CHARACTERIZATION SUMMARY

04/14/98

SURVEY PACKAGE NUMBER :C1200

SYSTEMS

PACKAGE DESCRIPTION

Boron Recovery System

SURVEY AREA DESCRIPTION

Boron Recovery System

GENERAL HISTORICAL INFORMATION (Operational history, etc.)

The Boron Recovery System removed dissolved and entrained gases from the reactor coolant letdown and drains and reconcentrated the boric acid solution.

SUMMARY OF CHARACTERIZATION ACTIVITIES

Survey units were established for the system by building and elevation as shown in the following Summary of Survey Units. The Surface(s) listing indicates the component name, survey surface code and, where applicable, the Maine Yankee system component number.

A total of 47 exposure rate measurements were collected at 6 component locations. Due to physical interference, 1 measurement could not be collected.

Beta scan surveys and direct measurements for total beta activity were not prescribed for this survey package.

Smear samples were collected from component interior surfaces to analyze for removable alpha and beta activity at 3 survey measurement locations indicated on the results listing report.

Smear samples were collected from component interior surfaces to analyze for removable tritium activity at 3 survey measurement locations indicated on the results listing report.

Smear samples were collected from component interior surfaces to analyze for removable plant-derived radionuclide activity by gamma spectroscopy at 3 survey measurement locations indicated on 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 The average and maximum exposure rate measurement results were 1.3 mR/hr and 13 mR/hr, respectively. The ratio of the 15 cm distance measurements to the 1 meter distance measurements ranged from 0.3 to 2.1.

o There were 3 measurements for removable beta activity above 100 dpm/100cm² and each measurements' individual MDA. The maximum measurement result was 160,000 dpm/100cm².

o 2 of the 3 smear measurements were analyzed for removable alpha activity and no measurements were above MDA (8.4 dpm/100cm²).

o There were 2 measurements for removable tritium activity above MDA (39 dpm/100cm²). The maximum measurement result was 58,463 dpm/100cm².

o Of the 3 samples analyzed by gamma spectroscopy, all samples indicated plant-derived radionuclide activity above MDA. The analysis of the samples indicated the presence of Co-60 and Cs-137.

REFERENCES (Documents, Interviews)

Maine Yankee Drawing 1150 - FM - 98 A

Operator System Training Manual, Chapter 36

SUMMARY OF SURVEY UNIT(S)

04/14/98 OUTPUT BATCH SN = 834

PACKAGE C1200 SYSTEMS

Boron Recovery System

UNIT(S)	SURFACE(S)
01 - 11' Primary Auxiliary Building Components	V01 (Valve WD-230)
02 - 36' Primary Auxiliary Building Components	M01 (Boron recovery evaporator EV-1) T01 (Recovery evaporator distillate accumulation tank TK-15) V01 (Valve WD-335) V02 (Valve WD-257)
03 - Yard Components	T01 (Boron waste storage tank TK-13A) T02 (Boron waste storage tank TK-13B) T03 (Test tank TK-14B) T04 (Test tank T-14A)

REASON(S) CHARACTERIZATION SURVEY (C01)

MATERIALS

MAT'L CODE	MATERIAL DESCRIPTION	BETA BKGD (dpm/100 cm²)
G0031	METAL - BARE (GAMMA)	0.0

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Exposure Rate Measurements

Survey Package C1200 SYSTEMS

Boron Recovery System

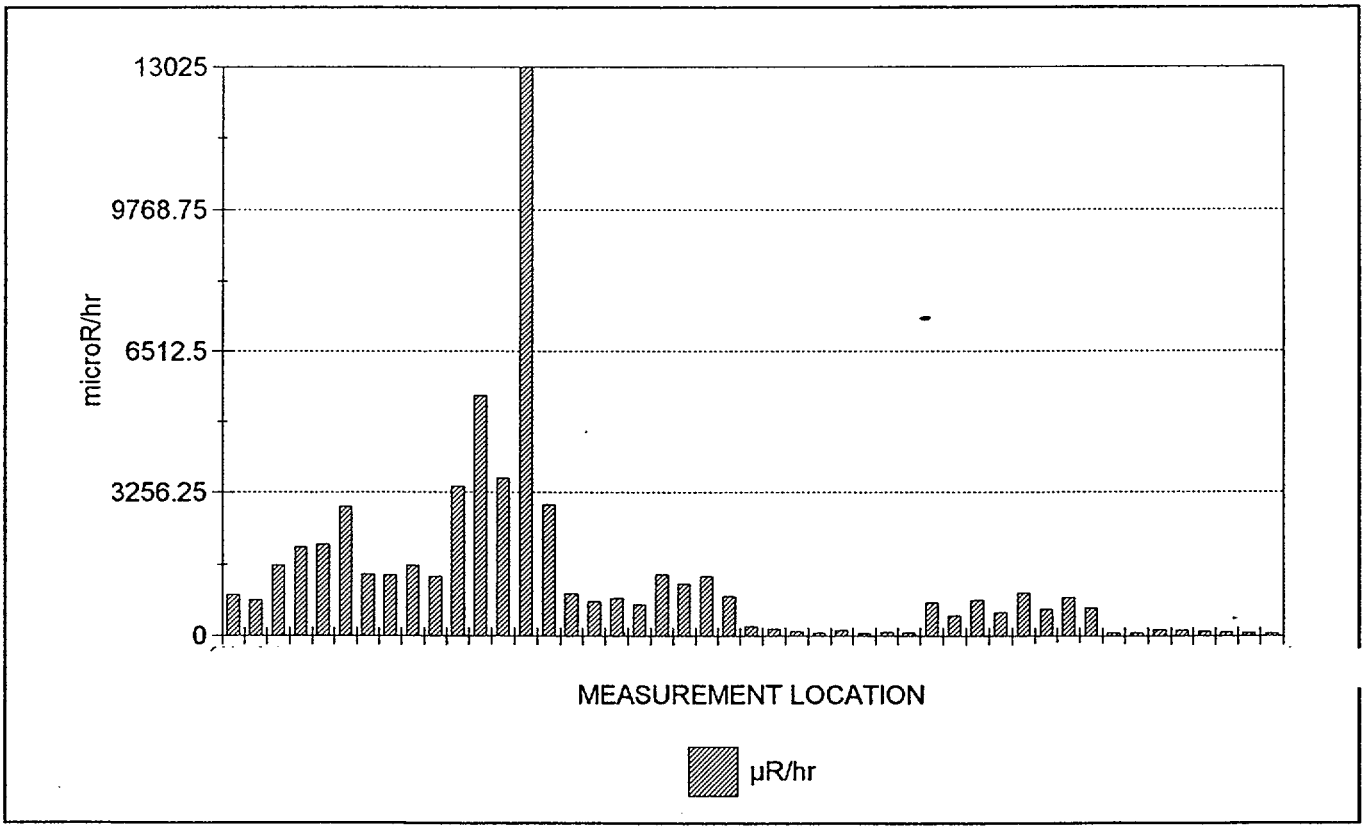
STATISTICAL SUMMARY

	µR/hr
Mean	1,283.0
Maximum	13,023.0
Minimum	56.9
Standard Deviation	2,078.2

Samples Reported	47
Samples Prescribed	47

TESTS PERFORMED

Samples reported satisfy samples prescribed	YES



47 RESULTS ARE GRAPHED

04/14/98 Exposure Rate Measurements

Survey Package : C1200 SYSTEMS

Boron Recovery System

RESULTS LISTING - SORTED BY SURFACE CODE

FILE #	UNIT	SURFACE	MATERIAL	REASON	COUNT TIME	MSRMNT LOCATION	RESULT
543 (2)	02	M01	G0031	C01	0.00	00001	***935.8***
543 (2)	02	M01	G0031	C01	0.00	00002	***815.5***
543 (2)	02	M01	G0031	C01	0.00	00003	***1608.9***
543 (2)	02	M01	G0031	C01	0.00	00004	***2032.5***
543 (2)	02	M01	G0031	C01	0.00	00005	***2092.1***
543 (2)	02	M01	G0031	C01	0.00	00006	***2941.9***
543 (2)	02	M01	G0031	C01	0.00	00007	***1416.8***
543 (2)	02	M01	G0031	C01	0.00	00008	***1393.3***
543 (2)	02	T01	G0031	C01	0.00	00001	***1620.4***
543 (2)	02	T01	G0031	C01	0.00	00002	***1371.2***
543 (2)	02	T01	G0031	C01	0.00	00003	***3396.7***
543 (2)	02	T01	G0031	C01	0.00	00004	***5472.7***
543 (2)	02	T01	G0031	C01	0.00	00005	***3590.1***
543 (2)	02	T01	G0031	C01	0.00	00006	***13023.0***
543 (2)	02	T01	G0031	C01	0.00	00007	***2976.5***
562 (2)	03	T01	G0031	C01	60.00	00001	***971.8***
562 (2)	03	T01	G0031	C01	60.00	00002	***789.8***
562 (2)	03	T01	G0031	C01	60.00	00003	***865.0***
562 (2)	03	T01	G0031	C01	60.00	00004	***720.0***
562 (2)	03	T01	G0031	C01	60.00	00005	***1411.3***
562 (2)	03	T01	G0031	C01	60.00	00006	***1190.7***
562 (2)	03	T01	G0031	C01	60.00	00007	***1365.0***
562 (2)	03	T01	G0031	C01	60.00	00008	***915.4***

REMAINING RESULTS PRINTED ON NEXT PAGE

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.

04/14/98

Exposure Rate Measurements

Survey Package : C1200 SYSTEMS

Boron Recovery System

RESULTS LISTING - SORTED BY SURFACE CODE

FILE #	UNIT	SURFACE	MATERIAL	REASON	COUNT TIME	MSRMNT LOCATION	RESULT
545 (2)	03	T02	G0031	C01	60.00	00001	***223.0***
545 (2)	03	T02	G0031	C01	60.00	00002	***160.7***
545 (2)	03	T02	G0031	C01	60.00	00003	***105.8***
545 (2)	03	T02	G0031	C01	60.00	00004	***66.9***
545 (2)	03	T02	G0031	C01	60.00	00005	***136.2***
545 (2)	03	T02	G0031	C01	60.00	00006	***63.4***
545 (2)	03	T02	G0031	C01	60.00	00007	***87.5***
545 (2)	03	T02	G0031	C01	60.00	00008	***70.8***
545 (2)	03	T03	G0031	C01	60.00	00001	***758.0***
545 (2)	03	T03	G0031	C01	60.00	00002	***473.0***
545 (2)	03	T03	G0031	C01	60.00	00003	***818.0***
545 (2)	03	T03	G0031	C01	60.00	00004	***546.0***
545 (2)	03	T03	G0031	C01	60.00	00005	***990.2***
545 (2)	03	T03	G0031	C01	60.00	00006	***613.8***
545 (2)	03	T03	G0031	C01	60.00	00007	***875.2***
545 (2)	03	T03	G0031	C01	60.00	00008	***650.0***
545 (2)	03	T04	G0031	C01	60.00	00001	***76.0***
545 (2)	03	T04	G0031	C01	60.00	00002	***71.4***
545 (2)	03	T04	G0031	C01	60.00	00003	***149.0***
545 (2)	03	T04	G0031	C01	60.00	00004	***138.1***
545 (2)	03	T04	G0031	C01	60.00	00005	***98.4***
545 (2)	03	T04	G0031	C01	60.00	00006	***88.2***
545 (2)	03	T04	G0031	C01	60.00	00007	***67.5***
545 (2)	03	T04	G0031	C01	60.00	00008	***56.9***

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.
47 results are listed.

DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

04/14/98

Exposure Rate Measurements

Survey Package : C1200 SYSTEMS

Boron Recovery System

SURVEY		M2350		DETECTOR			
DATE	FILE #	INST S/N	CAL DUE	MODEL	S/N	CAL DUE	TECHNICIAN
2/4/98	543 (2)	095348	3/20/98	44-38	088919	7/23/98	MAP5535
				CALIBRATION DATES VERIFIED AS ACCEPTABLE			
2/4/98	545 (2)	126182	3/22/98	44-2	128338	4/19/98	MAP5535
				CALIBRATION DATES VERIFIED AS ACCEPTABLE			
2/6/98	562 (2)	126182	3/22/98	44-2	128338	4/19/98	MAP5535
				CALIBRATION DATES VERIFIED AS ACCEPTABLE			

Maine Yankee Atomic Power Plant Site Characterization
Exposure Rate Distance Ratios

SURVEY PACKAGE C01200

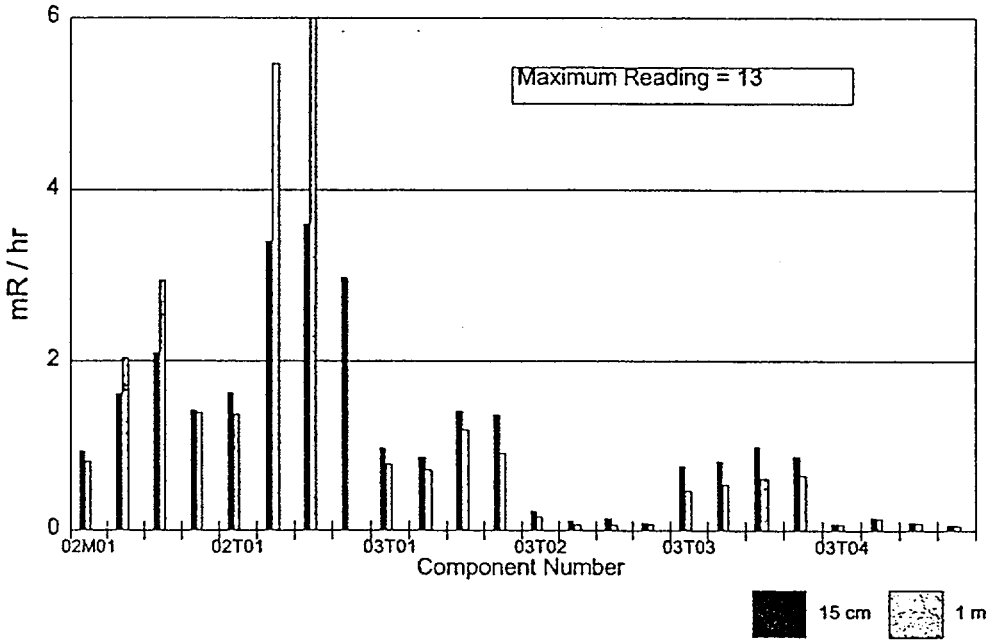
Package Number	Component Number	Component Description	Direction	15 cm mR/hr	1 meter mR/hr	Ratio of 15 cm to 1 meter
C1200	02M01	Boron recovery evaporator EV-1	North	0.9	0.8	1.1
			East	1.6	2.0	0.8
			South	2.1	2.9	0.7
			West	1.4	1.4	1.0
C1200	02T01	Recovery evaporator distillate accumulation tank TK-15	North	1.6	1.4	1.2
			East	3.4	5.5	0.6
			South	3.6	13.0	0.3
			West	3.0	*	
C1200	03T01	Boron waste storage tank TK-13A	North	1.0	0.8	1.2
			East	0.9	0.7	1.2
			South	1.4	1.2	1.2
			West	1.4	0.9	1.5
C1200	03T02	Boron waste storage tank TK-13B	North	0.2	0.2	1.4
			East	0.1	0.1	1.6
			South	0.1	0.1	2.1
			West	0.1	0.1	1.2
C1200	03T03	Test tank TK-14B	North	0.8	0.5	1.6
			East	0.8	0.5	1.5
			South	1.0	0.6	1.6
			West	0.9	0.7	1.3
C1200	03T04	Test tank T-14A	North	0.1	0.1	1.1
			East	0.1	0.1	1.1
			South	0.1	0.1	1.1
			West	0.1	0.1	1.2

* Measurement not collected due to interfering surface.

Maine Yankee Atomic Power Plant Site Characterization
Exposure Rate Distance Ratios

SURVEY PACKAGE C01200

Exposure Rates - 15 cm and 1 meter



Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Removable Contamination - Gross Beta Activity

Survey Package C1200 SYSTEMS

Boron Recovery System

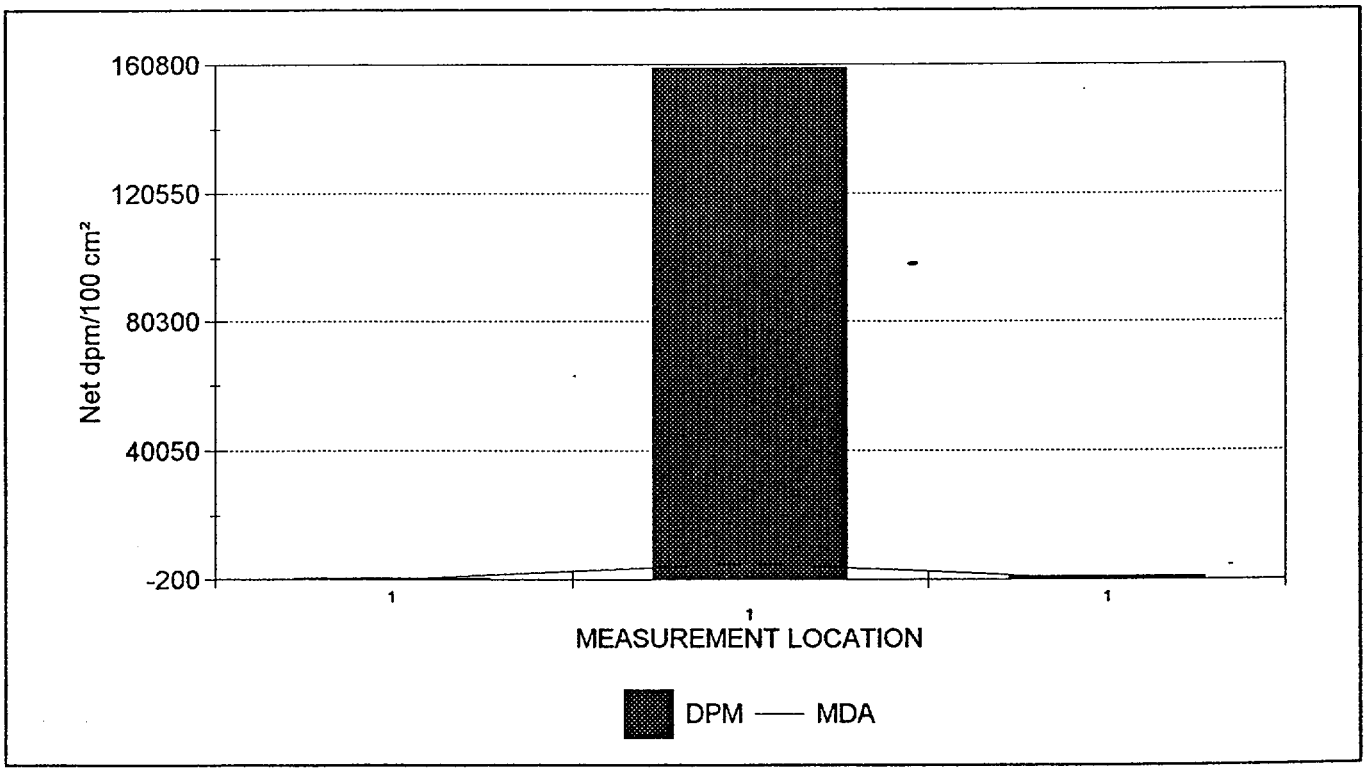
STATISTICAL SUMMARY

	Net dpm/100 cm²
Mean	53,766.4
Maximum	160,000.0
Minimum	360.6
Standard Deviation	92,001.4
MDA	5,000.0

Samples Reported	3
Samples Prescribed	9

TESTS PERFORMED

MDA <100 net dpm/100 cm²	NO
Results above 100 net dpm/100 cm²	3
Number of results above MDA	3



3 RESULTS ARE GRAPHED

DURATEK

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Removable Contamination - Gross Alpha Activity

Survey Package C1200 SYSTEMS

Boron Recovery System

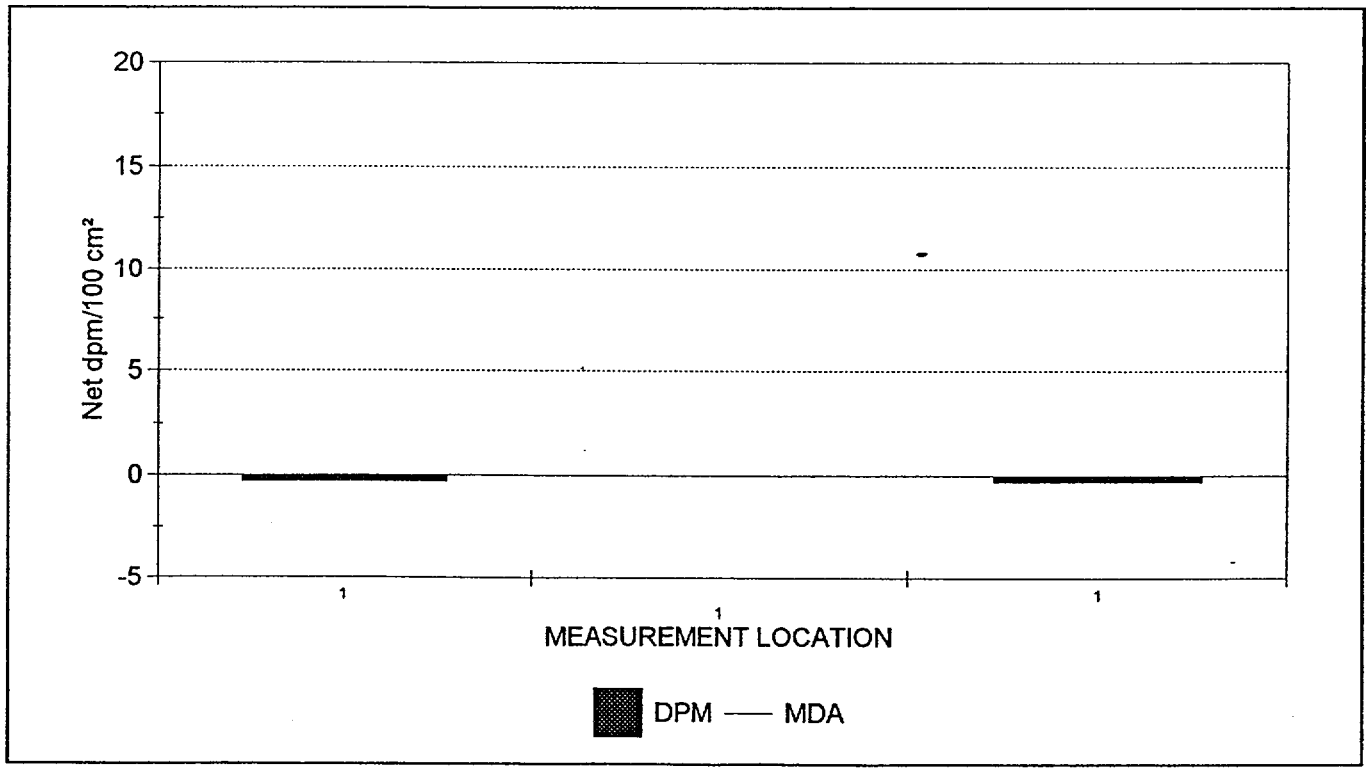
STATISTICAL SUMMARY

	Net dpm/100 cm²
Mean	-0.2
Maximum	0.0
Minimum	-0.3
Standard Deviation	0.2
MDA	8.4

Samples Reported	3
Samples Prescribed	9

TESTS PERFORMED

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



3 RESULTS ARE GRAPHED

04/14/98 Removable Contamination

Survey Package : C1200 SYSTEMS

Boron Recovery System

RESULTS LISTING - SORTED BY SURFACE CODE

XLS FILE	UNIT	SURFACE	REASON	MSRMNT LOCATION	ALPHA	BETA
SME1E135.XLS	02	V02	C01	1	-0.3	***938.7***
RM-14DATA13	02	V01	C01	1		***160,000.0***
SME1E133.XLS	01	V01	C01	1	-0.3	***360.6***

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).
3 results are listed.

Maine Yankee Atomic Power Plant Site Characterization

DATAFILE & ALPHA - BETA COUNTER CALIBRATION SUMMARY

04/14/98

Removable Contamination

Survey Package: C1200 SYSTEMS

Boron Recovery System

SURVEYDATE	XLS FILE	INST ID	S/N	CAL DUE	LAB TECHNICIAN
3/28/98	RM-14DATA13	3	8263	5/26/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	
3/16/98	SME1E133.XLS	1	15632	8/5/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	
3/16/98	SME1E135.XLS	1	15632	8/5/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Removable Contamination - Tritium Activity

Survey Package: C1200 SYSTEMS

Boron Recovery System

RESULTS LISTING - SORTED BY SURFACE CODE

SAMPLE ID	SAMPLE TYPE	UNIT	SURF	REASN	MSRMNT LOCATION	MDA	TRITIUM ACTIVITY
D42	Hoppes patch	02	V01	C01	00001	38.9	14.2
D43	Hoppes patch	02	V02	C01	00001	38.8	67.8
D44	Hoppes patch	01	V01	C01	00001	38.9	***58,462.9***

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 75 dpm/100 cm²,
Italic values exceed 100 dpm/100 cm².

DURATEK

Maine Yankee Atomic Power Plant Site Characterization

LIQUID SCINTILLATION COUNTER CALIBRATION SUMMARY

04/14/98

Removable Contamination - Tritium Activity

Survey Package : C1200 SYSTEMS

Boron Recovery System

SURVEYDATE	INSTRUMENT	MODEL	S/N	CAL DUE	LAB TECHNICIAN
3/5/98	Packard	2750	416221	6/16/98	LDT

CALIBRATION DATE VERIFIED AS ACCEPTABLE

Maine Yankee Atomic Power Plant Site Characterization

GAMMA SPECTRAL ANALYSIS RESULTS LISTING

NUMBER OF SAMPLES REPORTED = 3

04/14/98

OUTPUT BATCH SN = 834

Survey Package C1200 SYSTEMS

Boron Recovery System

UNIT : 01 SURFACE : V01 REASON : C01 ANALYSIS TYPE CODE : LAB05

SAMPLE TYPE OR SURFACE SAMPLED: Valve
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYP014	PET00013	1.0	1200	Co-57	< 40.1	40.1	0.0
				Co-60	226.00	74.2	76.7
				Cs-134	< 81.2	81.2	0.0
				Cs-137	62.70	56.7	41.2
				K-40	< 743.0	743.0	0.0
				Mn-54	< 92.0	92.0	0.0

UNIT : 02 SURFACE : V01 REASON : C01 ANALYSIS TYPE CODE : LAB05

SAMPLE TYPE OR SURFACE SAMPLED: Valve
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYP012	PET00012	1.0	1200	Co-57	< 235.0	235.0	0.0
				Co-60	39000.00	425.0	6,040.0
				Cs-134	< 553.0	553.0	0.0
				Cs-137	1970.00	624.0	422.0
				K-40	< 1420.0	1,420.0	0.0
				Mn-54	< 840.0	840.0	0.0

GAMMA SPECTRAL ANALYSIS RESULTS LISTING

NUMBER OF SAMPLES REPORTED = 3

04/14/98 OUTPUT BATCH SN = 834

Survey Package C1200 SYSTEMS

Boron Recovery System

UNIT : 02 SURFACE : V02 REASON : C01 ANALYSIS TYPE CODE : LAB05

SAMPLE TYPE OR SURFACE SAMPLED: Valve
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYP013	PET00010	1.0	1200	Co-57	< 46.3	46.3	0.0
				Co-60	266.00	19.0	86.3
				Cs-134	< 93.4	93.4	0.0
				Cs-137	< 103.0	103.0	0.0
				K-40	< 997.0	997.0	0.0
				Mn-54	< 76.0	76.0	0.0

04/14/98

CHARACTERIZATION SUMMARY

SURVEY PACKAGE NUMBER :C1300 SYSTEMS

PACKAGE DESCRIPTION Chemical and Volume Control System

SURVEY AREA DESCRIPTION

Chemical and Volume Control System

GENERAL HISTORICAL INFORMATION (Operational history, etc.)

The Chemical and Volume Control System (CVCS) maintained programmed water level in the pressurizer, provided a means for injecting borated water upon receipt of a safety injection signal, provided auxiliary pressurizer spray during Reactor Coolant System cooldown, controlled RCS water chemistry conditions and activity levels, provided seal water injection flow to the Reactor Coolant Pumps, injected borated water for reactivity control into the RCS during normal operation, and provided a means of filling and pressure testing the RCS.

SUMMARY OF CHARACTERIZATION ACTIVITIES

Survey units were established for the system by building and elevation as shown in the following Summary of Survey Units. The Surface(s) listing indicates the component name, survey surface code and, where applicable, the Maine Yankee system component number.

A total of 55 exposure rate measurements were collected at 8 component locations. Due to physical interferences, 1 measurement could not be collected.

Performed a beta scan of accessible interior surfaces up to a maximum area of one square meter at 3 component survey measurement locations.

Collected direct measurements for total beta activity at 3 component survey measurement locations at the highest location identified during the scan. If an elevated location was not observed within the scanned area, the measurement was collected at an arbitrary location selected by the technician.

Smear samples were collected from component interior surfaces to analyze for removable alpha and beta activity at 6 survey measurement locations indicated on the results listing report.

Smear samples were collected from component interior surfaces to analyze for removable tritium activity at 6 survey measurement locations indicated on the results listing report.

Smear samples were collected from component interior surfaces to analyze for removable plant-derived radionuclide activity by gamma spectroscopy at 3 survey measurement locations indicated on 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 The average and maximum exposure rate measurement results were 41 mR/hr and 885 mR/hr, respectively. The ratio of the 15 cm distance measurements to the 1 meter distance measurements ranged from 0.5 to 4.3.

o There were 2 direct measurements for total beta activity above MDA (Maximum MDA was 1,316 dpm/100cm^2) and 2 results greater than 2000 dpm/100cm^2. The maximum measurement result was 3,925 dpm/100cm^2.

o There were 3 measurements for removable beta activity above MDA (35.4 dpm/100cm²). The maximum measurement result was 112,370 dpm/100cm².

o Ther were 2 smear measurements analyzed for removable alpha activity above MDA (7.8 dpm/100cm²). The maximum measurement result was 34.9 dpm/100cm².

o There were 2 measurements for removable tritium activity above MDA (maximum MDA was 138.9 dpm/100cm²). The maximum measurement result was 3,014 dpm/100cm².

o Of the 3 samples analyzed by gamma spectroscopy, all samples indicated plant-derived radionuclide activity above MDA. The analysis of the samples indicated the presence of Co-60, Cs-137 and Sb-125.

REFERENCES (Documents, Interviews)

Maine Yankee Drawings 1150 - FM - 91 A, B, C

Maine Yankee Atomic Power Plant Site Characterization

SUMMARY OF SURVEY UNIT(S)

04/14/98 OUTPUT BATCH SN = 848

PACKAGE C1300 SYSTEMS

Chemical and Volume Control System

UNIT(S)	SURFACE(S)
01 - 11' Primary Auxiliary Building Components	M01 (Deborating demineralizer I-3) M02 (Purification demineralizer I-2A) T01 (Boric acid mix tank TK-3) V01 (Valve LD--A-9)
02 - 21' Primary Auxiliary Building Components	H01 (Letdown heat exchanger E-44) H02 (Regenerative heat exchanger E-67) V01 (Valve BA-31) V02 (Valve BA-5)
03 - 36' Primary Auxiliary Building Components	T01 (Boric acid storage tank TK-2) T02 (Zinc injection storage tank TK-169) T03 (Volume control tank TK-6)

REASON(S) CHARACTERIZATION SURVEY (C01)

MATERIALS

MAT'L CODE	MATERIAL DESCRIPTION	BETA BKGD (dpm/100 cm²)
B0031	METAL - BARE	0.0
G0031	METAL - BARE (GAMMA)	0.0

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Exposure Rate Measurements

Survey Package C1300 SYSTEMS

Chemical and Volume Control System

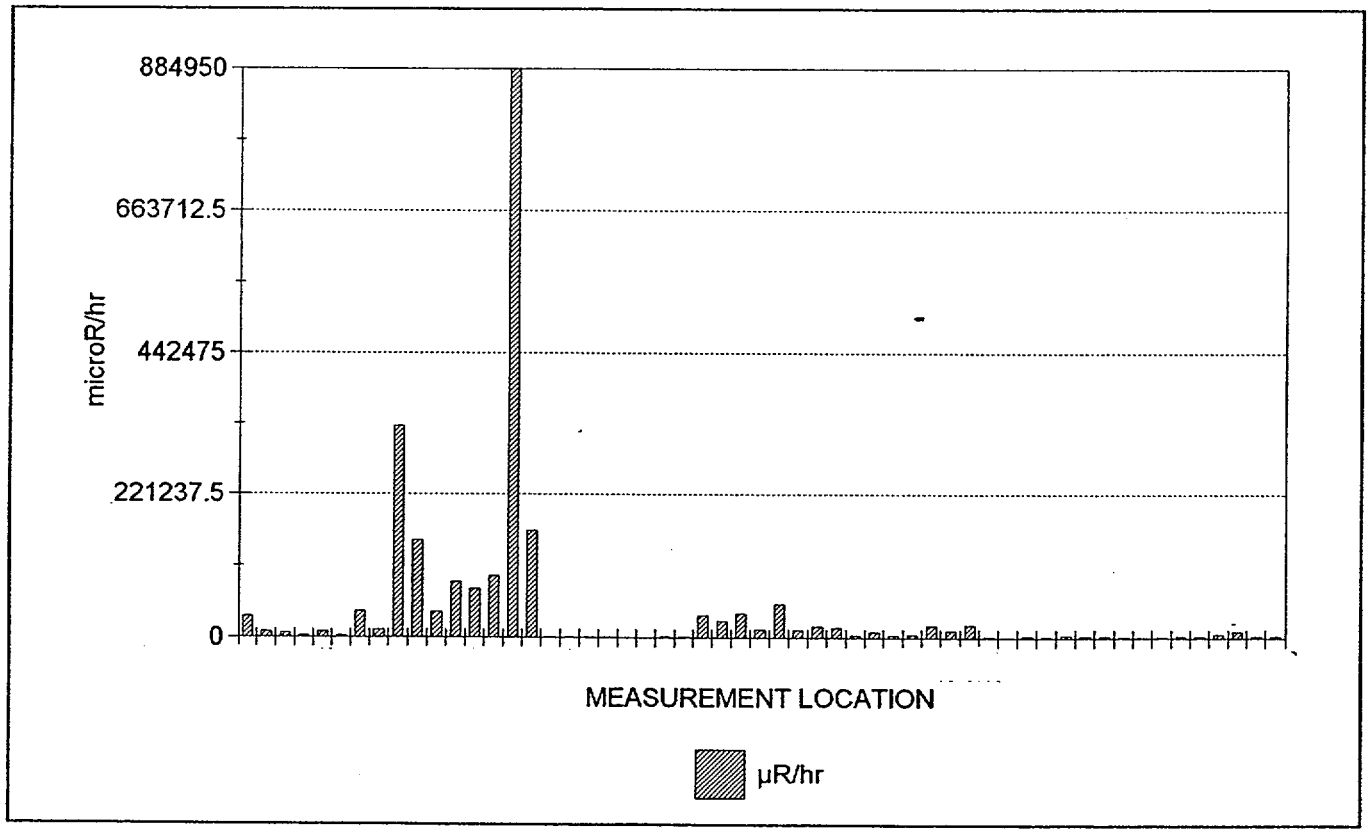
STATISTICAL SUMMARY

	µR/hr
Mean	41,445.8
Maximum	884,945.6
Minimum	401.8
Standard Deviation	127,708.3

Samples Reported	55
Samples Prescribed	55

TESTS PERFORMED

Samples reported satisfy samples prescribed	YES



55 RESULTS ARE GRAPHED

04/14/98 Exposure Rate Measurements

Survey Package : C1300 SYSTEMS

Chemical and Volume Control System

RESULTS LISTING - SORTED BY SURFACE CODE

FILE #	UNIT	SURFACE	MATERIAL	REASON	COUNT TIME	MSRMNT LOCATION	RESULT
559 (2)	01	M01	G0031	C01	0.00	00001	***33396.2***
559 (2)	01	M01	G0031	C01	0.00	00002	***8872.9***
559 (2)	01	M01	G0031	C01	0.00	00003	***6620.6***
559 (2)	01	M01	G0031	C01	0.00	00004	***3185.4***
559 (2)	01	M01	G0031	C01	0.00	00005	***8548.0***
559 (2)	01	M01	G0031	C01	0.00	00006	***3379.8***
559 (2)	01	M01	G0031	C01	0.00	00007	***41232.4***
559 (2)	01	M01	G0031	C01	0.00	00008	***12065.8***
559 (2)	01	M02	G0031	C01	0.00	00001	***328544.4***
559 (2)	01	M02	G0031	C01	0.00	00002	***149354.4***
559 (2)	01	M02	G0031	C01	0.00	00003	***39528.6***
559 (2)	01	M02	G0031	C01	0.00	00004	***85816.8***
559 (2)	01	M02	G0031	C01	0.00	00005	***74543.4***
559 (2)	01	M02	G0031	C01	0.00	00006	***94543.5***
559 (2)	01	M02	G0031	C01	0.00	00007	***884945.6***
559 (2)	01	M02	G0031	C01	0.00	00008	***164134.9***
559 (2)	01	T01	G0031	C01	0.00	00001	***958.2***
559 (2)	01	T01	G0031	C01	0.00	00002	***1018.5***
558 (2)	01	T01	G0031	C01	60.00	00003	***1033.5***
558 (2)	01	T01	G0031	C01	60.00	00004	***857.0***
558 (2)	01	T01	G0031	C01	60.00	00005	***401.8***
558 (2)	01	T01	G0031	C01	60.00	00006	***460.7***
559 (2)	01	T01	G0031	C01	0.00	00007	***1799.4***
559 (2)	01	T01	G0031	C01	0.00	00008	***1710.6***
634 (2)	02	H01	G0031	C01	0.00	00001	***35160.8***
634 (2)	02	H01	G0031	C01	0.00	00002	25783.7
634 (2)	02	H01	G0031	C01	0.00	00003	***38328.7***
634 (2)	02	H01	G0031	C01	0.00	00004	***12883.6***
634 (2)	02	H01	G0031	C01	0.00	00005	***52320.9***
634 (2)	02	H01	G0031	C01	0.00	00006	***12162.3***
634 (2)	02	H01	G0031	C01	0.00	00007	***18323.2***
634 (2)	02	H01	G0031	C01	0.00	00008	***16127.1***
666 (2)	02	H02	G0031	C01	0.00	00001	***3581.1***
666 (2)	02	H02	G0031	C01	0.00	00002	***8787.2***
666 (2)	02	H02	G0031	C01	0.00	00003	***3882.0***
666 (2)	02	H02	G0031	C01	0.00	00004	***4643.2***
666 (2)	02	H02	G0031	C01	0.00	00005	***19009.8***
666 (2)	02	H02	G0031	C01	0.00	00006	***11469.6***
666 (2)	02	H02	G0031	C01	0.00	00007	***19945.7***
559 (2)	03	T01	G0031	C01	0.00	00001	***1815.8***

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.

Survey Package: C1300 SYSTEMS

Chemical and Volume Control System

RESULTS LISTING - SORTED BY SURFACE CODE

FILE #	UNIT	SURFACE	MATERIAL	REASON	COUNT TIME	MSRMNT LOCATION	RESULT
559 (2)	03	T01	G0031	C01	0.00	00002	***1092.3***
559 (2)	03	T01	G0031	C01	0.00	00003	***3416.5***
559 (2)	03	T01	G0031	C01	0.00	00004	***2423.6***
559 (2)	03	T01	G0031	C01	0.00	00005	***3514.4***
559 (2)	03	T01	G0031	C01	0.00	00006	***2519.9***
559 (2)	03	T01	G0031	C01	0.00	00007	***2533.1***
559 (2)	03	T01	G0031	C01	0.00	00008	***2028.8***
634 (2)	03	T03	G0031	C01	0.00	00001	***1469.9***
634 (2)	03	T03	G0031	C01	0.00	00002	***2134.6***
634 (2)	03	T03	G0031	C01	0.00	00003	***2861.8***
634 (2)	03	T03	G0031	C01	0.00	00004	***3122.3***
634 (2)	03	T03	G0031	C01	0.00	00005	***5629.4***
634 (2)	03	T03	G0031	C01	0.00	00006	***9885.7***
634 (2)	03	T03	G0031	C01	0.00	00007	***3103.1***
634 (2)	03	T03	G0031	C01	0.00	00008	***2604.1***

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.
55 results are listed.

DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

04/14/98

Exposure Rate Measurements

Survey Package : C1300 SYSTEMS

Chemical and Volume Control System

SURVEY		M2350		DETECTOR			
DATE	FILE #	INST S/N	CAL DUE	MODEL	S/N	CAL DUE	TECHNICIAN
2/6/98	558 (2)	126197	3/22/98	44-2	PR126922	4/19/98	JFM0682
							CALIBRATION DATES VERIFIED AS ACCEPTABLE
2/6/98	559 (2)	095348	3/20/98	44-38	088919	7/23/98	MAP5535
							CALIBRATION DATES VERIFIED AS ACCEPTABLE
2/24/98	634 (2)	95348	3/20/98	44-38	088919	7/23/98	LCF0451
							CALIBRATION DATES VERIFIED AS ACCEPTABLE
3/18/98	666 (2)	126185	3/20/98	44-38	075082	7/23/98	AOK2982
							CALIBRATION DATES VERIFIED AS ACCEPTABLE

Maine Yankee Atomic Power Plant Site Characterization
Exposure Rate Distance Ratios

SURVEY PACKAGE C01300

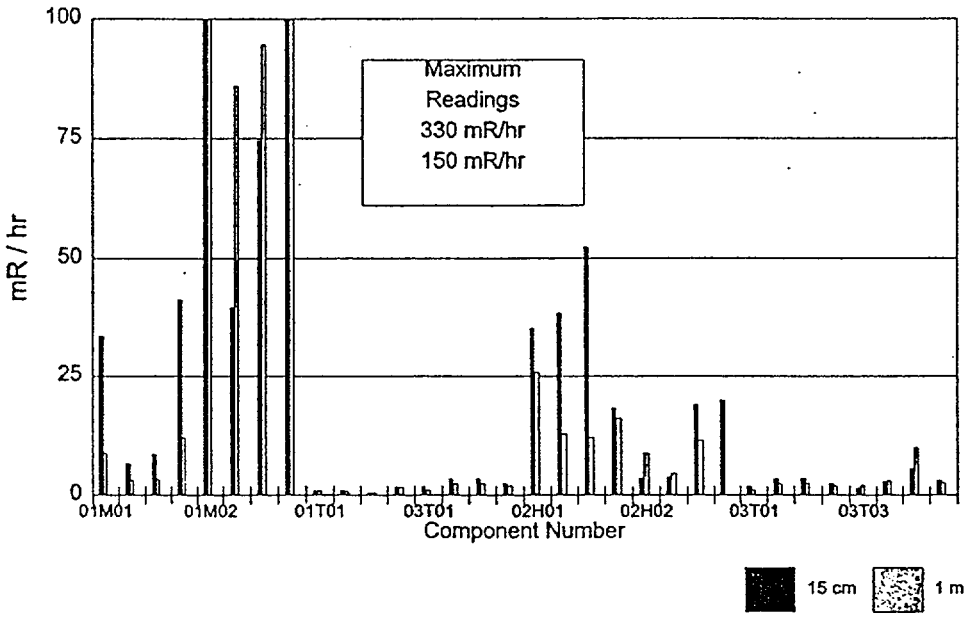
Package Number	Component Number	Component Description	Direction	15 cm mR/hr	1 meter mR/hr	Ratio of 15 cm to 1 meter
C1300	01M01	Deborating demineralizer I-3	North	33.4	8.9	3.8
			East	6.6	3.2	2.1
			South	8.5	3.4	2.5
			West	41.2	12.1	3.4
C1300	01M02	Purification demineralizer I-2A	North	328.5	149.4	2.2
			East	39.5	85.8	0.5
			South	74.5	94.5	0.8
			West	884.9	164.1	5.4
C1300	01T01	Boric acid mix tank TK-3	North	1.0	1.0	0.9
			East	1.0	0.9	1.2
			South	0.4	0.5	0.9
			West	1.8	1.7	1.1
C1300	03T01	Boric acid storage tank TK-2	North	1.8	1.1	1.7
			East	3.4	2.4	1.4
			South	3.5	2.5	1.4
			West	2.5	2.0	1.2
C1300	02H01	Letdown heat exchanger E-44	North	35.2	25.8	1.4
			East	38.3	12.9	3.0
			South	52.3	12.2	4.3
			West	18.3	16.1	1.1
C1300	02H02	Regenerative heat exchanger E-67	North	3.6	8.8	0.4
			East	3.9	4.6	0.8
			South	19.0	11.5	1.7
			West	19.9	*	
C1300	03T01	Boric acid storage tank TK-2	North	1.8	1.1	1.7
			East	3.4	2.4	1.4
			South	3.5	2.5	1.4
			West	2.5	2.0	1.2
C1300	03T03	Volume control tank TK-6	North	1.5	2.1	0.7
			East	2.9	3.1	0.9
			South	5.6	9.9	0.6
			West	3.1	2.6	1.2

* Measurement not collected due to interfering surface.

Maine Yankee Atomic Power Plant Site Characterization
Exposure Rate Distance Ratios

SURVEY PACKAGE C01300

Exposure Rates - 15 cm and 1 meter



Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Direct Measurements For Total Beta Activity

Survey Package C1300 SYSTEMS

Chemical and Volume Control System

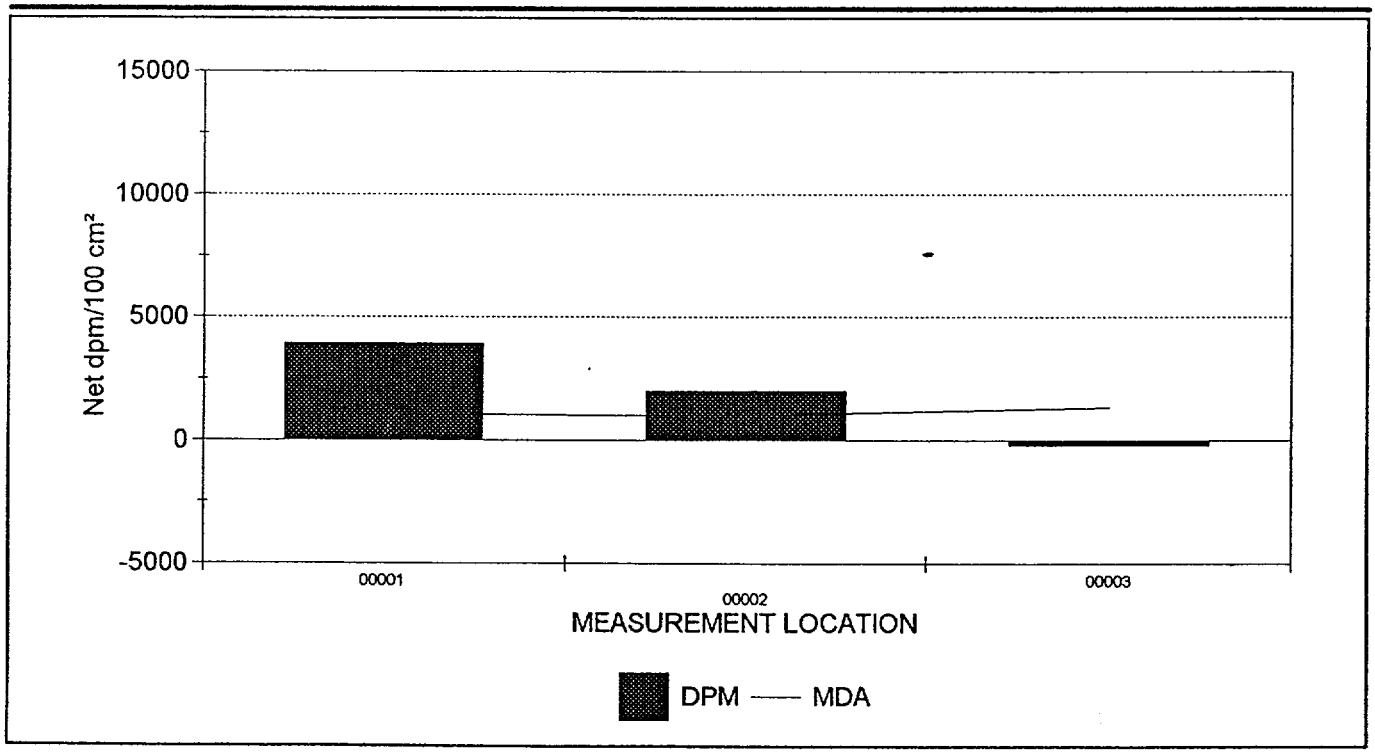
STATISTICAL SUMMARY

	Net dpm/100 cm²
Mean	1,907.0
Maximum	3,924.8
Minimum	-219.1
Standard Deviation	2,074.1
MDA	1,316.4

Samples Reported	3
Samples Prescribed	3

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	2



3 RESULTS ARE GRAPHED

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Direct Measurements For Total Beta Activity

Survey Package : C1300 SYSTEMS

Chemical and Volume Control System

RESULTS LISTING - SORTED BY SURFACE CODE

FILE #	UNIT	SURFACE	MATERIAL	REASON	COUNT TIME	MSRMNT LOCATION	MDA	RESULT
575 (2)	03	T02	B0031	C01	90	00001	1,031.3	***3,924.8***
575 (2)	03	T02	B0031	C01	90	00002	1,016.5	***2,015.4***
575 (2)	03	T02	B0031	C01	90	00003	1,316.4	-219.1

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.
3 results are listed.

Maine Yankee Atomic Power Plant Site Characterization

DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

04/14/98 Direct Measurements For Total Beta Activity

Survey Package : C1300 SYSTEMS

Chemical and Volume Control System

SURVEY		M2350		DETECTOR			PRE	
DATE	FILE #	INST S/N	CAL DUE	MODEL	S/N	CAL DUE	EFF	TECHNICIAN
2/10/98	575 (2)	129430	5/6/98	43-106	PR133886	5/7/98	.22	LCF0451

CALIBRATION DATES VERIFIED AS ACCEPTABLE

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Removable Contamination - Gross Beta Activity

Survey Package C1300 SYSTEMS

Chemical and Volume Control System

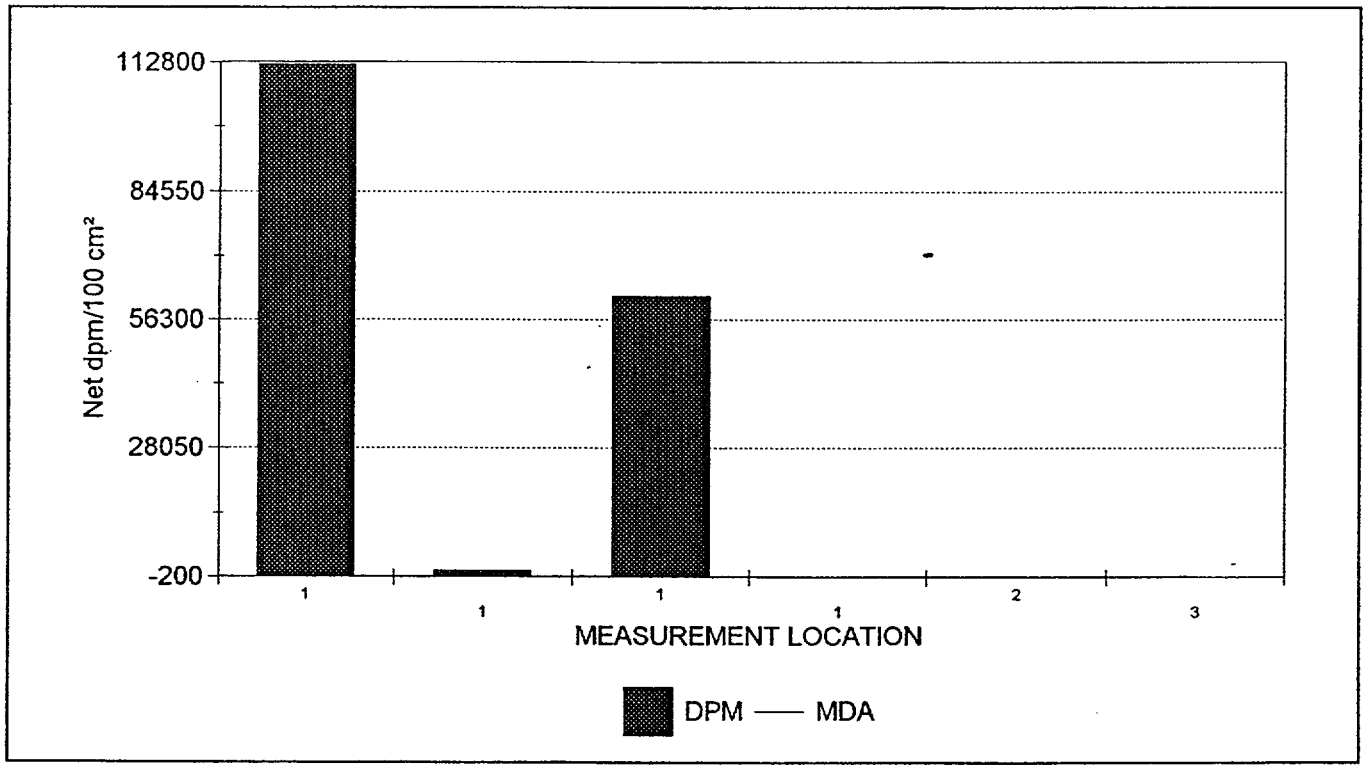
STATISTICAL SUMMARY

	Net dpm/100 cm²
Mean	29,197.4
Maximum	112,369.8
Minimum	0.6
Standard Deviation	47,511.3
MDA	35.4

Samples Reported	6
Samples Prescribed	12

TESTS PERFORMED

MDA <100 net dpm/100 cm²	YES
Results above 100 net dpm/100 cm²	3
Number of results above MDA	3



6 RESULTS ARE GRAPHED

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Removable Contamination - Gross Alpha Activity

Survey Package C1300 SYSTEMS

Chemical and Volume Control System

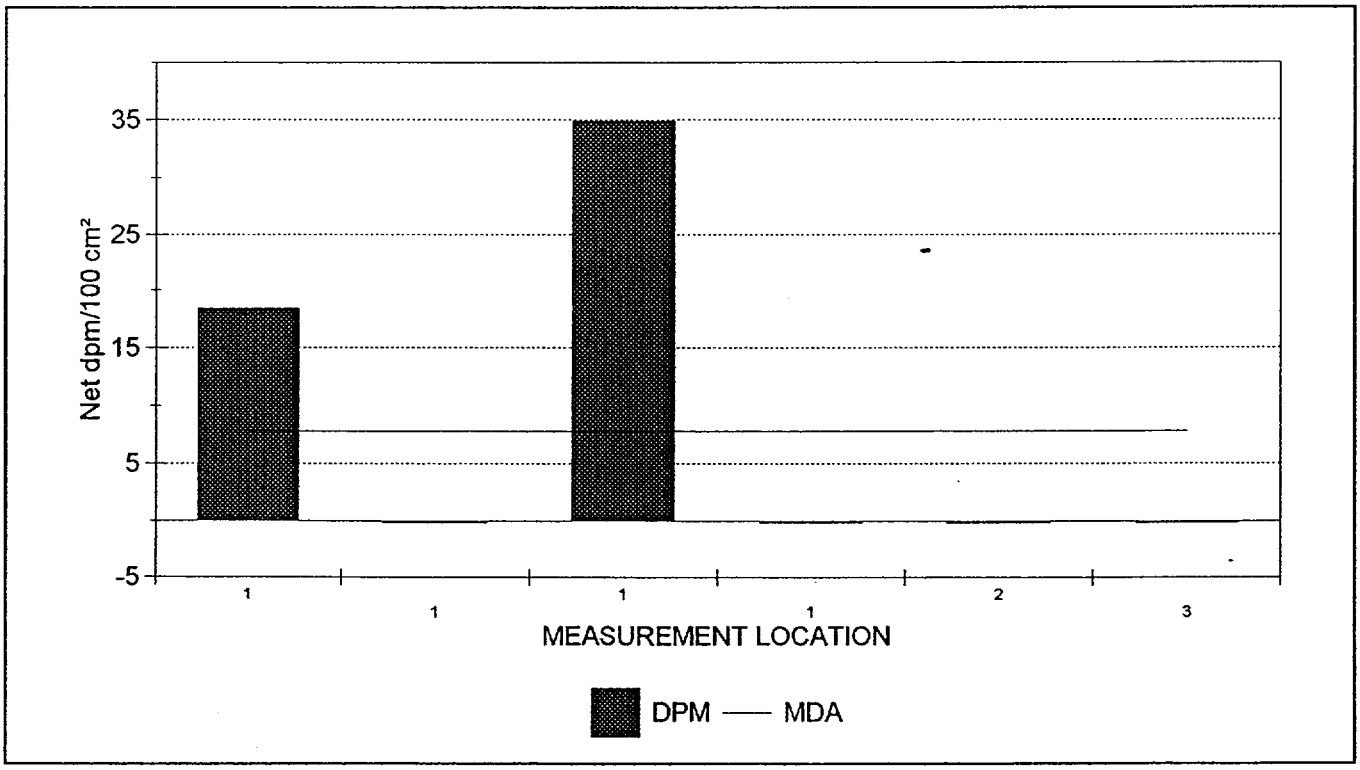
STATISTICAL SUMMARY

	Net dpm/100 cm²
Mean	8.8
Maximum	34.9
Minimum	-0.2
Standard Deviation	14.8
MDA	7.8

Samples Reported	6
Samples Prescribed	12

TESTS PERFORMED

MDA <10 net dpm/100 cm²	YES
Results above 20 net dpm/100 cm²	1
Number of results above MDA	2



6 RESULTS ARE GRAPHED

Maine Yankee Atomic Power Plant Site Characterization

04/14/98 Removable Contamination

Survey Package : C1300 SYSTEMS

Chemical and Volume Control System

RESULTS LISTING - SORTED BY SURFACE CODE

XLS FILE	UNIT	SURFACE	REASON	MSRMNT LOCATION	ALPHA	BETA
SME1E146.XLS	03	T02	C01	3	-0.2	0.6
SME1E146.XLS	03	T02	C01	2	-0.2	12.7
SME1E146.XLS	03	T02	C01	1	-0.2	0.6
SME1E144.XLS	02	V02	C01	1	***34.9***	***61,422.0***
SME1E142.XLS	02	V01	C01	1	-0.2	***1,378.6***
SME1E140.XLS	01	V01	C01	1	18.4	***112,369.8***

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).
6 results are listed.

DATAFILE & ALPHA - BETA COUNTER CALIBRATION SUMMARY

04/14/98

Removable Contamination

Survey Package: C1300 SYSTEMS

Chemical and Volume Control System

SURVEYDATE	XLS FILE	INST ID	S/N	CAL DUE	LAB TECHNICIAN
3/17/98	SME1E140.XLS	1	15632	8/5/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	
3/17/98	SME1E142.XLS	1	15632	8/5/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	
3/17/98	SME1E144.XLS	1	15632	8/5/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	
3/17/98	SME1E146.XLS	1	15632	8/5/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	

04/14/98

Removable Contamination - Tritium Activity

Survey Package : C1300 SYSTEMS

Chemical and Volume Control System

RESULTS LISTING - SORTED BY SURFACE CODE

SAMPLE ID	SAMPLE TYPE	UNIT	SURF	REASN	MSRMNT LOCATION	MDA	TRITIUM ACTIVITY
D45	Hoppes patch	02	V01	C01	00001	38.8	-13.4
D46	Hoppes patch	02	V02	C01	00001	38.7	***171.0***
D65	Hoppes patch	01	V01	C01	00001	138.9	***3,014.3***

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 75 dpm/100 cm²,
Italic values exceed 100 dpm/100 cm².

Maine Yankee Atomic Power Plant Site Characterization

LIQUID SCINTILLATION COUNTER CALIBRATION SUMMARY

04/14/98

Removable Contamination - Tritium Activity

Survey Package : C1300 SYSTEMS

Chemical and Volume Control System

SURVEYDATE	INSTRUMENT	MODEL	S/N	CAL DUE	LAB TECHNICIAN
3/5/98	Packard	2750	416221	6/16/98	LDT
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	
4/6/98	Packard	2750	416221	6/16/98	LDT
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	

Maine Yankee Atomic Power Plant Site Characterization

GAMMA SPECTRAL ANALYSIS RESULTS LISTING

NUMBER OF SAMPLES REPORTED = 3

04/14/98

OUTPUT BATCH SN = 848

Survey Package C1300 SYSTEMS

Chemical and Volume Control System

UNIT : 01 SURFACE : V01 REASON : C01 ANALYSIS TYPE CODE : LAB05

SAMPLE TYPE OR SURFACE SAMPLED: Valve
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYP22	PET00039	1.0	1800	Co-57	< 158.0	158.0	0.0
				Co-60	78400.00	352.0	3,430.0
				Cs-134	< 369.0	369.0	0.0
				Cs-137	< 461.0	461.0	0.0
				K-40	< 1240.0	1,240.0	0.0
				Mn-54	< 552.0	552.0	0.0
				Sb-125	1210.00	925.0	487.0

UNIT : 02 SURFACE : V01 REASON : C01 ANALYSIS TYPE CODE : LAB05

SAMPLE TYPE OR SURFACE SAMPLED: Valve
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYP015	PET00011	1.0	1200	Co-57	< 43.7	43.7	0.0
				Co-60	1010.00	76.1	127.0
				Cs-134	< 93.4	93.4	0.0
				Cs-137	< 89.8	89.8	0.0
				K-40	< 761.0	761.0	0.0
				Mn-54	< 102.0	102.0	0.0

Survey Package C1300 SYSTEMS

Chemical and Volume Control System

UNIT : 02 SURFACE : V02 REASON : C01 ANALYSIS TYPE CODE : LAB05

SAMPLE TYPE OR SURFACE SAMPLED: Valve
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYP016	PET00014	1.0	1200	Co-57	< 126.0	126.0	0.0
				Co-60	26600.00	193.0	1,250.0
				Cs-134	< 353.0	353.0	0.0
				Cs-137	1030.00	279.0	212.0
				K-40	< 851.0	851.0	0.0
				Mn-54	< 377.0	377.0	0.0

04/14/98

CHARACTERIZATION SUMMARY

SURVEY PACKAGE NUMBER :C1400

SYSTEMS

PACKAGE DESCRIPTION

Liquid Waste Disposal System

SURVEY AREA DESCRIPTION

Liquid Waste Disposal System

GENERAL HISTORICAL INFORMATION (Operational history, etc.)

The Liquid Waste Disposal System provided holdup of contaminated liquid wastes for radioactive decay, reduced radioactivity levels of liquid wastes for controlled releases to the environment and concentrated radioactive liquid wastes for processing by the Waste Solidification System.

SUMMARY OF CHARACTERIZATION ACTIVITIES

Survey units were established for the system by building and elevation as shown in the following Summary of Survey Units. The Surface(s) listing indicates the component name, survey surface code and, where applicable, the Maine Yankee system component number.

A total of 73 exposure rate measurements were collected at 10 component locations.

No beta scan survey or direct measurements for total beta activity were performed.

Smear samples were collected from component interior surfaces to analyze for removable alpha and beta activity at 3 survey measurement locations indicated on the results listing report.

Smear samples were collected from component interior surfaces to analyze for removable tritium activity at 3 survey measurement locations indicated on the results listing report.

Smear samples were collected from component interior surfaces to analyze for removable plant-derived radionuclide activity by gamma spectroscopy at 3 survey measurement locations indicated on 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 The average and maximum exposure rate measurement results were 91.7 mR/hr and 935.1 mR/hr, respectively. The ratio of the 15 cm distance measurements to the 1 meter distance measurements ranged from 0.6 to 19.9.

o There were 3 measurements for removable beta activity above MDA (35.4 dpm/100cm^2). The maximum measurement result was 1,402 dpm/100cm^2.

o There were no measurements for removable alpha activity above MDA (7.8 dpm/100cm^2).

o There was 1 measurement for removable tritium activity above MDA (38.6 dpm/100cm^2). The maximum measurement result was 3,558 dpm/100cm^2.

o Of the 3 samples analyzed by gamma spectroscopy, all samples indicated plant-derived radionuclide activity above MDA. The analysis of the samples indicated the presence of Co-60, Cs-137 and Sb-125.

REFERENCES (Documents, Interviews)

Maine Yankee Drawing 1150 - FM - 99 A, B

Operator System Training Manual, Chapter 38

SUMMARY OF SURVEY UNIT(S)

04/14/98 OUTPUT BATCH SN = 849

PACKAGE C1400 SYSTEMS

Liquid Waste Disposal System

UNIT(S)	SURFACE(S)
01 - 11' Primary Auxiliary Building Components	U01 (Waste evaporator bottoms pump P-65) U02 (Test tank pumps P-23 A& B) V01 (Valve WD-299) V02 (Valve WD-34)
02 - 21' Primary Auxiliary Building Components	H01 (Waste evaporator reboiler E-33) M01 (Waste disposal evaporator EV-2)
03 - 36' Primary Auxiliary Building Components	T01 (Waste evaporator distillate accumulator TK-61) T02 (Waste resin hold up tank TK-85) V01 (Valve WD-24)
04 - RCA Room Components	S01 (Prefilter FL-149) S02 (Post filter FL-150) T01 (Duratek tank I-15) T02 (Duratek tank I-12) T03 (Duratek tank I-14) U01 (Caustic feed pump P-121)

REASON(S) CHARACTERIZATION SURVEY (C01)

MATERIALS

MAT'L CODE	MATERIAL DESCRIPTION	BETA BKGD (dpm/100 cm²)
G0031	METAL - BARE (GAMMA)	0.0

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Exposure Rate Measurements

Survey Package C1400 SYSTEMS

Liquid Waste Disposal System

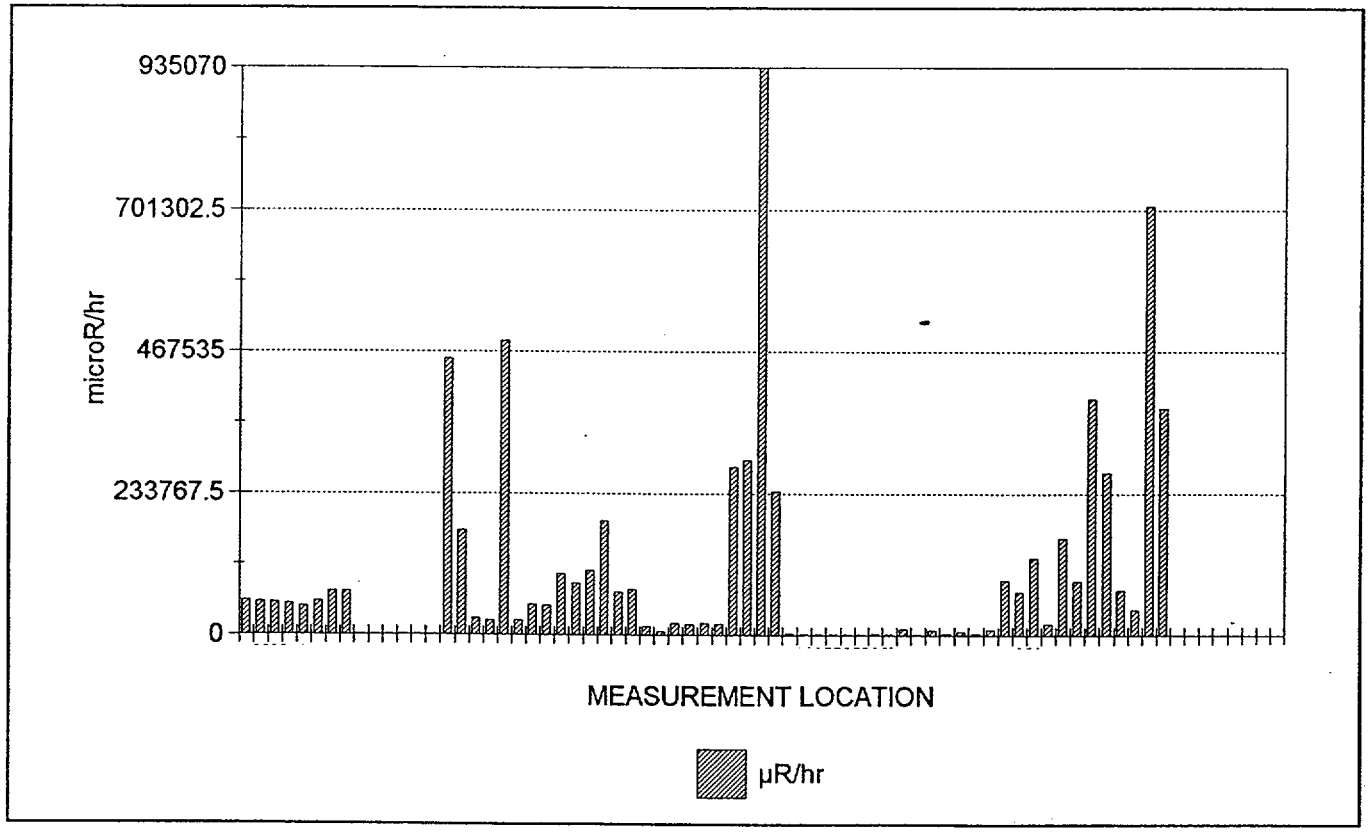
STATISTICAL SUMMARY

	µR/hr
Mean	91,688.9
Maximum	935,067.9
Minimum	16.3
Standard Deviation	166,593.2

Samples Reported	73
Samples Prescribed	73

TESTS PERFORMED

Samples reported satisfy samples prescribed	YES



73 RESULTS ARE GRAPHED

04/14/98

Exposure Rate Measurements

Survey Package : C1400 SYSTEMS

Liquid Waste Disposal System

RESULTS LISTING - SORTED BY SURFACE CODE

FILE #	UNIT	SURFACE	MATERIAL	REASON	COUNT TIME	MSRMNT LOCATION	RESULT
561 (2)	01	U01	G0031	C01	0.00	00001	***55439.4***
561 (2)	01	U01	G0031	C01	0.00	00002	***54207.1***
561 (2)	01	U01	G0031	C01	0.00	00003	***52537.5***
561 (2)	01	U01	G0031	C01	0.00	00004	***50271.0***
561 (2)	01	U01	G0031	C01	0.00	00005	***45860.6***
561 (2)	01	U01	G0031	C01	0.00	00006	***54522.4***
561 (2)	01	U01	G0031	C01	0.00	00007	***71295.1***
561 (2)	01	U01	G0031	C01	0.00	00008	***71322.6***
562 (2)	01	U02	G0031	C01	60.00	00001	***1099.2***
562 (2)	01	U02	G0031	C01	60.00	00002	***1191.5***
562 (2)	01	U02	G0031	C01	60.00	00003	***1023.5***
562 (2)	01	U02	G0031	C01	60.00	00004	***1338.5***
562 (2)	01	U02	G0031	C01	60.00	00005	***1158.7***
562 (2)	01	U02	G0031	C01	60.00	00007	***1376.2***
561 (2)	02	H01	G0031	C01	0.00	00001	***455817.5***
561 (2)	02	H01	G0031	C01	0.00	00002	***173078.9***
561 (2)	02	H01	G0031	C01	0.00	00003	***27185.3***
561 (2)	02	H01	G0031	C01	0.00	00004	***24351.9***
561 (2)	02	H01	G0031	C01	0.00	00007	***484416.3***
561 (2)	02	H01	G0031	C01	0.00	00008	***24351.9***
561 (2)	02	M01	G0031	C01	0.00	00001	***49221.2***
561 (2)	02	M01	G0031	C01	0.00	00002	***48583.4***
561 (2)	02	M01	G0031	C01	0.00	00003	***100956.3***
561 (2)	02	M01	G0031	C01	0.00	00004	***85104.9***
561 (2)	02	M01	G0031	C01	0.00	00005	***106976.4***
561 (2)	02	M01	G0031	C01	0.00	00006	189128.7
561 (2)	02	M01	G0031	C01	0.00	00007	***71071.8***
561 (2)	02	M01	G0031	C01	0.00	00008	***75325.0***
561 (2)	03	T01	G0031	C01	0.00	00001	***14300.9***
561 (2)	03	T01	G0031	C01	0.00	00002	***6702.0***
561 (2)	03	T01	G0031	C01	0.00	00003	***20185.4***
561 (2)	03	T01	G0031	C01	0.00	00004	***18373.4***
561 (2)	03	T01	G0031	C01	0.00	00005	***20278.8***
561 (2)	03	T01	G0031	C01	0.00	00007	***18694.9***
582 (2)	03	T02	G0031	C01	0.00	00001	***278711.5***
582 (2)	03	T02	G0031	C01	0.00	00003	***290371.1***
582 (2)	03	T02	G0031	C01	0.00	00005	***935067.9***
582 (2)	03	T02	G0031	C01	0.00	00007	***238772.7***
582 (2)	04	S01	G0031	C01	0.00	00001	***3568.6***
582 (2)	04	S01	G0031	C01	0.00	00002	***2497.9***

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.

Survey Package : C1400 SYSTEMS

Liquid Waste Disposal System

RESULTS LISTING - SORTED BY SURFACE CODE

FILE #	UNIT	SURFACE	MATERIAL	REASON	COUNT TIME	MSRMNT LOCATION	RESULT
582 (2)	04	S01	G0031	C01	0.00	00003	***1850.6***
582 (2)	04	S01	G0031	C01	0.00	00004	***2041.7***
582 (2)	04	S01	G0031	C01	0.00	00005	***1809.9***
582 (2)	04	S01	G0031	C01	0.00	00006	***1912.9***
582 (2)	04	S01	G0031	C01	0.00	00007	***2710.9***
582 (2)	04	S01	G0031	C01	0.00	00008	***2135.3***
582 (2)	04	S02	G0031	C01	0.00	00001	***10076.0***
582 (2)	04	S02	G0031	C01	0.00	00002	***2270.4***
582 (2)	04	S02	G0031	C01	0.00	00003	***8306.1***
582 (2)	04	S02	G0031	C01	0.00	00004	***2885.8***
582 (2)	04	S02	G0031	C01	0.00	00005	***5866.4***
582 (2)	04	S02	G0031	C01	0.00	00006	***2658.2***
582 (2)	04	S02	G0031	C01	0.00	00007	***9235.3***
582 (2)	04	T01	G0031	C01	0.00	00001	***91054.7***
582 (2)	04	T01	G0031	C01	0.00	00003	***71079.6***
582 (2)	04	T01	G0031	C01	0.00	00005	***127626.1***
582 (2)	04	T01	G0031	C01	0.00	00007	***18472.1***
582 (2)	04	T02	G0031	C01	0.00	00001	***159845.9***
582 (2)	04	T02	G0031	C01	0.00	00003	***89252.6***
582 (2)	04	T02	G0031	C01	0.00	00005	***389490.6***
582 (2)	04	T02	G0031	C01	0.00	00007	***269033.6***
582 (2)	04	T03	G0031	C01	0.00	00001	***73990.9***
582 (2)	04	T03	G0031	C01	0.00	00003	***42175.4***
582 (2)	04	T03	G0031	C01	0.00	00005	***707634.6***
582 (2)	04	T03	G0031	C01	0.00	00007	***373997.5***
580 (2)	04	U01	G0031	C01	60.00	00001	18.5
580 (2)	04	U01	G0031	C01	60.00	00002	***18.3***
580 (2)	04	U01	G0031	C01	60.00	00003	***19.1***
580 (2)	04	U01	G0031	C01	60.00	00004	***18.8***
580 (2)	04	U01	G0031	C01	60.00	00005	***16.4***
580 (2)	04	U01	G0031	C01	60.00	00006	***16.7***
580 (2)	04	U01	G0031	C01	60.00	00007	***17.5***
580 (2)	04	U01	G0031	C01	60.00	00008	***16.3***

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.
73 results are listed.

Maine Yankee Atomic Power Plant Site Characterization

DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

04/14/98

Exposure Rate Measurements

Survey Package : C1400 SYSTEMS

Liquid Waste Disposal System

SURVEY DATE	FILE #	M2350		DETECTOR			TECHNICIAN
		INST S/N	CAL DUE	MODEL	S/N	CAL DUE	
2/6/98	561 (2)	126185	3/20/98	44-38	075082	7/23/98	KFS5185
							CALIBRATION DATES VERIFIED AS ACCEPTABLE
2/6/98	562 (2)	126182	3/22/98	44-2	128338	4/19/98	MAP5535
							CALIBRATION DATES VERIFIED AS ACCEPTABLE
2/10/98	580 (2)	126197	3/22/98	44-2	PR126922	4/19/98	MAP5535
							CALIBRATION DATES VERIFIED AS ACCEPTABLE
2/10/98	582 (2)	095348	3/20/98	44-38	088919	7/23/98	JFM0682
							CALIBRATION DATES VERIFIED AS ACCEPTABLE

DURATEK

Maine Yankee Atomic Power Plant Site Characterization
Exposure Rate Distance Ratios

SURVEY PACKAGE C01400

Package Number	Component Number	Component Description	Direction	15 cm mR/hr	1 meter mR/hr	Ratio of 15 cm to 1 meter
C1400	01U01	Waste evaporator bottoms pump P-65	North	55.4	54.2	1.0
			East	52.5	50.3	1.0
			South	45.9	54.5	0.8
			West	71.3	71.3	1.0
C1400	01U02	Test tank pumps P-23 A& B	North	1.1	1.2	0.9
			East	1.0	1.3	0.8
			South	1.2	*	
			West	1.4	*	
C1400	02H01	Waste evaporator reboiler E-33	North	455.8	173.1	2.6
			East	27.2	24.4	1.1
			West	484.4	24.4	19.9
C1400	02M01	Waste disposal evaporator EV-2	North	49.2	48.6	1.0
			East	101.0	85.1	1.2
			South	107.0	189.1	0.6
			West	71.1	75.3	0.9
C1400	03T01	Waste evaporator distillate accumulator TK-61	North	14.3	6.7	2.1
			East	20.2	18.4	1.1
			South	20.3	*	
			West	18.7	*	
C1400	03T02	Waste resin hold up tank TK-85	North	278.7	*	
			East	290.4	*	
			South	935.1	*	
			West	238.8	*	
C1400	04S01	Prefilter FL-149	North	3.6	2.5	1.4
			East	1.9	2.0	0.9
			South	1.8	1.9	0.9
			West	2.7	2.1	1.3
C1400	04S02	Post filter FL-150	North	10.1	2.3	4.4
			East	8.3	2.9	2.9
			South	5.9	2.7	2.2
			West	9.2	*	
C1400	04T01	Duratek tank I-15	North	91.1	*	
			East	71.1	*	
			South	127.6	*	
			West	18.5	*	
C1400	04T02	Duratek tank I-12	North	159.8	*	
			East	89.3	*	
			South	389.5	*	
			West	269.0	*	

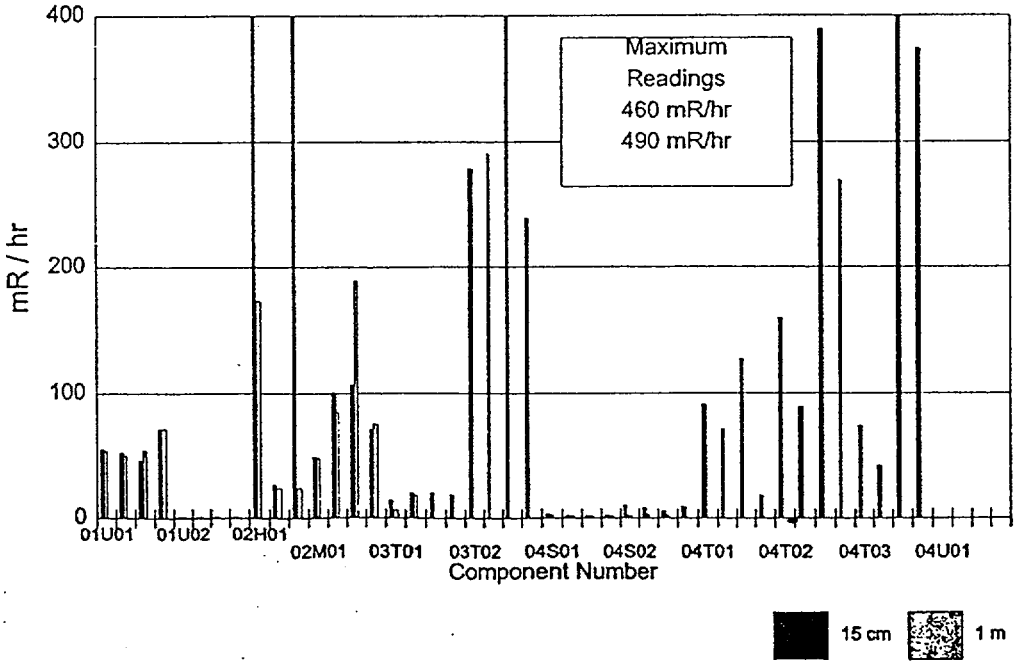
Maine Yankee Atomic Power Plant Site Characterization
Exposure Rate Distance Ratios

SURVEY PACKAGE C01400

C1400	04T03	Duratek tank I-14	North	74.0	*	
			East	42.2	*	
			South	707.6	*	
			West	374.0	*	
C1400	04U01	Caustic feed pump P-121	North	0.0	0.0	1.0
			East	0.0	0.0	1.0
			South	0.0	0.0	1.0
			West	0.0	0.0	1.1

* Measurement not collected due to interfering surface.

Exposure Rates - 15 cm and 1 meter



DURATEK

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Removable Contamination - Gross Beta Activity

Survey Package C1400 SYSTEMS

Liquid Waste Disposal System

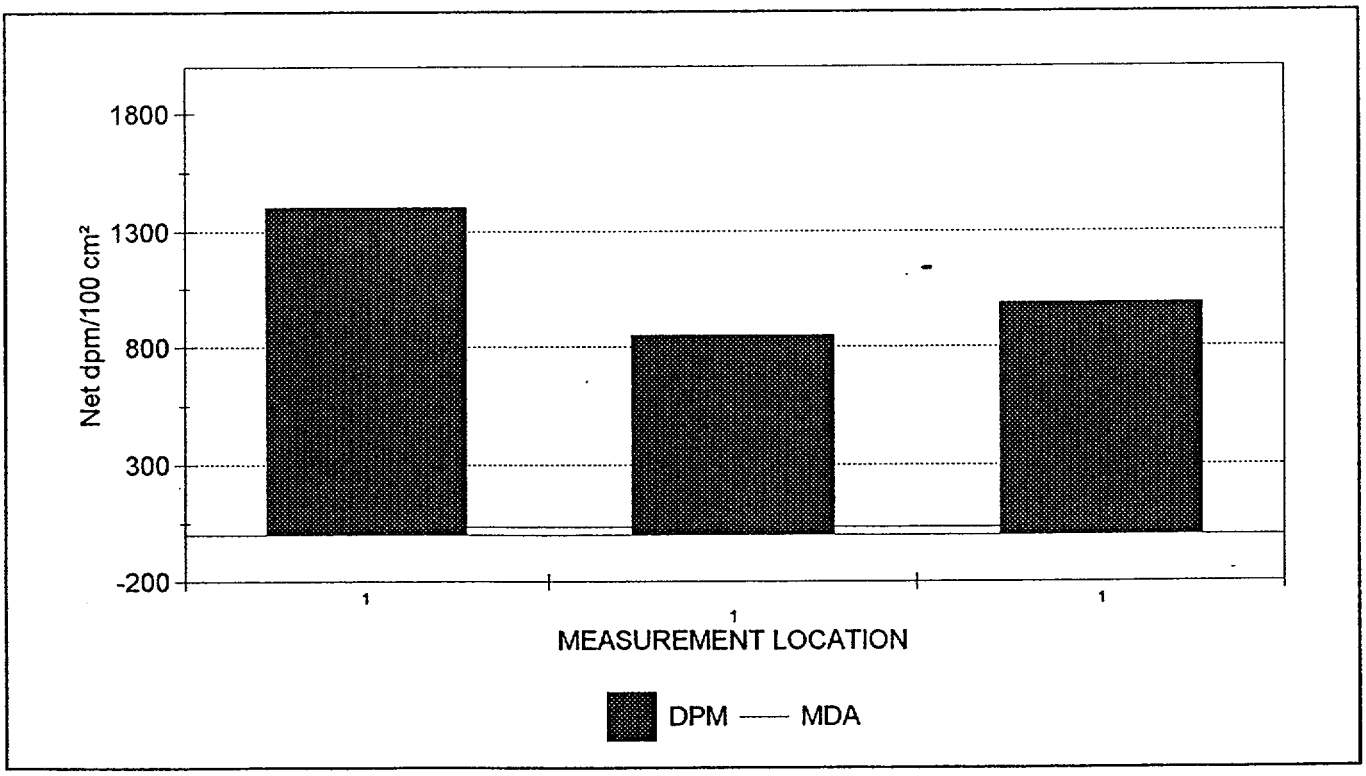
STATISTICAL SUMMARY

	Net dpm/100 cm²
Mean	1,078.4
Maximum	1,402.7
Minimum	846.7
Standard Deviation	289.4
MDA	35.4

Samples Reported	3
Samples Prescribed	9

TESTS PERFORMED

MDA <100 net dpm/100 cm²	YES
Results above 100 net dpm/100 cm²	3
Number of results above MDA	3



3 RESULTS ARE GRAPHED

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Removable Contamination - Gross Alpha Activity

Survey Package C1400 SYSTEMS

Liquid Waste Disposal System

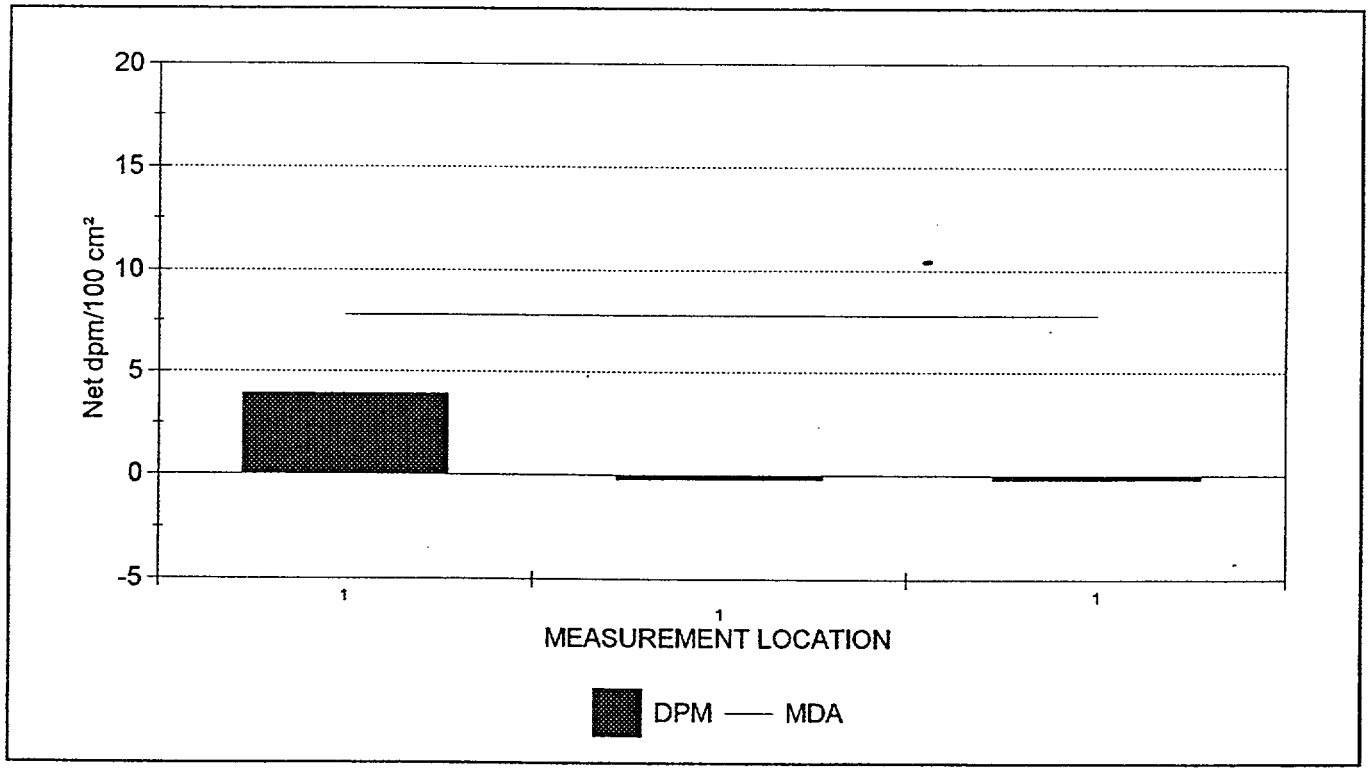
STATISTICAL SUMMARY

	Net dpm/100 cm²
Mean	1.2
Maximum	3.9
Minimum	-0.2
Standard Deviation	2.4
MDA	7.8

Samples Reported	3
Samples Prescribed	9

TESTS PERFORMED

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



3 RESULTS ARE GRAPHED

04/14/98

Removable Contamination

Survey Package : C1400 SYSTEMS

Liquid Waste Disposal System

RESULTS LISTING - SORTED BY SURFACE CODE

XLS FILE	UNIT	SURFACE	REASON	MSRMNT LOCATION	ALPHA	BETA
SME1E152.XLS	03	V01	C01	1	-0.2	***985.7***
SME1E150.XLS	01	V02	C01	1	-0.2	***846.7***
SME1E148.XLS	01	V01	C01	1	3.9	***1,402.7***

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).
3 results are listed.

Maine Yankee Atomic Power Plant Site Characterization

DATAFILE & ALPHA - BETA COUNTER CALIBRATION SUMMARY

04/14/98

Removable Contamination

Survey Package: C1400 SYSTEMS

Liquid Waste Disposal System

SURVEYDATE	XLS FILE	INST ID	S/N	CAL DUE	LAB TECHNICIAN
3/17/98	SME1E148.XLS	1	15632	8/5/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	
3/17/98	SME1E150.XLS	1	15632	8/5/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	
3/17/98	SME1E152.XLS	1	15632	8/5/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	

Maine Yankee Atomic Power Plant Site Characterization

04/14/98 Removable Contamination - Tritium Activity

Survey Package: C1400 SYSTEMS

Liquid Waste Disposal System

RESULTS LISTING - SORTED BY SURFACE CODE

SAMPLE ID	SAMPLE TYPE	UNIT	SURF	REASN	MSRMNT LOCATION	MDA	TRITIUM ACTIVITY
D47	Hoppes patch	01	V01	C01	00001	38.7	23.6
D48	Hoppes patch	01	V02	C01	00001	38.6	-19.4
D49	Hoppes patch	03	V01	C01	00001	38.6	***3,557.5***

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 75 dpm/100 cm²,
Italic values exceed 100 dpm/100 cm².

Maine Yankee Atomic Power Plant Site Characterization

LIQUID SCINTILLATION COUNTER CALIBRATION SUMMARY

04/14/98

Removable Contamination - Tritium Activity

Survey Package : C1400 SYSTEMS

Liquid Waste Disposal System

SURVEYDATE	INSTRUMENT	MODEL	S/N	CAL DUE	LAB TECHNICIAN
3/5/98	Packard	2750	416221	6/16/98	LDT
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	

Maine Yankee Atomic Power Plant Site Characterization

GAMMA SPECTRAL ANALYSIS RESULTS LISTING

NUMBER OF SAMPLES REPORTED = 3

04/14/98 OUTPUT BATCH SN = 849

Survey Package C1400 SYSTEMS

Liquid Waste Disposal System

UNIT : 01 SURFACE : V01 REASON : C01 ANALYSIS TYPE CODE : LAB05

SAMPLE TYPE OR SURFACE SAMPLED: Valve
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYP24	PET00040	1.0	1800	Co-57	< 54.6	54.6	0.0
				Co-60	4240.00	90.6	254.0
				Cs-134	< 129.0	129.0	0.0
				Cs-137	223.00	83.6	66.9
				K-40	< 783.0	783.0	0.0
				Mn-54	< 155.0	155.0	0.0
				Sb-125	679.00	217.0	158.0

UNIT : 01 SURFACE : V02 REASON : C01 ANALYSIS TYPE CODE : LAB05

SAMPLE TYPE OR SURFACE SAMPLED: Valve
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYP018	PET00015	1.0	1200	Co-57	< 48.8	48.8	0.0
				Co-60	1370.00	15.2	134.0
				Cs-134	< 93.4	93.4	0.0
				Cs-137	< 120.0	120.0	0.0
				K-40	< 526.0	526.0	0.0
				Mn-54	< 123.0	123.0	0.0

Survey Package C1400 SYSTEMS

Liquid Waste Disposal System

UNIT : 03 SURFACE : V01 REASON : C01 ANALYSIS TYPE CODE : LAB05

SAMPLE TYPE OR SURFACE SAMPLED: Valve
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYP017	PET00012	1.0	1200	Co-57	< 39.5	39.5	0.0
				Co-60	1240.00	86.9	141.0
				Cs-134	< 85.7	85.7	0.0
				Cs-137	< 103.0	103.0	0.0
				K-40	< 927.0	927.0	0.0
				Mn-54	< 83.3	83.3	0.0

04/14/98

CHARACTERIZATION SUMMARY

SURVEY PACKAGE NUMBER :C1500 SYSTEMS

PACKAGE DESCRIPTION Primary Auxiliary Building Drains

SURVEY AREA DESCRIPTION

Auxiliary Building Drains

GENERAL HISTORICAL INFORMATION (Operational history, etc.)

The Auxiliary Building Drains direct potentially radioactive liquid wastes to the Primary Auxiliary Building (PAB) sump. Drains consist of PAB floor and equipment drains. Water collected in the PAB sump is pumped to the Aerated Drain tanks for processing by the Liquid Waste Disposal System.

SUMMARY OF CHARACTERIZATION ACTIVITIES

Survey units were established for the system by building and elevation as shown in the following Summary of Survey Units. The Surface(s) listing indicates the component name, survey surface code and, where applicable, the Maine Yankee system component number.

A total of 48 exposure rate measurements were collected at 6 component locations.

Beta scan surveys and direct measurements for total beta activity were not prescribed for this survey package.

Smear samples were collected from component interior surfaces to analyze for removable alpha and beta activity at 6 survey measurement locations indicated on the results listing report.

Smear samples were collected from component interior surfaces to analyze for removable tritium activity at 6 survey measurement locations indicated on the results listing report.

Smear samples were collected from component interior surfaces to analyze for removable plant-derived radionuclide activity by gamma spectroscopy at 6 survey measurement locations indicated on 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 The average and maximum exposure rate measurement results were 2.1 mR/hr and 10.3 mR/hr, respectively. The ratio of the 15 cm distance measurements to the 1 meter distance measurements ranged from 0.7 to 2.6.

o There were 6 measurements for removable beta activity above MDA (35.4 dpm/100cm^2) and 5 measurements above 100 dpm/100cm^2. The maximum measurement result was 6,001 dpm/100cm^2.

o There were no measurements for removable alpha activity above MDA (7.8 dpm/100cm^2).

o There was 1 measurement for removable tritium activity above MDA (39 dpm/100cm^2). The maximum measurement result was 837 dpm/100cm^2.

o Of the 6 samples analyzed by gamma spectroscopy, 3 samples indicated plant-derived radionuclide activity above MDA. The analysis of the samples indicated the presence of Co-60, Cs-134 and Cs-137.

REFERENCES (Documents, Interviews)

Maine Yankee Drawing 1150 - FB - 11 A, B

SUMMARY OF SURVEY UNIT(S)

04/14/98 OUTPUT BATCH SN = 835

PACKAGE C1500 SYSTEMS

Primary Auxiliary Building Drains

UNIT(S)	SURFACE(S)
01 - 11' and 21' Primary Auxiliary Building Components	D01 (Facilities sink drain piping (survey from 11' elevation, smear through floor drain cover 21' elevation)) D02 (Floor drain piping from P-14A cubicle (survey from 11' elevation, smear through floor drain cover 21' elevation))
02 - 21' and 36' Primary Auxiliary Building Components	D01 (Floor drain piping from decay tank cubicle (survey from 21' elevation, smear through floor drain cover 36' elevation)) D02 (Floor drain piping from decay tank cubicle (survey from 21' elevation, smear through floor drain cover 36' elevation)) D03 (Floor drain piping near TK-2 (survey from 21' elevation, smear through floor drain cover 36' elevation)) D04 (Floor drain piping from VCT cubicle (survey from 21' elevation, smear through floor drain cover 36' elevation))

REASON(S) CHARACTERIZATION SURVEY (C01)

MATERIALS

MAT'L CODE	MATERIAL DESCRIPTION	BETA BKGD (dpm/100 cm²)
G0031	METAL - BARE (GAMMA)	0.0

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Exposure Rate Measurements

Survey Package C1500 SYSTEMS

Primary Auxiliary Building Drains

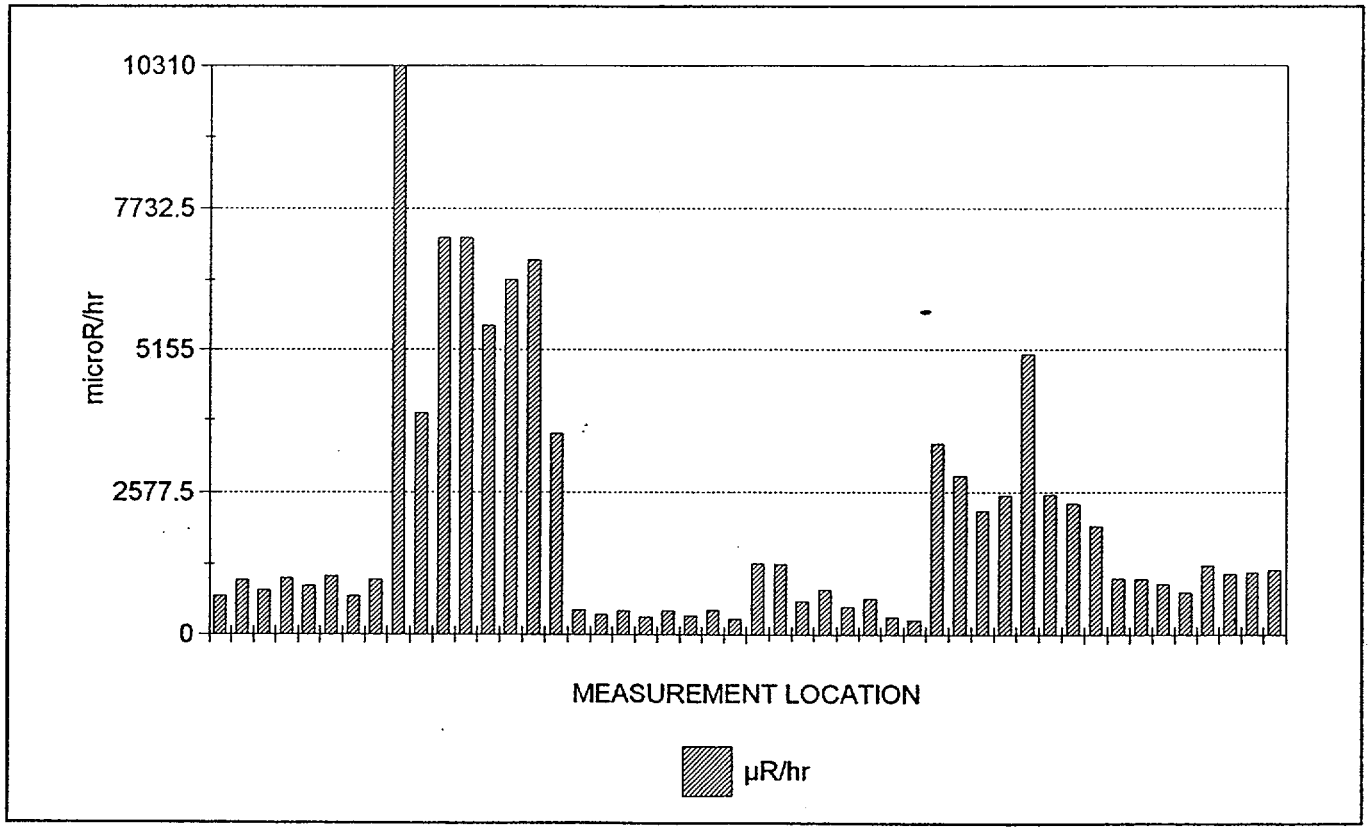
STATISTICAL SUMMARY

	µR/hr
Mean	2,059.4
Maximum	10,305.7
Minimum	262.6
Standard Deviation	2,308.7

Samples Reported	48
Samples Prescribed	48

TESTS PERFORMED

Samples reported satisfy samples prescribed	YES



48 RESULTS ARE GRAPHED

Maine Yankee Atomic Power Plant Site Characterization

04/14/98 Exposure Rate Measurements

Survey Package : C1500 SYSTEMS

Primary Auxiliary Building Drains

RESULTS LISTING - SORTED BY SURFACE CODE

FILE #	UNIT	SURFACE	MATERIAL	REASON	COUNT TIME	MSRMNT LOCATION	RESULT
571 (2)	01	D01	G0031	C01	60.00	00001	***706.9***
571 (2)	01	D01	G0031	C01	60.00	00002	***999.5***
571 (2)	01	D01	G0031	C01	60.00	00003	***809.2***
571 (2)	01	D01	G0031	C01	60.00	00004	***1040.0***
571 (2)	01	D01	G0031	C01	60.00	00005	***893.6***
571 (2)	01	D01	G0031	C01	60.00	00006	***1071.4***
571 (2)	01	D01	G0031	C01	60.00	00007	***706.3***
571 (2)	01	D01	G0031	C01	60.00	00008	***1008.4***
572 (2)	01	D02	G0031	C01	0.00	00001	***10305.7***
572 (2)	01	D02	G0031	C01	0.00	00002	***3991.8***
572 (2)	01	D02	G0031	C01	0.00	00003	***7210.4***
572 (2)	01	D02	G0031	C01	0.00	00004	***7210.4***
572 (2)	01	D02	G0031	C01	0.00	00005	***5602.0***
572 (2)	01	D02	G0031	C01	0.00	00006	***6454.1***
572 (2)	01	D02	G0031	C01	0.00	00007	***6805.5***
572 (2)	01	D02	G0031	C01	0.00	00008	***3626.4***
571 (2)	02	D01	G0031	C01	60.00	00001	***449.5***
571 (2)	02	D01	G0031	C01	60.00	00002	***371.6***
571 (2)	02	D01	G0031	C01	60.00	00003	***436.4***
571 (2)	02	D01	G0031	C01	60.00	00004	***323.9***
571 (2)	02	D01	G0031	C01	60.00	00005	***440.0***
571 (2)	02	D01	G0031	C01	60.00	00006	***346.4***
571 (2)	02	D01	G0031	C01	60.00	00007	***452.9***
571 (2)	02	D01	G0031	C01	60.00	00008	***289.6***

REMAINING RESULTS PRINTED ON NEXT PAGE

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.

Survey Package : C1500 SYSTEMS

Primary Auxiliary Building Drains

RESULTS LISTING - SORTED BY SURFACE CODE

FILE #	UNIT	SURFACE	MATERIAL	REASON	COUNT TIME	MSRMNT LOCATION	RESULT
565 (2)	02	D02	G0031	C01	0.00	00001	***1298.5***
565 (2)	02	D02	G0031	C01	0.00	00002	***1294.6***
571 (2)	02	D02	G0031	C01	60.00	00003	***611.2***
571 (2)	02	D02	G0031	C01	60.00	00004	***822.3***
571 (2)	02	D02	G0031	C01	60.00	00005	***509.3***
571 (2)	02	D02	G0031	C01	60.00	00006	***667.8***
571 (2)	02	D02	G0031	C01	60.00	00007	***324.0***
571 (2)	02	D02	G0031	C01	60.00	00008	***262.6***
565 (2)	02	D03	G0031	C01	0.00	00001	***3442.5***
565 (2)	02	D03	G0031	C01	0.00	00002	***2868.6***
565 (2)	02	D03	G0031	C01	0.00	00003	***2247.8***
565 (2)	02	D03	G0031	C01	0.00	00004	***2526.4***
565 (2)	02	D03	G0031	C01	0.00	00005	***5063.8***
565 (2)	02	D03	G0031	C01	0.00	00006	***2529.7***
565 (2)	02	D03	G0031	C01	0.00	00007	***2368.1***
565 (2)	02	D03	G0031	C01	0.00	00008	***1980.6***
565 (2)	02	D04	G0031	C01	0.00	00001	***1029.8***
565 (2)	02	D04	G0031	C01	0.00	00002	***1026.9***
572 (2)	02	D04	G0031	C01	0.00	00003	***932.1***
572 (2)	02	D04	G0031	C01	0.00	00004	***779.2***
565 (2)	02	D04	G0031	C01	0.00	00005	***1270.8***
565 (2)	02	D04	G0031	C01	0.00	00006	***1117.3***
565 (2)	02	D04	G0031	C01	0.00	00007	***1141.0***
565 (2)	02	D04	G0031	C01	0.00	00008	***1186.5***

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.
48 results are listed.

DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

04/14/98

Exposure Rate Measurements

Survey Package : C1500 SYSTEMS

Primary Auxiliary Building Drains

SURVEY		M2350		DETECTOR			
DATE	FILE #	INST S/N	CAL DUE	MODEL	S/N	CAL DUE	TECHNICIAN
2/6/98	565 (2)	095348	3/20/98	44-38	088919	7/23/98	MAP5535
						CALIBRATION DATES VERIFIED AS ACCEPTABLE	
2/9/98	571 (2)	126197	3/22/98	44-2	PR126922	4/19/98	JFM0682
						CALIBRATION DATES VERIFIED AS ACCEPTABLE	
2/9/98	572 (2)	095348	3/20/98	44-38	088919	7/23/98	JFM0682
						CALIBRATION DATES VERIFIED AS ACCEPTABLE	

Maine Yankee Atomic Power Plant Site Characterization
Exposure Rate Distance Ratios

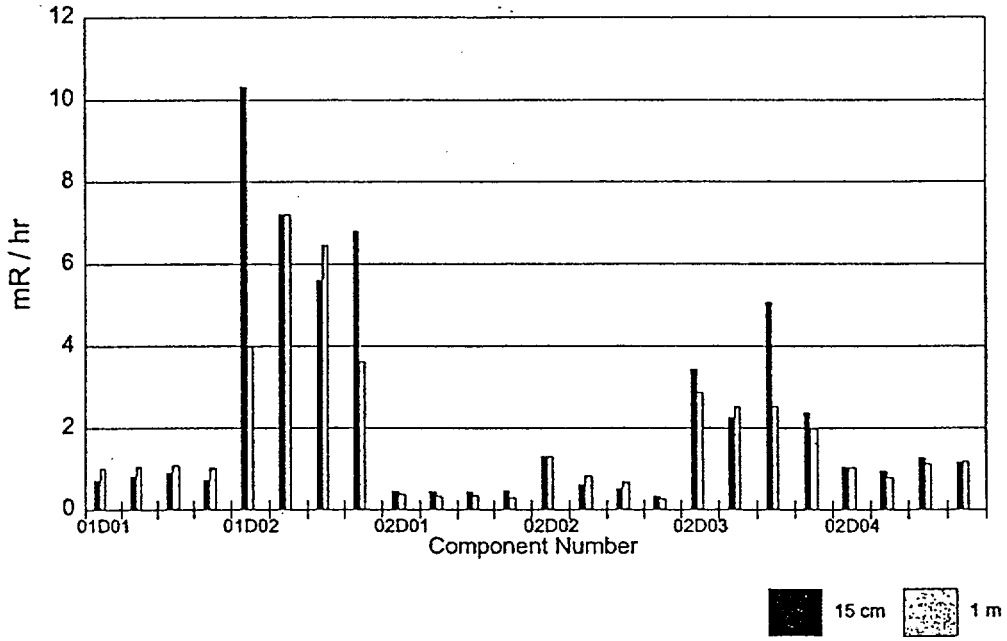
SURVEY PACKAGE C01500

Package Number	Component Number	Component Description	Direction	15 cm mR/hr	1 meter mR/hr	Ratio of 15 cm to 1 meter
C1500	01D01	Facilities sink drain piping (survey from 11' elevation, smear through floor drain cover 21' elevation)	North	0.7	1.0	0.7
			East	0.8	1.0	0.8
			South	0.9	1.1	0.8
			West	0.7	1.0	0.7
C1500	01D02	Floor drain piping from P-14A cubicle (survey from 11' elevation, smear through floor drain cover 21' elevation)	North	10.3	4.0	2.6
			East	7.2	7.2	1.0
			South	5.6	6.5	0.9
			West	6.8	3.6	1.9
C1500	02D01	Floor drain piping from waste gas compressor cubicle (survey from 21' elevation, smear through floor drain cover 36' elevation)	North	0.4	0.4	1.2
			East	0.4	0.3	1.3
			South	0.4	0.3	1.3
			West	0.5	0.3	1.6
C1500	02D02	Floor drain piping from decay tank cubicle (survey from 21' elevation, smear through floor drain cover 36' elevation)	North	1.3	1.3	1.0
			East	0.6	0.8	0.7
			South	0.5	0.7	0.8
			West	0.3	0.3	1.2
C1500	02D03	Floor drain piping near TK-2 (survey from 21' elevation, smear through floor drain cover 36' elevation)	North	3.4	2.9	1.2
			East	2.2	2.5	0.9
			South	5.1	2.5	2.0
			West	2.4	2.0	1.2
C1500	02D04	Floor drain piping from VCT cubicle (survey from 21' elevation, smear through floor drain cover 36' elevation)	North	1.0	1.0	1.0
			East	0.9	0.8	1.2
			South	1.3	1.1	1.1
			West	1.1	1.2	1.0

Maine Yankee Atomic Power Plant Site Characterization
Exposure Rate Distance Ratios

SURVEY PACKAGE C01500

Exposure Rates - 15 cm and 1 meter



Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Removable Contamination - Gross Beta Activity

Survey Package C1500 SYSTEMS

Primary Auxiliary Building Drains

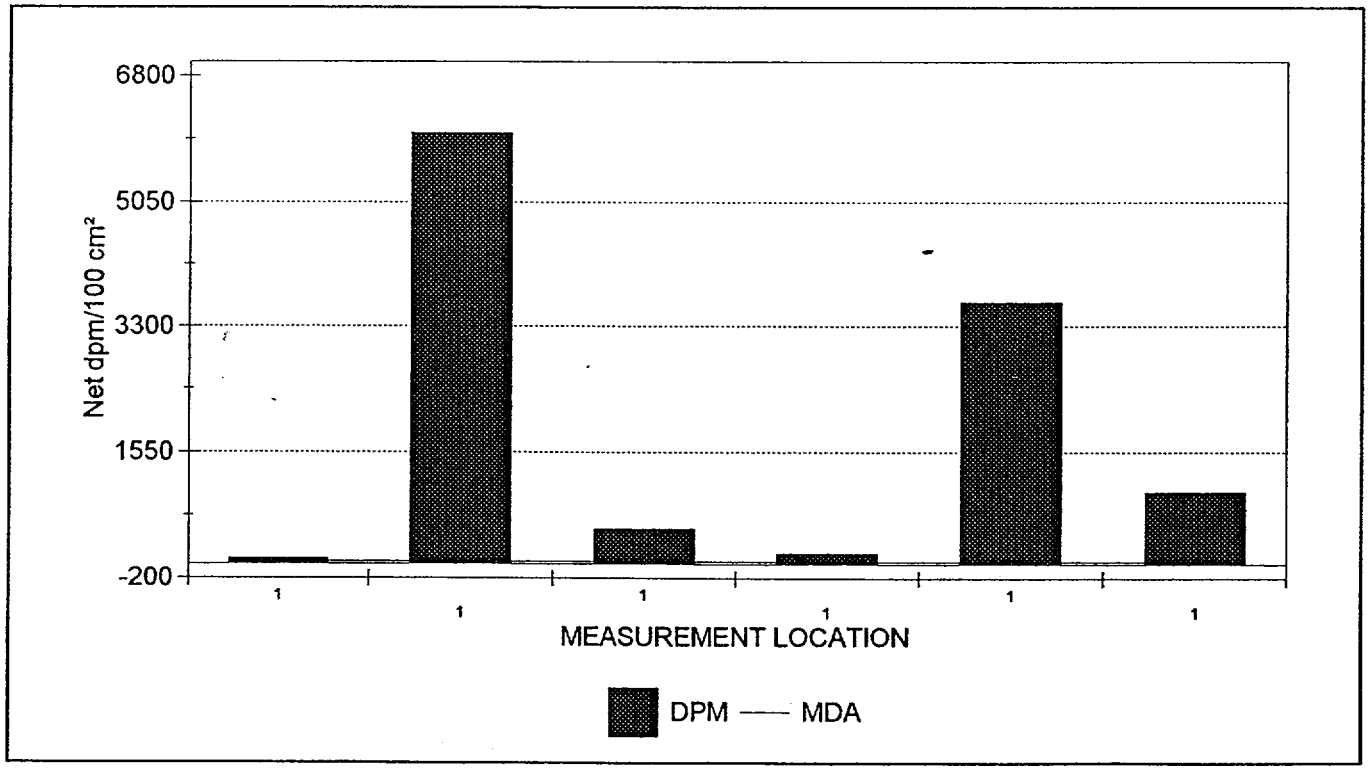
STATISTICAL SUMMARY

	Net dpm/100 cm²
Mean	1,895.3
Maximum	6,001.9
Minimum	79.2
Standard Deviation	2,409.7
MDA	35.4

Samples Reported	6
Samples Prescribed	18

TESTS PERFORMED

MDA <100 net dpm/100 cm²	YES
Results above 100 net dpm/100 cm²	5
Number of results above MDA	6



6 RESULTS ARE GRAPHED

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Removable Contamination - Gross Alpha Activity

Survey Package C1500 SYSTEMS

Primary Auxiliary Building Drains

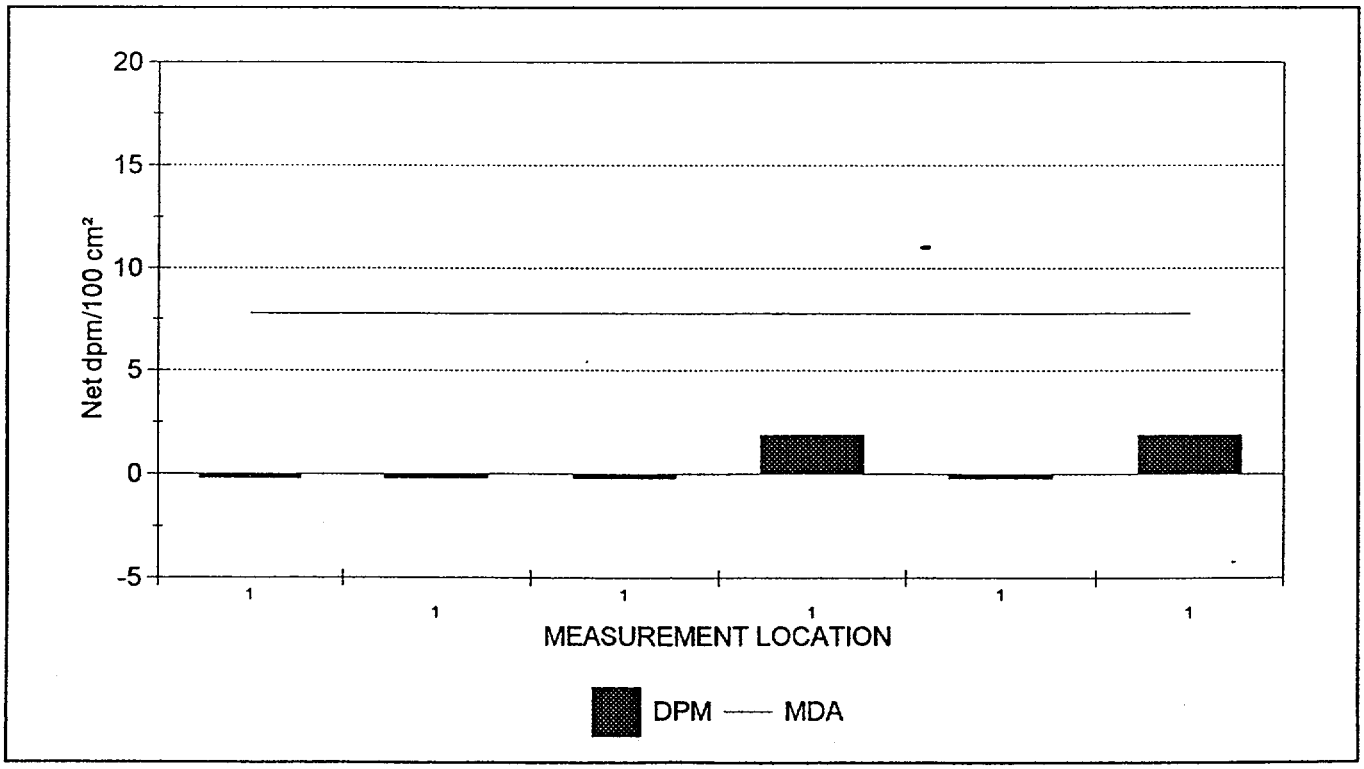
STATISTICAL SUMMARY

	Net dpm/100 cm²
Mean	0.5
Maximum	1.9
Minimum	-0.2
Standard Deviation	1.1
MDA	7.8

Samples Reported	6
Samples Prescribed	18

TESTS PERFORMED

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



6 RESULTS ARE GRAPHED

04/14/98 Removable Contamination

Survey Package: C1500 SYSTEMS

Primary Auxiliary Building Drains

RESULTS LISTING - SORTED BY SURFACE CODE

XLS FILE	UNIT	SURFACE	REASON	MSRMNT LOCATION	ALPHA	BETA
SME1E164.XLS	02	D04	C01	1	1.9	***1,003.8***
SME1E162.XLS	02	D03	C01	1	-0.2	***3,644.9***
SME1E160.XLS	02	D02	C01	1	1.9	***151.7***
SME1E158.XLS	02	D01	C01	1	-0.2	***490.1***
SME1E156.XLS	01	D02	C01	1	-0.2	***6,001.9***
SME1E154.XLS	01	D01	C01	1	-0.2	79.2

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).
6 results are listed.

Maine Yankee Atomic Power Plant Site Characterization

DATAFILE & ALPHA - BETA COUNTER CALIBRATION SUMMARY

04/14/98

Removable Contamination

Survey Package : C1500 SYSTEMS

Primary Auxiliary Building Drains

SURVEYDATE	XLS FILE	INST ID	S/N	CAL DUE	LAB TECHNICIAN
3/17/98	SME1E154.XLS	1	15632	8/5/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	
3/17/98	SME1E156.XLS	1	15632	8/5/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	
3/17/98	SME1E158.XLS	1	15632	8/5/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	
3/17/98	SME1E160.XLS	1	15632	8/5/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	
3/17/98	SME1E162.XLS	1	15632	8/5/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	
3/17/98	SME1E164.XLS	1	15632	8/5/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Removable Contamination - Tritium Activity

Survey Package : C1500 SYSTEMS

Primary Auxiliary Building Drains

RESULTS LISTING - SORTED BY SURFACE CODE

SAMPLE ID	SAMPLE TYPE	UNIT	SURF	REASN	MSRMNT LOCATION	MDA	TRITIUM ACTIVITY
D50	Hoppes patch	01	D01	C01	00001	38.7	-23.5
D51	Hoppes patch	01	D02	C01	00001	38.8	-18.7
D52	Hoppes patch	02	D01	C01	00001	38.5	-9.8
D53	Hoppes patch	02	D02	C01	00001	38.5	-1.3
D54	Hoppes patch	02	D03	C01	00001	38.6	***836.7***
D55	Hoppes patch	02	D04	C01	00001	38.3	-13.3

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 75 dpm/100 cm²,
Italic values exceed 100 dpm/100 cm².

Maine Yankee Atomic Power Plant Site Characterization

LIQUID SCINTILLATION COUNTER CALIBRATION SUMMARY

04/14/98

Removable Contamination - Tritium Activity

Survey Package : C1500 SYSTEMS

Primary Auxiliary Building Drains

SURVEYDATE	INSTRUMENT	MODEL	S/N	CAL DUE	LAB TECHNICIAN
3/5/98	Packard	2750	416221	6/16/98	LDT

CALIBRATION DATE VERIFIED AS ACCEPTABLE

Maine Yankee Atomic Power Plant Site Characterization

GAMMA SPECTRAL ANALYSIS RESULTS LISTING

04/14/98 NUMBER OF SAMPLES REPORTED = 6 OUTPUT BATCH SN = 835

Survey Package C1500 SYSTEMS

Primary Auxiliary Building Drains

UNIT : 01 SURFACE : D01 REASON : C01 ANALYSIS TYPE CODE : LAB05

SAMPLE TYPE OR SURFACE SAMPLED: Drains / Traps
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYP39	PET00057	1.0	1200	Co-57	< 60.2	60.2	0.0
				Co-60	< 94.0	94.0	0.0
				Cs-134	< 61.9	61.9	0.0
				Cs-137	< 77.3	77.3	0.0
				K-40	< 799.0	799.0	0.0
				Mn-54	< 70.1	70.1	0.0

UNIT : 01 SURFACE : D02 REASON : C01 ANALYSIS TYPE CODE : LAB05

SAMPLE TYPE OR SURFACE SAMPLED: Drains / Traps
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYP40	PET00058	1.0	1200	Co-57	< 64.4	64.4	0.0
				Co-60	1400.00	15.5	137.0
				Cs-134	271.00	90.1	57.5
				Cs-137	1760.00	123.0	207.0
				K-40	< 945.0	945.0	0.0
				Mn-54	< 104.0	104.0	0.0

GAMMA SPECTRAL ANALYSIS RESULTS LISTING

NUMBER OF SAMPLES REPORTED = 6

04/14/98 OUTPUT BATCH SN = 835

Survey Package C1500 SYSTEMS

Primary Auxiliary Building Drains

UNIT : 02 SURFACE : D01 REASON : C01 ANALYSIS TYPE CODE : LAB05

SAMPLE TYPE OR SURFACE SAMPLED: Drains / Traps
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYP41	PET00059	1.0	1200	Co-57	< 55.6	55.6	0.0
				Co-60	< 86.4	86.4	0.0
				Cs-134	< 69.5	69.5	0.0
				Cs-137	< 92.4	92.4	0.0
				K-40	< 1030.0	1,030.0	0.0
				Mn-54	< 66.3	66.3	0.0

UNIT : 02 SURFACE : D02 REASON : C01 ANALYSIS TYPE CODE : LAB05

SAMPLE TYPE OR SURFACE SAMPLED: Drains / Traps
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYP42	PET00060	1.0	1200	Co-57	< 49.0	49.0	0.0
				Co-60	< 86.1	86.1	0.0
				Cs-134	< 73.5	73.5	0.0
				Cs-137	< 64.1	64.1	0.0
				K-40	< 610.0	610.0	0.0
				Mn-54	< 73.6	73.6	0.0

UNIT : 02 SURFACE : D03 REASON : C01 ANALYSIS TYPE CODE : LAB05

SAMPLE TYPE OR SURFACE SAMPLED: Drains / Traps
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYP43	PET00061	1.0	1200	Co-57	< 79.9	79.9	0.0
				Co-60	4300.00	99.0	285.0
				Cs-134	< 181.0	181.0	0.0
				Cs-137	1290.00	168.0	186.0
				K-40	< 610.0	610.0	0.0
				Mn-54	< 206.0	206.0	0.0

GAMMA SPECTRAL ANALYSIS RESULTS LISTING

NUMBER OF SAMPLES REPORTED = 6

04/14/98 OUTPUT BATCH SN = 835

Survey Package C1500 SYSTEMS

Primary Auxiliary Building Drains

UNIT : 02 SURFACE : D04 REASON : C01 ANALYSIS TYPE CODE : LAB05

SAMPLE TYPE OR SURFACE SAMPLED: Drains / Traps
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYP44	PET00062	1.0	1200	Co-57	< 57.5	57.5	0.0
				Co-60	255.00	51.9	76.2
				Cs-134	< 75.6	75.6	0.0
				Cs-137	1530.00	77.2	183.0
				K-40	< 1030.0	1,030.0	0.0
				Mn-54	< 83.1	83.1	0.0

04/14/98

CHARACTERIZATION SUMMARY

SURVEY PACKAGE NUMBER :C1600 SYSTEMS

PACKAGE DESCRIPTION Primary Auxiliary Building Ventilation

SURVEY AREA DESCRIPTION

Auxiliary Building Ventilation

GENERAL HISTORICAL INFORMATION (Operational history, etc.)

The Auxiliary Building Ventilation provides heating and ventilation to the Primary Auxiliary Building (PAB).

SUMMARY OF CHARACTERIZATION ACTIVITIES

Survey units were established for the system by building and elevation as shown in the following Summary of Survey Units. The Surface(s) listing indicates the component name, survey surface code and, where applicable, the Maine Yankee system component number.

A total of 39 exposure rate measurements were collected at 6 component locations.

Performed a beta scan of accessible interior surfaces up to a maximum area of one square meter at 12 component survey measurement locations.

Collected direct measurements for total beta activity at 12 component survey measurement locations at the highest location identified during the scan. If an elevated location was not observed within the scanned area, the measurement was collected at an arbitrary location selected by the technician.

Smear samples were collected from component interior surfaces to analyze for removable alpha and beta activity at 14 survey measurement locations indicated on the results listing report.

Smear samples were collected from component interior surfaces to analyze for removable tritium activity at 3 survey measurement locations indicated on the results listing report.

Smear samples were collected from component interior surfaces to analyze for removable plant-derived radionuclide activity by gamma spectroscopy at 2 survey measurement locations indicated on 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 The average and maximum exposure rate measurement results were 0.49 mR/hr and 3.5 mR/hr, respectively. The ratio of the 15 cm distance measurements to the 1 meter distance measurements ranged from 0.3 to 3.2.

o There were 6 direct measurements for total beta activity above MDA (Maximum MDA was 1,144 dpm/100cm^2) and 6 results greater than 2000 dpm/100cm^2. The maximum measurement result was 16,837 dpm/100cm^2.

o There were 5 measurements for removable beta activity above MDA (35.4 dpm/100cm^2). The maximum measurement result was 194 dpm/100cm^2.

o There were no measurements for removable alpha activity above MDA (7.8 dpm/100cm^2).

o There were no measurements for removable tritium activity above MDA (38.5 dpm/100cm^2).

o Of the 2 samples analyzed by gamma spectroscopy, no samples indicated plant-derived radionuclide activity above MDA.

REFERENCES (Documents, Interviews)

Maine Yankee Drawing 1150 - FB - 13 A, B, C

SUMMARY OF SURVEY UNIT(S)

04/14/98 OUTPUT BATCH SN = 851

PACKAGE C1600 SYSTEMS

Primary Auxiliary Building Ventilation

UNIT(S)	SURFACE(S)
01 - 36' Primary Auxiliary Building Components	A01 (Fan FN-1A) A02 (Fan FN-1B) A03 (Main exhaust duct that runs from near TK-18 to the NSS filter bank.) H01 (Air handling unit HV-1 heating coil) S01 (Safety class filter bank) S02 (NNS filter bank)

REASON(S) CHARACTERIZATION SURVEY (C01)

MATERIALS

MAT'L CODE	MATERIAL DESCRIPTION	BETA BKGD (dpm/100 cm²)
B0031	METAL - BARE	0.0
G0031	METAL - BARE (GAMMA)	0.0

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Exposure Rate Measurements

Survey Package C1600 SYSTEMS

Primary Auxiliary Building Ventilation

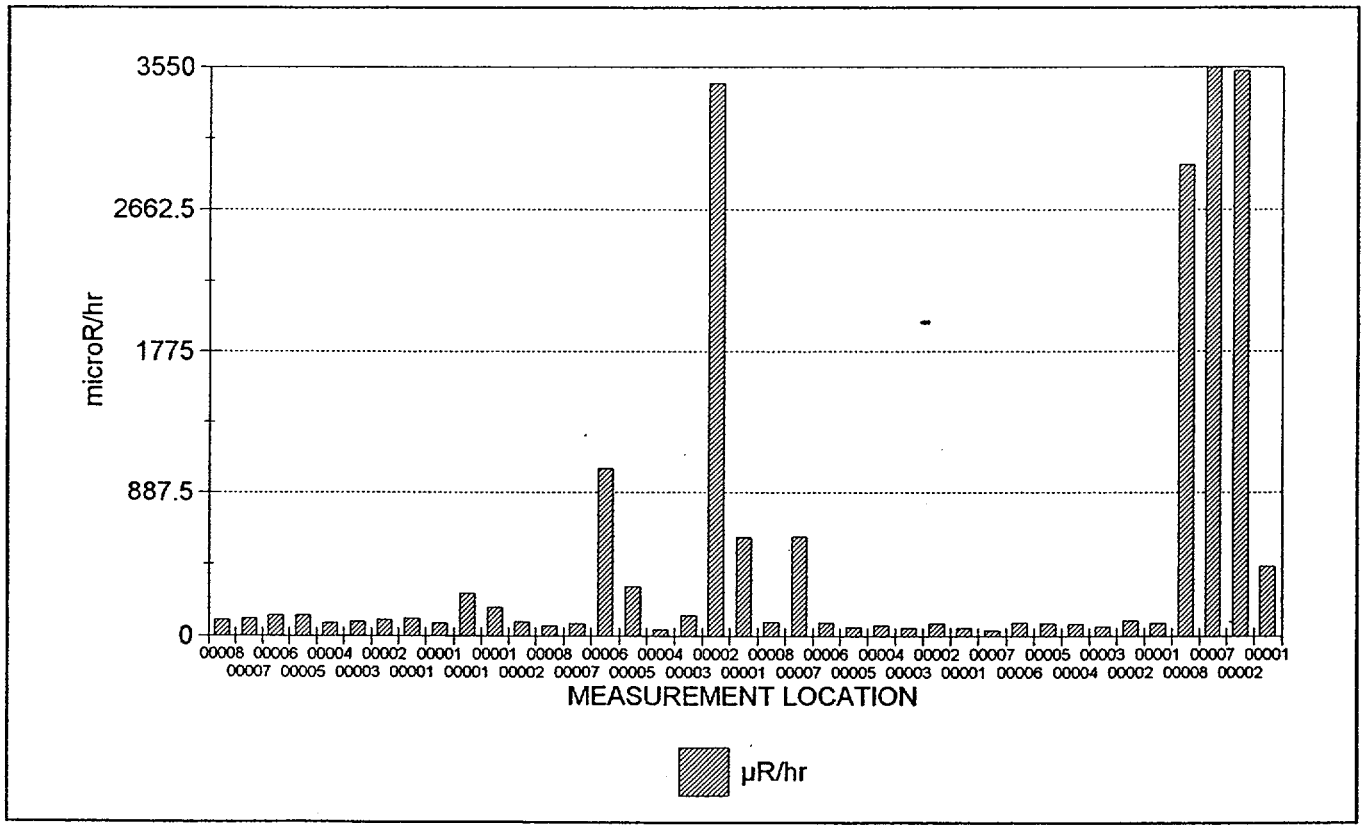
STATISTICAL SUMMARY

	µR/hr
Mean	492.4
Maximum	3,546.3
Minimum	36.5
Standard Deviation	1,006.9

Samples Reported	39
Samples Prescribed	39

TESTS PERFORMED

Samples reported satisfy samples prescribed	YES



39 RESULTS ARE GRAPHED

04/14/98 Exposure Rate Measurements

Survey Package : C1600 SYSTEMS

Primary Auxiliary Building Ventilation

RESULTS LISTING - SORTED BY SURFACE CODE

FILE #	UNIT	SURFACE	MATERIAL	REASON	COUNT TIME	MSRMNT LOCATION	RESULT
550 (2)	01	A01	G0031	C01	60.00	00001	***52.9***
550 (2)	01	A01	G0031	C01	60.00	00002	***78.3***
550 (2)	01	A01	G0031	C01	60.00	00003	***51.3***
550 (2)	01	A01	G0031	C01	60.00	00004	***69.1***
550 (2)	01	A01	G0031	C01	60.00	00005	***56.0***
550 (2)	01	A01	G0031	C01	60.00	00006	***85.9***
550 (2)	01	A01	G0031	C01	60.00	00007	***614.0***
550 (2)	01	A01	G0031	C01	60.00	00008	***88.1***
550 (2)	01	A02	G0031	C01	60.00	00001	***608.3***
550 (2)	01	A02	G0031	C01	60.00	00002	***3450.9***
550 (2)	01	A02	G0031	C01	60.00	00003	***129.9***
550 (2)	01	A02	G0031	C01	60.00	00004	***40.3***
550 (2)	01	A02	G0031	C01	60.00	00005	***302.8***
550 (2)	01	A02	G0031	C01	60.00	00006	***1041.6***
550 (2)	01	A02	G0031	C01	60.00	00007	***76.1***
550 (2)	01	A02	G0031	C01	60.00	00008	***65.5***
662 (2)	01	A03	G0031	C01	60.00	00001	***108.6***
662 (2)	01	A03	G0031	C01	60.00	00002	***98.8***
662 (2)	01	A03	G0031	C01	60.00	00003	***86.2***
662 (2)	01	A03	G0031	C01	60.00	00004	***79.5***
662 (2)	01	A03	G0031	C01	60.00	00005	***128.6***
662 (2)	01	A03	G0031	C01	60.00	00006	***127.1***
662 (2)	01	A03	G0031	C01	60.00	00007	***107.2***
662 (2)	01	A03	G0031	C01	60.00	00008	***100.6***
595 (2)	01	H01	G0031	C01	60.00	00001	***174.3***
595 (2)	01	H01	G0031	C01	60.00	00002	87.1
550 (2)	01	S01	G0031	C01	60.00	00001	***80.4***
606 (2)	01	S01	G0031	C01	60.00	00001	***79.2***
550 (2)	01	S01	G0031	C01	60.00	00002	***97.6***
550 (2)	01	S01	G0031	C01	60.00	00003	***60.3***
550 (2)	01	S01	G0031	C01	60.00	00004	***75.1***
550 (2)	01	S01	G0031	C01	60.00	00005	***81.7***
550 (2)	01	S01	G0031	C01	60.00	00006	***83.1***
550 (2)	01	S01	G0031	C01	60.00	00007	***36.5***
550 (2)	01	S02	G0031	C01	60.00	00001	***428.3***
595 (2)	01	S02	G0031	C01	60.00	00001	***258.2***
550 (2)	01	S02	G0031	C01	60.00	00002	***3524.4***
550 (2)	01	S02	G0031	C01	60.00	00007	***3546.2***
550 (2)	01	S02	G0031	C01	60.00	00008	***2943.5***

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.
39 results are listed.

Maine Yankee Atomic Power Plant Site Characterization

DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

04/14/98

Exposure Rate Measurements

Survey Package : C1600 SYSTEMS

Primary Auxiliary Building Ventilation

SURVEY		M2350		DETECTOR			
DATE	FILE #	INST S/N	CAL DUE	MODEL	S/N	CAL DUE	TECHNICIAN
2/5/98	550 (2)	126182	3/22/98	44-2	128338	4/19/98	MAP5535
						CALIBRATION DATES VERIFIED AS ACCEPTABLE	
2/12/98	595 (2)	126182	3/22/98	44-2	128338	4/19/98	MAP5535
						CALIBRATION DATES VERIFIED AS ACCEPTABLE	
2/17/98	606 (2)	095348	3/20/98	44-2	PR091091	4/19/98	JFM0682
						CALIBRATION DATES VERIFIED AS ACCEPTABLE	
3/10/98	662 (2)	126185	3/20/98	44-2	PR095085	4/19/98	AOK2982
						CALIBRATION DATES VERIFIED AS ACCEPTABLE	

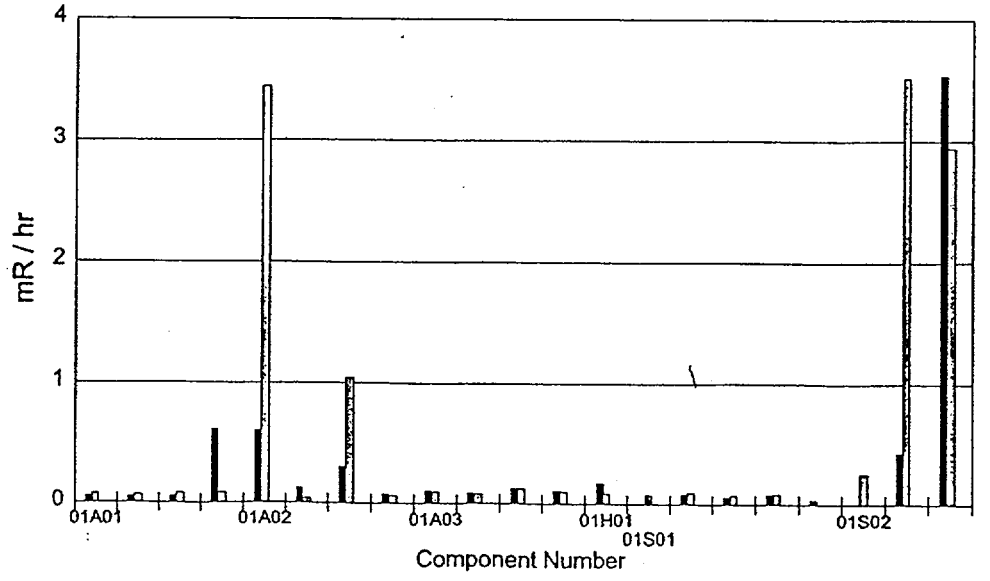
Maine Yankee Atomic Power Plant Site Characterization
Exposure Rate Distance Ratios

SURVEY PACKAGE C01600

Package Number	Component Number	Component Description	Direction	15 cm mR/hr	1 meter mR/hr	Ratio of 15 cm to 1 meter
C1600	01A01	Fan FN-1A	North	0.05	0.08	0.7
			East	0.05	0.07	0.7
			South	0.06	0.09	0.7
			West	0.61	0.09	7.0
C1600	01A02	Fan FN-1B	North	0.61	3.45	0.2
			East	0.13	0.04	3.2
			South	0.30	1.04	0.3
			West	0.08	0.07	1.2
C1600	01A03	Main exhaust duct that runs from near TK-18 to the NSS filter bank.	Bottom	0.11	0.10	1.1
			Bottom	0.09	0.08	1.1
			Bottom	0.13	0.13	1.0
			Bottom	0.11	0.10	1.1
C1600	01H01	Air handling unit HV-1 heating coil	Center	0.17	0.09	2.0
C1600	01S01	Safety class filter bank	Inside	N/A	0.08	
			North	0.08	0.10	0.8
			East	0.06	0.08	0.8
			South	0.08	0.08	1.0
			West	0.04	*	
C1600	01S02	NNS filter bank	Inside	N/A	0.26	
			North	0.43	3.52	0.1
			West	3.55	2.94	1.2

* Measurement not collected due to interfering surface.

Exposure Rates - 15 cm and 1 meter



DURATEK

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Direct Measurements For Total Beta Activity

Survey Package C1600 SYSTEMS

Primary Auxiliary Building Ventilation

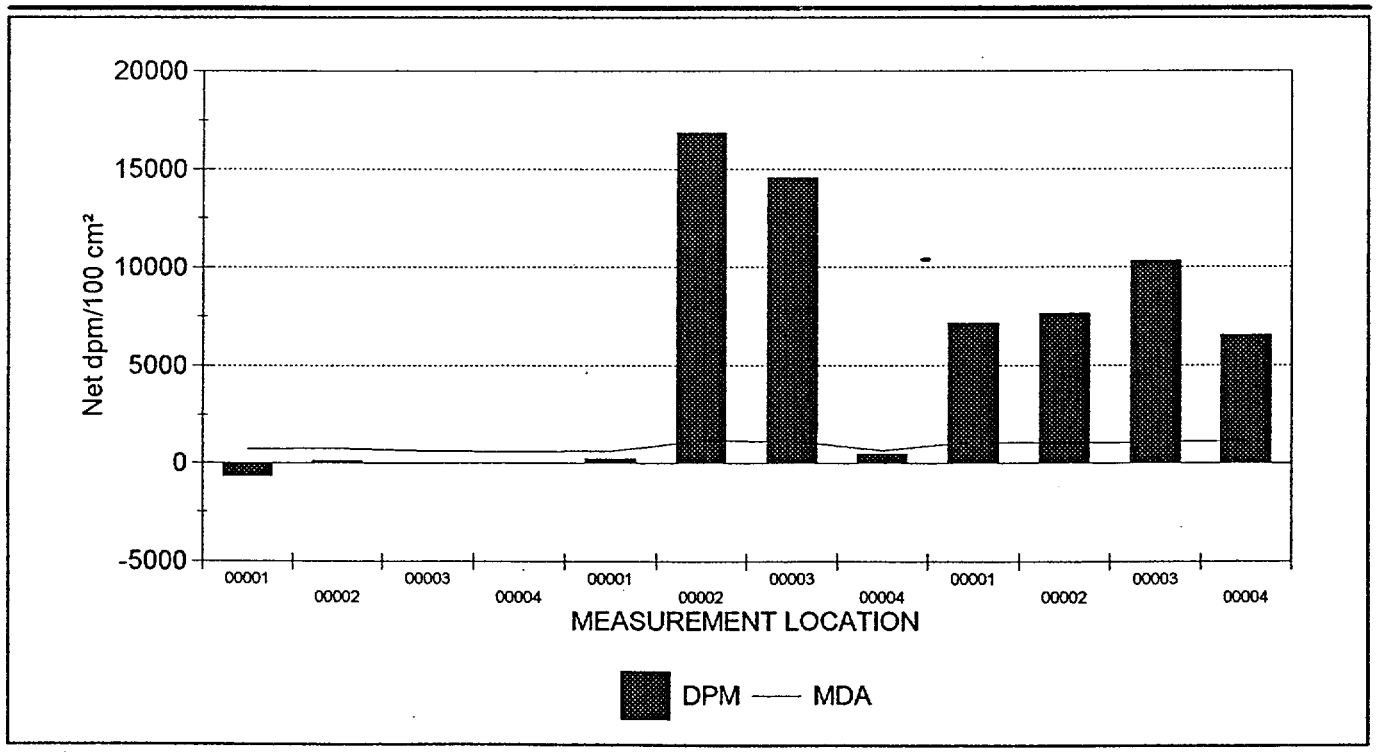
STATISTICAL SUMMARY

	Net dpm/100 cm²
Mean	5,274.6
Maximum	16,836.6
Minimum	-666.7
Standard Deviation	6,185.7
MDA	1,143.9

Samples Reported	12
Samples Prescribed	12

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	6



12 RESULTS ARE GRAPHED

Version 3.0.8 - 4/3/98

DBACORR Documentation
:aProgDBACORR:F_0111.FSL
OUTPUT BATCH SN = 851

JLM

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Direct Measurements For Total Beta Activity

Survey Package : C1600 SYSTEMS

Primary Auxiliary Building Ventilation

RESULTS LISTING - SORTED BY SURFACE CODE

FILE #	UNIT	SURFACE	MATERIAL	REASON	COUNT TIME	MSRMNT LOCATION	MDA	RESULT
596 (2)	01	H01	B0031	C01	60	00001	728.8	-666.7
596 (2)	01	H01	B0031	C01	60	00002	762.8	139.6
596 (2)	01	H01	B0031	C01	60	00003	625.1	14.0
596 (2)	01	H01	B0031	C01	60	00004	610.8	24.4
605 (2)	01	S01	B0031	C01	60	00001	626.7	233.8
605 (2)	01	S01	B0031	C01	60	00002	1,143.9	***16,836.6***
605 (2)	01	S01	B0031	C01	60	00003	1,108.8	***14,549.0***
605 (2)	01	S01	B0031	C01	60	00004	675.8	514.3
596 (2)	01	S02	B0031	C01	30	00001	1,094.2	***7,155.3***
596 (2)	01	S02	B0031	C01	30	00002	1,014.2	***7,643.9***
596 (2)	01	S02	B0031	C01	30	00003	1,086.3	***10,324.5***
596 (2)	01	S02	B0031	C01	30	00004	1,141.7	***6,527.0***

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.
12 results are listed.

DURATEK

Maine Yankee Atomic Power Plant Site Characterization

DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

04/14/98 Direct Measurements For Total Beta Activity

Survey Package : C1600 SYSTEMS

Primary Auxiliary Building Ventilation

SURVEY		M2350		DETECTOR			PRE	
DATE	FILE #	INST S/N	CAL DUE	MODEL	S/N	CAL DUE	EFF	TECHNICIAN
2/12/98	596 (2)	129430	5/6/98	43-106	PR133886	5/7/98	.23	MAP5535
								CALIBRATION DATES VERIFIED AS ACCEPTABLE
2/17/98	605 (2)	129430	5/6/98	43-106	PR133886	5/7/98	.22	AOK2982
								CALIBRATION DATES VERIFIED AS ACCEPTABLE

DURATEK

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Removable Contamination - Gross Beta Activity

Survey Package C1600 SYSTEMS

Primary Auxiliary Building Ventilation

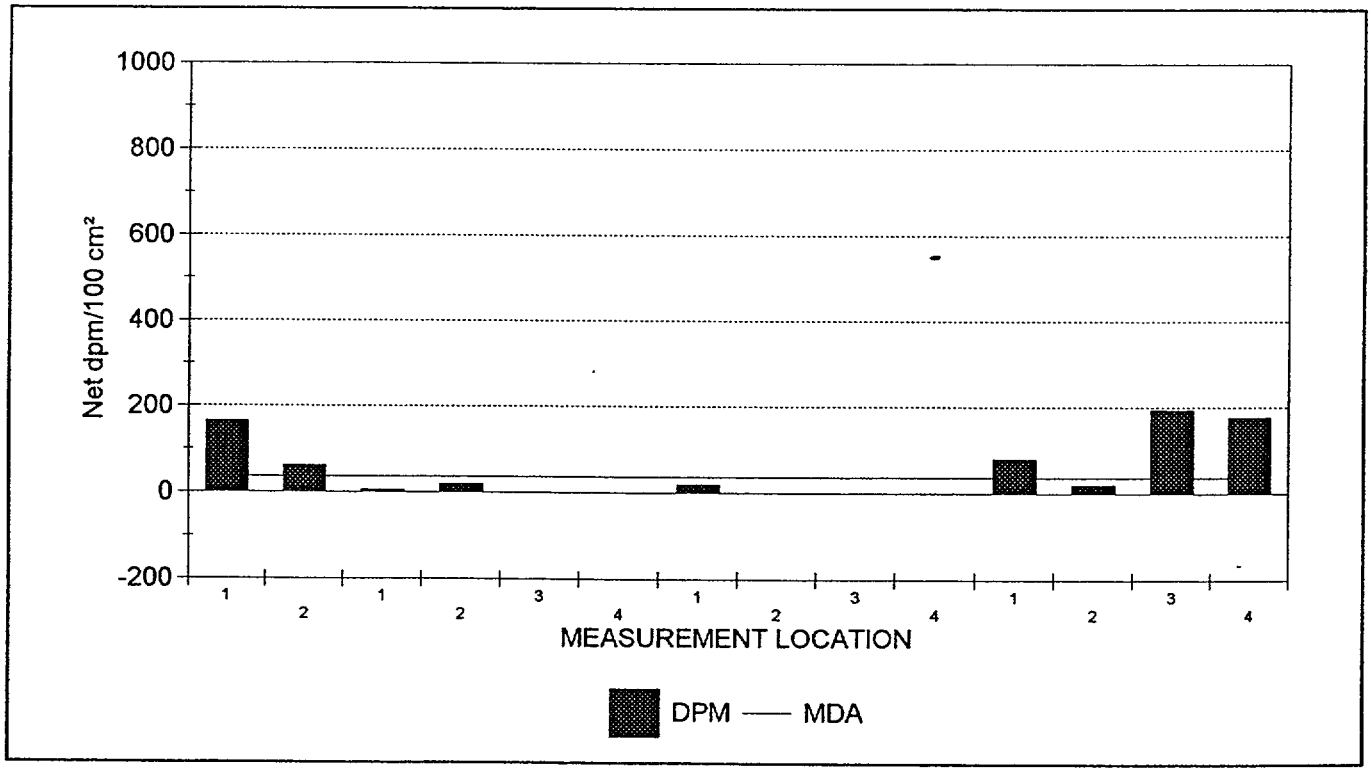
STATISTICAL SUMMARY

	Net dpm/100 cm²
Mean	52.8
Maximum	194.0
Minimum	0.6
Standard Deviation	72.0
MDA	35.4

Samples Reported	14
Samples Prescribed	17

TESTS PERFORMED

MDA <100 net dpm/100 cm²	YES
Results above 100 net dpm/100 cm²	3
Number of results above MDA	5



14 RESULTS ARE GRAPHED

DURATEK

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Removable Contamination - Gross Alpha Activity

Survey Package C1600 SYSTEMS

Primary Auxiliary Building Ventilation

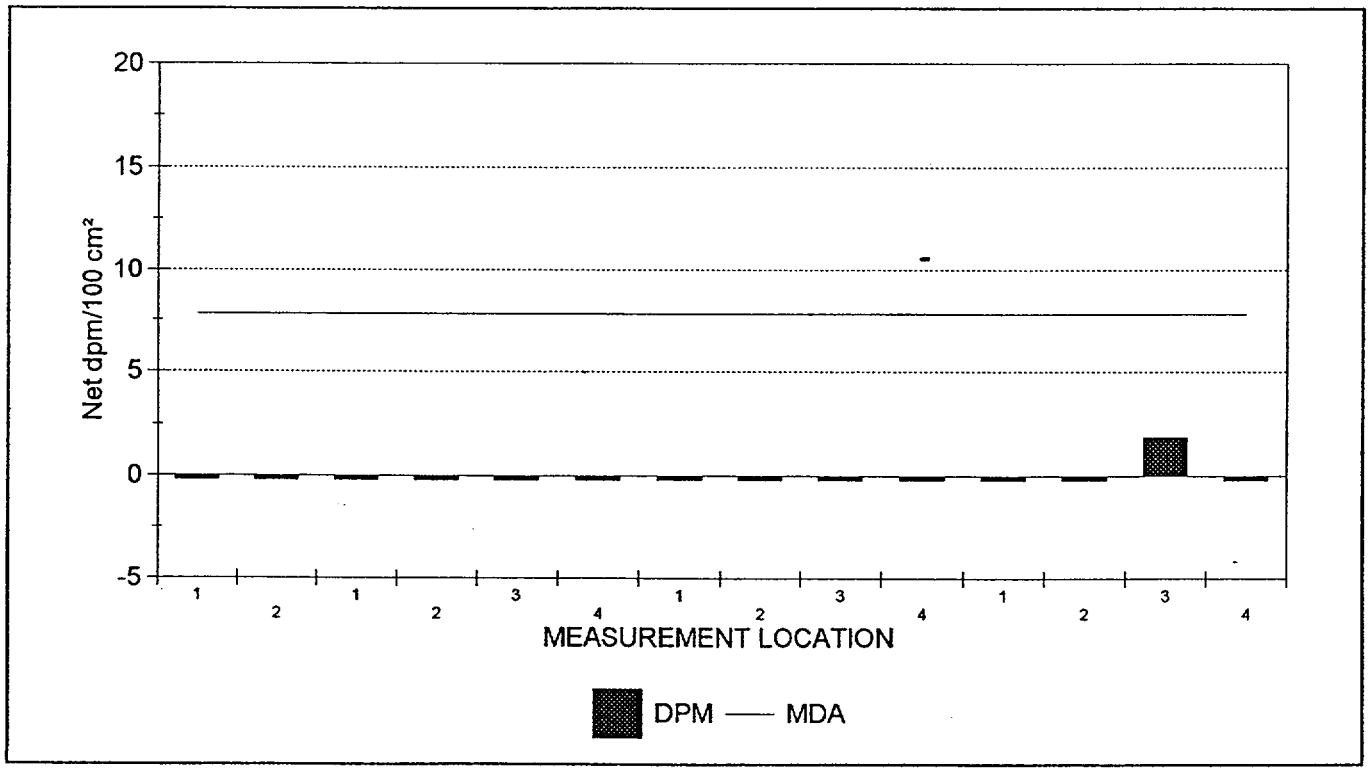
STATISTICAL SUMMARY

	Net dpm/100 cm²
Mean	-0.1
Maximum	1.9
Minimum	-0.2
Standard Deviation	0.6
MDA	7.8

Samples Reported	14
Samples Prescribed	17

TESTS PERFORMED

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



14 RESULTS ARE GRAPHED

04/14/98 Removable Contamination

Survey Package: C1600 SYSTEMS

Primary Auxiliary Building Ventilation

RESULTS LISTING - SORTED BY SURFACE CODE

XLS FILE	UNIT	SURFACE	REASON	MSRMNT LOCATION	ALPHA	BETA
SME1E137.XLS	01	S02	C01	4	-0.2	***175.9***
SME1E137.XLS	01	S02	C01	3	1.9	***194.0***
SME1E137.XLS	01	S02	C01	2	-0.2	18.7
SME1E137.XLS	01	S02	C01	1	-0.2	79.2
SME1E170.XLS	01	S01	C01	4	-0.2	0.6
SME1E170.XLS	01	S01	C01	3	-0.2	0.6
SME1E170.XLS	01	S01	C01	2	-0.2	0.6
SME1E170.XLS	01	S01	C01	1	-0.2	18.7
SME1E168.XLS	01	H01	C01	4	-0.2	0.6
SME1E168.XLS	01	H01	C01	3	-0.2	0.6
SME1E168.XLS	01	H01	C01	2	-0.2	18.7
SME1E168.XLS	01	H01	C01	1	-0.2	6.6
SME1E166.XLS	01	A02	C01	2	-0.2	61.0
SME1E166.XLS	01	A02	C01	1	-0.2	***163.8***

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).
14 results are listed.

DURATEK

Maine Yankee Atomic Power Plant Site Characterization

DATAFILE & ALPHA - BETA COUNTER CALIBRATION SUMMARY

04/14/98

Removable Contamination

Survey Package : C1600 SYSTEMS

Primary Auxiliary Building Ventilation

SURVEYDATE	XLS FILE	INST ID	S/N	CAL DUE	LAB TECHNICIAN
3/17/98	SME1E137.XLS	1	15632	8/5/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	
3/17/98	SME1E166.XLS	1	15632	8/5/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	
3/17/98	SME1E168.XLS	1	15632	8/5/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	
3/17/98	SME1E170.XLS	1	15632	8/5/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Removable Contamination - Tritium Activity

Survey Package: C1600 SYSTEMS

Primary Auxiliary Building Ventilation

RESULTS LISTING - SORTED BY SURFACE CODE

SAMPLE ID	SAMPLE TYPE	UNIT	SURF	REASN	MSRMNT LOCATION	MDA	TRITIUM ACTIVITY
D22	Hoppes patch	01	S01	C01	00001	37.8	1.7
D56	Hoppes patch	01	H01	C01	00001	38.5	-26.0
D57	Hoppes patch	01	S02	C01	00001	38.4	-28.4

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 75 dpm/100 cm²,
Italic values exceed 100 dpm/100 cm².

Maine Yankee Atomic Power Plant Site Characterization

LIQUID SCINTILLATION COUNTER CALIBRATION SUMMARY

04/14/98

Removable Contamination - Tritium Activity

Survey Package : C1600 SYSTEMS

Primary Auxiliary Building Ventilation

SURVEYDATE	INSTRUMENT	MODEL	S/N	CAL DUE	LAB TECHNICIAN
2/24/98	Packard	2750	416221	6/16/98	LDT
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	
3/5/98	Packard	2750	416221	6/16/98	LDT
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	

Maine Yankee Atomic Power Plant Site Characterization

GAMMA SPECTRAL ANALYSIS RESULTS LISTING

NUMBER OF SAMPLES REPORTED = 2

04/14/98

OUTPUT BATCH SN = 851

Survey Package C1600 SYSTEMS

Primary Auxiliary Building Ventilation

UNIT : 01 SURFACE : H01 REASON : C01 ANALYSIS TYPE CODE : LAB06

SAMPLE TYPE OR SURFACE SAMPLED: Heat Exchanger
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYX22	FAL00050	2.5	1800	Co-57	< 24.2	24.2	0.0
				Co-60	< 46.4	46.4	0.0
				Cs-134	< 25.0	25.0	0.0
				Cs-137	< 48.5	48.5	82.8
				K-40	< 282.0	282.0	0.0
				Mn-54	< 28.4	28.4	0.0

UNIT : 01 SURFACE : S02 REASON : C01 ANALYSIS TYPE CODE : LAB06

SAMPLE TYPE OR SURFACE SAMPLED: Strainer / Filters
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYX21	FAL00049	12.5	1800	Co-57	< 10.1	10.1	0.0
				Co-60	< 5.0	5.0	26.8
				Cs-134	< 15.3	15.3	0.0
				Cs-137	< 17.1	17.1	96.8
				K-40	< 73.6	73.6	0.0
				Mn-54	< 15.2	15.2	0.0

04/14/98

CHARACTERIZATION SUMMARY

SURVEY PACKAGE NUMBER :C1800

SYSTEMS

PACKAGE DESCRIPTION

Containment Ventilation System

SURVEY AREA DESCRIPTION

Containment Ventilation System

GENERAL HISTORICAL INFORMATION (Operational history, etc.)

The Containment Ventilation System provided containment air recirculation, filtration and cooling, Control Element Drive Mechanism (CEDM) cooling and containment air purging for maintenance, refueling operations, and following a postulated accident.

SUMMARY OF CHARACTERIZATION ACTIVITIES

Survey units were established for the system by building and elevation as shown in the following Summary of Survey Units. The Surface(s) listing indicates the component name, survey surface code and, where applicable, the Maine Yankee system component number.

A total of 24 exposure rate measurements were collected at 6 component locations.

Performed a beta scan of accessible interior surfaces up to a maximum area of one square meter at 4 component survey measurement locations.

Collected direct measurements for total beta activity at 4 component survey measurement locations at the highest location identified during the scan. If an elevated location was not observed within the scanned area, the measurement was collected at an arbitrary location selected by the technician.

Smear samples were collected from component interior surfaces to analyze for removable alpha and beta activity at 5 survey measurement locations indicated on the results listing report.

Smear samples were collected from component interior surfaces to analyze for removable tritium activity at 3 survey measurement locations indicated on the results listing report.

Smear samples were collected from component interior surfaces to analyze for removable plant-derived radionuclide activity by gamma spectroscopy at 3 survey measurement locations indicated on 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 The average and maximum exposure rate measurement results were 0.8 mR/hr and 2.3 mR/hr, respectively. The ratio of the 15 cm distance measurements to the 1 meter distance measurements ranged from 0.7 to 1.9.

o There were 4 direct measurements for total beta activity above MDA (Maximum MDA was 15,605 dpm/100cm^2). The maximum measurement result was 540,758 dpm/100cm^2.

o There were 5 measurements for removable beta activity above MDA (maximum MDA was 5,000 dpm/100cm^2). The maximum measurement result was 80,000 dpm/100cm^2.

o 4 of the 5 smear measurements were analyzed for removable alpha activity and no measurements were above MDA (7.8 dpm/100cm^2).

o There were no measurements for removable tritium activity above MDA (38.7 dpm/100cm^2).

o Of the 3 samples analyzed by gamma spectroscopy, all samples indicated plant-derived radionuclide activity above MDA. The analysis of the samples indicated the presence of Co-60, Cs-134 and Cs-137.

REFERENCES (Documents, Interviews)

Maine Yankee Drawing 1150 - FM - 6 A
Operator System Training Manual, Chapter 19

SUMMARY OF SURVEY UNIT(S)

04/14/98 OUTPUT BATCH SN = 853

PACKAGE C1800 SYSTEMS

Containment Ventilation System

UNIT(S)	SURFACE(S)
01 - 21' Containment Building Annulus Components	H01 (Containment air recirculating fan FN-17-1 cooling coil) H02 (Containment air recirculating fan FN-17-2 cooling coil) H03 (Containment air recirculating fan FN-17-3 cooling coil) H04 (Containment air recirculating fan FN-17-4 cooling coil)
02 - 46' Containment Building Components	M01 (CEDM cooling fan FN-43-1) M02 (CEDM cooling fan FN-43-2)

REASON(S) CHARACTERIZATION SURVEY (C01)

MATERIALS

MAT'L CODE	MATERIAL DESCRIPTION	BETA BKGD (dpm/100 cm²)
B0031	METAL - BARE	0.0
G0031	METAL - BARE (GAMMA)	0.0
ZZZZZ	Material code not located	0.0

04/14/98

Exposure Rate Measurements

Survey Package C1800 SYSTEMS

Containment Ventilation System

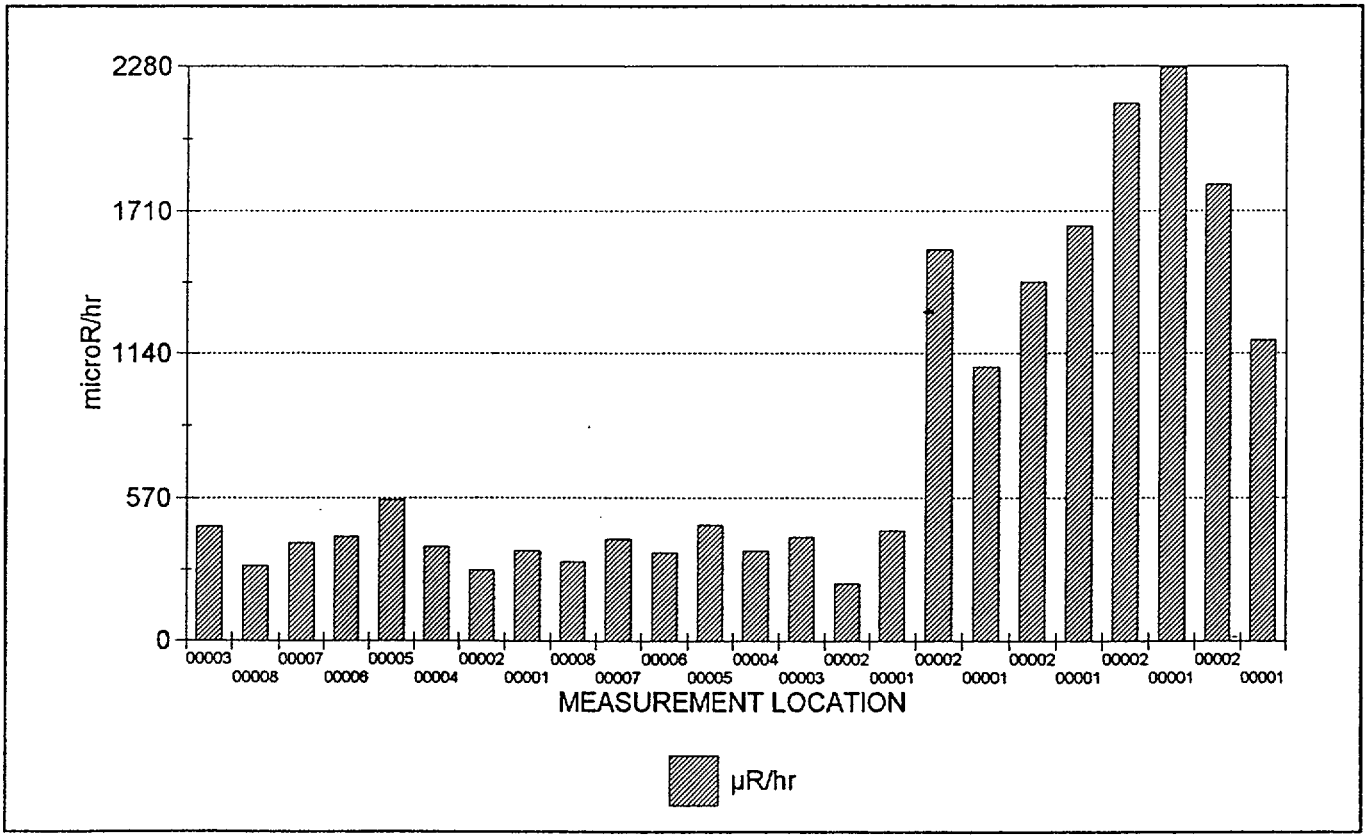
STATISTICAL SUMMARY

	µR/hr
Mean	802.4
Maximum	2,275.1
Minimum	228.5
Standard Deviation	652.6

Samples Reported	24
Samples Prescribed	24

TESTS PERFORMED

Samples reported satisfy samples prescribed	YES



24 RESULTS ARE GRAPHED

Survey Package: C1800 SYSTEMS

Containment Ventilation System

RESULTS LISTING - SORTED BY SURFACE CODE

FILE #	UNIT	SURFACE	MATERIAL	REASON	COUNT TIME	MSRMNT LOCATION	RESULT
582 (2)	01	H01	G0031	C01	0.00	00001	***1084.4***
582 (2)	01	H01	G0031	C01	0.00	00002	***1554.9***
582 (2)	01	H02	G0031	C01	0.00	00001	***1651.4***
582 (2)	01	H02	G0031	C01	0.00	00002	***1427.9***
582 (2)	01	H03	G0031	C01	0.00	00001	***2275.1***
582 (2)	01	H03	G0031	C01	0.00	00002	***2134.4***
582 (2)	01	H04	G0031	C01	0.00	00001	***1191.1***
582 (2)	01	H04	G0031	C01	0.00	00002	***1816.0***
589 (2)	02	M01	G0031	C01	60.00	00001	***438.3***
589 (2)	02	M01	G0031	C01	60.00	00002	***228.5***
589 (2)	02	M01	G0031	C01	60.00	00003	***413.8***
589 (2)	02	M01	G0031	C01	60.00	00004	***360.8***
589 (2)	02	M01	G0031	C01	60.00	00005	***461.8***
589 (2)	02	M01	G0031	C01	60.00	00006	***352.1***
589 (2)	02	M01	G0031	C01	60.00	00007	***405.8***
589 (2)	02	M01	G0031	C01	60.00	00008	***315.1***
589 (2)	02	M02	G0031	C01	60.00	00001	***359.8***
589 (2)	02	M02	G0031	C01	60.00	00002	***283.0***
589 (2)	02	M02	G0031	C01	60.00	00004	***374.5***
589 (2)	02	M02	G0031	C01	60.00	00005	***562.4***
589 (2)	02	M02	G0031	C01	60.00	00006	***416.7***
589 (2)	02	M02	G0031	C01	60.00	00007	***389.8***
589 (2)	02	M02	G0031	C01	60.00	00008	***300.9***
592 (2)	02	M02	ZZZZZ	C01	60.00	00003	***458.7***

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.
24 results are listed.

Maine Yankee Atomic Power Plant Site Characterization

DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

04/14/98 Exposure Rate Measurements

Survey Package : C1800 SYSTEMS

Containment Ventilation System

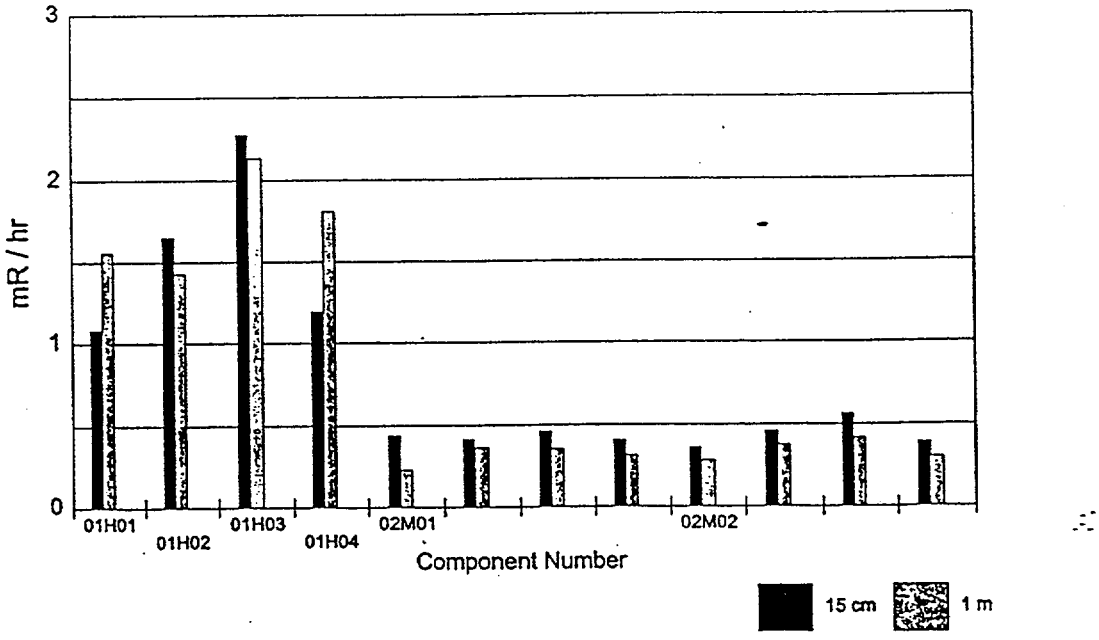
SURVEY DATE	FILE #	M2350 INST S/N	M2350 CAL DUE	DETECTOR MODEL	DETECTOR S/N	DETECTOR CAL DUE	TECHNICIAN
2/10/98	582 (2)	095348	3/20/98	44-38	088919	7/23/98	JFM0682
				CALIBRATION DATES VERIFIED AS ACCEPTABLE			
2/11/98	589 (2)	126182	3/22/98	44-2	128338	4/19/98	MAP5535
				CALIBRATION DATES VERIFIED AS ACCEPTABLE			
2/12/98	592 (2)	126197	3/22/98	44-2	PR126922	4/19/98	MAP5535
				CALIBRATION DATES VERIFIED AS ACCEPTABLE			

Maine Yankee Atomic Power Plant Site Characterization
Exposure Rate Distance Ratios

SURVEY PACKAGE C01800

Package Number	Component Number	Component Description	Direction	15 cm mR/hr	1 meter mR/hr	Ratio of 15 cm to 1 meter
C1800	01H01	Containment air recirculating fan FN-17-1 cooling coil	North	1.1	1.6	0.7
C1800	01H02	Containment air recirculating fan FN-17-2 cooling coil	North	1.7	1.4	1.2
C1800	01H03	Containment air recirculating fan FN-17-3 cooling coil	North	2.3	2.1	1.1
C1800	01H04	Containment air recirculating fan FN-17-4 cooling coil	North	1.2	1.8	0.7
C1800	02M01	CEDM cooling fan FN-43-1	North	0.44	0.23	1.9
			East	0.41	0.36	1.1
			South	0.46	0.35	1.3
			West	0.41	0.32	1.3
C1800	02M02	CEDM cooling fan FN-43-2	North	0.36	0.28	1.3
			East	0.46	0.37	1.2
			South	0.56	0.42	1.3
			West	0.39	0.30	1.3

Exposure Rates - 15 cm and 1 meter



DURATEK

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Direct Measurements For Total Beta Activity

Survey Package C1800 SYSTEMS

Containment Ventilation System

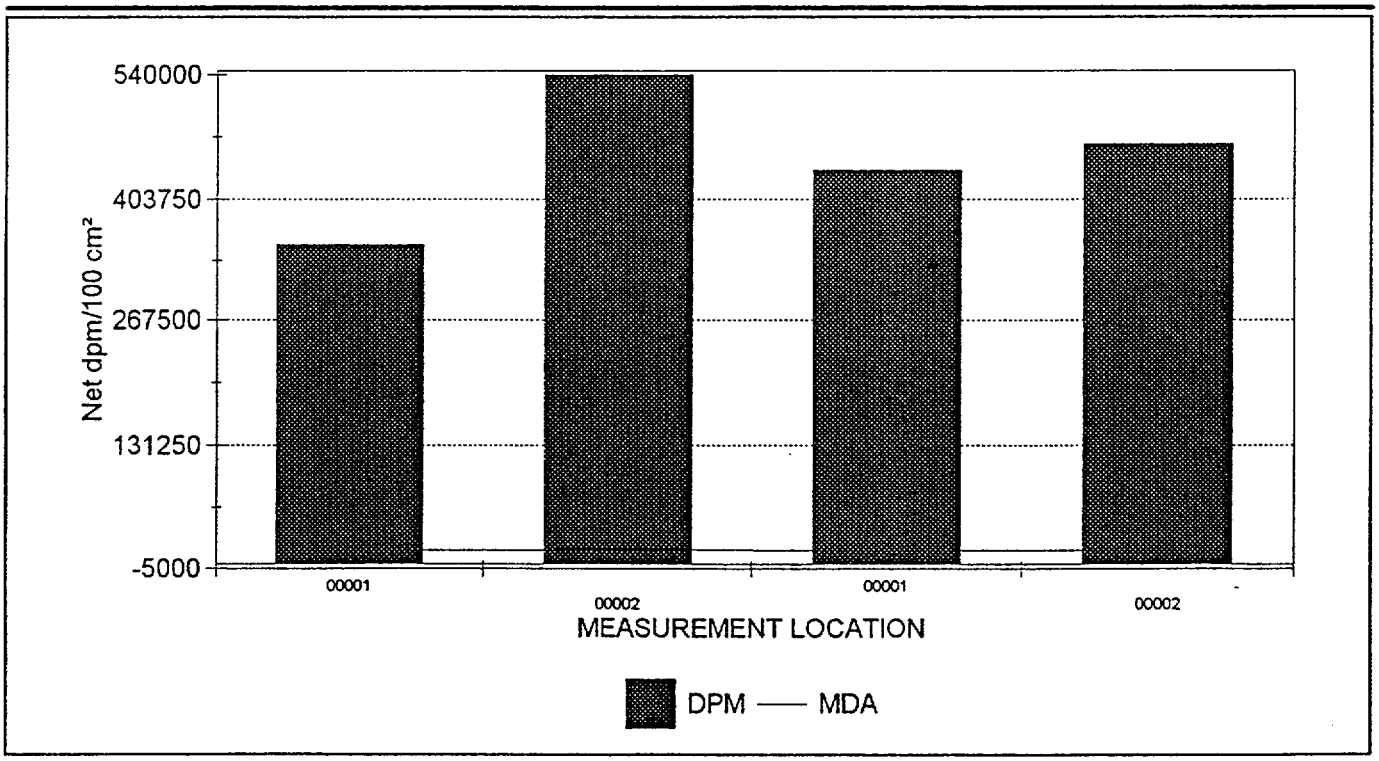
STATISTICAL SUMMARY

	Net dpm/100 cm²
Mean	448,953.9
Maximum	540,758.4
Minimum	353,995.0
Standard Deviation	77,163.2
MDA	15,605.8

Samples Reported	4
Samples Prescribed	4

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	4



4 RESULTS ARE GRAPHED

DURATEK

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Direct Measurements For Total Beta Activity

Survey Package : C1800 SYSTEMS

Containment Ventilation System

RESULTS LISTING - SORTED BY SURFACE CODE

FILE #	UNIT	SURFACE	MATERIAL	REASON	COUNT TIME	MSRMNT LOCATION	MDA	RESULT
581 (2)	01	H03	B0031	C01	240	00001	14,472.	***353,995.0***
581 (2)	01	H03	B0031	C01	240	00002	15,605.	***540,758.4***
581 (2)	01	H04	B0031	C01	240	00001	15,111.	***436,174.5***
581 (2)	01	H04	B0031	C01	240	00002	14,730.	***464,887.8***

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.
4 results are listed.

DURATEK

Maine Yankee Atomic Power Plant Site Characterization

DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

04/14/98 Direct Measurements For Total Beta Activity

Survey Package : C1800 SYSTEMS

Containment Ventilation System

SURVEY		M2350		DETECTOR			PRE	
DATE	FILE #	INST S/N	CAL DUE	MODEL	S/N	CAL DUE	EFF	TECHNICIAN
2/10/98	581 (2)	129414	3/22/98	43-106	133882	3/27/98	.20	JFM0682

CALIBRATION DATES VERIFIED AS ACCEPTABLE

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Removable Contamination - Gross Beta Activity

Survey Package C1800 SYSTEMS

Containment Ventilation System

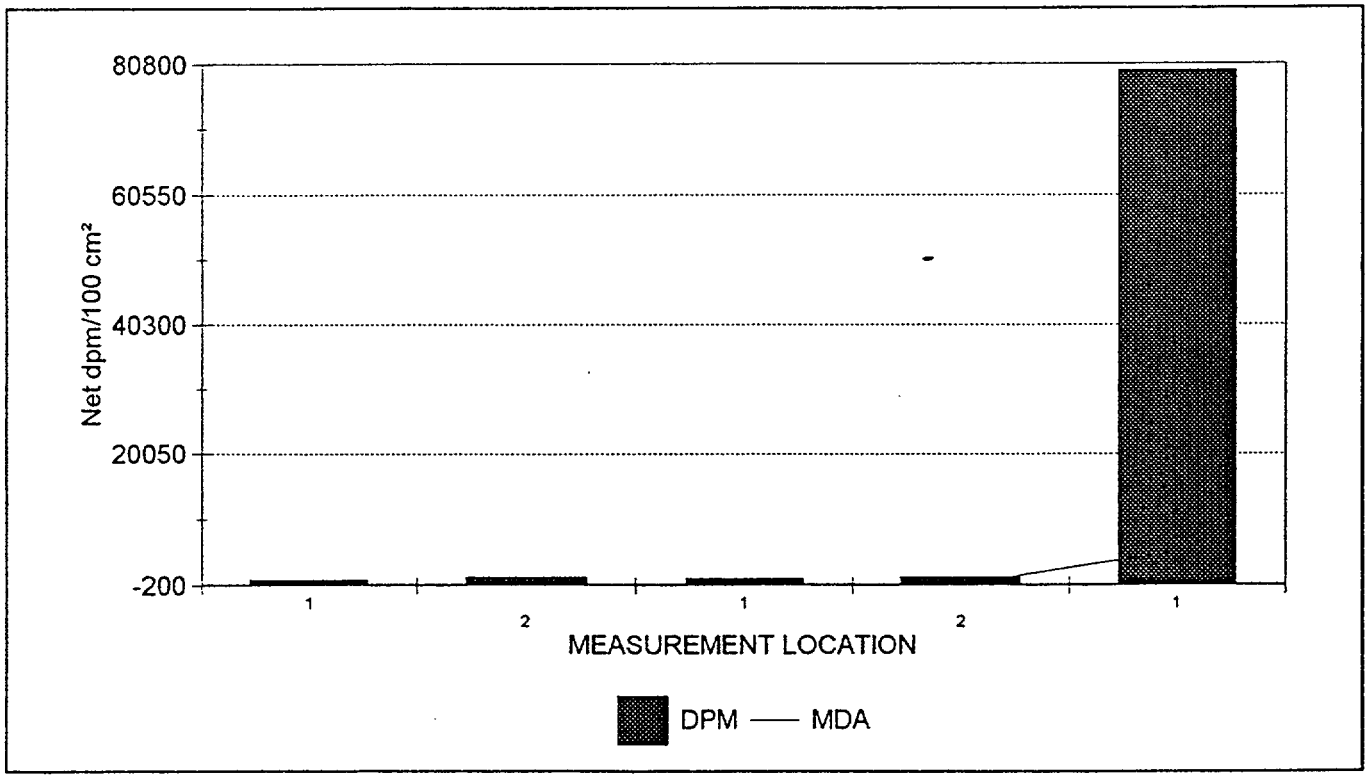
STATISTICAL SUMMARY

	Net dpm/100 cm²
Mean	16,768.0
Maximum	80,000.0
Minimum	750.0
Standard Deviation	35,348.1
MDA	5,000.0

Samples Reported	5
Samples Prescribed	11

TESTS PERFORMED

MDA <100 net dpm/100 cm²	NO
Results above 100 net dpm/100 cm²	5
Number of results above MDA	5



5 RESULTS ARE GRAPHED

04/14/98

Removable Contamination - Gross Alpha Activity

Survey Package C1800 SYSTEMS

Containment Ventilation System

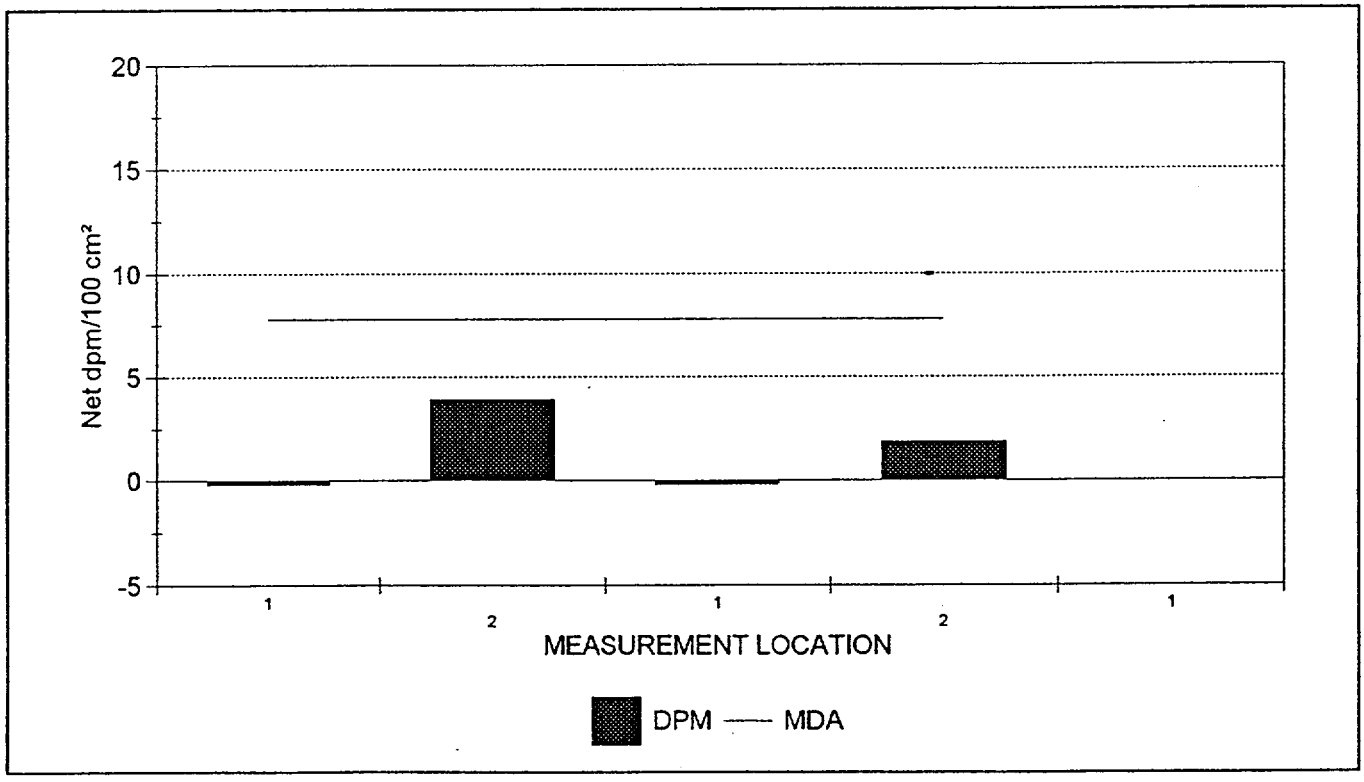
STATISTICAL SUMMARY

	Net dpm/100 cm²
Mean	1.1
Maximum	3.9
Minimum	-0.2
Standard Deviation	1.8
MDA	7.8

Samples Reported	5
Samples Prescribed	11

TESTS PERFORMED

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



5 RESULTS ARE GRAPHED

Maine Yankee Atomic Power Plant Site Characterization

04/14/98 Removable Contamination

Survey Package : C1800 SYSTEMS

Containment Ventilation System

RESULTS LISTING - SORTED BY SURFACE CODE

XLS FILE	UNIT	SURFACE	REASON	MSRMNT LOCATION	ALPHA	BETA
RM-14DATA14	02	M02	C01	1		***80,000.0***
SME1E175.XLS	01	H04	C01	2	1.9	***1,088.5***
SME1E175.XLS	01	H04	C01	1	-0.2	***864.8***
SME1E173.XLS	01	H03	C01	2	3.9	***1,136.8***
SME1E173.XLS	01	H03	C01	1	-0.2	***750.0***

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).
5 results are listed.

Maine Yankee Atomic Power Plant Site Characterization

DATAFILE & ALPHA - BETA COUNTER CALIBRATION SUMMARY

04/14/98

Removable Contamination

Survey Package : C1800 SYSTEMS

Containment Ventilation System

SURVEYDATE	XLS FILE	INST ID	S/N	CAL DUE	LAB TECHNICIAN
3/28/98	RM-14DATA14	3	8263	5/26/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	
3/17/98	SME1E173.XLS	1	15632	8/5/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	
3/17/98	SME1E175.XLS	1	15632	8/5/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Removable Contamination - Tritium Activity

Survey Package : C1800 SYSTEMS

Containment Ventilation System

RESULTS LISTING - SORTED BY SURFACE CODE

SAMPLE ID	SAMPLE TYPE	UNIT	SURF	REASN	MSRMNT LOCATION	MDA	TRITIUM ACTIVITY
D58	Hoppes patch	01	H03	C01	00001	38.5	-1.6
D59	Hoppes patch	01	H04	C01	00001	38.5	-13.8
D60	Hoppes patch	02	M02	C01	00001	38.7	5.2

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 75 dpm/100 cm²,
Italic values exceed 100 dpm/100 cm².

Maine Yankee Atomic Power Plant Site Characterization

LIQUID SCINTILLATION COUNTER CALIBRATION SUMMARY

04/14/98

Removable Contamination - Tritium Activity

Survey Package : C1800 SYSTEMS

Containment Ventilation System

SURVEYDATE	INSTRUMENT	MODEL	S/N	CAL DUE	LAB TECHNICIAN
3/5/98	Packard	2750	416221	6/16/98	LDT
					CALIBRATION DATE VERIFIED AS ACCEPTABLE

Maine Yankee Atomic Power Plant Site Characterization

GAMMA SPECTRAL ANALYSIS RESULTS LISTING

NUMBER OF SAMPLES REPORTED = 3

04/14/98 OUTPUT BATCH SN = 853

Survey Package C1800 SYSTEMS

Containment Ventilation System

UNIT : 01 SURFACE : H03 REASON : C01 ANALYSIS TYPE CODE : LAB05

SAMPLE TYPE OR SURFACE SAMPLED: Heat Exchanger
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYP45	PET00063	1.0	1200	Co-57	< 62.3	62.3	0.0
				Co-60	832.00	67.8	103.0
				Cs-134	148.00	113.0	76.1
				Cs-137	1700.00	102.0	199.0
				K-40	< 417.0	417.0	0.0
				Mn-54	< 96.1	96.1	0.0

UNIT : 01 SURFACE : H04 REASON : C01 ANALYSIS TYPE CODE : LAB05

SAMPLE TYPE OR SURFACE SAMPLED: Heat Exchanger
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYP46	PET00064	1.0	1200	Co-57	< 52.8	52.8	0.0
				Co-60	< 137.0	137.0	0.0
				Cs-134	< 83.7	83.7	0.0
				Cs-137	363.00	62.7	82.8
				K-40	< 987.0	987.0	0.0
				Mn-54	< 76.5	76.5	0.0

Survey Package C1800 SYSTEMS

Containment Ventilation System

UNIT : 02 SURFACE : M02 REASON : C01 ANALYSIS TYPE CODE : LAB05

SAMPLE TYPE OR SURFACE SAMPLED: Misc component
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYP47	PET00065	1.0	1200	Co-57	< 168.0	168.0	0.0
				Co-60	430.00	102.0	79.9
				Cs-134	2900.00	69.9	232.0
				Cs-137	54200.00	250.0	3,540.0
				K-40	< 743.0	743.0	0.0
				Mn-54	< 110.0	110.0	0.0

CHARACTERIZATION SUMMARY

04/14/98

SYSTEMS

SURVEY PACKAGE NUMBER :C1900

PACKAGE DESCRIPTION

SURVEY AREA DESCRIPTION

Steam Generators

GENERAL HISTORICAL INFORMATION (Operational history, etc.)

The Steam Generators transferred heat from the primary system to the secondary system. The Steam Generators are vertical, shell, U-tube type heat exchangers.

In December 1990, a leak from Steam Generator E-1-1 caused the plant to shut down. The leak rate at the time of the shut down was approximately 60 gallons per hour. The leak had existed for several months.

SUMMARY OF CHARACTERIZATION ACTIVITIES

Survey units were established for the system by building and elevation as shown in the following Summary of Survey Units. The Surface(s) listing indicates the component name, survey surface code and, where applicable, the Maine Yankee system component number.

A total of 96 exposure rate measurements were collected at 12 component locations.

Beta scan surveys and direct measurements for total beta activity were not prescribed for this survey package.

Smear samples were collected from component interior surfaces to analyze for removable alpha and beta activity at 3 survey measurement locations indicated on the results listing report.

Smear samples were collected from component interior surfaces to analyze for removable tritium activity at 3 survey measurement locations indicated on the results listing report.

Smear samples were collected from component interior surfaces to analyze for removable plant-derived radionuclide activity by gamma spectroscopy at 4 survey measurement locations indicated on 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 The average and maximum exposure rate measurement results were 17.1 mR/hr and 82 mR/hr, respectively. The ratio of the 15 cm distance measurements to the 1 meter distance measurements ranged from 0.6 to 3.8.

o There were 3 measurements for removable beta activity above MDA (maximum MDA was 5,000 dpm/100cm^2). The maximum measurement result was 500,000 dpm/100cm^2.

o There were no measurements for removable alpha activity.

o There were 2 measurements for removable tritium activity above MDA (138.9 dpm/100cm^2). The maximum measurement result was 592.1 dpm/100cm^2.

o Of the 4 samples analyzed by gamma spectroscopy, all samples indicated plant-derived radionuclide activity above MDA. The analysis of the samples indicated the presence of Co-57, Co-58, Co-60, Ag-110M and Mn-54.

REFERENCES (Documents, Interviews)

Maine Yankee Drawing 1150 - FM - 90 A

Professional Staff Orientation Manual, Chapter 2

SUMMARY OF SURVEY UNIT(S)

04/14/98 OUTPUT BATCH SN = 854

PACKAGE C1900 SYSTEMS

UNIT(S)	SURFACE(S)
01 - Steam Generator E-1-1	H01 (Bowl region (approximately 15' elevation)) H02 (Region 6" above tube sheet (approximately 20' elevation)) H03 (Center of tube bundle region (approximately 33' elevation)) H04 (Steam drum region (approximately 54' elevation))
02 - Steam Generator E-1-2	H01 (Bowl region (approximately 15' elevation)) H02 (Region 6" above tube sheet (approximately 20' elevation)) H03 (Center of tube bundle region (approximately 33' elevation)) H04 (Steam drum region (approximately 54' elevation))
03 - Steam Generator E-1-3	H01 (Bowl region (approximately 15' elevation)) H02 (Region 6" above tube sheet (approximately 20' elevation)) H03 (Center of tube bundle region (approximately 33' elevation)) H04 (Steam drum region (approximately 54' elevation))

REASON(S) CHARACTERIZATION SURVEY (C01)

MATERIALS

MAT'L CODE	MATERIAL DESCRIPTION	BETA BKGD (dpm/100 cm²)
G0031	METAL - BARE (GAMMA)	0.0

04/14/98

Exposure Rate Measurements

Survey Package C1900 SYSTEMS

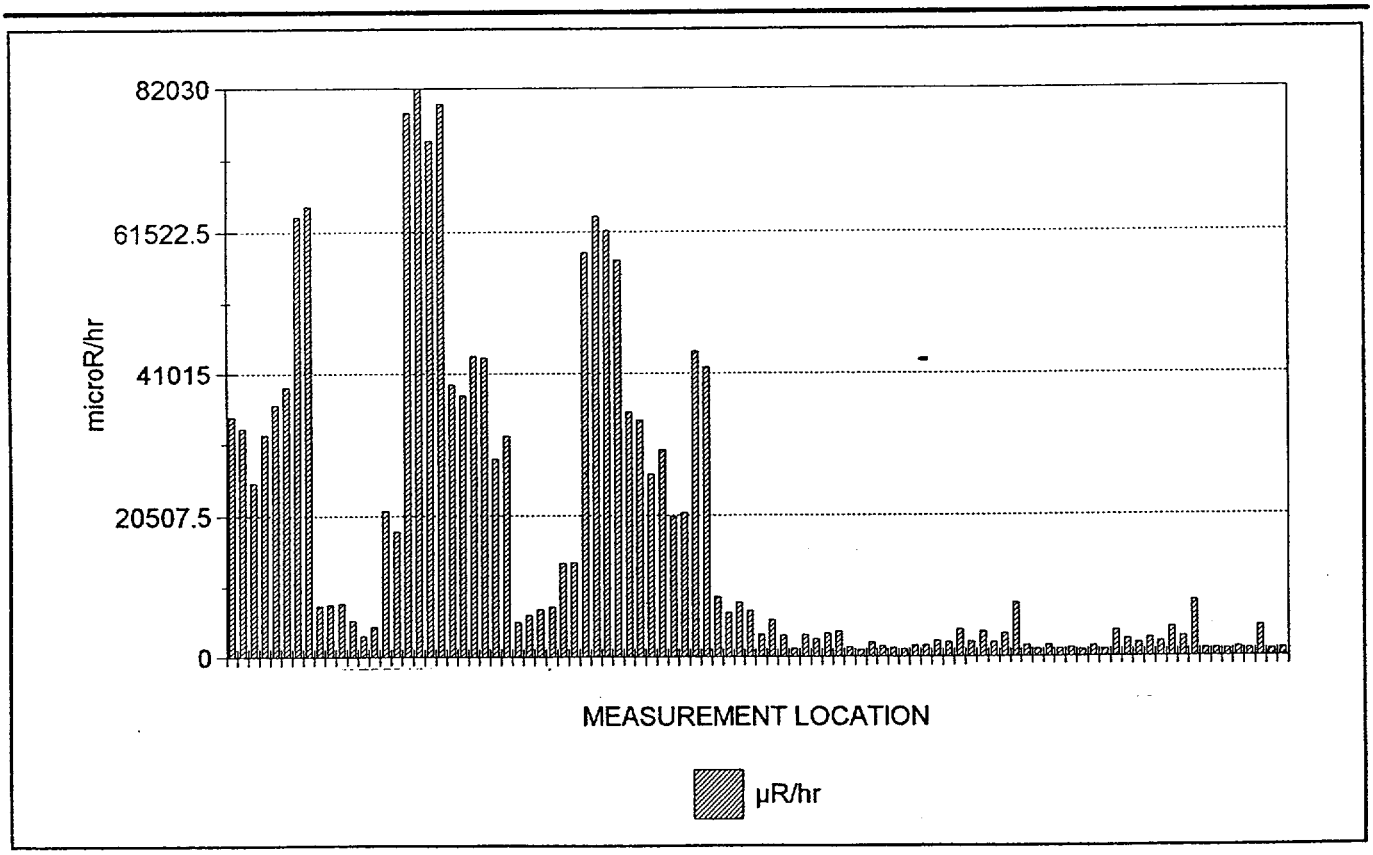
STATISTICAL SUMMARY

	µR/hr
Mean	17,071.4
Maximum	82,025.2
Minimum	1,028.8
Standard Deviation	21,980.0

Samples Reported	96
Samples Prescribed	96

TESTS PERFORMED

Samples reported satisfy samples prescribed	YES



96 RESULTS ARE GRAPHED

Survey Package : C1900 SYSTEMS

RESULTS LISTING - SORTED BY SURFACE CODE

FILE #	UNIT	SURFACE	MATERIAL	REASON	COUNT TIME	MSRMNT LOCATION	RESULT
671 (2)	01	H01	G0031	C01	0.00	00001	***6711.4***
671 (2)	01	H01	G0031	C01	0.00	00002	***7979.3***
671 (2)	01	H01	G0031	C01	0.00	00003	***6500.5***
671 (2)	01	H01	G0031	C01	0.00	00004	***8830.9***
671 (2)	01	H01	G0031	C01	0.00	00005	***41889.2***
671 (2)	01	H01	G0031	C01	0.00	00006	***44160.4***
671 (2)	01	H01	G0031	C01	0.00	00007	***20865.2***
671 (2)	01	H01	G0031	C01	0.00	00008	***20351.4***
671 (2)	01	H02	G0031	C01	0.00	00001	***29908.7***
671 (2)	01	H02	G0031	C01	0.00	00002	***26351.4***
671 (2)	01	H02	G0031	C01	0.00	00003	***34165.8***
671 (2)	01	H02	G0031	C01	0.00	00004	***35290.2***
671 (2)	01	H02	G0031	C01	0.00	00005	***57450.8***
671 (2)	01	H02	G0031	C01	0.00	00006	***61702.5***
671 (2)	01	H02	G0031	C01	0.00	00007	***63719.3***
671 (2)	01	H02	G0031	C01	0.00	00008	***58543.2***
671 (2)	01	H03	G0031	C01	0.00	00001	***8154.9***
671 (2)	01	H03	G0031	C01	0.00	00002	***2753.6***
671 (2)	01	H03	G0031	C01	0.00	00003	***2957.8***
671 (2)	01	H03	G0031	C01	0.00	00004	***2046.5***
671 (2)	01	H03	G0031	C01	0.00	00005	***4276.5***
671 (2)	01	H03	G0031	C01	0.00	00006	***2547.0***
671 (2)	01	H03	G0031	C01	0.00	00007	***2217.0***
671 (2)	01	H03	G0031	C01	0.00	00008	***3805.3***
671 (2)	01	H04	G0031	C01	0.00	00001	***1168.7***
671 (2)	01	H04	G0031	C01	0.00	00002	1370.8
671 (2)	01	H04	G0031	C01	0.00	00003	***1039.0***
671 (2)	01	H04	G0031	C01	0.00	00004	***1095.7***
671 (2)	01	H04	G0031	C01	0.00	00005	***4425.6***
671 (2)	01	H04	G0031	C01	0.00	00006	***1166.4***
671 (2)	01	H04	G0031	C01	0.00	00007	***1120.8***
671 (2)	01	H04	G0031	C01	0.00	00008	***1177.6***
671 (2)	02	H01	G0031	C01	0.00	00001	***13740.1***
671 (2)	02	H01	G0031	C01	0.00	00002	***13658.9***
671 (2)	02	H01	G0031	C01	0.00	00003	***7308.0***
671 (2)	02	H01	G0031	C01	0.00	00004	***6914.9***
671 (2)	02	H01	G0031	C01	0.00	00005	***6137.6***
671 (2)	02	H01	G0031	C01	0.00	00006	***5086.2***
671 (2)	02	H01	G0031	C01	0.00	00007	***31906.8***
671 (2)	02	H01	G0031	C01	0.00	00008	***28611.9***

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.

Survey Package: C1900 SYSTEMS

RESULTS LISTING - SORTED BY SURFACE CODE

FILE #	UNIT	SURFACE	MATERIAL	REASON	COUNT TIME	MSRMNT LOCATION	RESULT
671 (2)	02	H02	G0031	C01	0.00	00001	***43236.0***
671 (2)	02	H02	G0031	C01	0.00	00002	***43559.2***
671 (2)	02	H02	G0031	C01	0.00	00003	***37770.1***
671 (2)	02	H02	G0031	C01	0.00	00004	***39295.3***
671 (2)	02	H02	G0031	C01	0.00	00005	***79852.5***
671 (2)	02	H02	G0031	C01	0.00	00006	***74537.2***
671 (2)	02	H02	G0031	C01	0.00	00007	***82025.2***
671 (2)	02	H02	G0031	C01	0.00	00008	***78558.4***
671 (2)	02	H03	G0031	C01	0.00	00001	***7833.0***
671 (2)	02	H03	G0031	C01	0.00	00002	***3386.3***
671 (2)	02	H03	G0031	C01	0.00	00003	***2128.0***
671 (2)	02	H03	G0031	C01	0.00	00004	***3733.3***
671 (2)	02	H03	G0031	C01	0.00	00005	***2259.8***
671 (2)	02	H03	G0031	C01	0.00	00006	***4009.4***
671 (2)	02	H03	G0031	C01	0.00	00007	***2105.1***
671 (2)	02	H03	G0031	C01	0.00	00008	***2278.1***
671 (2)	02	H04	G0031	C01	0.00	00001	***1096.1***
671 (2)	02	H04	G0031	C01	0.00	00002	***1559.0***
671 (2)	02	H04	G0031	C01	0.00	00003	***1041.4***
671 (2)	02	H04	G0031	C01	0.00	00004	***1272.3***
671 (2)	02	H04	G0031	C01	0.00	00005	***1127.5***
671 (2)	02	H04	G0031	C01	0.00	00006	***1654.4***
671 (2)	02	H04	G0031	C01	0.00	00007	***1122.9***
671 (2)	02	H04	G0031	C01	0.00	00008	***1636.6***
671 (2)	03	H01	G0031	C01	0.00	00001	***18306.2***
671 (2)	03	H01	G0031	C01	0.00	00002	21256.3
671 (2)	03	H01	G0031	C01	0.00	00003	***4406.1***
671 (2)	03	H01	G0031	C01	0.00	00004	***3130.5***
671 (2)	03	H01	G0031	C01	0.00	00005	***5401.4***
671 (2)	03	H01	G0031	C01	0.00	00006	***7870.1***
671 (2)	03	H01	G0031	C01	0.00	00007	***7713.2***
671 (2)	03	H01	G0031	C01	0.00	00008	***7446.3***
671 (2)	03	H02	G0031	C01	0.00	00001	***65195.8***
671 (2)	03	H02	G0031	C01	0.00	00002	***63728.5***
671 (2)	03	H02	G0031	C01	0.00	00003	***38950.3***
671 (2)	03	H02	G0031	C01	0.00	00004	***36474.8***
671 (2)	03	H02	G0031	C01	0.00	00005	***32070.2***
671 (2)	03	H02	G0031	C01	0.00	00006	***25241.2***
671 (2)	03	H02	G0031	C01	0.00	00007	***33050.5***
671 (2)	03	H02	G0031	C01	0.00	00008	***34640.6***

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.

Survey Package : C1900 SYSTEMS

RESULTS LISTING - SORTED BY SURFACE CODE

FILE #	UNIT	SURFACE	MATERIAL	REASON	COUNT TIME	MSRMNT LOCATION	RESULT
671 (2)	03	H03	G0031	C01	0.00	00001	***3654.1***
671 (2)	03	H03	G0031	C01	0.00	00002	***3448.8***
671 (2)	03	H03	G0031	C01	0.00	00003	***2617.0***
671 (2)	03	H03	G0031	C01	0.00	00004	***3280.7***
671 (2)	03	H03	G0031	C01	0.00	00005	***1214.0***
671 (2)	03	H03	G0031	C01	0.00	00006	***3189.8***
671 (2)	03	H03	G0031	C01	0.00	00007	***5319.1***
671 (2)	03	H03	G0031	C01	0.00	00008	***3292.1***
671 (2)	03	H04	G0031	C01	0.00	00001	***1637.6***
671 (2)	03	H04	G0031	C01	0.00	00002	***1652.2***
671 (2)	03	H04	G0031	C01	0.00	00003	***1134.4***
671 (2)	03	H04	G0031	C01	0.00	00004	***1253.1***
671 (2)	03	H04	G0031	C01	0.00	00005	***1534.3***
671 (2)	03	H04	G0031	C01	0.00	00006	***2112.4***
671 (2)	03	H04	G0031	C01	0.00	00007	***1028.8***
671 (2)	03	H04	G0031	C01	0.00	00008	***1423.1***

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.
96 results are listed.

DURATEK

Maine Yankee Atomic Power Plant Site Characterization

DOWNLOAD FILE & SURVEY INSTRUMENTATION CALIBRATION SUMMARY

04/14/98

Exposure Rate Measurements

Survey Package : C1900 SYSTEMS

SURVEY		M2350		DETECTOR			
DATE	FILE #	INST S/N	CAL DUE	MODEL	S/N	CAL DUE	TECHNICIAN
3/24/98	671 (2)	95349	4/15/98	44-38	PR088919	7/23/98	AOK2982

CALIBRATION DATES VERIFIED AS ACCEPTABLE

Maine Yankee Atomic Power Plant Site Characterization
Exposure Rate Distance Ratios

SURVEY PACKAGE C01900

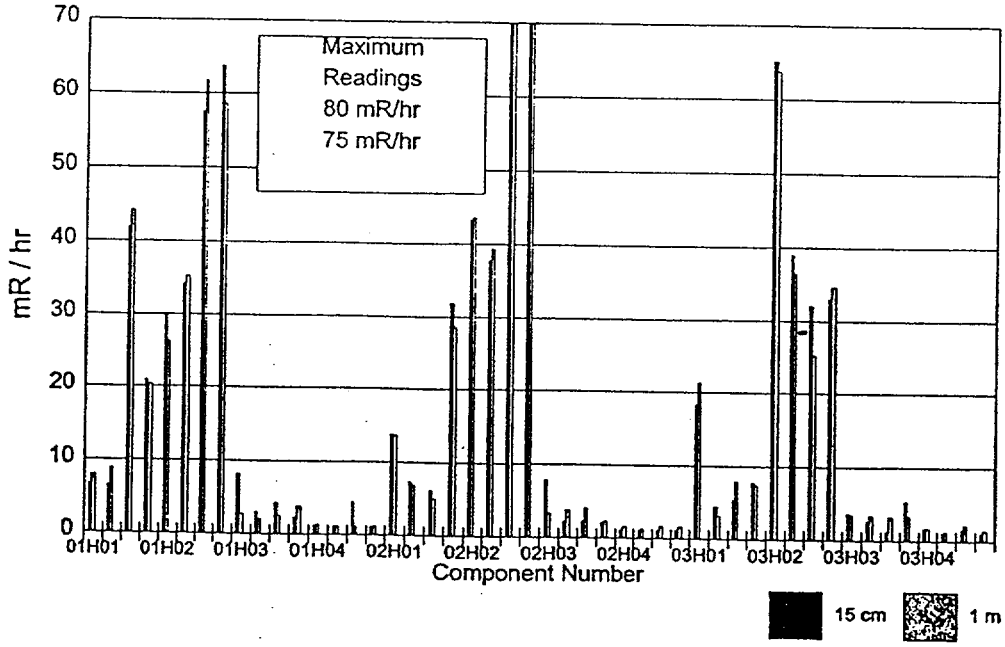
Package Number	Component Number	Component Description	Direction	15 cm mR/hr	1 meter mR/hr	Ratio of 15 cm to 1 meter
C1900	01H01	Bowl region (approximately 15' elevation)	North	6.7	8.0	0.8
			East	6.5	8.8	0.7
			South	41.9	44.2	0.9
			West	20.9	20.4	1.0
C1900	01H02	Region 6" above tube sheet (approximately 20' elevation)	North	29.9	26.4	1.1
			East	34.2	35.3	1.0
			South	57.5	61.7	0.9
			West	63.7	58.5	1.1
C1900	01H03	Center of tube bundle region (approximately 33' elevation)	North	8.2	2.8	3.0
			East	3.0	2.0	1.4
			South	4.3	2.5	1.7
			West	2.2	3.8	0.6
C1900	01H04	Steam drum region (approximately 54' elevation)	North	1.2	1.4	0.9
			East	1.0	1.1	0.9
			South	4.4	1.2	3.8
			West	1.1	1.2	1.0
C1900	02H01	Bowl region (approximately 15' elevation)	North	13.7	13.7	1.0
			East	7.3	6.9	1.1
			South	6.1	5.1	1.2
			West	31.9	28.6	1.1
C1900	02H02	Region 6" above tube sheet (approximately 20' elevation)	North	43.2	43.6	1.0
			East	37.8	39.3	1.0
			South	79.9	74.5	1.1
			West	82.0	78.6	1.0
C1900	02H03	Center of tube bundle region (approximately 33' elevation)	North	7.8	3.4	2.3
			East	2.1	3.7	0.6
			South	2.3	4.0	0.6
			West	2.1	2.3	0.9
C1900	02H04	Steam drum region (approximately 54' elevation)	North	1.1	1.6	0.7
			East	1.0	1.3	0.8
			South	1.1	1.7	0.7
			West	1.1	1.6	0.7
C1900	03H01	Bowl region (approximately 15' elevation)	North	18.3	21.3	0.9
			East	4.4	3.1	1.4
			South	5.4	7.9	0.7
			West	7.7	7.4	1.0

Maine Yankee Atomic Power Plant Site Characterization
Exposure Rate Distance Ratios

SURVEY PACKAGE C01900

C1900	03H02	Region 6" above tube sheet (approximately 20' elevation)	North	65.2	63.7	1.0
			East	39.0	36.5	1.1
			South	32.1	25.2	1.3
			West	33.1	34.6	1.0
C1900	03H03	Center of tube bundle region (approximately 33' elevation)	North	3.7	3.4	1.1
			East	2.6	3.3	0.8
			South	1.2	3.2	0.4
			West	5.3	3.3	1.6
C1900	03H04	Steam drum region (approximately 54' elevation)	North	1.6	1.7	1.0
			East	1.1	1.3	0.9
			South	1.5	2.1	0.7
			West	1.0	1.4	0.7

Exposure Rates - 15 cm and 1 meter



DURATEK

Maine Yankee Atomic Power Plant Site Characterization

04/14/98

Removable Contamination - Gross Beta Activity

Survey Package C1900 SYSTEMS

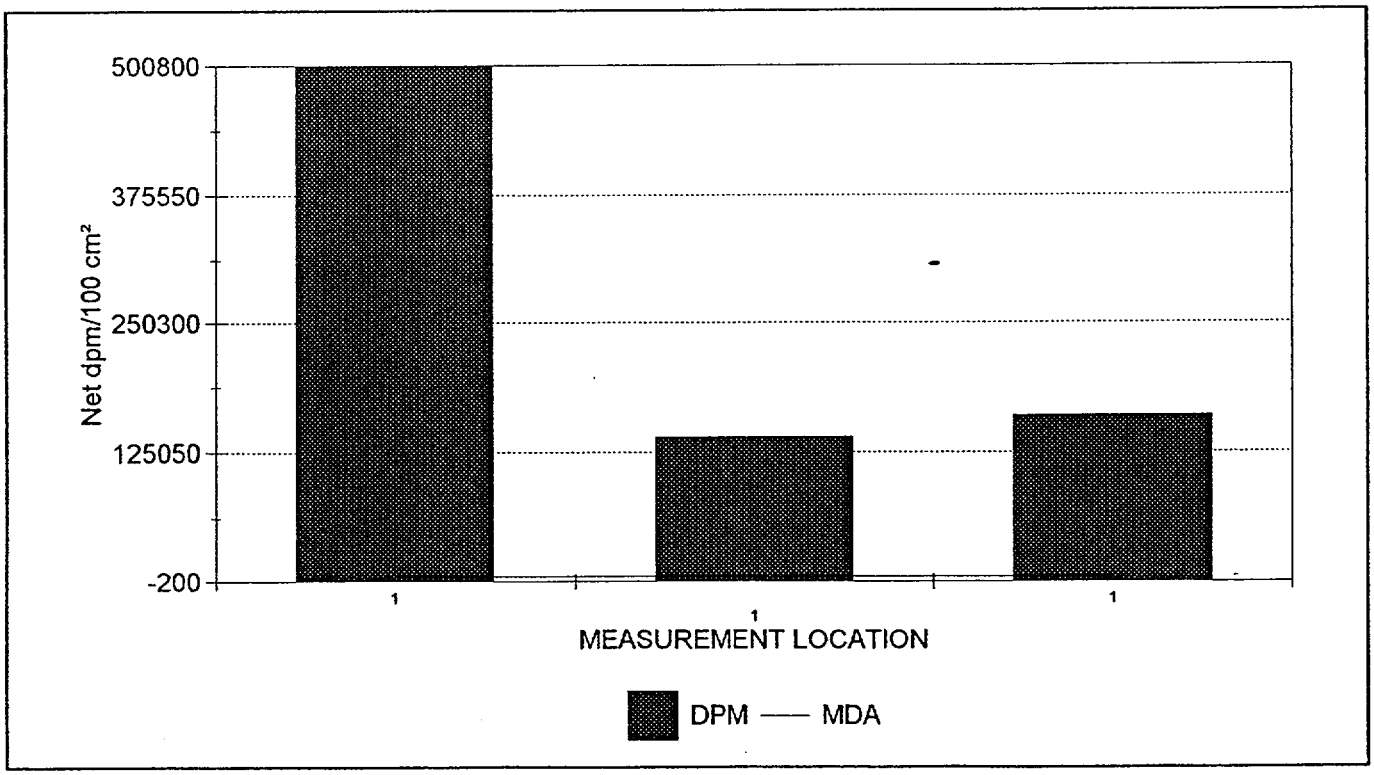
STATISTICAL SUMMARY

	Net dpm/100 cm²
Mean	266,666.7
Maximum	500,000.0
Minimum	140,000.0
Standard Deviation	202,319.9
MDA	5,000.0

Samples Reported	3
Samples Prescribed	9

TESTS PERFORMED

MDA <100 net dpm/100 cm²	NO
Results above 100 net dpm/100 cm²	3
Number of results above MDA	3



3 RESULTS ARE GRAPHED

Survey Package : C1900 SYSTEMS

RESULTS LISTING - SORTED BY SURFACE CODE

XLS FILE	UNIT	SURFACE	REASON	MSRMNT LOCATION	ALPHA	BETA
RM-14DATA17	03	H01	C01	1		***160,000.0***
RM-14DATA16	02	H01	C01	1		***140,000.0***
RM-14DATA15	01	H01	C01	1		***500,000.0***

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).
3 results are listed.

Maine Yankee Atomic Power Plant Site Characterization

DATAFILE & ALPHA - BETA COUNTER CALIBRATION SUMMARY

04/14/98

Removable Contamination

Survey Package : C1900 SYSTEMS

SURVEYDATE	XLS FILE	INST ID	S/N	CAL DUE	LAB TECHNICIAN
3/28/98	RM-14DATA15	3	8263	5/26/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	
3/28/98	RM-14DATA16	3	8263	5/26/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	
3/28/98	RM-14DATA17	3	8263	5/26/98	JWD
				CALIBRATION DATE VERIFIED AS ACCEPTABLE	

DURATEK

Maine Yankee Atomic Power Plant Site Characterization

04/14/98 Removable Contamination - Tritium Activity

Survey Package : C1900 SYSTEMS

RESULTS LISTING - SORTED BY SURFACE CODE

SAMPLE ID	SAMPLE TYPE	UNIT	SURF	REASN	MSRMNT LOCATION	MDA	TRITIUM ACTIVITY
D61	Hoppes patch	02	H01	C01	00001	138.9	***519.9***
D64	Hoppes patch	03	H01	C01	00001	138.9	***82.1***
D72	Hoppes patch	01	V01	C01	00001	138.9	***592.1***

NOTES: Activity reported in net dpm/100 cm².
Underlined values exceed the associated MDA.
Bold values exceed 75 dpm/100 cm²,
Italic values exceed 100 dpm/100 cm².

DURATEK

Maine Yankee Atomic Power Plant Site Characterization

LIQUID SCINTILLATION COUNTER CALIBRATION SUMMARY

04/14/98

Removable Contamination - Tritium Activity

Survey Package: C1900 SYSTEMS

SURVEYDATE	INSTRUMENT	MODEL	S/N	CAL DUE	LAB TECHNICIAN
4/6/98	Packard	2750	416221	6/16/98	LDT

CALIBRATION DATE VERIFIED AS ACCEPTABLE

Maine Yankee Atomic Power Plant Site Characterization

GAMMA SPECTRAL ANALYSIS RESULTS LISTING

NUMBER OF SAMPLES REPORTED = 4

04/14/98 OUTPUT BATCH SN = 854

Survey Package C1900 SYSTEMS

UNIT : 01 SURFACE : H01 REASON : C01 ANALYSIS TYPE CODE : LAB05

SAMPLE TYPE OR SURFACE SAMPLED: Heat Exchanger
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYD084	PET00021	1.0	1200	Co-57	1570.00	1,060.0	643.0
				Co-60	70000.00	2,790.0	4,000.0
				Cs-134	< 2210.0	2,210.0	0.0
				Cs-137	< 2800.0	2,800.0	0.0
				K-40	< 10400.0	0,400.0	0.0
				Mn-54	16500.00	3,850.0	2,520.0

SAMPLE TYPE OR SURFACE SAMPLED: Heat Exchanger
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYP30	PET00047	1.0	1200	Co-57	< 423.0	423.0	0.0
				Co-58	4360.00	1,470.0	945.0
				Co-60	17000.00	939.0	7,900.0
				Cs-134	< 950.0	950.0	0.0
				Cs-137	< 1190.0	1,190.0	0.0
				K-40	< 2410.0	2,410.0	0.0
				Mn-54	3480.00	1,810.0	1,110.0

Survey Package C1900 SYSTEMS

UNIT : 02 SURFACE : H01 REASON : C01 ANALYSIS TYPE CODE : LAB05

SAMPLE TYPE OR SURFACE SAMPLED: Heat Exchanger
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYD082	PET00020	1.0	1200	Co-57	< 374.0	374.0	0.0
				Co-60	65000.00	976.0	5,700.0
				Cs-134	< 975.0	975.0	0.0
				Cs-137	< 1220.0	1,220.0	0.0
				K-40	< 3210.0	3,210.0	0.0
				Mn-54	955.00	1,500.0	898.0

SAMPLE TYPE OR SURFACE SAMPLED: Heat Exchanger
SAMPLE LOCATOR: 00001

LAB ID	SPECTRUM	MASS (grams)	COUNT TIME (seconds)	NUCLIDE	ACTIVITY (pCi/g)	MDA (pCi/g)	ERROR (± pCi/g)
MYP31	PET00048	1.0	3600	Ag-110M	1110.00	182.0	105.0
				Co-57	156.00	101.0	61.6
				Co-60	40300.00	129.0	1,760.0
				Cs-134	< 191.0	191.0	0.0
				Cs-137	< 290.0	290.0	0.0
				K-40	< 621.0	621.0	0.0
				Mn-54	347.00	255.0	157.0