
Division of Environmental Remediation

Sampling Report



**Former Flintkote Plant Site,
143 Water Street, City of Lockport,
Niagara County, New York**

June 2002

New York State Department of Environmental Conservation
Region 9
270 Michigan Avenue
Buffalo, New York 14203-2999

Sampling Report

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Niagara County, New York



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1.0 EXECUTIVE SUMMARY

In early April 2002, Mr. Paul Dicky from the Niagara County Health Department (NCHD) received a citizen request for sample collection and evaluation of soils from their property at 143 Water Street, City of Lockport, Niagara County, New York (Figures 1-1 and 1-2). Mr. Dicky inspected the property on April 8, 2002 and identified a portion of the yard that floods during high water events. In addition, a small vegetable garden was observed adjacent to the reported flood area. Based upon these findings, the Niagara County Health Department requested investigatory assistance from the NYSDEC.

On April 16, 2002 the Department collected one waste and three surface soil samples from the 143 Water Street property. This property was sampled due to its close proximity to the Former Flintkote Plant Site, and because of the potential for contaminants to migrate to the property from Eighteenmile Creek during flood events. While the Former Flintkote Plant Site is not listed in the Registry of Inactive Hazardous Waste Disposal Sites in New York State (Registry), a Site Investigation conducted by the Department's Division of Environmental Remediation (DER) in 1999 revealed that some of the ash disposed at the Site is a characteristic hazardous waste for lead (D008). This waste also contains numerous semivolatile (primarily PAHs) and inorganic compounds at concentrations above the soil cleanup objectives contained in the Department's Technical and Administrative Guidance Memoranda (TAGM) No. 4046. PCBs were also detected in this waste. Similar contaminants have been detected in sediment in Eighteenmile Creek and the millrace adjacent to the Site.

Prior to collecting any samples, a walk through of the property was conducted to identify sample locations. During this reconnaissance, ash, similar in appearance to that found at the Former Flintkote Plant Site, was observed at the surface of a small ridge along Eighteenmile Creek on a small strip of wooded property. This waste was also observed in the bank of Eighteenmile Creek. A small garden in the backyard was also inspected and found to contain buttons, coal and glass. Buttons, coal and glass are associated with the ash from the Former Flintkote Plant Site.

One sample of the ash along Eighteenmile Creek was collected during the sampling event and analyzed for PCBs and lead. PCBs were not detected in this sample, but lead was detected at a concentration of 4,250 mg/kg (parts per million). This concentration exceeds the Department's TAGM 4046 soil cleanup objective. The ash fill was also found to be a characteristic hazardous waste for lead (D008). Additional investigation is required to determine the nature and extent of ash fill in this area. This work could be completed by Niagara County as part of their upcoming Brownfields Investigation of the Former Flintkote

Plant Site.

Three surface soil samples were also collected on April 16, 2002 and analyzed for PCBs and lead. One sample, collected from the side yard of 143 Water Street that floods during high water events, contains lead at a concentration of 887 mg/kg. PCBs were detected in this sample at a concentration of 64J Fg/kg (parts per billion). The second sample, collected from the center of a small vegetable garden in the side yard, contains lead and PCBs at concentrations of 686 mg/kg and 24J Fg/kg, respectively. While the concentration of lead in both samples exceeds the TAGM 4046 soil cleanup objective, they are similar to lead concentrations in other urban areas of western New York. PCB concentrations in both samples were below the Department's TAGM 4046 surface soil cleanup objective.

To evaluate the potential migration pathway between contaminated creek sediments and backyard soils due to creek flooding events, a surface soil sample was collected from a location approximately 4 feet from the shore of Eighteenmile Creek in an area visibly devoid of waste and other fill material. The analytical results for this sample revealed the presence of lead and PCBs at concentrations of 1,270 mg/kg and 17,400 Fg/kg, respectively. Both concentrations exceed the Department's TAGM 4046 soil cleanup objectives. This contamination appears to be directly related to the deposition of contaminated sediment from the creek during flood events.

The exact source of lead and PCBs that were detected in surface soil on the 143 Water Street property is unknown, but could include surface water/solids runoff from the ridge of ash fill, the presence of ash fill in the garden, and/or deposition of contaminated sediments from Eighteenmile Creek during flood events. Regardless of the source, this report should be sent to the New York State Department of Health for an evaluation concerning potential human health impacts from the contaminated soils and waste.

The analytical results obtained from the sampling event suggest that additional properties along Eighteenmile Creek could be impacted during flood events. In order to determine how many properties could be impacted, a reconnaissance of properties both up- and downstream of William Street should be completed. Based upon this evaluation, surface soil samples should be collected from selected properties for chemical analysis.

2.0 INTRODUCTION

In early April 2002, Mr. Paul Dicky from the Niagara County Health Department (NCHD) received a citizen request for sample collection and evaluation of soils from their property at 143 Water Street, City of Lockport, Niagara County, New York. Mr. Dicky telephoned this Department, and following a discussion of the issues, agreed to complete an inspection of the property. During this inspection, which was conducted on April 8, 2002, Mr Dicky had further discussion with the property owners. The residents concerns and issues regarding the property are summarized as follows:

- The property owners first became concerned of possible contaminant migration from Eighteenmile Creek after a family case of cancer inspired research into available environmental data regarding the creek. Concern was raised over elevated PCB concentrations.
- Eighteenmile Creek abuts the back and side yard of 143 Water Street and occasionally floods the yard due to debris or ice blocking the cross-culverts under William Street. The property owners expressed concern about the poor to non-existent maintenance of the creek by the City of Lockport.
- Severe flooding occurs about 100 feet into the yard approximately once every two years. Lesser flooding may occur several times a year depending upon local precipitation and blockage of the cross-culverts.
- Frequent flooding also occurs on a small strip of wooded property between Eighteenmile Creek and a stone wall. This strip of land is about 20 feet wide.

Mr Dicky identified a portion of the yard that would flood during high water events, and concluded that the flood complaint was plausible. In addition, a small vegetable garden was observed adjacent to the reported flood area. Based upon these findings, the Niagara County Health Department requested the investigatory assistance of the Department as the county was concerned that “a potential migration pathway may exist between *contaminated* creek sediments and backyard soils due to regular flooding events [italics ours].”

On April 16, 2002 the Department collected four samples from the property at 143 Water Street. In addition to being adjacent to Eighteenmile Creek, the subject property is also in close proximity to the Former

Flintkote Plant Site, which is located at 198 and 300 Mill Street (Figures 1-1 and 1-2). While this Site is not listed in the Registry of Inactive Hazardous Waste Disposal Sites in New York State (Registry), a Site Investigation conducted by the Department's Division of Environmental Remediation (DER) in 1999 revealed that some of the ash disposed at the Site is a characteristic hazardous waste for lead (D008). This waste also contains numerous semivolatile (primarily PAHs) and inorganics compounds at concentrations above the soil cleanup objectives contained in the Department's Technical and Administrative Guidance Memoranda (TAGM) No. 4046. Similar contaminants have been detected in site groundwater, and sediment in Eighteenmile Creek and the millrace adjacent to the Site. Historical sampling by the Department's Division of Water (DOW) and DER indicates also that sediment of Eighteenmile Creek is contaminated by PCBs and dioxins. In the near future Niagara County will complete a more detailed investigation of the former Flintkote property through the Department's Brownfields Program.

The property at 143 Water Street was sampled due to its close proximity to the Former Flintkote Plant Site, and because of the potential for contaminants to migrate onto the property from Eighteenmile Creek during flood events. This report summarizes the findings of the sampling event and how the results may relate to known contamination at the Former Flintkote Plant Site and in Eighteenmile Creek. The remaining sections of this report are organized as follows:

- **Section 3.0, Sampling Objective and Scope of Work:** Section 3.0 describes the objective of the sampling event at 143 Water Street and the activities that were completed as part of this event.
- **Section 4.0, Former Flintkote Plant Site:** Section 4.0 describes the history and background of the Former Flintkote Plant Site, and presents the results of the Site Investigation completed by the Department in 1999.
- **Section 5.0, Sampling Results:** Section 5.0 describes the findings of the sampling event at 143 Water Street, including general observations and a summary of the analytical results obtained from various environmental media (i.e., waste and surface soil).
- **Section 6.0, Discussions and Conclusions:** Section 6.0 summarizes the findings of the sampling event at 143 Water Street as they relate to the objective presented in Section 3.0. Conclusions drawn from the sampling event are also discussed.

- **Section 7.0, Recommendations:** Section 7.0 discusses the Department's recommendations for future activities regarding both the Former Flintkote Plant Site and properties along Eighteenmile Creek.
- **Section 8.0, References:** Section 8.0 contains a list of references utilized or cited in the report.

3.0 SAMPLING OBJECTIVE AND SCOPE OF WORK

3.1 Objective

The objective of the sampling event was to obtain information sufficient to determine if the property at 143 Water Street is being impacted by the Former Flintkote Plant Site and/or Eighteenmile Creek. This objective was evaluated through the analysis of waste and surface soil samples obtained from 143 Water Street and adjacent properties.

3.2 Scope of Work

To meet the above objective, the following activities were completed as part of the sampling event: (1) a property reconnaissance, (2) collection of environmental samples for chemical analysis, (3) preparation of a site map, and (4) preparation of this report. These activities are briefly described in the following sections. All field work was conducted in level D personal protective equipment with dedicated sampling equipment.

3.2.1 *Property Reconnaissance*

Prior to collecting any samples, a walk through of the property was conducted to identify sample locations. Four locations were selected. These locations, shown on Figure 3-1, were selected based upon visual observations or the potential for human exposure through direct contact or ingestion.

3.2.2 *Sample Collection and Analysis*

One waste sample and three surface soil samples were collected from the locations shown on Figure 3-1. All sampling was completed by NYSDEC staff utilizing Department owned equipment. Sample analysis was completed by Severn Trent Laboratories, Inc. in Amherst, New York, a NYSDEC contract laboratory. All four samples were analyzed for PCBs and lead, with samples SS-3 and SS-4 also analyzed for lead using the Toxicity Characteristic Leaching Procedure (TCLP) to determine if these samples are characteristic hazardous waste.

3.2.3 *Mapping*

A map of the Former Flintkote Plant Site was prepared by the Department as part of the 1999 Site Investigation. The area mapped included the entire site boundaries; site buildings; the shoreline of the island, millrace, and Eighteenmile Creek in the vicinity of the Site; all soil boring and monitoring well locations; and the locations of all samples collected as part of the Site Investigation. The four samples collected from the 143 Water Street property were located using a tape measure and plotted on the Flintkote map.

3.2.4 *Report Preparation*

This report was prepared to describe the sampling event, present the analytical results of the samples collected from 143 Water Street and adjacent properties, discuss how the results may relate to known contamination at the Former Flintkote Plant Site and Eighteenmile Creek, and present recommendations for further evaluation and study.

4.0 FORMER FLINTKOTE PLANT SITE

4.1 Site Description

The Former Flintkote Plant consisted of property at 198, 225 and 300 Mill Street in the City of Lockport, Niagara County, New York (Figure 1-2). Only the property at 198 and 300 Mill Street, which occupies a total area of approximately 6 acres, was included in the Department's 1999 Site Investigation. The Site is bordered by Eighteenmile Creek to the west, Mill Street to the east, a commercial property to the north and vacant land to the south (Figure 1-2). The property was formerly operated as a felt and composite laminate plant, but is now vacant and in disrepair. Residential property is located west of the Site across Eighteenmile Creek and east of the Site across Mill Street. The Site is bisected by William Street (Figure 1-2), which divides the Site into north (300 Mill Street) and south portions (198 Mill Street). William Street is no longer open to vehicular traffic, but until recently when access was restricted, pedestrian use was common.

As shown on Figure 1-2, Eighteenmile Creek is diverted westward from its apparent natural course for approximately 300 feet along William Street by a dam approximately ten feet high. William Street is located on top of this dam. The creek then continues northward through cross-culverts beneath William Street to return to its original natural channel farther downstream. A pair of sluice gates are located at the east end of the dam and formerly allowed water from Eighteenmile Creek to enter a millrace. These sluice gates have been closed for at least twenty years. The millrace runs along the west side of the buildings at 300 Mill Street and empties into Eighteenmile Creek approximately 600 feet downstream (Figure 1-2). The millrace now contains a sluggish stream approximately six inches to one foot deep.

4.2 Site History

Flintkote began operations as a manufacturer of felt and felt products in 1928, when the property was purchased from the Beckman Dawson Roofing Company. In 1935, Flintkote began production of sound-deadening and tufting felt for ultimate installation and use in automobiles. Manufacturing of this product line was continued at Flintkote until December 1971, when operations ceased and the plant closed. It is also believed that Flintkote manufactured composite laminates similar to those produced at the Former Spaulding Composites Company, in Tonawanda, New York. Such material was observed in the southernmost demolished building on the 300 Mill Street Property.

A portion of the property at 300 Mill Street near William Street and Eighteenmile Creek was formerly listed as Site No. 932072 in the Registry of Inactive Hazardous Waste Disposal Sites in New York State

(Registry) and assigned a Classification Code of 3. This classification is given to sites that do not present a significant threat to public health or the environment and that further action can be deferred. The basis for listing the site in the Registry was the presence of seven drums containing sweepings, solid materials and PCB transformer oil stored in the basement of an on-site building. During an inspection of the Site on May 12, 1983 the drums were observed to be stored in accordance with federal regulations. Analysis of the waste oil (March 1983) indicated that none of the oil contained more than 2 ppm of PCBs. In January 1984 the owner of the property had these drums removed from the Site by a waste oil processor. As a result of this action the Site was removed from the Registry in 1985.

In 1989, the City of Lockport Building Inspection Department reported that a number of drums containing chemicals were found in various locations throughout the buildings at 300 Mill Street. Subsequent investigation revealed that 28 of these drums contained hazardous wastes. These drums were disposed off site in May 1991 during a NYSDEC Drum Removal Action.

Sampling and analysis of sediments from two locations in the millrace, and ash from two locations on the island were included in an April 1996 NYSDEC study entitled “*Trackdown of Chemical Contaminants to Lake Ontario from New York State Tributaries*”. This study indicated that there are significant concentrations of PCBs in the sediment of the millrace. Mercury, dioxins and furans were detected in two ash samples collected from the island. As a result, the Former Flintkote Plant Site has been cited by the Division of Water as a potential source of PCBs and dioxins to Eighteenmile Creek. Sediment and waste samples were also collected by the Division of Environmental Remediation in August 1996. These analyses confirmed the presence of PCBs in the millrace sediment; the two ash samples collected from the island failed the TCLP Regulatory Limit for lead. The findings and conclusions of the April 1996 study and the results of the August 1996 sampling event indicated the need to conduct additional investigation at the Site.

In August 1997 the Department prepared an Immediate Investigation Work Assignment (IIWA) work plan to conduct such a study. Shortly thereafter the City of Lockport began studying the option of acquiring the Flintkote property for purposes of evaluating the Site under the Department’s Brownfields Program. As a result, the IIWA investigation was never conducted. When the City of Lockport decided not to acquire the property, the Department moved forward to conduct the investigation previously proposed, but to expand the scope of work to include the entire former Flintkote property. This investigation was conducted in late 1999, with the results of that investigation presented in a September 2000 report entitled “*Site Investigation Report, Former Flintkote Plant Site*”. A brief summary of the investigation results are presented in the following

section.

4.3 Investigation Results

The island between Eighteenmile Creek and the millrace, and the area surrounding the buildings at 300 Mill Street received various wastes, refuse and debris over the years, and much of these wastes are visible at the surface and along the embankments of the millrace. The property at 198 Mill Street also received various wastes, which are visible at the surface and along the embankments of Eighteenmile Creek. The subsurface investigation completed in 1999 revealed that most of the waste at the Site is ash containing glass, coal, coke, slag, ceramic, bottles, brick, buttons and wood. The thickness of this ash is variable, ranging from 0.9 to 23.1 feet. This waste material covers an area of approximately 3.6 acres.

During the Site Investigation, sixteen ash samples were analyzed for hazardous waste characteristics using the Toxicity Characteristic Leaching Procedure (TCLP). Seven of these samples failed the TCLP Regulatory Limit for lead, indicating that some ash at the Site is characteristic hazardous waste. One ash sample also failed the TCLP Regulatory Limit for cadmium. The ash also contains numerous semivolatile (primarily PAHs) and inorganics compounds at concentrations above the Department's TAGM 4046 soil cleanup objectives. These exceedances were documented in waste samples collected throughout the Site and are not restricted to those samples that are characteristic hazardous waste. Eleven ash samples were also analyzed for PCBs, with seven of these samples containing PCBs at concentrations ranging from 22J to 6,840 Fg/kg (parts per billion). None of these concentrations, however, exceeded the 10,000 Fg/kg TAGM 4046 soil cleanup objective.

Analytical data from sediment samples collected in Eighteenmile Creek and the millrace (Figure 3-1) revealed the presence of semivolatile (primarily PAHs) and inorganic compounds at concentrations above the Department's sediment criteria. PCBs were detected in all seven sediment samples at concentrations ranging from 360 to 8,800 Fg/kg (Table 4-1). Although none of these concentrations exceeded the Department's sediment criteria of 19,300 Fg/kg for chronic toxicity to benthic aquatic life, all seven concentrations exceeded the sediment criteria for human health bioaccumulation. While the analytical data suggest that waste at the Former Flintkote Plant Site has adversely impacted sediment at and near the Site, the presence of contamination in the upstream sediment sample (SED-6) suggests that contamination also originates from an unidentified upstream source.

5.0 SAMPLING RESULTS

A brief description of the activities completed as part of the sampling event at 143 Water Street was presented in Section 3.0. In this section, a detailed evaluation of the observations made during the site reconnaissance and the analytical results obtained from the samples are presented. These results, described in Section 5.2, are summarized by environmental media, which include waste material and surface soil.

5.1 General Observations

On April 16, 2002 the Department collected four samples from the property at 143 Water Street. This property was sampled due to its close proximity to the Former Flintkote Plant Site, and because of the potential for contaminants to migrate to the property from Eighteenmile Creek during flood events. The sampling team consisted of the following individuals:

Mr. Glenn May, New York State Department of Environmental Conservation;
Mr. Brian Sadowski, New York State Department of Environmental Conservation;
Mr. Paul Dicky, Niagara County Health Department;
Ms. Holly D'Angelo, Niagara County Health Department; and
Mr. Matthew Forcucci, New York State Department of Health.

Prior to collecting any samples, a walk through of the property was conducted to identify sample locations. During this reconnaissance, ash fill (Figure 5-1) was observed at the surface of a small ridge along Eighteenmile Creek on a small strip of wooded property (Figure 5-2). Tax records indicate that this property is part of the former Flintkote property that is now owned by Niagara County. Extensive ash fill was also observed in the bank of Eighteenmile Creek (Figure 5-3).

The small vegetable garden in the backyard was also inspected; buttons, coal and glass were observed. When asked, the property owners informed us that the garden was rototilled in place. The portion of the yard that floods during high water events was also identified.

As a result of the site reconnaissance, four sample locations were selected. These locations, shown on Figure 3-1, were selected based upon visual observations or the potential for human exposure through direct contact or ingestion.

5.2 Waste Material

During the April 16th sampling event, one waste sample (SS-3 on Figure 3-1) was collected and submitted to Severn Trent Laboratories for chemical analysis of PCBs and lead. These contaminants were selected for analysis because PCBs are known to exist in Eighteenmile Creek sediment, while ash at the Former Flintkote Plant Site contains high concentrations of lead. Sample SS-3 was collected from the small ridge along Eighteenmile Creek, and consisted primarily of rust colored ash containing slag and buttons (Figure 5-1). This ash is similar in appearance to the ash observed on the island of the Former Flintkote Plant Site.

The analytical results of the ash sample are shown in Table 5-1, and indicate that PCBs are not present in the waste. Lead, however, was detected at a concentration of 4,250 mg/kg (parts per million), a concentration that significantly exceeds the TAGM 4046 soil cleanup objective. Due to this high concentration of lead, the Department also decided to analyze the sample for lead using the Toxicity Characteristic Leaching Procedure (TCLP). The result from this analysis is shown in Table 5-1, and indicates that the ash is a characteristic hazardous waste for lead (D008).

5.3 Surface Soil

Three surface soil samples were also collected on April 16, 2002 and submitted to Severn Trent Laboratories for chemical analysis of PCBs and lead. The location of these samples (SS-1, SS-2 and SS-4) are shown on Figure 3-1. Sample SS-1 was collected from the portion of the side yard that floods during high water events (Figure 5-4). This area is at the end of a natural drainage swale to Eighteenmile Creek (Figure 5-5), and would be the first area to flood during high water events and the last area from which flood waters would recede. This sample consisted primarily of black topsoil with no visible evidence of waste material. The analytical results for this sample are shown in Table 5-1, and indicate that lead is present at a concentration of 887 mg/kg. While this concentration of lead exceeds the TAGM 4046 soil cleanup objective, it is similar to lead concentrations in other urban areas of western New York. PCBs were also detected in this sample at a concentration of 64J Fg/kg (parts per billion), which is below the 1,000 Fg/kg TAGM 4046 surface soil cleanup objective.

Sample SS-2 was collected from the center of a small vegetable garden in the side yard of the 143 Water Street property (Figure 5-6). This sample consisted primarily of medium brown soil with glass, buttons and coal fragments. The analytical results for this sample are shown in Table 5-1, and indicate that lead is present at a concentration of 686 mg/kg. This concentration of lead exceeds the TAGM 4046 soil cleanup

objective, but is similar to lead concentrations in other urban areas of western New York. PCBs were also detected in this sample, but at a concentration (24J F g/kg) below the Department's TAGM 4046 surface soil cleanup objective.

To evaluate the potential migration pathway between contaminated creek sediments and backyard soils due to creek flooding events, sample SS-4 was collected from a location approximately 4 feet from the shore of Eighteenmile Creek in an area visibly devoid of waste and other fill material (Figure 5-7). This sample consisted primarily of dark brown soil with a peat moss-like consistency. The analytical results for this sample are shown in Table 5-1, and indicate that lead is present at a concentration of 1,270 mg/kg. Due to this high concentration of lead, the Department also decided to analyze the sample for lead using the Toxicity Characteristic Leaching Procedure (TCLP). The result from this analysis is shown in Table 5-1, and indicates that the soil is not a characteristic hazardous waste with respect to lead. PCBs were also detected in this sample at a concentration (17,400 F g/kg) significantly above the 1,000 F g/kg TAGM 4046 surface soil cleanup objective.

6.0 DISCUSSIONS AND CONCLUSIONS

6.1 Discussion

The property at 143 Water Street was sampled due to its close proximity to the Former Flintkote Plant Site, and because of the potential for contaminants to migrate onto the property from Eighteenmile Creek during flood events. The principle objective of the sampling event was to obtain information sufficient to determine if the property at 143 Water Street is being impacted by the Former Flintkote Plant Site and/or Eighteenmile Creek.

During the site reconnaissance, ash fill was observed at the surface of a small ridge along Eighteenmile Creek on wooded property adjacent to 143 Water Street. Extensive ash fill was also observed in the bank of Eighteenmile Creek in this area. Analytical results from an ash sample collected from the ridge revealed the presence of lead at a concentration (4,250 mg/kg) that exceeded the Department's TAGM 4046 soil cleanup objective. While surface water/solids runoff from this ridge to the 143 Water Street property may explain the relatively high concentrations of lead in surface soil samples SS-1 (low-lying property) and SS-2 (garden), other sources of lead may also be responsible. For example, the possible presence of ash fill in the garden, as suggested by the buttons, coal and glass that were observed, could explain the high concentration of lead in sample SS-2. In addition, sediment in Eighteenmile Creek contains elevated concentrations of lead (Table 4-1) that could be deposited on the 143 Water Street property during flood events.

The source of PCBs at the 143 Water Street property is also problematical. While the ash sample (SS-3) did not contain PCBs, PCBs at low concentrations (22J to 6,840 Fg/kg) were detected in 7 of 11 ash samples collected from the Former Flintkote Plant Site during the Department's 1999 Site Investigation. It is possible, therefore, that some of the ash observed along Eighteenmile Creek contains PCBs. It is also known that sediment in the creek contains elevated concentrations of PCBs (Table 4-1) that could be deposited on the 143 Water Street property during flood events.

Sample SS-4 was collected to evaluate the potential migration pathway between contaminated creek sediments and backyard soils due to creek flooding events. This sample location was selected because it was close to the creek and the general area was visibly devoid of waste and other fill material. It is reasonable to conclude, therefore, that any contamination detected in this sample is attributable to Eighteenmile Creek.

The analytical results for sample SS-4 indicate the presence of both lead and PCBs (Table 5-1). The concentrations of lead (1,270 mg/kg) and PCBs (17,400 Fg/kg) in this sample are higher than the

concentrations of these contaminants in the upstream sediment sample (SED-6; Table 4-1); however, this fact may not be particularly meaningful as the samples were collected and analyzed six years apart. It is important to note also that the 1996 sediment results are dominated by PCB arochlors 1248 and 1254 (Table 4-1), while the 2002 results on sample SS-4 are dominated by arochlors 1254 and 1260 (Table 5-1). These results suggest a change in the PCB fingerprint of Eighteenmile Creek sediment.

6.2 Conclusion

Elevated concentrations of lead and PCBs were detected in surface soil samples collected from the property at 143 Water Street. The exact source of these contaminants is unknown, but could include surface water/solids runoff from the ridge of ash fill, the presence of ash fill in the garden, and/or deposition of contaminated sediments from Eighteenmile Creek during flood events. Elevated concentrations of lead and PCBs were also detected in the surface soil sample (SS-4) collected along Eighteenmile Creek. The contamination in this sample appears to be related to the deposition of contaminated sediment from the creek during flood events, although the PCB fingerprint is different between the 1996 and 2002 samples.

The ash fill that was observed in a small ridge along Eighteenmile Creek is a characteristic hazardous waste for lead (D008). At the Former Flintkote Plant Site, similar ash was found to contain numerous semivolatile (primarily PAHs) and inorganic compounds at concentrations above the Department's TAGM 4046 soil cleanup objectives. While ash sample SS-3 did not contain PCBs, PCBs at low concentrations (22J to 6,840 Fg/kg) were detected in ash samples collected from the Former Flintkote Plant Site during the Department's 1999 Site Investigation.

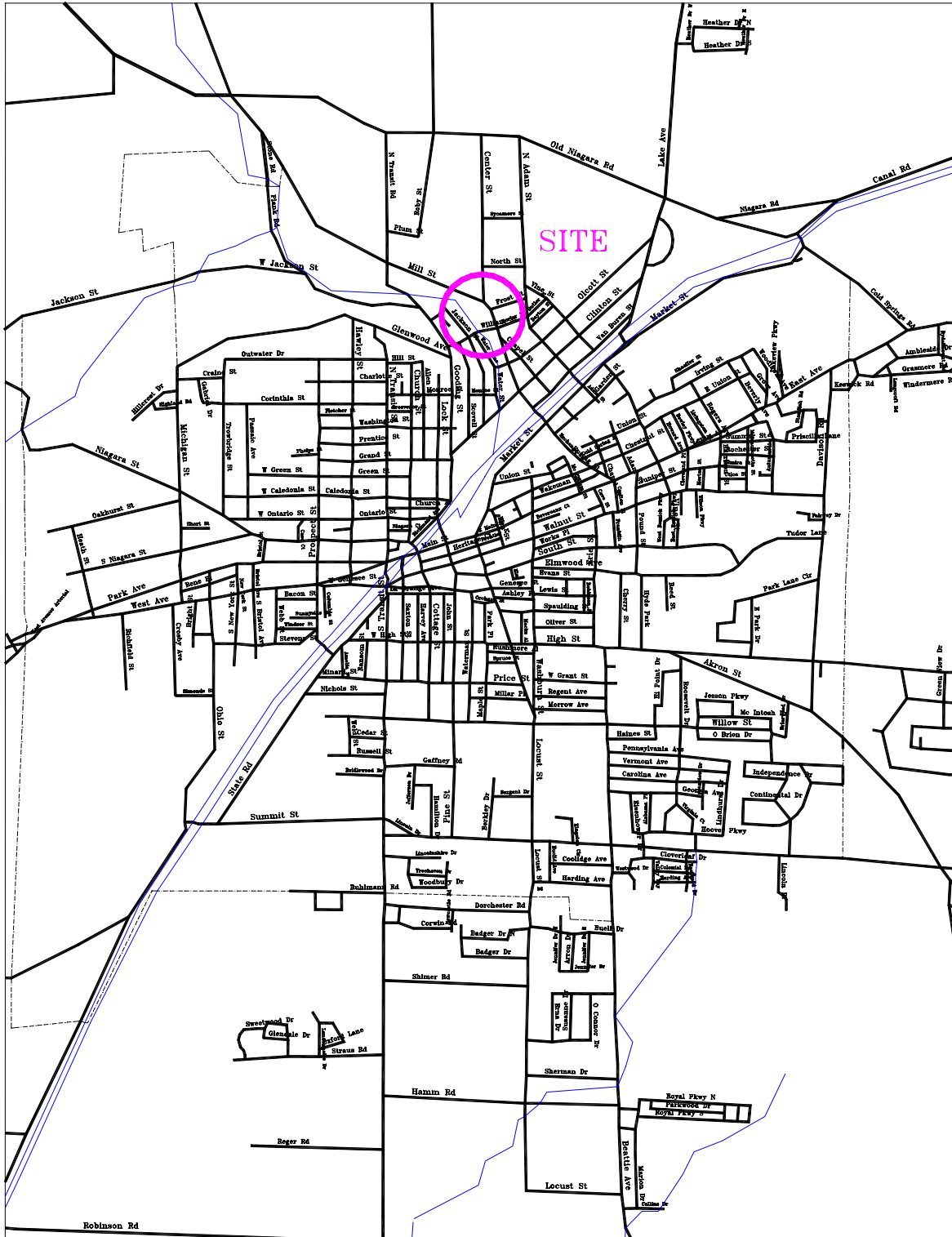
7.0 RECOMMENDATIONS

Based upon the results of the April 16, 2002 sampling event at 143 Water Street, the Department is making the following recommendations regarding future activities at the Former Flintkote Plant Site and properties along Eighteenmile Creek:

- Collect additional samples from the wooded property along Eighteenmile Creek to determine the nature and extent of ash fill in this area. Tax records indicate that this property is part of the former Flintkote property that is now owned by Niagara County. Therefore, the additional samples could be collected by the county as part of the Flintkote Brownfields Investigation.
- Collect additional sediment samples from Eighteenmile Creek for chemical analysis to further evaluate the apparent change in the PCB fingerprint between 1996 and 2002, and to determine if other contaminant concentrations have changed over that six year period. Sediment samples adjacent to the Former Flintkote Plant Site will be collected by Niagara County as part of the Flintkote Brownfields Investigation. Upstream samples are not included in this program and could be collected by the Department.
- Complete a reconnaissance both up- and downstream of William Street to determine how many properties could be impacted by Eighteenmile Creek during flood events.
- Collect additional surface soil samples from backyards along Eighteenmile Creek for chemical analysis. This would include selected up- and downstream properties identified in the second bullet above.
- Send this report to the New York State Department of Health for their evaluation and action, as appropriate, concerning potential human health impacts from the contaminated soils and waste identified.

8.0 REFERENCES

- NYSDEC, 1995, Determination of Soil Cleanup Objectives and Cleanup Levels: New York State Department of Environmental Conservation, Division of Environmental Remediation Technical and Administrative Guidance Memorandum # HWR-95-4046, Albany, New York.
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Lockport Quadrangle
Scale Depends on Final Plotted Size

SITE LOCATION MAP

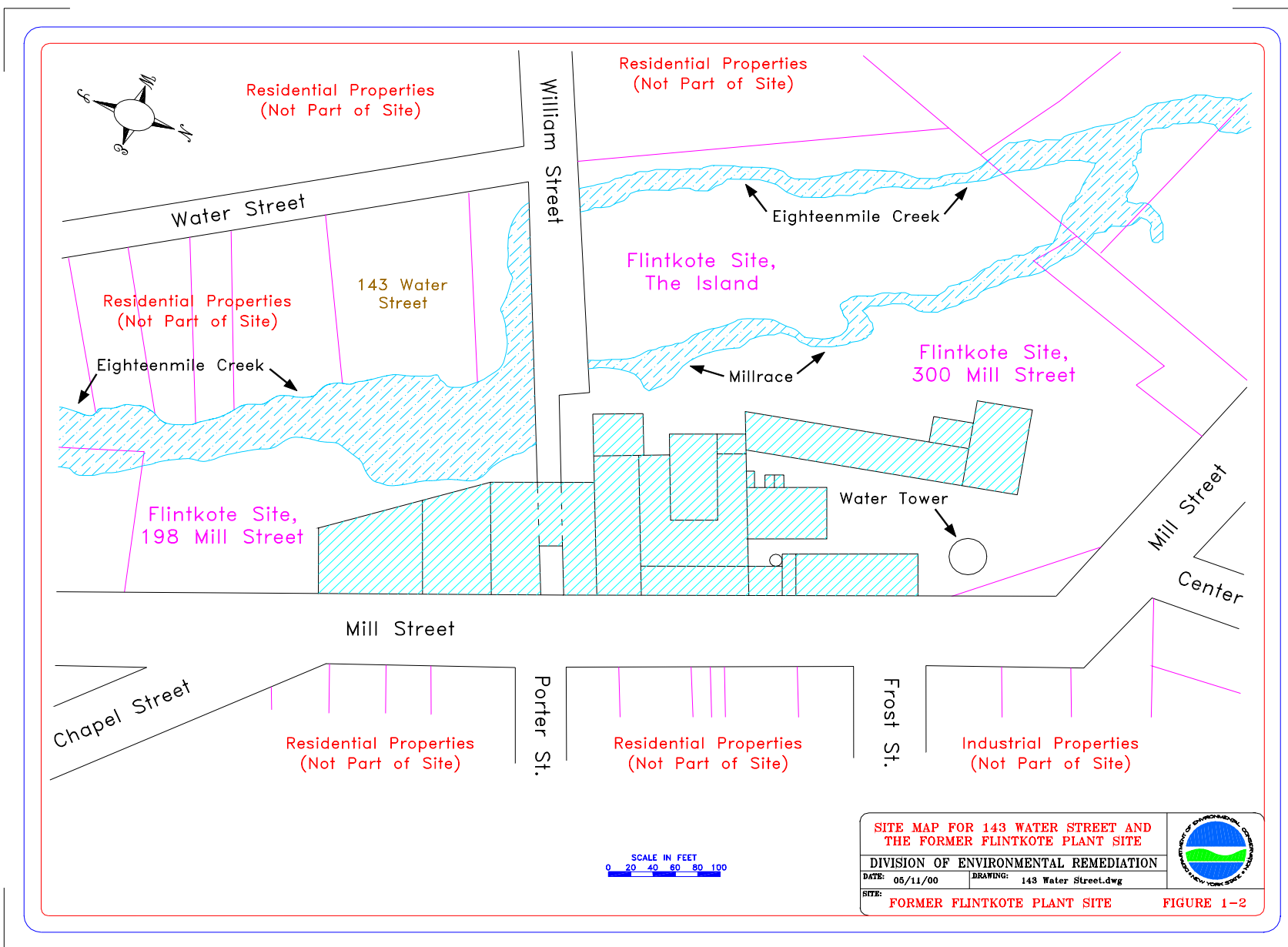
DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 08/29/00 DRAWING: LOCATION2.DWG

SITE: FORMER FLINTKOTE PLANT SITE

FIGURE 1-1





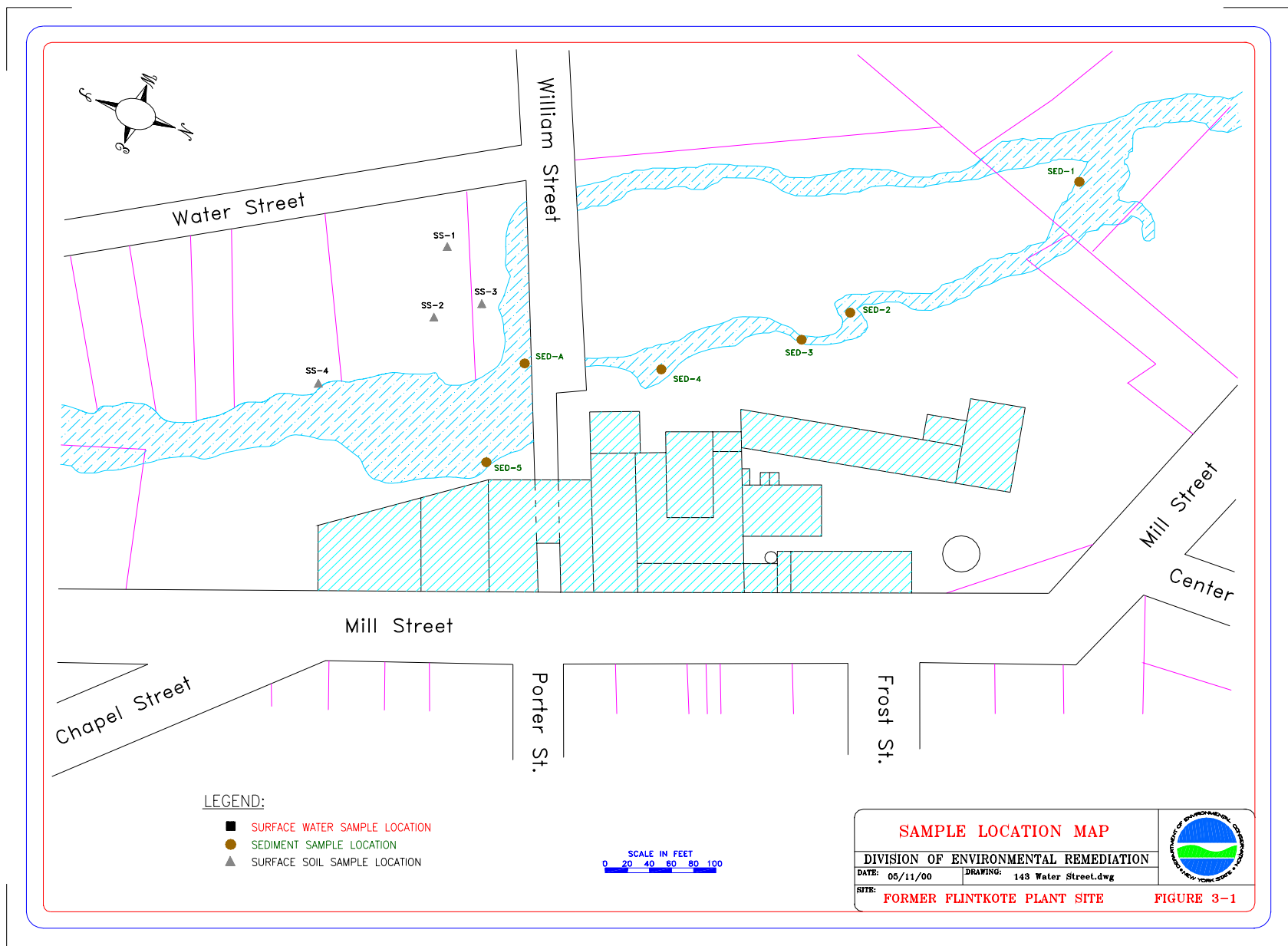




Figure 5-1. Photograph of ash from a small ridge along Eighteenmile Creek. This area was the location of sample SS-3. Photograph taken by Paul Dicky on April 16, 2002.



Figure 5-2. Photograph of the small ridge of ash fill along Eighteenmile Creek. The grassy area in the background is the side yard of the property at 143 Water Street. Photograph taken by Paul Dicky on April 16, 2002.



Figure 5-3. Photograph of ash fill in the creek bank along Eighteenmile Creek. Observe the buttons, which are characteristic of the ash fill on the island of the former Flintkote property. Photograph taken by Paul Dicky on April 16, 2002.



Figure 5-4. Photograph of sample location SS-1 (at white flag). This sample was collected from the side yard of 143 Water Street at the area that floods during high water events. Photograph taken by Paul Dicky on April 16, 2002.



Figure 5-5. Photograph of the natural drainage swale from the side yard of 143 Water Street to Eighteenmile Creek. The cross-culverts beneath William Street can be observed in the background. Note the debris partially blocking these culverts. Photograph taken by Paul Dicky on April 16, 2002.

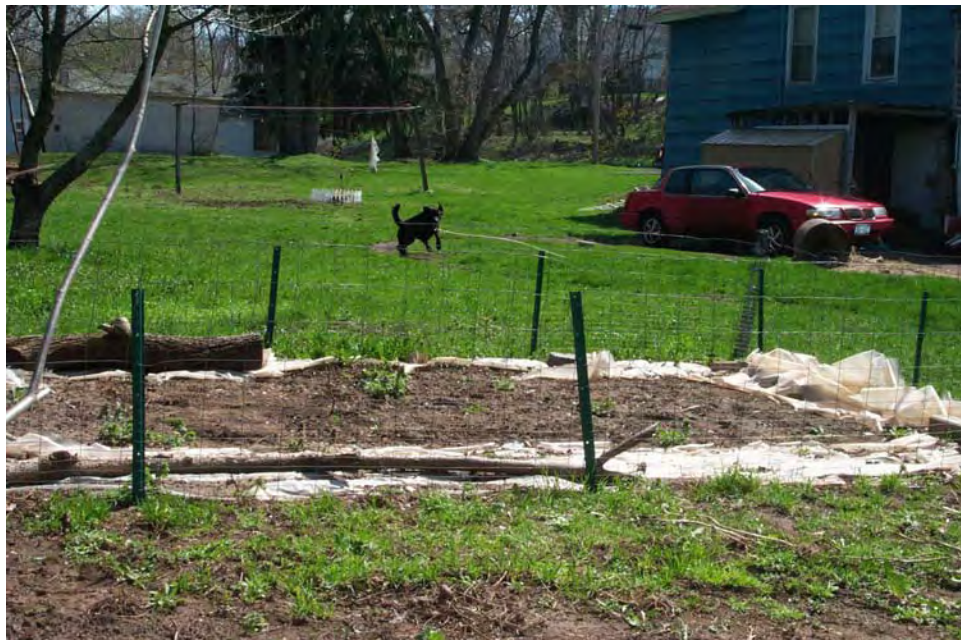


Figure 5-6. Photograph of the small garden at 143 Water Street. Sample SS-2 was collected from the center of the garden. Photograph taken by Paul Dicky on April 16, 2002.



Figure 5-7. Photograph of sample location SS-4 (at the brick) along Eighteenmile Creek. The former Flintkote buildings can be observed in the background. Photograph taken by Paul Dicky on April 16, 2002.

Results Summarized from Upstream (SED-6) to Downstream (SED-1) Locations.

Sample Number	Sediment Criteria	SED-6 8/7/96 0"-2" Olcott St.	SED-5 8/7/96 0"-2" 300 Mill	SED-A 10/27/95 0"-2" William St.	SED-4 8/7/96 0"-2" Millrace	SED-3 8/7/96 0"-2" Millrace	SED-2 8/7/96 0"-2" Millrace	SED-1 8/7/96 0"-2" Downstream
PCBs								
Aroclor-1248 (F g/kg)		4,800 X	4,900 PX		5,700 PX		2,100 X	4,100 X
Aroclor-1254 (F g/kg)		770 PX	3,900 PX		440 JPX	360.0	860 JPX	2,000 PX
Aroclor-1260 (F g/kg)								
Total PCBs (F g/kg)	0.8 *	5,570	8,800	4,072 (2,138)	6,140	360.0	2,960	6,100
Inorganic Compounds								
Lead - Total (mg/kg)	110 **	805 E	5,940 E	343.0	398 E	189 E	558 E	362 E
J	Compound reported at an estimated concentration below the reporting limit.							
P	>25% difference between the analytical results on two GC columns. The lower value is reported.							
X	Manually integrated and calculated.							
E	Estimated concentration due to the presence of interference.							
*	Sediment criteria for human health bioaccumulation.							
**	Sediment criteria for the severe effect level.							
Only compounds detected are reported.								
Shaded values equal or exceed the Division of Fish, Wildlife and Marine Resources sediment criteria.								

**Table 5-1.
Analytical Results of Surface Soil and Waste Samples Collected from the
Property at 143 Water Street.**

Sample Number	TAGM 4046	SS-1	SS-2	SS-3	SS-4
Date Sampled	Surface Soil	4/16/02	4/16/02	4/16/02	4/16/02
Sample Depth	Cleanup	0"-2"	0"-2"	0"-2"	0"-2"
Sample Location	Objective	Shallow Swale	Garden	Ash Ridge	Creek Bank
PCBs					
Aroclor-1248 (F g/kg)					
Aroclor-1254 (F g/kg)		64 J	24 J		9,400
Aroclor-1260 (F g/kg)					8,000
Total PCBs (F g/kg)	1,000	64 J	24 J		17,400
Inorganic Compounds					
Lead - Total (mg/kg)	500 *	887 E	686 E	4,250 E	1,270 E
Lead - TCLP (mg/l)	5.0	NA	NA	355.0	1.54
J	Compound reported at an estimated concentration below the reporting limit.				
E	Estimated concentration due to the presence of interference.				
*	The TAGM 4046 soil cleanup objective for lead is site background. In general, background concentrations vary widely, with average concentrations in undeveloped, rural areas ranging from 4-61 ppm, and from 200-500 ppm in metropolitan or suburban areas. A specific site background concentration for the Former Flintkote Plant Site has not been determined, so a 500 ppm value has been utilized for screening purposes.				
NA	Not analyzed.				
	Only compounds detected are reported.				
	Shaded values equal or exceed the TAGM 4046 soil cleanup objectives.				