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ABSTRACT

The Oak Ridge National Laboratory (ORNL) prepares a report annually as mandated by the Toxic Substances Control Act (TSCA), 40 Code of Federal Regulations Part 761 et. seq., that summarizes the records required of owners and operators of facilities where Polychlorinated Biphenyls (PCBs) are in use or in storage. This report provides information on PCB and PCB-contaminated equipment in use or in storage for reuse, and provides listings of PCB wastes generated, stored, and shipped off-site for treatment and disposal during the time period of January 1, 1991, through December 31, 1991.

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2.0 REGULATIONS ON PCBs

TSCA authorizes 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 PCBs and PCB-contaminated equipment and materials. Following are some of the elements EPA promulgated to implement this control program for PCBs.

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: PCB transformer (≥ 500 ppm), PCB-contaminated electrical equipment (≥ 50 to < 500 ppm), and non-PCB transformers (< 50 ppm) [40 CFR Part 761.3 and 761.30 (a)(2)(v)].
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, capacitors, hydraulic machines, PCB-contaminated electrical equipment, and other articles), PCB containers, and PCBs resulting from the cleanup and removal of spills (40 CFR 761.60).
5. Established standards for the marking (40 CFR 761.40 and 761.45) and storing 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 (40 CFR 761.30).
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)(1)(ii)].
9. Established standards for recordkeeping and annual reporting for owners or operators of facilities using or storing PCBs or PCB items, as well as facilities storing or disposing of PCBs or PCB items (40 CFR 761.180 and 761.202). PCB items include any PCB articles, PCB article containers, PCB containers, or PCB equipment that deliberately or unintentionally contains PCBs.
10. Established standards for spill cleanup in restricted access areas [40 CFR 761.125(a)(3)], soil decontamination in unrestricted areas [40 CFR 761.125(a)(4)(v)], and required that spills of 10 pounds or more of PCBs by weight be reported to the National Response Center [40 CFR 761.125(a)(1)(iii)].

11. Established requirements for the manifesting and tracking of PCB wastes by the generator and the disposal facility. Since ORNL previously manifested and monitored all PCB wastes, including wastes containing PCBs between 2 ppm and 49 ppm, implementation of these regulations under TSCA did not impact ORNL operations.

The time frame covered by this Annual Report is from January 1, 1991, to December 31, 1991 (CY 1991). Due to a moratorium on off-site shipments of RCRA and TSCA wastes, imposed May 17, 1991, very few shipments of TSCA waste were made in CY 1991 from ORNL. The wastes generated, if contaminated with radioactivity, were stored on-site at ORNL in appropriate storage buildings.

Handling of PCBs and PCB-contaminated materials at ORNL is also governed internally under Energy Systems and ORNL policies. These policies ["Martin Marietta Energy Systems draft standard: Management of PCBs," and ORNL Environmental Protection Manual Section 3.6 "Polychlorinated Biphenyls (PCB)" dated November 26, 1991] require management of some materials containing 2 ppm to 49 ppm PCBs as wastes destined for incineration.

3.0 RECORDS AND REPORTING

Annual tracking of PCB materials at ORNL is accomplished through a computerized PCB Tracking System (PCBTS), a module within a larger Hazardous Waste Tracking System which runs on ORNL's DEC system PDP-10 computer with System 1022 as the database management system. The PCBTS is comprised of two submodules: (1) equipment inventories, and (2) waste generation and disposal. The equipment database contains information on inventories of PCB-contaminated transformers (Section 3.1), PCB large high- and low-voltage capacitors (Section 3.2), as well as miscellaneous PCB-contaminated hydraulic equipment (Section 3.3). The records on the PCB-contaminated equipment are maintained by the Environmental Compliance Section (EC) in the Office of Environmental Compliance and Documentation (OECD). The information for the equipment database is provided by the ORNL's Environmental Protection Officers (EPOs) for each division's research equipment, by the Plant and Equipment Division for electrical service (outdoor) transformers, and by periodic laboratory-wide surveys by OECD staff.

Regulations regarding reporting (40 CFR Part 761.180 and .202) require the tracking of the dates PCBs and PCB items are removed from service, placed into storage for disposal, and placed into transport for disposal. For PCBs and PCB items removed from service, the regulations require the location of the initial storage or disposal 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. Commercial storage and disposal facilities (ORNL is not a disposal facility) have additional reporting requirements, including dates and quantities of PCBs and PCB-contaminated wastes transferred into or out of the facility during the year and those retained in storage at the end of the year.

ORNL does host research projects pertaining to microbiology research, detection limit research, and treatability studies for PCB contaminated material. The only research study operating in CY 1991 was related to microorganism's ability to dechlorinate PCBs. The research was with small quantities, calculated to be 0.18 grams of pure PCBs, which were obtained in 5.0 milliliter or smaller containers, and were used for scientific experimentation. One other study was active at ORNL which

was developing analytical techniques for PCBs for the EPA's Environmental Monitoring Systems Laboratory, and used small quantities of PCBs, calculated to be 25 milliliters. No PCB treatability or demonstration studies were active at ORNL in CY 1991. Some are expected to be funded by DOE or EPA in CY 1992.

3.1 PCB Transformers

During the 1980s, ORNL undertook a program to reduce levels of PCBs in equipment used in the plant. The last PCB transformers confirmed ≥ 500 ppm were removed from service and disposed of in CY 1986. Between 1980 and 1984, ORNL's transformers containing ≥ 50 ppm but < 500 ppm PCBs were chemically treated to decrease their concentrations of PCBs, where feasible. Following the program to reduce PCBs, no PCB Transformers confirmed to be ≥ 500 ppm, and only two PCB-contaminated transformers were confirmed ≥ 50 ppm but < 500 ppm PCBs, although there were transformers in storage for reuse which were untested, and listed as "unknown concentration."

In CY 1991 a program to update all previous equipment inventories, and to require sampling of untested equipment was initiated. Transformers which were previously untested were assumed to be between 50 - 499 ppm, but sampling results confirmed that 6 transformers in research labs or in storage for reuse should be classified as PCB Transformers, as listed in Table 1. A more complete listing of PCB-contaminated transformers is provided in Table 2.

Transformers which were sampled but the analyses were not received by the end of CY 1991 are listed as "unknown" and included in Appendix B. Untested pole-mounted transformers¹ and non-PCB transformers (< 50 ppm) are also listed in Appendix B.

1 Small closed system transformers, typically pole-mounted units or units within research equipment cannot be sampled without destroying the seals, and scraping the unit. These "assumed" PCB-contaminated transformers were not included in ORNL's 1980 - 1984 treatment program to reduce PCB levels in equipment.

Table 1. PCB Transformers (≥500 ppm)
In Service or Stored for Reuse During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
01890	4508 (Moved to 7507)	10700.00	43.50	164.90
WESTINGHOUSE FURNACE X159179A	4508 ROOM 130	10000.00	43.00	163.00
WESTINGHOUSE FURNACE X159179B	4508 ROOM 130	10000.00	12.00	45.50
6-03676-1-4	7033 Stored for reuse	964.00	<55.00	204.70
1733294	7033 Stored for reuse	2380.00	12.00	45.50
KUHL 50 KVA 13.8 KV 136601	7033 stored for reuse	3363.00	33.50	127.00
Total Quantity = 6			199.00	750.60

Table 2 PCB Contaminated Transformers (≥ 50 ppm but < 500 ppm)
in Service During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
GE 7242328	3095	MINERAL OIL 50-499	4.00	21.6
GE 7242418	3095	MINERAL OIL 50-499	4.00	21.6
GE ISOLATION XFORMER EXTRACT 5EN	5500 ROOM 125	MINERAL OIL 50-499	9.00	48.6
HVEC BELT CHG CURRENT REGULATOR 9EN	5500 ROOM 125	MINERAL OIL 50-499	7.00	37.8
GE 150 KVA F643813-67P 244-68	5507	MINERAL OIL 50-499	53.00	286.2
GE 75 KVA F645805-67P	5507	MINERAL OIL 50-499	46.00	248.4
WESTINGHOUSE 100140	6000 ROOM C300	MINERAL OIL 50-499	8.00	43.2
GE TYPE 7242380	6000 ROOM C300	MINERAL OIL 50-499	4.00	21.6
SPIROKORE 2KVA 7518372	6000 ROOM T201	MINERAL OIL 50-499	22.00	118.8
550KV POWER SUPPLY HVS 11-1	6000 ROOM T201	MINERAL OIL 50-499	2.00	10.8
GE 25 KVA 13.8 KV 6968541	7033	241.0	30.50	164.7
GE 5 KVA 2.5 KV 6037160	7033	98.2	6.20	33.7
PREC 3 KVA 2.4 KV 100229M	7033	265.0	4.20	22.9
AC 50 KVA 2.4 KV 1715225	7033	51.5	35.00	189.0

Table 2 PCB Contaminated Transformers (≥ 50 ppm but < 500 ppm)
in Service During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
GE 10 KVA 2.4 KV B266077	7033	180.0	12.00	64.8
GE 100 KVA 2.4 KV 6585954	7033	62.2	50.00	270.0
WESTINGHOUSE 15 KW 2.4 KV 3382348	7033	85.4	52.00	280.8
WESTINGHOUSE 25 KVA 2.4 KV 3691854	7033	145.0	30.00	162.0
GE 25 KVA 2.4 KV 6363798	7033	461.0	26.00	140.4
GE 25 KVA 13.8 KV 6607-620	7033	85.0	31.00	167.4
GE 1000 KVA 7731801 7901-912-1	7901	53.0	500.00	2700.0
GE 1000 KVA 7373793 7901-914-1	7901	68.0	500.00	2700.0
Total Quantity = 22			1435.90	7754.30

3.2 PCB Capacitors

Subpart A of the TSCA regulations defines three types of capacitors: small capacitors, large high-voltage capacitors, and large low-voltage capacitors. A small capacitor contains less than 1.36 kg (3 lb) of dielectric fluid. A large high-voltage capacitor contains 1.36 kg (3 lb) or more of dielectric fluid and operates at 2,000 volts or above; whereas, a large low-voltage capacitor contains 1.36 kg (3 lb) or more of dielectric fluid and operates below 2,000 volts. A capacitor whose total volume is less than 1,639 cm³ (100 in.³) is assumed to contain less than 1.36 kg of dielectric fluid. PCBs were used as the dielectric fluid in most capacitors manufactured between 1920 and 1978. Although the manufacture of capacitors containing PCBs has been banned, their use in a totally enclosed manner is still allowed. The regulations require that all capacitors be considered to be treated as PCB items except when known to contain no PCBs and labeled "No PCBs." Thus, it is assumed that capacitors not marked by the manufacturer (both large and small) contain PCBs.

The majority of PCB capacitors in use at ORNL are small (less than 1.36 kg of dielectric fluid). The ORNL electrical system does not have any PCB large high- or low-voltage capacitors (as they are referred to in the regulations); however, various research-related instruments do contain capacitors. ORNL and Energy Systems policies concerning handling of PCB capacitors (both large and small) require that they be collected, stored on-site, and ultimately disposed of in an EPA TSCA-approved incinerator. This procedure is seemingly more stringent than required under 40 CFR 761.60 which states that small capacitors may be disposed of in municipal landfills. However, EPA has indicated in policy statements that the disposal of large quantities (greater than 25) of small capacitors by commercial and industrial activities poses an environmental risk. Therefore, EPA encourages companies to voluntarily collect and dispose of small capacitors in a high temperature incinerator. Thus, ORNL and Energy Systems policies are geared toward meeting the letter and the intent of the federal PCB regulations.

During early 1991, EC staff members initiated a Laboratory-wide survey of PCB-contaminated equipment including both transformers and capacitors not verified in last year's report. As of November 1991, the survey was essentially complete, and a complete list of capacitors is provided in Table 3. In all, ORNL had 195 PCB large high- and low-voltage capacitors of approximately one (1) pound size or larger in service at the end of CY 1991. Identical capacitors at the same location and same piece of equipment are grouped and a single serial number or ORNL "X" number is assigned to them.

When ready for disposal, large and small PCB capacitors are packed for disposal in drums approved by the Department of Transportation and shipped off-site for incineration in accordance with EPA regulations (refer to Table 6, Solid PCB Wastes Shipped).

Table 3. PCB Large High-Voltage and Low-Voltage Capacitors
In Service During CY 1991

Serial Number	Quantity	Building	Capacity		
			PCB:PPM	Gallons	Kilograms
INDUCTION FURNACE X-151672	1	2000 ROOM 26	1000000.0	0.25	1.35
WESTINGHOUSE X-151473	1	2000 ROOM 26	1000000.0	0.25	1.35
SORENSEN VOLTAGE REGULATOR X-161214	1	2000 ROOM 26	UNKNOWN	<1.00	<3.17
TAYLOR-WINGFIELD X-151450	1	2000 ROOM 26	1000000.0	0.25	1.35
Dubilier Nitrogen B-1464	2	2026 ROOM 133	UNKNOWN	0.51	2.72
Parmeko Neptune 6000-81	1	2026 ROOM 139	UNKNOWN	0.25	1.36
Parmeko Neptune 6000-79	1	2026 ROOM 139	UNKNOWN	0.25	1.36
Parmeko Neptune 6000-73	1	2026 ROOM 139	UNKNOWN	0.25	1.36
Parmeko Neptune 6000-65	1	2026 ROOM 139	UNKNOWN	0.25	1.36
Parmeko Neptune 6000-57	1	2026 ROOM 139	UNKNOWN	0.25	1.36

Table 3. PCB Large High-Voltage and Low-Voltage Capacitors
In Service During CY 1991

			Capacity		
Serial Number	Quantity	Building	PCB:PPM	Gallons	Kilograms
Parmeko Neptune 6000-47	1	2026 ROOM 139	UNKNOWN	0.25	1.36
Dubilier Nitrogel B-351	2	2026 ROOM 209	1000000.0	0.51 total for 2	2.72 total for 2
Dubilier Nitrogel B-277	1	2026 ROOM 209	1000000.0	0.25	1.36
Dubilier Nitrogel	5	2026 ROOM 209	1000000.0	1.27 total for 5	6.80 total for 5
Dubilier Nitrogel B-853	4	2026 ROOM 209	1000000.0	1.00 total for 4	5.44 total for 4
Dubilier Nitrogel B-1089	4	2026 ROOM 209	1000000.0	1.00 total for 4	5.44 total for 4
Dubilier Nitrogel B-213	9	2026 ROOM 209	UNKNOWN	2.29 total for 9	12.24 total for 9
SHEFFIELD CAVITRON C-1034 X-151585	1	2525 GREEN DOOR SHOP	1000000.0	0.02	0.09
CINCINNATI EDM 41061005V-21 X-151587	8	2525 ROOM 119	1000000.0	0.70 total for 8	7.20 total for 8
CINCINNATI EDM 10C275P5S-16 X-151588	6	2525 ROOM 119	1000000.0	0.50 total for 6	5.40 total for 6

Table 3. PCB Large High-Voltage and Low-Voltage Capacitors
In Service During CY 1991

Serial Number	Quantity	Building	Capacity		
			PCB:PPM	Gallons	Kilograms
AJAX NORTHROP INDUCTION FURNACE X-168826	10	3012 N/A	UNKNOWN	10.00	31.75
JEFFERSON H33/H1	1	3026-C CELL BANK 1 - N	UNKNOWN	0.25	1.36
G.E. 17G3000W	2	3026-C CELL BANK 1 - S	UNKNOWN	0.50 (total for 2)	2.72 (total for 2)
G.E. 9T67Y100	2	3026-C CELL BANK 1 - W	UNKNOWN	0.50 (total for 2)	2.72 (total for 2)
UNREADABLE LABEL	2	3030 N/A	UNKNOWN	0.02	0.09
SHEFFIELD CAVITRON 2400A2-258 X-153742	2	3044 HOT SHOP	1000000.0	0.02	0.09
233-3331	1	3047 ROOM 109	UNKNOWN	0.02	0.09
78E8492-001N	1	3047 ROOM 109	UNKNOWN	0.02	0.09
23-22-112-2	1	3047 ROOM 109	UNKNOWN	0.02	0.09
F56S2750-04	1	3047 ROOM 109	UNKNOWN	0.02	0.09

Table 3. PCB Large High-Voltage and Low-Voltage Capacitors
In Service During CY 1991

			Capacity		
Serial Number	Quantity	Building	PCB:PPM	Gallons	Kilograms
LK350-FM	1	3047 ROOM 113	UNKNOWN	0.02	0.09
5R43JG858	1	3047 ROOM 113	UNKNOWN	0.02	0.09
UNREADABLE LABEL	2	3047 ROOM 212	UNKNOWN	0.02	0.09
ABSC 17NB4A	1	3047 ROOM 212	UNKNOWN	0.02	0.09
78E8492-001	1	3047 ROOM 215	UNKNOWN	0.02	0.09
THERMIONICS X-1511121	1	3095	1000000.0	0.25	1.35
LEPEL X151088	1	3095	1000000.0	0.25	1.35
UNREADABLE LABEL	1	3118 N/A	UNKNOWN	0.02	0.09
INDUCTION FURNACE S-153579 X-88068	1	3500 ROOM D15	1000000.0	1.25	4.70
INDUCTION FURNACE X160023	1	3500 ROOM D15	1000000.0	1.25	4.70

Table 3. PCB Large High-Voltage and Low-Voltage Capacitors
In Service During CY 1991

			Capacity		
Serial Number	Quantity	Building	PCB:PPM	Gallons	Kilograms
POWER SOURCE FOR COPY LIGHTS B1121-46 6KW,60N2	3	4500N ROOM G234	1000000.0	0.25 total for 3	1.35 total for 3
POWER SUPPLY IC-17412	3	4500N ROOM STD-1	1000000.0	2.64 total for 3	14.00 total for 3
INDUCTION FURNACE X-156809	1	4500N STF-3	1000000.0	0.25	1.35
CONTROLLER TUBING TANK X-175576	1	4500S ROOM D54	UNKNOWN	<1.00	<3.17
CONTROLLER ELECTRO-DISCHARGE X-92873	1	4500S ROOM D54	UNKNOWN	<1.00	<3.17
137	1	4500S ROOM R115	UNKNOWN	15.00	81.00 dimensions 25"x11"x14"
GE A54850	1	4500S ROOM R115	UNKNOWN	0.40	2.10 dimensions 4"x1"x7.5"
GE S22233	1	4500S ROOM R115	UNKNOWN	0.10	0.54 dimensions 5.2"x3.25"x2.25
X-157127	8	4501 BASEMENT	1000000.0	0.70 total for 8	7.20 total for 8
S/N 6203-A	3	4501 BASEMENT	UNKNOWN	0.03 0.035x3= 0.1x0.33=	0.16

Table 3. PCB Large High-Voltage and Low-Voltage Capacitors
In Service During CY 1991

			Capacity		
Serial Number	Quantity	Building	PCB:PPM	Gallons	Kilograms
S/N 6712 X-98904	2	4501 BASEMENT	UNKNOWN	0.28 0.43x2= 0.86x0.33=	1.51
S/N 6510 X-157652	2	4501 BASEMENT	UNKNOWN	0.28 0.42x2= 0.84x0.33=	1.51
S/N 6101 X-157855	5	4501 BASEMENT	UNKNOWN	2.00 0.052+5.53+ 0.11(2)+0.21= 6.01x0.33=	10.80
X-155580	3	4501 ROOM 309	1000000.0	0.75	2.38
69-03378 69-03371 69-03380	3	4501 ROOM 309	1000000.0	0.30 total for 3	0.95 total for 3
C297207	1	4501 ROOM 309	1000000.0	0.25	0.79
X-155876	10	4501 ROOM R105	1000000.0	5.36 total for 10	20.37 total for 10
X-157650	6	4501 ROOM R220	1000000.0	0.50 total for 6	5.40 total for 6
X 160433 X 159585	18	4508	UNKNOWN	13.07	40.80
TOCCO INDUCTION FURNACE X-159257 X-159258	2	4508 ROOM 121	UNKNOWN	5.00	15.87

Table 3. PCB Large High-Voltage and Low-Voltage Capacitors
In Service During CY 1991

			Capacity		
Serial Number	Quantity	Building	PCB:PPM	Gallons	Kilograms
AJAX NORTHROP	15	4508 ROOM 130	1000000.0	26.25 total for 15	83.34 total for 15
AJAX INDUCTION FURNACE B-46972	10	4508 ROOM 131	UNKNOWN	10.00	31.75
RAYTHEON LASER WELDER X-15978	3	4508 ROOM 226	UNKNOWN	<1.00	<3.17
INDUCTION HEATING UNIT X-159605	2	4508 ROOM 227	UNKNOWN	<1.00	<3.17
SPARE	1	5500 ROOM 126	UNKNOWN	1.25	4.70
INDUCTION FURNACE X-162923	1	5505 L-17	1000000.0	0.25	1.35
INDUCTION FURNACE X-162991	1	5505 L-37	1000000.0	0.25	1.35
WESTINGHOUSE "INERTEEN"	20	6000 C-300 SE CORNER	1000000.0	10.00 (total for 2)	54.00 (total for 20)
SPRAQUE FILTER	1	6010 ACCELERATOR RM	UNKNOWN	0.25	1.36
MEDIUM CAPACITORS no numbers	4 (in reserve)	6010 BSMNT CAGE AREA	1000000.0	6.00 total for 4	22.80 total for 4

Table 3. PCB Large High-Voltage and Low-Voltage Capacitors
In Service During CY 1991

			Capacity		
Serial Number	Quantity	Building	PCB:PPM	Gallons	Kilograms
LARGE CAPACITORS no numbers	3 (in reserve)	6010 BSMNT CAGE AREA	1000000.0	7.50 total for 3	28.50 total for 3
ORELA GUN HUPS	3	6010 MODULATOR ROOM	UNKNOWN	0.25	1.36
Medium Capacitors (no number)	4 (in use)	6010 MODULATOR ROOM	1000000.0	6.00 total for 4	22.80 total for 4
LARGE CAPACITORS (no numbers)	8 (in use)	6010 MODULATOR ROOM	1000000.0	20.00 (total for 8	76.00
ORELA GUN HUPS	3	6010 ROOM 226	UNKNOWN	0.25	1.36
G4-5165-01	2	7003 MAIN AREA	1000000.0	0.25 total for 2	1.35 total for 2
X164738	1	7012 WELD SHOP	UNKNOWN	1.00 QUART	1.35
X176257	1	7012 WELD SHOP	UNKNOWN	2.00 QUARTS	2.70
X169590	1	7015 BURNING ROOM	UNKNOWN	1.00 QUART	1.35
X169591	1	7015 BURNING ROOM	UNKNOWN	1.00 QUART	1.35

Table 3. PCB Large High-Voltage and Low-Voltage Capacitors
In Service During CY 1991

			Capacity		
Serial Number	Quantity	Building	PCB:PPM	Gallons	Kilograms
G. E. W27752	1	7712 Same	UNKNOWN	10.30	32.14
G. E. V28158	1	7712 Same	UNKNOWN	10.30	32.14
G. E. V28147	1	7712 Same	UNKNOWN	10.30	32.14
G. E. V28150	1	7712 Same	UNKNOWN	10.30	32.14
MILLER WELDER S/N R366762	2 CAPACITORS	7914 OUTSIDE	UNKNOWN		2.00
Quantity Total = 252				211.60	806.61

3.3 Miscellaneous PCB-Contaminated Equipment

In addition to PCB-contaminated transformers and large PCB capacitors, ORNL has some miscellaneous equipment contaminated with PCBs. Examples of this miscellaneous equipment are hydraulic systems, or other oil-filled equipment that typically contains low levels of PCBs and the inside surface(s) have been in direct contact with PCBs. A Laboratory-wide survey for these items was initiated in early 1990, and continued in 1991 in conjunction with the transformer and capacitor survey. The goals of the survey were to locate items containing PCBs and update the database by identifying any new items which were previously unsampled. Based on results of the survey, the miscellaneous equipment list has been updated (see Table 4).

The results of the hydraulic system sampling indicate that PCB levels in three pieces of equipment (X168820A, X168822, and 3525) have been reduced by draining the PCB-contaminated oil and refilling the units with non-PCB oil. The two hydraulic systems (three pieces of equipment) were sampled, drained, flushed, and refilled during 1991, with one system (# 3525) re-certified as below 49 ppm. The Blaw-Knox system was drained and flushed a second and third time in CY 1991, but the sampled concentration remained at 103 ppm PCBs, which does not allow for re-certification of the system. The Blaw-Knox equipment will remain empty of liquids and unused with PCB markers and "lock-out" tags, and the equipment will be included in a Federal Facility Compliance Agreement to be negotiated between DOE and EPA during CY 1992.

During the sampling campaign of CY 1991, one additional piece of equipment (# RC-156) was identified after sampling as containing PCBs over 50 ppm. The sampling data was confirmed in early CY 1992, and the equipment is scheduled to be drained and flushed, or sent to disposal in CY 1992.

Table 4. Miscellaneous PCB-Contaminated Equipment at ORNL During CY 1991

Serial #	Type	Location	PCB:PPM	Gals	KGS
X168820A	Hydraulic Unit, Blaw-Knox	3012, main area	103 (after flushing)	Empty/ drained	0
X168822	Drive Motor Reservoir for Blaw-Knox	3012, main area	11.8 (after flushing)		18.9
X168844	Drive Motor, United	3012, main area	2.5	unkn.	unkn.
X168847	Drive Motor, Mesta	3012, main area	< 2	unkn.	unkn.
RC-156	Blackhawk pump	4515, room 1202	871	0.125	
3044-358	Surface Grinder: In rad. contaminated area, equipment in standby	3044, North end	< 31	15	56.8
3525	Waste Press: In Hot Cell, rad. contaminated	Hot Cell	3.5 (after flushing)	0.5	
Systems over 50 ppm: Two					

3.4 PCB Wastes

PCB wastes at ORNL include contaminated oils, large capacitors, small capacitors including fluorescent light ballasts, contaminated solids (e.g., rags, papers from spill cleanups), transformer carcasses (i.e., drained units), and contaminated wastes from unintentional spills and releases. The majority of PCB wastes are stored on-site at Building 7507 and 7823, and are shipped from those buildings to an off-site EPA-approved incinerator or EPA-approved landfill (for transformer carcasses) for disposal.

PCB wastes that are co-contaminated with radioactive constituents cannot be sent to off-site disposal since no commercial incinerator is available for treatment of PCB and radioactive wastes. As a result, a large amount of radioactively co-contaminated PCB wastes, primarily oils, are stored on-site at Building 7823 or the 7507W Mixed Waste Pad awaiting incineration at the DOE Oak Ridge TSCA incinerator (see Table 8). ORNL and DOE are negotiating a federal facilities compliance agreement with EPA, Region IV, to allow for continued storage of radioactively contaminated PCB wastes for more than one year at ORNL until the backlog can be treated at a TSCA approved incinerator.

There are ten additional short-term storage areas at ORNL, as listed below along with the type of material temporarily stored in each area. The areas are maintained by Plant & Equipment (P & E) or by research division personnel and are marked with PCB labels, are inspected once every 30 days, and have secondary containment for the containers of solid waste (provided by overpack drums for large drums of light ballasts).

DIVISION	BUILDING	MATERIAL STORED
1. P & E	4500 South	Light Ballasts
2. P & E	4500 North	Light Ballasts
3. P & E	2018	Light Ballasts
4. P & E	2018	Oil Storage Tank
5. P & E	3104	Light Ballasts
6. P & E	6000	Light Ballasts
7. P & E	7921	Light Ballasts
8. P & E	2547	Oil Storage Tank
9. P & E	7606	Light Ballasts
10. Analytical Chemistry	4500 South	Lab samples
11. Analytical Chemistry	4500 South	Lab samples
12. Chemical Technology	3017 & 4505	Research samples
13. Health & Safety Research	4500 South	Research samples
14. Chemical Technology	4501	Research samples

At ORNL, PCB wastes are classified into two categories: (a) ≥ 2 but < 50 ppm which are not from dilution of PCB wastes or spills of PCB materials (controlled under Energy Systems policies) and, (b) ≥ 50 ppm PCBs (requiring disposal under EPA regulations [40 CFR 761.60]).

3.4.1 Wastes Shipped Off-Site

All nonradioactive PCB wastes (≥ 2 ppm) are shipped off-site for disposal at an EPA-approved facility. For these off-site shipments, PCB wastes are manifested in the same manner as RCRA hazardous wastes, and copies of the manifests are retained by the Hazardous Waste Operations Group. Some of the wastes shipped off-site for disposal may be generated at ORNL facilities located at the Y-12 plant or from the Oak Ridge Associated Universities in Oak Ridge.

During CY 1991, there were no off-site shipments of solid PCB wastes containing ≥ 50 ppm due to the DOE and MMES moratorium on shipments. Off-site shipments of liquid PCB wastes containing ≥ 50 ppm totaled 104.25 kgs. These two containers contained radioactive contaminated oils and were shipped to the DOE K-25 TSCA Incinerator in Oak Ridge, TN (see Table 5).

ORNL shipped only 2.81 kgs of solid wastes contaminated with PCBs < 50 ppm, for incineration at a RCRA facility in Baton Rouge, LA (see Table 6).

3.4.2 Wastes in Storage

Liquid wastes in storage at the end of the reporting period containing ≥ 50 ppm PCBs are shown in Table 7. The storage inventory includes 6,357.9 kgs of oils containing ≥ 50 ppm PCBs. The solid wastes in storage at the end of the calendar year containing ≥ 50 ppm are listed in Table 8. The current inventory includes 3,480.81 kgs of solids ≥ 50 ppm PCBs. Due to the May 17, 1991 moratorium on shipments offsite, these wastes are considered radioactively contaminated. Upon the determination of "release" levels of radioactivity, they will be shipped to the DOE TSCA Incinerator for destruction.

Appendix A includes all solid and liquid materials containing < 50 ppm PCBs that were in storage at the end of CY 1991.

Table 5. Liquid PCB Waste > 50 ppm Shipped Off-Site for Disposal as of December 31, 1991

Disposal Container	Source Location	Waste Description	Drum Weight In KGS	PCB:PPM	Date to Storage	Date Shipped	Disposer
937R	3106	OIL with radioactive & PCB contamination	208.45	127	11/28/89	7/30/91	K-25
779R	6000	OIL with radioactive & PCB contamination	75.80	16,000	8/17/88	7/30/91	K-25
Total Drums = 2		Total KGS = 284.25					

¹ DOE K-25 facility in Oak Ridge, TN. As of December 31, 1991, the 2 drums had not been incinerated in the K-25 TSCA Incinerator.

Table 6. Solid PCB Waste < 50 ppm Shipped Off-Site for Disposal as of December 31, 1991

Disposal Container	Source Location	Waste Description	Drum Weight In KGS	PCB:PPM	Date to Storage	Date Shipped	Disposer
Lab Pack	4505	Research material, glassware & soil	2.81	<2 ppm ¹	2/25/91	4/16/91	Rollins ²
Total Drums = 1		Total KGS = 2.81					

¹ The waste generated from R&D activities was calculated to contain < 2 ppm PCBs after microbial activity and chemical extractions. The original concentrations used were generated from PCB crystals, from which solutions were prepared which contained approximately 100-200 ppm concentrations of PCBs. The solutions were then applied to soil within bioreactors containing microbial consortia.

² Shipped by manifest to Rollins Incinerator, Baton Rouge, LA. Incinerated and disposed of by June 26, 1991.

Table 7
Liquid PCB Wastes ≥ 50 ppm in Storage as of December 31, 1991*

Disposal Container	Source Location	Waste Description	Drum Weight in KGS	PCB:PPM	Date to Storage	Storage Location	Rad. Content
1122R	3012	Oil PCB	113.70	305	3/18/91	7823	R
1123R	3012	Oil PCB	113.70	716	3/18/91	7823	R
1124R	3012	Oil PCB	68.0	62.5	3/18/91	7823	R
1125R	3012	Oil PCB	68.0	58	3/18/91	7823	R
1207R	2547	Cutting Coolant	208.45	281	7/9/91	7823	R
1208R	2547	Cutting Coolant & Oil	208.45	281	7/9/91	7823	R
1285R	3504	Transformer Oil PCB	170.55	63	11/08/91	7823	R
1303R	3518	Oil Solution PCB	113.70	117	12/18/91	7823	R
1308R	3106	Oil PCB	208.45	2677	12/18/91	7823	R
2104B	4500S	Oil PCB	7.58	1200	11/15/90	7507	R
2114B	3012	Oil PCB	74.86	5550	1/09/91	7507	R
2115B	3012	Oil PCB	220.96	7500	1/09/91	7507	R
2116B	3012	Oil PCB	227.77	12500	1/09/91	7507	R
2117B	3012	Oil PCB	55.81	7800	1/09/91	7507	R
2118B	3012	Oil PCB	28.13	58500	1/09/91	7507	R

*Drums that have the B designation are considered possible radioactive contaminated, awaiting decisions by DOE and MMES on a moratorium on off-site shipments of wastes, in effect since May 1991.

Table 7

Disposal Container	Source Location	Waste Description	Drum Weight in KGS	PCB:PPM	Date to Storage	Storage Location	Rad. Content
2232B	4508	Transformer PCB	164.86	10700	3/12/91	7507	R
2240B	4500S	Oil PCB	183.3	80.6	3/14/91	7507	R
2246B	2018	Citrus Base Liquid	198.28	52	4/05/91	7507	R
2248B	2018	Oil PCB	210.98	88.8	4/05/91	7507	R
2254B	2018	Oil PCB	136.57	88	4/05/91	7507	R
2255B	2018	Oil PCB	184.66	88.8	4/05/91	7507	R
2256B	2018	Oil PCB	194.65	73.5	4/05/91	7507	R
2426B	4500N	Sludge PCB	8.17	100	11/05/91	7507	R
2463B	2525	Oil Solution PCB	208.45	118.5	12/11/91	7507	R
2464B	2525	Oil Solution PCB	208.45	118.5	12/11/91	7507	R
2465B	2525	Oil Solution PCB	208.45	118.5	12/11/91	7507	R
2466B	2525	Oil Solution PCB	208.45	118.5	12/11/91	7507	R
2467B	2525	Oil Solution PCB	208.45	118.5	12/11/91	7507	R
2468B	2525	Oil Solution PCB	208.45	118.5	12/11/91	7507	R
2469B	2525	Oil Solution PCB	208.45	118.5	12/11/91	7507	R
2470B	2525	Oil Solution PCB	208.45	118.5	12/11/91	7507	R
2475B	3012	Oil PCB	208.45	780	12/13/91	7507	R
938R	4500S	Oil PCB	212.26	668	2/01/90	7823	R

Table 7

Disposal Container	Source Location	Waste Description	Drum Weight in KGS	PCB:PPM	Date to Storage	Storage Location	Rad. Content
N**R	Unknown	Oil PCB	11.37	200	11/06/84	7507W	R
1245R	7960	Oil PCB	379.0	67.7	8/16/91	7823	R
2452B	4500S	Ethanol Solution PCB	9.1	15,000	11/20/91	7507	R
Total:	36 drums		5717.0				

** This drum has not been found during numerous searches. It is believed it was added in a previous year to another PCB/radioactive liquid drum.

Table 8
Solid PCB Waste $\geq$ 50ppm in Storage as of December 31, 1991*

Disposal Container	Source Location	Waste Description	Drum Weight in KGS	PCB:PPM	Date to Storage	Storage Location	Rad. Content
1351R	2510	OIL CONTAMINATED SOLIDS PCB	74.86	119	1/17/91	7823	R
1353R	2510	PCB CONTAMINATED SOLIDS	71	200	1/17/91	7823	R
2148B	4508	PCB OIL CONTAMINATED SOLIDS	208.45	UNKNOWN	1/16/91	7507	R
2149B	4508	PCB OIL CONTAMINATED SOLID	208.45	UNKNOWN	1/16/91	7507	R
2150B	4508	PCB OIL CONTAMINATED SOLID	215.71	UNKNOWN	1/16/91	7507	R
2155B	4500S	PCB CAPACITORS	1.18	UNKNOWN	1/18/91	7507	R
2184B	4500S	PCB CONTAMINATED	1.44	UNKNOWN	1/16/91	7507	R
2204B	7506	PCB BALLASTS	236	UNKNOWN	1/24/91	7507	R
2212B	4508	PCB CAPACITORS	163.3	UNKNOWN	2/15/91	7507	R
2213B	4508	PCB CAPACITORS	174.6	UNKNOWN	2/15/91	7507	R
2214B	4501	PCB CONTAMINATED TRANSFORMER	11.34	UNKNOWN	2/14/91	7507	R
2238B	3525	PCB CONTAMINATED SOLID	2.27	UNKNOWN	9/18/91	7507	R

*Drums that have the B designation are considered possible radioactive contaminated, awaiting decisions by DOE and MMLIS on a moratorium on off-site shipments of wastes, in effect since May 1991. Drums with unknown concentrations are considered $\geq$ 50 ppm contaminated and will be incinerated at a TSCA Incinerator.

Table 8

Disposal Container	Source Location	Waste Description	Drum Weight in KGS	PCB:PPM	Date to Storage	Storage Location	Rad. Content
2318B	2018	PCB BALLASTS	291.99	UNKNOWN	5/29/91	7507	R
2319B	2018	PCB BALLASTS	282.67	UNKNOWN	5/29/91	7507	R
2399B	6000	PCB BALLASTS	128.86	UNKNOWN	10/02/91	7507	R
2400B	6000	PCB BALLASTS	146.55	UNKNOWN	10/02/91	7507	R
2457B	3525	PCB BALLASTS	6.35	UNKNOWN	12/05/91	7507	R
2485B	7001	PCB CONTAMINATED	28.58	UNKNOWN	12/19/91	7507	R
2486B	7001	PCB CAPACITORS	68.06	UNKNOWN	12/19/91	7507	R
322R	1505	PCB CONTAMINATED SOLIDS	2.27	UNKNOWN	11/25/85	7507W	R
939R	3106	PCB CONTAMINATED SOLIDS	34.03	UNKNOWN	11/28/89	7823W	R
1256R	4500S	PCB CAPACITORS	1.8	UNKNOWN	1/18/91	7507W	R
1061R	4505	CONTAMINATED SOLIDS	208.45	UNKNOWN	1/11/91	7507W	R
1062R	4505	CONTAMINATED SOLIDS	208.45	UNKNOWN	1/11/91	7507W	R
1258R	4501	CONTAMINATED SOLIDS	7.3	UNKNOWN	2/14/91	7507W	R
1277R	3001	PCB CAPACITORS	9.1	UNKNOWN	10/9/91	7823	R
1282R	3525	CONTAMINATED SOLIDS	2.3	UNKNOWN	9/18/91	7823	R
2112B	3038	LIGHT BALLASTS	289	UNKNOWN	12/19/90	7507	R
2210B	7507	OIL CONTAMINATED SOLIDS	23.1	12500	1/24/91	7507	R

4.0 REFERENCES

J. K. Greer, Jr., and R. C. Foley. 1991. PCB Annual Report for Oak Ridge National Laboratory - CY 1990. Oak Ridge National Laboratory, Oak Ridge, TN (ORNL/TM-11883/R1).

40 Code of Federal Regulations Part 761 -- Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions. Sections 761.1 -- 761.218. Revised December 21, 1989, 54 Federal Register 52716.

International Agency for Research on Cancer (IARC). 1978. IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans. Polychlorinated Biphenyls and Polybrominated Biphenyls. Vol. 18. IARC, Lyon.

IARC. 1982. Chemicals, Industrial Processes and Industries Associated with Cancer in Humans. Supplement 4. IARC, Lyon.

Appendix A

Wastes < 50 ppm in Storage

Appendix A
Wastes in Storage <50 ppm*

DISPOSAL CONTAINER	SOURCE LOCATION	WASTE DESCRIPTION	DRUM WEIGHT IN KGS	PCB:PPM	DATE TO STORAGE	STORAGE LOCATION	RAD. CONTENT
1073R	4508	CONTAM. SOLIDS WITH PCB	19.06	26.6	2/11/91	7507W	R
1293R	2018	BALLASTS PCB	208.45	39.6	11/20/91	7823	R
1297R	4508	OIL CONTAM. SOLIDS	22.69	5.75	12/13/91	7507W	R
1348R	2510	OIL CONTAM. SOLIDS	71.69	7.95	1/17/91	7823	R
1350R	2510	OIL CONTAM. SOLIDS	92.10	6.1	1/17/91	7823	R
1352R	2510	OIL CONTAM. SOLIDS	95.73	5.6	1/17/91	7823	R
2257B	7039	CONTAM. SOLIDS WITH PCB	332.12	5.7	4/05/91	7507	R
2258B	7039	CONTAM. SOLIDS WITH PCB	271.78	5.7	4/05/91	7507	R
2259B	7039	CONTAM. SOLIDS PCB	231.40	5.7	4/05/91	7507	R
2260B	7039	CONTAM. SOLIDS WITH PCB	254.08	5.7	4/05/91	7507	R

*Same footnote as table 7 or 8

Appendix A

DISPOSAL CONTAINER	SOURCE LOCATION	WASTE DESCRIPTION	DRUM WEIGHT IN KGS	PCB:PPM	DATE TO STORAGE	STORAGE LOCATION	RAD. CONTENT
2261B	7039	CONTAM. SOLIDS WITH PCB	342.10	5.7	4/05/91	7507	R
2262B	7039	CONTAM. SOLIDS WITH PCB	267.54	5.7	4/05/91	7507	R
1136R	3025	OIL PCB	208.45	5.5	4/22/91	7507W	R
1218R	7000	OIL PCB	208.45	23	7/17/91	7507W	R
1219R	7000	OIL PCB	208.45	3.9	7/17/91	7507W	R
1274R	6010	OIL PCB	36.30	11.4	10/02/91	7823	R
1286R	3504	TRANSFORMER OIL PCB	234.98	8.8	11/08/91	7823	R
1287R	3504	TRANSFORMER OIL PCB	113.70	7.2	11/08/91	7823	R
1294R	2018	BALLASTS PCB	208.45	39.6	11/20/91	7823	R
1309R	3012	OIL SOLUTION PCB	208.45	4.2	12/18/91	7823	R
1310R	4500N	OIL SOLUTION PCB	208.45	6.29	12/19/91	7823	R
2113B	3012	OIL WITH PCB	208.45	39	1/08/91	7507W	R
2131B	4515	OIL WITH PCB	3.83	13.4	1/10/91	7507	R
2139B	3025	OIL WITH PCB	181.49	6.4	1/11/91	7507	R

Appendix A

DISPOSAL CONTAINER	SOURCE LOCATION	WASTE DESCRIPTION	DRUM WEIGHT IN KGS	PCB:PPM	DATE TO STORAGE	STORAGE LOCATION	RAD. CONTENT
2151B	4508	OIL WITH PCB	182.40	46	1/16/91	7507	R
2152B	4508	OIL WITH PCB	195.10	46	1/16/91	7507	R
2153B	4508	OIL WITH PCB	264.06	46	1/16/91	7507	R
2154B	4508	OIL WITH PCB	245.46	46	1/16/91	7507	R
2155B	4508	OIL WITH PCB	167.42	46	1/17/91	7507	R
2156B	4508	OIL WITH PCB	758.00	46	1/16/91	7507	R
2181B	7021	OIL WITH PCB	191.92	20	1/21/91	7507	R
2182B	7021	OIL WITH PCB	187.39	20	1/21/91	7507	R
2183B	7021	OIL WITH PCB	195.10	20	1/21/91	7507	R
2184B	7021	OIL WITH PCB	182.40	20	1/21/91	7507	R
2185B	7021	OIL WITH PCB	199.64	20	1/21/91	7507	R
2186B	7021	OIL WITH PCB	190.56	20	1/21/91	7507	R
2187B	7021	OIL WITH PCB	190.11	20	1/21/91	7507	R
2188B	7021	OIL WITH PCB	106.62	20	1/21/91	7507	R
2193B	2525	OIL WITH PCB	228.22	3.85	1/23/91	7507	R
2194B	2525	OIL WITH PCB	228.67	3.85	1/23/91	7507	R
2195B	2525	OIL WITH PCB	203.72	3.85	1/23/91	7507	R
2196B	2525	OIL WITH PCB	219.15	3.85	1/23/91	7652	R

Appendix A

DISPOSAL CONTAINER	SOURCE LOCATION	WASTE DESCRIPTION	DRUM WEIGHT IN KGS	PCB:PPM	DATE TO STORAGE	STORAGE LOCATION	RAD. CONTENT
2197B	2525	OIL WITH PCB	220.51	3.85	1/23/91	7507	R
2198B	2525	OIL WITH PCB	215.52	3.85	1/23/91	7507	R
2199B	2525	OIL WITH PCB	227.31	3.85	1/23/91	7507	R
2200B	3012	OIL WITH PCB	200.09	9.1	1/23/91	7507	R
2201B	3012	OIL WITH PCB	139.75	9.1	1/23/91	7507	R
2202B	4501	OIL WITH PCB	141.11	34	1/23/91	7507	R
2203B	4500S	OIL WITH PCB	115.24	3.3	1/23/91	7507	R
2233B	4508	TRANSFORMER	189.50	17	3/12/91	7507	R
2234B	4508	PUMP	87.17	9.5	3/12/91	7507	R
2239B	4508	OIL WITH PCB	75.80	11	3/14/91	7507	R
2241B	4500S	OIL WITH PCB	208.45	23.3	3/14/91	7507	R
2243B	7603	OIL WITH PCB	208.45	24	3/14/91	7507	R
2247B	2018	OIL WITH PCB	196.01	19.9	4/05/91	7507	R
2249B	2018	OIL WITH PCB	188.75	12.75	4/05/91	7507	R
2250B	2018	OIL WITH PCB	175.59	15.75	4/05/91	7507	R
2251B	2018	OIL WITH PCB	206.44	8.1	4/05/91	7507	R
2252B	2018	OIL WITH PCB	163.34	11.5	4/05/91	7507	R
2253B	2018	OIL WITH PCB	182.40	15.4	4/05/91	7507	R

Appendix A

DISPOSAL CONTAINER	SOURCE LOCATION	WASTE DESCRIPTION	DRUM WEIGHT IN KGS	PCB:PPM	DATE TO STORAGE	STORAGE LOCATION	RAD. CONTENT
2312B	4500S	OIL WITH PCB	205.99	13.65	5/14/91	7507	R
2375B	3012	OIL WITH PCB	208.45	8.43	9/06/91	7507	R
2421B	3074	OIL WITH PCB	117.51	5.31	10/30/91	7507	R
2474B	3012	OIL WITH PCB	208.45	5.3	12/13/91	7507	R
2476B	3012	OIL WITH PCB	208.45	5.65	12/13/91	7507	R
2477B	4500S	OIL WITH PCB	208.45	3.04	12/13/91	7507	R
2478B	4500S	OIL WITH PCB	208.45	3.5	12/13/91	7507	R
2481B	3012	OIL WITH PCB	208.45	3.5	12/18/91	7507	R
2482B	3012	OIL WITH PCB	208.45	5.05	12/18/91	7507	R
2483B	3012	OIL WITH PCB	208.45	6.15	12/18/91	7507	R
555R	2525	OIL WITH PCB	208.45	10	4/14/87	7507W	R
556R	2525	OIL WITH PCB	208.45	10	4/14/87	7507W	R
557R	2525	OIL WITH PCB	208.45	3	4/14/87	7507W	R
598R	6010	OIL WITH PCB	208.45	7	5/28/87	7507	R
668R	Y9202-2	OIL WITH PCB	208.45	16	1/13/88	7507W	R
687R	3001	OIL WITH PCB	9.07	12	5/04/88	7507W	R
755R	5500	OIL WITH PCB	208.45	6	8/10/88	7507W	R
800R	45003	OIL WITH PCB	19.55	24	10/01/91	7507W	R

Appendix A

DISPOSAL CONTAINER	SOURCE LOCATION	WASTE DESCRIPTION	DRUM WEIGHT IN KGS	PCB:PPM	DATE TO STORAGE	STORAGE LOCATION	RAD. CONTENT
997R	3607	OIL WITH PCB	170.55	3.8	8/22/90	7507W	R
1348R	2510	CONTAM. SOLIDS	72	7.95	1/17/91	7823	R
1350R	2510	CONTAM. SOLIDS	92	6.1	1/17/91	7823	R
1352R	2510	CONTAM. SOLIDS	96	5.6	1/17/91	7823	R
TOTAL:	82 DRUMS		15,216.53				

* The following drums of liquids containing PCBs 49ppm or less have been added to a RCRA storage tank at ORNL, Tank 7830A, while awaiting shipment to the K-25 TSCA Incinerator: 789R, 555R, 556R, 598R, 668R, 726R, 727R, 729R, 730R, 997R, 1136R, 1210R, 1211R, 1218R, 1219R, and 1212R.

Appendix B

Transformer Inventory

PCB contamination < 50 ppm (B1)
and Unknown (pending analyses) (B2)

Appendix B1 PCB Transformers (< 50 ppm)
In Service or Stored for Reuse During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
AC 7.5 KVA 1827783	PINE PLANTATION	<50.00	15.00	<81.00
GE 100 KVA N371662 7-50	0855 RIVER SITE	<50.00	50.00	<270.00
WESTINGHOUSE 167KVA 73J3180	1000	<50.00	65.00	<351.00
WESTINGHOUSE 167KVA 73J3181	1000	<50.00	65.00	<351.00
WESTINGHOUSE 167KVA 73J3182	1000	<50.00	65.00	<351.00
VANTRAN 500 KVA 72V9421 7-16	1504	13.00	220.00	1188.00
VANTRAN 1000 KVA 77V6956 234-4T1	1505	5.00	440.00	2376.00
VANTRAN 45 KVA 81V3323 234-4T3	1505	5.00	130.00	702.00
VANTRAN 1000 KVA 77V6955 234-4T2	1505	5.00	440.00	2376.00
GE 1000 KVA 8110081 6-3	2000	15.00	390.00	2106.00
WESTINGHOUSE 200 KVA 3160694 6-3	2000	5.00	100.00	540.00
UPTGRAFF 100 KVA 64011 6-3	2000	5.00	71.00	383.40
GE 100 KVA 7513305 6-3	2000	5.00	59.00	318.60
81018102	2000 38A CABINET	<50.00	7.00	<37.80

Appendix B1 PCB Transformers (< 50 ppm)
In Service or Stored for Reuse During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
82050912	2000 38A CABINET	<50.00	7.00	<37.80
88053978	2000 38B CABINET	<50.00	7.00	<37.80
88037577	2000 38B CABINET	<50.00	7.00	<37.80
NORELCO X-RAY UNIT X-151487	2000 ROOM 24	<50.00	5.00	<27.00
ELECTRON BEAM POWER SUPPLY	2000 ROOM 28	7.80	2.00	10.80
SORENSEN S/N 135	2011	5.30	52.00	280.80
SORENSEN S/N 165	2011	6.45	53.00	286.20
GE 1500 KVA L243213 8-6	2519	5.00	210.00	1134.00
AC 5000 KVA 2371106 2632-301	2632	18.00	1297.00	7003.80
GE 5000 KVA 8110078 3000-101	3000	32.00	1350.00	7920.00
GE 5000 KVA 8110079 3000-102	3000	22.00	1350.00	7920.00
GE 5000 KVA (SPARE) 8110080 3000-103	3000	12.00	1350.00	7920.00
MARCUS 200 KVA 80845 3-2A	3001	5.00	113.00	610.20
MARCUS 200 KVA 80843 3-2A2	3001	5.00	113.00	610.20

Appendix B1 PCB Transformers (< 50 ppm)
In Service or Stored for Reuse During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
MARCUS 200 KVA 80844 3-2A	3001	5.00	113.00	610.20
UPTGRAFF 167 KVA 64012 3-2B	3001	5.00	107.00	577.80
ORAM ELECTRONICS ISOLATION TRANSFORMER 2057	3003 ROOM 109	7.60	5.00	27.00
HIGH VOLTAGE ENG. CO. SN 1086	3003 ROOM 109	2.00	2.00	10.80
HIGH VOLTAGE ENG. CO. SN 1096	3003 ROOM 109	2.00	2.00	10.80
HIGH VOLTAGE ENG. CO. SN 1076	3003 ROOM 109	2.00	2.00	10.80
HIGH VOLTAGE ENG. CO. SN 1057	3003 ROOM 109	2.00	2.00	10.80
WESTINGHOUSE 750 KVA PKR94711 2-3	3010	30.00	260.00	1404.00
WESTINGHOUSE 112.5 KVA 78JB05241 10-5	3019	5.00	75.00	405.00
RIGAKU X RAY UNIT SN A11195	3025 RM ML100	9.00	10.00	54.00
NORELCO X-RAY UNIT SN 52-291	3025 RM ML108	8.00	5.00	27.00
NORELCO X-RAY UNIT SN 51-182	3025 RM ML108	3.00	5.00	27.00
GE X-RAY UNIT SN527821	3025 RM ML108	8.00	5.00	27.00
VANTRAM 1000 KVA 83V3577	3042	2.00	450.00	2430.00

Appendix B1 PCB Transformers (< 50 ppm)
In Service or Stored for Reuse During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
ALLIS CHALMERS 75 KVA 2112780	3042	2.00	42.00	226.80
STANDARD 300 KVA 49178 4-7	3144	15.00	200.00	1080.00
UPTGRAFF 167 KVA 67632 25-1A	3500	5.00	55.00	297.00
UPTGRAFF 167 KVA 70686 25-1A	3500	5.00	55.00	297.00
UPTGRAFF 167 KVA 70687 25-1A	3500	5.00	55.00	297.00
COOPER 100 KVA 2.4 KV 911089036	3503	1.00	50.00	270.00
WESTINGHOUSE 5000 KVA 5065375 4000-201	4000	5.00	1335.00	7209.00
WESTINGHOUSE 5000 KVA 5065374 4000-202	4000	5.00	1335.00	7209.00
GE SPECTROMETER XRD-5 M131399A	4500N ROOM E13	2.00	10.00	54.00
GE SPECTROMETER XRD-5 M131399B	4500N ROOM E13	42.00	10.00	54.00
XRAY MACHINE X-164682 OLD X132942	4500N STF-3	9.00 OIL DRAINED	5.00 GAL.	27.00
STANDARD 1000 KVA 154363 14-1	4501	5.00	364.00	1965.60
STANDARD 300 KVA 49177 14-2	4505	11.00		
2500 KVA 1902055	4509	17.00	682.00	3682.80

Appendix B1 PCB Transformers (< 50 ppm)
In Service or Stored for Reuse During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
2500 KVA 1902056	4509	9.00	682.00	3682.80
2500 KVA 1902057	4509	7.00	682.00	3682.80
HVPS SPARE BETA NISTF-1	5500 ROOM 125	<50.00	150.00	<810.00
HV ISOLATION XFORMER NISTF-2	5500 ROOM 125	<50.00	35.00	<189.00
HVPS SPARE 120 KV 1EN-BETA	5500 ROOM 125	<50.00	50.00	<270.00
SORENSEN HVPS SOURCE ACCEL 2EN 120 KV	5500 ROOM 125	<50.00	100.00	<540.00
NWL ISOLATION XFORMER CX 3EN	5500 ROOM 125	<50.00	30.00	<162.00
UV ISOLATION XFORMER SP 4EN	5500 ROOM 125	<50.00	30.00	<162.00
DEL LENS 3 HVPS 50KV 6EN	5500 ROOM 125	<50.00	9.00	<48.60
HVEC SPARE CURRENT REGULATOR 7EN	5500 ROOM 125	<50.00	7.00	<37.80
DEL SPARE BELT HVPS 50 KV 8EN	5500 ROOM 125	<50.00	20.00	<108.00
DEL BELT CHARGE HVPS 50 KV 10EN	5500 ROOM 125	<50.00	20.00	<108.00
X174786	5500 ROOM 211	<2.00	8.00	<43.20
WESTINGHOUSE 100141	6000 ROOM C300	<50.00	8.00	<43.20

Appendix B1 PCB Transformers (< 50 ppm)
In Service or Stored for Reuse During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
WESTINGHOUSE 100142	6000 ROOM C300	<50.00	8.00	<43.20
WESTINGHOUSE 100143	6000 ROOM C300	<50.00	8.00	<43.20
WESTINGHOUSE 100145	6000 ROOM C300	<50.00	8.00	<43.20
WESTINGHOUSE 100144	6000 ROOM C300	<50.00	8.00	<43.20
VANTRAN 1500 KVA 77V8211 244-5	6005	<5.00	535.00	<2889.00
GE 225 KVA F643634-67P 244-3-411	6010	28.00	94.00	507.60
GE 750 KVA F959884 244-3-412	6010	27.00	180.00	972.00
GE 2000 KVA F959883 244-3-413	6010	20.00	300.00	1620.00
900507-064 12	6010 EBIL ROOM	2.00	100.00	540.00
900507-065 13	6010 EBIL ROOM	2.00	100.00	540.00
900507-066 14	6010 EBIL ROOM	2.00	100.00	540.00
900507-067 15	6010 EBIL ROOM	2.00	300.00	1620.00
900507-068 16	6010 EBIL ROOM	2.00	300.00	1620.00
900507-053 1	6010 MODULATOR ROOM	2.30	300.00	1620.00

Appendix B1 PCB Transformers (< 50 ppm)
In Service or Stored for Reuse During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
900507-054 2	6010 MODULATOR ROOM	2.00	1000.00	5400.00
900507-005 3	6010 MODULATOR ROOM	10.00	300.00	1620.00
900507-056 4	6010 MODULATOR ROOM	7.40	300.00	1620.00
900507-057 5	6010 MODULATOR ROOM	2.00	300.00	1620.00
900507-058 6	6010 MODULATOR ROOM	3.30	300.00	1620.00
900507-059 7	6010 MODULATOR ROOM	2.10	300.00	1620.00
900507-060 8	6010 MODULATOR ROOM	38.00	300.00	1620.00
900507-061 9	6010 MODULATOR ROOM	3.50	300.00	1620.00
900507-062 10	6010 MODULATOR ROOM	5.60	300.00	1620.00
900507-063 11	6010 MODULATOR ROOM	2.80	300.00	1620.00
HEVI DUTY 225 KVA V21808 244-3-414A	6025	5.00	200.00	1620.00
LINE MATERIAL H26N4201 244-3-414B	6025	5.00	160.00	864.00
LINE MATERIAL 100 KVA 1337045 27-8	7003	5.00	60.00	324.00
LINE MATERIAL 100 KVA 1337042 27-8	7003	5.00	60.00	324.00

Appendix B1 PCB Transformers (< 50 ppm)
In Service or Stored for Reuse During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
LINE MATERIAL 100 KVA 13.1476 27-8	7003	5.00	60.00	324.00
WESTINGHOUSE 50 KVA 84A500373	7003	<50.00	30.00	<162.00
WESTINGHOUSE 50 KVA 84A500374	7003	<50.00	30.00	<162.00
WESTINGHOUSE 50 KVA 84A500375	7003	<50.00	30.00	<162.00
CENTRAL 167 KVA 3376-1 27-10	7012	5.00	70.00	378.00
CENTRAL 167 KVA 3376-2 27-10	7012	5.00	70.00	378.00
CENTRAL 167 KVA 3376-3 27-10	7012	5.00	70.00	378.00
GE 1000 KVA 13.8 KV 7367553	7033	<50.00	533.00	<2878.20
WAG 167 KVA 13.8 KV B5H8007	7033	11.00	145.00	783.00
WAG 167 KVA 13.8 KV A9F1211	7033	9.00	145.00	783.00
WAG 167 KVA 13.8 KV A9F1213	7033	11.00	145.00	783.00
UPTGRAFF 250 KVA 2.4 KV 64586	7033	5.00	125.00	675.00
UPTGRAFF 250 KVA 2.4 KV 64585	7033	5.00	125.00	675.00
UPTGRAFF 250 KVA 2.4 KV 64587	7033	5.00	125.00	675.00

Appendix B1 PCB Transformers (< 50 ppm)
In Service or Stored for Reuse During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
UPTGRAFF 250 KVA 2.4 KV 66711	7033	10.00	132.00	712.80
UPTGRAFF 250 KVA 2.4 KV 66710	7033	29.00	132.00	712.80
UPTGRAFF 250 KVA 2.4 KV 66712	7033	<50.00	132.00	<712.80
GE 100 KVA 6589125 33-9B	7033	<50.00	61.00	<329.40
COOPER 100 KVA 2.4KV 911089035	7033	1.00	50.00	270.00
COOPER 100 KVA 2.4KV 911089034	7033	1.00	50.00	270.00
COOPER 25 KVA 13.8 KV 90NL170001	7033	1.00	24.00	129.60
WAG 250 KVA 13.8 KV G9H1023	7033	5.00	160.00	864.00
WAG 250 KVA 13.8 KV G9H1021	7033	5.00	160.00	864.00
WAG 250 KVA 13.8 KV G9H1022	7033	5.00	160.00	864.00
PENN 500 KVA 13.8 KV 27140-10	7033	16.00	237.00	1279.80
GE 333 KVA 13.8 KV B339639	7033	10.00	185.00	999.00
GE 333 KVA 13.8 KV B339640	7033	6.00	185.00	999.00
GE 333 KVA 13.8 KV B339641	7033	3.00	185.00	999.00

Appendix B1 PCB Transformers (< 50 ppm)
In Service or Stored for Reuse During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
PENN 500 KVA 13.8 KV 27140-20	7033	19.00	237.00	1279.80
PENN 500 KVA 13.8 KV 27140-16	7033	18.00	237.00	1279.80
PENN 500 KVA 13.8 KV 27140-14	7033	5.00	237.00	1279.80
PENN 500 KVA 13.8 KV 27140-11	7033	10.00	237.00	1279.80
PENN 500 KVA 13.8 KV 27140-8	7033	5.00	237.00	1279.80
AC 333 KVA 2.4 KV 1901715	7033	5.00	210.00	1134.00
AC 333 KVA 2.4 KV 1901710	7033	5.00	210.00	1134.00
AC 333 KVA 2.4 KV 1901714	7033	5.00	210.00	1134.00
COOPER 50 KVA 13.8 KV 90NN016002	7033	1.00	38.00	205.20
COOPER 50 KVA 13.8 KV 90NN016003	7033	1.00	38.00	205.20
COOPER 50 KVA 13.8 KV 90NN016001	7033	1.00	38.00	205.20
WAG 250 KVA 13.8 KV F9F1056	7033	5.00	160.00	864.00
WAG 250 KVA 13.8 KV F9F1057	7033	5.00	160.00	864.00
WAG 250 KVA 13.8 KV F9F1058	7033	5.00	160.00	864.00

Appendix B1 PCB Transformers (< 50 ppm)
In Service or Stored for Reuse During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
GE 1000 KVA 13.8 KV 7367549	7033	<50.00	650.00	<3510.00
WESTINGHOUSE 100 KVA 13.8 KV 75AH10309980	7033	<50.00	62.00	<334.80
WESTINGHOUSE 100 KVA 13.8 KV 77A1007931018	7033	<50.00	62.00	<334.80
ALLIS CHALMERS 167 KVA 7.6 KV 04942-213-3734	7033	<50.00	111.00	<599.40
WESTINGHOUSE 100 KVA 13.8 KV 77A1600031018	7033	<50.00	62.00	<334.80
WESTINGHOUSE 100 KVA 13.8 KV 64AD6802	7033	<50.00	62.00	<334.80
WESTINGHOUSE 100 KVA 13.8 KV 63F9308	7033	<50.00	62.00	<334.80
NIAGARA 500 KVA 2.4 KV 15198	7033	3.00	194.00	1047.60
CENTURION 167 KVA 2.4 KV 2546-1	7033	5.00	102.00	550.80
KUHL 100 KVA 2.4 KV A594654	7033	5.00	55.00	297.00
KUHL 100 KVA 2.4 KV A59469	7033	5.00	55.00	297.00
KUHL 100 KVA 2.4 KV A59466	7033	5.00	55.00	297.00
AC 167 KVA 2.4 KV 2310184	7033	5.00	90.00	486.00
WESTINGHOUSE 200 KVA 2.4 KV 3160686	7033	46.00	110.00	594.00

Appendix B1 PCB Transformers (< 50 ppm)
In Service or Stored for Reuse During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
WESTINGHOUSE 200 KVA 2.4 KV 3160690	7033	5.00	110.00	594.00
CENTURION 167 KVA 2.4 KV 2546-2	7033	5.00	102.00	550.80
CENTURION 167 KVA 2.4 KV 2546-3	7033	5.00	102.00	550.80
WESTINGHOUSE 75 KVA 2.4 KV 3163052	7033	<50.00	48.00	<259.20
GE 100 KVA 2.4 KV L805049YBLA	7033	5.00	65.00	351.00
GE 100 KVA 2.4 KV L805052YBLA	7033	5.00	65.00	351.00
GE 100 KVA 2.4 KV L808333YCLA	7033	5.00	65.00	351.00
DELTA 167 KVA 2.4 KV K41136	7033	<50.00	98.00	<529.20
DELTA 167 KVA 2.4 KV K41137	7033	<50.00	98.00	<529.20
DELTA 167 KVA 2.4 KV K41135	7033	<50.00	98.00	<529.20
WPG 167 KVA 2.4 KV 73955	7033	<50.00	59.00	<318.60
WAG 100 KVA 13.8 KV C9G2598	7033	<50.00	54.00	<291.60
PREC 3 KVA 2.4 KV 100174N	7033	<50.00	4.25	<22.95
WESTINGHOUSE 15 KVA 2.4 KV 76A08208	7033	<50.00	10.00	<54.00

Appendix B1 PCB Transformers (< 50 ppm)
In Service or Stored for Reuse During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
WESTINGHOUSE 100 KVA 2.4 KV 3163348	7033	<50.00	61.00	<329.40
WESTINGHOUSE 100 KVA 2.4 KV 3150523	7033	<50.00	61.00	<329.40
WESTINGHOUSE 100 KVA 2.4 KV 73AK16492	7033	<50.00	61.00	<329.40
WESTINGHOUSE 100 KVA 2.4 KV 73AK24738	7033	<50.00	61.00	<329.40
WESTINGHOUSE 100 KVA 2.4 KV 73AL892	7033	<50.00	61.00	<329.40
PENN 100 KVA 2.4 KV 26818-4	7033	<50.00	64.00	<345.60
PENN 100 KVA 2.4 KV 26818-5	7033	<50.00	64.00	<345.60
PENN 100 KVA 2.4 KV 26818-6	7033	<50.00	64.00	<345.60
AC 100 KVA 2.4 KV 3245044	7033	36.20	35.00	189.00
AC 100 KVA 2.4 KV 3245040	7033	34.10	35.00	189.00
LINE MATERIAL 75 KVA 2.4 KV 1075450	7033	<50.00	53.00	<286.20
LINE MATERIAL 75 KVA 2.4 KV 1053699	7033	<50.00	53.00	<286.20
LINE MATERIAL 75 KVA 2.4 KV 1053696	7033	<50.00	53.00	<286.20
WESTINGHOUSE 50 KVA 2.4 KV 86A301319	7033	1.00	38.00	205.20

Appendix B1 PCB Transformers (< 50 ppm)
In Service or Stored for Reuse During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
WESTINGHOUSE 50 KVA 2.4 KV 86A301321	7033	1.00	38.00	205.20
WESTINGHOUSE 50 KVA 2.4 KV 86A301317	7033	1.00	38.00	205.20
KUHL 100 KVA 2.4 KV A59468	7033	<50.00	55.00	<297.00
KUHL 100 KVA 2.4 KV A59470	7033	<50.00	55.00	<297.00
KUHL 100 KVA 2.4 KV A59467	7033	<50.00	55.00	<297.00
AC 50 KVA 2.4 KV 1824701	7033	<50.00	33.00	<178.20
AC 75 KVA 2.4 KV 1849409	7033	<50.00	54.00	<291.60
AC 50 KVA 2.4 KV 1715227	7033	<50.00	35.00	<189.00
AC 50 KVA 2.4 KV 1715223	7033	<50.00	35.00	<189.00
WESTINGHOUSE 50 KVA 2.4 KV 3103620	7033	<50.00	42.00	<226.80
WESTINGHOUSE 50 KVA 2.4 KV 3149118	7033	<50.00	42.00	<226.80
WESTINGHOUSE 45 KVA 2.4 KV 63F8215	7033	<50.00	42.00	<226.80
WESTINGHOUSE 50 KVA 2.4 KV 3149117	7033	<50.00	45.00	<243.00
GE 15 KVA 2.4 KV 8940279	7033	<50.00	15.00	<81.00

Appendix B1 PCB Transformers (< 50 ppm)
In Service or Stored for Reuse During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
MOLO 25 KVA 2.4 KV 860280	7033	<50.00	46.00	<248.40
MOLO 25 KVA 2.4 KV 860278	7033	<50.00	46.00	<248.40
MOLO 25 KVA 2.4 KV 860279	7033	<50.00	46.00	<248.40
GE 15 KVA 2.4 KV M123540YMA	7033	<50.00	15.00	<81.00
AC 15 KVA 2.4 KV 1794485	7033	<50.00	15.00	<81.00
AC 15 KVA 2.4 KV 1794491	7033	<50.00	15.00	<81.00
AC 15 KVA 2.4 KV 1849323	7033	<50.00	15.00	<81.00
AC 25 KVA 2.4 KV 24676145	7033	<50.00	16.50	<89.10
AC 25 KVA 2.4 KV 2476168	7033	<50.00	16.50	<89.10
AC 7.5 KVA 2.4 KV 1733347	7033	2.00	10.00	54.00
WESTINGHOUSE 15 KW 2.4 KV 5796540	7033	44.20	43.00	232.20
AC 100 KVA 2.4 KV 1988135	7033	<50.00	49.00	<264.60
MOLO 10 KVA 2.4 KV 2640495	7033	<50.00	9.00	<48.60
LINE MATERIAL 75 KVA 13.8 KV C5230201	7033	<50.00	52.00	<280.80

Appendix B1 PCB Transformers (< 50 ppm)
In Service or Stored for Reuse During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
GE 20 KVA 2.4 KV 9665686	7033	<50.00	65.00	<351.00
MOLO 25 KVA 2.4 KV 705929	7033	31.80	26.00	140.40
UPTGRAFF 25 KVA 13.8 KV 38337	7033	<50.00	25.00	<135.00
AC 25 KVA 2.4 KV 1830021	7033	40.50	21.00	113.40
WESTINGHOUSE 75 KVA 2.4 KV 2820073	7033	<50.00	41.00	<221.40
GE 50 KVA 2.4 KV 6154018	7033	<50.00	40.00	<216.00
GE 3 KVA 2.4 KV 6263930	7033	<50.00	5.25	<28.35
AC 25 KVA 2.4 KV 1742466	7033	<50.00	21.00	<113.40
WESTINGHOUSE 7.5 KVA 2.4 KV 317330	7033	<50.00	10.00	<54.00
WESTINGHOUSE 25 KVA 13.8 KV 75AC5607	7033	<50.00	20.00	<108.00
WESTINGHOUSE 100 KVA 2.4 KV 6071563	7033	<50.00	64.00	<345.60
AMERICAN 50 KVA 2.4 KV 949921	7033	<50.00	51.00	<275.40
AC 15 KVA 2.4 KV 1794487	7033	<50.00	15.00	<81.00
AC 15 KVA 2.4 KV 1849317	7033	<50.00	15.00	<81.00

Appendix B1 PCB Transformers (< 50 ppm)
In Service or Stored for Reuse During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
AMERICAN 50 KVA 2.4 KV 941241	7033	8.90	51.00	275.40
WESTINGHOUSE 100 KVA 2.4 KV 6071564	7033	<50.00	89.00	<480.60
WESTINGHOUSE 100 KVA 2.4 KV 6071563	7033	<50.00	89.00	<480.60
CENTURION 167 KVA 2.4 KV 4589-1	7033	<50.00	53.00	<286.20
AMERICAN 50 KVA 2.4 KV 941235	7033	<50.00	44.00	<237.60
WESTINGHOUSE 750 KVA 2.4 KV 7351430	7033	34.00	350.00	1890.00
UPTGRAFF 333 KVA 2.4 KV 59298	7033	11.00	197.00	1063.80
UPTGRAFF 333 KVA 2.4 KV 59299	7033	5.00	197.00	1063.80
CENTURION 100 KVA 13.8 KV 190264902	7033	1.00	37.00	199.80
CENTURION 100 KVA 13.8 KV 190264903	7033	1.00	37.00	199.80
CENTURION 100 KVA 13.8 KV 190264901	7033	1.00	37.00	199.80
UPTGRAFF 1500 KVA 75474 234-9	7503	5.00	422.00	2278.80
WESTINGHOUSE 1500 KVA SCV0999-01 264-16	7602	5.00	283.00	1528.20
GE 2000 KVA L246058 264-17	7602	5.00	258.00	1393.20

Appendix B1 PCB Transformers (< 50 ppm)
In Service or Stored for Reuse During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
WAGNER 167 KVA M9D1623 234-23	7700	25.00	145.00	783.00
WAGNER 167 KVA M9D1625 234-23	7700	27.00	145.00	783.00
WAGNER 167 KVA M9D1621 234-23	7700	28.00	145.00	783.00
200 KVA OIL FILLED SN 887	7708	<2.00	187.00	<1009.80
GE 1000 KVA 7731582 234-15	7710	16.00	500.00	2700.00
WESTINGHOUSE 225 KVA 77M615179	7831	50.00	60.00	324.00
SQUARE D 500 KVA 776002228 7-45	7860 HYDROFRACTURE	5.00	225.00	1215.00
GE 1000 KVA 7367568 7901-911-1	7901	28.00	500.00	2700.00
GE 1000 KVA 7731581 7901-913-1	7901	45.00	500.00	2700.00
AC 5000 KVA 2371103 7901-915-1	7901	6.00	1297.00	7003.80
AC GRN XFMR 3428808 7901	7901	15.00	200.00	1080.00
XRAY TRANSFORMER X171785	7920	36.00	15.00	81.00
WESTINGHOUSE 1500 KVA 7022144 294-1	7920	38.00	275.00	1485.00

Total Quantity =	251		38800.50	211952.70
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Appendix B2. Unknown Concentration Transformers
In Service or Stored for Reuse During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
UPTGRAFF 50 KVA 54841 6-3	2000	UNKNOWN ASSUMED 500	67.00	361.80
T&R 150 KVA 00923	2019	UNKNOWN ASSUMED 500	60.00	324.00
WESTINGHOUSE 225 KVA 70L6659	3017	UNKNOWN ASSUMED 500	60.00	324.00
WESTINGHOUSE 225 KVA 73G1478	3025	UNKNOWN ASSUMED 500	60.00	324.00
GE 7100962	3095	500.00 UNKNOWN ASSUMED	10.00	54.00
WESTINGHOUSE 167 KVA 72AB7827	3500	UNKNOWN ASSUMED 500	50.00	270.00
WESTINGHOUSE 167 KVA 67AH5687	3500	UNKNOWN ASSUMED 500	50.00	270.00
WESTINGHOUSE 167 KVA 67AH5688	3500	UNKNOWN ASSUMED 500	50.00	270.00
WESTINGHOUSE 167 KVA 67AH7855	3500	UNKNOWN ASSUMED 500	50.00	270.00
WESTINGHOUSE 100 KVA 64AK11441	3503	UNKNOWN ASSUMED 500	50.00	270.00
WESTINGHOUSE 100 KVA 64AL10170	3503	UNKNOWN ASSUMED 500	50.00	270.00
WESTINGHOUSE 100 KVA 64AK12562	3503	UNKNOWN ASSUMED 500	50.00	270.00
GE AUTOTRANSFORMER DISPOSED 6/91 9T64Y13 240V 2.8A	3508 LAB 1 SE CORNER	500.00 UNKNOWN ASSUMED	UNKNOWN	
GE 150 KVA L714667-TJMA 25-2	3546	UNKNOWN ASSUMED 500	93.00	502.20

Appendix B2. Unknown Concentration Transformers
In Service or Stored for Reuse During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
XRAY MACHINE X-158485	4500N ROOM C12	500.00 UNKNOWN ASSUMED	8.00	43.20
XRAY MACHINE X-158488	4500N STF-1	500.00 UNKNOWN ASSUMED	5.00	27.00
XRAY MACHINE X-158486	4500N STF-3	500.00 UNKNOWN ASSUMED	5.00	27.00
XRAY MACHINE X-158499	4500N STF-3	500.00 UNKNOWN ASSUMED	5.00	27.00
XRAY MACHINE X-164239	4500S ROOM D251	500.00 UNKNOWN ASSUMED	4 OR 5	27.00
UT 196939	4500S ROOM F55	500.00 UNKNOWN ASSUMED	12.00	64.80
DEL MODEL # 1TR30-11	4500S ROOM F55	500.00 UNKNOWN ASSUMED	2.00	10.80
XRAY MACHINE X-162854	5505 DOCK	500.00 UNKNOWN ASSUMED	5.00	27.00
XRAY MACHINE X-166339	5505 ROOM 46	500.00 UNKNOWN ASSUMED	5.00	27.00
XRAY MACHINE X-162855	5505 ROOM L4	500.00 UNKNOWN ASSUMED	8.00	43.20
XRAY MACHINE 1C-28913	5505 ROOM L9	500.00 UNKNOWN ASSUMED	5.00	27.00
ALLIS CHALMERS TYPE JP-15 200 3-10135-12	6000 C100 N. STORAGE	500.00 UNKNOWN ASSUMED	2.00	10.80
ALLIS CHALMERS TYPE JP-15 200 3-10135-16	6000 C100 N. STORAGE	500.00 UNKNOWN ASSUMED	2.00	10.80
WESTINGHOUSE ELECTRO ENG FILTER CHOKE E11924	6000 ROOM C300	500.00 UNKNOWN ASSUMED	10.00	54.00

Appendix B2. Unknown Concentration Transformers
In Service or Stored for Reuse During CY 1991

Transformer Description and ID No.	LOCATION	PCB : PPM	Capacity of oil in Gallons	Capacity of oil in KILOGRAMS
DEL MODEL A2150 2KVA 60 KV 1598	6000 ROOM C300	500.00 UNKNOWN ASSUMED	10.00	54.00
GE TYPE K HEATER XFORMER 7100922	6000 ROOM C300	500.00 UNKNOWN ASSUMED	10.00	54.00
CHARGING REACTOR SPARE	6010 BSMNT STORAGE	500.00 UNKNOWN ASSUMED	20.00 GAL.	108.00
6 EACH SMALL TRANSFORMERS NO SERIAL #S 6 SPARES	6010 BSMNT STORAGE	500.00 UNKNOWN ASSUMED	0.20 GAL.	1.08
4 EACH SMALL TRANSFORMERS NO SERIAL #S	6010 MODULATION ROOM	500.00 UNKNOWN ASSUMED	0.20 GAL.	1.08
CHARGING REACTORS S/Ns 1,2,4 & 5 4 EACH	6010 MODULATOR ROOM	500.00 UNKNOWN ASSUMED	20.00 GAL. EACH	432.00
GE 50 KVA N150895	7012	UNKNOWN ASSUMED 500	35.00	189.00
GE 50 KVA N151527	7012	UNKNOWN ASSUMED 500	35.00	189.00
GE 50 KVA N151528	7012	UNKNOWN ASSUMED 500	35.00	189.00
AC 50 KVA 2648913 234-22	7700	UNKNOWN ASSUMED 500	42.00	226.80
GE 75 KVA C547540 234-24	7700	UNKNOWN ASSUMED 500	42.00	226.80
GE 75 KVA C547546 234-24	7700	UNKNOWN ASSUMED 500	42.00	226.80
GE 75 KVA C566436 234-24	7700	UNKNOWN ASSUMED 500	42.00	226.80
Total Quantity = 51				
			1107.40	6330.96

Appendix C

1991 Manifests

1991 Certificate of Disposals

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. TN1189009000300289		Manifest Document No. 94		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.	
		3. Generator's Name and Mailing Address U. S. DOE, OAK RIDGE NATIONAL LABORATORY, X-10 P.O. BOX 2008, OAK RIDGE, TN 37831-6198		A. State Manifest Document Number		B. State Generator's ID			
4. Generator's Phone (615) 574-5776 ATTN: F. C. KORNEGAY		6. US EPA ID Number TN1189009000300289		C. State Transporter's ID		D. Transporter's Phone 615-574-7467			
5. Transporter 1 Company Name OAK RIDGE NATIONAL LABORATORY		7. Transporter 2 Company Name		8. US EPA ID Number		E. State Transporter's ID		F. Transporter's Phone	
9. Designated Facility Name and Site Address U.S. DEPARTMENT OF ENERGY, K-25 PLANT BLAIR ROAD, P.O. BOX 2003 OAK RIDGE, TN 37831-7347		10. US EPA ID Number TN089009000014		G. State Facility's ID		H. Facility's Phone 615/574-3282			
11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)				12. Containers No. Type		13. Total Quantity		14. Unit Wt/Vol	
a. 1. WASTE FLAMMABLE LIQUID, N.O.S., (CONTAINS OIL), UN1993 (POLYCHLORINATED BIPHENYLS) (D001, D009) LIMITED QUANTITY RADIOACTIVE MATERIAL				0 0 1 0 M		0 0 1 0 M		K 0001	
b. 1. WASTE COMBUSTIBLE LIQUID, N.O.S., (CONTAINS OIL), UN1993 (POLYCHLORINATED BIPHENYLS) (D001) LIMITED QUANTITY RADIOACTIVE MATERIAL				0 0 1 0 M		0 0 1 0 M		K 0001	
c.									
d.									
Additional Descriptions for Materials Listed Above 11A. DRUM 8779-R, 1.2 PPM MERCURY, 16,000 PPM PCB, 4,562 PC/L ALPHA, 797 PC/L BETA, 70.6 PC/L URANIUM ALPHA ACTIVITY, FLASH POINT 75 DEGREES F 11B. DRUM 8937-R, 127 PPM PCB, 500 PC/L ALPHA, 17,267 PC/L BETA, 3,986 PC/L Cs-137, 2.72 PC/L Pu-238, 310 PC/L Tc-99, FLASH POINT 105 DEGREES F. 11A.- 11B. THESE PACKAGES CONFORM TO THE CONDITIONS AND LIMITATIONS SPECIFIED IN 49 CFR 173.421 FOR EXEMPTED RADIOACTIVE MATERIAL						K. Handling Codes for Wastes Listed Above			
15. Special Handling Instructions and Additional Information EMERGENCY RESPONSE GUIDE No. 11A. 27 11B. 27 DIKE AND CONTAIN ALL SPILLS. IN CASE OF EMERGENCY CALL CHEMTREC (800) 424-9300 HAZARDOUS SUBSTANCE RELEASE: U.S. COAST GUARD (800) 424-8802, L.C. WESLEY (615) 574-7467 OR ORNL SHIFT SUPERVISOR (615) 574-6606									
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.									
Printed/Typed Name On Behalf of U.S. DOE F. C. KORNEGAY				Signature On Behalf of U.S. DOE <i>F. C. Kornegay</i>				Month Day Year 10/7/91	
17. Transporter 1 Acknowledgement of Receipt of Materials									
Printed/Typed Name <i>F. L. Miller</i>				Signature <i>F. L. Miller</i>				Month Day Year 10/7/91	
18. Transporter 2 Acknowledgement of Receipt of Materials									
Printed/Typed Name				Signature				Month Day Year	
19. Discrepancy Indication Space									
Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19									
Printed/Typed Name <i>F. C. Kornegay</i>				Signature <i>F. C. Kornegay</i>				Month Day Year 10/7/91	

* As of December 31, 1991, the 2 drums had not been incinerated.

STATE OF LOUISIANA
DEPARTMENT OF ENVIRONMENTAL QUALITY
HAZARDOUS WASTE DIVISION
P.O. BOX 44307
BATON ROUGE, LOUISIANA 70804

USE PRINT OR TYPE (Form designed for use on elite (12-pitch) typewriter)

Form Approved OMB No. 2050-0039 Expires 9-30-91

UNIFORM HAZARDOUS
WASTE MANIFEST

1 Generator's US EPA ID No.

Manifest
Document No.

2. Page 1
of 1

Information in the shaded areas
is not required by Federal
law

3 Generator's Name and Mailing Address

U.S. DOE, Oak Ridge, National Laboratory
P.O. Box 2008, Oak Ridge, TN 37831-6198

A State Manifest Document Number

LA A 3014645

B State Generator's ID

4 Generator's Phone () 615 574-5776

5 Transporter 1 Company Name

POCO ENVIRONMENTAL SERVICES

6

US EPA ID Number

LA A D O 6 7 0 4 4 1 8 0

C State Transporter's ID

D Transporter's Phone (504) 665-9896

7 Transporter 2 Company Name

8

US EPA ID Number

E State Transporter's ID

F Transporter's Phone

9 Designated Facility Name and Site Address

ROLLINS ENVIRONMENTAL SERVICES (LA), INC.
13351 SCENIC HIGHWAY
BATON ROUGE, LA 70807

10

US EPA ID Number

LA A D O 1 0 3 9 5 1 2 7

G State Facility's ID

Z0022

H Facility's Phone

504-778-1234

11 US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)

12 Containers

No. Type

13 Total
Quantity

14 Unit
Wt./Vol.

Waste No.

a Soda Lime, Solid, Corrosive Material,
UN1907 DOT-E10161

0 0 7 D 7 0 0 7 6 4 P None

b Non-Regulated Waste

1 2 3 D 7 0 8 3 5 4 P None

c Non-Regulated Waste

0 1 0 D 1 0 3 9 5 1 2 None

J Additional Descriptions for Materials Listed Above

K Handling Codes for Wastes Listed Above

11A 5 T07(T03)
11C 302MS D81(D2)
702MS T04(T03)

15 Special Handling Instructions and Additional Information

U.S. Coast Guard (800) 424-7002

IF UNDELIVERABLE, RETURN TO GENERATOR. AVOID CONTACT AND WEAR DOT EMERGENCY RESPONSE PROTECTIVE GEAR WHEN HANDLING. IN EMERGENCY, CALL CHEMTREC AT 1-800-424-9300 AND MENTION "LAB PAK". IF SPILLED IN LOUISIANA, CALL THE DEPT. OF PUBLIC SAFETY AT 1-504-925-6595. EMERGENCY RESPONSE INFORMATION IS ATTACHED. 11A: 11P: 11C: 11D:

16. GENERATOR'S CERTIFICATION:

I hereby declare that the information furnished on this manifest is true and accurate, and that the waste described is in accordance with the requirements of the Federal Resource Conservation and Recovery Act (RCRA) and the Louisiana Hazardous Waste Management Act (LHWMA). I am a generator of hazardous waste and I have made a good faith effort to ensure that the waste is properly managed and that the waste is not released into the environment. I have made a good faith effort to ensure that the waste is not released into the environment.

Printed/Typed Name

Signature

Month Day Year

17 Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

18 Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19 Discrepancy Indication Space

20 Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19

Printed/Typed Name

Signature

Month Day Year

IF DELIVERED TO A FACILITY, THE FOLLOWING INFORMATION MUST BE FURNISHED TO THE FACILITY:

GENERATOR

TRANSPORTER

FACILITY

COPY 2

ROLLINS **CHEMPAK** INC

CERTIFICATE OF DISPOSAL

This certifies that wastes covered under Stream #BR-33613, BR-38514 accepted by Rollins CHEMPAK, Inc. on April 16, 1991 under manifest number(s) LA A3014628-31, 33-41, 44, 45 were disposed of in accordance with all applicable federal, state and local laws, ordinances and regulations at:

Rollins Environmental Services (LA), Inc.
13351 Scenic Highway
Baton Rouge, LA
EPA ID #LAD 010 395 127

Generator:

MARTIN MARIETTA
X-10, ORNL
P.O. Box 2008
Oak Ridge, TN 37831-6198
EPA ID #TN1 890 090 003

This certifies that the above described waste was disposed of by:

 X Incineration

 X Direct Landfill

 X Stabilization

 Other

Drum Numbers:

INCINERATION

01-151, 154-214, 217-228, 234-252, 254-270, 275, 276, 280-323, 325-335, 337-339, 341-343, 345-347, 349, 350, 369-379, 382-389

LANDFILL

336, 380, 381

STABILIZATION

152, 153, 215, 216, 229-233, 253, 271-274, 277-279, 324, 340, 344, 348, 351, 352

Rollins CHEMPAK, Inc.
Margaret M. Keller
Quality Assurance Officer

June 26, 1991

Signature: Margaret M. Keller

INTERNAL DISTRIBUTION

1. Bruce, C. E.
2. Dailey, N. C.
3. Edgemon, K. G., Jr.
4. Finger, J. M.
- 5-9. Greer, J. K., Jr.
10. Keeling, R. J.
11. Kendrick, C. M.
12. Kornegay, F. C.
13. Murphy, J. B.
14. Nix, C. E.
15. Oliphant, G. W.
16. Perry, T. P. A.
17. Row, T. H.
18. Scanlan, T. F.
19. Swanks, J. H.
20. Wesley, L. C., III.
21. ORNL Patent Office
- 22-23. Laboratory Records Department

EXTERNAL DISTRIBUTION

- 24-25. Radcliffe, L. L., Director, Waste Management Division, Department of Energy Field Office, Post Office Box 2001, EW-92, Oak Ridge, Tennessee 37831
- 26-27. Hultgren, R. O., Deputy Assistant Manager for Energy Research and Development, Department of Energy Field Office, Post Office Box 2001, Oak Ridge, Tennessee 37831-8610
- 28-29. Office of Scientific and Technical Information, Post Office Box 62, Oak Ridge, Tennessee 37831

END

**DATE
FILMED**

9 / 2 / 92