1 | B0039 | C01 | 60.00 | 00008 | ***485.0*** |
| 538 (2) | 01 | FL1 | B0039 | C01 | 60.00 | 00009 | ***1002.6*** |
| 538 (2) | 01 | FL1 | B0039 | C01 | 60.00 | 00010 | ***1196.7*** |
| 538 (2) | 01 | FL1 | B0039 | C01 | 60.00 | 00011 | ***682.9*** |
| 538 (2) | 02 | FL1 | B0039 | C01 | 60.00 | 00001 | ***291.8*** |
| 538 (2) | 02 | FL1 | B0039 | C01 | 60.00 | 00002 | ***374.5*** |
| 538 (2) | 02 | FL1 | B0039 | C01 | 60.00 | 00003 | ***622.9*** |
| 538 (2) | 02 | FL1 | B0039 | C01 | 60.00 | 00004 | ***329.7*** |
| 538 (2) | 02 | FL1 | B0039 | C01 | 60.00 | 00005 | ***328.2*** |
| 538 (2) | 02 | FL1 | B0039 | C01 | 60.00 | 00006 | ***740.6*** |
| 538 (2) | 02 | FL1 | B0039 | C01 | 60.00 | 00007 | ***915.6*** |
| 538 (2) | 02 | FL1 | B0039 | C01 | 60.00 | 00008 | ***858.6*** |
| 538 (2) | 02 | FL1 | B0039 | C01 | 60.00 | 00009 | ***510.5*** |
| 538 (2) | 02 | FL1 | B0039 | C01 | 60.00 | 00010 | ***623.6*** |
| 538 (2) | 02 | FL1 | B0039 | C01 | 60.00 | 00011 | ***377.4*** |

NOTES: Exposure rates reported in net µR/hr. Count times are reported in seconds.
Underlined results did not meet the minimum required count time.
Bold values exceed 15 µR/hr.
22 results are listed.

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# DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

03/29/98

Exposure Rate Measurements

Survey Package : A2200 SURFACES & STRUCTURES
Borated Water Storage Tank (BWST) - Elevation 21 ft.
Includes: BWST "A" Area and BWST "B" Area .

| SURVEY | | M2350 | | DETECTOR | | | |
|---|---|---|---|---|---|---|---|
| DATE | FILE # | INST S/N | CAL DUE | MODEL | S/N | CAL DUE | TECHNICIAN |
| 2/4/98 | 538 (2) | 098639 | 4/16/98 | 44-2 | 129770 | 5/12/98 | JJP1813 |

CALIBRATION DATES VERIFIED AS ACCEPTABLE

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04/02/98

# CHARACTERIZATION SUMMARY

SURVEY PACKAGE NUMBER A2300 — SURFACES & STRUCTURES

PACKAGE DESCRIPTION — Tank (PWST) - Elevation 21 ft.

SURVEY AREA DESCRIPTION
Primary Water Storage Tank

GENERAL HISTORICAL INFORMATION (Operational history, etc.)
The Primary Water Storage Tank is a 150,000 gallon tank used for the storage of Primary Water. Primary water is water from the local city water line. The PWST is a stainless steel tank on a concrete base.

SUMMARY OF CHARACTERIZATION ACTIVITIES
Survey units were established for the areas as listed in the following Summary of Survey Units. Maps with the survey measurement locations for this package are included on the following pages.

Collected 28 direct measurements for total beta activity at the survey measurement locations indicated in the results listing report. Due to elevated background radioactivity in the survey area, a scan of a two meter area encompassing each survey measurement location was not performed. Each direct measurement for total beta activity was accompanied by a corresponding background measurement at the same location. The background was used in the calculation of net dpm/100cm².

Collected smear samples to analyze for removable alpha and beta activity at the same 28 survey locations as the direct measurements for total beta activity.

Collected no one meter exposure rate measurements.

The survey result statistical summaries, graphs and results listings are shown in the following individual reports including calibration summaries for the instruments used for each measurement type.

CHARACTERIZATION SURVEY RESULTS

- There were 3 direct measurements for total beta activity above 2000 dpm/100cm². There were 2 direct measurements for total beta activity above the individual measurements' MDA (Maximum MDA was 2,780 dpm/100cm²). The maximum measurement result was 3,258 dpm/100cm².
- There were no measurements for removable beta activity above MDA (32 dpm/100cm²).
- There were no measurements for removable alpha activity above MDA (8.4 dpm/100cm²).

REFERENCES (Documents, Interviews)

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# SUMMARY OF SURVEY UNIT(S)

03/29/98 OUTPUT BATCH SN = 279

**PACKAGE** A2300 SURFACES & STRUCTURES
Tank (PWST) - Elevation 21 ft.

| UNIT(S) | SURFACE(S) |
|---|---|
| 01 - Tank Exterior and Base | SS1 (Base)<br>WE1 (Tank) |
| 02 - Shack adjacent to the Tank | CL1 (Ceiling)<br>EQ1 (Equipment: Pipe and insulation (metal, blanket))<br>RF1 (Roof)<br>WS1 (Walls) |

**REASON(S)** CHARACTERIZATION SURVEY (C01)

**MATERIALS**

| MAT'L CODE | MATERIAL DESCRIPTION | BETA BKGD (dpm/100 cm²) |
|---|---|---|
| B0039 | CONCRETE - BARE (EXTERIOR) | 665.0 |
| B9999 | OTHER | 0.0 |

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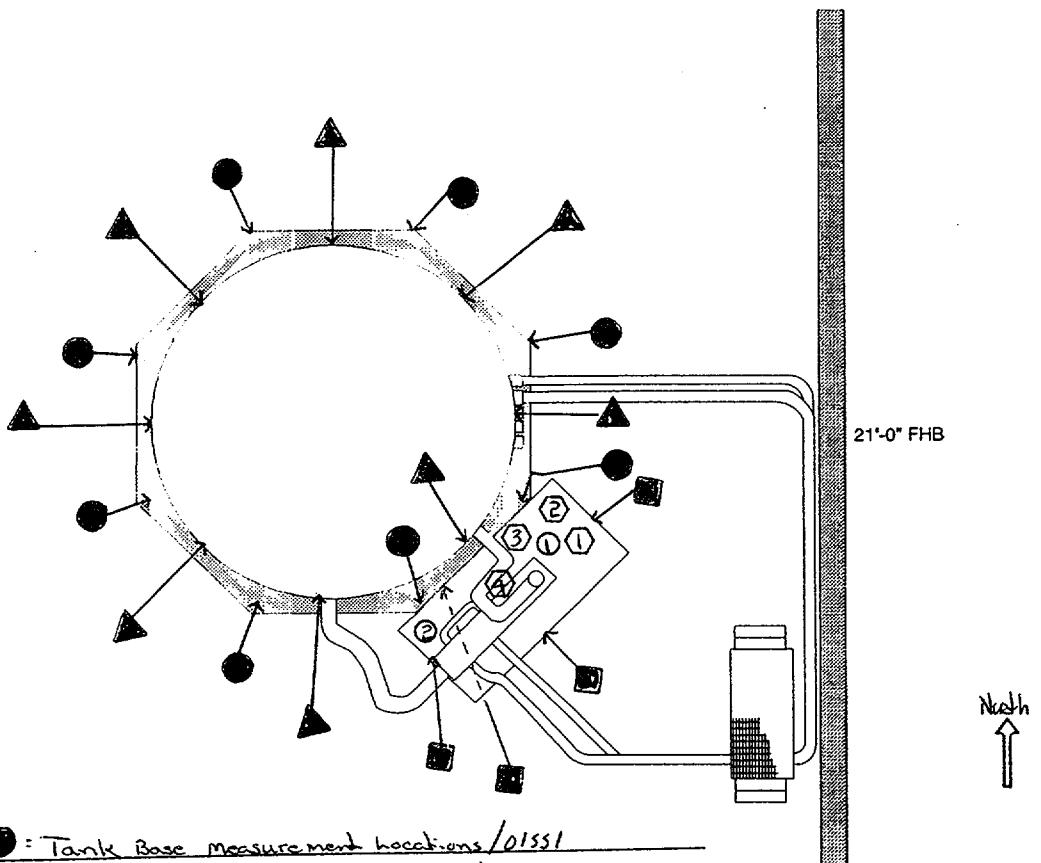
## Primary Water Storage Tank Area

Package # A2300.




● = Tank Base measurement locations / 01SS1

▲ = Tank measurement locations 9's / 01WE1

■ = Shed wall measurement locations 1's / 02WS1

[redacted]: 2 measurements were taken on the Roof (02RF1).

[redacted]

[redacted]

2-16-98

Maine Yankee Atomic Power Plant Site Characterization

03/31/98

## Direct Measurements For Total Beta Activity

Survey Package A2300 SURFACES & STRUCTURES
Tank (PWST) - Elevation 21 ft.

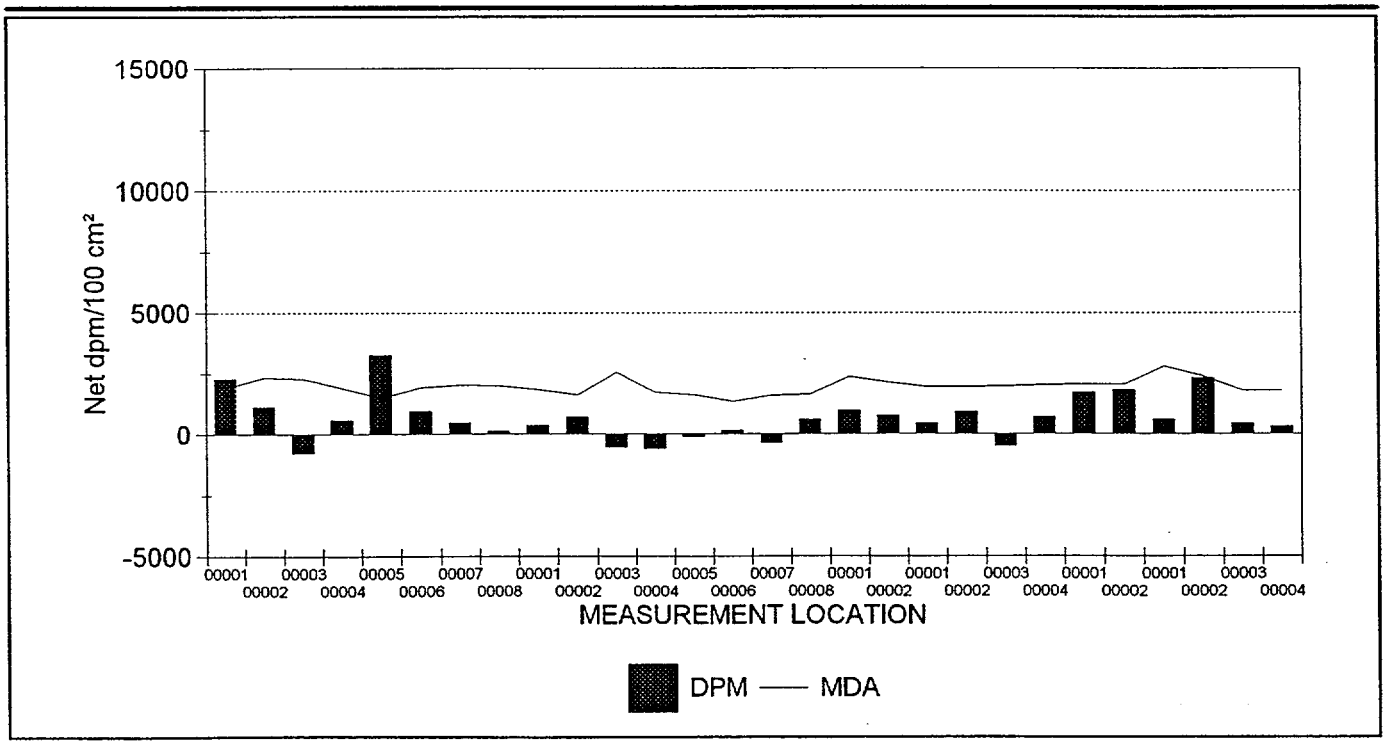
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | 667.8 |
| Maximum | 3,257.7 |
| Minimum | -772.5 |
| Standard Deviation | 942.1 |
| MDA | 2,779.8 |

| | |
|---|---|
| Samples Reported | 28 |
| Samples Prescribed | 28 |

### TESTS PERFORMED

| | |
|---|---|
| Samples reported satisfy samples prescribed | YES |
| MDA <2000 net dpm/100 cm² | NO |
| Results above 2000 net dpm/100 cm² | 3 |
| Number of results above MDA | 2 |




28 RESULTS ARE GRAPHED

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03/31/98

## Direct Measurements For Total Beta Activity

Survey Package : A2300 SURFACES & STRUCTURES
Tank (PWST) - Elevation 21 ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | MDA | RESULT |
|---|---|---|---|---|---|---|---|---|
| 578 (2) | 01 | SS1 | B0039 | C01 | 60 | 00001 | 1,895.8 | ***2,290.5*** |
| 578 (2) | 01 | SS1 | B0039 | C01 | 60 | 00002 | 2,339.5 | 1,108.3 |
| 578 (2) | 01 | SS1 | B0039 | C01 | 60 | 00003 | 2,296.4 | -772.5 |
| 578 (2) | 01 | SS1 | B0039 | C01 | 60 | 00004 | 1,895.8 | 570.9 |
| 578 (2) | 01 | SS1 | B0039 | C01 | 60 | 00005 | 1,492.0 | ***3,257.7*** |
| 578 (2) | 01 | SS1 | B0039 | C01 | 60 | 00006 | 1,931.1 | 947.1 |
| 578 (2) | 01 | SS1 | B0039 | C01 | 60 | 00007 | 2,033.2 | 463.5 |
| 578 (2) | 01 | SS1 | B0039 | C01 | 60 | 00008 | 1,999.8 | 141.0 |
| 578 (2) | 01 | WE1 | B9999 | C01 | 60 | 00001 | 1,859.7 | 376.2 |
| 578 (2) | 01 | WE1 | B9999 | C01 | 60 | 00002 | 1,624.8 | 698.6 |
| 578 (2) | 01 | WE1 | B9999 | C01 | 60 | 00003 | 2,543.7 | -537.4 |
| 578 (2) | 01 | WE1 | B9999 | C01 | 60 | 00004 | 1,726.9 | -591.1 |
| 578 (2) | 01 | WE1 | B9999 | C01 | 60 | 00005 | 1,624.8 | -107.5 |
| 578 (2) | 01 | WE1 | B9999 | C01 | 60 | 00006 | 1,318.3 | 161.2 |
| 578 (2) | 01 | WE1 | B9999 | C01 | 60 | 00007 | 1,581.9 | -376.2 |
| 578 (2) | 01 | WE1 | B9999 | C01 | 60 | 00008 | 1,645.7 | 591.1 |
| 578 (2) | 02 | CL1 | B9999 | C01 | 60 | 00001 | 2,367.9 | 967.2 |
| 578 (2) | 02 | CL1 | B9999 | C01 | 60 | 00002 | 2,130.1 | 752.3 |
| 578 (2) | 02 | EQ1 | B9999 | C01 | 60 | 00001 | 1,948.5 | 429.9 |
| 578 (2) | 02 | EQ1 | B9999 | C01 | 60 | 00002 | 1,965.8 | 913.5 |
| 578 (2) | 02 | EQ1 | B9999 | C01 | 60 | 00003 | 1,982.9 | -483.6 |
| 578 (2) | 02 | EQ1 | B9999 | C01 | 60 | 00004 | 2,033.2 | 698.6 |
| 578 (2) | 02 | RF1 | B9999 | C01 | 60 | 00001 | 2,066.1 | 1,719.5 |
| 578 (2) | 02 | RF1 | B9999 | C01 | 60 | 00002 | 2,049.7 | 1,827.0 |
| 578 (2) | 02 | WS1 | B9999 | C01 | 60 | 00001 | 2,779.7 | 591.1 |
| 578 (2) | 02 | WS1 | B9999 | C01 | 60 | 00002 | 2,395.8 | ***2,310.6*** |
| 578 (2) | 02 | WS1 | B9999 | C01 | 60 | 00003 | 1,804.1 | 429.9 |
| 578 (2) | 02 | WS1 | B9999 | C01 | 60 | 00004 | 1,804.1 | 322.4 |

NOTES: Activity reported in net dpm/100 cm². Count times are reported in seconds.
Underlined values exceed the MDA.
Bold values exceed 2000 dpm/100 cm².
28 results are listed.

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# DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

03/31/98 Direct Measurements For Total Beta Activity

Survey Package : A2300 SURFACES & STRUCTURES
Tank (PWST) - Elevation 21 ft.

| SURVEY | | M2350 | | DETECTOR | | | PRE | |
|---|---|---|---|---|---|---|---|---|
| DATE | FILE # | INST S/N | CAL DUE | MODEL | S/N | CAL DUE | EFF | TECHNICIAN |
| 2/10/98 | 578 (2) | 080498 | 4/8/98 | 44-40 | PR090001 | 4/8/98 | .12 | CWI5440 |

CALIBRATION DATES VERIFIED AS ACCEPTABLE

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# Maine Yankee Atomic Power Plant Site Characterization

03/29/98

## Removable Contamination - Gross Beta Activity

Survey Package A2300 SURFACES & STRUCTURES
Tank (PWST) - Elevation 21 ft.

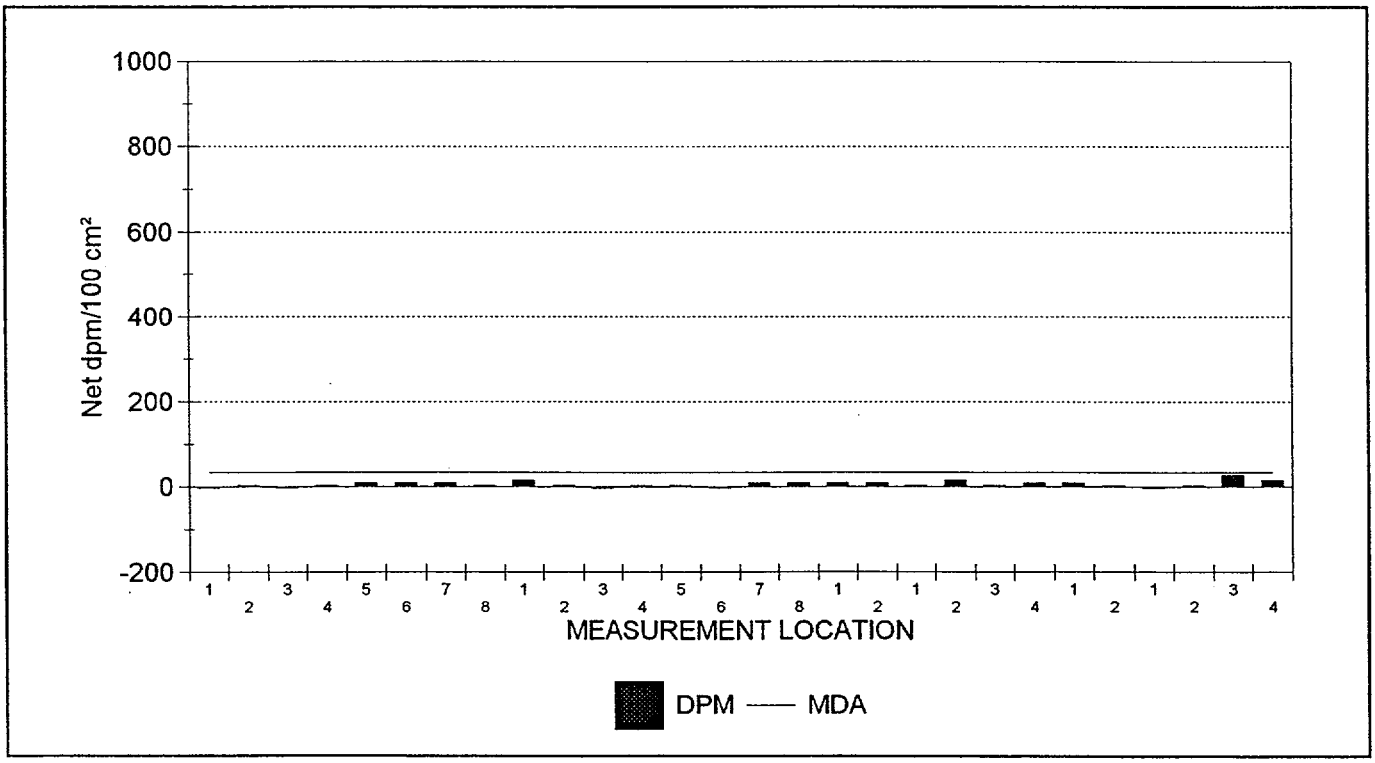
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | 5.8 |
| Maximum | 27.4 |
| Minimum | -3.5 |
| Standard Deviation | 7.1 |
| MDA | 32.2 |

| | |
|---|---|
| Samples Reported | 28 |
| Samples Prescribed | 28 |

### TESTS PERFORMED

| | |
|---|---|
| MDA <100 net dpm/100 cm² | YES |
| Results above 100 net dpm/100 cm² | 0 |
| Number of results above MDA | 0 |




28 RESULTS ARE GRAPHED

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Maine Yankee Atomic Power Plant Site Characterization

03/29/98

## Removable Contamination - Gross Alpha Activity

Survey Package A2300 SURFACES & STRUCTURES
Tank (PWST) - Elevation 21 ft.

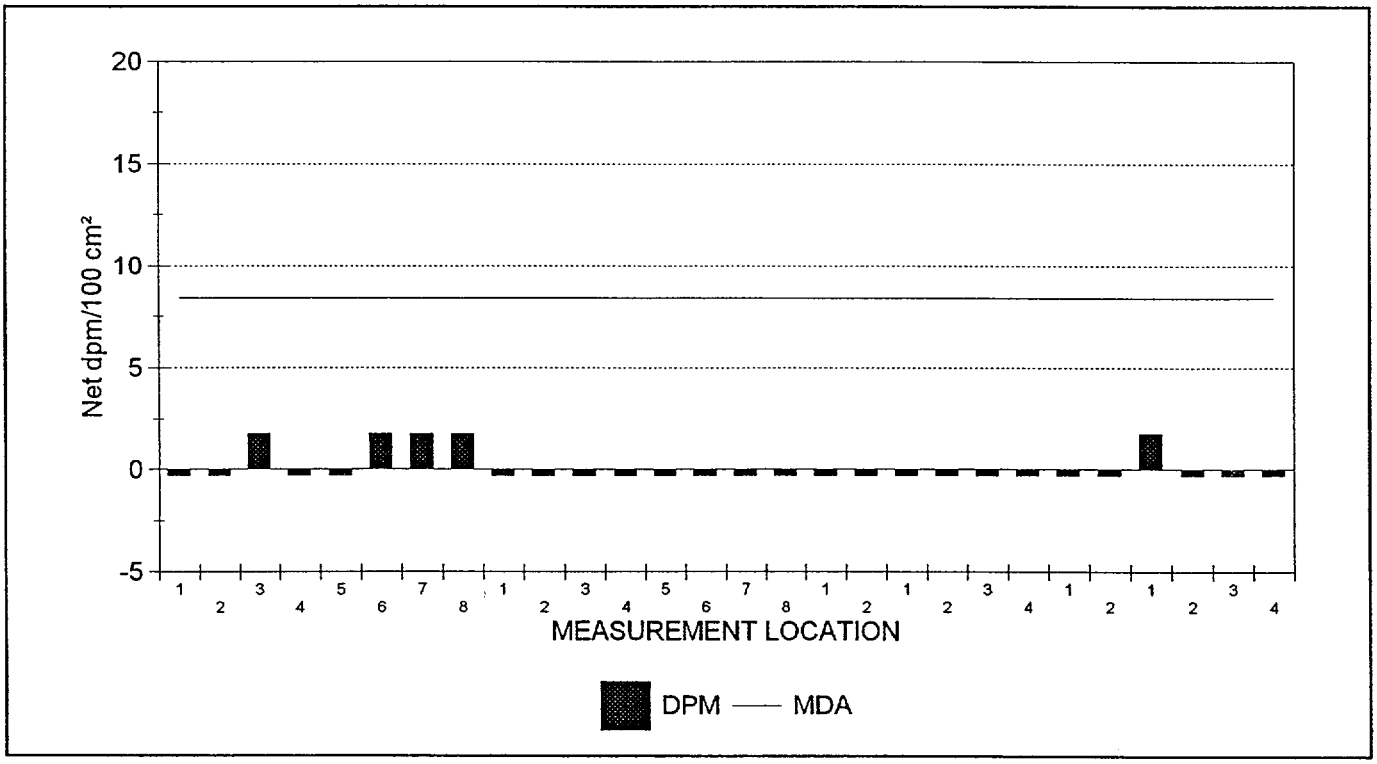
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | 0.1 |
| Maximum | 1.8 |
| Minimum | -0.3 |
| Standard Deviation | 0.8 |
| MDA | 8.4 |

| | |
|---|---|
| Samples Reported | 28 |
| Samples Prescribed | 28 |

### TESTS PERFORMED

| | |
|---|---|
| MDA <10 net dpm/100 cm² | YES |
| Results above 20 net dpm/100 cm² | 0 |
| Number of results above MDA | 0 |




28 RESULTS ARE GRAPHED

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03/29/98 Removable Contamination

Survey Package : A2300 SURFACES & STRUCTURES
Tank (PWST) - Elevation 21 ft.

## RESULTS LISTING - SORTED BY SURFACE CODE

| XLS FILE | UNIT | SURFACE | REASON | MSRMNT LOCATION | ALPHA | BETA |
|---|---|---|---|---|---|---|
| SME1E033.XLS | 02 | WS1 | C01 | 4 | -0.3 | 15.1 |
| SME1E033.XLS | 02 | WS1 | C01 | 3 | -0.3 | 27.4 |
| SME1E033.XLS | 02 | WS1 | C01 | 2 | -0.3 | 2.7 |
| SME1E033.XLS | 02 | WS1 | C01 | 1 | 1.8 | -3.5 |
| SME1E033.XLS | 02 | RF1 | C01 | 2 | -0.3 | 2.7 |
| SME1E033.XLS | 02 | RF1 | C01 | 1 | -0.3 | 8.9 |
| SME1E033.XLS | 02 | EQ1 | C01 | 4 | -0.3 | 8.9 |
| SME1E033.XLS | 02 | EQ1 | C01 | 3 | -0.3 | 2.7 |
| SME1E033.XLS | 02 | EQ1 | C01 | 2 | -0.3 | 15.1 |
| SME1E033.XLS | 02 | EQ1 | C01 | 1 | -0.3 | 2.7 |
| SME1E033.XLS | 02 | CL1 | C01 | 2 | -0.3 | 8.9 |
| SME1E033.XLS | 02 | CL1 | C01 | 1 | -0.3 | 8.9 |
| SME1E033.XLS | 01 | WE1 | C01 | 8 | -0.3 | 8.9 |
| SME1E033.XLS | 01 | WE1 | C01 | 7 | -0.3 | 8.9 |
| SME1E033.XLS | 01 | WE1 | C01 | 6 | -0.3 | -3.5 |
| SME1E033.XLS | 01 | WE1 | C01 | 5 | -0.3 | 2.7 |
| SME1E033.XLS | 01 | WE1 | C01 | 4 | -0.3 | 2.7 |
| SME1E033.XLS | 01 | WE1 | C01 | 3 | -0.3 | -3.5 |
| SME1E033.XLS | 01 | WE1 | C01 | 2 | -0.3 | 2.7 |
| SME1E033.XLS | 01 | WE1 | C01 | 1 | -0.3 | 15.1 |
| SME1E033.XLS | 01 | SS1 | C01 | 8 | 1.8 | 2.7 |
| SME1E033.XLS | 01 | SS1 | C01 | 7 | 1.8 | 8.9 |
| SME1E033.XLS | 01 | SS1 | C01 | 6 | 1.8 | 8.9 |
| SME1E033.XLS | 01 | SS1 | C01 | 5 | -0.3 | 8.9 |
| SME1E033.XLS | 01 | SS1 | C01 | 4 | -0.3 | 2.7 |
| SME1E033.XLS | 01 | SS1 | C01 | 3 | 1.8 | -3.5 |
| SME1E033.XLS | 01 | SS1 | C01 | 2 | -0.3 | 2.7 |
| SME1E033.XLS | 01 | SS1 | C01 | 1 | -0.3 | -3.5 |

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 100.00 dpm/100 cm² (beta activity) and/or 20.00 dpm/100 cm² (alpha activity).
28 results are listed.

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Maine Yankee Atomic Power Plant Site Characterization

# DATAFILE & TENNELEC CALIBRATION SUMMARY

03/29/98

Removable Contamination

Survey Package : A2300 SURFACES & STRUCTURES
Tank (PWST) - Elevation 21 ft.

| SURVEYDATE | XLS FILE | INST ID | S/N | CAL DUE | LAB TECHNICIAN |
|---|---|---|---|---|---|
| 2/25/98 | SME1E033.XLS | 1 | 15632 | 8/5/98 | JWD |
| | | | | CALIBRATION DATE VERIFIED AS ACCEPTABLE | |

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04/02/98

# CHARACTERIZATION SUMMARY

SURVEY PACKAGE NUMBER A2400

SURFACES & STRUCTURES

PACKAGE DESCRIPTION
Includes: Test Tank 14A and Test Tank 14B

Test Tanks 14A / 14B - Elevation 21 ft.

SURVEY AREA DESCRIPTION
Test Tanks (Tanks 14A/14B)

GENERAL HISTORICAL INFORMATION (Operational history, etc.)

Tanks 14A&14B are stainless steel, each with 12, 400 gallon capacity, and used as final sample and holding tanks prior to liquid discharge to environment. They have a concrete base with small diameter piping to Auxiliary Building.

SUMMARY OF CHARACTERIZATION ACTIVITIES

Survey units were established for the areas as listed in the following Summary of Survey Units. Maps with the survey measurement locations for this package are included on the following pages.

Collected 36 direct measurements for total beta activity at the survey measurement locations indicated in the results listing report. Due to elevated background radioactivity in the survey area, a scan of a two meter area encompassing each survey measurement location was not performed. Each direct measurement for total beta activity was accompanied by a corresponding background measurement at the same location. The background was used in the calculation of net dpm/100cm².

Collected smear samples to analyze for removable alpha and beta activity at the same 36 survey locations as the direct measurements for total beta activity.

Collected no one meter exposure rate measurements.

The survey result statistical summaries, graphs and results listings are shown in the following individual reports including calibration summaries for the instruments used for each measurement type.

CHARACTERIZATION SURVEY RESULTS

- There were 6 direct measurements for total beta activity above 2000 dpm/100cm². There were 14 direct measurements for total beta activity above the individual measurements' MDA (Maximum MDA was 1,438 dpm/100cm²). The maximum measurement result was 4,300 dpm/100cm².
- There were no measurements for removable beta activity above MDA (36 dpm/100cm²).
- There were no measurements for removable alpha activity above MDA (8.2 dpm/100cm²).

REFERENCES (Documents, Interviews)

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# SUMMARY OF SURVEY UNIT(S)

04/02/98 OUTPUT BATCH SN = 500

**PACKAGE** A2400 SURFACES & STRUCTURES
Test Tanks 14A / 14B - Elevation 21 ft.
Includes: Test Tank 14A and Test Tank 14B

| UNIT(S) | SURFACE(S) |
|---|---|
| 01 - Test Tank 14A | EQ1 (Equipment: Pipes and insulation)<br>SS1 (Concrete Base)<br>WE1 (Outer Surface) |
| 02 - Test Tank 14B | EQ1 (Equipment: Pipes and insulation)<br>SS1 (Concrete Base)<br>WE1 (Outer Surface) |

**REASON(S)** CHARACTERIZATION SURVEY (C01)

**MATERIALS**

| MAT'L CODE | MATERIAL DESCRIPTION | BETA BKGD (dpm/100 cm²) |
|---|---|---|
| B0039 | CONCRETE - BARE (EXTERIOR) | 665.0 |
| B9999 | OTHER | 0.0 |

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Maine Yankee Atomic Power Plant Site Characterization

04/02/98

## Direct Measurements For Total Beta Activity

Survey Package A2400 SURFACES & STRUCTURES
Test Tanks 14A / 14B - Elevation 21 ft.
Includes: Test Tank 14A and Test Tank 14B

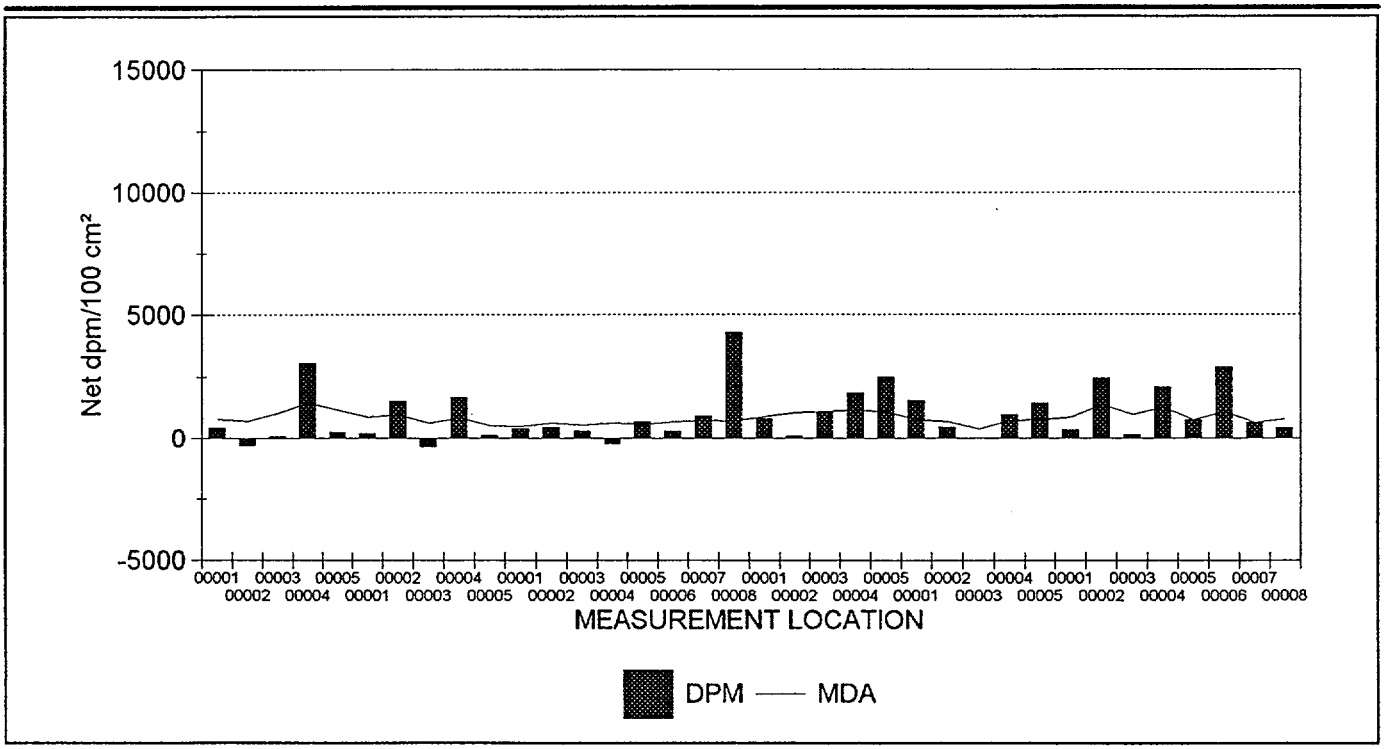
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | 955.5 |
| Maximum | 4,299.6 |
| Minimum | -353.1 |
| Standard Deviation | 1,062.8 |
| MDA | 1,437.5 |

| | |
|---|---|
| Samples Reported | 36 |
| Samples Prescribed | 36 |

### TESTS PERFORMED

| | |
|---|---|
| Samples reported satisfy samples prescribed | YES |
| MDA <2000 net dpm/100 cm² | YES |
| Results above 2000 net dpm/100 cm² | 6 |
| Number of results above MDA | 14 |




36 RESULTS ARE GRAPHED

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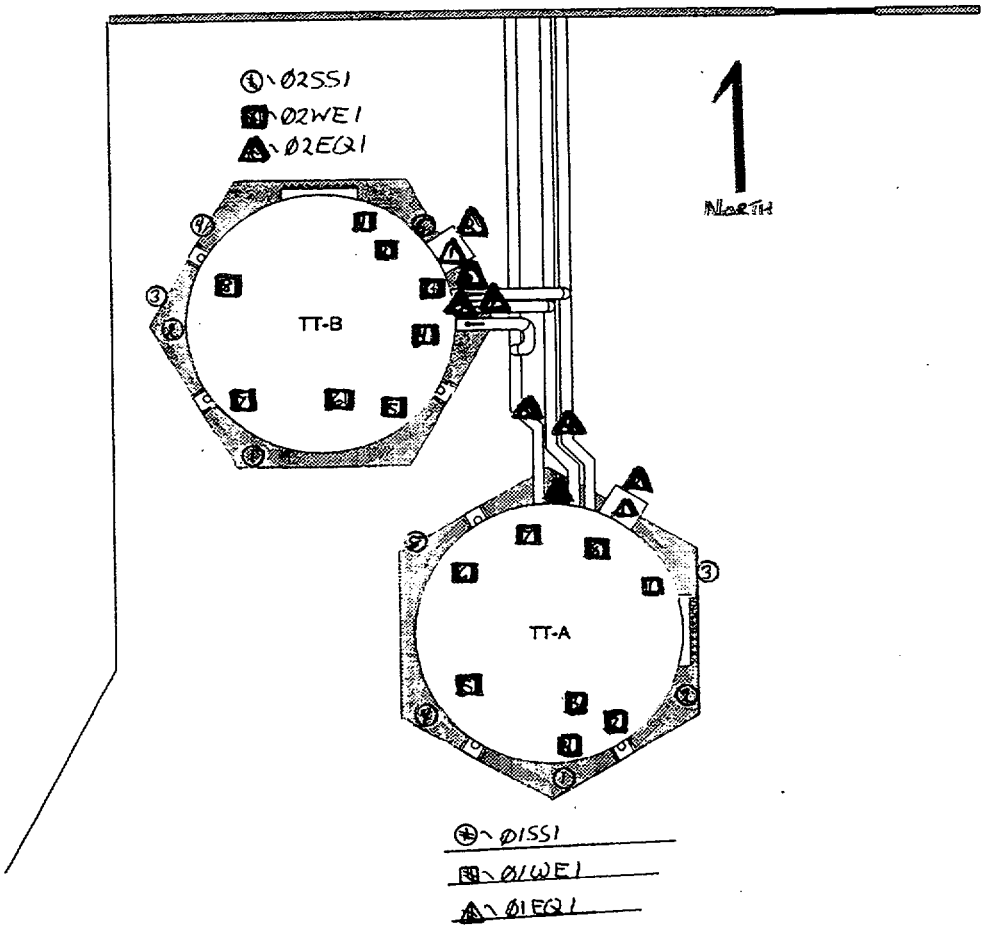
## Test Tanks Area

A2400



04/02/98

## Direct Measurements For Total Beta Activity

Survey Package : A2400 SURFACES & STRUCTURES
Test Tanks 14A / 14B - Elevation 21 ft.
Includes: Test Tank 14A and Test Tank 14B

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | MDA | RESULT |
|---|---|---|---|---|---|---|---|---|
| 626 (2) | 01 | EQ1 | B9999 | C01 | 60 | 00001 | 792.8 | 437.1 |
| 626 (2) | 01 | EQ1 | B9999 | C01 | 60 | 00002 | 694.6 | -323.9 |
| 626 (2) | 01 | EQ1 | B9999 | C01 | 60 | 00003 | 1,009.1 | 85.9 |
| 626 (2) | 01 | EQ1 | B9999 | C01 | 60 | 00004 | 1,437.5 | ***3,055.7*** |
| 626 (2) | 01 | EQ1 | B9999 | C01 | 60 | 00005 | 1,149.9 | 249.8 |
| 591 (2) | 01 | SS1 | B0039 | C01 | 60 | 00001 | 870.5 | 216.0 |
| 591 (2) | 01 | SS1 | B0039 | C01 | 60 | 00002 | 966.7 | 1,502.4 |
| 591 (2) | 01 | SS1 | B0039 | C01 | 60 | 00003 | 634.4 | -353.1 |
| 591 (2) | 01 | SS1 | B0039 | C01 | 60 | 00004 | 824.7 | 1,654.4 |
| 591 (2) | 01 | SS1 | B0039 | C01 | 60 | 00005 | 525.5 | 138.0 |
| 591 (2) | 01 | WE1 | B9999 | C01 | 60 | 00001 | 501.9 | 417.1 |
| 591 (2) | 01 | WE1 | B9999 | C01 | 60 | 00002 | 618.9 | 456.1 |
| 591 (2) | 01 | WE1 | B9999 | C01 | 60 | 00003 | 548.0 | 304.1 |
| 591 (2) | 01 | WE1 | B9999 | C01 | 60 | 00004 | 615.4 | -226.1 |
| 591 (2) | 01 | WE1 | B9999 | C01 | 60 | 00005 | 572.5 | 682.2 |
| 591 (2) | 01 | WE1 | B9999 | C01 | 60 | 00006 | 688.2 | 319.6 |
| 591 (2) | 01 | WE1 | B9999 | C01 | 60 | 00007 | 721.4 | 904.4 |
| 591 (2) | 01 | WE1 | B9999 | C01 | 60 | 00008 | 698.3 | ***4,299.6*** |
| 626 (2) | 02 | EQ1 | B9999 | C01 | 60 | 00001 | 884.8 | 803.9 |
| 626 (2) | 02 | EQ1 | B9999 | C01 | 60 | 00002 | 1,038.2 | 117.1 |
| 626 (2) | 02 | EQ1 | B9999 | C01 | 60 | 00003 | 1,085.4 | 1,077.1 |
| 626 (2) | 02 | EQ1 | B9999 | C01 | 60 | 00004 | 1,140.6 | 1,842.0 |
| 626 (2) | 02 | EQ1 | B9999 | C01 | 60 | 00005 | 1,073.4 | ***2,501.5*** |
| 626 (2) | 02 | SS1 | B0039 | C01 | 60 | 00001 | 745.4 | 1,539.9 |
| 626 (2) | 02 | SS1 | B0039 | C01 | 60 | 00002 | 688.3 | 478.4 |
| 626 (2) | 02 | SS1 | B0039 | C01 | 60 | 00003 | 386.2 | 37.5 |
| 626 (2) | 02 | SS1 | B0039 | C01 | 60 | 00004 | 727.7 | 962.4 |
| 626 (2) | 02 | SS1 | B0039 | C01 | 60 | 00005 | 743.9 | 1,430.7 |
| 626 (2) | 02 | WE1 | B9999 | C01 | 60 | 00001 | 861.3 | 370.7 |
| 626 (2) | 02 | WE1 | B9999 | C01 | 60 | 00002 | 1,356.9 | ***2,450.8*** |
| 626 (2) | 02 | WE1 | B9999 | C01 | 60 | 00003 | 958.4 | 148.6 |
| 626 (2) | 02 | WE1 | B9999 | C01 | 60 | 00004 | 1,239.7 | ***2,083.9*** |
| 626 (2) | 02 | WE1 | B9999 | C01 | 60 | 00005 | 764.7 | 745.4 |
| 626 (2) | 02 | WE1 | B9999 | C01 | 60 | 00006 | 1,072.6 | ***2,895.7*** |
| 626 (2) | 02 | WE1 | B9999 | C01 | 60 | 00007 | 663.2 | 651.7 |
| 626 (2) | 02 | WE1 | B9999 | C01 | 60 | 00008 | 791.3 | 441.0 |

NOTES: Activity reported in net dpm/100 cm². Count times are reported in seconds.
Underlined values exceed the MDA.
Bold values exceed 2000 dpm/100 cm².
36 results are listed.

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# DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

04/02/98 Direct Measurements For Total Beta Activity

Survey Package : A2400 SURFACES & STRUCTURES
Test Tanks 14A / 14B - Elevation 21 ft.
Includes: Test Tank 14A and Test Tank 14B

| SURVEY | | M2350 | | DETECTOR | | | POST | |
|---|---|---|---|---|---|---|---|---|
| DATE | FILE # | INST S/N | CAL DUE | MODEL | S/N | CAL DUE | EFF | TECHNICIAN |
| 2/11/98 | 591 (2) | 129401 | 6/10/98 | 43-106 | 128924 | 6/8/98 | .20 | GLL9768 |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | | |
| 2/20/98 | 626 (2) | 129401 | 6/10/98 | 43-106 | 128924 | 6/8/98 | .20 | GLL9768 |
| | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | | |

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03/29/98

# CHARACTERIZATION SUMMARY

SURVEY PACKAGE NUMBER :A2400

SURFACES & STRUCTURES

PACKAGE DESCRIPTION
Includes: Test Tank 14A and Test Tank 14B

Test Tanks 14A / 14B - Elevation 21 ft.

SURVEY AREA DESCRIPTION
Test Tanks (Tanks 14A/14B)

GENERAL HISTORICAL INFORMATION (Operational history, etc.)

Tanks 14A&14B are stainless steel, each with 12, 400 gallon capacity, and used as final sample and holding tanks prior to liquid discharge to environment. They have a concrete base with small diameter piping to Auxiliary Building. Due to present use and/or presence of radioactive materials, this area has been classified as Affected. Area may be reclassified during or following characterization.

SUMMARY OF CHARACTERIZATION ACTIVITIES

A background measurement for direct beta activity measurements was made at each survey location.

A direct measurement of total beta activity and a removable surface contamination measurement was made at each survey location.

The wall measurements included the walls above and below 2 meters. The ceiling measurements included the interior overhead surfaces of the ceilings.

The measurements on exterior surfaces of piping, cable trays, duct work, plant equipment etc., were using "Plant Equipment" type surface code, i.e., EQ1-N.

Floor measurements were collected on the present day floor covering.

Radiation levels in some areas may have precluded direct measurement of total beta activity. These areas were assessed on a case by case basis for alternative sampling if this was applicable.

A 1-meter gamma exposure rate measurement was made at each survey measurement location on floor surfaces.

CHARACTERIZATION SURVEY RESULTS

Maps of the surveys for this package are included on the following pages. The results of the surveys and statistical summaries are shown in the following individual reports. Reports include summary statistics and graphs of the data followed by the values associated with the survey measurement location code. Reports include:

- o Direct Measurements for Total Beta Activity and Results Listing,
- o Removable Contamination - Gross Beta Activity and Removable Contamination - Gross Alpha Activity and Results Listing, and
- o Gamma Exposure Rate Measurements at 1 Meter and Results Listing.

If samples were collected for analysis by gamma spectrometry, the Gamma Spectrum Results Listing is also provided. In addition, instrument calibration summaries are provided for all instruments used for the reports.

REFERENCES (Documents, Interviews)

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# SUMMARY OF SURVEY UNIT(S)

03/29/98

OUTPUT BATCH SN = 280

**PACKAGE** A2400 SURFACES & STRUCTURES
Test Tanks 14A / 14B - Elevation 21 ft.
Includes: Test Tank 14A and Test Tank 14B

| UNIT(S) | SURFACE(S) |
|---|---|
| 01 - Test Tank 14A | EQ1 (Equipment: Pipes and insulation)<br>SS1 (Concrete Base)<br>WE1 (Outer Surface) |
| 02 - Test Tank 14B | EQ1 (Equipment: Pipes and insulation)<br>SS1 (Concrete Base)<br>WE1 (Outer Surface) |

**REASON(S)** CHARACTERIZATION SURVEY (C01)

**MATERIALS**

| MAT'L CODE | MATERIAL DESCRIPTION | BETA BKGD (dpm/100 cm²) |
|---|---|---|
| B0039 | CONCRETE - BARE (EXTERIOR) | 665.0 |
| B9999 | OTHER | 0.0 |

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# Maine Yankee Atomic Power Plant Site Characterization

03/31/98

## Direct Measurements For Total Beta Activity

Survey Package A2400 SURFACES & STRUCTURES
Test Tanks 14A / 14B - Elevation 21 ft.
Includes: Test Tank 14A and Test Tank 14B

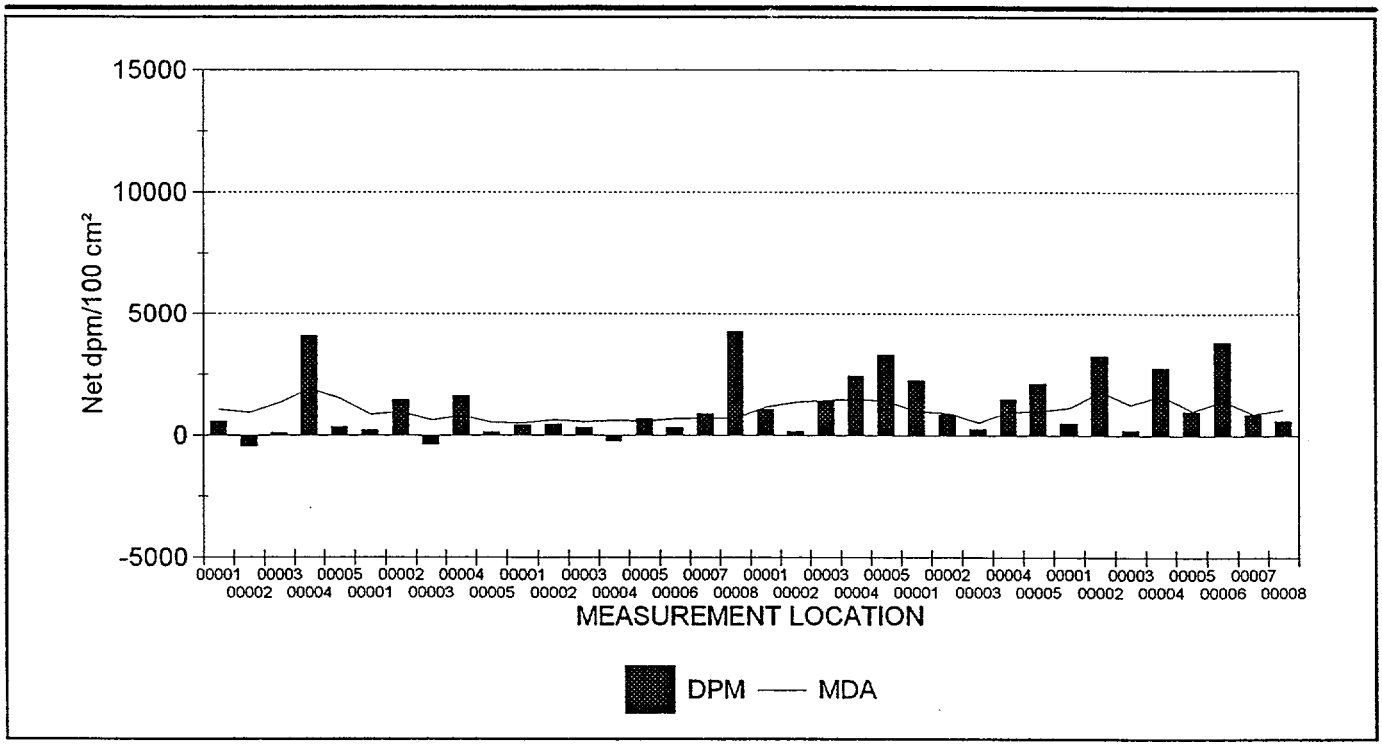
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | 1,207.5 |
| Maximum | 4,268.3 |
| Minimum | -432.3 |
| Standard Deviation | 1,298.1 |
| MDA | 1,918.6 |

| | |
|---|---|
| Samples Reported | 36 |
| Samples Prescribed | 36 |

### TESTS PERFORMED

| | |
|---|---|
| Samples reported satisfy samples prescribed | YES |
| MDA <2000 net dpm/100 cm² | YES |
| Results above 2000 net dpm/100 cm² | 9 |
| Number of results above MDA | 14 |




36 RESULTS ARE GRAPHED

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Maine Yankee Atomic Power Plant Site Characterization

03/31/98

Direct Measurements For Total Beta Activity

Survey Package : A2400 SURFACES & STRUCTURES
Test Tanks 14A / 14B - Elevation 21 ft.
Includes: Test Tank 14A and Test Tank 14B

## RESULTS LISTING - SORTED BY SURFACE CODE

| FILE # | UNIT | SURFACE | MATERIAL | REASON | COUNT TIME | MSRMNT LOCATION | MDA | RESULT |
|---|---|---|---|---|---|---|---|---|
| 626 (2) | 01 | EQ1 | B9999 | C01 | 60 | 00001 | 1,058.1 | 583.3 |
| 626 (2) | 01 | EQ1 | B9999 | C01 | 60 | 00002 | 927.0 | -432.3 |
| 626 (2) | 01 | EQ1 | B9999 | C01 | 60 | 00003 | 1,346.8 | 114.6 |
| 626 (2) | 01 | EQ1 | B9999 | C01 | 60 | 00004 | 1,918.6 | ***4,078.2*** |
| 626 (2) | 01 | EQ1 | B9999 | C01 | 60 | 00005 | 1,534.7 | 333.3 |
| 591 (2) | 01 | SS1 | B0039 | C01 | 60 | 00001 | 864.2 | 209.6 |
| 591 (2) | 01 | SS1 | B0039 | C01 | 60 | 00002 | 959.6 | 1,486.6 |
| 591 (2) | 01 | SS1 | B0039 | C01 | 60 | 00003 | 629.8 | -355.4 |
| 591 (2) | 01 | SS1 | B0039 | C01 | 60 | 00004 | 818.7 | 1,637.5 |
| 591 (2) | 01 | SS1 | B0039 | C01 | 60 | 00005 | 521.6 | 132.2 |
| 591 (2) | 01 | WE1 | B9999 | C01 | 60 | 00001 | 498.3 | 414.1 |
| 591 (2) | 01 | WE1 | B9999 | C01 | 60 | 00002 | 614.4 | 452.8 |
| 591 (2) | 01 | WE1 | B9999 | C01 | 60 | 00003 | 544.0 | 301.8 |
| 591 (2) | 01 | WE1 | B9999 | C01 | 60 | 00004 | 610.9 | -224.4 |
| 591 (2) | 01 | WE1 | B9999 | C01 | 60 | 00005 | 568.3 | 677.2 |
| 591 (2) | 01 | WE1 | B9999 | C01 | 60 | 00006 | 683.2 | 317.3 |
| 591 (2) | 01 | WE1 | B9999 | C01 | 60 | 00007 | 716.1 | 897.8 |
| 591 (2) | 01 | WE1 | B9999 | C01 | 60 | 00008 | 693.3 | ***4,268.3*** |
| 626 (2) | 02 | EQ1 | B9999 | C01 | 60 | 00001 | 1,180.9 | 1,072.9 |
| 626 (2) | 02 | EQ1 | B9999 | C01 | 60 | 00002 | 1,385.6 | 156.2 |
| 626 (2) | 02 | EQ1 | B9999 | C01 | 60 | 00003 | 1,448.6 | 1,437.5 |
| 626 (2) | 02 | EQ1 | B9999 | C01 | 60 | 00004 | 1,522.3 | ***2,458.4*** |
| 626 (2) | 02 | EQ1 | B9999 | C01 | 60 | 00005 | 1,432.6 | ***3,338.6*** |
| 626 (2) | 02 | SS1 | B0039 | C01 | 60 | 00001 | 994.9 | ***2,277.8*** |
| 626 (2) | 02 | SS1 | B0039 | C01 | 60 | 00002 | 918.6 | 861.1 |
| 626 (2) | 02 | SS1 | B0039 | C01 | 60 | 00003 | 515.5 | 272.5 |
| 626 (2) | 02 | SS1 | B0039 | C01 | 60 | 00004 | 971.3 | 1,506.9 |
| 626 (2) | 02 | SS1 | B0039 | C01 | 60 | 00005 | 992.8 | ***2,131.9*** |
| 626 (2) | 02 | WE1 | B9999 | C01 | 60 | 00001 | 1,149.5 | 494.8 |
| 626 (2) | 02 | WE1 | B9999 | C01 | 60 | 00002 | 1,811.0 | ***3,270.9*** |
| 626 (2) | 02 | WE1 | B9999 | C01 | 60 | 00003 | 1,279.1 | 198.4 |
| 626 (2) | 02 | WE1 | B9999 | C01 | 60 | 00004 | 1,654.5 | ***2,781.3*** |
| 626 (2) | 02 | WE1 | B9999 | C01 | 60 | 00005 | 1,020.6 | 994.8 |
| 626 (2) | 02 | WE1 | B9999 | C01 | 60 | 00006 | 1,431.5 | ***3,864.7*** |
| 626 (2) | 02 | WE1 | B9999 | C01 | 60 | 00007 | 885.2 | 869.8 |
| 626 (2) | 02 | WE1 | B9999 | C01 | 60 | 00008 | 1,056.2 | 588.6 |

NOTES: Activity reported in net dpm/100 cm². Count times are reported in seconds.
Underlined values exceed the MDA.
Bold values exceed 2000 dpm/100 cm².
36 results are listed.

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# DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

03/31/98 Direct Measurements For Total Beta Activity

Survey Package : A2400 SURFACES & STRUCTURES
Test Tanks 14A / 14B - Elevation 21 ft.
Includes: Test Tank 14A and Test Tank 14B

| SURVEY | | M2350 | | DETECTOR | | | PRE | |
|---|---|---|---|---|---|---|---|---|
| DATE | FILE # | INST S/N | CAL DUE | MODEL | S/N | CAL DUE | EFF | TECHNICIAN |
| 2/11/98 | 591 (2) | 129401 | 6/10/98 | 43-106 | 128924 | 6/8/98 | .21 | GLL9768 |
| | | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | |
| 2/20/98 | 626 (2) | 129401 | 6/10/98 | 43-106 | 128924 | 6/8/98 | .15 | GLL9768 |
| | | | | | | | CALIBRATION DATES VERIFIED AS ACCEPTABLE | |

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DURATEK

Maine Yankee Atomic Power Plant Site Characterization

03/29/98

## Removable Contamination - Gross Beta Activity

Survey Package A2400 SURFACES & STRUCTURES
Test Tanks 14A / 14B - Elevation 21 ft.
Includes: Test Tank 14A and Test Tank 14B

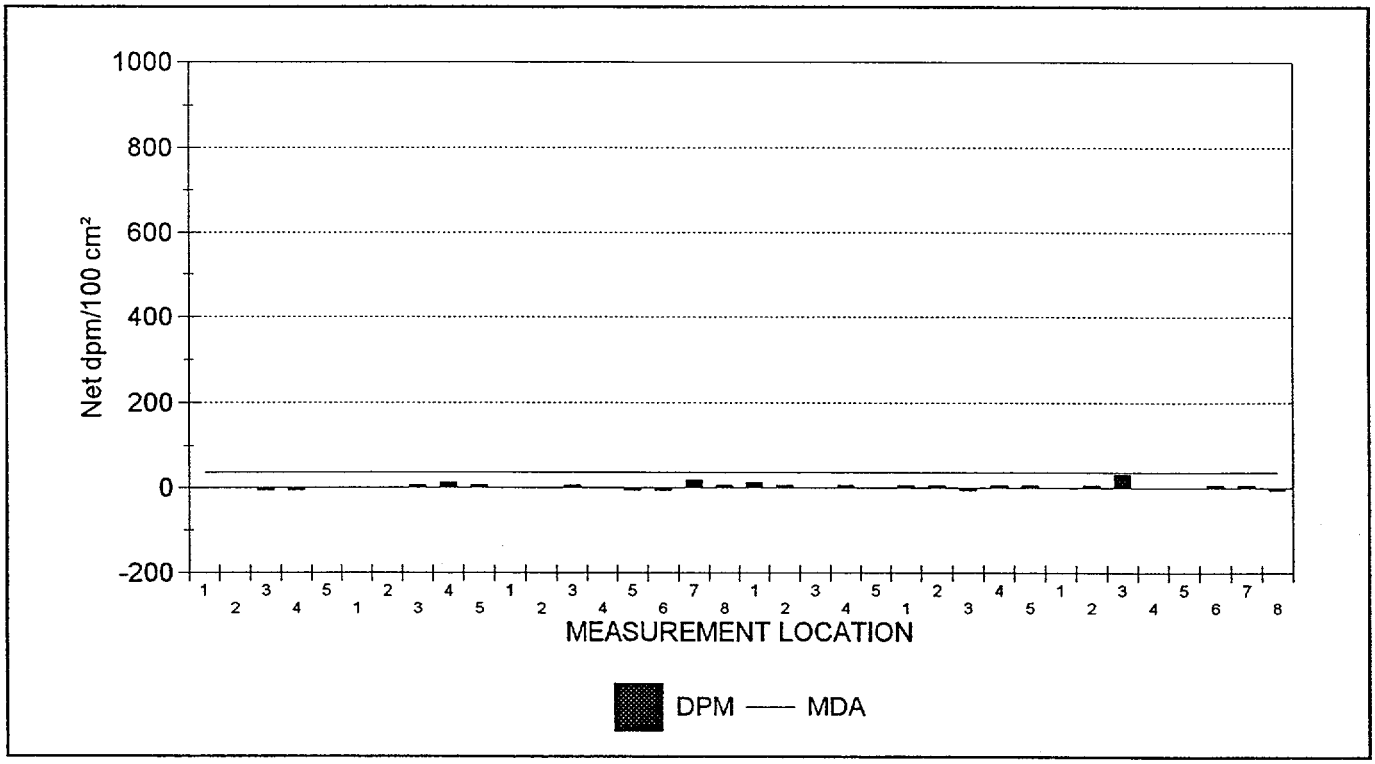
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | 3.5 |
| Maximum | 30.7 |
| Minimum | -5.8 |
| Standard Deviation | 7.3 |
| MDA | 36.1 |

| | |
|---|---|
| Samples Reported | 36 |
| Samples Prescribed | 36 |

### TESTS PERFORMED

| | |
|---|---|
| MDA <100 net dpm/100 cm² | YES |
| Results above 100 net dpm/100 cm² | 0 |
| Number of results above MDA | 0 |




36 RESULTS ARE GRAPHED

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Maine Yankee Atomic Power Plant Site Characterization

03/29/98

## Removable Contamination - Gross Alpha Activity

Survey Package A2400 SURFACES & STRUCTURES
Test Tanks 14A / 14B - Elevation 21 ft.
Includes: Test Tank 14A and Test Tank 14B

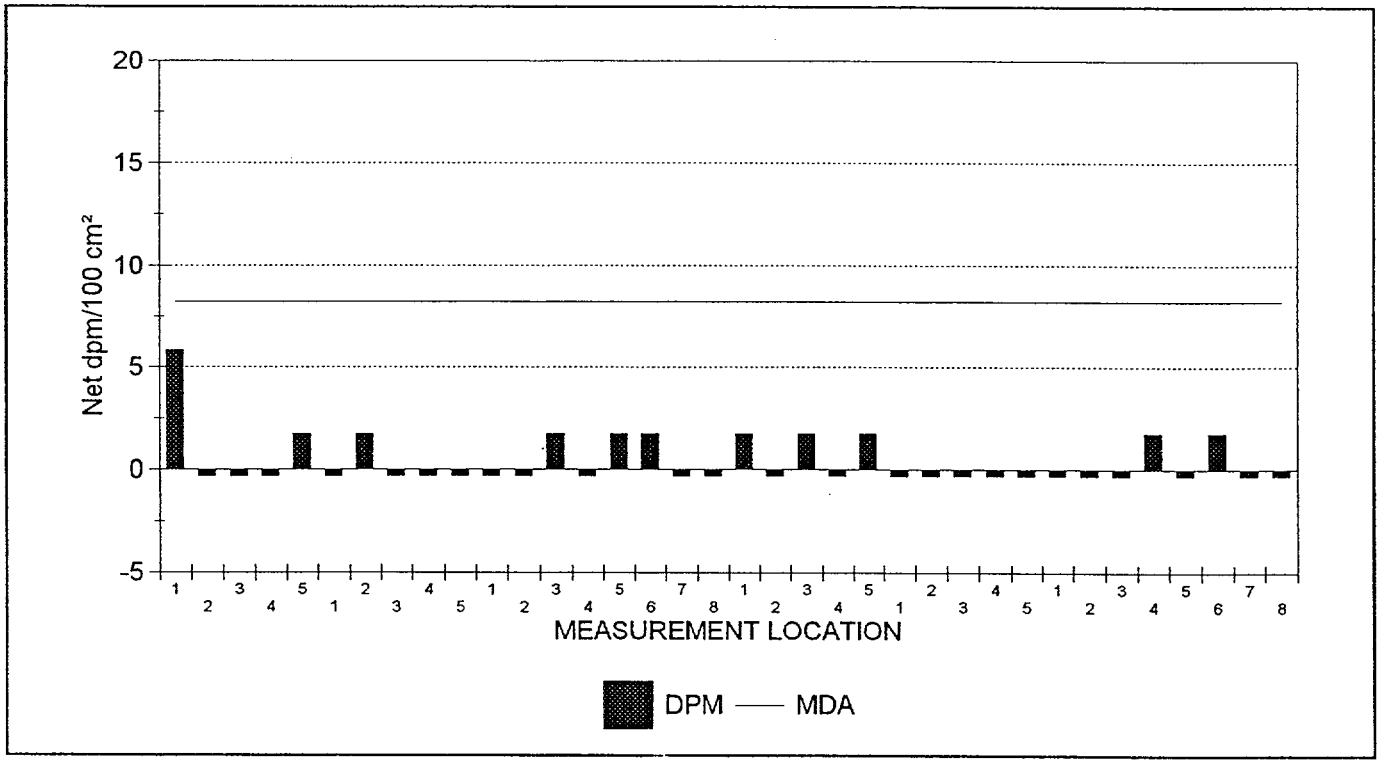
### STATISTICAL SUMMARY

| | Net dpm/100 cm² |
|---|---|
| Mean | 0.4 |
| Maximum | 5.8 |
| Minimum | -0.3 |
| Standard Deviation | 1.3 |
| MDA | 8.2 |

| | |
|---|---|
| Samples Reported | 36 |
| Samples Prescribed | 36 |

### TESTS PERFORMED

| | |
|---|---|
| MDA <10 net dpm/100 cm² | YES |
| Results above 20 net dpm/100 cm² | 0 |
| Number of results above MDA | 0 |




36 RESULTS ARE GRAPHED

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03/29/98 Removable Contamination

Survey Package : A2400 SURFACES & STRUCTURES
Test Tanks 14A / 14B - Elevation 21 ft.
Includes: Test Tank 14A and Test Tank 14B

## RESULTS LISTING - SORTED BY SURFACE CODE

| XLS FILE | UNIT | SURFACE | REASON | MSRMNT LOCATION | ALPHA | BETA |
|---|---|---|---|---|---|---|
| SME1E083.XLS | 02 | WE1 | C01 | 8 | -0.3 | -5.8 |
| SME1E083.XLS | 02 | WE1 | C01 | 7 | -0.3 | 6.4 |
| SME1E083.XLS | 02 | WE1 | C01 | 6 | 1.7 | 6.4 |
| SME1E083.XLS | 02 | WE1 | C01 | 5 | -0.3 | 0.3 |
| SME1E083.XLS | 02 | WE1 | C01 | 4 | 1.7 | 0.3 |
| SME1E083.XLS | 02 | WE1 | C01 | 3 | -0.3 | 30.7 |
| SME1E083.XLS | 02 | WE1 | C01 | 2 | -0.3 | 6.4 |
| SME1E083.XLS | 02 | WE1 | C01 | 1 | -0.3 | 0.3 |
| SME1E083.XLS | 02 | SS1 | C01 | 5 | -0.3 | 6.4 |
| SME1E083.XLS | 02 | SS1 | C01 | 4 | -0.3 | 6.4 |
| SME1E083.XLS | 02 | SS1 | C01 | 3 | -0.3 | -5.8 |
| SME1E083.XLS | 02 | SS1 | C01 | 2 | -0.3 | 6.4 |
| SME1E083.XLS | 02 | SS1 | C01 | 1 | -0.3 | 6.4 |
| SME1E083.XLS | 02 | EQ1 | C01 | 5 | 1.7 | 0.3 |
| SME1E083.XLS | 02 | EQ1 | C01 | 4 | -0.3 | 6.4 |
| SME1E083.XLS | 02 | EQ1 | C01 | 3 | 1.7 | 0.3 |
| SME1E083.XLS | 02 | EQ1 | C01 | 2 | -0.3 | 6.4 |
| SME1E083.XLS | 02 | EQ1 | C01 | 1 | 1.7 | 12.4 |
| SME1E083.XLS | 01 | WE1 | C01 | 8 | -0.3 | 6.4 |
| SME1E083.XLS | 01 | WE1 | C01 | 7 | -0.3 | 18.5 |
| SME1E083.XLS | 01 | WE1 | C01 | 6 | 1.7 | -5.8 |
| SME1E083.XLS | 01 | WE1 | C01 | 5 | 1.7 | -5.8 |
| SME1E083.XLS | 01 | WE1 | C01 | 4 | -0.3 | 0.3 |
| SME1E083.XLS | 01 | WE1 | C01 | 3 | 1.7 | 6.4 |
| SME1E083.XLS | 01 | WE1 | C01 | 2 | -0.3 | 0.3 |
| SME1E083.XLS | 01 | WE1 | C01 | 1 | -0.3 | 0.3 |
| SME1E083.XLS | 01 | SS1 | C01 | 5 | -0.3 | 6.4 |
| SME1E083.XLS | 01 | SS1 | C01 | 4 | -0.3 | 12.4 |
| SME1E083.XLS | 01 | SS1 | C01 | 3 | -0.3 | 6.4 |
| SME1E083.XLS | 01 | SS1 | C01 | 2 | 1.7 | 0.3 |
| SME1E083.XLS | 01 | SS1 | C01 | 1 | -0.3 | 0.3 |
| SME1E083.XLS | 01 | EQ1 | C01 | 5 | 1.7 | 0.3 |
| SME1E083.XLS | 01 | EQ1 | C01 | 4 | -0.3 | -5.8 |
| SME1E083.XLS | 01 | EQ1 | C01 | 3 | -0.3 | -5.8 |
| SME1E083.XLS | 01 | EQ1 | C01 | 2 | -0.3 | 0.3 |
| SME1E083.XLS | 01 | EQ1 | C01 | 1 | 5.9 | 0.3 |

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 100.00 dpm/100 cm² (beta activity) and/or 20.00 dpm/100 cm² (alpha activity).
36 results are listed.

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Maine Yankee Atomic Power Plant Site Characterization

# DATAFILE & TENNELEC CALIBRATION SUMMARY

03/29/98

Removable Contamination

Survey Package : A2400 SURFACES & STRUCTURES
Test Tanks 14A / 14B - Elevation 21 ft.
Includes: Test Tank 14A and Test Tank 14B

| SURVEYDATE | XLS FILE | INST ID | S/N | CAL DUE | LAB TECHNICIAN |
|---|---|---|---|---|---|
| 3/9/98 | SME1E083.XLS | 1 | 15632 | 8/5/98 | JWD |
| | | | | CALIBRATION DATE VERIFIED AS ACCEPTABLE | |

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Maine Yankee Atomic Power Plant Site Characterization

## CHARACTERIZATION SUMMARY

SURVEY PACKAGE NUMBER: A9900

PACKAGE DESCRIPTION

Concrete Core Contamination Profile Sampling

SURVEY AREA DESCRIPTION

Selected concrete locations within the affected area

GENERAL HISTORICAL INFORMATION (Operational History)

Concrete core samples were taken from eleven locations within the affected area with high levels of surface radioactivity. Locations included four cores from the primary auxiliary building, one from the fuel building, one from the RCA building, one from the spray building, and four from the containment. The surface of each concrete location was unpainted.

SUMMARY OF CHARACTERIZATION ACTIVITIES

A 6 inch diameter core was obtained from each location using a concrete core drill. Each core was approximately 6 inches long. Core samples were taken to the hot machine shop where gross beta activity measurements were collected. Beginning at the concrete surface a shielded measurement was obtained with the detector to determine the gamma component of the detector response. A measurement was then taken without the shield. The gamma component was subtracted from the measurement, the detector efficiency and detector area conversions made to evaluate the net beta dpm/100 $cm^2$ from the concrete surface. A slice from the surface of concrete was made using a diamond tipped band saw, the slice thickness recorded, shielded and unshielded measurements were taken from the top of the remaining core and the contamination level again evaluated. All cutting was done under the direct supervision of a GTS Duratek survey technician and the saw blade was decontaminated after each cut. This process continued until two successive measurements were approximately in the range of the background study measurements for bare concrete. The samples were controlled by chain-of-custody and are available for further analysis if necessary.

A bare concrete (unpainted) background had been established during the background study. An average of 665 dpm/100 $cm^2$ was determined from the data set with a range from 386 dpm/100 $cm^2$ to 865 dpm/100 $cm^2$.

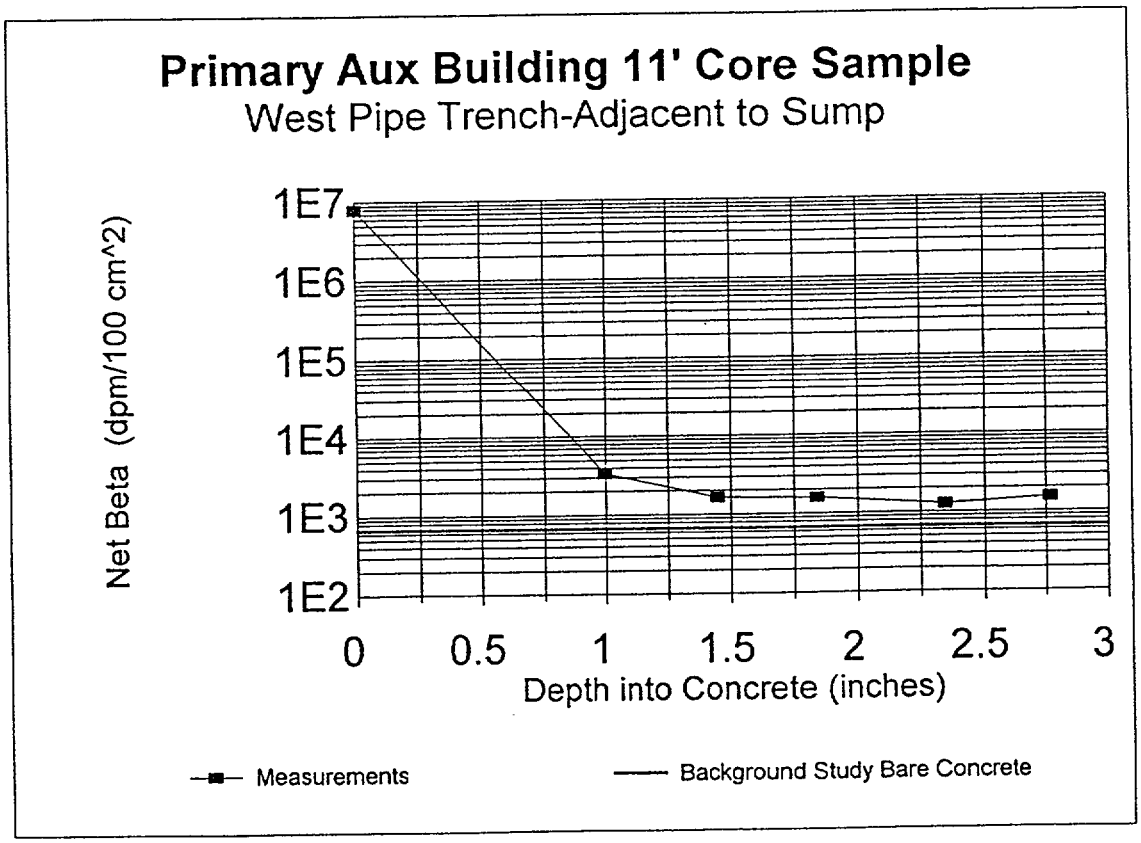
CHARACTERIZATION SURVEY RESULTS

The data are presented for each core location in tables and graphs showing the depth profile obtained. Most cores were at background levels within the first inch of concrete.

## SURVEY PACKAGE A9900

### Primary Aux Building Elevation 11' Concrete Core
### West Pipe Trench-Adjacent to Sump

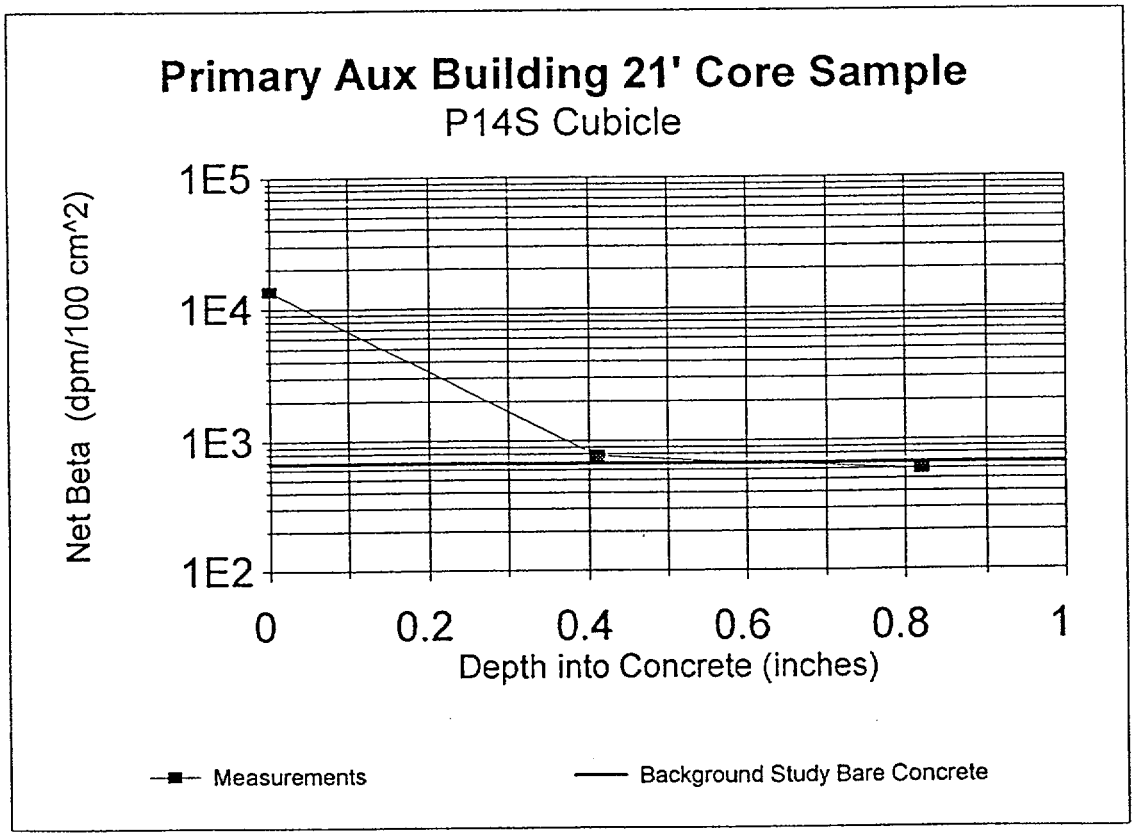
| File | L7 | Net Beta dpm/100cm2 | Comments | SliceThickness | Depth into Concrete (inches) |
|---|---|---|---|---|---|
| 566 | 00001 | 7947056 | Top of Core | 1.0" | 0 |
| 587 | 00002 | 3346 | After 1st cut | 0.45" | 1 |
| 587 | 00003 | 1622 | After 2nd cut | 0.39" | 1.45 |
| 587 | 00004 | 1587 | After 3rd cut | 0.51" | 1.84 |
| 587 | 00005 | 1259 | After 4th cut | 0.42" | 2.35 |
| 594 | 00006 | 1505 | After 5th cut | 1.5" (Remaining) | 2.77 |
| | | | | core length 4.27" | |



## SURVEY PACKAGE A9900

### Primary Aux Building Elevation 21' Concrete Core
### P14S Cubicle

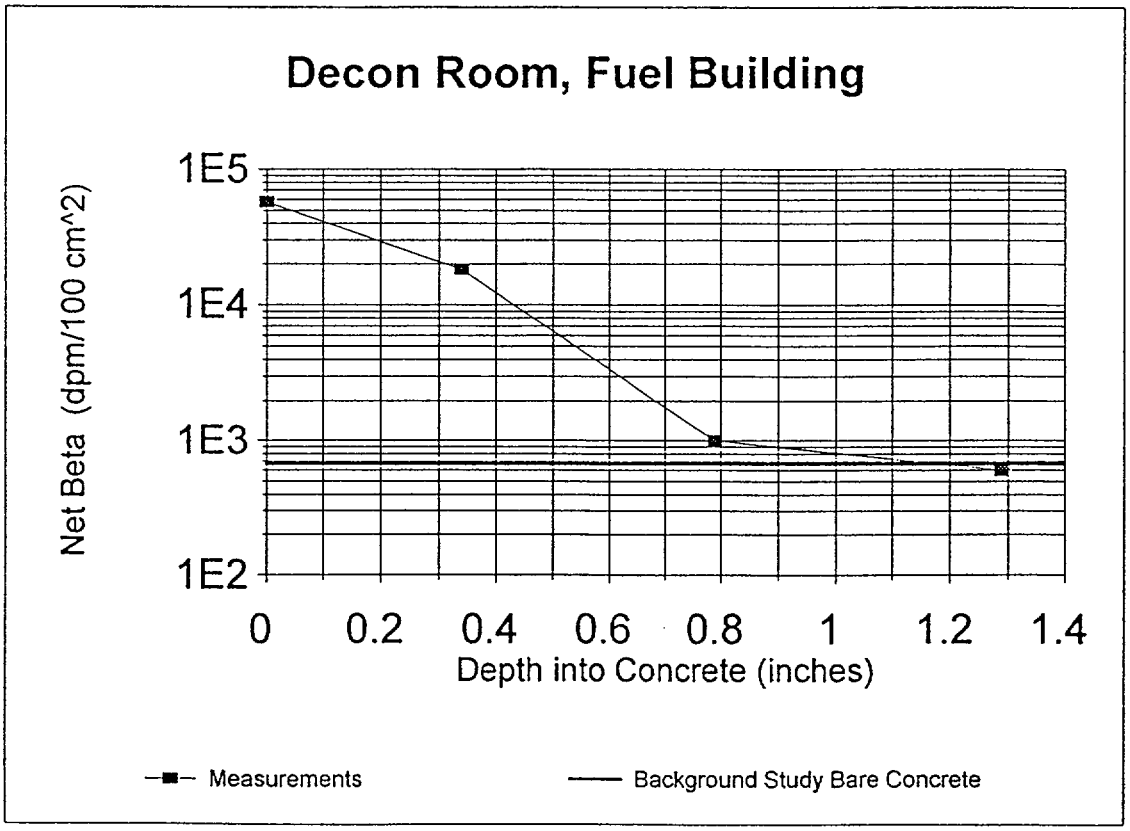
| File | L7 | Net Beta dpm/100cm2 | Comments | Slice Thickness | Depth into Concrete (inches) |
|---|---|---|---|---|---|
| 351 | 0001 | 13584 | Top of Core | 0.41" | 0 |
| 325 | 0002 | 774 | After 1st cut | 0.41" | 0.41 |
| 365 | 0003 | 590 | After 2nd cut | 3.5" (remaining) | 0.82 |
| | | | | core length 4.32" | |



## SURVEY PACKAGE A9900

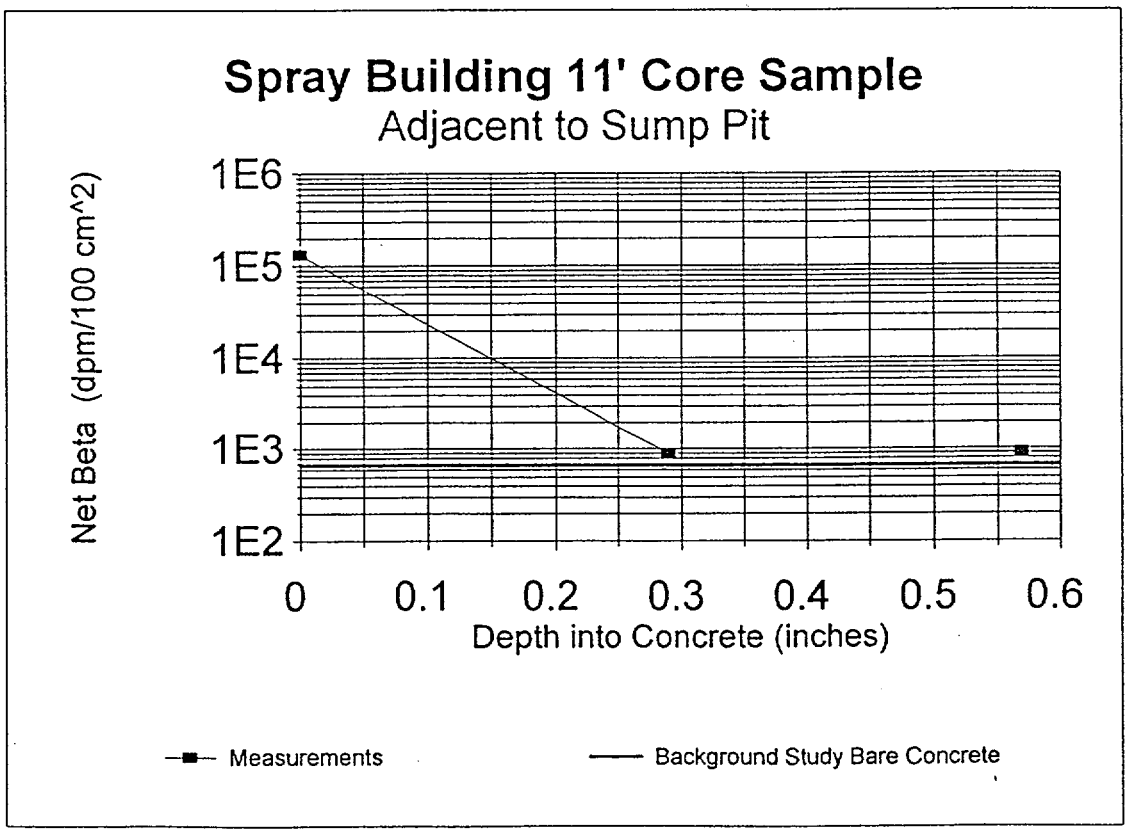
### Decon Room, Fuel Building Concrete Core

| File | L7 | Net Beta dpm/100cm2 | Comments | SliceThickness | Depth into Concrete (inches) |
|---|---|---|---|---|---|
| 518 | 00001 | 57744 | Top of Core | 0.34" | 0 |
| 579 | 00002 | 18035 | After 1st cut | 0.45" | 0.34 |
| 579 | 00003 | 1005 | After 2nd cut | 0.5" | 0.79 |
| 579 | 00004 | 598 | After 3rd cut | 3.75" (remaining) | 1.29 |
| | | | | core length 5.04" | |



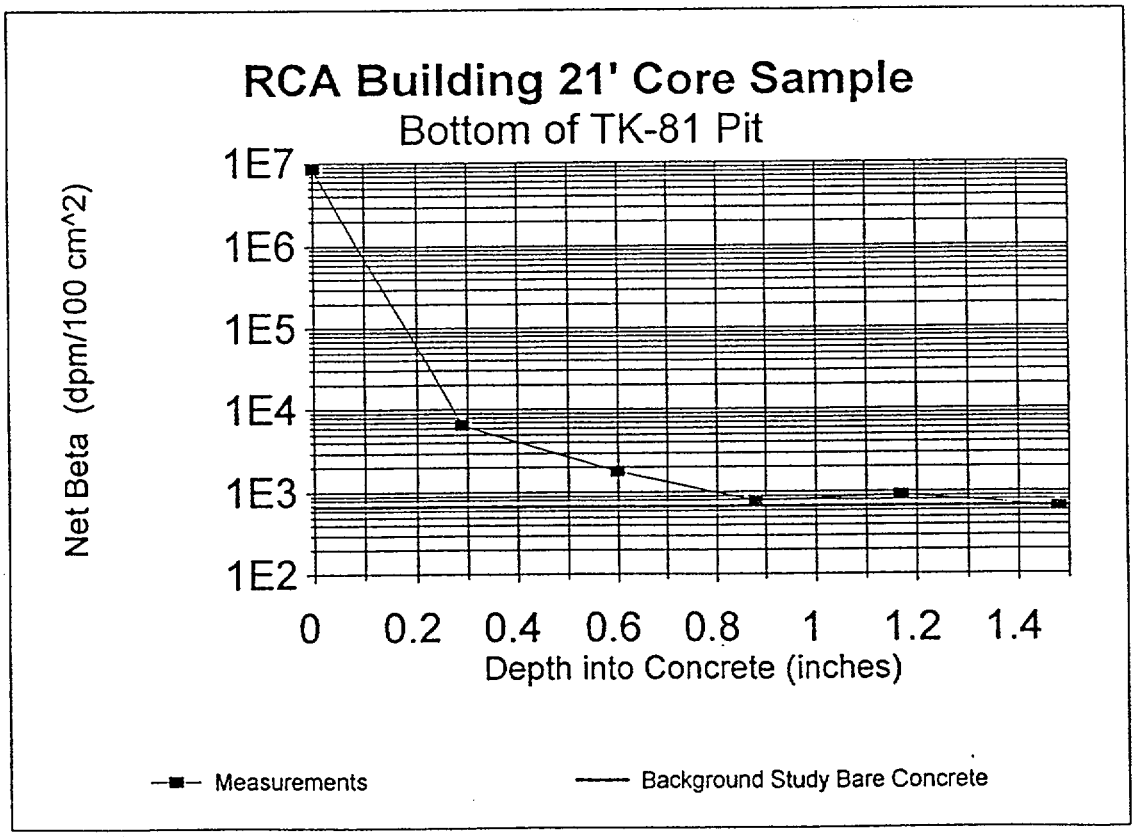
## Spray Building Elevation 11' Concrete Core Adjacent to Sump Pit

| File | L7 | Net Beta dpm/100cm2 | Comments | SliceThickness | Depth into Concrete (inches) |
|---|---|---|---|---|---|
| 625 | 00001 | 143698 | Top of Core | 0.29" | 0 |
| 625 | 00002 | 2825 | After 1st cut | 0.28" | 0.29 |
| 625 | 00003 | 2611 | After 2nd cut | 5.5" (remaining) | 0.57 |
| | | | | core length 6.07" | |



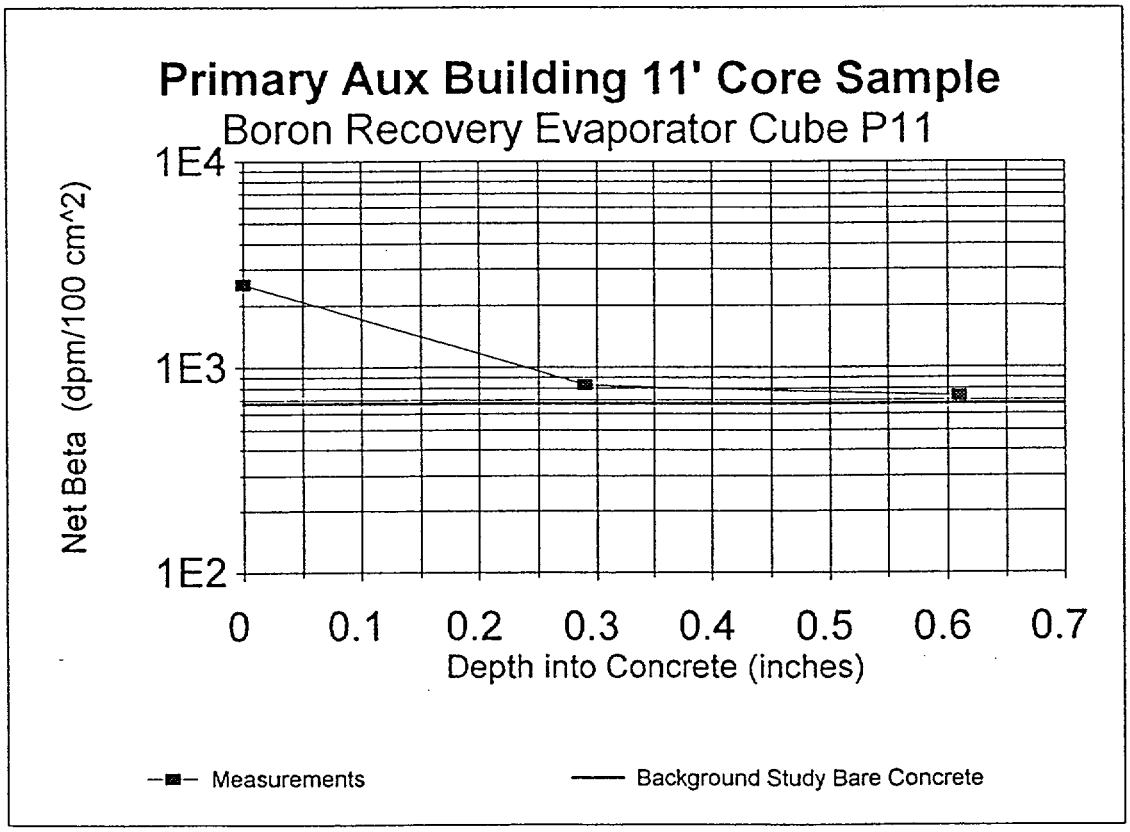
## RCA Building Elevation 21' Concrete Core
## Bottom of TK-81 Pit

| File | L7 | Net Beta dpm/100cm2 | Comments | SliceThickness | Depth into Concrete (inches) |
|---|---|---|---|---|---|
| 622 | 00001 | 8435227 | Top of Core | 0.29" | 0 |
| 618 | 00002 | 6429 | After 1st cut | 0.31" | 0.29 |
| 621 | 00003 | 1746 | After 2nd cut | 0.28" | 0.60 |
| 621 | 00004 | 778 | After 3rd cut | 0.29" | 0.88 |
| 621 | 00005 | 913 | After 4th cut | 0.31" | 1.17 |
| 621 | 00006 | 659 | After 5th cut | 3.25" (remaining) | 1.48 |
| | | | | core length 4.73" | |



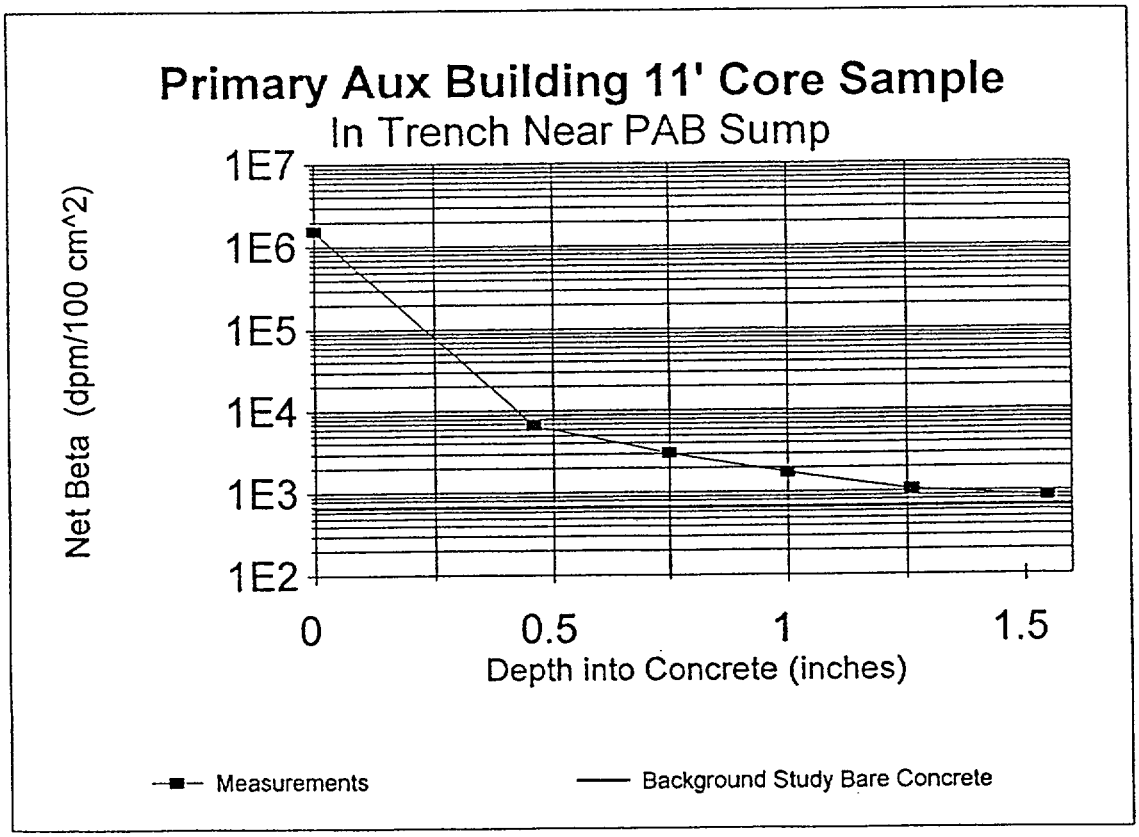
**Primary Auxillary Building Elevation 11' Concrete Core**
**Boron Recovery Evaporator Cubicle, Near P11**

| File | L7 | Net Beta dpm/100cm2 | Comments | SliceThickness | Depth into Concrete (inches) |
|---|---|---|---|---|---|
| 621 | 00001 | 2524 | Top of Core | 0.29" | 0 |
| 621 | 00002 | 825 | After 1st cut | 0.32" | 0.29 |
| 625 | 00003 | 730 | After 2nd cut | 4.4" (remaining) | 0.61 |
| | | | | core length 5.01" | |



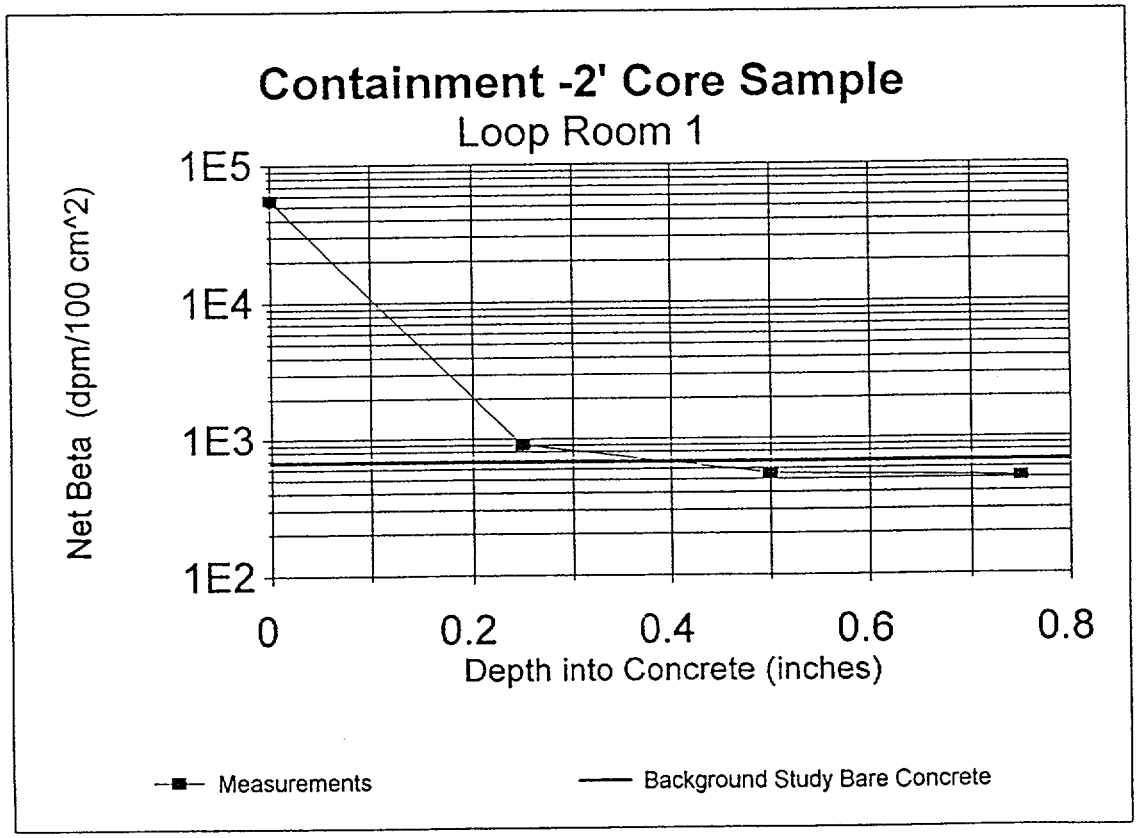
**Primary Aux Building Elevation 11' Concrete Core**
**In Trench Near PAB Sump**

| File | L7 | Net Beta dpm/100cm2 | Comments | SliceThickness | Depth into Concrete (inches) |
|---|---|---|---|---|---|
| 520 | 00001 | 1547312 | Top of Core | 0.46" | 0 |
| 618 | 00002 | 6595 | After 1st cut | 0.29" | 0.46 |
| 618 | 00003 | 3000 | After 2nd cut | 0.25" | 0.75 |
| 618 | 00004 | 1726 | After 3rd cut | 0.26" | 1 |
| 618 | 00005 | 1060 | After 4th cut | 0.29" | 1.26 |
| 618 | 00006 | 849 | After 5th cut | 4" (Remaining) | 1.55 |
| | | | | core length 5.55" | |



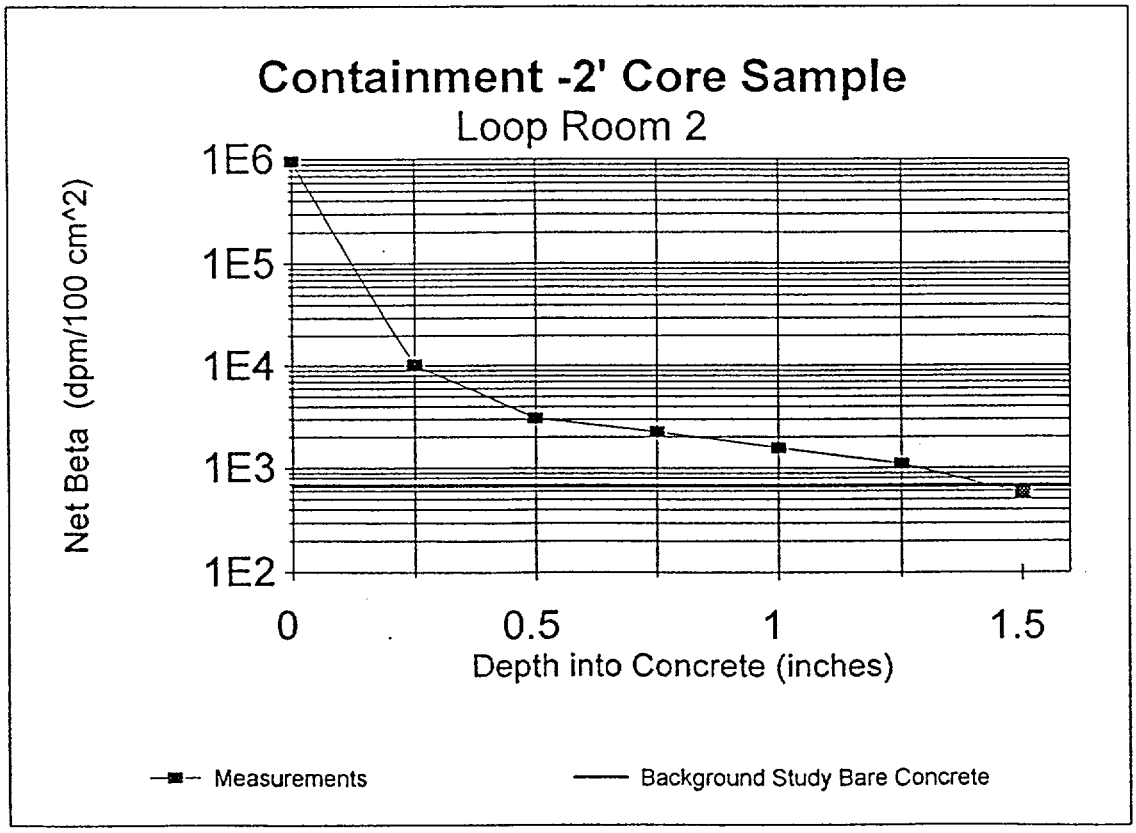
**Containment Elevation -2' Concrete Core**
**Loop Room 1**

| File | L7 | Net Beta dpm/100cm2 | Comments | SliceThickness | Depth into Concrete (inches) |
|---|---|---|---|---|---|
| 672 | 00001 | 55760 | Top of Core | 0.25" | 0 |
| 672 | 00002 | 902 | After 1st cut | 0.25" | 0.25 |
| 672 | 00003 | 551 | After 2nd cut | 0.25" | 0.5 |
| 672 | 00004 | 551 | After 3rd cut | 5" (remaining) | 0.75 |
| | | | | core length 5.75" | |



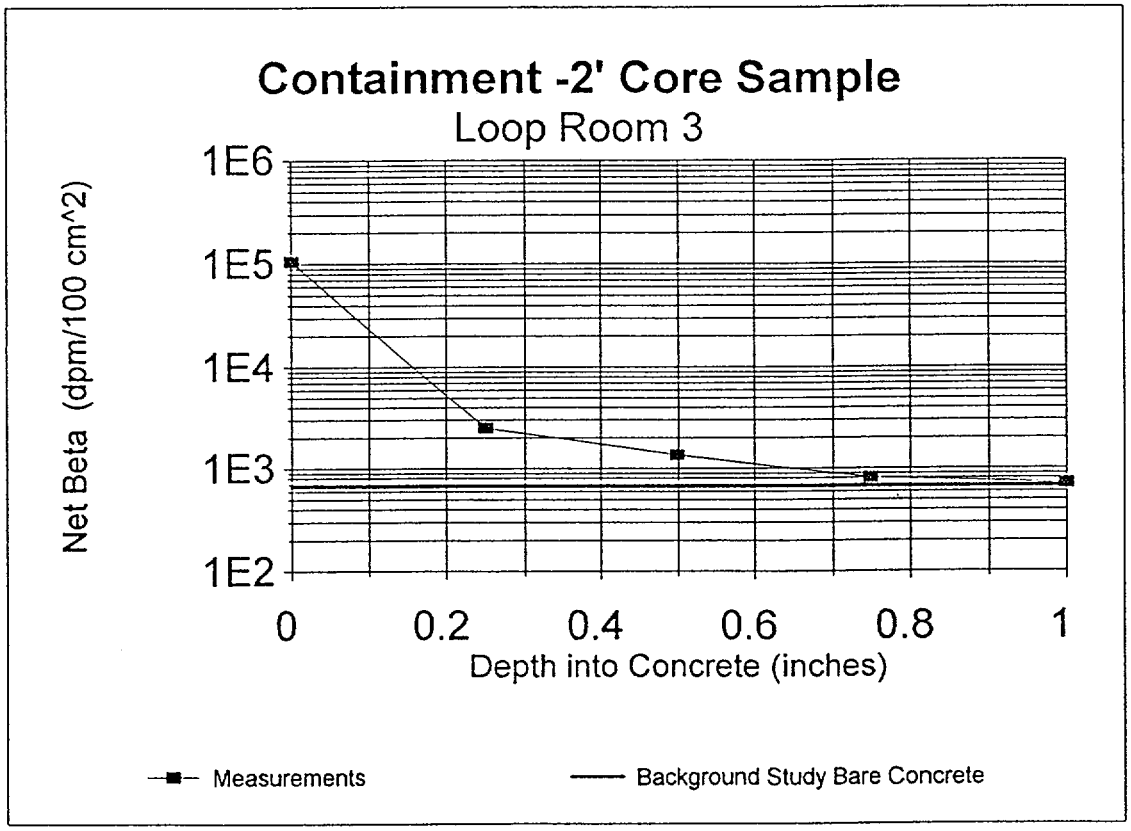
**Containment Elevation -2' Concrete Core**
**Loop Room 2**

| File | L7 | Net Beta dpm/100cm2 | Comments | SliceThickness | Depth into Concrete (inches) |
|---|---|---|---|---|---|
| 672 | 00001 | 960827 | Top of Core | 0.25" | 0 |
| 672 | 00002 | 10155 | After 1st cut | 0.25" | 0.25 |
| 672 | 00003 | 3087 | After 2nd cut | 0.25" | 0.50 |
| 672 | 00004 | 2260 | After 3rd cut | 0.25" | 0.75 |
| 672 | 00005 | 1558 | After 4th cut | 0.25" | 1.0 |
| 672 | 00006 | 1103 | After 5th cut | 0.25" | 1.25 |
| 673 | 00007 | 564 | Bottom of Core | 4" (Remaining) | 1.50 |
| | | | | core length 5.5" | |



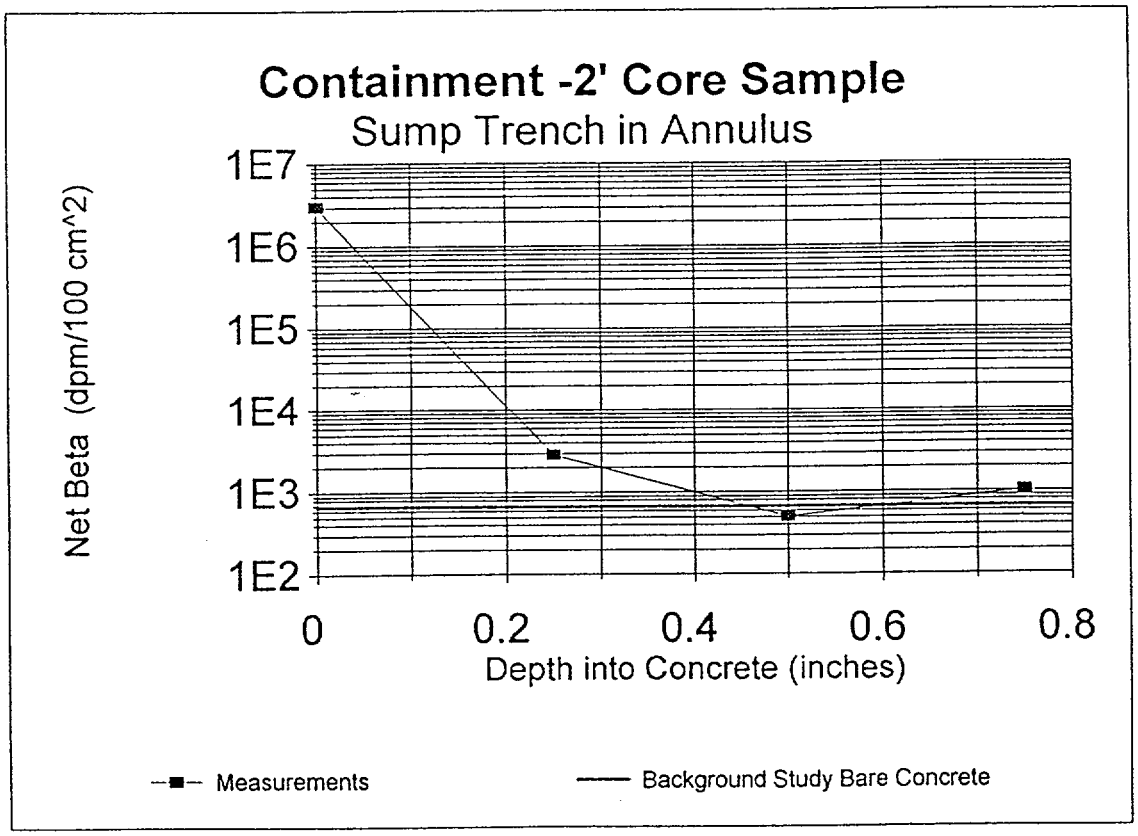
**Containment Elevation -2' Concrete Core**
**Loop Room 3**

| File | L7 | Net Beta dpm/100cm2 | Comments | SliceThickness | Depth into Concrete (inches) |
|---|---|---|---|---|---|
| 126 | 00001 | 105631 | Top of Core | 0.25" | 0 |
| 126 | 00002 | 2490 | After 1st cut | 0.25" | 0.25 |
| 126 | 00003 | 1358 | After 2nd cut | 0.25" | 0.50 |
| 126 | 00004 | 815 | After 3rd cut | 0.25" | 0.75 |
| 126 | 00005 | 718 | After 4th cut | 0.25" | 1.0 |
| | | | | core length 4.75" | |



**Containment Elevation -2' Concrete Core**
**Sump Trench in Annulus**

| File | L7 | Net Beta dpm/100cm2 | Comments | SliceThickness | Depth into Concrete (inches) |
|---|---|---|---|---|---|
| 665 | 00001 | 3044615 | Top of Core | 0.25" | 0 |
| 665 | 00002 | 2829 | After 1st cut | 0.25" | 0.25 |
| 665 | 00003 | 496 | After 2nd cut | 0.25" | 0.50 |
| 670 | 00004 | 1023 | After 5th cut | 5.75" (remaining) | 0.75 |
| | | | | core length 6.5" | |



Maine Yankee Atomic Power Plant Site Characterization

## CHARACTERIZATION SUMMARY A9901

SURVEY PACKAGE NUMBER: A9901

PACKAGE DESCRIPTION

Core Sampling from Containment Crane Wall

SURVEY AREA DESCRIPTION

Selected locations for concrete core sampling within the Containment Building

GENERAL HISTORICAL INFORMATION (Operational History)

Concrete core samples were taken from five locations within the affected area. Locations included three cores from the 13' to 34' elevations of the Crane Wall and two cores from the 66' to 90' elevations of the Crane Wall.

The plant, with the concurrence of the DOC's, agreed to sample areas on the crane wall, overhead crane and missile shield. The core locations were requested/designated by the DOCs via memo to Peter Melhorn with CIANBRO.

SUMMARY OF CHARACTERIZATION ACTIVITIES

A 3 inch diameter core was obtained from each location using a concrete core drill. Each core was approximately 3 inches long. The core cutting and slicing operation was performed by CIANBRO.

Core samples were taken to the hot machine shop for slicing into nominal ½" sections. Slicing of the concrete cores was performed using a diamond tipped band saw. The slice thickness was recorded. All cutting was done under the direct supervision of a GTS Duratek survey technician.

The samples were controlled by chain-of-custody and were sent to Duke Engineering and Services Environmental Laboratory (DE&S) for analysis by gamma spectroscopy. Each core sample slice was analyzed for all gamma emitting fission and activation nuclides to reach a MDA of 1 pCi/gram of Eu-152.

The samples with chain-of-custody were returned to Maine Yankee following the analysis.

CHARACTERIZATION SURVEY RESULTS

The data are presented for each core location in tables and graphs showing the depth profile obtained for Eu-152. The individual core slice sample analysis result reports from DE&S are included as an attachment .

o The core sample A9901 01MC1, slice 00001 analysis results indicated plant-derived radionuclide activity above MDA. The analysis of the sample indicated the presence of Co-60 and BaLa-140.

o The core sample A9901 01MC3 analysis results indicated no plant-derived radionuclide activity above MDA.

o The core sample A9901 01MC5, slices 00001 to 00006 analysis results indicated plant-derived radionuclide activity above MDA. The analysis of the samples indicated the presence of Ag-110m, BaLa-140, Co-58, Co-60, Cs-137, Eu-152, Eu-154 and Sb-124.

o The core sample A9901 02MC1, slices 00001 to 00006 analysis results indicated plant-derived radionuclide activity above MDA. The analysis of the samples indicated the presence of BaLa-140, Co-60, Cs-134, Eu-152, and Sb-124.

## CHARACTERIZATION SUMMARY A9901

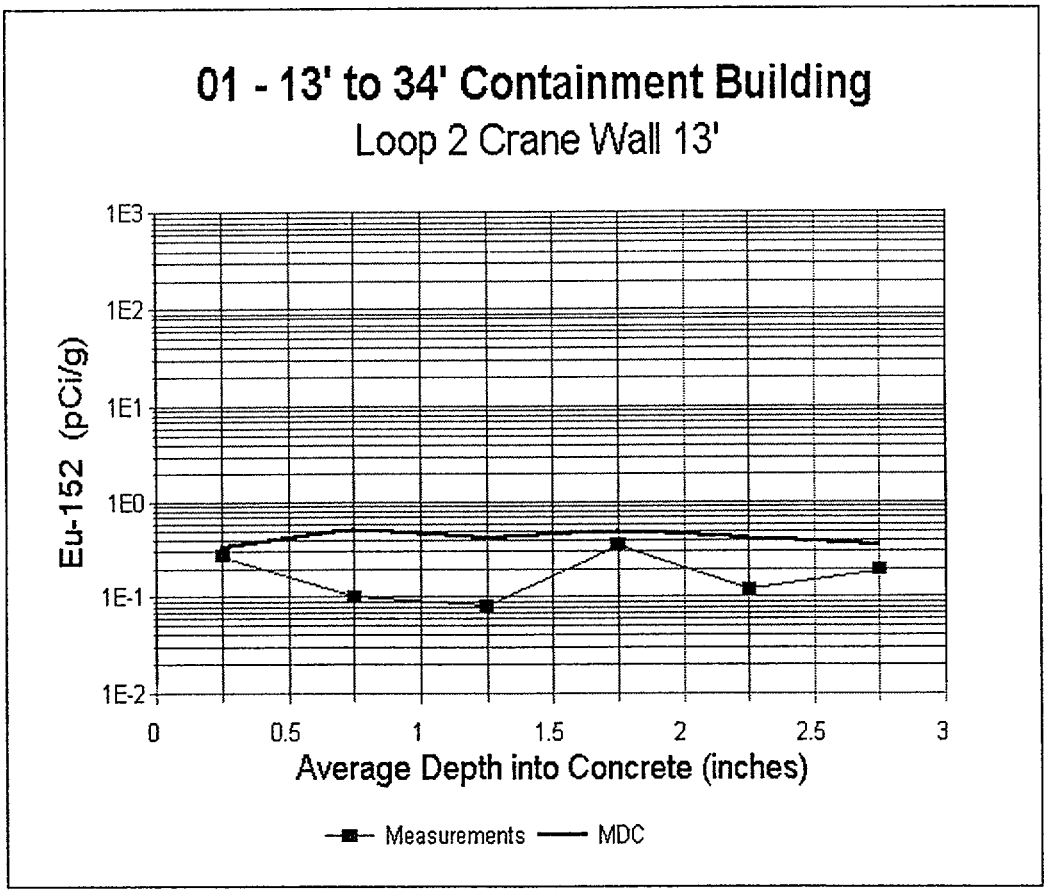
o The core sample A9901 02MC3, slices 00001 to 00006 analysis results indicated plant-derived radionuclide activity above MDA. The analysis of the samples indicated the presence of BaLa-140, Co-60, Eu-152, and Sb-124.

Maine Yankee Atomic Power Plant Site Characterization

## CHARACTERIZATION SUMMARY A9901

**Survey Unit: 01** **Surface: MC1**
**13' to 34' Containment Building**

| Core Sample from loop 2 Crane wall (13' between Azimuth 160 and 200) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| L1 | L2 | L8 | Weight (grams) | Eu-152 pCi/gram | MDC pCi/gram | Other Nuclides Present | Comments | Slice Thickness | Average Depth into Concrete (inches) |
| A9901 | 01MC1 | 00001 | 129.5 | 0.27 | 0.33 | Co-60, BaLa-140 | Top of Core | 0.5" | 0.25 |
| A9901 | 01MC1 | 00002 | 132.9 | 0.10 | 0.51 | | After 1st cut | 0.5" | 0.75 |
| A9901 | 01MC1 | 00003 | 106.3 | 0.08 | 0.41 | | After 2nd cut | 0.5" | 1.25 |
| A9901 | 01MC1 | 00004 | 117.5 | 0.35 | 0.48 | | After 3rd cut | 0.5" | 1.75 |
| A9901 | 01MC1 | 00005 | 109.1 | 0.12 | 0.41 | | After 4th cut | 0.5" | 2.25 |
| A9901 | 01MC1 | 00006 | 116.6 | 0.19 | 0.35 | | After 5th cut | 0.5" | 2.75 |
| | | | | | | | | | |
| | | | | | | | | Core thickness | 3.0" |



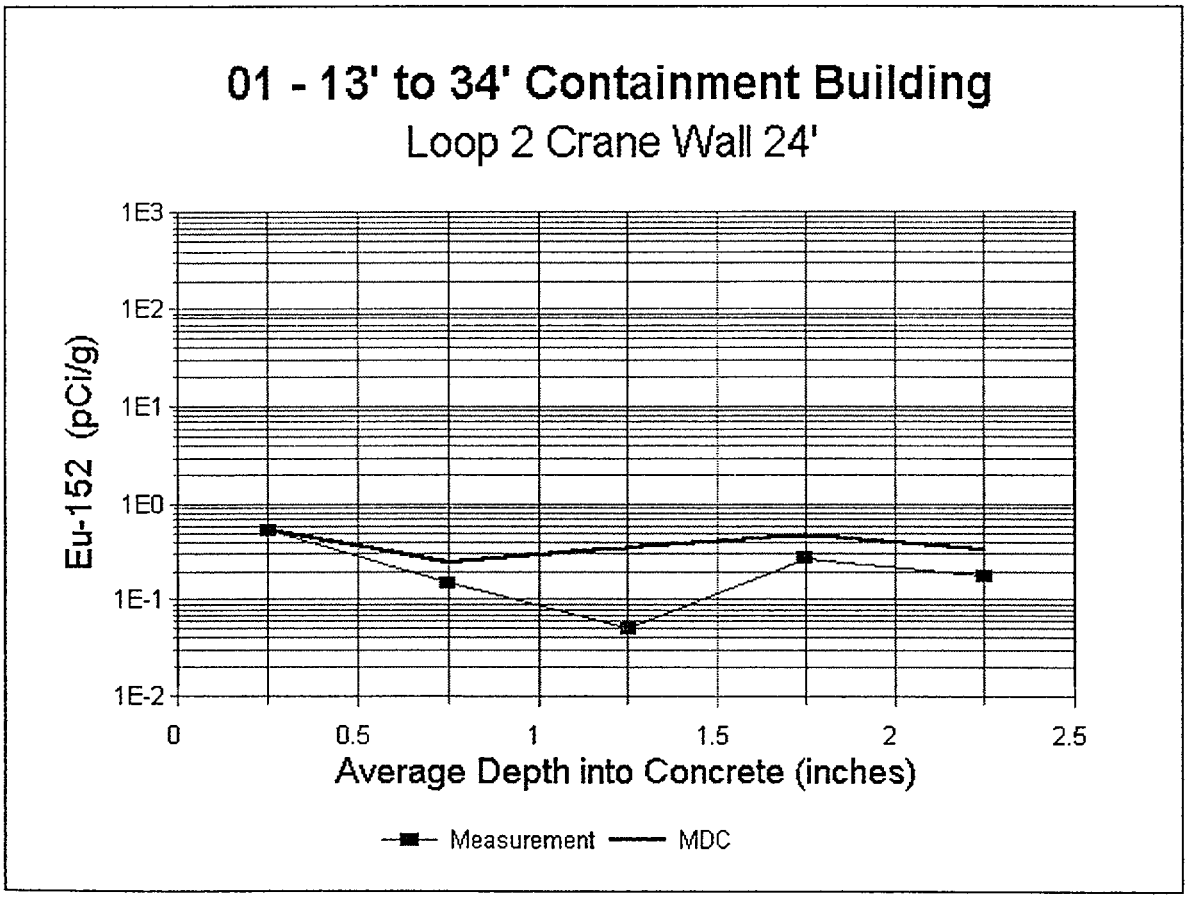
Maine Yankee Atomic Power Plant Site Characterization

## CHARACTERIZATION SUMMARY A9901

**Survey Unit: 01** **Surface: MC3**
**13' to 34' Containment Building**

| Core Sample from loop 2 Crane wall (24' between Azimuth 160 and 200) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| L1 | L2 | L8 | Weight (grams) | Eu-152 pCi/gram | MDC pCi/gram | Other Nuclides Present | Comments | Slice Thickness | Average Depth into Concrete (inches) |
| A9901 | 01MC3 | 00001 | 112 | 0.53* | 0.53 | | Top of Core | 0.5" | 0.25 |
| A9901 | 01MC3 | 00002 | 110.8 | 0.15 | 0.24 | | After 1st cut | 0.5" | 0.75 |
| A9901 | 01MC3 | 00003 | 112.7 | 0.05 | 0.34 | | After 2nd cut | 0.5" | 1.25 |
| A9901 | 01MC3 | 00004 | 112.6 | 0.27 | 0.46 | | After 3rd cut | 0.5" | 1.75 |
| A9901 | 01MC3 | 00005 | 112.7 | 0.18 | 0.33 | | After 4th cut | 0.5" | 2.25 |
| A9901 | 01MC3 | 00006 | | | | | no sample | 0.5" | 2.75 |
| | | | | | | | | Core thickness | 3.0" |

*Actual Concentration is less than MDC

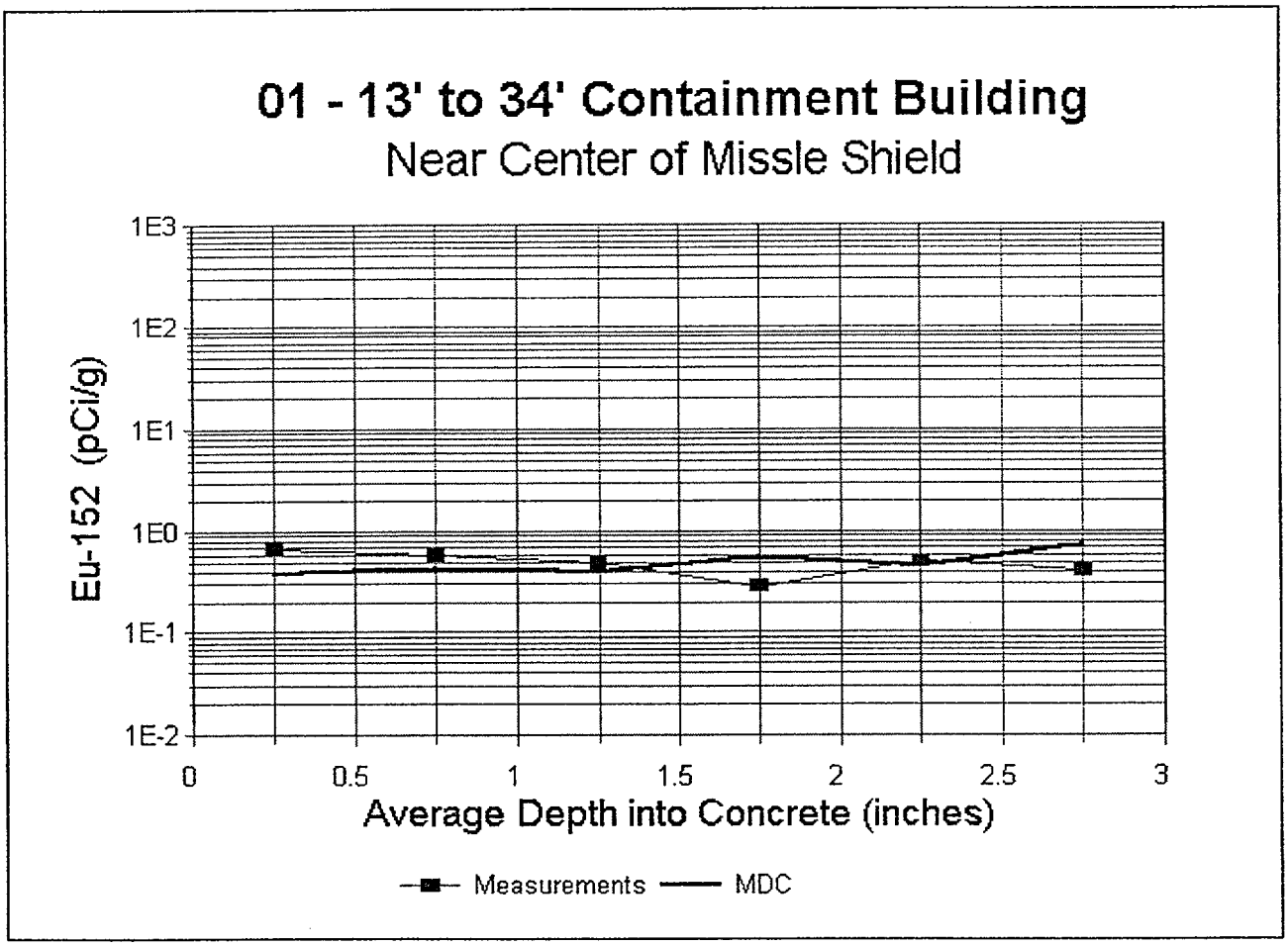


Maine Yankee Atomic Power Plant Site Characterization

## CHARACTERIZATION SUMMARY A9901

**Survey Unit: 01** **Surface: MC5**
**13' to 34' Containment Building**

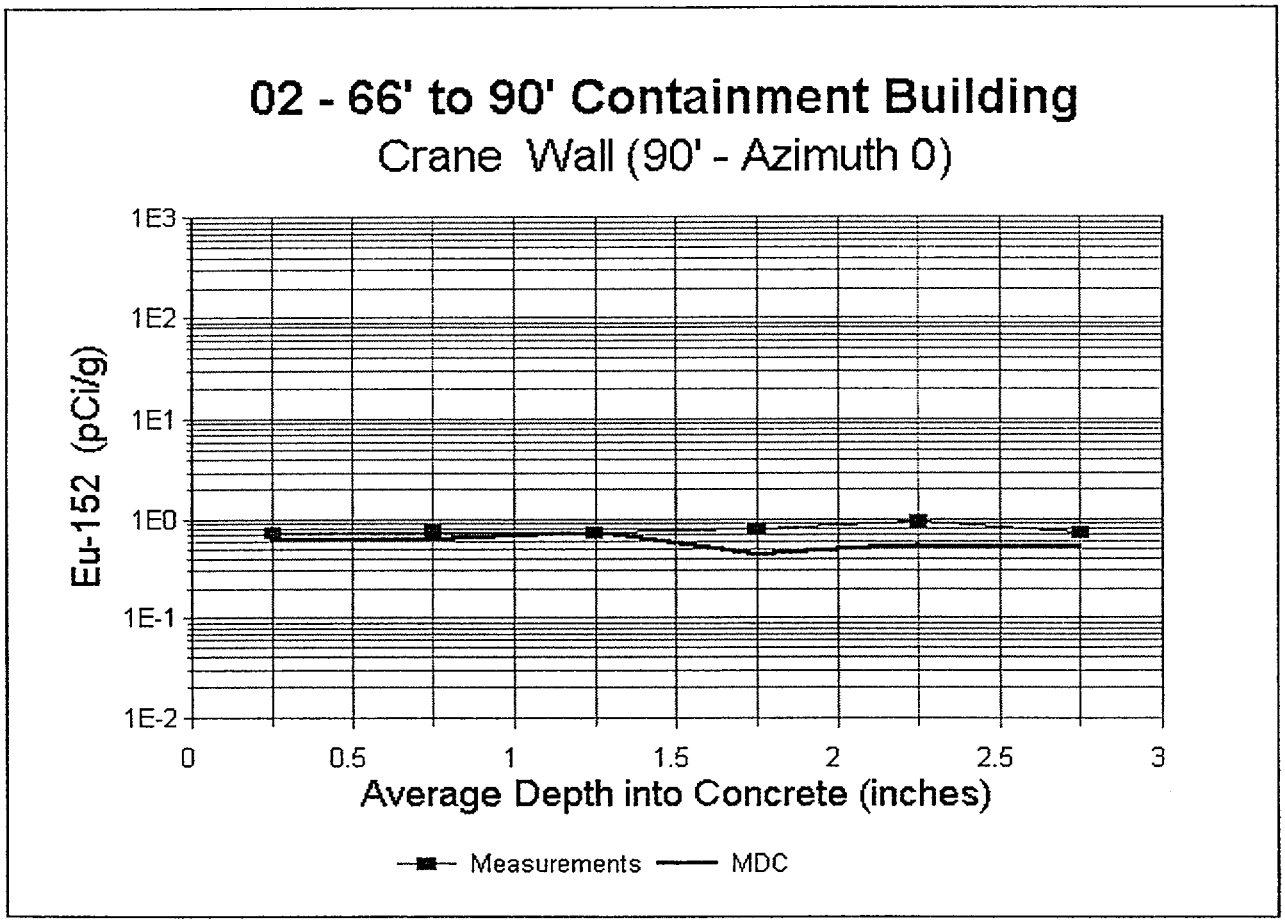
| Core Sample from near center of missle shield (Azimuth 225) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| L1 | L2 | L8 | Weight (grams) | Eu-152 pCi/gram | MDC pCi/gram | Other Nuclides Present | Comments | Slice Thickness | Average Depth into Concrete (inches) |
| A9901 | 01MC5 | 00001 | 90.1 | 0.67 | 0.37 | Co-60,Cs-137, BaLa-140 | Top of Core | 0.5" | 0.25 |
| A9901 | 01MC5 | 00002 | 99.1 | 0.58 | 0.42 | Co-60 | After 1st cut | 0.5" | 0.75 |
| A9901 | 01MC5 | 00003 | 116.6 | 0.48 | 0.39 | Co-60, BaLa-140 | After 2nd cut | 0.5" | 1.25 |
| A9901 | 01MC5 | 00004 | 104.2 | 0.28 | 0.57 | Co-58, Co-60, Sb-124 | After 3rd cut | 0.5" | 1.75 |
| A9901 | 01MC5 | 00005 | 114.3 | 0.51 | 0.45 | Co-60, BaLa-140, Eu-154 | After 4th cut | 0.5" | 2.25 |
| A9901 | 01MC5 | 00006 | 105.7 | 0.41 | 0.71 | Ag-110M, BaLa-140 | After 5th cut | 0.5" | 2.75 |
| | | | | | | | Core thickness | 3.0" | |



## CHARACTERIZATION SUMMARY A9901

**Survey Unit: 02** **Surface: MC1**
**66' to 90' Containment Building**

| Core Sample at Crane Wall (90' - Azimuth) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| L1 | L2 | L8 | Weight (grams) | Eu-152 pCi/gram | MDC pCi/gram | Other Nuclides Present | Comments | Slice Thickness | Average Depth into Concrete (inches) |
| A9901 | 02MC1 | 00001 | 108.1 | 0.72 | 0.6 | Co-60 | Top of Core | 0.5" | 0.25 |
| A9901 | 02MC1 | 00002 | 113.4 | 0.73 | 0.61 | Sb-124 | After 1st cut | 0.5" | 0.75 |
| A9901 | 02MC1 | 00003 | 99.9 | 0.72 | 0.72 | Nb-94, Cs-134, BaLa-140 | After 2nd cut | 0.5" | 1.25 |
| A9901 | 02MC1 | 00004 | 118.2 | 0.78 | 0.43 | Sb-124 | After 3rd cut | 0.5" | 1.75 |
| A9901 | 02MC1 | 00005 | 105.8 | 0.92 | 0.53 | Sb-124 | After 4th cut | 0.5" | 2.25 |
| A9901 | 02MC1 | 00006 | 107 | 0.71 | 0.51 | BaLa-140 | After 5th cut | 0.5" | 2.75 |
| | | | | | | | | Core thickness | 3.0" |

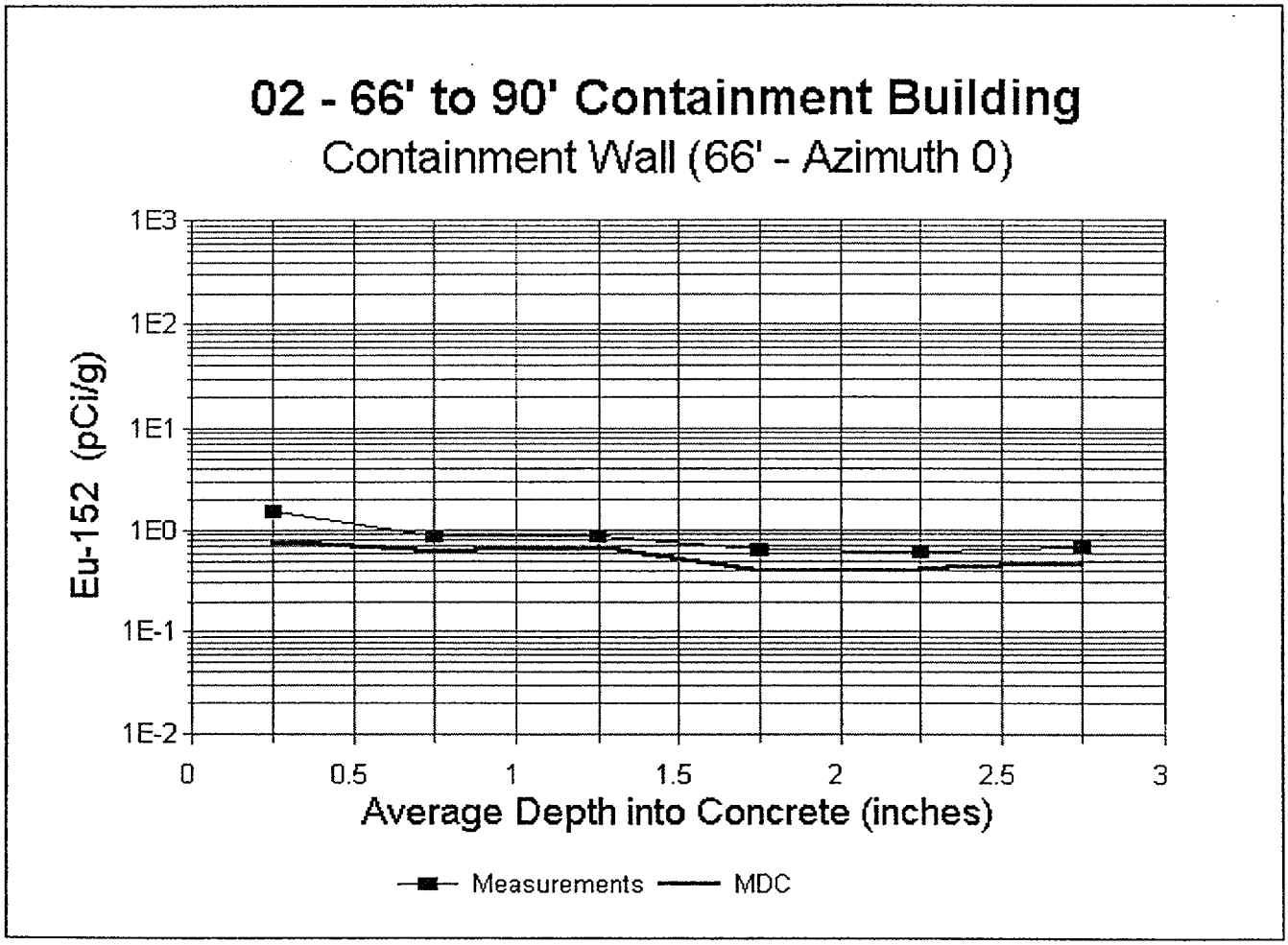


Maine Yankee Atomic Power Plant Site Characterization

## CHARACTERIZATION SUMMARY A9901

**Survey Unit: 02** **Surface: MC3**
**66' to 90' Containment Building**

| Core Sample at Containment wall directly above refueling cavity adjacent to transfer tube (66' to 90' Containment Building) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| L1 | L2 | L8 | Weight (grams) | Eu-152 pCi/gram | MDC pCi/gram | Other Nuclides Present | Comments | Slice Thickness | Average Depth into Concrete (inches) |
| A9901 | 02MC3 | 00001 | 119.5 | 1.52 | 0.77 | Mn-54, Co-60, Eu-154 | Top of Core | 0.5" | 0.25 |
| A9901 | 02MC3 | 00002 | 122.3 | 0.85 | 0.6 | Co-60, BaLa-140 | After 1st cut | 0.5" | 0.75 |
| A9901 | 02MC3 | 00003 | 105.2 | 0.85 | 0.65 | Co-60, | After 2nd cut | 0.5" | 1.25 |
| A9901 | 02MC3 | 00004 | 129.4 | 0.63 | 0.39 | Co-60, | After 3rd cut | 0.5" | 1.75 |
| A9901 | 02MC3 | 00005 | 123.6 | 0.60 | 0.41 | Co-60, Sb-124 | After 4th cut | 0.5" | 2.25 |
| A9901 | 02MC3 | 00006 | 125.7 | 0.67 | 0.46 | | After 5th cut | 0.5" | 2.75 |
| | | | | | | | | Core thickness 3.0" | |



# ATTACHMENTS

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10399
Sample Submission Code: QZZc04A1198
Media Type: Concrete
Total Amt of Sample Sent: 129.5 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 5, 1998

Sample Description: A9901/01MC1/00001

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 129.5000 | Cr-51 | [ -3.5 ± 1.6 ] E-06 | 7.3 E-06 | | |
| | | Mn-54 | [ 0.0 ± 1.2 ] E-07 | 4.8 E-07 | | |
| | | Co-57 | [ -9 ± 34 ] E-08 | 1.4 E-06 | | |
| | | Co-58 | [ -1.4 ± 1.7 ] E-07 | 7.6 E-07 | | |
| | | Fe-59 | [ 3 ± 45 ] E-08 | 2.0 E-06 | | |
| | | Co-60 | [ 6.27 ± 0.92 ] E-07 | 4.7 E-08 | | B |
| | | Zn-65 | [ -7.6 ± 4.3 ] E-07 | 2.0 E-06 | | |
| | | Nb-94 | [ -3.7 ± 8.8 ] E-08 | 3.9 E-07 | | |
| | | Zr-95 | [ 1.1 ± 2.6 ] E-07 | 1.1 E-06 | | |
| | | Nb-95 | [ 9 ± 21 ] E-08 | 9.0 E-07 | | |
| | | Ru-103 | [ -5 ± 12 ] E-08 | 5.5 E-07 | | |
| | | Ru-106 | [ -9.0 ± 9.0 ] E-07 | 4.0 E-06 | | |
| | | Ag-108m | [ 8.9 ± 5.1 ] E-08 | 2.0 E-07 | | |
| | | Ag-110m | [ 2 ± 15 ] E-08 | 6.6 E-07 | | |
| | | Sb-124 | [ 2.1 ± 1.2 ] E-07 | 1.9 E-07 | | |
| | | Sb-125 | [ -1.5 ± 1.9 ] E-07 | 8.5 E-07 | | |
| | | Cs-134 | [ -3.1 ± 1.2 ] E-07 | 5.4 E-07 | | |
| | | Cs-137 | [ 2.0 ± 9.5 ] E-08 | 4.1 E-07 | | |
| | | BaLa-140 | [ 1.12 ± 0.46 ] E-06 | 5.1 E-07 | | |
| | | Ce-141 | [ -5 ± 17 ] E-08 | 7.0 E-07 | | |
| | | Ce-144 | [ -1.2 ± 3.3 ] E-07 | 1.4 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali for

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10399
Sample Submission Code: QZZc04A1198
Media Type: Concrete
Total Amt of Sample Sent: 129.5 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 5, 1998

Sample Description: A9901/01MC1/00001

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 2.71 ± 0.96 ] E-07 | 3.3 E-07 | 1.0E-06 | |
| | | Eu-155 | [ 1.2 ± 1.5 ] E-07 | 5.9 E-07 | | |
| | | Eu-154 | [ 6 ± 29 ] E-08 | 1.3 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali 5/5/98

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10400
Sample Submission Code: QZZc04B1198
Media Type: Concrete
Total Amt of Sample Sent: 132.9 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 6, 1998
Report Date: May 6, 1998

Sample Description: A9901/01MC1/00002

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|---|
| Gamma Scan | 132.9000 | Cr-51 | [ 6 ± 16 ] | E-07 | 7.0 | E-06 | |
| | | Mn-54 | [ 8 ± 14 ] | E-08 | 6.0 | E-07 | |
| | | Co-57 | [ 4.3 ± 3.7 ] | E-07 | 1.4 | E-06 | |
| | | Co-58 | [ 1.9 ± 1.3 ] | E-07 | 4.9 | E-07 | |
| | | Fe-59 | [ 6 ± 51 ] | E-08 | 2.3 | E-06 | |
| | | Co-60 | [ 2 ± 22 ] | E-08 | 1.0 | E-06 | |
| | | Zn-65 | [ -9.7 ± 5.0 ] | E-07 | 2.4 | E-06 | |
| | | Nb-94 | [ 6.2 ± 9.8 ] | E-08 | 4.2 | E-07 | |
| | | Zr-95 | [ -6 ± 17 ] | E-08 | 8.7 | E-07 | |
| | | Nb-95 | [ 3.7 ± 2.0 ] | E-07 | 7.4 | E-07 | |
| | | Ru-103 | [ 3.2 ± 1.3 ] | E-07 | 4.5 | E-07 | |
| | | Ru-106 | [ -6 ± 11 ] | E-07 | 5.2 | E-06 | |
| | | Ag-108m | [ 6.9 ± 4.4 ] | E-08 | 1.6 | E-07 | |
| | | Ag-110m | [ -1.9 ± 2.2 ] | E-07 | 1.0 | E-06 | |
| | | Sb-124 | [ 2.5 ± 1.8 ] | E-07 | 3.4 | E-07 | |
| | | Sb-125 | [ 9 ± 16 ] | E-08 | 6.9 | E-07 | |
| | | Cs-134 | [ -7 ± 13 ] | E-08 | 5.7 | E-07 | |
| | | Cs-137 | [ -7 ± 13 ] | E-08 | 5.8 | E-07 | |
| | | BaLa-140 | [ -1 ± 19 ] | E-07 | 8.9 | E-06 | |
| | | Ce-141 | [ -1 ± 23 ] | E-08 | 9.4 | E-07 | |
| | | Ce-144 | [ -8.4 ± 4.8 ] | E-07 | 2.1 | E-06 | |

Note(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/6/98

A. D. Banavali for

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10400
Sample Submission Code: QZZc04B1198
Media Type: Concrete
Total Amt of Sample Sent: 132.9 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 6, 1998
Report Date: May 6, 1998

Sample Description: A9901/01MC1/00002

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 1.0 ± 1.3 ] E-07 | 5.1 E-07 | 1.0E-06 | |
| | | Eu-155 | [ -8 ± 21 ] E-08 | 8.8 E-07 | | |
| | | Eu-154 | [ -6.6 ± 5.3 ] E-07 | 2.6 E-06 | | |

(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/6/98

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10401
Sample Submission Code: QZZc04C1198
Media Type: Concrete
Total Amt of Sample Sent: 106.3 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 4, 1998

Sample Description: A9901/01MC1/00003

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 106.3000 | Cr-51 | [ 6 ± 11 ] E-07 | 4.4 E-06 | | |
| | | Mn-54 | [ -4.6 ± 8.4 ] E-08 | 3.7 E-07 | | |
| | | Co-57 | [ -2 ± 28 ] E-08 | 1.1 E-06 | | |
| | | Co-58 | [ -7.3 ± 9.9 ] E-08 | 4.5 E-07 | | |
| | | Fe-59 | [ 9 ± 25 ] E-08 | 1.1 E-06 | | |
| | | Co-60 | [ 1.75 ± 0.77 ] E-07 | 2.5 E-07 | | |
| | | Zn-65 | [ -4.5 ± 2.8 ] E-07 | 1.3 E-06 | | |
| | | Nb-94 | [ 7 ± 57 ] E-09 | 2.4 E-07 | | |
| | | Zr-95 | [ -3.4 ± 2.8 ] E-07 | 1.3 E-06 | | |
| | | Nb-95 | [ -5 ± 17 ] E-08 | 7.4 E-07 | | |
| | | Ru-103 | [ -2 ± 12 ] E-08 | 5.0 E-07 | | |
| | | Ru-106 | [ -3.2 ± 6.2 ] E-07 | 2.7 E-06 | | |
| | | Ag-108m | [ 3.2 ± 4.5 ] E-08 | 1.9 E-07 | | |
| | | Ag-110m | [ -1.1 ± 1.2 ] E-07 | 5.6 E-07 | | |
| | | Sb-124 | [ -2 ± 23 ] E-08 | 1.1 E-06 | | |
| | | Sb-125 | [ 1.9 ± 1.5 ] E-07 | 5.8 E-07 | | |
| | | Cs-134 | [ -5.7 ± 7.7 ] E-08 | 3.5 E-07 | | |
| | | Cs-137 | [ 2.4 ± 6.9 ] E-08 | 2.9 E-07 | | |
| | | BaLa-140 | [ 2.4 ± 6.3 ] E-07 | 2.9 E-06 | | |
| | | Ce-141 | [ 1.5 ± 1.4 ] E-07 | 5.5 E-07 | | |
| | | Ce-144 | [ 0.0 ± 2.8 ] E-07 | 1.1 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/4/98

A. D. Banavali

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10401
Sample Submission Code: QZZc04C1198
Media Type: Concrete
Total Amt of Sample Sent: 106.3 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 4, 1998

Sample Description: A9901/01MC1/00003

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 8 ± 11 ] E-08 | 4.1 E-07 | 1.0E-06 | |
| | | Eu-155 | [ -1.4 ± 1.4 ] E-07 | 5.8 E-07 | | |
| | | Eu-154 | [ 4.2 ± 1.8 ] E-07 | 6.7 E-07 | | |

e(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

5/4/98
E. M. Moreno

for
A. D. Banavali

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10402
Sample Submission Code: QZZc04D1198
Media Type: Concrete
Total Amt of Sample Sent: 117.5 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 5, 1998
Report Date: May 5, 1998

Sample Description: A9901/01MC1/00004

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 117.5000 | Cr-51 | [ -2.9 ± 2.3 ] E-06 | 1.1 E-05 | | |
| | | Mn-54 | [ -8 ± 11 ] E-08 | 5.6 E-07 | | |
| | | Co-57 | [ -4.2 ± 5.0 ] E-07 | 2.1 E-06 | | |
| | | Co-58 | [ -4 ± 16 ] E-08 | 7.4 E-07 | | |
| | | Fe-59 | [ -6 ± 39 ] E-08 | 1.9 E-06 | | |
| | | Co-60 | [ 1 ± 22 ] E-08 | 1.0 E-06 | | |
| | | Zn-65 | [ -7.5 ± 5.2 ] E-07 | 2.5 E-06 | | |
| | | Nb-94 | [ 5.2 ± 9.1 ] E-08 | 3.9 E-07 | | |
| | | Zr-95 | [ -3.2 ± 4.7 ] E-07 | 2.2 E-06 | | |
| | | Nb-95 | [ -6.2 ± 4.2 ] E-07 | 2.0 E-06 | | |
| | | Ru-103 | [ 6 ± 24 ] E-08 | 1.0 E-06 | | |
| | | Ru-106 | [ 1.04 ± 0.95 ] E-06 | 3.9 E-06 | | |
| | | Ag-108m | [ -3.3 ± 7.4 ] E-08 | 3.4 E-07 | | |
| | | Ag-110m | [ 1 ± 18 ] E-08 | 8.4 E-07 | | |
| | | Sb-124 | [ 2.8 ± 2.0 ] E-07 | 3.8 E-07 | | |
| | | Sb-125 | [ 1.7 ± 2.5 ] E-07 | 1.1 E-06 | | |
| | | Cs-134 | [ -5.3 ± 1.9 ] E-07 | 8.9 E-07 | | |
| | | Cs-137 | [ 4 ± 12 ] E-08 | 5.2 E-07 | | |
| | | BaLa-140 | [ 2.5 ± 1.0 ] E-06 | 1.1 E-06 | | |
| | | Ce-141 | [ -3.5 ± 3.1 ] E-07 | 1.3 E-06 | | |
| | | Ce-144 | [ -5.5 ± 5.0 ] E-07 | 2.1 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. N. Moreno 5/5/98

A. D. Banavali

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10402
Sample Submission Code: QZZc04D1198
Media Type: Concrete
Total Amt of Sample Sent: 117.5 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 5, 1998
Report Date: May 5, 1998

Sample Description: A9901/01MC1/00004

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 3.5 ± 1.4 ] E-07 | 4.8 E-07 | 1.0E-06 | |
| | | Eu-155 | [ 1.3 ± 1.9 ] E-07 | 7.6 E-07 | | |
| | | Eu-154 | [ 1.9 ± 4.0 ] E-07 | 1.8 E-06 | | |

(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10403
Sample Submission Code: QZZc04E1198
Media Type: Concrete
Total Amt of Sample Sent: 109.1 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 5, 1998

Sample Description: A9901/01MC1/00005

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED [ µCi/g ] | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 109.1000 | Cr-51 | [ 1 ± 13 ] E-07 | 5.3 E-06 | | |
| | | Mn-54 | [ -7 ± 11 ] E-08 | 5.0 E-07 | | |
| | | Co-57 | [ -7 ± 35 ] E-08 | 1.4 E-06 | | |
| | | Co-58 | [ 9.4 ± 9.4 ] E-08 | 3.9 E-07 | | |
| | | Fe-59 | [ 1.0 ± 3.6 ] E-07 | 1.6 E-06 | | |
| | | Co-60 | [ 1.1 ± 1.4 ] E-07 | 6.2 E-07 | | |
| | | Zn-65 | [ 1.0 ± 2.4 ] E-07 | 1.1 E-06 | | |
| | | Nb-94 | [ 8 ± 88 ] E-09 | 3.9 E-07 | | |
| | | Zr-95 | [ 4 ± 21 ] E-08 | 9.3 E-07 | | |
| | | Nb-95 | [ -1.2 ± 2.1 ] E-07 | 9.3 E-07 | | |
| | | Ru-103 | [ -6 ± 13 ] E-08 | 5.7 E-07 | | |
| | | Ru-106 | [ -1.6 ± 1.0 ] E-06 | 4.7 E-06 | | |
| | | Ag-108m | [ -3.8 ± 5.3 ] E-08 | 2.4 E-07 | | |
| | | Ag-110m | [ 6 ± 98 ] E-09 | 4.5 E-07 | | |
| | | Sb-124 | [ 4 ± 37 ] E-08 | 1.7 E-06 | | |
| | | Sb-125 | [ 2.0 ± 1.6 ] E-07 | 6.3 E-07 | | |
| | | Cs-134 | [ -5.2 ± 9.8 ] E-08 | 4.3 E-07 | | |
| | | Cs-137 | [ 1.0 ± 7.3 ] E-08 | 3.2 E-07 | | |
| | | BaLa-140 | [ -1.9 ± 1.5 ] E-06 | 7.2 E-06 | | |
| | | Ce-141 | [ -1.8 ± 1.8 ] E-07 | 7.6 E-07 | | |
| | | Ce-144 | [ -5.2 ± 3.8 ] E-07 | 1.6 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali for E. M. Moreno

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10 CFR Part 50/61 Analysis Report



| | | | |
|---|---|---|---|
| Laboratory Sample Number: | X10403 | Customer: | GTS Duratek |
| Sample Submission Code: | QZZc04E1198 | Sample Reference Date: | March 20, 1998 |
| Media Type: | Concrete | Date Sample Received: | April 27, 1998 |
| Total Amt of Sample Sent: | 109.1 g | Count Date: | May 2, 1998 |
| | | Report Date: | May 5, 1998 |

Sample Description: A9901/01MC1/00005

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 1.2 ± 1.1 ] E-07 | 4.1 E-07 | 1.0E-06 | |
| | | Eu-155 | [ 3.0 ± 1.6 ] E-07 | 5.9 E-07 | | |
| | | Eu-154 | [ 1.6 ± 3.0 ] E-07 | 1.3 E-06 | | |

Note(s):

A Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10404
Sample Submission Code: QZZc04F1198
Media Type: Concrete
Total Amt of Sample Sent: 116.6 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: April 30, 1998
Report Date: May 4, 1998

Sample Description: A9901/01MC1/00006

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED [ µCi/g ] | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 116.6000 | Cr-51 | [ -1 ± 10 ] E-07 | 4.3 E-06 | | |
| | | Mn-54 | [ 8.5 ± 6.3 ] E-08 | 2.5 E-07 | | |
| | | Co-57 | [ 1.0 ± 2.9 ] E-07 | 1.1 E-06 | | |
| | | Co-58 | [ 1.20 ± 0.56 ] E-07 | 2.0 E-07 | | |
| | | Fe-59 | [ 0.0 ± 2.9 ] E-07 | 1.2 E-06 | | |
| | | Co-60 | [ 1.29 ± 0.87 ] E-07 | 3.5 E-07 | | |
| | | Zn-65 | [ -1 ± 16 ] E-08 | 7.3 E-07 | | |
| | | Nb-94 | [ -3.4 ± 5.9 ] E-08 | 2.6 E-07 | | |
| | | Zr-95 | [ 3 ± 24 ] E-08 | 1.0 E-06 | | |
| | | Nb-95 | [ 7 ± 12 ] E-08 | 5.2 E-07 | | |
| | | Ru-103 | [ -7 ± 11 ] E-08 | 4.6 E-07 | | |
| | | Ru-106 | [ -3.2 ± 6.2 ] E-07 | 2.7 E-06 | | |
| | | Ag-108m | [ -2.2 ± 3.7 ] E-08 | 1.6 E-07 | | |
| | | Ag-110m | [ 1.1 ± 1.0 ] E-07 | 4.3 E-07 | | |
| | | Sb-124 | [ -2 ± 23 ] E-08 | 1.1 E-06 | | |
| | | Sb-125 | [ 5 ± 13 ] E-08 | 5.5 E-07 | | |
| | | Cs-134 | [ 1.62 ± 0.61 ] E-07 | 2.1 E-07 | | |
| | | Cs-137 | [ 3.5 ± 4.7 ] E-08 | 2.0 E-07 | | |
| | | BaLa-140 | [ 3.4 ± 5.9 ] E-07 | 2.6 E-06 | | |
| | | Ce-141 | [ 4 ± 15 ] E-08 | 5.9 E-07 | | |
| | | Ce-144 | [ 0.0 ± 2.9 ] E-07 | 1.1 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. N. Moreno 5/4/98

A. D. Banavali

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10404
Sample Submission Code: QZZc04F1198
Media Type: Concrete
Total Amt of Sample Sent: 116.6 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: April 30, 1998
Report Date: May 4, 1998

Sample Description: A9901/01MC1/00006

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 1.92 ± 0.95 ] E-07 | 3.5 E-07 | 1.0E-06 | |
| | | Eu-155 | [ 8 ± 13 ] E-08 | 5.2 E-07 | | |
| | | Eu-154 | [ 1.9 ± 2.1 ] E-07 | 9.0 E-07 | | |

(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/4/98

A. D. Bahavali for

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10388
Sample Submission Code: QZZc02A1198
Media Type: Concrete
Total Amt of Sample Sent: 112.0 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: April 29, 1998
Report Date: May 5, 1998

Sample Description: A9901/01MC3/00001

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 112.0000 | Cr-51 | [ -1 ± 13 ] E-07 | 5.4 E-06 | | |
| | | Mn-54 | [ -1 ± 10 ] E-08 | 4.4 E-07 | | |
| | | Co-57 | [ -2.8 ± 3.9 ] E-07 | 1.6 E-06 | | |
| | | Co-58 | [ 5 ± 13 ] E-08 | 5.6 E-07 | | |
| | | Fe-59 | [ 5 ± 33 ] E-08 | 1.5 E-06 | | |
| | | Co-60 | [ 2.8 ± 1.5 ] E-07 | 5.8 E-07 | | |
| | | Zn-65 | [ -1.27 ± 0.45 ] E-06 | 2.1 E-06 | | |
| | | Nb-94 | [ 4 ± 61 ] E-09 | 2.8 E-07 | | |
| | | Zr-95 | [ -3.3 ± 2.5 ] E-07 | 1.1 E-06 | | |
| | | Nb-95 | [ 2.7 ± 1.8 ] E-07 | 7.1 E-07 | | |
| | | Ru-103 | [ -7 ± 13 ] E-08 | 5.6 E-07 | | |
| | | Ru-106 | [ 1.35 ± 0.56 ] E-06 | 2.0 E-06 | | |
| | | Ag-108m | [ -5.6 ± 6.1 ] E-08 | 2.7 E-07 | | |
| | | Ag-110m | [ -4 ± 13 ] E-08 | 5.9 E-07 | | |
| | | Sb-124 | [ -3.4 ± 4.6 ] E-07 | 2.2 E-06 | | |
| | | Sb-125 | [ 2.5 ± 1.6 ] E-07 | 6.1 E-07 | | |
| | | Cs-134 | [ -6 ± 12 ] E-08 | 5.2 E-07 | | |
| | | Cs-137 | [ 8.2 ± 5.8 ] E-08 | 2.3 E-07 | | |
| | | BaLa-140 | [ -1 ± 11 ] E-07 | 5.0 E-06 | | |
| | | Ce-141 | [ 2.8 ± 1.7 ] E-07 | 6.3 E-07 | | |
| | | Ce-144 | [ 1.4 ± 3.4 ] E-07 | 1.4 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10388
Sample Submission Code: QZZc02A1198
Media Type: Concrete
Total Amt of Sample Sent: 112.0 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: April 29, 1998
Report Date: May 5, 1998

Sample Description: A9901/01MC3/00001

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ -2 ± 13 ] E-08 | 5.3 E-07 | 1.0E-06 | |
| | | Eu-155 | [ 1.1 ± 1.5 ] E-07 | 6.0 E-07 | | |
| | | Eu-154 | [ -3 ± 28 ] E-08 | 1.3 E-06 | | |

's):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali for

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10389
Sample Submission Code: QZZc02B1198
Media Type: Concrete
Total Amt of Sample Sent: 110.8 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: April 29, 1998
Report Date: May 5, 1998

Sample Description: A9901/01MC3/00002

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|---|
| Gamma Scan | 110.8000 | Cr-51 | [ -4.2 ± 8.2 ] | E-07 | 3.4 E-06 | | |
| | | Mn-54 | [ 1.1 ± 5.2 ] | E-08 | 2.2 E-07 | | |
| | | Co-57 | [ -8 ± 22 ] | E-08 | 8.7 E-07 | | |
| | | Co-58 | [ 7.1 ± 5.6 ] | E-08 | 2.3 E-07 | | |
| | | Fe-59 | [ -3.1 ± 2.7 ] | E-07 | 1.2 E-06 | | |
| | | Co-60 | [ 1.60 ± 0.69 ] | E-07 | 2.6 E-07 | | |
| | | Zn-65 | [ -2.8 ± 1.8 ] | E-07 | 8.2 E-07 | | |
| | | Nb-94 | [ -3.3 ± 4.3 ] | E-08 | 1.9 E-07 | | |
| | | Zr-95 | [ -2.6 ± 1.6 ] | E-07 | 7.0 E-07 | | |
| | | Nb-95 | [ 1.1 ± 1.2 ] | E-07 | 4.8 E-07 | | |
| | | Ru-103 | [ -6.3 ± 9.2 ] | E-08 | 3.9 E-07 | | |
| | | Ru-106 | [ -1.5 ± 4.5 ] | E-07 | 1.9 E-06 | | |
| | | Ag-108m | [ 2.6 ± 3.3 ] | E-08 | 1.3 E-07 | | |
| | | Ag-110m | [ -4.5 ± 9.6 ] | E-08 | 4.2 E-07 | | |
| | | Sb-124 | [ 8 ± 20 ] | E-08 | 9.0 E-07 | | |
| | | Sb-125 | [ -9 ± 12 ] | E-08 | 5.0 E-07 | | |
| | | Cs-134 | [ 2.2 ± 5.9 ] | E-08 | 2.5 E-07 | | |
| | | Cs-137 | [ 8.2 ± 4.7 ] | E-08 | 1.8 E-07 | | |
| | | BaLa-140 | [ -2.2 ± 6.1 ] | E-07 | 2.8 E-06 | | |
| | | Ce-141 | [ 8.2 ± 9.4 ] | E-08 | 3.7 E-07 | | |
| | | Ce-144 | [ -9 ± 21 ] | E-08 | 8.2 E-07 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali for

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10389
Sample Submission Code: QZZc02B1198
Media Type: Concrete
Total Amt of Sample Sent: 110.8 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: April 29, 1998
Report Date: May 5, 1998

Sample Description: A9901/01MC3/00002

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 1.50 ± 0.64 ] E-07 | 2.4 E-07 | 1.0E-06 | |
| | | Eu-155 | [ 1.66 ± 0.99 ] E-07 | 3.8 E-07 | | |
| | | Eu-154 | [ 1.1 ± 2.0 ] E-07 | 8.6 E-07 | | |

s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10390
Sample Submission Code: QZZc02C1198
Media Type: Concrete
Total Amt of Sample Sent: 112.7 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: April 29, 1998
Report Date: May 5, 1998

Sample Description: A9901/01MC3/00003

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 112.7000 | Cr-51 | [ -8 ± 12 ] E-07 | 4.9 E-06 | | |
| | | Mn-54 | [ 1.29 ± 0.60 ] E-07 | 2.2 E-07 | | |
| | | Co-57 | [ 5.8 ± 2.7 ] E-07 | 1.0 E-06 | | |
| | | Co-58 | [ 4.2 ± 7.8 ] E-08 | 3.4 E-07 | | |
| | | Fe-59 | [ -2.6 ± 3.1 ] E-07 | 1.4 E-06 | | |
| | | Co-60 | [ 1.90 ± 0.86 ] E-07 | 3.2 E-07 | | |
| | | Zn-65 | [ -3.9 ± 2.7 ] E-07 | 1.2 E-06 | | |
| | | Nb-94 | [ 7 ± 60 ] E-09 | 2.6 E-07 | | |
| | | Zr-95 | [ -6.7 ± 3.2 ] E-07 | 1.5 E-06 | | |
| | | Nb-95 | [ 1.4 ± 1.4 ] E-07 | 6.0 E-07 | | |
| | | Ru-103 | [ -5 ± 10 ] E-08 | 4.6 E-07 | | |
| | | Ru-106 | [ 4.8 ± 5.6 ] E-07 | 2.3 E-06 | | |
| | | Ag-108m | [ 2.5 ± 4.8 ] E-08 | 2.0 E-07 | | |
| | | Ag-110m | [ -1.0 ± 1.3 ] E-07 | 5.9 E-07 | | |
| | | Sb-124 | [ -3 ± 26 ] E-08 | 1.2 E-06 | | |
| | | Sb-125 | [ 1.5 ± 1.3 ] E-07 | 5.1 E-07 | | |
| | | Cs-134 | [ -2.58 ± 0.98 ] E-07 | 4.4 E-07 | | |
| | | Cs-137 | [ 2.3 ± 6.2 ] E-08 | 2.6 E-07 | | |
| | | BaLa-140 | [ 6.9 ± 6.5 ] E-07 | 2.8 E-06 | | |
| | | Ce-141 | [ 1.1 ± 1.3 ] E-07 | 5.1 E-07 | | |
| | | Ce-144 | [ -3 ± 280 ] E-09 | 1.1 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali for E. M. Moreno

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10390
Sample Submission Code: QZZc02C1198
Media Type: Concrete
Total Amt of Sample Sent: 112.7 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: April 29, 1998
Report Date: May 5, 1998

Sample Description: A9901/01MC3/00003

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 5.3 ± 8.7 ] E-08 | 3.4 E-07 | 1.0E-06 | |
| | | Eu-155 | [ 8 ± 13 ] E-08 | 5.2 E-07 | | |
| | | Eu-154 | [ -5 ± 26 ] E-08 | 1.2 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/5/97

A. D. Banavali for E. M. Moreno

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10391
Sample Submission Code: QZZc02D1198
Media Type: Concrete
Total Amt of Sample Sent: 112.6 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: April 29, 1998
Report Date: May 5, 1998

Sample Description: A9901/01MC3/00004

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED [ μCi/g ] | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 112.6000 | Cr-51 | [ 2.0 ± 1.0 ] E-06 | 3.9 E-06 | | |
| | | Mn-54 | [ 1.41 ± 0.94 ] E-07 | 3.8 E-07 | | |
| | | Co-57 | [ -1 ± 39 ] E-09 | 1.6 E-07 | | |
| | | Co-58 | [ 4 ± 14 ] E-08 | 6.0 E-07 | | |
| | | Fe-59 | [ 6.0 ± 5.2 ] E-07 | 2.2 E-06 | | |
| | | Co-60 | [ 2.48 ± 0.96 ] E-07 | 3.4 E-07 | | |
| | | Zn-65 | [ -2.4 ± 3.3 ] E-07 | 1.5 E-06 | | |
| | | Nb-94 | [ 0.0 ± 8.0 ] E-08 | 3.3 E-07 | | |
| | | Zr-95 | [ 4 ± 32 ] E-08 | 1.4 E-06 | | |
| | | Nb-95 | [ 4 ± 190 ] E-09 | 8.5 E-07 | | |
| | | Ru-103 | [ 8 ± 13 ] E-08 | 5.5 E-07 | | |
| | | Ru-106 | [ -5.7 ± 9.7 ] E-07 | 4.3 E-06 | | |
| | | Ag-108m | [ 7.0 ± 4.7 ] E-08 | 1.9 E-07 | | |
| | | Ag-110m | [ -2.1 ± 1.7 ] E-07 | 7.7 E-07 | | |
| | | Sb-124 | [ 2.1 ± 1.2 ] E-07 | 1.9 E-07 | | |
| | | Sb-125 | [ -1.3 ± 1.9 ] E-07 | 8.3 E-07 | | |
| | | Cs-134 | [ 3 ± 10 ] E-08 | 4.4 E-07 | | |
| | | Cs-137 | [ -5.5 ± 8.9 ] E-08 | 4.0 E-07 | | |
| | | BaLa-140 | [ 4.4 ± 8.4 ] E-07 | 3.8 E-06 | | |
| | | Ce-141 | [ -1.5 ± 1.6 ] E-07 | 6.6 E-07 | | |
| | | Ce-144 | [ 4.1 ± 3.5 ] E-07 | 1.4 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali for

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



| | | | |
|---|---|---|---|
| Laboratory Sample Number: | X10391 | Customer: | GTS Duratek |
| Sample Submission Code: | QZZc02D1198 | Sample Reference Date: | March 20, 1998 |
| Media Type: | Concrete | Date Sample Received: | April 27, 1998 |
| Total Amt of Sample Sent: | 112.6 g | Count Date: | April 29, 1998 |
| | | Report Date: | May 5, 1998 |

Sample Description: A9901/01MC3/00004

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-155 | [ 2.7 ± 1.2 ] E-07 | 4.6 E-07 | | |
| | | Eu-152 | [ -1.0 ± 1.1 ] E-07 | 4.6 E-07 | 1.0E-06 | |
| | | Eu-154 | [ 1.15 ± 0.70 ] E-07 | 2.7 E-07 | | |

s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali for

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10392
Sample Submission Code: QZZc02E1198
Media Type: Concrete
Total Amt of Sample Sent: 112.7 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: April 28, 1998
Report Date: May 5, 1998

Sample Description: A9901/01MC3/00005

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED [ µCi/g ] | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 112.7000 | Cr-51 | [ -1.4 ± 1.1 ] E-06 | 4.7 E-06 | | |
| | | Mn-54 | [ 6.2 ± 7.6 ] E-08 | 3.2 E-07 | | |
| | | Co-57 | [ 1.8 ± 2.5 ] E-07 | 1.0 E-06 | | |
| | | Co-58 | [ 1.2 ± 8.4 ] E-08 | 3.7 E-07 | | |
| | | Fe-59 | [ -3.3 ± 2.9 ] E-07 | 1.3 E-06 | | |
| | | Co-60 | [ 7.7 ± 9.1 ] E-08 | 3.9 E-07 | | |
| | | Zn-65 | [ -1.6 ± 2.2 ] E-07 | 1.0 E-06 | | |
| | | Nb-94 | [ 6.1 ± 4.6 ] E-08 | 1.9 E-07 | | |
| | | Zr-95 | [ -1.5 ± 2.4 ] E-07 | 1.1 E-06 | | |
| | | Nb-95 | [ 3 ± 14 ] E-08 | 6.0 E-07 | | |
| | | Ru-103 | [ -3 ± 10 ] E-08 | 4.3 E-07 | | |
| | | Ru-106 | [ 1.8 ± 4.7 ] E-07 | 2.0 E-06 | | |
| | | Ag-108m | [ 4.1 ± 4.0 ] E-08 | 1.6 E-07 | | |
| | | Ag-110m | [ -4.3 ± 9.6 ] E-08 | 4.3 E-07 | | |
| | | Sb-124 | [ -2.3 ± 3.0 ] E-07 | 1.5 E-06 | | |
| | | Sb-125 | [ -8 ± 15 ] E-08 | 6.5 E-07 | | |
| | | Cs-134 | [ 8.0 ± 5.0 ] E-08 | 2.0 E-07 | | |
| | | Cs-137 | [ 0.0 ± 6.9 ] E-08 | 2.9 E-07 | | |
| | | BaLa-140 | [ -5.0 ± 8.1 ] E-07 | 3.8 E-06 | | |
| | | Ce-141 | [ 5 ± 12 ] E-08 | 4.7 E-07 | | |
| | | Ce-144 | [ -1.2 ± 2.5 ] E-07 | 1.0 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10392
Sample Submission Code: QZZc02E1198
Media Type: Concrete
Total Amt of Sample Sent: 112.7 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: April 28, 1998
Report Date: May 5, 1998

Sample Description: A9901/01MC3/00005

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-155 | [ 1.76 ± 0.91 ] E-07 | 3.3 E-07 | | |
| | | Eu-152 | [ 3.1 ± 8.1 ] E-08 | 3.2 E-07 | 1.0E-06 | |
| | | Eu-154 | [ 1.9 ± 2.0 ] E-07 | 8.5 E-07 | | |

(s):

A - Calculated MDCs are a-posteriori values.

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10411
Sample Submission Code: QZZc06A1198
Media Type: Concrete
Total Amt of Sample Sent: 90.1 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 5, 1998

Sample Description: A9901/01MC5/00001

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 90.1000 | Cr-51 | [ -1.3 ± 1.3 ] E-06 | 5.7 E-06 | | |
| | | Mn-54 | [ -6 ± 11 ] E-08 | 5.0 E-07 | | |
| | | Co-57 | [ 1.5 ± 3.0 ] E-07 | 1.2 E-06 | | |
| | | Co-58 | [ 1 ± 11 ] E-08 | 4.9 E-07 | | |
| | | Fe-59 | [ 1.1 ± 2.8 ] E-07 | 1.2 E-06 | | |
| | | Co-60 | [ 9.21 ± 0.97 ] E-07 | 3.2 E-07 | | B |
| | | Zn-65 | [ -1.9 ± 3.2 ] E-07 | 1.4 E-06 | | |
| | | Nb-94 | [ -1.2 ± 1.2 ] E-07 | 5.3 E-07 | | |
| | | Zr-95 | [ 1.3 ± 2.0 ] E-07 | 8.5 E-07 | | |
| | | Nb-95 | [ 2 ± 16 ] E-08 | 7.0 E-07 | | |
| | | Ru-103 | [ -1.3 ± 1.4 ] E-07 | 6.2 E-07 | | |
| | | Ru-106 | [ -6.3 ± 7.8 ] E-07 | 3.4 E-06 | | |
| | | Ag-108m | [ 6.4 ± 4.8 ] E-08 | 1.9 E-07 | | |
| | | Ag-110m | [ -6 ± 14 ] E-08 | 6.0 E-07 | | |
| | | Sb-124 | [ 1.4 ± 2.9 ] E-07 | 1.3 E-06 | | |
| | | Sb-125 | [ 1.7 ± 1.6 ] E-07 | 6.2 E-07 | | |
| | | Cs-134 | [ -6 ± 10 ] E-08 | 4.3 E-07 | | |
| | | Cs-137 | [ 2.53 ± 0.75 ] E-07 | 2.4 E-07 | | B |
| | | BaLa-140 | [ 5.8 ± 2.9 ] E-07 | 4.0 E-07 | | |
| | | Ce-141 | [ -7 ± 18 ] E-08 | 7.1 E-07 | | |
| | | Ce-144 | [ -3.3 ± 3.2 ] E-07 | 1.3 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali

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10 CFR Part 50/61 Analysis Report



| | | | |
|---|---|---|---|
| Laboratory Sample Number: | X10411 | Customer: | GTS Duratek |
| Sample Submission Code: | QZZc06A1198 | Sample Reference Date: | March 20, 1998 |
| Media Type: | Concrete | Date Sample Received: | April 27, 1998 |
| Total Amt of Sample Sent: | 90.1 g | Count Date: | May 2, 1998 |
| | | Report Date: | May 5, 1998 |

Sample Description: A9901/01MC5/00001

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 6.7 ± 1.2 ] E-07 | 3.7 E-07 | 1.0E-06 | B |
| | | Eu-155 | [ -6 ± 14 ] E-08 | 5.8 E-07 | | |
| | | Eu-154 | [ 2.0 ± 2.8 ] E-07 | 1.2 E-06 | | |

s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10412
Sample Submission Code: QZZc06B1198
Media Type: Concrete
Total Amt of Sample Sent: 99.1 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: April 30, 1998
Report Date: May 4, 1998

Sample Description: A9901/01MC5/00002

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 99.1000 | Cr-51 | [ -3 ± 120 ] E-08 | 4.8 E-06 | | |
| | | Mn-54 | [ -2.7 ± 7.7 ] E-08 | 3.5 E-07 | | |
| | | Co-57 | [ 5.7 ± 3.0 ] E-07 | 1.1 E-06 | | |
| | | Co-58 | [ -1.0 ± 1.1 ] E-07 | 5.1 E-07 | | |
| | | Fe-59 | [ -3.4 ± 3.5 ] E-07 | 1.6 E-06 | | |
| | | Co-60 | [ 6.34 ± 0.90 ] E-07 | 3.1 E-07 | | B |
| | | Zn-65 | [ -3.6 ± 3.4 ] E-07 | 1.5 E-06 | | |
| | | Nb-94 | [ -2.9 ± 6.4 ] E-08 | 2.8 E-07 | | |
| | | Zr-95 | [ -4.2 ± 3.2 ] E-07 | 1.4 E-06 | | |
| | | Nb-95 | [ 2.0 ± 1.4 ] E-07 | 5.7 E-07 | | |
| | | Ru-103 | [ -1.6 ± 1.3 ] E-07 | 5.8 E-07 | | |
| | | Ru-106 | [ 1 ± 65 ] E-08 | 2.8 E-06 | | |
| | | Ag-108m | [ 9.1 ± 5.0 ] E-08 | 1.9 E-07 | | |
| | | Ag-110m | [ 1.2 ± 1.3 ] E-07 | 5.6 E-07 | | |
| | | Sb-124 | [ -7 ± 24 ] E-08 | 1.2 E-06 | | |
| | | Sb-125 | [ -9 ± 20 ] E-08 | 8.4 E-07 | | |
| | | Cs-134 | [ 4.1 ± 9.0 ] E-08 | 3.8 E-07 | | |
| | | Cs-137 | [ 1.84 ± 0.71 ] E-07 | 2.5 E-07 | | |
| | | BaLa-140 | [ 5.0 ± 6.6 ] E-07 | 2.9 E-06 | | |
| | | Ce-141 | [ 8 ± 14 ] E-08 | 5.4 E-07 | | |
| | | Ce-144 | [ -1.8 ± 3.2 ] E-07 | 1.3 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/1/98

A. D. Banavali

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10412
Sample Submission Code: QZZc06B1198
Media Type: Concrete
Total Amt of Sample Sent: 99.1 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: April 30, 1998
Report Date: May 4, 1998

Sample Description: A9901/01MC5/00002

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED [ µCi/g ] | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 5.8 ± 1.3 ] E-07 | 4.2 E-07 | 1.0E-06 | B |
| | | Eu-155 | [ 8 ± 16 ] E-08 | 6.1 E-07 | | |
| | | Eu-154 | [ -3.6 ± 3.5 ] E-07 | 1.6 E-06 | | |

(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/4/98

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10413
Sample Submission Code: QZZc06C1198
Media Type: Concrete
Total Amt of Sample Sent: 116.6 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 5, 1998
Report Date: May 5, 1998

Sample Description: A9901/01MC5/00003

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 116.6000 | Cr-51 | [ -1.2 ± 1.4 ] E-06 | 6.1 E-06 | | |
| | | Mn-54 | [ 4 ± 10 ] E-08 | 4.3 E-07 | | |
| | | Co-57 | [ 5.2 ± 3.1 ] E-07 | 1.2 E-06 | | |
| | | Co-58 | [ 5 ± 13 ] E-08 | 5.7 E-07 | | |
| | | Fe-59 | [ -5.9 ± 4.7 ] E-07 | 2.2 E-06 | | |
| | | Co-60 | [ 4.96 ± 0.93 ] E-07 | 4.3 E-07 | | B |
| | | Zn-65 | [ -2.0 ± 2.7 ] E-07 | 1.3 E-06 | | |
| | | Nb-94 | [ 5.3 ± 6.5 ] E-08 | 2.7 E-07 | | |
| | | Zr-95 | [ 5 ± 230 ] E-09 | 1.0 E-06 | | |
| | | Nb-95 | [ 2.3 ± 1.4 ] E-07 | 5.6 E-07 | | |
| | | Ru-103 | [ -1.6 ± 1.7 ] E-07 | 7.4 E-07 | | |
| | | Ru-106 | [ 6.1 ± 6.5 ] E-07 | 2.7 E-06 | | |
| | | Ag-108m | [ 9.7 ± 5.0 ] E-08 | 1.9 E-07 | | |
| | | Ag-110m | [ -9 ± 16 ] E-08 | 7.0 E-07 | | |
| | | Sb-124 | [ 2.1 ± 1.2 ] E-07 | 1.9 E-07 | | |
| | | Sb-125 | [ -7 ± 19 ] E-08 | 8.1 E-07 | | |
| | | Cs-134 | [ -2.1 ± 1.2 ] E-07 | 5.3 E-07 | | |
| | | Cs-137 | [ 8 ± 11 ] E-08 | 4.4 E-07 | | |
| | | BaLa-140 | [ 1.07 ± 0.48 ] E-06 | 5.8 E-07 | | |
| | | Ce-141 | [ 1.7 ± 1.8 ] E-07 | 6.9 E-07 | | |
| | | Ce-144 | [ -2.5 ± 3.5 ] E-07 | 1.4 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali for

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10413
Sample Submission Code: QZZc06C1198
Media Type: Concrete
Total Amt of Sample Sent: 116.6 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 5, 1998
Report Date: May 5, 1998

Sample Description: A9901/01MC5/00003

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 4.8 ± 1.2 ] E-07 | 3.9 E-07 | 1.0E-06 | B |
| | | Eu-155 | [ 2.2 ± 1.4 ] E-07 | 5.4 E-07 | | |
| | | Eu-154 | [ 1.8 ± 2.1 ] E-07 | 9.1 E-07 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali for

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10414
Sample Submission Code: QZZc06D1198
Media Type: Concrete
Total Amt of Sample Sent: 104.2 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 5, 1998
Report Date: May 5, 1998

Sample Description: A9901/01MC5/00004

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 104.2000 | Cr-51 | [ -2.0 ± 1.6 ] E-06 | 7.1 E-06 | | |
| | | Mn-54 | [ 1.06 ± 0.92 ] E-07 | 3.8 E-07 | | |
| | | Co-57 | [ 3.7 ± 3.9 ] E-07 | 1.5 E-06 | | |
| | | Co-58 | [ 1.55 ± 0.59 ] E-07 | 6.0 E-08 | | |
| | | Fe-59 | [ 3.0 ± 3.0 ] E-07 | 1.3 E-06 | | |
| | | Co-60 | [ 4.57 ± 0.85 ] E-07 | 5.4 E-08 | | B |
| | | Zn-65 | [ -1.05 ± 0.49 ] E-06 | 2.3 E-06 | | |
| | | Nb-94 | [ 9.0 ± 6.6 ] E-08 | 2.6 E-07 | | |
| | | Zr-95 | [ 9 ± 37 ] E-08 | 1.6 E-06 | | |
| | | Nb-95 | [ -1.3 ± 2.5 ] E-07 | 1.1 E-06 | | |
| | | Ru-103 | [ -1 ± 16 ] E-08 | 6.8 E-07 | | |
| | | Ru-106 | [ -1.6 ± 7.9 ] E-07 | 3.5 E-06 | | |
| | | Ag-108m | [ 0.0 ± 6.3 ] E-08 | 2.7 E-07 | | |
| | | Ag-110m | [ -1 ± 12 ] E-08 | 5.6 E-07 | | |
| | | Sb-124 | [ 4.5 ± 2.0 ] E-07 | 2.4 E-07 | | |
| | | Sb-125 | [ -1.5 ± 2.3 ] E-07 | 1.0 E-06 | | |
| | | Cs-134 | [ -4.0 ± 1.5 ] E-07 | 6.7 E-07 | | |
| | | Cs-137 | [ 7.5 ± 8.4 ] E-08 | 3.5 E-07 | | |
| | | BaLa-140 | [ -2.0 ± 1.6 ] E-06 | 8.2 E-06 | | |
| | | Ce-141 | [ 4 ± 22 ] E-08 | 9.0 E-07 | | |
| | | Ce-144 | [ -5.8 ± 4.3 ] E-07 | 1.8 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali

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10 CFR Part 50/61 Analysis Report

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Laboratory Sample Number: X10414
Sample Submission Code: QZZc06D1198
Media Type: Concrete
Total Amt of Sample Sent: 104.2 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 5, 1998
Report Date: May 5, 1998

Sample Description: A9901/01MC5/00004

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 2.8 ± 1.5 ] E-07 | 5.7 E-07 | 1.0E-06 | |
| | | Eu-155 | [ -1.0 ± 2.0 ] E-07 | 8.0 E-07 | | |
| | | Eu-154 | [ 2 ± 25 ] E-08 | 1.2 E-06 | | |

(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali for

MAILED DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10415
Sample Submission Code: QZZc06E1198
Media Type: Concrete
Total Amt of Sample Sent: 114.3 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 4, 1998

Sample Description: A9901/01MC5/00005

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 114.3000 | Cr-51 | [ -2 ± 13 ] E-07 | 5.5 E-06 | | |
| | | Mn-54 | [ -1.0 ± 1.2 ] E-07 | 5.5 E-07 | | |
| | | Co-57 | [ 1.9 ± 3.6 ] E-07 | 1.4 E-06 | | |
| | | Co-58 | [ 1.1 ± 1.2 ] E-07 | 4.9 E-07 | | |
| | | Fe-59 | [ 1.4 ± 2.8 ] E-07 | 1.2 E-06 | | |
| | | Co-60 | [ 5.22 ± 0.89 ] E-07 | 3.9 E-07 | | B |
| | | Zn-65 | [ -8.3 ± 3.9 ] E-07 | 1.8 E-06 | | |
| | | Nb-94 | [ 3.6 ± 7.5 ] E-08 | 3.2 E-07 | | |
| | | Zr-95 | [ -1.19 ± 0.43 ] E-06 | 2.0 E-06 | | |
| | | Nb-95 | [ -9 ± 25 ] E-08 | 1.1 E-06 | | |
| | | Ru-103 | [ 1.3 ± 1.1 ] E-07 | 4.3 E-07 | | |
| | | Ru-106 | [ -9 ± 72 ] E-08 | 3.1 E-06 | | |
| | | Ag-108m | [ 9.0 ± 5.3 ] E-08 | 2.0 E-07 | | |
| | | Ag-110m | [ -1.6 ± 1.6 ] E-07 | 7.3 E-07 | | |
| | | Sb-124 | [ -2.1 ± 2.8 ] E-07 | 1.5 E-06 | | |
| | | Sb-125 | [ -1.4 ± 2.0 ] E-07 | 8.6 E-07 | | |
| | | Cs-134 | [ -5 ± 10 ] E-08 | 4.6 E-07 | | |
| | | Cs-137 | [ 2.32 ± 0.81 ] E-07 | 2.8 E-07 | | |
| | | BaLa-140 | [ 1.03 ± 0.42 ] E-06 | 4.6 E-07 | | |
| | | Ce-141 | [ -2.2 ± 2.2 ] E-07 | 9.0 E-07 | | |
| | | Ce-144 | [ 3.5 ± 3.4 ] E-07 | 1.3 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/4/98

A. D. Banavali

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10415
Sample Submission Code: QZZc06E1198
Media Type: Concrete
Total Amt of Sample Sent: 114.3 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 4, 1998

Sample Description: A9901/01MC5/00005

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 5.1 ± 1.4 ] E-07 | 4.5 E-07 | 1.0E-06 | B |
| | | Eu-155 | [ 1.1 ± 1.8 ] E-07 | 7.1 E-07 | | |
| | | Eu-154 | [ 3.5 ± 1.3 ] E-07 | 1.2 E-07 | | |

(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

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E. M. Moreno 5/4/98

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10416
Sample Submission Code: QZZc06F1198
Media Type: Concrete
Total Amt of Sample Sent: 105.7 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 5, 1998
Report Date: May 5, 1998

Sample Description: A9901/01MC5/00006

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED [ μCi/g ] | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 105.7000 | Cr-51 | [ 2.3 ± 2.8 ] E-06 | 1.1 E-05 | | |
| | | Mn-54 | [ 3 ± 16 ] E-08 | 7.7 E-07 | | |
| | | Co-57 | [ 1.6 ± 6.1 ] E-07 | 2.5 E-06 | | |
| | | Co-58 | [ -9.4 ± 4.7 ] E-07 | 2.3 E-06 | | |
| | | Fe-59 | [ 9.0 ± 4.1 ] E-07 | 4.9 E-07 | | |
| | | Co-60 | [ 6.7 ± 3.4 ] E-07 | 1.3 E-06 | | |
| | | Zn-65 | [ -2.3 ± 8.0 ] E-07 | 3.7 E-06 | | |
| | | Nb-94 | [ -6 ± 15 ] E-08 | 7.3 E-07 | | |
| | | Zr-95 | [ -2 ± 37 ] E-08 | 1.8 E-06 | | |
| | | Nb-95 | [ 1.3 ± 5.6 ] E-07 | 2.5 E-06 | | |
| | | Ru-103 | [ 4.2 ± 2.5 ] E-07 | 9.4 E-07 | | |
| | | Ru-106 | [ -1.6 ± 2.1 ] E-06 | 1.0 E-05 | | |
| | | Ag-108m | [ -9 ± 12 ] E-08 | 5.5 E-07 | | |
| | | Ag-110m | [ 1.9 ± 1.1 ] E-07 | 1.7 E-07 | | |
| | | Sb-124 | [ 0 ± 0 ] E+02 | 7.1 E-07 | | |
| | | Sb-125 | [ 5.9 ± 3.0 ] E-07 | 1.1 E-06 | | |
| | | Cs-134 | [ -1.8 ± 1.9 ] E-07 | 9.2 E-07 | | |
| | | Cs-137 | [ 1.8 ± 1.5 ] E-07 | 6.0 E-07 | | |
| | | BaLa-140 | [ 2.4 ± 1.4 ] E-06 | 2.1 E-06 | | |
| | | Ce-141 | [ 7 ± 37 ] E-08 | 1.5 E-06 | | |
| | | Ce-144 | [ -9.0 ± 6.7 ] E-07 | 3.0 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali

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10 CFR Part 50/61 Analysis Report



| | | | |
|---|---|---|---|
| Laboratory Sample Number: | X10416 | Customer: | GTS Duratek |
| Sample Submission Code: | QZZc06F1198 | Sample Reference Date: | March 20, 1998 |
| Media Type: | Concrete | Date Sample Received: | April 27, 1998 |
| Total Amt of Sample Sent: | 105.7 g | Count Date: | May 5, 1998 |
| | | Report Date: | May 5, 1998 |

Sample Description: A9901/01MC5/00006

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | | Eu-152 | [ 4.1 ± 2.0 ] E-07 | 7.1 E-07 | 1.0E-06 | |
| (continued) | | Eu-155 | [ 8 ± 31 ] E-08 | 1.3 E-06 | | |
| | | Eu-154 | [ -1.4 ± 6.9 ] E-07 | 3.4 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10393
Sample Submission Code: QZZc03A1298
Media Type: Concrete
Total Amt of Sample Sent: 108.1 g

Customer: GTS Duratek
Sample Reference Date: March 26, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 5, 1998

Sample Description: A9901/02MC1/00001

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 108.1000 | Cr-51 | [ 2.06 ± 0.93 ] E-06 | 3.4 E-06 | | |
| | | Mn-54 | [ 0.0 ± 1.1 ] E-07 | 4.6 E-07 | | |
| | | Co-57 | [ 5.5 ± 3.0 ] E-07 | 1.1 E-06 | | |
| | | Co-58 | [ -1.7 ± 1.5 ] E-07 | 6.8 E-07 | | |
| | | Fe-59 | [ -3.7 ± 3.6 ] E-07 | 1.7 E-06 | | |
| | | Co-60 | [ 4.38 ± 0.86 ] E-07 | 3.2 E-07 | | B |
| | | Zn-65 | [ -6.0 ± 3.4 ] E-07 | 1.6 E-06 | | |
| | | Nb-94 | [ -8 ± 80 ] E-09 | 3.5 E-07 | | |
| | | Zr-95 | [ -5 ± 22 ] E-08 | 1.0 E-06 | | |
| | | Nb-95 | [ -2.5 ± 1.9 ] E-07 | 8.7 E-07 | | |
| | | Ru-103 | [ 4 ± 11 ] E-08 | 4.7 E-07 | | |
| | | Ru-106 | [ 2.4 ± 6.1 ] E-07 | 2.6 E-06 | | |
| | | Ag-108m | [ -6.5 ± 6.4 ] E-08 | 2.8 E-07 | | |
| | | Ag-110m | [ -1.4 ± 1.5 ] E-07 | 6.8 E-07 | | |
| | | Sb-124 | [ -1.4 ± 2.8 ] E-07 | 1.4 E-06 | | |
| | | Sb-125 | [ -3.0 ± 1.9 ] E-07 | 8.7 E-07 | | |
| | | Cs-134 | [ 1.52 ± 0.68 ] E-07 | 2.5 E-07 | | |
| | | Cs-137 | [ 1.23 ± 0.65 ] E-07 | 2.4 E-07 | | |
| | | BaLa-140 | [ 2.3 ± 6.1 ] E-07 | 2.8 E-06 | | |
| | | Ce-141 | [ 2.0 ± 1.4 ] E-07 | 5.2 E-07 | | |
| | | Ce-144 | [ -4.8 ± 3.5 ] E-07 | 1.5 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali for

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10393
Sample Submission Code: QZZc03A1298
Media Type: Concrete
Total Amt of Sample Sent: 108.1 g

Customer: GTS Duratek
Sample Reference Date: March 26, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 5, 1998

Sample Description: A9901/02MC1/00001

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 7.2 ± 1.7 ] E-07 | 6.0 E-07 | 1.0E-06 | B |
| | | Eu-155 | [ 1.3 ± 1.6 ] E-07 | 6.3 E-07 | | |
| | | Eu-154 | [ -2.5 ± 3.5 ] E-07 | 1.6 E-06 | | |

(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10394
Sample Submission Code: QZZc03B1298
Media Type: Concrete
Total Amt of Sample Sent: 113.4 g

Customer: GTS Duratek
Sample Reference Date: March 26, 1998
Date Sample Received: April 27, 1998
Count Date: May 5, 1998
Report Date: May 5, 1998

Sample Description: A9901/02MC1/00002

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED [ µCi/g ] | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 113.4000 | Cr-51 | [ -2.4 ± 2.1 ] E-06 | 9.5 E-06 | | |
| | | Mn-54 | [ 2.0 ± 1.1 ] E-07 | 4.3 E-07 | | |
| | | Co-57 | [ -3.2 ± 5.0 ] E-07 | 2.1 E-06 | | |
| | | Co-58 | [ 8 ± 20 ] E-08 | 8.7 E-07 | | |
| | | Fe-59 | [ -3.0 ± 5.1 ] E-07 | 2.5 E-06 | | |
| | | Co-60 | [ 1.4 ± 2.3 ] E-07 | 1.0 E-06 | | |
| | | Zn-65 | [ -3.9 ± 5.5 ] E-07 | 2.5 E-06 | | |
| | | Nb-94 | [ -1.1 ± 1.6 ] E-07 | 7.2 E-07 | | |
| | | Zr-95 | [ 1.9 ± 3.6 ] E-07 | 1.5 E-06 | | |
| | | Nb-95 | [ -2 ± 27 ] E-08 | 1.2 E-06 | | |
| | | Ru-103 | [ 2.1 ± 1.3 ] E-07 | 4.7 E-07 | | |
| | | Ru-106 | [ 1.4 ± 1.0 ] E-06 | 4.0 E-06 | | |
| | | Ag-108m | [ 0.0 ± 1.0 ] E-07 | 4.2 E-07 | | |
| | | Ag-110m | [ 2.3 ± 1.6 ] E-07 | 6.3 E-07 | | |
| | | Sb-124 | [ 4.1 ± 2.4 ] E-07 | 3.7 E-07 | | |
| | | Sb-125 | [ -2.4 ± 2.9 ] E-07 | 1.3 E-06 | | |
| | | Cs-134 | [ -2.0 ± 1.6 ] E-07 | 7.4 E-07 | | |
| | | Cs-137 | [ -4 ± 14 ] E-08 | 6.2 E-07 | | |
| | | BaLa-140 | [ 3.2 ± 3.2 ] E-07 | 8.5 E-07 | | |
| | | Ce-141 | [ 9 ± 22 ] E-08 | 8.9 E-07 | | |
| | | Ce-144 | [ -1.8 ± 4.9 ] E-07 | 2.0 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/5/98

E. M. Moreno

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10 CFR Part 50/61 Analysis Report



| | | | |
|---|---|---|---|
| Laboratory Sample Number: | X10394 | Customer: | GTS Duratek |
| Sample Submission Code: | QZZc03B1298 | Sample Reference Date: | March 26, 1998 |
| Media Type: | Concrete | Date Sample Received: | April 27, 1998 |
| Total Amt of Sample Sent: | 113.4 g | Count Date: | May 5, 1998 |
| | | Report Date: | May 5, 1998 |

Sample Description: A9901/02MC1/00002

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | | Eu-152 | [ 7.3 ± 1.9 ] E-07 | 6.1 E-07 | 1.0E-06 | B |
| (continued) | | Eu-155 | [ -4.6 ± 2.6 ] E-07 | 1.1 E-06 | | |
| | | Eu-154 | [ 1.1 ± 4.0 ] E-07 | 1.9 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10395
Sample Submission Code: QZZc03C1298
Media Type: Concrete
Total Amt of Sample Sent: 99.9 g

Customer: GTS Duratek
Sample Reference Date: March 26, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 5, 1998

Sample Description: A9901/02MC1/00003

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 99.9000 | Cr-51 | [ 2 ± 20 ] E-07 | 8.3 E-06 | | |
| | | Mn-54 | [ -7 ± 15 ] E-08 | 7.2 E-07 | | |
| | | Co-57 | [ -8.8 ± 5.9 ] E-07 | 2.5 E-06 | | |
| | | Co-58 | [ 1.5 ± 1.3 ] E-07 | 5.5 E-07 | | |
| | | Fe-59 | [ -1.2 ± 5.2 ] E-07 | 2.5 E-06 | | |
| | | Co-60 | [ 1.7 ± 2.1 ] E-07 | 8.8 E-07 | | |
| | | Zn-65 | [ -7.8 ± 6.2 ] E-07 | 2.9 E-06 | | |
| | | Nb-94 | [ 1.64 ± 0.62 ] E-07 | 6.3 E-08 | | |
| | | Zr-95 | [ 3.8 ± 2.5 ] E-07 | 1.0 E-06 | | |
| | | Nb-95 | [ 1.5 ± 2.8 ] E-07 | 1.2 E-06 | | |
| | | Ru-103 | [ 1.6 ± 1.5 ] E-07 | 6.3 E-07 | | |
| | | Ru-106 | [ 7.4 ± 9.8 ] E-07 | 4.2 E-06 | | |
| | | Ag-108m | [ -7 ± 12 ] E-08 | 5.4 E-07 | | |
| | | Ag-110m | [ -2.4 ± 2.9 ] E-07 | 1.4 E-06 | | |
| | | Sb-124 | [ 0 ± 0 ] E+02 | 3.7 E-07 | | |
| | | Sb-125 | [ 1.1 ± 3.0 ] E-07 | 1.3 E-06 | | |
| | | Cs-134 | [ 2.27 ± 0.69 ] E-07 | 1.4 E-07 | | B |
| | | Cs-137 | [ -2.1 ± 1.8 ] E-07 | 8.4 E-07 | | |
| | | BaLa-140 | [ 1.39 ± 0.63 ] E-06 | 7.5 E-07 | | |
| | | Ce-141 | [ 3.3 ± 2.3 ] E-07 | 8.7 E-07 | | |
| | | Ce-144 | [ 1.7 ± 4.9 ] E-07 | 2.0 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali for

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10395
Sample Submission Code: QZZc03C1298
Media Type: Concrete
Total Amt of Sample Sent: 99.9 g

Customer: GTS Duratek
Sample Reference Date: March 26, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 5, 1998

Sample Description: A9901/02MC1/00003

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 7.2 ± 2.1 ] E-07 | 7.2 E-07 | 1.0E-06 | B |
| | | Eu-155 | [ 3.5 ± 2.6 ] E-07 | 1.0 E-06 | | |
| | | Eu-154 | [ 3 ± 58 ] E-08 | 2.7 E-06 | | |

s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10396
Sample Submission Code: QZZc03D1298
Media Type: Concrete
Total Amt of Sample Sent: 118.2 g

Customer: GTS Duratek
Sample Reference Date: March 26, 1998
Date Sample Received: April 27, 1998
Count Date: May 5, 1998
Report Date: May 5, 1998

Sample Description: A9901/02MC1/00004

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED REQUIRED [ μCi/g ] | Note(s) |
|---|---|---|---|---|---|
| Gamma Scan | 118.2000 | Cr-51 | [ 1.9 ± 1.0 ] E-06 | 3.9 E-06 | |
| | | Mn-54 | [ -1 ± 11 ] E-08 | 4.9 E-07 | |
| | | Co-57 | [ 7.4 ± 3.6 ] E-07 | 1.3 E-06 | |
| | | Co-58 | [ 9.1 ± 7.5 ] E-08 | 3.0 E-07 | |
| | | Fe-59 | [ -8.8 ± 5.2 ] E-07 | 2.4 E-06 | |
| | | Co-60 | [ 4.20 ± 0.85 ] E-07 | 2.8 E-07 | B |
| | | Zn-65 | [ -4 ± 28 ] E-08 | 1.3 E-06 | |
| | | Nb-94 | [ 1.03 ± 0.60 ] E-07 | 2.3 E-07 | |
| | | Zr-95 | [ -2.6 ± 2.3 ] E-07 | 1.1 E-06 | |
| | | Nb-95 | [ 1.5 ± 1.9 ] E-07 | 7.9 E-07 | |
| | | Ru-103 | [ -5 ± 13 ] E-08 | 5.8 E-07 | |
| | | Ru-106 | [ 3.0 ± 7.9 ] E-07 | 3.4 E-06 | |
| | | Ag-108m | [ -1.5 ± 6.3 ] E-08 | 2.7 E-07 | |
| | | Ag-110m | [ -1.1 ± 1.2 ] E-07 | 5.8 E-07 | |
| | | Sb-124 | [ 2.2 ± 1.3 ] E-07 | 2.0 E-07 | |
| | | Sb-125 | [ -1.9 ± 2.1 ] E-07 | 9.3 E-07 | |
| | | Cs-134 | [ -2.2 ± 1.3 ] E-07 | 5.8 E-07 | |
| | | Cs-137 | [ -1.6 ± 7.7 ] E-08 | 3.5 E-07 | |
| | | BaLa-140 | [ 1.7 ± 1.7 ] E-07 | 4.7 E-07 | |
| | | Ce-141 | [ 1.2 ± 1.9 ] E-07 | 7.4 E-07 | |
| | | Ce-144 | [ -6.3 ± 3.8 ] E-07 | 1.6 E-06 | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali for

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10396
Sample Submission Code: QZZc03D1298
Media Type: Concrete
Total Amt of Sample Sent: 118.2 g

Customer: GTS Duratek
Sample Reference Date: March 26, 1998
Date Sample Received: April 27, 1998
Count Date: May 5, 1998
Report Date: May 5, 1998

Sample Description: A9901/02MC1/00004

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 7.8 ± 1.5 ] E-07 | 4.3 E-07 | 1.0E-06 | B |
| | | Eu-155 | [ 1.7 ± 1.6 ] E-07 | 6.0 E-07 | | |
| | | Eu-154 | [ 3.3 ± 2.5 ] E-07 | 1.0 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10397
Sample Submission Code: QZZc03E1298
Media Type: Concrete
Total Amt of Sample Sent: 105.8 g

Customer: GTS Duratek
Sample Reference Date: March 26, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 5, 1998

Sample Description: A9901/02MC1/00005

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 105.8000 | Cr-51 | [ -1.5 ± 1.8 ] E-06 | 8.0 E-06 | | |
| | | Mn-54 | [ -8 ± 14 ] E-08 | 6.5 E-07 | | |
| | | Co-57 | [ 4.7 ± 4.6 ] E-07 | 1.8 E-06 | | |
| | | Co-58 | [ -2 ± 18 ] E-08 | 8.1 E-07 | | |
| | | Fe-59 | [ -4.9 ± 5.7 ] E-07 | 2.7 E-06 | | |
| | | Co-60 | [ 2.3 ± 2.0 ] E-07 | 8.2 E-07 | | |
| | | Zn-65 | [ -5.8 ± 4.5 ] E-07 | 2.1 E-06 | | |
| | | Nb-94 | [ -4 ± 12 ] E-08 | 5.5 E-07 | | |
| | | Zr-95 | [ -7 ± 31 ] E-08 | 1.4 E-06 | | |
| | | Nb-95 | [ 2.0 ± 1.5 ] E-07 | 5.9 E-07 | | |
| | | Ru-103 | [ 6 ± 16 ] E-08 | 6.8 E-07 | | |
| | | Ru-106 | [ 8.8 ± 6.3 ] E-07 | 2.5 E-06 | | |
| | | Ag-108m | [ 2.1 ± 8.3 ] E-08 | 3.5 E-07 | | |
| | | Ag-110m | [ 1.5 ± 1.7 ] E-07 | 7.1 E-07 | | |
| | | Sb-124 | [ 3.3 ± 1.9 ] E-07 | 3.0 E-07 | | |
| | | Sb-125 | [ 3.8 ± 2.4 ] E-07 | 9.1 E-07 | | |
| | | Cs-134 | [ -1.7 ± 1.4 ] E-07 | 6.5 E-07 | | |
| | | Cs-137 | [ -5 ± 11 ] E-08 | 5.2 E-07 | | |
| | | BaLa-140 | [ 4 ± 11 ] E-07 | 5.1 E-06 | | |
| | | Ce-141 | [ 2 ± 19 ] E-08 | 7.9 E-07 | | |
| | | Ce-144 | [ 1 ± 48 ] E-08 | 1.9 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/5/98

E. M. Moreno

A. D. Banavali

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10397
Sample Submission Code: QZZc03E1298
Media Type: Concrete
Total Amt of Sample Sent: 105.8 g

Customer: GTS Duratek
Sample Reference Date: March 26, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 5, 1998

Sample Description: A9901/02MC1/00005

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 9.2 ± 1.8 ] E-07 | 5.3 E-07 | 1.0E-06 | B |
| | | Eu-155 | [ -9 ± 22 ] E-08 | 9.0 E-07 | | |
| | | Eu-154 | [ -2.8 ± 4.4 ] E-07 | 2.1 E-06 | | |

's):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali for

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10398
Sample Submission Code: QZZc03F1298
Media Type: Concrete
Total Amt of Sample Sent: 107.0 g

Customer: GTS Duratek
Sample Reference Date: March 26, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 4, 1998

Sample Description: A9901/02MC1/00006

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 107.0000 | Cr-51 | [ 1.2 ± 1.1 ] E-06 | 4.3 E-06 | | |
| | | Mn-54 | [ -1.0 ± 9.6 ] E-08 | 4.2 E-07 | | |
| | | Co-57 | [ 9.2 ± 3.2 ] E-07 | 1.1 E-06 | | |
| | | Co-58 | [ -8 ± 13 ] E-08 | 5.7 E-07 | | |
| | | Fe-59 | [ -1.1 ± 2.9 ] E-07 | 1.4 E-06 | | |
| | | Co-60 | [ 3.2 ± 1.4 ] E-07 | 5.6 E-07 | | |
| | | Zn-65 | [ -2.6 ± 3.1 ] E-07 | 1.4 E-06 | | |
| | | Nb-94 | [ -6.4 ± 7.8 ] E-08 | 3.5 E-07 | | |
| | | Zr-95 | [ -1.0 ± 3.2 ] E-07 | 1.4 E-06 | | |
| | | Nb-95 | [ -8 ± 20 ] E-08 | 8.8 E-07 | | |
| | | Ru-103 | [ -5 ± 13 ] E-08 | 5.5 E-07 | | |
| | | Ru-106 | [ 9 ± 74 ] E-08 | 3.2 E-06 | | |
| | | Ag-108m | [ 4.0 ± 5.1 ] E-08 | 2.1 E-07 | | |
| | | Ag-110m | [ -1 ± 13 ] E-08 | 5.7 E-07 | | |
| | | Sb-124 | [ 1.0 ± 3.1 ] E-07 | 1.4 E-06 | | |
| | | Sb-125 | [ 2 ± 15 ] E-08 | 6.4 E-07 | | |
| | | Cs-134 | [ -1 ± 11 ] E-08 | 4.7 E-07 | | |
| | | Cs-137 | [ -1.2 ± 7.6 ] E-08 | 3.3 E-07 | | |
| | | BaLa-140 | [ 3.8 ± 2.2 ] E-07 | 3.4 E-07 | | |
| | | Ce-141 | [ -2 ± 15 ] E-08 | 6.0 E-07 | | |
| | | Ce-144 | [ -4.9 ± 3.3 ] E-07 | 1.4 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

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E. M. Moreno 5/4/98

A. D. Banavali for

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



| | | | |
|---|---|---|---|
| Laboratory Sample Number: | X10398 | Customer: | GTS Duratek |
| Sample Submission Code: | QZZc03F1298 | Sample Reference Date: | March 26, 1998 |
| Media Type: | Concrete | Date Sample Received: | April 27, 1998 |
| Total Amt of Sample Sent: | 107.0 g | Count Date: | May 2, 1998 |
| | | Report Date: | May 4, 1998 |

Sample Description: A9901/02MC1/00006

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 7.1 ± 1.6 ] E-07 | 5.1 E-07 | 1.0E-06 | B |
| | | Eu-155 | [ -1.1 ± 1.6 ] E-07 | 6.8 E-07 | | |
| | | Eu-154 | [ -2 ± 26 ] E-08 | 1.2 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/4/98

A. D. Bahavali for

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10405
Sample Submission Code: QZZc05A1298
Media Type: Concrete
Total Amt of Sample Sent: 119.5 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 5, 1998

Sample Description: A9901/02MC3/00001

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|---|
| Gamma Scan | 119.5000 | Cr-51 | [ 3 ± 21 ] | E-07 | 8.9 E-06 | | |
| | | Mn-54 | [ 2.20 ± 0.90 ] | E-07 | 1.0 E-07 | | |
| | | Co-57 | [ 1.63 ± 0.60 ] | E-06 | 2.0 E-06 | | |
| | | Co-58 | [ -2.0 ± 2.2 ] | E-07 | 1.1 E-06 | | |
| | | Fe-59 | [ -5.4 ± 9.4 ] | E-07 | 4.4 E-06 | | |
| | | Co-60 | [ 1.13 ± 0.21 ] | E-06 | 7.3 E-07 | | B |
| | | Zn-65 | [ -2.9 ± 6.8 ] | E-07 | 3.1 E-06 | | |
| | | Nb-94 | [ -3.8 ± 2.8 ] | E-07 | 1.3 E-06 | | |
| | | Zr-95 | [ -8.9 ± 6.1 ] | E-07 | 2.9 E-06 | | |
| | | Nb-95 | [ -3.5 ± 3.7 ] | E-07 | 1.8 E-06 | | |
| | | Ru-103 | [ -1.5 ± 2.8 ] | E-07 | 1.3 E-06 | | |
| | | Ru-106 | [ -8 ± 19 ] | E-07 | 8.5 E-06 | | |
| | | Ag-108m | [ -7 ± 12 ] | E-08 | 5.6 E-07 | | |
| | | Ag-110m | [ 1.4 ± 2.2 ] | E-07 | 1.0 E-06 | | |
| | | Sb-124 | [ 0 ± 0 ] | E+02 | 5.6 E-07 | | |
| | | Sb-125 | [ 1.3 ± 3.5 ] | E-07 | 1.5 E-06 | | |
| | | Cs-134 | [ -1.6 ± 2.3 ] | E-07 | 1.0 E-06 | | |
| | | Cs-137 | [ -3 ± 19 ] | E-08 | 8.6 E-07 | | |
| | | BaLa-140 | [ 4.0 ± 4.0 ] | E-07 | 1.1 E-06 | | |
| | | Ce-141 | [ 1.9 ± 2.6 ] | E-07 | 1.0 E-06 | | |
| | | Ce-144 | [ 2.3 ± 6.4 ] | E-07 | 2.6 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98
E. M. Moreno

A. D. Banavali for
A. D. Banavali

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10405
Sample Submission Code: QZZc05A1298
Media Type: Concrete
Total Amt of Sample Sent: 119.5 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 5, 1998

Sample Description: A9901/02MC3/00001

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 1.52 ± 0.29 ] E-06 | 7.7 E-07 | 1.0E-06 | B |
| | | Eu-155 | [ 5.3 ± 2.8 ] E-07 | 1.1 E-06 | | |
| | | Eu-154 | [ 4.3 ± 2.5 ] E-07 | 3.9 E-07 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10406
Sample Submission Code: QZZc05B1298
Media Type: Concrete
Total Amt of Sample Sent: 122.3 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 4, 1998

Sample Description: A9901/02MC3/00002

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 122.3000 | Cr-51 | [ -9 ± 12 ] E-07 | 5.4 E-06 | | |
| | | Mn-54 | [ 2 ± 11 ] E-08 | 4.7 E-07 | | |
| | | Co-57 | [ -7 ± 38 ] E-08 | 1.6 E-06 | | |
| | | Co-58 | [ -1.7 ± 1.5 ] E-07 | 7.0 E-07 | | |
| | | Fe-59 | [ -7.2 ± 5.3 ] E-07 | 2.5 E-06 | | |
| | | Co-60 | [ 5.8 ± 1.0 ] E-07 | 4.0 E-07 | | B |
| | | Zn-65 | [ -8 ± 37 ] E-08 | 1.6 E-06 | | |
| | | Nb-94 | [ -2.7 ± 7.4 ] E-08 | 3.3 E-07 | | |
| | | Zr-95 | [ -3.6 ± 3.5 ] E-07 | 1.6 E-06 | | |
| | | Nb-95 | [ 0.0 ± 1.9 ] E-07 | 7.8 E-07 | | |
| | | Ru-103 | [ -3.6 ± 1.7 ] E-07 | 7.7 E-07 | | |
| | | Ru-106 | [ 4 ± 53 ] E-08 | 2.4 E-06 | | |
| | | Ag-108m | [ 2.0 ± 6.5 ] E-08 | 2.7 E-07 | | |
| | | Ag-110m | [ -2.7 ± 2.1 ] E-07 | 1.0 E-06 | | |
| | | Sb-124 | [ -3.3 ± 3.3 ] E-07 | 1.7 E-06 | | |
| | | Sb-125 | [ -1.1 ± 2.2 ] E-07 | 1.0 E-06 | | |
| | | Cs-134 | [ 1.6 ± 1.1 ] E-07 | 4.2 E-07 | | |
| | | Cs-137 | [ 4.9 ± 9.8 ] E-08 | 4.1 E-07 | | |
| | | BaLa-140 | [ 7.5 ± 3.4 ] E-07 | 4.0 E-07 | | |
| | | Ce-141 | [ 1.1 ± 1.4 ] E-07 | 5.7 E-07 | | |
| | | Ce-144 | [ -2.3 ± 3.6 ] E-07 | 1.5 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/4/98

A. D. Banavali

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10406
Sample Submission Code: QZZc05B1298
Media Type: Concrete
Total Amt of Sample Sent: 122.3 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 4, 1998

Sample Description: A9901/02MC3/00002

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 8.5 ± 1.9 ] E-07 | 6.0 E-07 | 1.0E-06 | B |
| | | Eu-155 | [ -2.7 ± 1.9 ] E-07 | 8.1 E-07 | | |
| | | Eu-154 | [ -2.8 ± 3.8 ] E-07 | 1.8 E-06 | | |

(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/4/98

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10407
Sample Submission Code: QZZc05C1298
Media Type: Concrete
Total Amt of Sample Sent: 105.2 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: April 30, 1998
Report Date: May 5, 1998

Sample Description: A9901/02MC3/00003

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 105.2000 | Cr-51 | [ 2.5 ± 1.4 ] E-06 | 5.2 E-06 | | |
| | | Mn-54 | [ -3 ± 16 ] E-08 | 7.0 E-07 | | |
| | | Co-57 | [ -5.2 ± 5.1 ] E-07 | 2.1 E-06 | | |
| | | Co-58 | [ 1 ± 17 ] E-08 | 7.6 E-07 | | |
| | | Fe-59 | [ -2.5 ± 5.5 ] E-07 | 2.5 E-06 | | |
| | | Co-60 | [ 6.8 ± 1.3 ] E-07 | 4.1 E-07 | | B |
| | | Zn-65 | [ -2.05 ± 0.71 ] E-06 | 3.3 E-06 | | |
| | | Nb-94 | [ -8 ± 13 ] E-08 | 6.1 E-07 | | |
| | | Zr-95 | [ 5.7 ± 2.2 ] E-07 | 7.2 E-07 | | |
| | | Nb-95 | [ -2.2 ± 2.7 ] E-07 | 1.2 E-06 | | |
| | | Ru-103 | [ -4 ± 160 ] E-09 | 7.0 E-07 | | |
| | | Ru-106 | [ 0.0 ± 1.0 ] E-06 | 4.3 E-06 | | |
| | | Ag-108m | [ 6.9 ± 7.7 ] E-08 | 3.1 E-07 | | |
| | | Ag-110m | [ 1.2 ± 1.6 ] E-07 | 6.8 E-07 | | |
| | | Sb-124 | [ -3.6 ± 4.8 ] E-07 | 2.4 E-06 | | |
| | | Sb-125 | [ -3.5 ± 2.8 ] E-07 | 1.3 E-06 | | |
| | | Cs-134 | [ 1.9 ± 1.2 ] E-07 | 4.7 E-07 | | |
| | | Cs-137 | [ -1.6 ± 9.6 ] E-08 | 4.4 E-07 | | |
| | | BaLa-140 | [ -1.6 ± 1.1 ] E-06 | 5.8 E-06 | | |
| | | Ce-141 | [ 2 ± 17 ] E-08 | 7.0 E-07 | | |
| | | Ce-144 | [ -4.0 ± 5.0 ] E-07 | 2.1 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10407
Sample Submission Code: QZZc05C1298
Media Type: Concrete
Total Amt of Sample Sent: 105.2 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: April 30, 1998
Report Date: May 5, 1998

Sample Description: A9901/02MC3/00003

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 8.5 ± 2.0 ] E-07 | 6.5 E-07 | 1.0E-06 | B |
| | | Eu-155 | [ -5 ± 21 ] E-08 | 8.7 E-07 | | |
| | | Eu-154 | [ -1.2 ± 4.4 ] E-07 | 2.1 E-06 | | |

:s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali for

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10408
Sample Submission Code: QZZc05D1298
Media Type: Concrete
Total Amt of Sample Sent: 129.4 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 5, 1998

Sample Description: A9901/02MC3/00004

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 129.4000 | Cr-51 | [ -1.5 ± 1.4 ] E-06 | 6.1 E-06 | | |
| | | Mn-54 | [ 1.22 ± 0.98 ] E-07 | 4.0 E-07 | | |
| | | Co-57 | [ 1.3 ± 3.7 ] E-07 | 1.5 E-06 | | |
| | | Co-58 | [ 2.23 ± 0.90 ] E-07 | 3.0 E-07 | | |
| | | Fe-59 | [ 0.0 ± 3.8 ] E-07 | 1.6 E-06 | | |
| | | Co-60 | [ 5.30 ± 0.83 ] E-07 | 5.4 E-08 | | B |
| | | Zn-65 | [ -6.4 ± 4.5 ] E-07 | 2.0 E-06 | | |
| | | Nb-94 | [ 1.43 ± 0.96 ] E-07 | 3.9 E-07 | | |
| | | Zr-95 | [ -1.2 ± 2.6 ] E-07 | 1.2 E-06 | | |
| | | Nb-95 | [ -1.2 ± 2.0 ] E-07 | 9.1 E-07 | | |
| | | Ru-103 | [ 1.5 ± 1.1 ] E-07 | 4.1 E-07 | | |
| | | Ru-106 | [ -2.1 ± 8.6 ] E-07 | 3.8 E-06 | | |
| | | Ag-108m | [ 5 ± 67 ] E-09 | 2.8 E-07 | | |
| | | Ag-110m | [ 1.8 ± 1.5 ] E-07 | 6.0 E-07 | | |
| | | Sb-124 | [ 7.6 ± 7.6 ] E-08 | 2.1 E-07 | | |
| | | Sb-125 | [ -1 ± 20 ] E-08 | 8.8 E-07 | | |
| | | Cs-134 | [ -3.6 ± 1.5 ] E-07 | 6.6 E-07 | | |
| | | Cs-137 | [ 3.5 ± 6.1 ] E-08 | 2.7 E-07 | | |
| | | BaLa-140 | [ 1.0 ± 7.3 ] E-07 | 3.4 E-06 | | |
| | | Ce-141 | [ 2.9 ± 1.5 ] E-07 | 5.6 E-07 | | |
| | | Ce-144 | [ -1.1 ± 3.4 ] E-07 | 1.4 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10408
Sample Submission Code: QZZc05D1298
Media Type: Concrete
Total Amt of Sample Sent: 129.4 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 5, 1998

Sample Description: A9901/02MC3/00004

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 6.3 ± 1.3 ] E-07 | 3.9 E-07 | 1.0E-06 | B |
| | | Eu-155 | [ 1.9 ± 1.7 ] E-07 | 6.4 E-07 | | |
| | | Eu-154 | [ 4.4 ± 2.8 ] E-07 | 1.1 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10409
Sample Submission Code: QZZc05E1298
Media Type: Concrete
Total Amt of Sample Sent: 123.6 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: April 30, 1998
Report Date: May 4, 1998

Sample Description: A9901/02MC3/00005

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 123.6000 | Cr-51 | [ 6.2 ± 8.1 ] E-07 | 3.3 E-06 | | |
| | | Mn-54 | [ 9.3 ± 8.0 ] E-08 | 3.3 E-07 | | |
| | | Co-57 | [ -3.4 ± 2.9 ] E-07 | 1.2 E-06 | | |
| | | Co-58 | [ 8.2 ± 8.6 ] E-08 | 3.6 E-07 | | |
| | | Fe-59 | [ -1.5 ± 2.8 ] E-07 | 1.3 E-06 | | |
| | | Co-60 | [ 4.44 ± 0.76 ] E-07 | 2.6 E-07 | | B |
| | | Zn-65 | [ -1.2 ± 2.3 ] E-07 | 1.0 E-06 | | |
| | | Nb-94 | [ -2.7 ± 6.6 ] E-08 | 2.9 E-07 | | |
| | | Zr-95 | [ -5.9 ± 2.9 ] E-07 | 1.3 E-06 | | |
| | | Nb-95 | [ -6 ± 13 ] E-08 | 5.7 E-07 | | |
| | | Ru-103 | [ -6 ± 11 ] E-08 | 4.9 E-07 | | |
| | | Ru-106 | [ 3.6 ± 6.3 ] E-07 | 2.6 E-06 | | |
| | | Ag-108m | [ 8 ± 34 ] E-09 | 1.5 E-07 | | |
| | | Ag-110m | [ 1.18 ± 0.81 ] E-07 | 3.2 E-07 | | |
| | | Sb-124 | [ 1.39 ± 0.80 ] E-07 | 1.3 E-07 | | |
| | | Sb-125 | [ 1.59 ± 0.91 ] E-07 | 3.4 E-07 | | |
| | | Cs-134 | [ 7.9 ± 8.1 ] E-08 | 3.3 E-07 | | |
| | | Cs-137 | [ -2.8 ± 7.8 ] E-08 | 3.4 E-07 | | |
| | | BaLa-140 | [ 7 ± 40 ] E-08 | 1.9 E-06 | | |
| | | Ce-141 | [ 2 ± 13 ] E-08 | 5.1 E-07 | | |
| | | Ce-144 | [ 4 ± 27 ] E-08 | 1.1 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/1/98

A. D. Banavali for

MAILED

MAY 0 6 1998

DE&S
ENVIRONMENTAL LAB.

DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10409
Sample Submission Code: QZZc05E1298
Media Type: Concrete
Total Amt of Sample Sent: 123.6 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: April 30, 1998
Report Date: May 4, 1998

Sample Description: A9901/02MC3/00005

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 6.0 ± 1.3 ] E-07 | 4.1 E-07 | 1.0E-06 | B |
| | | Eu-155 | [ 3.2 ± 1.3 ] E-07 | 4.8 E-07 | | |
| | | Eu-154 | [ 2.5 ± 2.7 ] E-07 | 1.1 E-06 | | |

s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/4/98

A. D. Banavali

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10410
Sample Submission Code: QZZc05F1298
Media Type: Concrete
Total Amt of Sample Sent: 125.7 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: April 30, 1998
Report Date: May 4, 1998

Sample Description: A9901/02MC3/00006

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 125.7000 | Cr-51 | [ 5.9 ± 8.5 ] E-07 | 3.4 E-06 | | |
| | | Mn-54 | [ 1.18 ± 0.47 ] E-07 | 1.6 E-07 | | |
| | | Co-57 | [ 3.0 ± 2.7 ] E-07 | 1.0 E-06 | | |
| | | Co-58 | [ 1.28 ± 0.69 ] E-07 | 2.6 E-07 | | |
| | | Fe-59 | [ 2.3 ± 2.0 ] E-07 | 8.5 E-07 | | |
| | | Co-60 | [ 2.83 ± 0.70 ] E-07 | 4.0 E-07 | | B |
| | | Zn-65 | [ -5.4 ± 3.3 ] E-07 | 1.5 E-06 | | |
| | | Nb-94 | [ 2.8 ± 5.5 ] E-08 | 2.3 E-07 | | |
| | | Zr-95 | [ -2 ± 23 ] E-08 | 1.0 E-06 | | |
| | | Nb-95 | [ 7.8 ± 9.9 ] E-08 | 4.2 E-07 | | |
| | | Ru-103 | [ 6.8 ± 7.2 ] E-08 | 3.0 E-07 | | |
| | | Ru-106 | [ 3.5 ± 5.9 ] E-07 | 2.5 E-06 | | |
| | | Ag-108m | [ -1.3 ± 5.4 ] E-08 | 2.3 E-07 | | |
| | | Ag-110m | [ -1.1 ± 1.3 ] E-07 | 6.1 E-07 | | |
| | | Sb-124 | [ 1.85 ± 0.93 ] E-07 | 1.3 E-07 | | |
| | | Sb-125 | [ -2.5 ± 1.8 ] E-07 | 8.1 E-07 | | |
| | | Cs-134 | [ 1.48 ± 0.60 ] E-07 | 2.1 E-07 | | |
| | | Cs-137 | [ -1.1 ± 5.2 ] E-08 | 2.3 E-07 | | |
| | | BaLa-140 | [ -4.6 ± 5.3 ] E-07 | 2.6 E-06 | | |
| | | Ce-141 | [ -4 ± 13 ] E-08 | 5.1 E-07 | | |
| | | Ce-144 | [ 2.1 ± 2.7 ] E-07 | 1.1 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/4/98

E. M. Moreno

A. D. Banavali for

A. D. Banavali

MAILED DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

MAY 0 6 1998

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10410
Sample Submission Code: QZZc05F1298
Media Type: Concrete
Total Amt of Sample Sent: 125.7 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: April 30, 1998
Report Date: May 4, 1998

Sample Description: A9901/02MC3/00006

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 6.7 ± 1.4 ] E-07 | 4.6 E-07 | 1.0E-06 | B |
| | | Eu-155 | [ 2.7 ± 1.3 ] E-07 | 4.6 E-07 | | |
| | | Eu-154 | [ 2.2 ± 1.7 ] E-07 | 6.9 E-07 | | |

s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno

A. D. Banavali

Maine Yankee Atomic Power Plant Site Characterization

## CHARACTERIZATION SUMMARY A9902

SURVEY PACKAGE NUMBER: A9902

PACKAGE DESCRIPTION

Core Sampling from the Containment Building Bioshield

SURVEY AREA DESCRIPTION

Selected locations for concrete core sampling from the Containment Building Bioshield and metal scraping samples from the Containment Cavity

GENERAL HISTORICAL INFORMATION (Operational History)

Concrete core samples were taken from two locations within the affected area from the Containment Building Bioshield. Locations included one core from the -2' to 18' elevations of the Containment Building Bioshield and one core from the -37' elevation of the Containment Building Bioshield.

Three samples consisting of metal scrapings were taken from the Containment Cavity.

The core locations for the bioshield were recommended by DESI. The core locations were requested/designated by the DOCs via memo to Peter Melhorn with CIANBRO.

SUMMARY OF CHARACTERIZATION ACTIVITIES

A 3 inch diameter core was obtained from each location using a concrete core drill. Each core was approximately 3 inches long. The core cutting and slicing operation was performed by CIANBRO. Core samples were taken to the hot machine shop for slicing into nominal ½" sections. Slicing of the concrete cores was performed using a diamond tipped band saw. The slice thickness was recorded. All cutting was done under the direct supervision of a GTS Duratek survey technician. The metal scraping samples collected from the Containment Cavity were placed in a petri dish and sealed.

All samples were controlled by chain-of-custody and were sent to Duke Engineering and Services Environmental Laboratory (DE&S) for analysis. Each core sample slice was analyzed for all gamma emitting fission and activation nuclides to reach a MDA of 1 pCi/gram of Eu-152 by gamma spectroscopy.

Each metal scraping sample was analyzed for all gamma emitting fission and activation nuclides by gamma spectroscopy to reach a MDA of 0.1 pCi/gram of Co-60. After the gamma spectrum analysis, the sample was prepared and analyzed for Fe-55 by liquid scintillation counting to reach a MDA of 0.1 µCi/gram of Fe-55.

The concrete core slice samples with chain-of-custody were returned to Maine Yankee following the analysis. The metal scraping samples were consumed by the sample preparation process and were not be returned to Maine Yankee following the analysis.

CHARACTERIZATION SURVEY RESULTS

The data are presented for each core location in tables and graphs showing the depth profile obtained for Eu-152. The individual core slice sample analysis result reports from DE&S are included as an attachment .

o The core sample A9902 01MC1, slices 00002 to 00006 analysis results indicated plant-derived radionuclide activity above MDA. The analysis of the samples indicated the presence of Ag-110m, BaLa-140, Co-60, Eu-154 and Sb-124.

## CHARACTERIZATION SUMMARY A9902

o The core sample A9902 02MC1 slices 00001 to 00006 analysis results indicated plant-derived radionuclide activity above MDA. The analysis of the samples indicated the presence of Co-60, Cs-134, Eu-152 and Eu-154.

The data are presented for each metal scraping location in tables showing the individual sample concentration obtained for Fe-55. The individual metal scraping sample analysis result reports from DE&S are included as an attachment .

o The metal scraping sample A9902 03WE1, sample 00001 analysis result indicated plant-derived radionuclide activity above MDA. The analysis of the sample indicated the presence of Fe-55, Co-60, Cs-134, Cs-137 and Sb-124.

o The metal scraping sample A9902 03WE1, sample 00002 analysis result indicated plant-derived radionuclide activity above MDA. The analysis of the sample indicated the presence of Co-60 and Cs-137.

o The metal scraping sample A9902 03WE1, sample 00003 analysis result indicated plant-derived radionuclide activity above MDA. The analysis of the sample indicated the presence of Co-60.

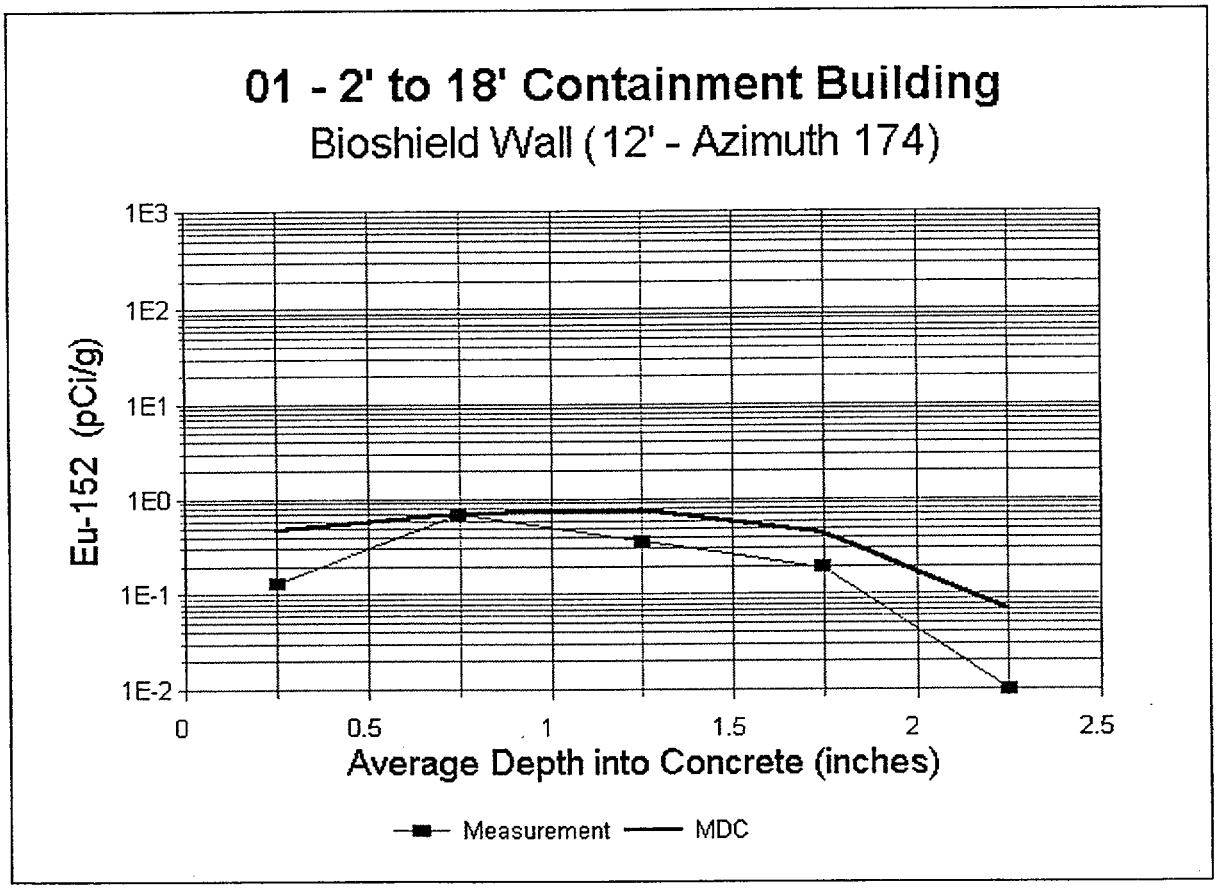
Maine Yankee Atomic Power Plant Site Characterization

## CHARACTERIZATION SUMMARY A9902

**Survey Unit: 01** **Surface: MC1**
**2' to 18' Containment Building**

| Core Sample from Bioshield Wall (12" - Azimuth 174) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| L1 | L2 | L8 | Weight (grams) | Eu-152 pCi/gram | MDC pCi/gram | Other Nuclides Present | Comments | Slice Thickness | Average Depth into Concrete (inches) |
| A9902 | 01MC1 | 00001 | 123.1 | 0.13 | 0.47 | | Top of Core | 0.5" | 0.25 |
| A9902 | 01MC1 | 00002 | 112.4 | 0.68* | 0.68 | BaLa-140, Eu-154 | After 1st cut | 0.5" | 0.75 |
| A9902 | 01MC1 | 00003 | 106.2 | 0.36 | 0.76 | Ag-110M | After 2nd cut | 0.5" | 1.25 |
| A9902 | 01MC1 | 00004 | 129.1 | 0.19 | 0.42 | | After 3rd cut | 0.5" | 1.75 |
| A9902 | 01MC1 | 00005 | 103.3 | 0.01 | 0.07 | Sb-124 | After 4th cut | 0.5" | 2.25 |
| A9902 | 01MC1 | 00006 | 114.3 | 0.10 | 0.39 | Co-60, Sb-124, BaLa-140 | After 5th cut | 0.5" | 2.75 |
| | | | | | | | | Core thickness 3.0" | |

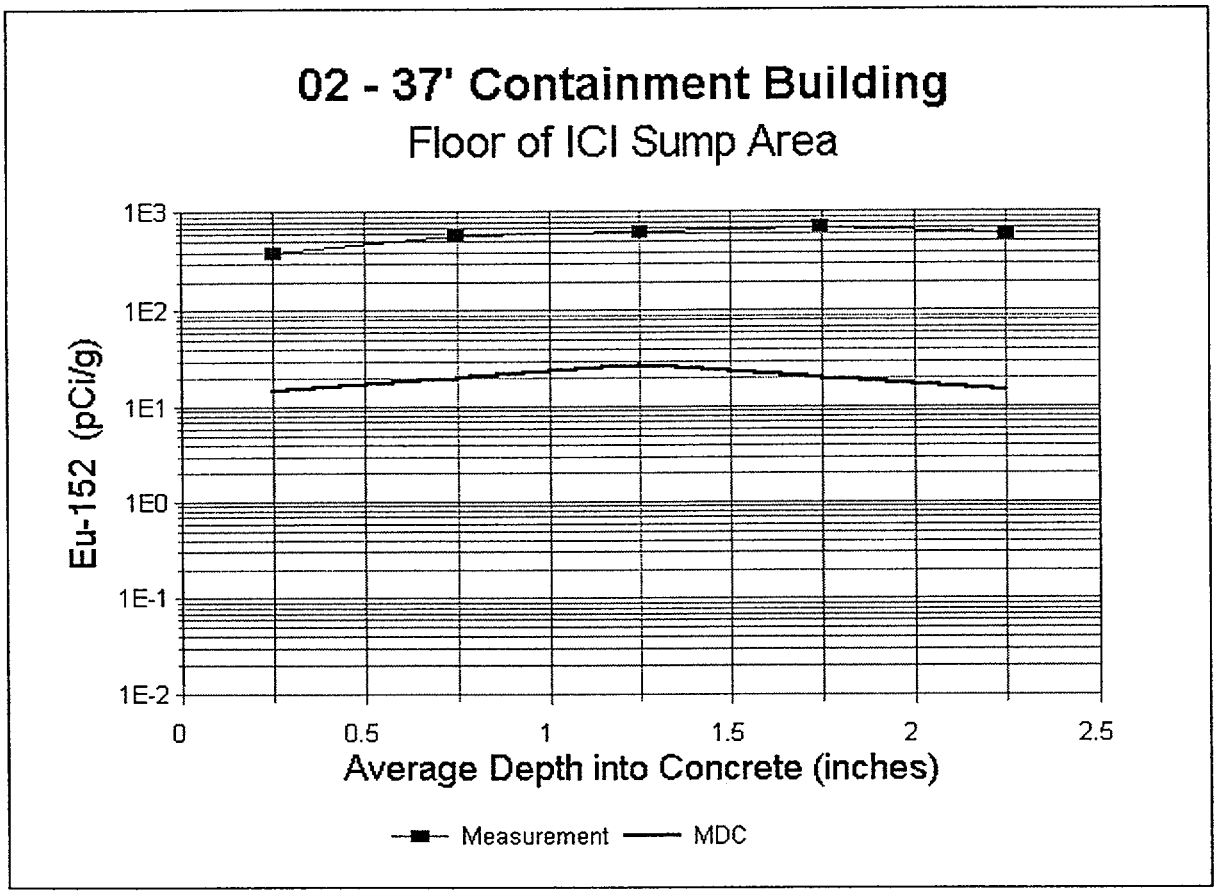
*Actual Concentration is less than MDC



## CHARACTERIZATION SUMMARY A9902

**Survey Unit: 02** **Surface: MC1**
**37' Containment Building**

| Core Sample from floor of ICI Sump area | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| L1 | L2 | L8 | Weight (grams) | Eu-152 pCi/gram | MDC pCi/gram | Other Nuclides Present | Comments | Slice Thickness | Average Depth into Concrete (inches) |
| A9902 | 02MC1 | 00001 | 114.9 | 384.00 | 15 | Co-60, Cs-134, Eu-154 | Top of Core | 0.5" | 0.25 |
| A9902 | 02MC1 | 00002 | 110.2 | 570.00 | 20 | Co-60, Cs-134, Eu-154 | After 1st cut | 0.5" | 0.75 |
| A9902 | 02MC1 | 00003 | 104.4 | 623.00 | 27 | Co-60, Cs-134, Eu-154 | After 2nd cut | 0.5" | 1.25 |
| A9902 | 02MC1 | 00004 | 110.1 | 700.00 | 20 | Co-60, Cs-134, Eu-154 | After 3rd cut | 0.5" | 1.75 |
| A9902 | 02MC1 | 00005 | 112.8 | 598.00 | 15 | Co-60, Cs-134, Eu-154 | After 4th cut | 0.5" | 2.25 |
| A9902 | 02MC1 | 00006 | 108.7 | 580.00 | 13 | Co-60, Cs-134, Eu-154 | After 5th cut | 0.5" | 2.75 |
| | | | | | | | | Core thickness 3.0" | |



## CHARACTERIZATION SUMMARY A9902

**Survey Unit: 03** **Surface WE1**
**Containment Cavity**

| Containment Cavity Metal Scrapings | | | | | | |
|---|---|---|---|---|---|---|
| L1 | L2 | L8 | Weight (grams) | Fe-55 μCi/gram | MDC μCi/gram | Other Nuclides Present |
| A9902 | 03WE1 | 00001 | 10.31 | 0.006 | 0.0049 | Co-60, Cs-134, Cs-137, Sb-124 |
| A9902 | 03WE1 | 00002 | 12.01 | 0.0056 | 0.013 | Co-60, Cs-137 |
| A9902 | 03WE1 | 00003 | 2.47 | -0.013 | 0.044 | Co-60 |

# ATTACHMENTS

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ENVIRONMENTAL LAB

DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10382
Sample Submission Code: QZZc01A1298
Media Type: Concrete
Total Amt of Sample Sent: 123.1 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: April 30, 1998
Report Date: May 4, 1998

Sample Description: A9902/01MC1/00001

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 123.1000 | Cr-51 | [ -4 ± 11 ] E-07 | 4.8 E-06 | | |
| | | Mn-54 | [ -6 ± 81 ] E-09 | 3.7 E-07 | | |
| | | Co-57 | [ 2.7 ± 3.4 ] E-07 | 1.3 E-06 | | |
| | | Co-58 | [ -1.1 ± 1.3 ] E-07 | 6.1 E-07 | | |
| | | Fe-59 | [ -4.4 ± 3.9 ] E-07 | 1.8 E-06 | | |
| | | Co-60 | [ 2.4 ± 1.0 ] E-07 | 3.7 E-07 | | |
| | | Zn-65 | [ -8 ± 35 ] E-08 | 1.5 E-06 | | |
| | | Nb-94 | [ 1.5 ± 6.0 ] E-08 | 2.6 E-07 | | |
| | | Zr-95 | [ -3.5 ± 3.0 ] E-07 | 1.4 E-06 | | |
| | | Nb-95 | [ 0.0 ± 1.6 ] E-07 | 6.7 E-07 | | |
| | | Ru-103 | [ 5.0 ± 9.8 ] E-08 | 4.2 E-07 | | |
| | | Ru-106 | [ 4.4 ± 6.0 ] E-07 | 2.5 E-06 | | |
| | | Ag-108m | [ 5.4 ± 5.2 ] E-08 | 2.1 E-07 | | |
| | | Ag-110m | [ -1.3 ± 1.3 ] E-07 | 6.2 E-07 | | |
| | | Sb-124 | [ -2.8 ± 2.8 ] E-07 | 1.5 E-06 | | |
| | | Sb-125 | [ 6 ± 18 ] E-08 | 7.5 E-07 | | |
| | | Cs-134 | [ -8 ± 11 ] E-08 | 5.1 E-07 | | |
| | | Cs-137 | [ 1.81 ± 0.74 ] E-07 | 2.6 E-07 | | |
| | | BaLa-140 | [ -6.4 ± 7.4 ] E-07 | 3.6 E-06 | | |
| | | Ce-141 | [ 1.4 ± 1.4 ] E-07 | 5.6 E-07 | | |
| | | Ce-144 | [ -3.5 ± 3.4 ] E-07 | 1.4 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/4/98

A. D. Banavali for

MAILED DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

MAY 0 6 1998

DE&S
ENVIRONMENTAL LAB.

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10382
Sample Submission Code: QZZc01A1298
Media Type: Concrete
Total Amt of Sample Sent: 123.1 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: April 30, 1998
Report Date: May 4, 1998

Sample Description: A9902/01MC1/00001

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 1.3 ± 1.2 ] E-07 | 4.7 E-07 | 1.0E-06 | |
| | | Eu-155 | [ 1.2 ± 1.4 ] E-07 | 5.5 E-07 | | |
| | | Eu-154 | [ -2.5 ± 3.4 ] E-07 | 1.6 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/4/98

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10383
Sample Submission Code: QZZc01B1298
Media Type: Concrete
Total Amt of Sample Sent: 112.4 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: May 5, 1998
Report Date: May 5, 1998

Sample Description: A9902/01MC1/00002

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 112.4000 | Cr-51 | [ 7 ± 15 ] E-07 | 6.1 E-06 | | |
| | | Mn-54 | [ 1 ± 13 ] E-08 | 5.8 E-07 | | |
| | | Co-57 | [ -7.4 ± 4.5 ] E-07 | 2.0 E-06 | | |
| | | Co-58 | [ -1.7 ± 2.1 ] E-07 | 1.0 E-06 | | |
| | | Fe-59 | [ 3 ± 38 ] E-08 | 1.8 E-06 | | |
| | | Co-60 | [ -3 ± 30 ] E-08 | 1.4 E-06 | | |
| | | Zn-65 | [ 4.6 ± 3.1 ] E-07 | 1.2 E-06 | | |
| | | Nb-94 | [ -2 ± 14 ] E-08 | 6.2 E-07 | | |
| | | Zr-95 | [ -3.6 ± 3.8 ] E-07 | 1.9 E-06 | | |
| | | Nb-95 | [ -2.4 ± 2.5 ] E-07 | 1.2 E-06 | | |
| | | Ru-103 | [ 5 ± 22 ] E-08 | 9.4 E-07 | | |
| | | Ru-106 | [ -3.6 ± 8.4 ] E-07 | 4.0 E-06 | | |
| | | Ag-108m | [ -6.4 ± 9.4 ] E-08 | 4.3 E-07 | | |
| | | Ag-110m | [ 1.6 ± 1.5 ] E-07 | 6.4 E-07 | | |
| | | Sb-124 | [ 9.5 ± 3.6 ] E-07 | 3.7 E-07 | | |
| | | Sb-125 | [ 5.7 ± 2.0 ] E-07 | 6.1 E-07 | | |
| | | Cs-134 | [ -1.7 ± 1.4 ] E-07 | 6.7 E-07 | | |
| | | Cs-137 | [ -2.4 ± 1.6 ] E-07 | 7.5 E-07 | | |
| | | BaLa-140 | [ 9.0 ± 5.2 ] E-07 | 8.2 E-07 | | |
| | | Ce-141 | [ -3 ± 22 ] E-08 | 9.1 E-07 | | |
| | | Ce-144 | [ 4.9 ± 3.7 ] E-07 | 1.4 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali for E. M. Moreno

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10383
Sample Submission Code: QZZc01B1298
Media Type: Concrete
Total Amt of Sample Sent: 112.4 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: May 5, 1998
Report Date: May 5, 1998

Sample Description: A9902/01MC1/00002

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ -6 ± 16 ] E-08 | 6.8 E-07 | 1.0E-06 | |
| | | Eu-155 | [ -2.0 ± 2.0 ] E-07 | 8.8 E-07 | | |
| | | Eu-154 | [ 5.5 ± 2.3 ] E-07 | 2.5 E-07 | | |

e(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali fr

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10384
Sample Submission Code: QZZc01C1298
Media Type: Concrete
Total Amt of Sample Sent: 106.2 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 5, 1998

Sample Description: A9902/01MC1/00003

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 106.2000 | Cr-51 | [ 5 ± 12 ] E-07 | 5.3 E-06 | | |
| | | Mn-54 | [ 1.11 ± 0.88 ] E-07 | 3.6 E-07 | | |
| | | Co-57 | [ -1.7 ± 4.6 ] E-07 | 1.9 E-06 | | |
| | | Co-58 | [ 7 ± 14 ] E-08 | 5.9 E-07 | | |
| | | Fe-59 | [ -4.1 ± 5.8 ] E-07 | 2.7 E-06 | | |
| | | Co-60 | [ 8 ± 16 ] E-08 | 7.1 E-07 | | |
| | | Zn-65 | [ -1.6 ± 3.6 ] E-07 | 1.7 E-06 | | |
| | | Nb-94 | [ 0.0 ± 1.3 ] E-07 | 5.6 E-07 | | |
| | | Zr-95 | [ -2 ± 27 ] E-08 | 1.2 E-06 | | |
| | | Nb-95 | [ 2.2 ± 2.3 ] E-07 | 1.0 E-06 | | |
| | | Ru-103 | [ -2.3 ± 1.7 ] E-07 | 8.2 E-07 | | |
| | | Ru-106 | [ -1 ± 10 ] E-07 | 4.6 E-06 | | |
| | | Ag-108m | [ 1.01 ± 0.47 ] E-07 | 1.6 E-07 | | |
| | | Ag-110m | [ 2.03 ± 0.78 ] E-07 | 7.9 E-08 | | |
| | | Sb-124 | [ 0 ± 0 ] E+02 | 3.0 E-07 | | |
| | | Sb-125 | [ 3.1 ± 2.3 ] E-07 | 9.2 E-07 | | |
| | | Cs-134 | [ 2.1 ± 1.0 ] E-07 | 3.6 E-07 | | |
| | | Cs-137 | [ 2 ± 13 ] E-08 | 5.8 E-07 | | |
| | | BaLa-140 | [ 2.1 ± 2.1 ] E-07 | 5.8 E-07 | | |
| | | Ce-141 | [ 1.4 ± 1.6 ] E-07 | 6.4 E-07 | | |
| | | Ce-144 | [ -4.5 ± 4.5 ] E-07 | 1.9 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10384
Sample Submission Code: QZZc01C1298
Media Type: Concrete
Total Amt of Sample Sent: 106.2 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 5, 1998

Sample Description: A9902/01MC1/00003

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-155 | [ 3.6 ± 2.0 ] E-07 | 7.6 E-07 | | |
| | | Eu-152 | [ 1.5 ± 1.5 ] E-07 | 5.9 E-07 | 1.0E-06 | |
| | | Eu-154 | [ -5 ± 46 ] E-08 | 2.1 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10385
Sample Submission Code: QZZc01D1298
Media Type: Concrete
Total Amt of Sample Sent: 129.1 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: April 30, 1998
Report Date: May 4, 1998

Sample Description: A9902/01MC1/00004

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 129.1000 | Cr-51 | [ 8.2 ± 8.3 ] E-07 | 3.3 E-06 | | |
| | | Mn-54 | [ 3.8 ± 7.0 ] E-08 | 3.0 E-07 | | |
| | | Co-57 | [ 1.0 ± 3.0 ] E-07 | 1.2 E-06 | | |
| | | Co-58 | [ -2.3 ± 1.4 ] E-07 | 6.4 E-07 | | |
| | | Fe-59 | [ 1.0 ± 1.6 ] E-07 | 7.3 E-07 | | |
| | | Co-60 | [ 1.2 ± 1.1 ] E-07 | 4.4 E-07 | | |
| | | Zn-65 | [ -1.04 ± 0.38 ] E-06 | 1.8 E-06 | | |
| | | Nb-94 | [ -1.1 ± 5.5 ] E-08 | 2.5 E-07 | | |
| | | Zr-95 | [ -1.7 ± 2.7 ] E-07 | 1.2 E-06 | | |
| | | Nb-95 | [ 2.0 ± 1.5 ] E-07 | 6.1 E-07 | | |
| | | Ru-103 | [ -3 ± 10 ] E-08 | 4.4 E-07 | | |
| | | Ru-106 | [ 2.3 ± 6.2 ] E-07 | 2.6 E-06 | | |
| | | Ag-108m | [ 7.8 ± 4.2 ] E-08 | 1.6 E-07 | | |
| | | Ag-110m | [ -3 ± 11 ] E-08 | 5.1 E-07 | | |
| | | Sb-124 | [ 5.4 ± 5.4 ] E-08 | 1.5 E-07 | | |
| | | Sb-125 | [ 1 ± 12 ] E-08 | 5.3 E-07 | | |
| | | Cs-134 | [ 1.49 ± 0.60 ] E-07 | 2.1 E-07 | | |
| | | Cs-137 | [ 7.2 ± 6.7 ] E-08 | 2.7 E-07 | | |
| | | BaLa-140 | [ -6.3 ± 6.0 ] E-07 | 3.0 E-06 | | |
| | | Ce-141 | [ 1 ± 14 ] E-08 | 5.6 E-07 | | |
| | | Ce-144 | [ 1.5 ± 2.8 ] E-07 | 1.1 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

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E. M. Moreno 5/4/98

A. D. Banavali for

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10385
Sample Submission Code: QZZc01D1298
Media Type: Concrete
Total Amt of Sample Sent: 129.1 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: April 30, 1998
Report Date: May 4, 1998

Sample Description: A9902/01MC1/00004

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 1.9 ± 1.1 ] E-07 | 4.2 E-07 | 1.0E-06 | |
| | | Eu-155 | [ 1.2 ± 1.4 ] E-07 | 5.3 E-07 | | |
| | | Eu-154 | [ -2.6 ± 3.6 ] E-07 | 1.7 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10386
Sample Submission Code: QZZc01E1298
Media Type: Concrete
Total Amt of Sample Sent: 103.3 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 4, 1998

Sample Description: A9902/01MC1/00005

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 103.3000 | Cr-51 | [ -1.5 ± 1.1 ] E-06 | 4.8 E-06 | | |
| | | Mn-54 | [ 4.4 ± 9.8 ] E-08 | 4.2 E-07 | | |
| | | Co-57 | [ -2.8 ± 3.6 ] E-07 | 1.5 E-06 | | |
| | | Co-58 | [ 8 ± 11 ] E-08 | 4.5 E-07 | | |
| | | Fe-59 | [ -2.4 ± 3.7 ] E-07 | 1.7 E-06 | | |
| | | Co-60 | [ 1.9 ± 1.5 ] E-07 | 6.1 E-07 | | |
| | | Zn-65 | [ -7.0 ± 3.8 ] E-07 | 1.8 E-06 | | |
| | | Nb-94 | [ -9.1 ± 8.5 ] E-08 | 3.9 E-07 | | |
| | | Zr-95 | [ 1.1 ± 2.6 ] E-07 | 1.1 E-06 | | |
| | | Nb-95 | [ -3.6 ± 2.3 ] E-07 | 1.1 E-06 | | |
| | | Ru-103 | [ -3.4 ± 1.6 ] E-07 | 7.5 E-07 | | |
| | | Ru-106 | [ -3.0 ± 7.9 ] E-07 | 3.5 E-06 | | |
| | | Ag-108m | [ -1.10 ± 0.62 ] E-07 | 2.9 E-07 | | |
| | | Ag-110m | [ 1 ± 12 ] E-08 | 5.5 E-07 | | |
| | | Sb-124 | [ 2.7 ± 1.3 ] E-07 | 1.8 E-07 | | |
| | | Sb-125 | [ -9 ± 21 ] E-08 | 8.9 E-07 | | |
| | | Cs-134 | [ 1.4 ± 9.8 ] E-08 | 4.3 E-07 | | |
| | | Cs-137 | [ 2.10 ± 0.73 ] E-07 | 2.5 E-07 | | |
| | | BaLa-140 | [ -4.2 ± 5.7 ] E-07 | 2.9 E-06 | | |
| | | Ce-141 | [ -1.1 ± 1.7 ] E-07 | 7.1 E-07 | | |
| | | Ce-144 | [ -3 ± 34 ] E-08 | 1.4 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/4/98

A. D. Banavali

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10386
Sample Submission Code: QZZc01E1298
Media Type: Concrete
Total Amt of Sample Sent: 103.3 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 4, 1998

Sample Description: A9902/01MC1/00005

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 1 ± 13 ] E-08 | 5.1 E-07 | 1.0E-06 | |
| | | Eu-155 | [ 1.2 ± 1.7 ] E-07 | 6.6 E-07 | | |
| | | Eu-154 | [ -7 ± 29 ] E-08 | 1.3 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10387
Sample Submission Code: QZZc01F1298
Media Type: Concrete
Total Amt of Sample Sent: 114.3 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: May 1, 1998
Report Date: May 4, 1998

Sample Description: A9902/01MC1/00006

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 114.3000 | Cr-51 | [ 8.7 ± 7.2 ] E-07 | 2.8 E-06 | | |
| | | Mn-54 | [ -1.5 ± 1.1 ] E-07 | 4.8 E-07 | | |
| | | Co-57 | [ -2.9 ± 3.2 ] E-07 | 1.3 E-06 | | |
| | | Co-58 | [ 1.06 ± 0.59 ] E-07 | 2.2 E-07 | | |
| | | Fe-59 | [ -3.0 ± 3.5 ] E-07 | 1.6 E-06 | | |
| | | Co-60 | [ 2.88 ± 0.79 ] E-07 | 1.9 E-07 | | B |
| | | Zn-65 | [ -4.5 ± 3.0 ] E-07 | 1.4 E-06 | | |
| | | Nb-94 | [ 3.9 ± 6.3 ] E-08 | 2.6 E-07 | | |
| | | Zr-95 | [ -6.2 ± 3.1 ] E-07 | 1.4 E-06 | | |
| | | Nb-95 | [ -1.1 ± 1.4 ] E-07 | 6.5 E-07 | | |
| | | Ru-103 | [ 1.63 ± 0.89 ] E-07 | 3.4 E-07 | | |
| | | Ru-106 | [ 8.6 ± 6.4 ] E-07 | 2.5 E-06 | | |
| | | Ag-108m | [ -4.3 ± 5.9 ] E-08 | 2.6 E-07 | | |
| | | Ag-110m | [ 1.20 ± 0.70 ] E-07 | 2.7 E-07 | | |
| | | Sb-124 | [ 1.57 ± 0.91 ] E-07 | 1.4 E-07 | | |
| | | Sb-125 | [ -6 ± 15 ] E-08 | 6.7 E-07 | | |
| | | Cs-134 | [ 4.4 ± 9.6 ] E-08 | 4.1 E-07 | | |
| | | Cs-137 | [ 9.5 ± 6.0 ] E-08 | 2.3 E-07 | | |
| | | BaLa-140 | [ 5.0 ± 2.3 ] E-07 | 2.7 E-07 | | |
| | | Ce-141 | [ 7 ± 13 ] E-08 | 5.2 E-07 | | |
| | | Ce-144 | [ 1.4 ± 2.9 ] E-07 | 1.2 E-06 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/4/98

A. D. Banavali for

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10387
Sample Submission Code: QZZc01F1298
Media Type: Concrete
Total Amt of Sample Sent: 114.3 g

Customer: GTS Duratek
Sample Reference Date: March 27, 1998
Date Sample Received: April 27, 1998
Count Date: May 1, 1998
Report Date: May 4, 1998

Sample Description: A9902/01MC1/00006

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 1.0 ± 1.0 ] E-07 | 3.9 E-07 | 1.0E-06 | |
| | | Eu-155 | [ 1.8 ± 1.3 ] E-07 | 4.9 E-07 | | |
| | | Eu-154 | [ 1.8 ± 2.5 ] E-07 | 1.1 E-06 | | |

e(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. N. Moreno 5/4/98

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10417
Sample Submission Code: QZZc07A1198
Media Type: Concrete
Total Amt of Sample Sent: 114.9 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 4, 1998

Sample Description: A9902/02MC1/00001

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 114.9000 | Cr-51 | [ 3 ± 30 ] E-06 | 1.2 E-04 | | |
| | | Mn-54 | [ -3.1 ± 2.5 ] E-06 | 1.1 E-05 | | |
| | | Co-57 | [ -1.42 ± 0.74 ] E-05 | 2.9 E-05 | | |
| | | Co-58 | [ 1.9 ± 3.1 ] E-06 | 1.3 E-05 | | |
| | | Fe-59 | [ 6.7 ± 9.2 ] E-06 | 3.8 E-05 | | |
| | | Co-60 | [ 2.35 ± 0.12 ] E-04 | 4.2 E-06 | | B |
| | | Zn-65 | [ -4 ± 110 ] E-07 | 4.4 E-05 | | |
| | | Nb-94 | [ -6 ± 19 ] E-07 | 7.7 E-06 | | |
| | | Zr-95 | [ 2.15 ± 0.78 ] E-05 | 3.0 E-05 | | |
| | | Nb-95 | [ -1.08 ± 0.50 ] E-05 | 2.1 E-05 | | |
| | | Ru-103 | [ 4 ± 32 ] E-07 | 1.3 E-05 | | |
| | | Ru-106 | [ -1.9 ± 1.8 ] E-05 | 7.3 E-05 | | |
| | | Ag-108m | [ -1.3 ± 1.4 ] E-06 | 5.6 E-06 | | |
| | | Ag-110m | [ -5.1 ± 3.9 ] E-06 | 1.6 E-05 | | |
| | | Sb-124 | [ -1.6 ± 3.2 ] E-06 | 1.5 E-05 | | |
| | | Sb-125 | [ 4.2 ± 4.0 ] E-06 | 1.6 E-05 | | |
| | | Cs-134 | [ 5.74 ± 0.33 ] E-05 | 9.1 E-06 | | B |
| | | Cs-137 | [ -8 ± 21 ] E-07 | 8.7 E-06 | | |
| | | BaLa-140 | [ -8 ± 11 ] E-06 | 4.8 E-05 | | |
| | | Ce-141 | [ 5.3 ± 3.6 ] E-06 | 1.4 E-05 | | |
| | | Ce-144 | [ -3.4 ± 7.1 ] E-06 | 2.8 E-05 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/4/98

A. D. Banavali

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10 CFR Part 50/61 Analysis Report



| | | | |
|---|---|---|---|
| Laboratory Sample Number: | X10417 | Customer: | GTS Duratek |
| Sample Submission Code: | QZZc07A1198 | Sample Reference Date: | March 20, 1998 |
| Media Type: | Concrete | Date Sample Received: | April 27, 1998 |
| Total Amt of Sample Sent: | 114.9 g | Count Date: | May 2, 1998 |
| | | Report Date: | May 4, 1998 |

Sample Description: A9902/02MC1/00001

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | | Eu-152 | [ 3.84 ± 0.20 ] E-04 | 1.5 E-05 | 1.0E-06 | B |
| (continued) | | Eu-154 | [ 4.93 ± 0.44 ] E-05 | 1.2 E-05 | | B |
| | | Eu-155 | [ -6 ± 41 ] E-07 | 1.6 E-05 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/4/98

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10418
Sample Submission Code: QZZc07B1198
Media Type: Concrete
Total Amt of Sample Sent: 110.2 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 5, 1998
Report Date: May 5, 1998

Sample Description: A9902/02MC1/00002

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 110.2000 | Cr-51 | [ 4.3 ± 4.8 ] E-05 | 1.9 E-04 | | |
| | | Mn-54 | [ -1.5 ± 3.7 ] E-06 | 1.5 E-05 | | |
| | | Co-57 | [ 9 ± 11 ] E-06 | 4.3 E-05 | | |
| | | Co-58 | [ -2 ± 52 ] E-07 | 2.1 E-05 | | |
| | | Fe-59 | [ 1.2 ± 1.4 ] E-05 | 5.9 E-05 | | |
| | | Co-60 | [ 3.16 ± 0.17 ] E-04 | 7.6 E-06 | | B |
| | | Zn-65 | [ 2.2 ± 1.6 ] E-05 | 6.6 E-05 | | |
| | | Nb-94 | [ -1 ± 27 ] E-07 | 1.1 E-05 | | |
| | | Zr-95 | [ 3.4 ± 9.5 ] E-06 | 3.9 E-05 | | |
| | | Nb-95 | [ -7.0 ± 8.0 ] E-06 | 3.4 E-05 | | |
| | | Ru-103 | [ -5.0 ± 5.1 ] E-06 | 2.1 E-05 | | |
| | | Ru-106 | [ 4 ± 28 ] E-06 | 1.1 E-04 | | |
| | | Ag-108m | [ 3 ± 19 ] E-07 | 7.5 E-06 | | |
| | | Ag-110m | [ 1.1 ± 5.8 ] E-06 | 2.4 E-05 | | |
| | | Sb-124 | [ -2 ± 34 ] E-07 | 1.6 E-05 | | |
| | | Sb-125 | [ 3.3 ± 5.8 ] E-06 | 2.3 E-05 | | |
| | | Cs-134 | [ 7.24 ± 0.44 ] E-05 | 7.5 E-06 | | B |
| | | Cs-137 | [ 2.0 ± 3.0 ] E-06 | 1.2 E-05 | | |
| | | BaLa-140 | [ 2.7 ± 1.6 ] E-05 | 6.5 E-05 | | |
| | | Ce-141 | [ -7.2 ± 6.3 ] E-06 | 2.5 E-05 | | |
| | | Ce-144 | [ -3 ± 11 ] E-06 | 4.3 E-05 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali for E. M. Moreno

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10418
Sample Submission Code: QZZc07B1198
Media Type: Concrete
Total Amt of Sample Sent: 110.2 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 5, 1998
Report Date: May 5, 1998

Sample Description: A9902/02MC1/00002

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 5.70 ± 0.30 ] E-04 | 2.0 E-05 | 1.0E-06 | B |
| | | Eu-154 | [ 6.39 ± 0.66 ] E-05 | 2.0 E-05 | | B |
| | | Eu-155 | [ -4 ± 63 ] E-07 | 2.4 E-05 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10419
Sample Submission Code: QZZc07C1198
Media Type: Concrete
Total Amt of Sample Sent: 104.4 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 6, 1998
Report Date: May 6, 1998

Sample Description: A9902/02MC1/00003

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 104.4000 | Cr-51 | [ -1.37 ± 0.85 ] E-04 | 3.5 E-04 | | |
| | | Mn-54 | [ 4.5 ± 6.4 ] E-06 | 2.6 E-05 | | |
| | | Co-57 | [ 1.0 ± 1.7 ] E-05 | 6.8 E-05 | | |
| | | Co-58 | [ -1.2 ± 8.6 ] E-06 | 3.6 E-05 | | |
| | | Fe-59 | [ 4 ± 26 ] E-06 | 1.1 E-04 | | |
| | | Co-60 | [ 3.96 ± 0.22 ] E-04 | 2.1 E-05 | | B |
| | | Zn-65 | [ -1.2 ± 1.5 ] E-05 | 6.0 E-05 | | |
| | | Nb-94 | [ 2.2 ± 4.7 ] E-06 | 1.9 E-05 | | |
| | | Zr-95 | [ 2.8 ± 1.6 ] E-05 | 6.5 E-05 | | |
| | | Nb-95 | [ 2 ± 14 ] E-06 | 5.6 E-05 | | |
| | | Ru-103 | [ -5.5 ± 9.1 ] E-06 | 3.8 E-05 | | |
| | | Ru-106 | [ -4.1 ± 4.7 ] E-05 | 2.0 E-04 | | |
| | | Ag-108m | [ -1.3 ± 3.2 ] E-06 | 1.3 E-05 | | |
| | | Ag-110m | [ -1.7 ± 1.1 ] E-05 | 4.7 E-05 | | |
| | | Sb-124 | [ -4.0 ± 7.6 ] E-06 | 3.8 E-05 | | |
| | | Sb-125 | [ 4 ± 10 ] E-06 | 4.2 E-05 | | |
| | | Cs-134 | [ 6.11 ± 0.50 ] E-05 | 1.5 E-05 | | B |
| | | Cs-137 | [ 2.6 ± 5.3 ] E-06 | 2.2 E-05 | | |
| | | BaLa-140 | [ -5.1 ± 3.9 ] E-05 | 1.9 E-04 | | |
| | | Ce-141 | [ -8 ± 93 ] E-07 | 3.7 E-05 | | |
| | | Ce-144 | [ 9 ± 17 ] E-06 | 6.6 E-05 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/6/98

A. D. Banavali for

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



| | | | |
|---|---|---|---|
| Laboratory Sample Number: | X10419 | Customer: | GTS Duratek |
| Sample Submission Code: | QZZc07C1198 | Sample Reference Date: | March 20, 1998 |
| Media Type: | Concrete | Date Sample Received: | April 27, 1998 |
| Total Amt of Sample Sent: | 104.4 g | Count Date: | May 6, 1998 |
| | | Report Date: | May 6, 1998 |

Sample Description: A9902/02MC1/00003

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 6.23 ± 0.34 ] E-04 | 2.7 E-05 | 1.0E-06 | B |
| | | Eu-154 | [ 7.52 ± 0.97 ] E-05 | 2.4 E-05 | | B |
| | | Eu-155 | [ 1.68 ± 0.92 ] E-05 | 3.5 E-05 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

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E. M. Moreno 5/6/98

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10420
Sample Submission Code: QZZc07D1198
Media Type: Concrete
Total Amt of Sample Sent: 110.1 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 5, 1998
Report Date: May 5, 1998

Sample Description: A9902/02MC1/00004

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 110.1000 | Cr-51 | [ 2.0 ± 5.0 ] E-05 | 2.0 E-04 | | |
| | | Mn-54 | [ -1.7 ± 4.0 ] E-06 | 1.7 E-05 | | |
| | | Co-57 | [ 1.5 ± 1.2 ] E-05 | 4.4 E-05 | | |
| | | Co-58 | [ -3 ± 55 ] E-07 | 2.3 E-05 | | |
| | | Fe-59 | [ -5 ± 16 ] E-06 | 6.7 E-05 | | |
| | | Co-60 | [ 3.93 ± 0.21 ] E-04 | 5.3 E-06 | | B |
| | | Zn-65 | [ -5.5 ± 2.0 ] E-05 | 8.3 E-05 | | |
| | | Nb-94 | [ -2 ± 280 ] E-08 | 1.1 E-05 | | |
| | | Zr-95 | [ 1 ± 10 ] E-06 | 4.2 E-05 | | |
| | | Nb-95 | [ -8 ± 84 ] E-07 | 3.5 E-05 | | |
| | | Ru-103 | [ -2.5 ± 5.5 ] E-06 | 2.2 E-05 | | |
| | | Ru-106 | [ -3.3 ± 3.1 ] E-05 | 1.3 E-04 | | |
| | | Ag-108m | [ 4 ± 21 ] E-07 | 8.4 E-06 | | |
| | | Ag-110m | [ -5.1 ± 6.6 ] E-06 | 2.8 E-05 | | |
| | | Sb-124 | [ -4.2 ± 5.6 ] E-06 | 2.6 E-05 | | |
| | | Sb-125 | [ 3.0 ± 6.6 ] E-06 | 2.6 E-05 | | |
| | | Cs-134 | [ 5.78 ± 0.38 ] E-05 | 7.8 E-06 | | B |
| | | Cs-137 | [ 7 ± 33 ] E-07 | 1.4 E-05 | | |
| | | BaLa-140 | [ 2.6 ± 1.3 ] E-05 | 4.8 E-05 | | |
| | | Ce-141 | [ 9.2 ± 6.5 ] E-06 | 2.5 E-05 | | |
| | | Ce-144 | [ 2 ± 12 ] E-06 | 4.5 E-05 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10420
Sample Submission Code: QZZc07D1198
Media Type: Concrete
Total Amt of Sample Sent: 110.1 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 5, 1998
Report Date: May 5, 1998

Sample Description: A9902/02MC1/00004

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 7.00 ± 0.37 ] E-04 | 2.0 E-05 | 1.0E-06 | B |
| | | Eu-154 | [ 6.35 ± 0.70 ] E-05 | 2.4 E-05 | | B |
| | | Eu-155 | [ 2.8 ± 6.5 ] E-06 | 2.5 E-05 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali for

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10421
Sample Submission Code: QZZc07E1198
Media Type: Concrete
Total Amt of Sample Sent: 112.8 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 5, 1998
Report Date: May 5, 1998

Sample Description: A9902/02MC1/00005

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 112.8000 | Cr-51 | [ -7 ± 46 ] E-06 | 1.8 E-04 | | |
| | | Mn-54 | [ -2.9 ± 3.5 ] E-06 | 1.5 E-05 | | |
| | | Co-57 | [ -1.42 ± 0.98 ] E-05 | 3.8 E-05 | | |
| | | Co-58 | [ 2.3 ± 4.5 ] E-06 | 1.8 E-05 | | |
| | | Fe-59 | [ -1.3 ± 1.4 ] E-05 | 6.0 E-05 | | |
| | | Co-60 | [ 3.21 ± 0.17 ] E-04 | 6.8 E-06 | | B |
| | | Zn-65 | [ 3.8 ± 1.4 ] E-05 | 5.5 E-05 | | |
| | | Nb-94 | [ 1.8 ± 2.4 ] E-06 | 1.0 E-05 | | |
| | | Zr-95 | [ 1.41 ± 0.81 ] E-05 | 3.3 E-05 | | |
| | | Nb-95 | [ 1.01 ± 0.67 ] E-05 | 2.7 E-05 | | |
| | | Ru-103 | [ 4 ± 49 ] E-07 | 2.0 E-05 | | |
| | | Ru-106 | [ 2.6 ± 2.3 ] E-05 | 9.4 E-05 | | |
| | | Ag-108m | [ 2.2 ± 1.8 ] E-06 | 7.0 E-06 | | |
| | | Ag-110m | [ -1.28 ± 0.57 ] E-05 | 2.4 E-05 | | |
| | | Sb-124 | [ -3.2 ± 4.0 ] E-06 | 1.9 E-05 | | |
| | | Sb-125 | [ -5.5 ± 5.8 ] E-06 | 2.4 E-05 | | |
| | | Cs-134 | [ 6.40 ± 0.39 ] E-05 | 7.5 E-06 | | B |
| | | Cs-137 | [ -3.4 ± 3.0 ] E-06 | 1.2 E-05 | | |
| | | BaLa-140 | [ 1.57 ± 0.86 ] E-05 | 3.4 E-05 | | |
| | | Ce-141 | [ -6.3 ± 5.2 ] E-06 | 2.0 E-05 | | |
| | | Ce-144 | [ 1.20 ± 0.92 ] E-05 | 3.5 E-05 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali for

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10421
Sample Submission Code: QZZc07E1198
Media Type: Concrete
Total Amt of Sample Sent: 112.8 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 5, 1998
Report Date: May 5, 1998

Sample Description: A9902/02MC1/00005

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan (continued) | | Eu-152 | [ 5.98 ± 0.31 ] E-04 | 1.5 E-05 | 1.0E-06 | B |
| | | Eu-154 | [ 5.13 ± 0.54 ] E-05 | 1.8 E-05 | | B |
| | | Eu-155 | [ 1.0 ± 5.2 ] E-06 | 2.0 E-05 | | |

e(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10422
Sample Submission Code: QZZc07F1198
Media Type: Concrete
Total Amt of Sample Sent: 108.7 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 5, 1998

Sample Description: A9902/02MC1/00006

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 108.7000 | Cr-51 | [ 6.4 ± 3.3 ] E-05 | 1.3 E-04 | | |
| | | Mn-54 | [ -4 ± 29 ] E-07 | 1.2 E-05 | | |
| | | Co-57 | [ 1.24 ± 0.84 ] E-05 | 3.2 E-05 | | |
| | | Co-58 | [ 6 ± 36 ] E-07 | 1.5 E-05 | | |
| | | Fe-59 | [ 6 ± 10 ] E-06 | 4.3 E-05 | | |
| | | Co-60 | [ 3.14 ± 0.16 ] E-04 | 8.5 E-06 | | B |
| | | Zn-65 | [ 4 ± 12 ] E-06 | 5.1 E-05 | | |
| | | Nb-94 | [ -4.4 ± 2.2 ] E-06 | 9.0 E-06 | | |
| | | Zr-95 | [ 1.79 ± 0.89 ] E-05 | 3.5 E-05 | | |
| | | Nb-95 | [ -9 ± 53 ] E-07 | 2.2 E-05 | | |
| | | Ru-103 | [ 3.7 ± 3.5 ] E-06 | 1.4 E-05 | | |
| | | Ru-106 | [ -1.6 ± 2.1 ] E-05 | 8.6 E-05 | | |
| | | Ag-108m | [ 1.2 ± 1.4 ] E-06 | 5.5 E-06 | | |
| | | Ag-110m | [ 2.2 ± 4.5 ] E-06 | 1.8 E-05 | | |
| | | Sb-124 | [ -1.6 ± 3.3 ] E-06 | 1.6 E-05 | | |
| | | Sb-125 | [ 4.6 ± 4.3 ] E-06 | 1.7 E-05 | | |
| | | Cs-134 | [ 4.70 ± 0.32 ] E-05 | 5.9 E-06 | | B |
| | | Cs-137 | [ -1 ± 23 ] E-07 | 9.3 E-06 | | |
| | | BaLa-140 | [ -1 ± 11 ] E-06 | 5.1 E-05 | | |
| | | Ce-141 | [ 2.1 ± 4.1 ] E-06 | 1.6 E-05 | | |
| | | Ce-144 | [ 1.06 ± 0.82 ] E-05 | 3.1 E-05 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98
E. M. Moreno

A. D. Banavali for
A. D. Banavali

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: X10422
Sample Submission Code: QZZc07F1198
Media Type: Concrete
Total Amt of Sample Sent: 108.7 g

Customer: GTS Duratek
Sample Reference Date: March 20, 1998
Date Sample Received: April 27, 1998
Count Date: May 2, 1998
Report Date: May 5, 1998

Sample Description: A9902/02MC1/00006

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ µCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ µCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | | Eu-152 | [ 5.80 ± 0.30 ] E-04 | 1.3 E-05 | 1.0E-06 | B |
| (continued) | | Eu-154 | [ 4.47 ± 0.49 ] E-05 | 1.7 E-05 | | B |
| | | Eu-155 | [ -9.1 ± 4.8 ] E-06 | 1.9 E-05 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/5/98

A. D. Banavali for

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: Z10367
Sample Submission Code: QMET01 1498
Media Type: Metal
Total Amt of Sample Sent: 10.31 g

Customer: GTS Duratek
Sample Reference Date: April 9, 1998
Date Sample Received: April 24, 1998
Report Date: May 2, 1998

Sample Description: A9902/03WE1/LAB10/00001 (MYD88 #1)

| Analysis Requested | Aliquot Weight Processed [g] | Analysis Date | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date REQUIRED [ μCi/g ] | Note(s) |
|---|---|---|---|---|---|---|
| Fe-55 | 3.3000E-03 | 05/01/98 | [ 6.0 ± 1.7 ] E-03 | 4.9 E-03 | 1.0E-01 | B |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/2/98

A. D. Banavali

MAILED DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

MAY 0 5 1998

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10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: Z10367
Sample Submission Code: QMET01 1498
Media Type: Metal
Total Amt of Sample Sent: 10.31 g

Customer: GTS Duratek
Sample Reference Date: April 9, 1998
Date Sample Received: April 24, 1998
Count Date: April 24, 1998
Report Date: May 2, 1998

Sample Description: A9902/03WE1/LAB06/00001 (MYD88 #1)

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|---|
| Gamma Scan | 10.3100 | Cr-51 | [ -5.0 ± 8.8 ] | E-05 | 3.6 E-04 | | |
| | | Mn-54 | [ 5 ± 11 ] | E-06 | 4.5 E-05 | | |
| | | Co-57 | [ 4.6 ± 3.7 ] | E-06 | 1.4 E-05 | | |
| | | Co-58 | [ 2.2 ± 1.1 ] | E-05 | 4.1 E-05 | | |
| | | Fe-59 | [ 9 ± 15 ] | E-06 | 6.7 E-05 | | |
| | | Co-60 | [ 5.46 ± 0.32 ] | E-04 | 3.6 E-05 | 1.0E-01 | B |
| | | Zn-65 | [ -3.2 ± 3.0 ] | E-05 | 1.4 E-04 | | |
| | | Nb-94 | [ 1.2 ± 8.1 ] | E-06 | 3.4 E-05 | | |
| | | Zr-95 | [ -1.1 ± 1.9 ] | E-05 | 8.4 E-05 | | |
| | | Nb-95 | [ 4 ± 12 ] | E-06 | 5.0 E-05 | | |
| | | Ru-103 | [ -1 ± 11 ] | E-06 | 4.4 E-05 | | |
| | | Ru-106 | [ -8.1 ± 8.6 ] | E-05 | 3.8 E-04 | | |
| | | Ag-108m | [ -8 ± 81 ] | E-07 | 3.5 E-05 | | |
| | | Ag-110m | [ 1.5 ± 1.8 ] | E-05 | 7.3 E-05 | | |
| | | Sb-124 | [ 1.27 ± 0.64 ] | E-05 | 8.6 E-06 | | |
| | | Sb-125 | [ 4.3 ± 2.4 ] | E-05 | 1.0 E-04 | | |
| | | Cs-134 | [ 2.93 ± 0.61 ] | E-05 | 2.6 E-05 | | B |
| | | Cs-137 | [ 6.53 ± 0.39 ] | E-04 | 2.9 E-05 | | B |
| | | BaLa-140 | [ 6 ± 14 ] | E-06 | 6.3 E-05 | | |
| | | Ce-141 | [ -2 ± 10 ] | E-06 | 4.2 E-05 | | |
| | | Ce-144 | [ -4.2 ± 3.4 ] | E-05 | 1.4 E-04 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/7/98

A. D. Banavali for

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: Z10368
Sample Submission Code: QMET02 1498
Media Type: Metal
Total Amt of Sample Sent: 12.01 g

Customer: GTS Duratek
Sample Reference Date: April 9, 1998
Date Sample Received: April 24, 1998
Count Date: April 24, 1998
Report Date: May 2, 1998

Sample Description: A9902/03WE1/LAB06/00002 (MYD89 #2)

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 12.0100 | Cr-51 | [ -2.2 ± 2.2 ] E-05 | 9.2 E-05 | | |
| | | Mn-54 | [ 1.3 ± 2.2 ] E-06 | 9.3 E-06 | | |
| | | Co-57 | [ -2.2 ± 1.0 ] E-06 | 4.2 E-06 | | |
| | | Co-58 | [ 4.7 ± 2.3 ] E-06 | 8.6 E-06 | | |
| | | Fe-59 | [ 0.0 ± 7.4 ] E-06 | 3.1 E-05 | | |
| | | Co-60 | [ 4.96 ± 0.37 ] E-05 | 5.9 E-06 | 1.0E-01 | B |
| | | Zn-65 | [ -7.3 ± 6.2 ] E-06 | 2.8 E-05 | | |
| | | Nb-94 | [ -2.5 ± 2.4 ] E-06 | 1.0 E-05 | | |
| | | Zr-95 | [ -4.7 ± 4.7 ] E-06 | 2.1 E-05 | | |
| | | Nb-95 | [ 1.6 ± 2.8 ] E-06 | 1.2 E-05 | | |
| | | Ru-103 | [ 2.5 ± 2.3 ] E-06 | 1.0 E-05 | | |
| | | Ru-106 | [ -5.5 ± 2.5 ] E-05 | 1.1 E-04 | | |
| | | Ag-108m | [ -3.7 ± 2.7 ] E-06 | 1.1 E-05 | | |
| | | Ag-110m | [ -1.1 ± 3.8 ] E-06 | 1.7 E-05 | | |
| | | Sb-124 | [ -3 ± 60 ] E-07 | 2.7 E-05 | | |
| | | Sb-125 | [ 4.7 ± 5.6 ] E-06 | 2.3 E-05 | | |
| | | Cs-134 | [ 4.8 ± 2.0 ] E-06 | 7.6 E-06 | | |
| | | Cs-137 | [ 3.62 ± 0.33 ] E-05 | 6.8 E-06 | | B |
| | | BaLa-140 | [ 3.2 ± 4.9 ] E-06 | 2.1 E-05 | | |
| | | Ce-141 | [ 6.2 ± 2.6 ] E-06 | 1.0 E-05 | | |
| | | Ce-144 | [ 5.3 ± 8.1 ] E-06 | 3.2 E-05 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

Reviewed by

E. M. Moreno 5/2/98

A. D. Banavali

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: Z10368
Sample Submission Code: QMET02 1498
Media Type: Metal
Total Amt of Sample Sent: 12.01 g

Customer: GTS Duratek
Sample Reference Date: April 9, 1998
Date Sample Received: April 24, 1998
Report Date: May 2, 1998

Sample Description: A9902/03WE1/LAB10/00002 (MYD89 #2)

| Analysis Requested | Aliquot Weight Processed [g] | Analysis Date | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Fe-55 | 1.4400E-03 | 05/01/98 | [ 5.6 ± 4.3 ] E-03 | 1.3 E-02 | 1.0E-01 | |

Note(s):

A - Calculated MDCs are a-posteriori values.

Reviewed by

E. M. Moreno 5/2/98

A. D. Banavali for

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DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: Z10369
Sample Submission Code: QMET03 1498
Media Type: Metal
Total Amt of Sample Sent: 2.47 g

Customer: GTS Duratek
Sample Reference Date: April 9, 1998
Date Sample Received: April 24, 1998
Report Date: May 2, 1998

Sample Description: A9902/03WE1/LAB10/00003 (MYD90 #3)

| Analysis Requested | Aliquot Weight Processed [g] | Analysis Date | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED [ μCi/g ] | Note(s) |
|---|---|---|---|---|---|---|
| Fe-55 | 5.8100E-04 | 05/01/98 | [ -1.3 ± 1.3 ] E-02 | 4.4 E-02 | 1.0E-01 | |

Note(s):

A — Calculated MDCs are a-posteriori values.

Reviewed by

5/2/98

E. M. Moreno

for

A. D. Banavali

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DE&S
ENVIRONMENTAL LAB.

DUKE ENGINEERING AND SERVICES ENVIRONMENTAL LABORATORY

10 CFR Part 50/61 Analysis Report



Laboratory Sample Number: Z10369
Sample Submission Code: QMET03 1498
Media Type: Metal
Total Amt of Sample Sent: 2.47 g

Customer: GTS Duratek
Sample Reference Date: April 9, 1998
Date Sample Received: April 24, 1998
Count Date: April 27, 1998
Report Date: May 2, 1998

Sample Description: A9902/03WE1/LAB06/00003 (MYD90 #3)

| Analysis Requested | Aliquot Weight Processed [g] | Isotope | Activity Concentration Net ± 1σ Overall on Reference Date [ μCi/g ] | Minimum Detectable Concentration (A) on Reference Date CALCULATED [ μCi/g ] | REQUIRED | Note(s) |
|---|---|---|---|---|---|---|
| Gamma Scan | 2.4700 | Cr-51 | [ -9 ± 78 ] E-06 | 3.2 E-04 | | |
| | | Mn-54 | [ -1.7 ± 1.0 ] E-05 | 4.5 E-05 | | |
| | | Co-57 | [ 4.1 ± 3.5 ] E-06 | 1.4 E-05 | | |
| | | Co-58 | [ 1.1 ± 1.0 ] E-05 | 4.3 E-05 | | |
| | | Fe-59 | [ 1.2 ± 2.6 ] E-05 | 1.1 E-04 | | |
| | | Co-60 | [ 5.88 ± 0.80 ] E-05 | 3.0 E-05 | 1.0E-01 | B |
| | | Zn-65 | [ -4.3 ± 2.7 ] E-05 | 1.2 E-04 | | |
| | | Nb-94 | [ 0.0 ± 8.7 ] E-06 | 3.5 E-05 | | |
| | | Zr-95 | [ -1.7 ± 1.7 ] E-05 | 7.3 E-05 | | |
| | | Nb-95 | [ 1.4 ± 1.1 ] E-05 | 4.4 E-05 | | |
| | | Ru-103 | [ 1.12 ± 0.86 ] E-05 | 3.4 E-05 | | |
| | | Ru-106 | [ -2.7 ± 7.6 ] E-05 | 3.2 E-04 | | |
| | | Ag-108m | [ -6.0 ± 8.6 ] E-06 | 3.7 E-05 | | |
| | | Ag-110m | [ 1.4 ± 1.2 ] E-05 | 4.9 E-05 | | |
| | | Sb-124 | [ -3 ± 23 ] E-06 | 1.0 E-04 | | |
| | | Sb-125 | [ 1.2 ± 1.8 ] E-05 | 7.2 E-05 | | |
| | | Cs-134 | [ -2 ± 85 ] E-07 | 3.6 E-05 | | |
| | | Cs-137 | [ 1.14 ± 0.68 ] E-05 | 2.6 E-05 | | |
| | | BaLa-140 | [ 1.7 ± 2.4 ] E-05 | 1.0 E-04 | | |
| | | Ce-141 | [ 2.8 ± 1.0 ] E-05 | 3.9 E-05 | | |
| | | Ce-144 | [ -4.1 ± 3.0 ] E-05 | 1.2 E-04 | | |

Note(s):

A - Calculated MDCs are a-posteriori values.
B - Results are statistically positive at the 99.9% confidence level (activity is greater than three times the standard deviation).

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