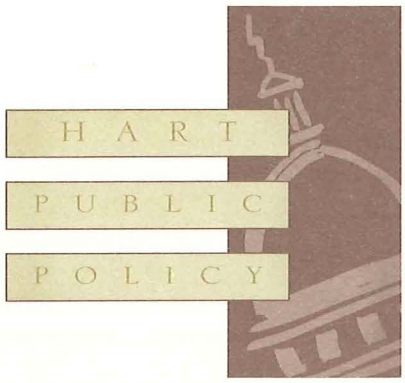

January 15, 2001

Senator John L. Martin, Senate Chair
Representative Scott Cowger, House Chair
Joint Standing Committee on Natural Resources
#3 State House Station
Augusta, Maine 04333

Dear Senator Martin, Representative Cowger and Committee Members:

Attached is a copy of the Compliance Progress Report submitted by Maine Public Service Company in response to Public Law 1999, Chapter 193, AN ACT to Protect the Environment by Phasing Out the Use of Old Transformers that are Potential Sources of PCB Pollution".

The Legislation passed by the 119th Legislature calls for the identification and removal plans for transformers containing PCBs in concentrations at or above 50 ppm located within 100 feet of any surface water or school and those located in underground vaults. The Company has employed an aggressive approach to removal and replacement of all these transformers to eliminate 100% of the PCB contaminated transformers in those specified areas, and eventually throughout its system.

Hopefully, this report will provide you with an overview of Maine Public Service Company's progress and intentions for the efficient, safe removal and replacement of these units. Should you have questions, please do not hesitate to contact me and I will make sure the appropriate Company personnel are available to respond to your inquiries.

Sincerely,

Deb

Debra A. Hart, President
Hart Public Policy

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MAINE PUBLIC SERVICE COMPANY

COMPLIANCE PROGRESS REPORT

FOR

AN ACT TO PROTECT THE ENVIRONMENT BY PHASING OUT THE USE OF OLD TRANSFORMERS THAT ARE POTENTIAL SOURCES OF PCB POLLUTION

CHAPTER 193 S.P. 243 - L.D. 665

January 15, 2001

I. Introduction

This report describes the progress that Maine Public Service Company (MPS) has made in complying with S.P. 243 - L.D.665 "An Act to Protect the Environment by Phasing Out the Use of Old Transformers that are Potential Sources of PCB Pollution". During the year 2000, MPS has focused its efforts on designing a plan which will comply with the above act. The formulated plan has a three step approach. The first step, which is completed, was to apply a statistical analysis to the MPS transformer database to determine which transformers have a PCB concentration greater than 50 PPM. The second step, which is also completed, was to develop a systematic plan for the removal of the identified units. The final step, which will begin in 2001, is the actual removal of the identified transformers.

II. Plan for Removal

1) Step 1 - PCB Transformer Identification

The first step in our plan development was to determine the approximate amount of transformers that may have PCBs in them. MPS has approximately 13,600 distribution transformers in service. Approximately 5,000 of these units have been purchased since 1980 and are all certified PCB-free, less than 1 PPM, by the manufacturer. Of the 8,500 remaining units, approximately 1,000 units had been previously tested and also found to be less than 50 PPM. MPS then analyzed the 7,500 remaining units based on manufacturer date, manufacturer and serial number. This statistical data analysis has been successfully employed by other utility companies such as Northern Indiana Public Service. (See Appendix A for paper detailing this methodology) This analysis technique

identified 2,800 of the 7,500 units as having a strong likelihood of containing PCBs in excess of 50 PPM. These 2,800 are referred to as criteria transformers and the remaining 4,700 are referred to as non-criteria transformers.

MPS believes it has identified 82% of all PCB contaminated units on the system using this method. The results of Step 2 (below) will be used to verify this statistical methodology. The remaining 18% will be removed during the course of routine system maintenance activities.

2) Step 2 - Removal Procedure

The second step was to design a procedure for removing and disposing of the suspect units. We have decided to approach the removals on a circuit by circuit basis. MPS line crews will be given a list by circuit of all criteria transformers. They will then proceed down the circuit sequentially removing the criteria transformers, replacing them with PCB-free units and then returning the criteria unit to our Operations Center for PCB testing. Testing will be performed by sending an oil sample from the criteria unit to a certified PCB testing laboratory. If the test results come back positive for PCBs greater than 50 PPM, the unit will be retired and sent to a certified PCB disposal facility. If the unit tests, less than 50 PPM, then it will be evaluated for re-use and returned to stock if appropriate.

It is important to note that MPS will remove both criteria and non-criteria transformers on the first several circuits. The reason for removal of the non-criteria transformers on these first circuits is to verify the statistical identification technique employed in Step 1. We will adjust our plans to account for any deviations from the

expected results.

The law also calls for the removal of PCB contaminated units that are within 100' of surface waters, schools or underground vaults (special locations). MPS will address this specific concern by removing and replacing both criteria and non-criteria transformers in these special locations. As a result, we will eliminate 100% of PCB contaminated units within 100' of water, schools and underground vaults.

3) Step 3 - Removal Schedule

We will begin removing/replacing criteria transformers in 2001. Our present schedule calls for criteria transformers removal by the end of 2005 regardless of their location on the MPS system.

APPENDIX A

Identifying PCB Contaminated Transformers In Distribution Systems

by Robert E. Huffman
Northern Indiana Public Service Company

INTRODUCTION

The vast bulk of PCBs currently in use in utility systems are contained in "name plate" PCB equipment, primarily PCB capacitors and transformers which were intentionally filled with Askarel fluid. Many utilities have undertaken programs to remove such equipment from their electrical systems. Nonetheless, many transformers which were intended to be filled with mineral oil were filled with fluids contaminated with PCBs. The identification of such PCB contaminated equipment has been a barrier to removal programs because of the cost and difficulties involved in testing large numbers of equipment.

In 1994 Region V EPA invited twelve electric utilities to participate in a voluntary program to retire PCB equipment from service. All twelve utilities could point to programs which have greatly reduced the amount of PCBs in service since the onset of PCB regulations. These programs have resulted in the voluntary removal of PCBs in excess of that which was required under the mandatory programs. Most of the programs, like NIPSCO's, which has removed 83% of the PCBs, was largely nameplate units and units discovered during maintenance activities or testing prior to disposal.

One of the proposals made by EPA involved the identification and testing for PCB content of distribution transformers located in broadly defined "sensitive areas". The utilities cited the expense of classifying hundreds of thousands of transformers according to the circumstances of their installation. The overwhelming majority of these units (an estimated 97% of NIPSCO's more than 100,000 transformers) would be found to be non-PCB, and a great deal of effort, cost, and interruption of service to our customers would have occurred.

At NIPSCO, we have developed a method to identify transformers, without deactivation and testing, which are likely to contain PCBs in excess of 50 ppm. The method is not 100% accurate, but we believe it is sufficiently precise to be a useful tool to cost effectively reduce the amount of PCBs in the distribution system.

METHODOLOGY

Several years ago, NIPSCO created a computer database to track transformers installed in the distribution system. The information included the name of the manufacturer, the serial number, the date that the transformer was received, and space was provided to enter PCB information. The NIPSCO computer system also provides a database "query" program called QMF (Query Management Facility), an IBM product, to generate lists of data according to the criteria set by the user. The user can provide instructions to sort the data.

We entered PCB test data which we had accumulated since the beginning of PCB regulations on thousands of pieces of equipment, and then began to look at the

PCB data with the hope of finding patterns which may be predictive of PCB contamination.

As expected, analysis of our data showed that the incidence of PCB contamination petered out in the 1970s as PCBs became an issue and manufacturers decontaminated their facilities. We also found that PCBs tended to be found commonly in units made by some companies and rarely or never in others. We discovered that some manufacturers had never used PCBs in their products, and that their products left the factory completely free of PCBs. To the extent that any PCBs were found in these units, it was a result of post-manufacture maintenance. It soon became apparent that only a small percentage of the PCB contamination problem was of our own making. The majority of the problem, at least on NIPSCO's system, was the result of contamination introduced at the factories.

THE GOOD GUYS

On the following list of manufacturers we have over 100 PCB tests for each manufacturer in the database and the number of units found to contain PCBs over 50 ppm is less than one percent:

	Rate of PCB Contamination Over 50 ppm
Howard Industries	0.0%
Kuhlman	0.4%
Line Material	0.6%
McGraw Edison	0.4%
RTE	0.3%

Also, we have run tests on 76 transformers made by A B Chance with none found over 50 ppm.

THE NOT-SO-GOOD GUYS

A few manufacturers were found to have a fairly low PCB incidence, although they are not as consistently clean as the list above. These include:

	Rate of PCB Contamination Over 50 ppm
Central Moloney	2.3%
Hevi Duty Dowser	4.9%
Allis Chalmers Transformers	3.9%

THE PROBLEM GUYS

The majority of the PCBs in NIPSCO's distribution system can be traced to units made by the following manufacturers:

	Rate of PCB Contamination Over 50 ppm
General Electric	31.7%
Westinghouse	9.0%
Allis Chalmers Regulators	25.0%
Wagner Electric	7.6%

REFINING THE QUERY

Although this information was intriguing, it was still far too blunt an instrument on which to base a removal recommendation. Even in the worse case, General Electric, we would be removing twice as many non-PCB transformers as contaminated units. Additional work was needed to sharpen our focus. In the case of Allis Chalmers, the contamination was largely in regulators. These units usually have a sampling valve, and we discovered that we had already sampled most of them for PCB content. Our program in this case is straightforward: We will sample the remaining regulators and take action as necessary to retrofill or remove those over 50 ppm PCBs.

For the other three manufacturers we had to resort to computer methods. The easiest by far was Wagner Electric. All of the Wagner Electric transformers with PCBs over 50 ppm were purchased before 1963. The Wagner units we have found with PCB contamination were made from 1956 to 1962 and have serial numbers beginning with "5K" to "5S". We have data on 16 Wagner units made before 1963, and 10 had PCBs over 50 ppm, or a contamination rate of 63%. With a percentage of "hits" that high, we believe that a good argument can be made for the removal of the remaining Pre-1963 Wagner units.

WESTINGHOUSE

Westinghouse transformers were made in Sharon, PA, Sunnyvale, CA, Athens, GA, and Jefferson City, MO. The plant in which the unit was made can be determined by the serial number. Once we developed the computer query two things became clear: The Sharon plant was responsible for almost all of the PCB contamination and most of NIPSCO's units were made in Athens. Further, units made in Sharon from 1965 to 1970 had a very high rate of PCB contamination - 91%. Considering the fact that some units had been serviced and retrofilled prior to PCB testing and recordkeeping, we believe that the actual rate of contamination at the Sharon plant during those years must have approached 100%.

Prior to 1976, Westinghouse used a serial number code as follows: Year (two digits), plant code (blank or one letter), month code (one letter), sequential number. The plant codes are as follows: Sharon: blank; Athens: A; Sunnyvale: S; Jefferson City: J. Thus, a serial number such as 65A1 indicated that the unit was made in Sharon in 1965, whereas 65AA1 would indicate a unit made in Athens. <u>If units made in Sharon are being sought, look for a number as the fourth digit of the serial number as opposed to a letter</u>.

GENERAL ELECTRIC

GE transformers were made in Pittsfield, MA, Oakland, CA, Merced, CA, Shreveport, LA and Hickory, NC. Very few of the transformers in the NIPSCO system were made in the California plants. Of the other three, we discovered that most units made in Pittsfield from 1930 to 1969 were contaminated. Almost no contamination was found in units made in the other two Eastern plants. Unfortunately, most of the GE units we received during this period were made at the Pittsfield plant. We found that regulators and metering transformers made at Pittsfield were also commonly contaminated.

The identification of the plant of manufacture for GE transformers is a bit complicated. Prior to 1957, all transformers were made either at Pittsfield or Oakland, and blocks of numbers were arbitrarily assigned to the two plants. Since nearly all NIPSCO units were made at Pittsfield , all units were included in the search unless it could be determined that they were made at one of the other plants. From 1957 to 1974, the serial number was suffixed by a dash, the last two digits of the year, and a letter which represented the plant: "P" for Pittsfield, "Y" for Hickory, "T" for Shreveport, "K" for Oakland, and "M" for Merced. For example, F673096-67P was made at Pittsfield in 1967.

In 1975, the date code was changed to a four character code, the first character of which was the same plant code used previously. The remaining three characters identified the year and month. For the purpose of writing a query, I used the rule, "assume the unit was made at Pittsfield unless either the letter "T" or "Y" is found in the serial number." This works on our system because we have very few units which were made before 1957 at a plant other than Pittsfield, and also very few units made at any time from the two California plants. In order to apply this search method to other utility systems the transformer database would have to be carefully reviewed.

The contamination rate of units found using the screen to date is 72%. The rate for units which fall outside the screen is 3%.

To apply this technique to other utility systems, a database with complete serial number information and a computer tool which could produce lists of targeted units according to the guides described above would be required. Some fine tuning may be required to produce the best results for each system.

NIPSCO has completed programs to remove nameplate PCB transformers and capacitors from substations and the distribution system, and also has removed or retrofilled and reclassified to non-PCB major equipment in substations. We presently have underway a program to remove nameplate PCBs from our four generating stations, and have begun a program to identify and address any remaining PCBs in small equipment in substations. When these programs are complete, along with the program for the distribution system described herein, we estimate that 99.997% of the PCBs in our system at the outset of PCB regulations in 1978 will have been removed.

For a written copy of the Westinghouse and General Electric serial number systems please contact the author at (219) 647-5241 or Mr. Tony Martig at USEPA, (312) 353-2291.

TRANSFORMERS IMMEDIATELY PUMPED AND PROCESSED

CATEGORY 1	CATEGORY 2	CATEGORY 3
ALL TRANSFORMERS REGARDLESS OF AGE AND COLOR •HOWARD INDUSTRIES •KUHLMAN •LINE MATERIAL •MCGRAW EDISON •RTE •AB CHANCE •ABB •COOPER •UPTEGRAFF •ANY CONTAINER WITH NONPCB STICKER •ALL PAD MOUNTS UNLESS LABELED WITH PCB LEVEL ABOVE 50 PPM PCB	TRANSFORMERS WITH LIGHT GRAY CAN AND GRAY BUSHINGS •MOLONEY •CENTRAL MOLONEY •HEVI-DUTY •DOWZER •ALLIS CHALMERS	RESTRICTED TRANSFORMERS BASED ON SERIAL NUMBER GENERAL ELECTRIC MUST HAVE THE LETTER "T" OR "Y" IN SERIAL NUMBER. ALSO IF SERIAL NUMBER ENDS WITH FOUR LETTERS. GOOD IF FOURTH LETTER IN IS NOT A "P". EXAMPLE PARC WOULD NOT BE PUMPED. WESTINGHOUSE FOURTH DIGIT OF SERIAL NUMBER MUST BE A LETTER. EXAMPLE 65AA1--- OR FIRST TWO DIGITS MUST BE 80 OR HIGHER. WAGNER SECOND DIGIT OF SERIAL NUMBER MUST BE A "T", "U" "V", "W", "X" "Y", "Z" OR FIRST TWO DIGITS MUST BE 69 OR HIGHER.

NOTE: Any unit marked with a PCB level above 50 PPM PCB should be immediately pumped into PCB yellow tank.

All units not part of the above categories should be sampled via the hole in lid technique and batch tested in accordance to EPS standard procedures previously established.

All regulators, switchgear, Pts, Cts, circuit breakers, etc. should be batch tested per standard procedures.