

## SUMMARY

The Massachusetts Department of Environmental Protection (DEP) has completed investigation and sampling of riverbank soils and sediments from the West Branch of the Housatonic River in Pittsfield for the purpose of determining the presence and extent of polychlorinated biphenyl (PCB) contamination, if any. DEP collected approximately 400 sediment samples and 200 riverbank soil samples, from just upstream of Dorothy Amos Park on West Street and extending approximately 2 miles downstream to the confluence of the West and East Branches of the Housatonic River.

The sampling results indicate that the levels of PCBs are generally non-detected or at low levels (typically less than 1 part per million (ppm)), with the exception of bank soils and sediments adjacent to Dorothy Amos Park (the Park) north of West Street. DEP sampling results indicate that riverbank soils adjacent to the Park contain PCB levels up to 8,900 ppm, and sediments in one area adjacent to the Park have PCB levels up to 11 ppm. Previous U.S. Environmental Protection Agency (EPA) sampling indicated levels of PCBs up to 7,630 ppm in sediments adjacent to the Park, and 60.5 ppm in sediments approximately 0.4 miles upstream of the confluence of the West and East Branches of the Housatonic River.

Additional remediation of riverbank soils adjacent to the Park is necessary, and further evaluation and possible remediation of sediments adjacent to the park and approximately 0.4 miles upstream of the confluence of the East and West Branches of the Housatonic River is warranted.

## HISTORY OF PREVIOUS REMEDIAL INVESTIGATIONS ALONG THE WEST BRANCH OF THE HOUSATONIC RIVER

In a letter dated June 13, 1997, DEP requested that the General Electric Company (GE) perform sampling activities at the Park, a former junkyard located on West Street in Pittsfield on the eastern bank of West Branch of the Housatonic River, in order to determine the vertical and horizontal extent of PCB-contaminated fill at the Park. In 1997 and 1998, soil samples were collected at the Park to a maximum depth of 27 feet, with most samples having been collected to a maximum depth of 16 feet. Soil samples were collected in 6-inch increments to a depth of 1 foot, and in 1-foot increments for each of the remaining depth intervals. Soil samples collected at the Park were found to contain elevated levels of PCBs, ranging from non-detect (ND) to 430 ppm. In 1998, GE undertook remedial actions to remove contaminated soils at the Park and on the upper portion of the adjacent riverbanks to depths of up to 4 feet. During the 1998 remedial activities, GE advanced several deep borings at the site, including SB-3 and SB-5. Neither groundwater nor non-aqueous phase liquid (NAPL) was encountered in boring SB-5, located at the top of bank in the southern one-third of the site, even after the borehole was left open overnight. A small quantity of water was observed in the base of boring SB-3

during its advancement, so a temporary well was installed. No groundwater came into the well after a period of 24 hours. Hence, GE was unable to collect any groundwater samples at the Park for analysis during its 1998 remediation activities.

In 1999, EPA collected sediment samples near the confluence of the East and West Branches of the Housatonic River for purposes of providing background data relative to its ongoing investigations of the East Branch. A sediment sample collected from the top 6 inches at a location approximately 0.4 miles upstream of the confluence (EPA location SE000388) was found to contain 60.5 ppm PCBs. A composite invertebrate sample was collected from an area in the same section of the river (EPA location SE000398) and it was found to have a PCB concentration of 33.8 ppm (30.1 ppm in the duplicate sample) in tissue. EPA has indicated that this tissue concentration is at least comparable to, if not higher than, tissue concentrations found in invertebrate samples collected in the East Branch. The presence of contamination in the sample collected from the SE000388 location prompted EPA to collect additional samples near the confluence and adjacent to the Park, a presumed source area for the PCB contamination that had been observed downstream. Sediment samples adjacent to the Park were collected at 6-inch intervals to a depth of 2 feet. PCB concentrations in these additional sediment samples ranged from 0.42 ppm (at EPA location SDW22323) to 7,630 ppm (at EPA location SDW22242). GE collected split samples with EPA at locations SDW22163 and SDW22243 (adjacent to the Park) and SDW10083, SDW10121, SDW10161, SDW10163 (within 700 feet of the confluence), and obtained results comparable to EPA, with the exception of location SDW22163, where the EPA result was 18 ppm and the GE result was ND.

At the same time, EPA also collected surface water samples from the West Branch and analyzed them for total PCBs and dissolved and particulate fractions. Based on these results, EPA determined that dissolved PCBs constitute approximately 10% of the total mass of PCBs in the West Branch, with concentrations in excess of Ambient Water Quality Criteria, and that the West Branch is contributing to PCB flux in the East Branch below the confluence.

In December 1999, following receipt of the results of EPA's 1999 investigations of the West Branch, DEP sent a letter to GE requiring submission of a Preliminary Phase II Scope of Work (SOW). The purpose of the SOW was to propose investigations to further evaluate the extent of PCB contamination in the West Branch sediments and riverbank soils in the stretch of river from the Park to the confluence of the East and West Branches, and to further evaluate potential groundwater contamination beneath the Park. In February 2000, GE submitted the requested SOW, but contested the applicability of DEP's July 2, 1990 Administrative Consent Order to require GE to perform any of the work outlined in the SOW and declined to implement the SOW. GE subsequently agreed to reimburse DEP for the costs of all investigation work outlined in the SOW, and as later modified by DEP, if DEP chose to engage a state contractor to perform the proposed investigations.

## DEPARTMENTAL INVESTIGATIONS

Green Environmental (Green), DEP's contractor, performed sediment and riverbank soils investigations on the West Branch of the Housatonic River from early September to early November 2000. With a few modifications and additions, the scope of work implemented by Green was the same as that outlined in GE's SOW titled: *Preliminary Phase II Scope of Work for the West Branch of the Housatonic River*, February 2000, prepared by Blasland, Bouck & Lee, Inc. Figure 1 shows the locations of sediment and riverbank soil sampling transects adjacent to the Park, in addition to the locations of soil borings and monitoring wells installed as part of DEP's amended SOW. Figure 2 shows the locations of all sediment sampling transects located north and south of the Park, and the locations of targeted potential exposure areas that were sampled for PCB contamination in riverbank soils and sediments.

### Sediment Sampling

Sediment samples were collected at transects in several locations. These locations include: 1) transects along a 700-foot section of the river abutting the Park; 2) transects along an approximate 1.8-mile stretch of river located south of the Park; 3) targeted potential exposure areas in the stretch of river located between 3,400 and 4,800 feet south of the Park; and, 4) at a single transect located approximately 2,200 feet north of the Park. The total number of sediment sampling transects is 42.

#### *Sediment Sampling at Dorothy Amos Park*

At the Park, sediment samples were collected along 17 transects. The first transect at the Park was located at a distance of approximately 730 feet upstream of the West Street bridge, with subsequent transects being sampled in a downstream direction. Transects were spaced 50 feet apart, except in the vicinity of EPA sampling location SDW22242, where a PCB concentration of 7,630 ppm (3,144 ppm in the duplicate sample) had been detected in the 0.5- to 1-foot depth increment. Sediment samples previously collected by EPA from sampling location SDW22243 (located on the same transect as SDW22242) also contained elevated PCB concentrations: 63.3 ppm in the top 6 inches; 76.8 ppm (111 ppm in GE's split sample) in the 0.5- to 1-foot depth increment; and 84.8 ppm in the 1- to 1.5-foot depth increment. To further evaluate the extent of the hot spot that had been identified by EPA at the location equivalent to transect location T 00350, two transects (T 00325 and T 00375) were established at locations 25 feet upstream and downstream of EPA sampling location SDW22242.

On each transect, two (2) evenly-spaced sampling locations were established to represent the eastern one-third ("left" side) and the western one-third ("right" side) of the channel. "Left" and "right" side-of-channel designations were established (rather than eastern or western), because the channel is not uniform in its orientation over the entire length of the study area. The terms "left" and "right" refer to the sides of the channel, as one looks

downstream. Mid-channel sampling locations were also established for transects T 000325, T 000350 and T 000375, at and/or around the hot spots at EPA sampling locations SDW22242 and SDW22243. Sediment samples were collected at 6-inch increments to a depth of 3 feet at all sampling locations with the exception of WSD00350L1, WSD00350L2, WSD00350M1 and WSD00350M2. At these locations, samples were only collected from the deeper depth increments not previously sampled by EPA (i.e., at depths greater than 1 or 1.5 feet). The SOW called for deeper samples (from the 2- to 3-foot depth increment) to be collected and extracted but not analyzed, unless analytical results from the upper depth increments indicated the presence of contamination. Although very few of the shallower samples contained PCB contamination, a few of the samples from the deepest depth increments were analyzed by the lab. A total of 99 samples (including four duplicates), mainly from the depth interval from 0 to 2 feet, were submitted for PCB Aroclor analysis using EPA SW-846 Method 8082.

### *Sediment Sampling Downstream of Dorothy Amos Park*

In the West Branch of the Housatonic River south of the Park, 24 transects were established at 400-foot intervals, with the first transect being located 400 feet south of T 00700, or approximately 370 feet south of the West Street bridge. Sediment samples were collected from the "left" and "right" sides of the channel over 6-inch increments to a depth of 3 feet.

In addition, five (5) potential exposure areas were identified adjacent to the following residential areas located between West Housatonic and South Streets: 1) at the southern end of East Mill Street (between transects T 03900 and T 04300); 2) at the southern end of Atwood Avenue (between transects T 04300 and T 04700); 3) at the western end of Boylston Street (between transects T 04700 and T 05100), 4) at the western end of Bay State Road (between transects T 05100 and T 05400); and, 5) at the western end of Taylor Street (between transects T 05400 and T 05900). These potential exposure areas were identified for one or more of the following reasons: paths are present in the areas, the riverbank and channel are easily accessible, and/or children had been observed using these areas. At these locations, sediment samples were collected from the 0- to 0.5-foot, 0.5- to 1-foot, 1- to 2-foot and 2- to 3-foot depth increments from either the "left" or "right," or both sides of the channel, depending on accessibility and/or evidence of use. Four (4) sediment samples were collected from each of the Atwood Avenue and Bay State Road exposure areas. At exposure areas in the vicinity of East Mill Street, Boylston Street and Taylor Street, five (5) samples, 29 samples, and eight (8) samples were collected, respectively. A total of 50 sediment samples (including two duplicates) were collected from these exposure areas and submitted for PCB Aroclor analysis.

A total of 248 samples (including 12 duplicates and samples from the targeted sediment exposure areas) were collected, mainly from the 0- to 2-foot depth increment, and submitted for PCB Aroclor analysis using EPA SW-846 Method 8082.

## *Sediment Sampling North of Dorothy Amos Park*

One background transect was established approximately 2200 feet north of the Park at a location 50 feet north of the Linden Street bridge. Samples were collected at “left” and “right” channel locations to a depth of 3 feet, following the same sampling protocols used for the other sections of the river. Nine (9) sediment samples were submitted for PCB Aroclor analysis using EPA SW-846 Method 8082.

## **Riverbank Soil Sampling**

Riverbank soil samples were collected at transects along a 700-foot section of the river abutting the Park and at targeted exposures areas in the stretch of river located between 3,400 and 4,800 feet south of the Park.

### *Riverbank Soil Sampling at Dorothy Amos Park*

At the Park, riverbank soil samples were collected from two types of locations: 1) approximately one-half to one-third of the way up the riverbank from the waterline (hereafter referred to as “top of bank”); and, 2) at the approximate annual low water mark (hereafter referred to as “bottom of bank”). These locations were established to sample the bank area below the coir logs that mark the base of the area that was remediated by GE in 1998.

Riverbank soil samples were collected on each transect on the “left” bank at both “top of bank” and “bottom of bank” locations. In addition, at transects T 00300, T 00325, T 00350, T 00375, and T 00400, both “top of bank” and “bottom of bank” samples were collected on the “right” riverbank. At transects T 00500, T 00600 and T 00650, only “bottom of bank” samples were collected from the “right” riverbank. At each sampling location, riverbank soil samples were collected in the 0- to 0.5-foot, 0.5- to 1-foot and 1- to 3-foot depth increments.

A total of 150 riverbank soil samples (including seven duplicates) were collected adjacent to the Park from transects T 00000 through T 00700 and analyzed for PCBs using EPA SW-846 Method 8082. This total includes an additional soil sample (location WB00300LT1A) that was collected at a later date from the “top of bank” location on the “left” riverbank at transect T 00300, to verify extremely elevated PCB results that were found in a previously collected sample. This sample was also analyzed for volatile organic compounds (VOCs) using EPA SW-846 Method 8260, semi-volatile organic compounds (SVOCs) using Method 8270, metals using Methods 6010 and 7471, and tentatively identified compounds (TICs).

## *Riverbank Soil Sampling Downstream of Dorothy Amos Park*

Downstream of the Park, riverbank soil samples were collected either at “top of bank” or “bottom of bank,” or both types of locations at the following exposure areas that are adjacent to the targeted sediment exposure areas described above: East Mill Street (six (6) samples); Atwood Avenue (six (6) samples); Boylston Street (22 samples, including one duplicate); Bay State Road (seven (7) samples, including one duplicate); and Taylor Street (six (6) samples). In some of the exposure areas, the banks are not very pronounced, and in others, they are almost non-existent. A total of 47 riverbank soil samples (including two duplicates) were collected from these targeted exposure areas and submitted for PCB Aroclor analysis using EPA SW-846 Method 8082.

## **Soil Borings and Groundwater Monitoring Wells**

### *Soil Borings at Dorothy Amos Park*

Soil borings were advanced at three (3) locations along the western edge of the Park (where the top of the bank flattens) to depths ranging from 17 to 27 feet. The borings were located 110 feet (WBGMW110), 300 feet (WBGMW300), and 415 feet (WBGMW415) downstream of transect T 00000. The location of boring WBGMW110 was selected to provide coverage of the northern end of the Park, where PCB contamination was expected to be minimal. The locations of borings WBGMW300 and WBGMW415 were selected because elevated PCB concentrations had been identified in adjacent riverbank soil samples and because an intermittent sheen had been observed by Green personnel between transects T 00300 and T 00450. In accordance with the SOW, soil samples were collected from borings if there was evidence of contamination (i.e., staining, odor, elevated photoionization detector readings, evidence of fill materials/debris, etc.) and borings were completed as wells if groundwater was encountered. Soil samples were collected from the borings at locations just below the vertical extent of 1998 remediation at the Park. Two (2) soil samples were collected in boring WBGMW415 from the 5- to 7-foot and 7- to 9-foot depth increments, and one (1) soil sample was collected from the 7- to 9-foot depth increment in boring WBGMW300. Soil samples were submitted for VOC (Method 8260), SVOC (Method 8270), metals (Methods 6010 and 7471), and PCB analysis (Method 8082).

### *Groundwater Monitoring Wells at Dorothy Amos Park*

Because GE had been unsuccessful in collecting groundwater samples as part of the remediation activities previously undertaken at the Park, DEP proposed to install groundwater monitoring wells at the Park. Two 2-inch diameter monitoring wells with 10 feet of slotted (0.010-inch) screen were installed at boring locations WBGMW110 and WBGMW300. The screened interval for well WBGMW110 is 7 to 17 feet; the screened interval for well WBGMW300 is 14 to 24 feet. Groundwater samples were collected from both wells on November 14, 2000 and submitted for PCB Aroclor analysis (Method 8082).

## DEPARTMENTAL SAMPLING RESULTS

All of DEP's sampling results are shown in the following tables: Table 1, showing PCB concentrations in sediments; Table 2, showing PCB concentrations in riverbank soils; Table 3, showing VOC, SVOC, metal, and PCB concentrations in soil borings and in an additional "top of bank" (0- to 0.5-foot depth increment) sample collected at location WB00300LT1A; and, Table 4, showing PCB concentrations in groundwater. In addition, average PCB concentrations for sediments and soils are summarized in the following tables: Table 5, showing average concentrations in sediments at, north and south of the Park; Table 6, showing average concentrations in sediments and riverbank soils at the five targeted exposure areas between West Housatonic Street and South Street; and, Table 7, showing average concentrations riverbank soils at and north of the Park. All tables contain only DEP's sampling results.

### **Sediment Sampling Results**

#### *Sediments at Dorothy Amos Park (transects T 00150 through T 00700)*

PCB contamination in sediments along Dorothy Amos Park is present in the area beginning at transect T 00150 and continuing through transect T 00700. PCB concentrations in sediments range from ND (detection limit: 0.06 ppm) to 11 ppm (Table 1); averaging 0.96 ppm in the top foot, 0.8 ppm in the 1- to 2-foot depth increment, and 0.24 ppm in the 2- to 3-foot depth increment (Table 5). Sediments on the "left" side of the channel showed slightly higher averages than those for the overall channel (1.84 ppm from 0 to 1 foot; 1.6 ppm from 1 to 2 feet; 0.16 ppm from 2 to 3 feet). In addition, a strong odor was observed by the field crew in some of the sediment samples collected from transects T 00325 through T 00600. DEP's sampling efforts did not locate the same elevated concentrations at the same locations that had been identified by EPA's 1999 sampling efforts at the following locations: SDW22243 (84.8 ppm) and SDW22242 (3,144/7,630 ppm) – both corresponding to locations on DEP transect T 00350; SDW22163 (18.3 ppm) and SDW22162 (44.6 ppm) – both corresponding to locations on DEP transect T 00550; and SDW22083 (23.9 ppm) – located midway between DEP transects T 00650 and T 00700.

#### *Sediments North and South of Dorothy Amos Park (transects T 00000N, T 00000 through T 00150, and T 01100 through T 10300)*

PCB concentrations in sediment samples collected at the northern end of the Park (transects T 00000 through T 00150), north of the Park (T 00000N), and south of the Park (T01100 through T 10300) were lower than those collected at the Park: ranging from ND (detection limit: 0.06 ppm) to 5.4 ppm (Table 1), and averaging 1.32 ppm or lower (Table 5). DEP's sampling efforts did not locate the same elevated concentration that had been identified by EPA's sampling effort at location SE000388 (60.5 ppm in sediments) – corresponding to DEP transect T 09100.

## *Sediments at Potential Exposure Areas*

Sediment concentrations in the five (5) identified potential exposure areas ranged from ND (detection limit: 0.06 ppm) to 0.5 ppm (Table 1), averaging 0.5 ppm or less (Table 6). Average concentrations in the top 6 inches are not significantly greater than those found at greater depth.

## **Riverbank Soil Sampling Results**

### *Riverbank Soils at Dorothy Amos Park (transects T 00150 through T 00700)*

“Right” bank soils, collected on the riverbank across from the Park, contain minimal levels of PCBs. Most are ND (detection limit: 0.06 ppm), with a maximum of 0.7 ppm, and averaging to 0.4 ppm (Tables 2 and 7).

There are elevated PCB concentrations in banks soils along the “left” side of the Park from transect location T 00150 to transect location T 00700, with PCB concentrations in riverbank soils ranging from ND (detection limit: 0.06 ppm) to 8,900 ppm (at transect location T 00300), averaging to 793.74 ppm in the left “top of bank” soils (Tables 2 and 7).

Some of this area also coincides with areas of intermittent sheen along the base of the bank that were observed by GE’s contractors in 1998 between transects T 00400 and T 00550, and by Green personnel in 2000 between transects T 00300 and T 00450. Green personnel also observed a strong odor in samples collected from “left” bank locations at transects T 00450, T 00500, T 00600, and T 00650. In the second “top of bank” sample collected at transect T 00300 from the 0 to 0.5 foot depth increment, a PCB concentration of 3,500 ppm was found. In this same sample, there were detectable levels of VOCs, SVOCs, and metals, but MCP Method 1 Soil Standards were exceeded only for lead (370 ppm); the S1 Soil Standard for lead is 300 ppm.

### *Riverbank Soils North of the Park (transects T 00000 through T 00100)*

PCB concentrations in riverbank soils collected at the northern end of the Park (transects T 00000 through T 00150) ranged from ND (detection limit: 0.06 ppm) to 0.3 ppm (Table 2); averaging 0.11 ppm in the top 6 inches, 0.09 ppm from 6 inches to 1 foot, and 0.03 ppm from 1 to 3 feet (Table 7).

### *Riverbank Soils at Potential Exposure Areas*

Riverbank soils in the five (5) exposure areas have PCB concentrations ranging from ND (detection limit: 0.06 ppm) to 2.1 ppm (Table 2), and averaging a maximum of 0.78 ppm



(Table 6). Average concentrations in the top 6 inches are not significantly greater than those found at greater depth.

## **Soil Borings and Groundwater Sampling Results**

### *Soil Borings at Dorothy Amos Park*

There were detectable concentrations of VOCs, SVOCs, metals and PCBs in the soil borings, but only lead (599 ppm) and arsenic (38.6 ppm and 40.3 ppm) exceed MCP Method 1 Soil Standards (the S1 Soil Standard for lead is 300 ppm and the S2 and S3 Standards are 600 ppm; S1, S2 and S3 Soil Standards for arsenic are 30 ppm).

### *Groundwater Samples at Dorothy Amos Park*

PCB concentrations were ND in groundwater from wells WBGMW110 and WBGMW300 (detection limit: 0.2 ppb) (Table 4).

## **Data Validation**

Tier I data validation was performed on 100% of the results for samples having detectable concentrations, and Tier II data validation was performed on approximately 40% of the results that had been validated at the Tier I level. For samples having non-detects, Tier I data validation was performed on approximately 10% of the results, and Tier II data validation was performed on approximately 10% of the results that had been validated at the Tier I level. Very few data points received qualifiers as a result of the data validation process.

DEP's consultants initially recommended rejecting the three extremely elevated readings (i.e., 8,900 ppm, 4,500 ppm, and 2,800 ppm) for "top of bank" samples collected on the "left" bank at transect T 00300. Rejection of this data was recommended on the basis of 0% surrogate recoveries at dilution factors ranging from 2,000 to 4,000. Detailed examination of chromatograms at lower dilutions indicates that surrogates were present at lower dilutions. However, it is unknown if the percent surrogate recoveries were within acceptable limits, since the lab did not estimate surrogate recoveries at these lower dilutions, as required by Method 8082. A second sample (WB00300LT1A) collected along the "left" bank at transect T 00300 was found to have 3,500 ppm PCBs (in the 0- to 0.5-foot depth increment), confirming there is an extreme hot spot at the location of the rejected samples.

EPA's consultants performed a review of the data package for the three samples with very elevated PCB concentrations and determined by Region I guidelines that this data is useable regardless of whether the surrogates were recovered at 0%. In cases where the dilution factor is extremely high (as in this case) and the surrogates are effectively diluted out,

the validator can use professional judgment when assigning a data qualifier. EPA's consultants determined that all the Quality Assurance/Quality Control criteria for this analytical batch were acceptable.

Therefore, based on all of the above evaluations, DEP has qualified the three data points with a "J," indicating that the data are able to be used for decision-making purposes, yet are not as reliable as data without qualifiers.

## DEP's RECOMMENDATIONS

The PCB concentrations found in both sediments and riverbank soils at potential exposure areas downstream of the Park indicate that exposures to river sediments and bank soils adjacent to these residential neighborhoods pose no risk.

The elevated PCB concentrations in riverbank soils on the "left" bank along the Park from a point located approximately 30 feet upstream of the West Street bridge (transect T 00700) to a point located approximately 580 feet upstream of the bridge (transect T 00150) indicate that this area requires remediation to bring average concentrations down to a level of 2 ppm or less.

DEP's sampling results for the area along the Park do not, for the most part, indicate that large-scale remediation of sediments is necessary. However, elevated concentrations in the vicinity of the "left" bank at transects T 00500 (approximately 230 feet upstream of the West Street bridge) and T 00325 (approximately 405 feet upstream of the bridge) suggest that further investigation, and potentially some localized sediment remediation, may be necessary in these areas. In addition, EPA's sampling results indicate that additional investigations are warranted and potential remediation may be necessary in the vicinity of transect location T 00350 (approximately 380 feet upstream of the bridge), between transects T 00650 and T 00700 (from 30 to 80 feet upstream of the bridge), and in the area of EPA sampling location SE000388 (transect T 08700: approximately ½ mile upstream of the confluence of the East Branch and West Branch). These locations, at a minimum, warrant further investigation. Given that sediment samples were collected at locations measuring one-third of the distance across the channel and not directly adjacent to very contaminated sections of adjacent riverbank at the Park, any remediation plans that are developed for the riverbank area at the Park, should also contain provisions to collect additional sediment samples closer to the riverbank for the entire stretch of channel from a point located approximately 30 feet upstream of the West Street bridge (transect T 00700) to a point located approximately 580 feet upstream of the bridge (transect T 00150), to define the extent of contamination at the site, and to remediate sediments in this section of the channel, where necessary. Remedial plans should also contain provisions to address potential contamination along the riverbank and in the channel in the 30-foot section of the river between transect T 00700 and the West Street bridge.

In addition, DEP recommends that the existing wells located at the Park be gauged to search for NAPL and that groundwater samples be collected for PCB, lead and arsenic analyses. This recommendation is being made on the basis that, if present, NAPL may take a considerable time to enter the well. In addition, the concentrations of lead and arsenic present in the soils could result in potential groundwater contamination. Analyzing groundwater for these additional constituents will determine if groundwater contamination below the Park is a concern.

Furthermore, additional surface water sampling and analysis for dissolved and total PCBs should be conducted both upstream and downstream of the Park, both prior to and after the completion of bank and sediment remediation at the Park. The surface water monitoring above the confluence should continue after remediation on a monthly basis as a component of the Rest or River monthly surface water sampling protocol. Surface water samples should be collected during a range of flow regimes (i.e., low-, moderate-, and high- flow events) and sampling should be coordinated with staff gauge measuring events to enable EPA to use the results with an existing rating curve for this location in its flux analysis.