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OAK RIDGE
NATIONAL
LABORATORY

MARTIN MARIETTA

PCB Annual Report for Oak Ridge National Laboratory—1986

B. D. Barkenbus
T. T. Puett
C. F. Sigmon

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PCB ANNUAL REPORT FOR OAK RIDGE NATIONAL LABORATORY - 1986

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ABSTRACT

Oak Ridge National Laboratory prepares a report annually as mandated by the Toxic Substances Control Act that summarizes records required of owners/operators of facilities where PCBs are in use. This report provides information on PCB and PCB-contaminated equipment in use and removed from service and PCB wastes generated, stored, and shipped off-site for treatment and disposal during calendar year 1986.

1.0 INTRODUCTION

Polychlorinated biphenyls (PCBs) are a family of chlorinated aromatic hydrocarbons previously used extensively in electrical equipment, heat transfer systems, fire retardants, and plasticizers. PCBs can be detrimental to humans and the environment because of their toxicity, persistence, and tendency to bioaccumulate. Humans exposed to PCBs can develop dermatologic symptoms, follicular keratitis, excessive eye discharge, swelling of the eye lids, and nervous system symptoms (IARC 1978). In addition, available data are sufficient to support the carcinogenicity of PCBs to animals but are inadequate to demonstrate their carcinogenicity to humans (IARC 1982).

Congress mandated the control of PCBs under the Toxic Substances Control Act (TSCA) of 1976, Public Law 94-469, Section 6(e). To enforce TSCA, the Environmental Protection Agency (EPA) promulgated regulations under Title 40 of the Code of Federal Regulations (CFR), Part 761. Subpart B of 40 CFR 761 outlines requirements for the manufacture, processing, distribution, and use of PCBs. Subpart C governs marking and labeling requirements and Subpart D, storage and disposal requirements. Subpart J contains recordkeeping and reporting requirements for owners or operators of facilities using or storing PCBs and includes an annual report to be submitted by July 1, covering the previous calendar year.

Oak Ridge National Laboratory (ORNL) manages PCB- and PCB-contaminated wastes, which are stored on-site before their disposal at EPA-approved facilities. In addition, PCB articles, PCB containers, and PCB-contaminated electrical equipment are in use at ORNL. PCB transformers, however, are no longer in service at the main ORNL site. This document fulfills the reporting requirement for these PCB materials at Oak Ridge National Laboratory.

2.0 PCB REGULATIONS

The Toxic Substances Control Act enables EPA to regulate chemical substances and mixtures that present an unreasonable risk of injury to human health or the environment. The primary impact of TSCA on ORNL is the regulation of PCB and PCB-contaminated equipment and materials. The following are some of the elements EPA promulgated to implement this PCB control program:

1. banned the manufacture, distribution in commerce, and use of PCBs in other than a "totally enclosed manner" (40 CFR Part 761.20);

2. established categories of electrical equipment [e.g., PCB transformer (< 500 ppm), PCB-contaminated electrical equipment (50-500 ppm), and non-PCB transformers (< 50 ppm)] (40 CFR Part 761.3);

3. set rules governing the conversion of PCB transformers to PCB-contaminated electrical equipment or to non-PCB transformers by draining, refilling, and/or otherwise servicing the transformer [40 CFR Part 761.30 (a)(2)(v)];

4. established criteria for the disposal of PCBs, PCB articles (transformers, PCB capacitors, PCB hydraulic machines, PCB-contaminated electrical equipment, and other PCB articles), PCB containers, and PCBs resulting from the clean-up and removal of spills (40 CFR 761.60);

5. established standards for the marking, storage, and spill prevention of PCBs and PCB-contaminated liquids and solids (40 CFR 761.65);

6. prohibited the use of PCB transformers and PCB-filled electromagnets (with concentrations of 500 ppm or greater) posing an exposure risk to food and feed after October 1, 1985, and established regulations to reduce fire-related risks posed by the use of PCB transformers (40 CFR 761.30);

7. authorized the use of all other PCB transformers for the remainder of their useful lives, except for those posing fire-related risks, and required a quarterly inspection of this equipment for leaks of dielectric fluids;

8. authorized the use of large capacitors that are located in restricted access electrical substations or in contained and restricted installations for the remainder of their useful lives. The use of all other large PCB capacitors after October 1, 1988, however, is prohibited [40 CFR 761.30 (l)(l)(ii)].

PCB-contaminated wastes at ORNL are also governed internally through the "Martin Marietta Energy Systems Policy for Use, Storage and Disposal of PCB," which requires management of some materials containing 2 ppm or greater PCBs as PCB wastes.

3.0 RECORDS AND REPORTING

Records are maintained and reporting is accomplished through the PCB Tracking System (PCBTS) and records of the Plant and Equipment Division. The PCBTS includes an inventory of transformers and high and low voltage capacitors and a waste module that receives PCB storage and shipment data from the Hazardous Materials Tracking System.

Regulations regarding reporting (40 CFR Part 761.180) require the dates PCBs and PCB Items are removed from service, are placed into storage for disposal, and are placed into transport for disposal. For PCBs and PCB Items removed from service, the regulations require the location of the initial disposal or storage facility and the name of the owner or operator of the facility. The regulations also require information on PCBs and PCB Items remaining in service at the end of the calendar year including the total weight in kilograms of any PCBs and PCB Items in PCB Containers, total number of PCB transformers and total weight of the PCBs they contain, and the total number of PCB Large High or Low Voltage Capacitors. Storage and disposal facilities have additional reporting requirements including dates and quantities of PCBs and PCB Items transferred into or out of the facility during the year and those retained in storage at the end of the year.

3.1 PCB Transformers

From 1980 to 1984, transformers containing > 50 but < 500 ppm PCBs were chemically treated to decrease their concentrations of PCBs. Only two of these transformers have exceeded 50 ppm (Table 1). Transformers containing < 50 ppm are included in Appendix A. Hence, no PCB transformers (> 500 ppm) and few PCB-contaminated transformers remained in service at ORNL at the end of CY 1986. The required information for the twelve PCB transformers removed from service and disposed of during 1986 is given in Table 2.

3.2 PCB Capacitors

Although the ORNL electrical system does not have any PCB Large High or Low Voltage Capacitors, various research-related instruments contain them. A PCB Large High Voltage Capacitor under TSCA is one that contains 1.36 kg (3 lbs.) or more of dielectric fluid and operates at 2,000 volts or above. PCB low voltage capacitors contain 1.36 (3 lbs.) or more of dielectric fluid and operate below 2,000 volts. A capacitor whose total volume is less than 1,639 cubic centimeters (100 cubic inches) is assumed to contain less than 1.36 kg of dielectric fluid.

Table 1: PCB Contaminated Transformers > 50 PPM

Serial Number	Location	PCB:PPM	Capacity Gallons	Capacity Kilograms
7731801	7901	53	499.00	1891.21
7373793	7901	68	500.00	1895.00
		Total	999.00	3786.21

Table 2: PCB Transformers Removed from Service

Serial Number	PCB:PPM	Capacity Gal.	Capacity Kg	Date Removed	Disposer	Date Shipped
PE100005	1,000,000	140.0	530.6	6/21/86	Westinghouse	6/21/86
7375505	1,000,000	829.0	3141.9	6/14/86	Westinghouse	6/14/86
7375507	1,000,000	829.0	3141.9	6/17/86	Westinghouse	6/17/86
12446	1,000,000	375.0	1421.3	6/29/86	Westinghouse	6/29/86
D-554601	1,000,000	800.0	3032.0	6/29/86	Westinghouse	6/29/86
E694971	1,000,000	225.0	1004.4	6/26/86	Westinghouse	6/26/86
7375500	1,000,000	829.0	3141.9	6/25/86	Westinghouse	6/25/86
R-3333	1,000,000	31.0	117.5	6/29/86	Westinghouse	6/29/86
D-578512	1,000,000	340.0	1288.9	6/26/86	Westinghouse	6/26/86
7375510	1,000,000	829.0	3141.9	6/24/86	Westinghouse	6/24/86
7367598	1,000,000	829.0	3141.9	6/21/86	Westinghouse	6/21/86
R-3334	1,000,000	31.0	117.5	6/29/86	Westinghouse	6/29/86

Total Number = 12 Total gal. = 6087.00 Total Kg = 23221.7 Kg

The required information on capacitors remaining in service at the end of the calendar year including the total weight in kilograms and the total number of PCB Large High or Low Voltage Capacitors is given in Table 3. Most capacitors at ORNL are small and are packed in DOT-approved drums and shipped off-site in accordance with EPA/TSCA regulations for disposal. These items are included in Section 3.4, Table 6. Capacitors retained in storage at the end of the year are included in Table 8, Section 3.4.

3.3 PCB Equipment

In addition to PCB transformers and large PCB capacitors, ORNL has some equipment containing > 500 ppm PCBs. These items are summarized in Table 4.

3.4 PCB Waste

PCB wastes at ORNL include contaminated oils, small capacitors, fluorescent light ballasts, contaminated solids (e.g. rags, papers), transformer carcasses, and contaminated wastes from unintentional spills and releases. A small amount of radioactively contaminated PCB waste is also stored.

PCB-contaminated oils are classified into oils containing > 2 ppm but < 500 ppm of PCBs and oils with > 500 ppm PCBs. Low concentrations of PCBs (2 to 50 ppm) are frequently detected in waste oils from various sources. Most of the oils containing a high concentration of PCBs were used as dielectric fluids for electrical equipment or in heat exchange systems.

The PCB-contaminated (> 2 ppm) wastes are shipped off-site for disposal. PCB wastes are manifested in the same manner as RCRA-hazardous wastes and copies of the manifests are retained. Some of the wastes shipped off-site for disposal were generated at ORNL facilities located in Building Y9201-2 at the Y-12 plant. Summaries of off-site shipments of liquid wastes > 50 ppm and < 50 ppm PCBs are given in Table 5 and Table 6, respectively. The dates to storage (Tables 5 and 6) are the dates wastes were received at the main ORNL facility (X-10) from the ORNL facilities at Y-12.

The reporting of off-site shipments of liquid wastes containing > 50 ppm PCBs is somewhat confounded by the inadvertent contamination of clean used oils accumulated in a storage tank. These oils were analyzed prior to being added to the tank. Later analysis of the bulk contents of the tank revealed a high PCB concentration. The tank is no longer used. These oils were received from both ORNL facilities at Y-12 and from the X-10 site. Of the total liquid waste containing > 50 ppm PCBs shipped off-site during CY 1986, 20105.95 kg are reported as generated by ORNL

Table 3: ORNL Large High and Low Voltage PCB Capacitors

Serial Number	Quantity	Location	PCB:PPM	Capacity Gallons	Capacity Kilograms
CUSTOM BUILT	1	2008	1000000	80.000	303.200
SIEMENS 250KV	1	2008	1000000	40.000	151.600
41061005V-21A	4	2525	1000000	.600	2.274
41061005V-21	4	2525	1000000	.800	3.032
10C275P59-16	3	2525	1000000	.800	3.032
10C275P59-16	3	2525	1000000	.600	2.274
7910-8480T	4	3025	1000000	1.200	4.548
FRT-3	4	3095	1000000	.800	3.032
A17055	1	3500 B50	1000000	3.700	14.023
03646	1	3500 B50	1000000	3.700	14.023
853557	1	3500 C23	1000000	16.000	60.640
9-1502-00092-5	1	3500 D30	1000000	7.500	28.425
T093119	9	3500 R8	1000000	4.000	15.160
R10..840	3	3508 ATT	unknown	3.990	15.122
P68734	3	3508 ATT	unknown	3.990	15.122
R10837	3	3508 ATT	unknown	3.990	15.122
R 10:840	3	3508 att	1000000	3.990	7.201
R 10837	3	3508 att	1000000	3.990	7.428
P 68734	3	3508 att	1000000	3.990	15.122
410229	1	3525	1000000	5.200	19.708
001	1	3525	1000000	6.200	23.498
B48A	6	4500S B4	1000000	1.200	4.548
7449T	2	4500S B4	1000000	1.200	4.548
55069	12	4500S B5	1000000	.360	1.364
29A104	12	4500S B5	1000000	.360	1.364
B54	18	4500S B5	1000000	1.200	4.548
4-760	1	4500S D5	1000000	.900	3.411
KOA1104-2-1	3	4501 B	1000000	.400	1.516
A41482	2	4501 R10	1000000	1.900	7.201
79F204	6	4501 R22	1000000	4.000	15.160
19F86	10	4508	1000000	2.500	9.475
69-03378-9-0	3	4508 226	1000000	10.200	38.658
C297207	1	4508 226	1000000	6.400	24.256
FRT6-2	4	6000 ANN	1000000	.800	3.032
LING-1	3	6000 C30	1000000	1.580	5.988
W-1	9	6000 C30	1000000	6.600	25.014
FRT6-1	4	6000 C30	1000000	.800	3.032
G4-5165-01	2	7003	1000000	3.900	14.781
MONSON-1	4	7041	1000000	.800	3.032
9L18ACE301	3	7901	1000000	.450	1.705
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Total Number	162		Total	240.590	896.221

Table 4: Miscellaneous Equipment > 50 ppm

Serial Number	Type	Location	PCB:PPM	Capacity Gal.	Kg.
X104416	Pump	3012	549	2.00	7.58
X105593A	Hydraulic	3012	950,000	150.00	568.50
3024-258	Grinder	3024	1,436	1.00	3.79
3044-358	Surface Grinder	3044	65	15.00	56.85
3525-023	Waste Press	3525	301	2.00	7.58
4501-002	13" Lathe	4501	146	.50	2.00
6000-052	Oil Reclaimer	6000	96	1500.00	5685.00
6000-063	Oil Reclaimer	6000	247	1500.00	5685.00
6000-064	Vac Pump	6000	180	.25	1.00
6000-065	Vac Pump	6000	163	.25	1.00
6000-066	Vac Pump	6000	163	.25	1.00

Total Number = 11 Total gal. = 3171.25 Total Kg = 12019.30

Table 5: ORNL liquid Waste (>50 PPM PCB's) Shipped Off-site for Disposal in CY-1986

Disposal Container	Source Location	Waste Description	Drum Weight in kgs	PCB:PPM	Date to Storage	Date Shipped	Disposer
TANK	Y9201-2	OIL PCB 5000 PPM	20049.10	5000	4/16/86	10/02/86	CHEM. WASTE MANG. (SCA)
338B	Y9201-2	TRANSFORMER OIL PCB 1200 PPM	56.85	1200	4/17/86	9/18/86	ROLLINS ENV. SER.
359B	4500S	OIL PCB 1400 PPM	9.76	1400	5/08/86	9/18/86	ROLLINS ENV. SER.
461B	3025	VACUUM PUMP OIL PCB 93 PPM	208.45	93	9/02/86	9/18/86	ROLLINS ENV. SER.
465B	2018	OIL PCB 1600 PPM	208.45	1600	9/02/86	9/18/86	ROLLINS ENV. SER.
466B	2018	OIL PCB 540 PPM	208.45	540	9/02/86	9/18/86	ROLLINS ENV. SER.
		TOTAL	20741.06				

TOTAL DRUMS = 6

TOTAL GALLONS = 5550.00

Table 6: ORNL Liquid Waste (<50 PPM PCB's) Shipped Off-site for Disposal in CY-1986

Disposal Container	Source Location	Waste Description	Drum Weight in kgs	PCB:PPM	Date to Storage	Date Shipped	Disposer
313B	Y9201-2	OIL PCB 2 PPM	208.45	2	3/11/86	9/18/86	ROLLINS ENV. SER.
314B	Y9201-2	OIL PCB 11 PPM	208.45	11	3/11/86	9/18/86	ROLLINS ENV. SER.
315B	Y9201-2	OIL PCB 3 PPM	208.45	3	3/11/86	9/18/86	ROLLINS ENV. SER.
316B	Y9201-2	OIL PCB 11 PPM	208.45	11	3/11/86	9/18/86	ROLLINS ENV. SER.
359B	4500S	OIL PCB 49 PPM	2.80	49	5/08/86	9/18/86	ROLLINS ENV. SER.
363B	EXT.6000	PUMP OIL PCB 30 PPM	208.45	30	5/15/86	9/18/86	ROLLINS ENV. SER.
364B	6010	VACUUM PUMP OIL PCB 24 PPM	208.45	24	5/15/86	9/18/86	ROLLINS ENV. SER.
462B	1505	VACUUM PUMP OIL PCB 19 PPM	208.45	19	9/02/86	9/18/86	ROLLINS ENV. SER.
475B	2018	TRANSFORMER OIL PCB 11 PPM	208.45	11	9/10/86	9/18/86	ROLLINS ENV. SER.
476B	2018	TRANSFORMER OIL PCB 11 PPM	208.45	11	9/10/86	9/18/86	ROLLINS ENV. SER.
		TOTAL	1878.85				

TOTAL DRUMS = 10

TOTAL GALLONS = 595.00

facilities at Y-12 during 1986. Of this quantity, only 56.85 kg were originally PCB-contaminated oil. The remainder was clean oil generated at ORNL facilities at Y-12 (20049.10 kg) and X-10 (1895.00 kg) during 1985; thus, the 20049.10 kg was not included in the Y-12 shipment report and the 1895.00 kg was not reported as in storage at year's end in the 1985 annual report for X-10. The computer-generated Table 5 represents both quantities as originating from Y-12 because the bulk of the contents of the tank originated there. A total of 833.80 kg of liquids waste containing < 50 ppm PCBs shipped off-site during CY 1986 was generated at ORNL facilities at Y-12 during CY 1986. No liquid wastes containing < 50 ppm PCBs were carried over from 1985.

Solid wastes containing > 50 ppm PCBs that were shipped off-site are given in Table 7 and those containing < 50 ppm PCBs are presented in Table 8. For wastes containing > 50 ppm PCBs, 634.44 kg were generated by ORNL facilities at Y-12 and of this, 625.35 kg were generated in 1985. The solid wastes generated at Y-12 and in storage at ORNL at the end of CY 1985 were not reported in the 1985 annual report. For wastes containing < 50 ppm, 208.45 kg were generated by ORNL facilities at Y-12 during 1986. No wastes in this category were carried over from CY 1985.

3.5 PCB Waste Inventory in Storage at the End of CY 1986

Liquid wastes in storage at year's end containing > 50 ppm PCBs are shown in Table 9 and those containing < 50 ppm PCBs are given in Table 10. Of the total waste containing > 50 ppm PCBs in storage at the end of CY 1986, 1.36 kg was received from ORNL facilities at Y-12 during 1986. Of the total waste containing < 50 ppm PCBs, 276.67 kg was received from ORNL facilities at Y-12 during 1986. Solid PCB wastes > 50 ppm held in storage at the end of CY 1986 are shown in Tables 11. No solid wastes containing < 50 ppm PCBs were in storage at the end of the year. All solid PCB-contaminated waste in storage at the end of CY 1986 were generated at the X-10 site. A small amount of radioactively contaminated waste, 11.37 kg of liquid wastes and 2.27 kg of solid waste, will not be shipped off-site for treatment but will be retained until an appropriate local treatment facility is available. Only radioactively contaminated PCB-bearing wastes were held in storage over one year. The radioactively contaminated wastes were generated at X-10.

Table 7: ORNL Solid Waste (>50 PPM PCB's) Shipped Off-site for Disposal in CY-1986

Disposal Container	Source Location	Waste Description	Weight in kgs	PCB:PPM	Date to Storage	Date Shipped	Disposer
251B	Y9201-2	PCB CAPACTIORS	208.45	unknown	11/20/85	9/18/86	ROLLINS ENV. SER.
253B	Y9201-2	PCB CAPACITORS	208.45	unknown	11/15/85	9/18/86	ROLLINS ENV. SER.
254B	Y9201-2	PCB CAPACITORS	208.45	unknown	11/15/85	9/18/86	ROLLINS ENV. SER.
255B	3500	PCB CAPACITORS	44.55	unknown	11/18/85	9/18/86	ROLLINS ENV. SER.
255L	7018	PCB BALLASTS	5.45	unknown	1/29/86	9/18/86	ROLLINS ENV. SER.
256B	4500S	PCB BALLASTS	208.45	unknown	11/20/85	9/18/86	ROLLINS ENV. SER.
266B	7018	PCB BALLAST	208.45	unknown	12/27/85	9/18/86	ROLLINS ENV. SER.
289B	2018	PCB BALLASTS	208.45	unknown	2/13/86	9/18/86	ROLLINS ENV. SER.
290B	2018	PCB BALLASTS	208.45	unknown	2/13/86	9/18/86	ROLLINS ENV. SER.
342B	Y9201-2	PCB CAPACITOR	9.09	unknown	4/17/86	9/18/86	ROLLINS ENV. SER.
357B	4500N	LIGHT BALLAST	208.45	unknown	4/24/86	9/18/86	ROLLINS ENV. SER.
358B	4500S	LIGHT BALLAST	208.45	unknown	4/24/86	9/18/86	ROLLINS ENV. SER.
362B	2018	PCB BALLAST	208.45	unknown	5/15/86	9/18/86	ROLLINS ENV. SER.
412B	1505	PCB LIGHT BALLAST	208.45	unknown	6/26/86	9/18/86	ROLLINS ENV. SER.
463B	4500S	PCB BALLAST	208.45	unknown	9/02/86	9/18/86	ROLLINS ENV. SER.
464B	4500S	PCB BALLAST	208.45	unknown	9/02/86	9/18/86	ROLLINS ENV. SER.
467B	6000	PCB BALLAST	208.45	unknown	9/03/86	9/18/86	ROLLINS ENV. SER.
468B	2018	PCB BALLAST	208.45	unknown	9/03/86	9/18/86	ROLLINS ENV. SER.
469B	2018	PCB BALLAST	208.45	unknown	9/03/86	9/18/86	ROLLINS ENV. SER.
TOTAL DRUMS = 19		TOTAL	3394.29				

Table 8: ORNL Solid Waste (<50 PPM PCB's) Shipped Off-site for Disposal in CY-1986

Disposal Container	Source Location	Waste Description	Drum Weight in kgs	PCB:PPM	Date to Storage	Date Shipped	Disposer
339B	Y9201-2	ABSORBENT CLEAN UP MATERIAL PCB 39 PPM	208.45	39	4/17/86	9/18/86	ROLLINS ENV. SER.
TOTAL 1 DRUM							

Table 9: ORNL Liquid Waste (>50 PPM PCB's) Inventory in Storage at End of CY-1986

Disposal Container	Source Location	Waste Description	Drum Weight In KGS	PCB:PPM	Date To Storage	Storage Location
???R		OIL PCB 200 PPM	11.37	200	11/06/84	7651
510B	Y9201-2	PCB OIL	1.36	unknown	10/03/86	7507

TOTAL DRUMS = 2 TOTAL KGS = 12.73 TOTAL GALLONS = 3.39

Table 10: ORNL Liquid Waste (<50 PPM PCB's) Inventory in Storage at End of CY-1986

Disposal Container	Source Location	Waste Description	Drum Weight In KGS	PCB:PPM	Date To Storage	Storage Location
517B	2013	OIL PCB 3PPM	208.45	3	10/08/86	7507
518B	Y9201-2	OIL PCB 22 PPM	68.22	22	10/08/86	7507
519B	Y9201-2	OIL PCB 22 PPM	208.45	22	10/08/86	7507

TOTAL DRUMS = 3 TOTAL KGS = 485.12 TOTAL GALLONS = 128.00

Table 11: ORNL Solid Waste (>50 PPM PCB's) Inventory in Storage at End of CY-1986

Disposal Container	Source Location	Waste Description	Drum Weight In KGS	PCB:PPM	Date To Storage	Storage Location
322R	1505	CONTAMINATED SOLIDS	2.27	unknown	11/25/85	7507W
510B	3500	PCB TRANSFORMERS	66.70	unknown	10/09/86	7507
512B	2026	CIRCUIT BOARD PCB 2000 PPM	31.76	2000	10/02/86	7507
512B	2026	CONTAMINATED CLEANER	2.72	unknown	10/02/86	7507
513B	2026	GLASSWARE PCB 2000 PPM	2.27	2000	10/02/86	7507
513B	2026	PCB CONTAMINATED SOLIDS	14.07	unknown	10/02/86	7507

TOTAL DRUMS = 4 TOTAL KGS = 119.790

4.0 SUMMARY

4.1 PCB and PCB-Contaminated Equipment

Twelve transformer carcasses containing 23221.64 kg (6087 gal) of PCBs were shipped off-site for treatment and disposal in CY 1986. No PCB transformers remained in service at the end of CY 1986.

A total of 162 large high and low voltage PCB capacitors were in service at the end of CY 1986. None were removed from service in CY 1986.

4.2 PCB Wastes Shipped Off-Site in CY 1986

At the end of CY 1985, 1895.00 kg of liquid waste that was later found to be PCB-contaminated was in storage. The remainder of the 20741.06 kg (5550.0 gal) of liquid PCB or PCB-contaminated waste shipped off-site during CY 1986 was generated during 1986. Of this amount, 18210.95 kg originated at Y-12 as clean used oil and was inadvertently contaminated while in an accumulation tank at X-10. Of the 1878.85 kg of liquids containing < 50 ppm PCBs shipped off-site for treatment and disposal in CY 1986, 833.80 kg originated at Y-12. All of this waste was generated in 1986.

During 1986, 3401.11 kg of PCB-contaminated (> 50 ppm) solid waste was shipped off-site for disposal. Of this, 634.44 kg originated at Y-12 and 669.90 kg was in storage at the end of 1985. The 208.45 kg of solid waste containing < 50 ppm shipped off-site was generated at Y-12 during 1986.

4.3 PCB Waste in Storage at the End of CY 1986

A total of 12.73 kg of liquid waste (> 50 ppm PCBs) was in storage at the end of CY 1986. Of this, 1.36 kg originated at Y-12 and 11.37 kg was radioactively contaminated. A total of 485.12 kg of liquid waste (< 50 ppm) was in storage at the end of 1986, 276.67 kg of which originated at Y-12.

For solid waste (> 50 ppm PCBs), 119.79 kg was in storage at the end of CY 1986, all from the X-10 site. Of this, 2.27 kg is radioactively contaminated and will not be shipped off-site for disposal. No waste containing < 50 ppm PCBs was in storage at the end of the year.

5.0 REFERENCES

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APPENDIX A: Transformers Containing < 50 ppm PCBs

PCB Contaminated Transformers < 50 PPM

Serial Number	Location	PCB:PPM	Capacity Gallons	Capacity Kilograms
73J3182	1000M	unknown	.000	.000
73J3180	1000N	unknown	.000	.000
73J3181	1000S	unknown	.000	.000
72V9421	1504	13	220.000	833.800
81V3323	1505	4	130.000	492.700
77V6955	1505	4	440.000	1667.600
77V6956	1505	4	440.000	1667.600
8110081	2000	14	390.000	1478.100
3160694	2000	4	.000	.000
64011	2000	4	71.000	269.090
7513305	2000	4	59.000	223.610
L723482THNA	2010	unknown	.000	.000
L723483THNA	2010	unknown	.000	.000
L723484THNA	2010	unknown	.000	.000
N18009	2013	unknown	.000	.000
N18013	2013	unknown	.000	.000
N18014	2013	unknown	.000	.000
S11F150	2500	unknown	.000	.000
L243213	2519	4	210.000	795.900
64587	2525	4	125.000	473.750
64586	2525	4	125.000	473.750
64585	2525	4	125.000	473.750
28388	2525	unknown	.000	.000
2371106	2632	18	1297.000	4915.630
8110079	3000	13	1350.000	5116.500
8110080	3000	16	1350.000	5116.500
8110078	3000	29	1350.000	5116.500
80843	3003	4	113.000	428.270
80844	3003	4	113.000	428.270
80845	3003	4	113.000	428.270
PKR-94711	3010	30	260.000	985.400
PKR94711	3010	30	260.000	985.400
57H20430	3012	29	.000	.000
57H20431	3012	39	.000	.000
57H20429	3012	10	.000	.000
70L6659	3017	unknown	.000	.000
78J805241	3019S	unknown	.000	.000
F497848-64P	3025	5	80.000	303.200
F497849-64P	3025	5	80.000	303.200
F496875-64P	3025	5	80.000	303.200
73G1478	3025	unknown	.000	.000
7550039	3025W	4	122.000	462.380
7350044	3025W	4	122.000	462.380
7350043	3025W	4	122.000	462.380
143983	3034	unknown	.000	.000
66710	3039	29	130.000	492.700
66711	3039	10	130.000	492.700
66712	3039M	4	132.000	500.280
83V3577	3042	unknown	450.000	1705.500
7351430	3047	36	350.000	1326.500
76A480016	3085	unknown	.000	.000
77A060099	3085	unknown	.000	.000
77A080395	3085	unknown	.000	.000
70686	3500	4	55.000	208.450

PCB Contaminated Transformers < 50 PPM

Serial Number	Location	PCB:PPM	Capacity Gallons	Capacity Kilograms
67632	3500	4	55.000	208.450
70687	3500	4	55.000	208.450
67AH7855	3500	unknown	.000	.000
67AH5687	3500	unknown	.000	.000
67AH5688	3500	unknown	.000	.000
72AB7827	3500	unknown	.000	.000
64AK11441	3503	unknown	.000	.000
64AK12562	3503	unknown	.000	.000
64AL10170	3503	unknown	.000	.000
1988735	3503	unknown	.000	.000
A59467	3508	unknown	55.000	208.450
A59468	3508	unknown	.000	.000
A59470	3508	unknown	.000	.000
54836	3517	unknown	101.000	382.790
54837	3517	unknown	101.000	382.790
54838	3517	unknown	101.000	382.790
59298	3525	2	197.000	746.630
59299	3525	4	197.000	746.630
59297	3525	4	197.000	746.630
5065374	4000E	4	1335.000	5059.650
5065375	4000W	4	1335.000	5059.650
A59181	4500N	33	33.000	125.070
T4528	4500N	unknown	.000	.000
154363	4501	5	364.000	1379.560
49177	4505	4	200.000	758.000
7367553	4508	28	500.000	1895.000
7367549	4508	26	500.000	1895.000
7367549REG	4508	8	112.000	425.000
7367553REG	4508	5	112.000	425.000
1902056	4509	9	682.000	2584.780
1902055	4509	17	682.000	2584.780
1902057	4509	7	682.000	2584.780
F643813-67P	5507	unknown	.000	.000
77V8211	6005	4	535.000	2027.650
F959884	6010	2	180.000	682.200
F959883	6010	2	300.000	1137.000
F643634-67P	6010	46	94.000	356.260
V21808	6025	4	.000	.000
H26N4201	6025	4	160.000	606.400
1337042	7002	4	.000	.000
1337045	7002	4	.000	.000
1331476	7002	4	.000	.000
2546-3	7012	4	120.000	303.200
2546-2	7012	4	120.000	303.200
2546-1	7012	4	120.000	303.200
3153348	7033	5	55.000	208.450
1901716	7033	5	210.000	795.900
A59465	7033	5	80.000	303.200
A59466	7033	5	80.000	303.200
A59469	7033	5	80.000	303.200
27140-16	7033	18	237.000	898.230
27140-10	7033	16	237.000	898.230

PCB Contaminated Transformers < 50 PPM

Serial Number	Location	PCB:PPM	Capacity Gallons	Capacity Kilograms
957331	7033	10	150.000	568.500
3160686	7033	46	110.000	416.900
27140-11	7033	10	237.000	898.230
8671542	7033	5	45.000	170.550
6589125	7033	7	50.000	189.500
B339639	7033	22	185.000	701.150
B339640	7033	13	185.000	701.150
B339641	7033	8	185.000	701.150
6154018	7033	43	40.000	151.640
73955	7033	unknown	59.000	223.610
4589-1	7033	4	53.000	200.870
2410184	7033	4	.000	.000
3160690	7033	4	.000	.000
F9F1056	7033	4	160.000	606.400
F9F1057	7033	4	160.000	606.400
F9F1058	7033	4	160.000	606.400
27140-8	7033	4	237.000	898.230
27140-14	7033	4	237.000	898.230
2620881	7033	4	572.000	2167.880
3694654	7033	unknown	.000	.000
2714016	7033	18	237.000	898.230
2714010	7033	16	237.000	898.230
2714020	7033	19	237.000	898.230
6263930	7033	unknown	5.250	19.898
1733294	7033	unknown	7.500	28.425
77A470017	7033	unknown	.000	.000
77A470019	7033	unknown	.000	.000
77A482448	7033	unknown	.000	.000
75AH10309	7033	unknown	.000	.000
77A100793	7033	unknown	.000	.000
77A160003	7033	unknown	.000	.000
78A020046	7033	unknown	.000	.000
78A020048	7033	unknown	.000	.000
78A020050	7033	unknown	.000	.000
80934-4077	7033	unknown	.000	.000
80935-4077	7033	unknown	.000	.000
80936-4077	7033	unknown	.000	.000
C9G2598	7033	unknown	.000	.000
3245040	7033	unknown	35.000	132.650
3245044	7033	unknown	35.000	132.650
6071564	7033	4	.000	.000
K40108	7033	unknown	.000	.000
K40109	7033	unknown	.000	.000
K40110	7033	unknown	.000	.000
C475272	7033	unknown	.000	.000
6586954	7033	unknown	55.000	208.450
3376-1	7033	4	70.000	265.300
3376-2	7033	4	70.000	265.300
3376-3	7033	4	70.000	265.300
73AK16492	7033	unknown	.000	.000

PCB Contaminated Transformers < 50 PPM

Serial Number	Location	PCB:PPM	Capacity Gallons	Capacity Kilograms
1901715	7033	4	210.000	795.900
66563	7033	4	55.000	208.450
66562	7033	4	55.000	208.450
66561	7033	4	55.000	208.450
64012	7033	4	107.000	405.530
3150523	7033	7	.000	.000
K41135	7033	unknown	.000	.000
K41136	7033	unknown	.000	.000
K41137	7033	unknown	.000	.000
G9H1023	7033	4	160.000	606.400
G9H1021	7033	4	160.000	606.400
G9H1022	7033	4	160.000	606.400
79A095663	7033	unknown	.000	.000
1742466	7033	unknown	21.000	79.590
15198	7033	3	225.000	852.750
M9D1621	7500	28	145.000	549.550
M9D1625	7500	3	145.000	549.550
M9D1623	7500	25	145.000	549.550
75474	7503	4	422.000	1599.380
SCV0999-01	7601	4	283.000	1072.570
L246058	7601	4	258.000	977.820
A9F1213	7700	9	145.000	549.550
A9F1211	7700	11	145.000	549.550
B5H8007	7700	5	145.000	549.550
T35H8007	7700	2	145.000	852.750
7731582	7710	38	500.000	1895.000
2384388	7852	unknown	67.000	253.930
2384387	7852	unknown	67.000	253.930
776002228	7860	4	225.000	852.750
7367568REG	7901	41	119.000	451.118
2371103	7901	2	1297.000	4915.630
7731581REG	7901	10	119.000	451.118
3428808	7901	15	200.000	758.000
7367568	7901	28	499.000	1891.660
7367568SW	7901	42	19.000	72.030
7731581	7901	45	499.000	1891.660
R3334	7901	unknown	31.000	117.490
R3333	7901	unknown	31.000	117.490
7022144	7920	38	275.000	1042.250
		Total	32112.750	121557.947

unknown = small closed system transformers; not requiring PCB's; cannot be sampled

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