

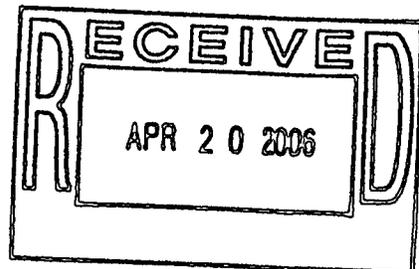
**Historical Release Report
Interim Update**

**No Further Action
Justification Document
for the
Building 111 Transformer Area
(PAC 100-607)**

**Kaiser-Hill, L.L.C.
Rocky Flats Environmental Technology Site
Golden, Colorado**

April 6, 2001

Document Classification
Review Waiver per
Classification Office
CEX-010-98



ADMIN RECORD

IA-A-002948

PAC REFERENCE NUMBER: 100-607

IHSS Number: Not Applicable
Unit Name: Building 111 Transformer PCB Leak
Approximate Location: N749,500; E2,081,500

Date(s) of Operation or Occurrence

In Service Date - September 22, 1954
February 1984 (first documentation) through early-mid 1986 (transformer repaired)

Description of Operation or Occurrence (Original HRR, DOE, 1992)

A large electrical transformer is located inside the Building 111 basement (Figure 1.1). The transformer holds approximately 500 gallons of dielectric cooling oil which at one time, contained PCBs (DOE, 1992). In February 1984, the transformer (111-1) was first documented to be leaking into the secondary containment which at that time was filled with gravel (DOE, 1992). The secondary containment basin for Transformer 111-1 was designated PAC 100-607 in the Historical Release Report (HRR) in June 1992.

On January 30, 1986 the EPA conducted a survey of the Rocky Flats Plant to determine compliance with Federal PCB regulations. The inspection identified a number of leaking transformers, including the Building 111-1 transformer (DOE, 1992). Follow-up inspection and repair by plant personnel indicated that leaks originated at the transformer's tap changer and oil sample valve.

Physical/Chemical Description of Constituents Released

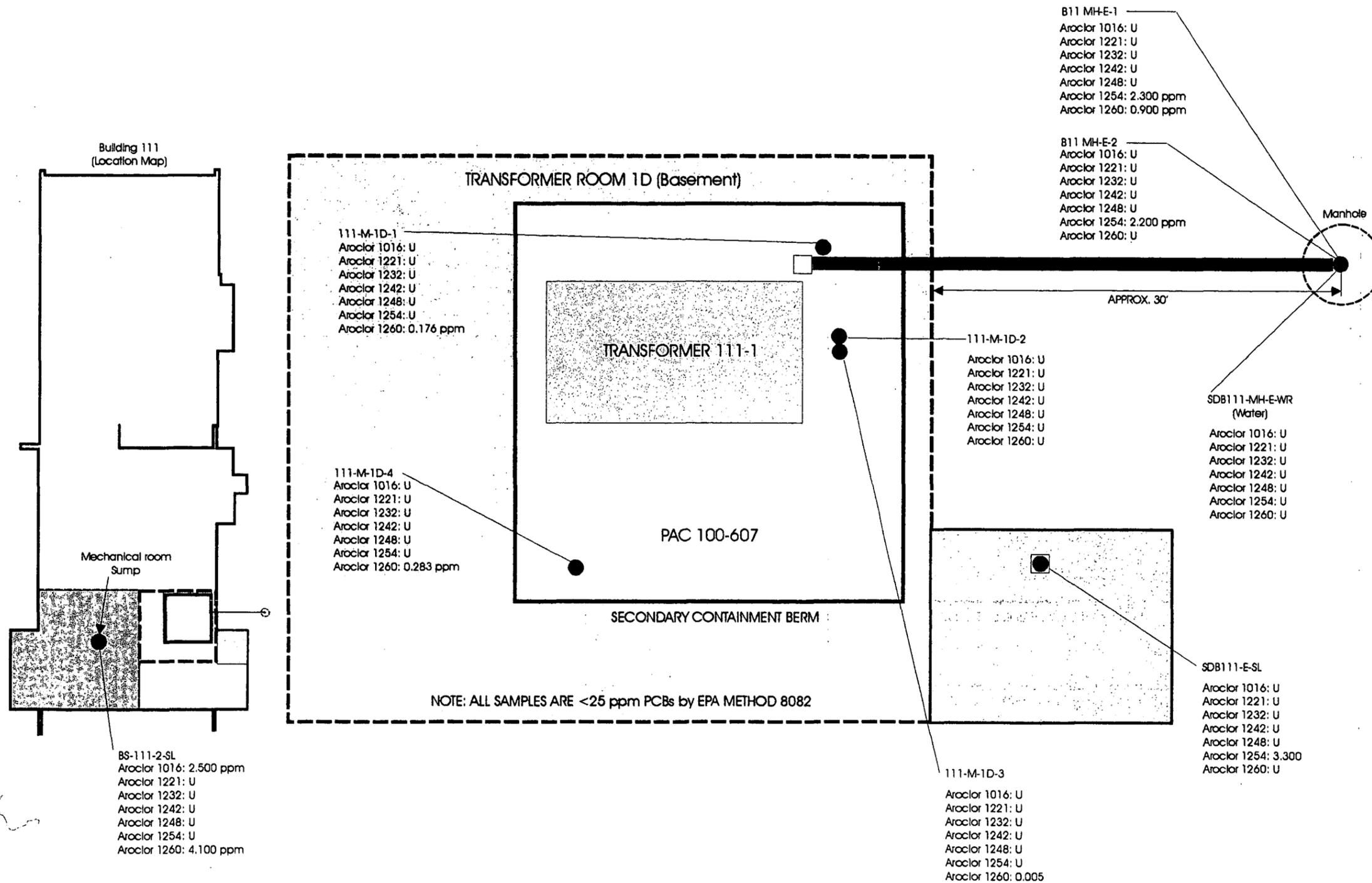
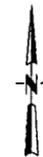
An unknown amount of PCB-bearing dielectric oil leaked from the transformer between February 1984 (possibly earlier) and early to mid-1986. It is not known whether the leaks during this period were continuous or intermittent. Samples of the oil collected in early 1984 showed 17 ppm PCB's (Aroclor 1260), a commercial PCB formulation, in a paraffin-based mineral oil. Service records maintained by the RFETS Plant Power organization indicate that samples were collected of the oil on July 12, 1985, with 251 ppm PCBs, and on January 7, 1987 with 7.3 ppm PCBs. Engineering design drawings show that an isolated footing drain system was installed within the secondary containment structure and routed approximately 30 feet east of the building to a manhole sump. A waterproofing compound was used during installation of the manhole to prevent seepage into and out of the structure. The system was installed during the original construction of the building due to groundwater infiltration into the building basement.

**Figure 1.1
Historical Release Report
PAC 100-607
PCB Sampling Locations**

EXPLANATION

-  PAC 100-607
-  Electrical Room
-  Outside Dock Lift Area
-  Mechanical Room
-  Footing Drain
-  4 Inch Drain Pipe
-  Sample Point
-  Split Sample Duplicate
-  Not Detected

DATA SOURCE BASE FEATURES:
All IHSS and PAC's Boundaries are Approximate. For more detail, please contact Nick Demos (X4605) for the following document:
Historical Release Report (HRR) September 2000 Annual Update



U.S. Department of Energy
Rocky Flats Environmental Technology Site

GIS Dept. 303-668-7707

Prepared by:

DynCorp
THE ART OF TECHNOLOGY

MAP ID:01-0422

Prepared for:



KAISER HILL

April 2, 2001

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Responses to Operation or Occurrence

The sampling event conducted in early 1984 (17 ppm, Aroclor 1260) indicated that PCB levels in the cooling oil were below the EPA regulatory limit of 50 ppm and therefore, no corrective actions were taken at that time (DOE, 1992). The gravel lining in the secondary containment was removed and the footing drain structure grouted closed prior to January 8, 1986. Service records document that the transformer was cleaned and repaired in August 1986 and retrofilled on September 20, 1986 with non-PCB containing oil. Residual staining on the transformer concrete pad was noted in January 1987, and it was suggested that the pad be coated with a sealant. No documentation could be found to confirm whether the sealant had been applied. Three water samples were collected and analyzed for PCBs from the associated manhole east of Building 111 on September 4, 1986 (Rockwell, 1986). Results from the sampling showed that PCB concentrations in all three samples were less than 1 ppb.

During a 1991 plant-wide investigation of PCB contamination resulting from transformers and other potential areas where PCBs were handled or stored, the Industrial Hygiene organization collected 14 wipe samples from the 111-1 transformer. An EPA approved method (EPA Method 8080) was used and the samples analyzed by an off-site laboratory. PCB contamination was not identified (i.e. all samples were non-detect) on the exterior of the transformer and surrounding area (EG&G 1991).

Beginning in September 2000, Reconnaissance-Level Characterization (RLC) sampling for the Building 111 Cluster was conducted. Nine samples were obtained in and around the 111-1 Transformer and the extended footing drain area. Analytical results for PCBs (including 4 Laboratory QC samples) are shown in Table 1.1. Characterization sampling included analysis for PCBs and other parameters at the following locations (KH, 2000a):

- One water sample and two sludge samples from the parking lot manhole 30 feet east of Building 111 (outfall of footing drain);
- One sludge sample taken from the footing drain sump in the mechanical room;
- One sludge sample taken from the drain next to the elevator lift at the southeast corner of the building;
- Four (2-inch deep) concrete cores from the floor of the secondary containment surrounding the transformer.

The maximum concentration of PCBs identified from concrete cores in the secondary containment area (PAC 100-607) was 0.283 ppm Aroclor 1260. The maximum concentration of PCBs identified in sludge from the associated sanitary drain manhole located 30 feet to the east of the building was 2.3 ppm Aroclor 1254 and 0.9 ppm Aroclor 1260 respectively (see Figure 1.1 & Table 1.1).

Maximum sludge sample concentrations of 2.5 ppm Aroclor 1016 and 4.1 ppm Aroclor 1254 were identified in a sample collected from the sump located in the mechanical room adjacent to the electrical room. A sludge sample collected from the storm drain located in the outer dock lift area had a maximum of 3.3 ppm Aroclor 1254.

Table 1.1
Summary of PCB Analytical Results for Concrete Cores,
Sludge & Water Samples within (and near) PAC 100-607 (ppm)

Sample ID	Sample Loc./type	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
111-M-ID-1	Conc.Core Transformer	U	U	U	U	U	U	0.176
111-M-ID-2	Conc.Core Transformer	U	U	U	U	U	U	U
111-M-ID-3	Conc.Core Transformer	U	U	U	U	U	U	0.005
111-M-ID-4	Conc.Core Transformer	U	U	U	U	U	U	0.283
PBLK01 ¹	Conc.Core Lab QC	U	U	U	U	U	U	U
PBLK01LCS ¹	Conc.Core Lab QC	U	U	U	U	U	U	0.025
MS ¹	Conc.Core Lab QC	U	U	U	U	U	U	0.145
MSD ¹	Conc.Core Lab QC	U	U	U	U	U	U	0.207
BS-111-2-SL	Footing Drain Sludge from Mechanical Rm	2.500	U	U	U	U	U	4.100
SDB111-E	Storm Drain Sludge Lift Station	U	U	U	U	U	3.300	U
B111MH-E-1	Manhole Sludge	U	U	U	U	U	2.300	0.900
B111MH-E-2	Manhole Sludge	U	U	U	U	U	2.200	U
B111MH-E-WR	Manhole Water	U	U	U	U	U	U	U

Note: All Data above by Analytical Method SW 846 8082 for Polychlorinated Biphenyls

¹ PBLK01 (Method Blank), PBLK01LCS (Laboratory Control Sample) MS (Matrix Spike) and MSD (Matrix Spike Duplicate) are Laboratory Quality Control designations.

Fate of Constituents Released to Environment

The Potential Contaminants of Concern (PCOC) for PAC 100-607 are PCBs. The sequence of sampling events leading up to and including the RLC for the Building 111 Cluster indicate that PCB dielectric oil was contained within the containment system as originally designed.

The RLC process enables characterization of potentially contaminated building materials for final waste disposition. The Data Quality Objective (DQO) process for D&D activities is consistent with the DQO process used for sampling and characterization of environmental media.

Action/No Further Action Recommendation

In accordance with an approved PAM (DOE, 1995), and TSCA Guidance documents, the PCB characterization data for PAC 100-607 and other areas characterized in the Building 111 basement are below the established cleanup criteria and approved action level of 25 ppm for PCBs. Subsequently, the D&D material disposition concentration level of 50 ppm has been met. PAC 100-607 is therefore proposed for No Further Action (NFA) in accordance with RFCA (DOE, 1996). Upon acceptance of this NFA (as proposed), B111 can be demolished with no impact to required cleanup activities.

Comments

Building 111 is currently scheduled for Decontamination and Decommissioning (D&D) in Fiscal Year 2001. As prescribed in the FY2000 Annual Update to the HRR (KH, 2000b), sampling was conducted within and adjacent to PAC 100-607 in accordance with the Reconnaissance Level Characterization Plan (RLCP) contained in the Decontamination and Decommissioning Characterization Protocol (DDCP, MAN-077-DDCP). A detailed sampling package and report for the Building 111 Cluster was completed and submitted to the Regulatory Agencies and the Administrative Record (AR).

The Original HRR (DOE, 1992) does not identify the footing drain system installed within the transformer secondary containment structure and routed approximately 30 feet East of the building to a watertight manhole sump. Therefore, the PAC 100-607 boundary has been expanded to include the piping and manhole, adjacent mechanical room, and outer dock lift area. The PAC boundary revision will be reflected on the appropriate map within the FY2001 Annual Update to the Historical Release Report.

During Building 111 demolition, the drain lines will be flushed and plugged. The line and manhole are expected to be foamed or grouted later as part of final site closure.

References

DOE, 1992, *Historical Release Report for the Rocky Flats Plant*, Rocky Flats Plant, Golden, CO, June.

DOE, 1995, *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls, RF/ER-95-0066.UN*, Rocky Flats Environmental Technology Site, Golden CO, July.

DOE, 1996, *Final Rocky Flats Cleanup Agreement*, Department of Energy, Rocky Flats Environmental Technology Site, Golden, CO, July.

EG&G, 1991, *Assessment of Known, Suspect, and Potential Environmental Releases of Polychlorinated Biphenyls, Preliminary Assessment/Site Description*, Rocky Flats Plant, Golden, CO, October.

KH, 2000a, *Reconnaissance Level Characterization Packages (RLCP) for the Building 111 Cluster*, Rocky Flats Environmental Technology Site, Golden CO, September.

KH, 2000b, *Annual Update to the Historical Release Report for the Rocky Flats Plant*, Rocky Flats Environmental Technology Site, Golden, CO, September.

Rockwell, 1986, *Analytical Data for PCB Samples Collected from the Building 111 Manhole Sump, Lab #E86-3934*, Rocky Flats Plant, Golden, CO, September.