GENERAL ELECTRIC INTERNATIONAL
GE - TONAWANDA

TWO MILE CREEK LIMITED SEDIMENT INVESTIGATION SAMPLING REPORT

GENERAL ELECTRIC INTERNATIONAL GE INSPECTION AND REPAIR SERVICE CENTER TONAWANDA, NEW YORK

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1.0 INTRODUCTION

On behalf of the General Electric International, Inc. (GE), URS Corporation (URS) is providing this *Two Mile Creek Limited Sediment Investigation Sampling Report* (*Sampling Report*) for GE's Inspection and Repair Service Center in Tonawanda, New York. This *Sampling Report* summarizes the results of the *Work Plan for Limited Investigation of Two Mile Creek Sediments* (*Work Plan*).

This on-going project is being conducted as part of the Corrective Action Program required by GE's May 1996 *6 NYCRR Part 373 Hazardous Waste Management Permit*. The *Work Plan*, which was dated March 7, 2002, was prepared in response to New York State Department of Environmental Conservation's (NYSDEC's) letter dated January 15, 2002. During July and August 2002, NYSDEC, GE, and URS discussed the scope of the sediment sampling. NYSDEC approved the *Work Plan*, with modification, in a letter dated August 27, 2002. The modifications included:

- Collecting sediment samples at nine locations along the creek (four upstream of the storm sewer outfall, four downstream of the outfall, and one at the outfall); and
- Collecting sediment samples at each sampling location from the 0- to 6-inch horizon, the 6- to 12-inch horizon, and at 1 to 2-foot intervals.

This *Sampling Report* is organized in four sections. Section 2.0 presents background information for the site, including a description of the storm sewer system near the site and prior investigations of the sewers. Section 3.0 describes the scope of work. Section 4.0 presents the conclusions.

2.0 BACKGROUND

This section presents background information about the site and storm sewers and a brief summary of prior sewer investigations.

2.1 SITE DESCRIPTION

GE's Tonawanda Inspection and Repair Service Center is at 175 Milens Road, Tonawanda, New York. As shown in Figure 1, the shop is in an urban area that includes some commercial businesses and other industries. GE built the slab-on-grade building in 1968 and 1969 and expanded the building in 1978. GE uses the service center, which is also known as the Buffalo Service Shop, to repair industrial equipment, such as electric motors, transformers, turbines, pumps, and compressors.

During operations at the shop, GE formerly received liquids, solids, and other articles containing PCBs from customers and other GE facilities for repair or storage prior to shipment for off-site disposal or treatment at facilities with the appropriate permits. GE completed a *RCRA Facility Investigation* in 1999 and submitted a *Revised Corrective Measure Study Final Report* for the service shop on July 31, 2001.

2.2 STORM SEWER SYSTEM

The on-site storm sewer systems drain to a storm sewer manhole near the southwest corner of the service shop. From there, the system feeds into the municipal storm sewer system beneath Milens Road. The sanitary sewers are an independent and separate system. Figure 2 shows a portion of the on-site storm sewers. The depiction of off-site storm sewers shown in Figure 2 is based on the Town of Tonawanda's water and sewer maps.

The water in the on-site storm sewers flows southwest and converges in manhole STMH-1 near the southwest corner of the service shop. There is a fifteen-inch pipe in STMH-1 that slopes from the collection point to the southwest, where it connects to the municipal storm sewer system beneath Milens Road. The Milens Road sewer line empties into a line that is parallel to Ensminger Road. The storm sewer line that is parallel to Ensminger Road receives flows from the northern and southern portions of Milens Road and from the commercial properties along Military Road, which is east of the GE facility. As shown in Figure 2, the municipal storm sewer discharges to Two Mile Creek.

2.3 PREVIOUS INVESTIGATION OF SEWERS

There have been five investigations of the storm sewers since 1987. The four on-site storm sewer investigations are described in the *Work Plan for Investigation of Off-Site Storm Sewers*, dated February 23, 2001. In 2001, a possible historic release of PCBs from the property through the storm sewer system was investigated. The results of the off-site sewer investigation were provided to the NYSDEC in the *Off-Site Storm Sewer Investigation Report*, dated July 13, 2001.

The PCB sample results from samples collected during the supplemental sewer investigation and the off-site storm sewer investigation are summarized in Table 1. The on-site sampling locations (CB-1, CB-2, CB-3, STMH-1, STMH-2, and STMH-3) and the off-site sampling locations (MH-1 through MH-12) are shown in Figure 2. At the time of the sampling, no sediment was found in manhole STMH-1, which is the on-site manhole that is closest to Milens Road. The concentration of PCBs detected in the sediment sample from manhole STMH-3, which is near the southeast corner of the service shop building, was 41,300 mg/kg. The sediment was removed from this manhole on February 28, 2002 and taken off-site for proper disposal. The concentration of PCBs in the sediment sample from manhole STMH-2, which is immediately downstream of STMH-3, was 20.7 mg/kg. As shown on Table 1, only Arochlors 1254 and 1260 were detected in the on-site storm sewer sediments.

As shown in Table 1, PCBs were detected in sediment samples from five of the eight off-site sampling locations. The highest concentration of PCBs was in the sediment collected from manhole MH-1 (300 mg/kg). On February 28, 2002, the sediment was also removed from this manhole and properly disposed at an off-site facility. PCBs were detected in sediment samples from the four manholes along the Milens Road line. The concentration of PCBs in the sediment decreases with distance from the site to the connection with the 84-inch line at manhole MH-5. Of the three sampling locations with sediment along the line parallel to Ensminger Road, only the sediment from MH-12 contained detectable levels of PCBs (1.45 mg/kg). As shown on Table 1, only Arochlors 1254 and 1260 were detected in the off-site storm sewer sediments.

3.0 LIMITED INVESTIGATION OF TWO MILE CREEK SEDIMENTS

The objective of the investigation was to evaluate whether the sediments in Two Mile Creek have been impacted by past releases of PCBs from GE's Tonawanda service shop. The scope of work in the *Work Plan* included these three tasks:

- Task 1 - Negotiate Access Agreements;
- Task 2 - Implement Sampling Program; and
- Task 3 - Prepare Letter Report

The remainder of this section describes the first two of these tasks along with the analytical results.

3.1 TASK 1 – NEGOTIATE ACCESS AGREEMENTS

In October 2002, URS contacted the Town of Tonawanda to discuss access to Two Mile Creek. URS confirmed that Sheridan Park, through which Two Mile Creek passes, is owned by the Town of Tonawanda. URS met with the Town of Tonawanda to discuss the scope of the sampling and obtain permission to access the creek. URS learned that the golf course, which is located on either side of the portion of the creek targeted for sampling, was scheduled to close for the season on November 5, 2002. In addition, URS learned that permission to drive on the golf course would be granted if the sampling event were to occur after the golf course closed.

3.2 TASK 2 - IMPLEMENT SAMPLING PROGRAM

On November 5, 2002, personnel from the Buffalo, New York URS office mobilized to the golf course to lay out the proposed sampling locations. Stakes were placed adjacent to Two Mile Creek at the planned sampling locations. These locations were approximately 50, 150, 350, and 750 feet upstream and downstream of the storm sewer outfall. Figure 3 shows both the proposed and the actual sampling locations. Photographs of Two Mile Creek and the sampling locations are provided in Appendix A.

On November 6, 2002 personnel from the Buffalo, New York URS office mobilized to the site to collect sediment samples from Two Mile Creek. Mr. Steven Malsan of NYSDEC in Albany, New York was present to observe the sampling.

The stakes marking the proposed sampling locations were used to generally identify sampling locations. Each sampling location was given a designation based on the direction from the storm sewer outfall (US for upstream, DS for downstream, and OF for outfall) and a number which increased with distance from the outfall. Three of the sampling locations (DS-2, DS-3, and DS-4) were adjusted in the field with the concurrence of the NYSDEC. As shown on Figure 3,

sample location DS-2 was moved approximately 30 feet upstream to the area at which URS personnel had observed a sheen during a reconnaissance visit to the creek in August 2002. Sample location DS-3 was moved approximately 5 feet upstream to a location more likely to accumulate sediment. Sample location DS-4 was moved approximately 34 feet upstream to coincide with the discharge location of an approximately 10-inch diameter pipe.

For each sampling location a sketch of the creek was drawn, the depth of the water was measured, a description of the sediment and any underlying material, if encountered, was noted, and the total depth of sediment was noted. This information was recorded on a sampling sheet. The nine sampling sheets are presented in Appendix B. Table 2 summarizes information collected on the sheets.

The portion of Two Mile Creek sampled during this investigation ranges from approximately 15 to 30 feet in width, except where the creek passes under a bridge. The depth of water in the creek ranged from 10 to 34 inches, and the flow was described as low. The depth of sediment in the creek ranged from 0.5 feet at DS-4 to 2.5 feet at US-1.

The sediment samples were collected using a hand auger. The equipment was decontaminated between sampling locations. A rinse blank was collected and analyzed for PCBs. The sediment samples were shipped on ice to Adirondack Environmental Services, Inc. in Albany, New York. The samples were shipped by Federal Express under chain-of-custody.

As shown on Table 2, a sheen was noted at several locations. At sampling locations US-3 and OF (the outfall), a sheen was observed on the water surface. At US-2, a sheen was noted on the sediment surface at the 0.5 to 1.0 sampling interval. At sampling locations DS-2 and DS-4, a sheen developed on the water surface when the creek sediment was disturbed for sample collection. A strong odor (possibly petroleum) was noted at sampling location DS-2, which corresponds to the area where URS personnel observed a sheen in August 2002.

During conversations with the golf course personnel, URS learned that a petroleum spill, which impacted the creek, occurred in late April 1999. The golf course personnel allowed URS to review their records of the incident. According to their records, the creek was boomed near the 17th hole (Figure 2) on April 26, 1999. On April 29, 1999 the creek was boomed near the 13th and 14th holes (to the south). On May 3, 1999, NYSDEC and a cleanup crew began cleaning up the spill. On May 4, 1999, the coast guard was on-site and determined that the source of the spill was the Sunoco station on the corner of East Park and Sheridan. From May 5 through May 12, 1999, a cleanup crew was on-site. A boring for protective barriers at the pumps damaged an underground line during installation of a new UST. The leak migrated to the storm sewers, which empty into Two Mile Creek.

3.3 ANALYTICAL RESULTS

The 24 sediment samples and 2 duplicate samples were analyzed for PCBs by EPA Method 8082 and total organic carbon (TOC) at Adirondack Environmental Services, Inc. of Albany, New York. The analytical results for the sediment samples are summarized in Tables 3 and 4. A graph of the results is presented in Figure 4. Table 5 presents the analytical results for the rinseate blank collected. The laboratory analytical reports are presented in Appendix C.

In accordance with the *Work Plan*, the data was examined and validated by a URS chemist using standard validation procedures that are based on the USEPA Region III Modifications to the National Functional Guidelines for Data Review. The data validation reports are included as Appendix D. No major anomalies were identified during the data validation. Although three minor anomalies were identified in each data package, URS does not believe that the PCB results warrant qualification of the data. Each of these three minor anomalies is discussed below.

The detected concentrations of Arochlors 1016 and 1260 in the matrix spike and matrix spike duplicates were greater than the upper quality control limit (150%), even though the matrix spike and matrix spike duplicates were spiked with known concentrations of Arochlors 1016 and 1260. The laboratory indicated that these exceedances were due to the native concentrations of Arochlors 1248 and 1254 in the samples, which contribute to the recovery peaks for Arochlors 1016 and 1260. Specifically, Arochlor 1016 concentrations were detected above the upper control limit in the quality control samples due to co-eluting peaks with the native concentrations of Arochlor 1248 in the samples. Similarly, Arochlor 1254 co-elutes with Arochlor 1260. Based on professional judgement, URS accepts the laboratory's explanation and agrees with not qualifying the data.

One of the two columns used for the analysis of sample US-3 (0-0.5) displayed interference that affected quantification and confirmation of the surrogate recovery. In general, one column is considered the primary column and the second column is used to for confirmation to verify a positive detection. Again, URS agrees with the laboratory's explanation and with not qualifying the data.

The TOC matrix spike displayed critically low recovery in both data packages. All positive results were flagged "J" and should be considered to display a significant negative bias.

As shown in Table 3, PCBs were detected in sediment throughout the creek. The detected PCB concentrations ranged from an estimated value of 22 µg/kg in sample US-1 (1-2) to 4,800 µg/kg in sample DS-3 (0.5-1). As shown in Table 3, Arochlors 1248 and 1254 were the only Arochlors detected in the creek.

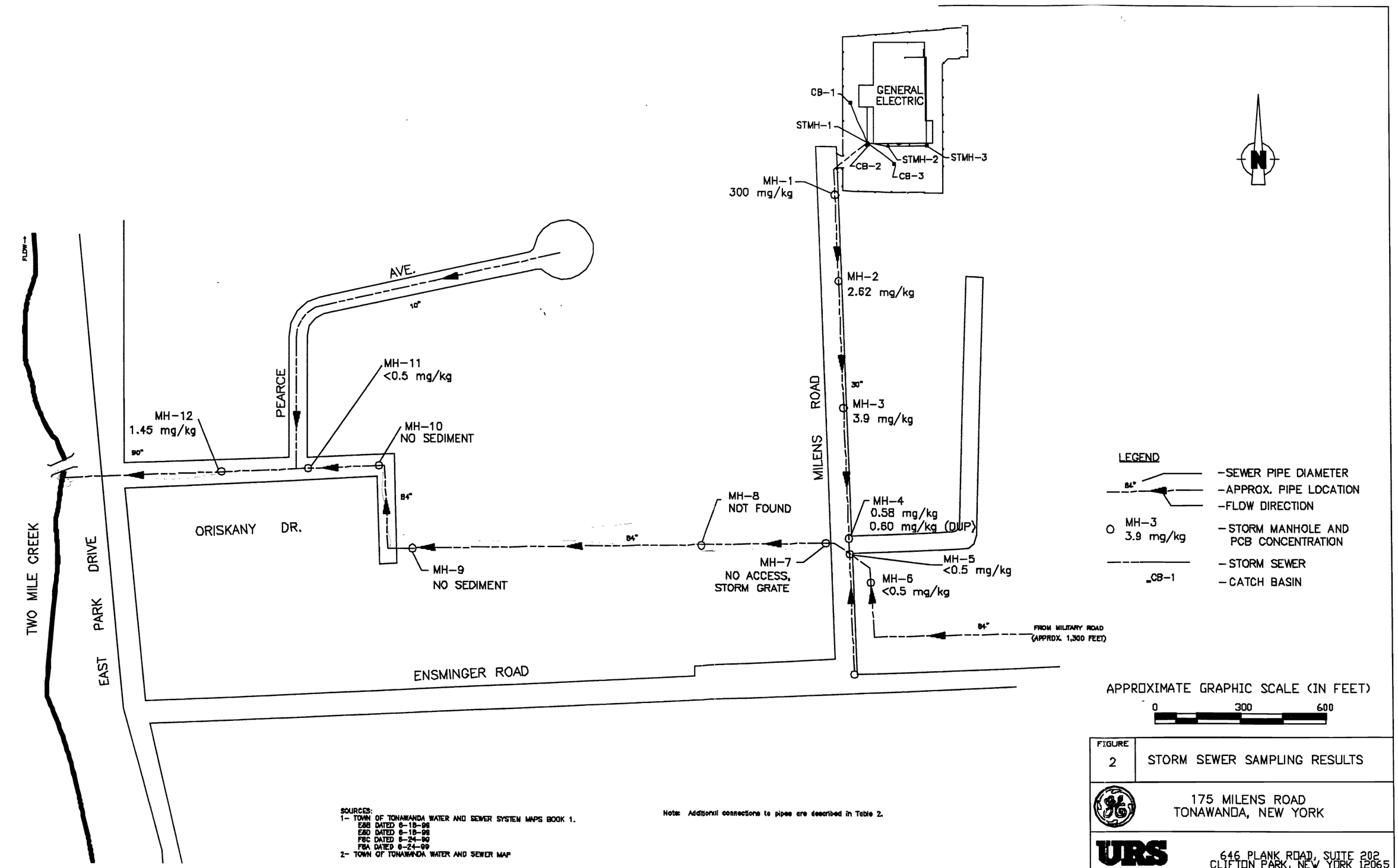
As shown in Table 4, TOC concentrations in the creek sediment ranged from 6,400 mg/kg at DS-4 (0-0.5) to 77,000 mg/kg at DS-2 (0.5-1). In accordance with NYSDEC's *Technical Guidance for Screening Sediment*, dated January 1999, sediment screening criteria were calculated based on the wildlife and human health bioaccumulation values of 1.4 and 0.0008 µg PCB/g organic carbon, respectively. Sample-specific screening criteria were calculated based on the quantity of TOC present in each sample. The sample-specific screening criteria are shown in Table 4. As shown, the concentration of PCBs in all the creek sediments exceed both the wildlife and human health screening criteria.

4.0 CONCLUSIONS

The results of this investigation show that PCBs are present in Two Mile Creek sediments both upstream and downstream of the outfall that receives storm water from a portion of Military Road, Orkinski Drive, and Milens Road. Storm water from GE's service shop, which is on Milens Road, discharges through this outfall. The concentrations of PCBs in sediment downstream from the outfall are comparable to concentrations of PCBs in sediment upstream of the outfall, with the exception of sediment collected at DS-3. There is no increase in PCB concentrations at the outfall where storm water from GE's property discharges to Two Mile Creek. The specific Arochlors detected in the creek sediments (1248 and 1254) do not coincide with the Arochlors (1254 and 1260) present in sediment in the storm sewers at GE's facility and in the storm sewers between GE's property and the outfall. Arochlor 1260, which has been detected in the storm sewers, was not detected in the creek sediments. Therefore, it appears that the PCBs detected in Two Mile Creek are not related to GE's activities.

The concentrations of PCBs in sediment upstream of the storm sewer outfall ranged from an estimated value of 22 µg/kg at US-1 to 1,340 µg/kg at US-4, with an average detected concentration of 664 µg/kg (321 µg/kg of Arochlor 1248 and 402 µg/kg of Arochlor 1254). The concentration of PCBs in sediment downstream of the storm sewer outfall ranged from 86 µg/kg to 4,800 µg/kg, with an average detected concentration of 1219 µg/kg (689 µg/kg of Arochlor 1248 and 599 µg/kg of Arochlor 1254). While the average concentration of PCBs almost doubled downstream of the outfall, the concentration of Arochlor 1254, which was detected in the storm sewers on GE's property, only rose by 33%. Thus, the relative concentration of Arochlor 1254 dropped at and downstream of the storm sewer outfall. This relationship is illustrated in Figure 5. Therefore, URS believes that the higher concentrations of total PCBs found downstream of the storm sewer outfall are largely due to migration of PCBs or PCB containing sediments from an unknown source further upstream.

The objective of this investigation was to evaluate whether releases of PCBs from GE's Tonawanda service shop have impacted the sediments in Two Mile Creek. The results of this investigation show that PCBs are prevalent in creek sediments within the investigation area, and it appears that activities at GE's service center have had no impact on the sediment in Two Mile Creek.



SOURCES:
1- TOWN OF TONAWANDA WATER AND SEWER SYSTEM MAPS BOOK 1.
E8B DATED 6-18-98
E8D DATED 6-18-98
F8C DATED 8-24-99
F8A DATED 8-24-99
2- TOWN OF TONAWANDA WATER AND SEWER MAP

Note: Additional connections to pipes are described in Table 2.

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FIGURE 2

STORM SEWER SAMPLING RESULTS

175 MILENS ROAD
TONAWANDA, NEW YORK

URS

646 PLANK ROAD, SUITE 202
CLIFTON PARK, NEW YORK 12065

FIGURE 4
PROFILE OF TOTAL PCBS BY DEPTH