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Mr. Scott Deyette
Project Manager
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7014

Re: ***Malone (Amsden St.) Former MGP***
Site #: V00469
Salmon River Sediment Sampling Results

Dear Mr. Deyette:

This letter presents the results of a sediment investigation completed in connection with the Remedial Investigation (RI) of the Malone (Amsden St.) former manufactured gas plant (MGP) site (the "site") located on Amsden Street in Malone, New York. The sediment investigation was conducted by ARCADIS, on behalf of National Grid, during the week of November 7, 2011. The Salmon River is located at the toe of the slope along the eastern boundary of the site (Figure 1). The investigation was conducted in accordance with the New York State Department of Environmental Conservation-(NYSDEC-) approved scope of work entitled *Salmon River Sediment Investigation – Final Scope of Work,* dated November 4, 2011. This document is hereafter referred to as the "work plan". The main objectives of the investigation were to:

- Establish background concentrations of polycyclic aromatic hydrocarbon compounds (PAHs) in sediments upstream from the site;
- Delineate the extent of MGP residuals (i.e., solidified tar) observed at the river's edge adjacent to the site; and
- Evaluate whether MGP-related residuals are present in sediment downstream from the solidified tar.

The sediment sampling program completed to satisfy these objectives is described below, followed by an evaluation of the sediment investigation data.

Sediment Sampling Program

The sediment investigation was conducted from November 7, 2011 to November 10, 2011. Mr. Scott Deyette (NYSDEC) was present the first three days to observe the sampling activities and provide input on selected sampling locations. The activities completed during the investigation consisted of:

- Reconnaissance;
- Sediment Probing;

- Sediment Sampling; and
- Survey.

These activities are discussed in detail, below.

Reconnaissance

A reconnaissance of the Salmon River was performed in consultation with the NYSDEC field representative (Mr. Deyette) on the first day of field work (November 7, 2011). The reconnaissance consisted of walking the river upstream, adjacent to and downstream from the site, in order to observe general stream characteristics, identify any existing outfalls, and select sampling locations. The reconnaissance covered an area of approximately 900 feet upstream from the site to 1,000 feet downstream from the site.

The primary objective of the reconnaissance was to mutually select and agree upon background (upstream) sediment sampling locations with the NYSDEC prior to conducting the sampling. During the reconnaissance, ARCADIS' sediment sampling team and Mr. Deyette agreed upon five locations for background sampling in the approximate 900 feet reach of river upstream from the site. Selecting background sediment sampling locations was challenging given the limited amount of soft sediment deposits. The work plan specified that background sampling would be conducted within an approximate 500-feet reach of river upstream from the site; however, given the lack of soft sediment, the area for background sampling was lengthened from 500 feet to 900 feet to encompass a significant sediment deposit observed on the upstream side of a dam (see Figure 1).

In accordance with the work plan, the field sampling team plotted chosen background sampling locations on a map and e-mailed the map to the Fish & Wildlife section of the NYSDEC on the afternoon of November 7, 2011, requesting approval of the sampling locations. NYSDEC responded on November 9th and indicated that insufficient information was provided to enable approval of the locations; however, the background sampling locations should be selected in accordance with the guidelines provided in DER-10 – Technical Guidance for Site Investigation and Remediation.

A secondary objective of the reconnaissance was to select and agree upon sediment sampling locations downstream from the limited deposit of solidified tar immediately adjacent to the site. In accordance with the work plan, an approximate 1,000 feet reach of river downstream from the site (ending at Factory Street; see Figures 1 and 1c) was evaluated for potential sediment sampling locations during the reconnaissance. General areas for downstream sampling were selected and agreed upon during the reconnaissance; however, given the lack of sizeable sediment deposits that could be sampled, it was determined that the specific sampling locations would need to be determined based upon subsequent probing results that would be targeted within the general areas.

Sediment Probing

Targeted sediment probing was conducted at sampling locations identified during the reconnaissance; however, given the lack of soft sediment, significant sediment deposits were observed at only 3 of the 25 sampling locations (two behind the upstream dam and one behind the power-generator building). The probing results are included in Table 1.

Sediment Sampling

Sediment sampling focused on three reaches (upstream, adjacent to the site, and downstream) and five main areas/types:

- *Background Sampling* – sampling upstream from the site;
- *Delineation Sampling* – sampling in an area where solidified tar (i.e., "tar patty") was observed on the river's edge adjacent to the site;
- *Floodplain Area Sampling* - sampling in an area where potential "floodplain" deposits exists along the river's edge adjacent to the site;
- *Sampling Near Seep* – sampling where potential petroleum impacts were observed near the mouth of a seep associated with the former landfill area at the downstream edge of the site; and
- *Downstream Sampling* – sampling downstream from the site (i.e., downstream from the site property boundary).

A total of 38 samples (plus quality assurance/quality control [QA/QC] samples) were collected from 25 sampling locations (NG-SR-SD-01 through NG-SR-SD-25) within these areas. All 38 samples were analyzed for alkylated polycyclic aromatic hydrocarbons (PAHs) using modified United States Environmental Protection Agency (USEPA) method SW8270C with select ion monitoring (SIM) and total organic carbon (TOC) by the Lloyd-Kahn method. Two samples (from the seep area) were analyzed for Target Compound List (TCL) volatile organic compounds (VOCs) using USEPA method SW8260. Sediment sampling locations are shown on Figure 1 and Figures 1a through 1c, and the following table summarizes the distribution of samples relative to the areas discussed above.

Area	No. of Sampling Locations	No. of Collected Samples	Sampling IDs	Analyses Performed
Background	5	14	NG-SR-SD-12 → NG-SR-SD-16	Alkylated PAHs/TOC
Tar Delineation	5	5	NG-SR-SD-1 → NG-SR-SD-5	Alkylated PAHs/TOC
Floodplain Area	11	10	NG-SR-SD-6 → NG-SR-SD-11	Alkylated PAHs/TOC
Seep	2	2	NG-SR-SD-24 and NG-SR-SD-25	Alkylated PAHs/TOC/VOCs
Downstream	7	7	NG-SR-SD-17 → NG-SR-SD-21	Alkylated PAHs/TOC
Total	**25**	**38**		

Sediment sampling at each location was initially attempted using methods detailed in the Field Sampling Plan (FSP) included in the NYSDEC-approved *Generic Site Characterization/IRM Work Plan for Site Investigations at Non-Owned Former MGP Sites*, dated November 2002. As discussed in the FSP, sampling was attempted using driven Lexan® tubes; however, alternate sampling methods were required at numerous sampling locations. The sediment sampling procedures employed at each sampling location were as follows:

- The sampling location was probed to estimate the soft sediment depth and water depth.
- Sediment cores were attempted to be collected at each location using one of two methods: 1) driving a 3-inch diameter Lexan® tube into the sediment until four feet or refusal (whichever

was encountered first), and/or 2) driving a steel barrel (i.e., Macrocore®) lined with 2-inch diameter Lexan® tubes and sampling shoe (to hold sediment in the tubing) into the sediment until four feet or refusal (whichever was encountered first). Method 1 was used to collect samples from areas observed to contain obvious soft sediment deposits and Method 2 was attempted in areas where only a few inches of sediment was observed (understanding that sediment would not stay within a Lexane® tubing upon retrieval). It was not uncommon for Method 2 to require numerous attempts to retrieve an adequate sample volume.

Sediment cores retrieved using the above methods were segmented into the following approximate sampling intervals:

  - 0-6 inches
  - 6-12 inches
  - 1-2 feet
  - 2-3 feet
  - 3-4 feet

- The sampling methods described above were unsuccessful at collecting adequate sample volume at several locations. In these instances, samples were collected using a grab sampler (stainless steel scoop).

Sediment samples were described with respect to predominant sediment types, texture, color and moisture content, and headspace screened using a photo-ionization detector (PID). In addition, the presence of odors, sheens, tar, and staining were recorded (if any observed).

Sediment probing and sampling observations are summarized in Table 1.

Data Validation

After laboratory analysis, ARCADIS validated the data and prepared an NYSDEC data usability summary report (DUSR) for each individual sample delivery group (SDG) using the most recent versions of the USEPA's Function Guidelines (USEPA, 1999; 2002) and USEPA Region II SOPs for data validation. The DUSRs include an assessment of data accuracy, precision, and completeness; significant quality assurance problems, solutions, corrections, and potential consequences; and analytical data validation reports. The results of the data validation have been incorporated into the analytical data presented in Tables 2 through 5.

Survey

Sediment elevations and horizontal coordinates for each sediment sample location were surveyed via instrument survey on November 22, 2011. The horizontal coordinates were surveyed relative to the North America Datum of 1983 (NAD83) New York State Plane Coordinate System, East Zone and the elevations were surveyed relative to the 1988 U.S. Geological Survey (USGS) North American Vertical Datum (NAVD88).

Sediment Investigation Results

Physical Characterization

The following information is useful for understanding the physical characterization of the investigated reaches of the Salmon River and the sediments that were encountered during the sampling program:

- Table 1 – Summary of observations made while conducting the sediment sampling.
- Attachment A – Photographic log of collected sediment samples.
- Attachment B – Photographic log of the entire investigated reaches of the river.

Located in Franklin County in the northern part of New York State, the Salmon River flows north and discharges into the St. Lawrence River. The Salmon River is designated by the NYSDEC as a Class C water body, which means that the waters are deemed suitable for fish, shellfish, and wildlife propagation and survival and that the water quality shall be suitable for primary and secondary contact recreation. The reaches of river investigated during the sediment sampling program extend from approximately 900 feet upstream to approximately 1,000 feet downstream from the site. Upstream from the site, the river is channelized and is narrower than the adjacent and downstream reaches. Where channelized, the river tends to be deeper (5 to 10 feet deep) and where the river widens out it becomes shallower (1 to 2 feet deep).

Throughout all investigated reaches, the riverbed consists of quartz and feldspar-rich unsorted sands and gravels with an armoring of cobbles and boulders underlain by bedrock. Due to the high stream energy within the investigated reaches, very little fine-grained sediment is present. Where finer grained sediment is observed, it is limited to isolated pockets located around obstructions - behind the upstream dam and power-generator building, and behind debris, tree roots, and boulders located on the streambed.

The riverbanks immediately upstream from the site and adjacent to southern portion of the site consist of near vertical bedrock ledges and building foundations (where the river passes below the Main Street bridge). Downstream from the site, the banks are relatively moderate to steeply sloped, moderately wooded and heavily vegetated. A “floodplain area” exists immediately adjacent to the site (Figure 1b). This area is heavily vegetated and is approximately 30 feet wide by 250 feet long and is elongated parallel with the river. Since the grade in this area is approximately two to three feet higher than the river level, this area is assumed to be rarely submerged. The soil within the floodplain area consists of boulders and gravel imbedded within finer grained soils. A groundwater seep exists on the downstream edge of the floodplain area (Figure 1b). The seep originates from the toe of the slope in the northern portion of the site where a historical unregulated public dumping ground existed. The area where the seep discharges to the river was probed and observed for potential impacts and two sediment samples were collected (NG-SR-SD-24 and NG-SR-SD-25). The probing and sampling results indicated approximately 3 to 6-inches of the soft sediment with a slight organic odor and relatively minor PID readings (0.5 to 1.8 ppm).

Other than the slight organic odor observed in samples collected in the seep area, no impacts (i.e., staining, sheens, tar, PID readings) were observed in any sediment samples collected during the sediment sampling program (refer to Attachment A for photographs of all collected samples). Possible MGP-related impacts, however, have been observed in the following two areas of the river:

1. Adjacent to the site – A solidified tar patty was observed on the bedrock surface at the base of the slope immediately downslope from the portion of the site where the former MGP structures are located. The edges of the tar patty were delineated during the sediment sampling program. The patty is elongated in the direction of the river and is approximately 30 feet long and extends approximately 5 feet out from the bottom of the slope and into the river. The tar patty appears to have originated from overland flow of tar down the steep slope of the site. Solidified tar was also observed immediately upstream along the National Grid property from the tar patty within widened horizontal bedrock fractures on the vertical rock face. In addition, solidified tar was observed on the side of the former Powerhouse building foundation located along the river's edge in this same area. The photographs in Attachment B show these features.

2. Adjacent to the Carter Property – The location of the Carter Property is shown on Figures 1 and 1c. As documented in a March 2, 2011 *Remedial Investigation Data Summary Report*, solidified pieces of tar have been observed on the western riverbank approximately 300 feet downriver from the site. A forensic evaluation conducted by ARCADIS concluded that the tar pieces had the same chemical composition as the solidified tar observed at the site. Moreover, a test pitting program completed on the Carter Property, as documented in an August 30, 2011 letter to the NYSDEC, concluded that an area of taffy-like tar (approximately 7 to 10 feet in diameter) observed in one test pit excavated near the riverbank likely originated from the site. It appears that the area known as the Roland Carter Property was the historical location of an uncontrolled dumping ground utilized by the public, as evidenced by various sorts of municipal and construction wastes observed in the test pits and on the bank of the river.

A total of 24 outfalls at 12 locations were identified during the sediment sampling program. Outfalls were designated as Outfalls (OF) 1 through 10 (Figure 1). Two of the outfalls (OF-9 and OF-10) were located on the site and the remainder were located upstream from the site. As shown on Figure 1, multiple outfalls were observed at two locations near the bridge (these are not labeled as "OF" on the site mapping). Four approximately 24-inch diameter outfall pipes were observed suspended beneath the upstream bridge – these pipes apparently discharge urban street runoff. Another area of multiple 3-inch diameter outfall pipes (10 to 12 pipes) were observed on the east side of the river, approximately 200 feet upstream from the site – these pipes protrude from a concrete retaining wall.

Chemical Characterization

A total of 25 surface (approximately 0 to 6 inches) sediment samples and 13 subsurface (deeper than approximately 6 inches) sediment samples were collected from 25 locations that fall into the following three categories:

- Upstream/Background - NG-SR-SD-12 → NG-SR-SD-16;
- Adjacent to Site - NG-SR-SD-1 → NG-SR-SD-11 and NG-SR-SD-24 → NG-SR-SD-25; and
- Downstream from Site - NG-SR-SD-17 → NG-SR-SD-23.

Analytical results for these samples are presented in Tables 2 through 5. The sampling locations and total priority pollutant PAH (plus 2-methylnapthalene) concentrations (hereafter referred to as the "Total PAH_{17}") are shown on Figures 1a - 1c. Table 3 also provides a sum of the 34 alkyl and parent PAHs (PAH_{34}) identified by the National Oceanic and Atmospheric Administration (NOAA).
A statistical summary of Total PAH_{17} and Total Organic Carbon (TOC) analytical results for samples collected from each of the areas is presented below:

Summary Statistics for Total PAH_{17} and Total Organic Carbon (TOC)

Area	Total PAH_{17} (mg/kg)			TOC (mg/kg)		
	Range	Mean	Median	Range	Mean	Median
Upstream/Background	0.69 – 12.8	4.2	2.9	1,580 – 14,600	6,970	7,080
Adjacent to Site	1.1 – 28.0	10.8	8.5	2,140 – 63,400	14,424	10,600
Downstream from Site*	1.41 – 290.5	48.1	7.9	3,260 – 19,100	8,724	7,280

*Note that the analytical results for NG-SR-SD-19 skew the summary statistics for downstream samples. The sample collected from NG-SR-SD-19 contained 290.5 mg/kg of Total PAH_{17}. The next highest downstream Total PAH_{17} concentration is 14.13 mg/kg.

The following general observations can be made based on review of the analytical data presented in Table 2, and on Figures 1a through 1c:

- 33 of the 38 sediment samples collected from all reaches contained concentrations of Total PAH_{17} between approximately 0.7 and 15 mg/kg.

- Four surface (0-4 inches or less) samples collected as delineation samples adjacent to the tar patty (NG-SR-SD-01, NG-SR-SD-04, NG-SR-SD-05, and NG-SR-SD-06) contained concentrations of Total PAH_{17} at a slightly higher level (between approximately 20 and 28 mg/kg) than the majority of the samples.

- One of the downstream samples, NG-SR-SD-19 contained the highest concentration of Total PAH_{17} (290.5 mg/kg). This sample was collected at the toe of the bank adjacent to the Carter Property. However, solidified tar pieces were not observed in this sediment sample. As previously mentioned, solidified tar pieces were previously observed on the river bank in this area, and taffy-like tar was also observed in one test pit excavated on the Carter Property. Various sorts of municipal and construction waste have also been observed on the riverbank and in the test pits excavated on the property.

- The two sediment samples collected from the seep area contained concentrations of Total PAH_{17} within the range of the majority of the other sediment samples. As shown in Table 4, both samples contained concentrations of VOCs. The total VOC concentration detected in NG-SR-SD-24(0-3") was 1.36 mg/kg and total VOC concentration detected in NG-SR-SD-25(0-6") was 0.74 mg/kg. Concentrations of 1,2,4,5-tetramethylbenzene comprised the majority of the total VOC concentration in both samples.

Forensic Evaluation

A forensic evaluation was completed to assess the potential source of PAHs in the river sediments. The forensic evaluation is provided in Attachment C. The evaluation concludes that all sediment samples contain PAHs with a pyrogenic origin. The PAH composition and concentrations of the sediment samples is consistent with background combustion product PAHs typical of urban influenced river sediments (Stout et al., 2004). These background combustion product PAHs may have originated from a variety of sources such as forest fires, fuel and coal combustion, anthropogenic burning, and entered the river from general runoff, point discharges and atmospheric deposition.

Most of the samples with background/upstream PAH compositions have relatively low Total PAH_{17} concentrations (i.e., less than 15 mg/kg). Slightly higher concentrations are observed in the delineation samples collected in the area of tar patty (between NG-SR-SD-01 and NG-SR-SD-06). The highest Total PAH_{17} concentration in the adjacent site samples is 28 mg/kg, but most samples are less than 15 mg/kg. Sediment samples NG-SR-SD-01, 04, 05, 06, 07, and 09 collected adjacent to the site appear to contain some coal tar residual PAHs with a compositional signature similar to that of the site. One downstream sediment sample (NG-SR-SD-19), containing the highest concentration of Total PAH_{17} (290.5 mg/kg), also appears to contain coal tar residual PAHs, but the compositional signature is different than that of the site tar.

Some samples upstream (SD-NG-SR-16), adjacent to (NG-SR-SD-05 and NG-SR-SD-25), and downstream from the site (NG-SR-SD-22) appear to contain trace levels of petroleum PAHs as evidenced by the relative slight increase in alkyl groups of the 4-ring PAHs. The potential petroleum contribution is likely a residual mix of heavy oils (e.g., crankcase oil, lube oil).

Screening Levels

Screening levels presented in the NYSDEC Technical Guidance for Screening Contaminated Sediments (1999) were utilized to evaluate the sediment sampling results. Analytical results for individual PAHs were compared to benthic aquatic life acute toxicity, benthic aquatic life chronic toxicity, and human health bioaccumulation screening levels (Table 2). The benthic aquatic acute, benthic aquatic chronic, and human health bioaccumulation toxicity screening levels are presented in micrograms per gram of organic carbon (µg/g OC) and were adjusted for each sample based on sample-specific TOC concentrations. It is important to note that screening level exceedances by themselves should not be considered indicative of potential risk. These screening levels are intended for comparison purposes only and do not solely represent sediment remedial cleanup criteria.

The Total PAH_{17} were compared to Long et al. (1995) effects range-low (ER-L) and effects range-median (ER-M) screening levels as presented in the NYSDEC Technical Guidance for Screening Contaminated Sediments. The ER-L and ER-M are based on matching biological and chemical data compiled from numerous studies. Long et al. (1995) arranged the data from these studies in ascending order of concentrations, and calculated the lower 10th percentile of the effects data (the ER-L) and the median, or 50th percentile, of the effects data (the ER-M). The ER-L and ER-M screening levels define concentration ranges that are said to represent potential for adverse effects. According to Long et al. (1995), "concentrations below the ER-L value represent a minimal-effects range; a range intended to estimate conditions in which effects would rarely be observed. Concentrations equal to and above the ER-L, but below the ER-M, represent a possible-effects range

within which effects would occasionally occur. Finally, concentrations equivalent to and above the ER-M value represent a "probable-effects range within which effects would frequently occur." Screening level exceedances by themselves should not be considered indicative of potential risk, as these values are intended to be used as preliminary screening levels.

Individual analyte concentration comparisons to benthic acute, benthic chronic, and human health bioaccumulation screening levels as well as Total PAH_{17} concentration comparisons to the ER-L and ER-M are shown in Table 2.

Summary and Conclusions

A summary of the sediment sampling program is provided below, followed by National Grid's conclusions based on the sampling results.

- MGP impacts (e.g., tar material) were not observed in any sediment samples collected in this sediment investigation.

- Background Total PAH_{17} concentrations in sediments ranged from 0.69 to 12.8 mg/kg; Total PAH_{17} concentrations in adjacent site samples ranged from 1.1 – 28.0 mg/kg; and Total PAH_{17} concentrations in downstream samples ranged from1.41 to 290.5 mg/kg.

- Most sediment samples in the sampled river reaches had Total PAH_{17} concentrations less than 15 mg/kg, with the exception of four samples adjacent to the site that had concentrations ranging from 20 – 28 mg/kg, and one downstream sample (NG-SR-SD-19; 290.5 mg/kg) collected near the Carter Property.

- Possible MGP-related impacts have been observed in two areas of the river:

    1. A 30-ft long by 5-ft wide hardened tar deposit at the river level, and tar on a bedrock face/within fractures along the river's edge adjacent to the site (these areas are adjacent to each other); and

    2. Solidified disparate pieces of tar embedded within the western bank of the Salmon River along the Carter Property, approximately 300 feet downriver from the site.

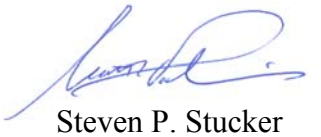
- A forensic PAH evaluation found that all samples have a PAH composition and concentration that are typical of an urban setting. The evaluation also found low levels of coal tar residual PAHs in six samples collected adjacent to the site with compositions similar to tar sampled on the former MGP site. Minor levels of petroleum-related PAHs were also found in upstream, adjacent, and downstream samples.

- The sample collected at NG-SR-SD-19 had the highest Total PAH_{17} concentration - 290.5 mg/kg (the next highest Total PAH_{17} concentration was 27.99 mg/kg). Although PAHs in this sample have a compositional signature resembling coal tar, the signature does not match that of the site-related tar.

- Exceedances of NYSDEC's screening criteria for contaminated sediments were observed throughout the sampled reaches of the river (upstream, adjacent to the site, and downstream).

In summary, minor levels (less than 28 mg/kg) of site-related coal tar residual PAHs appear to be present in a few shallow sediment deposits adjacent to the site; however, site-related PAHs do not appear to be present in sediments downstream from the site. National Grid believes that the nature and extent of potential site-related impacts to the Salmon River have been adequately defined.
I look forward to your review and comments on this report. Please contact me if you have any questions or comments.

Sincerely,


, for
Steven P. Stucker
Environmental Department

Attachments

cc: John Parkinson, Esq., National Grid
Deanna Ripstein, NYSDOH
Mary Jo Crance, NYSDEC
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Tables

TABLE 1
PROBING AND SAMPLING OBSERVATIONS

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID	Date	Location Description	Collection Method	Analysis	Interval	Sediment/Soil Descriptions	Comments	Photo IDs
NG-SR-SD-01	11/8/11	2' diameter sand deposit on downstream side of rock. Location is about 5' into river from survey spike at bedrock face.	Macrocore	Alkylated PAH, TOC	0 - 0.3'	Gray brown fine to coarse sand, with little fine gravel. Water depth approximately 1.8'.	Could only penetrate 0.3' feet of for the sample recovery. Multiple cobbles and large rocks with fast moving river water caused for limited areas to probe and sample.	SD-01, GP-07
				-	0.3'	Bedrock	Exposed Bedrock at edge of water.	
NG-SR-SD-02	11/8/11	1' diameter sand/gravel deposit on downstream of side of exposed rock. Location point is 4' out form survey spike at waters/bedrock edge.	Macrocore	Alkylated PAH, TOC	0 - 0.3'	Gray brown fine to coarse sand, with little/some fine to coarse gravel. Water depth approximately 1.9'.	Could only penetrate 0.6' feet for the 0.3' sample recovery. Multiple cobbles and large rocks with fast moving river water caused for limited areas to probe and sample. Made several attempts to recover more.	SD-02, GP-04, GP-07
				-	0.3'	Bedrock	Exposed Bedrock at edge of water.	
NG-SR-SD-03	11/8/11	Moved rocks to expose underlying sand and gravel area. Location is 5' into river from survey spike at bedrock face. Upstream about 5-6' from upstream extent of exposed tar patty.	Macrocore	Alkylated PAH, TOC	0 - 0.7'	Gray brown fine sand, trace coarse sand, with trace fine to coarse gravel. Water depth approximately 0.8'.	Able to penetrate 1.9', but due to the water flow and the sediment consistency, only able to recover 0.7'.	SD-03
				-	1.9'	Bedrock	Exposed Bedrock at edge of water.	
NG-SR-SD-04	11/8/11	Moved rocks to expose underlying sand and gravel area. Location is at survey spike.	Macrocore	Alkylated PAH, TOC	0 - 0.4'	Gray brown fine to medium sand, trace coarse sand, trace fine to coarse gravel. Water depth approximately 0.8'.	Sample penetration was 1.3' over several attempts in order to create enough sample volume.	SD-04
				-	1.3'	Bedrock	Exposed Bedrock at edge of water.	
NG-SR-SD-05	11/8/11	Moved rocks to expose underlying sand and gravel area. Location is at survey spike along bedrock face. Downstream about 8-10' from downstream extent of exposed tar patty.	Macrocore	Alkylated PAH, TOC	0 - 0.4'	Dark gray brown fine to coarse sand, trace fine to coarse gravel, trace silt. Water depth approximately 0.1'.	Able to penetrate 1.8', but due to sediment consistency and several attempts, only able to recover 0.4'	SD-05, GP-01
				-	1.8'	Bedrock	Exposed Bedrock at edge of water.	
NG-SR-SD-06	11/8/11	Floodplain area. Downgradient of outfall and close to where municipal pipe goes underground.	Macrocore	Alkylated PAH, TOC	0 - 0.7'	Brown fine sand, trace medium to coarse sand, trace fine to coarse gravel. Water depth approximately 0.0'.	Limited probing and penetrating depth due to potential bedrock at bottom.	SD-06
				-	0.9'	Bedrock (assumed)		
NG-SR-SD-07	11/8/11	Floodplain area. Downgradient of outfall and about 20' downstream of SD-06 along river edge.	Macrocore	Alkylated PAH, TOC	[0 - 0.5' 0.5 - 0.8']	Brown fine sand, trace medium to coarse sand. Water depth approximately 0.0'.	Refusal.	SD-07
NG-SR-SD-08	11/8/11	Floodplain area. About 10-12' downstream of SD-07, and about 3-5' inland from rivers edge.	Macrocore	Alkylated PAH, TOC	0 - 0.5'	Dark brown fine sand, trace silt, trace organics (roots). Water depth approximately 0.0'.	Refusal. Due to red brick possible landfill area.	SD-08
					0.5' - 0.9'	Dark Brown fine sand, trace silt, trace brick.		SD-08
NG-SR-SD-09	11/8/11	Floodplain area. About 5-10' downstream of SD-08, and about 3' inland from rivers edge.	Macrocore	Alkylated PAH, TOC	0 - 0.5'	Dark brown fine sand, trace silt, trace organics (roots). Water depth approximately 0.0'.	Refusal.	SD-09
					0.5 - 1.0'	Dark brown fine sand, trace silt, trace organics (roots).		SD-09
					1.0 - 1.3'	Dark brown fine sand, trace silt, trace organics (wood).		SD-09

See Notes on Page 3.

TABLE 1
PROBING AND SAMPLING OBSERVATIONS

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID	Date	Location Description	Collection Method	Analysis	Interval	Sediment/Soil Descriptions	Comments	Photo IDs
NG-SR-SD-10	11/8/11	Floodplain Sampling. About 4' east (out) of survey stake near sand and gravel deposition beyond downstream side of rock.	Macrocore	Alkylated PAH, TOC	0 - 0.5'	Brown fine to medium sand, little coarse sand, little fine to coarse gravel. Water depth approximately 0.9'.	Sampling is between the floodplain and the seep. Several attempts were made to produce enough volume but could only penetrate about 0.7'.	SD-10
NG-SR-SD-11	11/8/11	Floodplain Sampling. About 3' east (out) of survey stake near sand and gravel deposition adjacent to river bank.	Macrocore	Alkylated PAH, TOC	0 - 0.7'	Dark brown fine to medium sand, little coarse sand, little fine to coarse gravel. Water depth approximately 0.8'.	Sampling is between the floodplain and the seep.	SD-11
NG-SR-SD-12	11/9/11	Background Sediment Sampling. East side of river, most upstream, just above dam. Surrounding area is of fine sand deposits, wood debris and other organics.	3" Lexan®	Alkylated PAH, TOC	0 - 0.5'	Brown fine sand, trace organics (roots). Water depth approximately 0.15'.	Refusal caused by wood at bottom.	SD-12
					0.5 - 1.0'	Brown fine sand, trace organics (leaf litter).		SD-12
					1.0 - 1.7'	Brown fine sand, trace organics (leaf litter).		SD-12
NG-SR-SD-13	11/9/11	Background Sediment Sampling. East side of river, just below dam near concrete saddle, under large municipal pipe. Surrounding area is of fine sand deposits over gravel/rock.	3" Lexan® / Macrocore	Alkylated PAH, TOC	0 - 0.7'	Brown fine sand, trace organics (twigs), trace brick. Water depth approximately 0.4'.	Refusal due to river bottom.	SD-13
NG-SR-SD-14	11/9/11	Background Sediment Sampling. West side of river, just upstream of dam, adjacent to bank with about a 30 degree slope into river.	3" Lexan®	Alkylated PAH, TOC	0 - 0.5'	Brown fine sand, trace organics (roots). Water depth approximately 0.5'.	Refusal. Silts over hard river bottom.	SD-14
					0.5 - 1.0'	Brown fine sand, trace organics (roots).		SD-14
					1.0 - 2.0'	Brown fine sand, trace organics (roots), trace silt.		SD-14
					2.0 - 3.0'	Brown fine sand, trace organics (roots), trace silt.		SD-14
NG-SR-SD-15	11/9/11	Background Sediment Sampling. West side of river, about 200' upstream of bridge. Surrounding area is sandgravel deposits between rock.	Macrocore/ grab sample	Alkylated PAH, TOC	0 - 0.5'	Brown fine to coarse sand, little fine to coarse gravel. Water depth approximately 0.7'.	Refusal due to river bottom and reason necessary for grab sample.	SD-15
NG-SR-SD-16	11/9/11	Background Sediment Sampling. East side of river, just upstream of power generator. Surrounding area is of sand deposition downstream side of power generator and west side of river.	3" Lexan®	Alkylated PAH, TOC	0 - 0.5'	Brown fine sand, trace organics (roots). Water depth approximately 0.2'.	Exposed bedrock at edge of water. River rubbish and other debris present. Multiple outfalls in the area in retaining wall above sample area.	SD-16, OF-05,
					0.5 - 1.0'	Brown fine sand, trace organics (roots).		SD-16
					1.0 - 2.0'	Brown fine sand.		SD-16
					2.0 - 3.0'	Brown fine sand, trace organics (wood).		SD-16
					3.0 - 4.0'	Brown fine sand, trace organics (wood).		SD-16
NG-SR-SD-17	11/9/11	Downstream Sampling. West side of river adjacent to Coffee Street, house. About a 2' diameter sand deposit.	Macrocore	Alkylated PAH, TOC	0 - 0.7'	Brown fine sand, little coarse sand, trace fine to coarse gravel. Water depth approximately 0.5'.	Slight non-MGP odor; 0.0 ppm on PID. Refusal due to river bottom.	SD-17
NG-SR-SD-18	11/9/11	Downstream Sampling. West side of river adjacent to Coffee Street turn around. Sand deposits behind logs in river.	Macrocore	Alkylated PAH, TOC	0 - 0.5'	Brown fine sand, little coarse sand, trace fine to coarse gravel. Water depth approximately 0.2'.	Refusal. Two attempts to achieve appropriate volume.	SD-18

See Notes on Page 3.

TABLE 1
PROBING AND SAMPLING OBSERVATIONS

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID	Date	Location Description	Collection Method	Analysis	Interval	Sediment/Soil Descriptions	Comments	Photo IDs
NG-SR-SD-19	11/9/11	Downstream Sampling. West side of river adjacent to TP-2.	Macrocore	Alkylated PAH, TOC	0 - 0.5'	Brown fine to coarse sand, little/some fine to coarse gravel. Water depth approximately 0.5'.	Several attempts made for volume. No natural sediment deposition; sample position taken at the request of NYSDEC.	SD-19
NG-SR-SD-20	11/9/11	Downstream Sampling. West side of river, northern end of Carter property. Sand deposition on edge of river.	Macrocore	Alkylated PAH, TOC	0 - 0.4'	Dark brown fine sand, trace silt, trace fine to coarse gravel. Water depth approximately 0.2'.	Several attempts made for volume.	SD-20
NG-SR-SD-21	11/9/11	Downstream Sampling. West side of river, most downstream extent of downstream sampling.	Macrocore/ grab sample	Alkylated PAH, TOC	0 - 0.5'	Dark brown fine sand, trace organics (wood), trace fine to medium gravel. Water depth approximately 0.2'.	Several attempts made for volume; necessary grab samples.	SD-21
NG-SR-SD-22	11/10/11	Downstream Sampling. East side of river, small sand/gravel deposition along river bank.	Macrocore/ grab sample	Alkylated PAH, TOC	0 - 0.4'	Brown fine to coarse sand, fine to coarse gravel. Water depth approximately 0.2'.	Several attempts made for volume; necessary grab samples.	SD-22
NG-SR-SD-23	11/10/11	Downstream Sampling. East side of river, small sand/gravel deposition about 1' out from river bank.	Macrocore/ grab sample	Alkylated PAH, TOC	0 - 0.3'	Brown fine to coarse sand, fine to medium gravel, trace organics (twigs/vegetation). Water depth approximately 0.6'.	Several attempts made for volume; necessary grab samples.	SD-23
NG-SR-SD-24	11/10/11	Seep Sampling. Sample collected east side of access road, immediately where seep comes out from under road.	Macrocore/ grab sample	Alkylated PAH, TOC, TCL VOCs, Total Solids	0 - 0.3'	Dark brown silt, little organics (roots), trace fine to coarse sand, trace fine to medium gravel, slight odor. Water depth approximately 0.1'.	Several attempts made for volume; necessary grab samples. PID read 1.8 ppm for odor area.	SD-24
NG-SR-SD-25	11/10/11	Seep Sampling. Sample collected east side of access road, where seep returns from being underground prior to flow from river.	Macrocore/ grab sample	Alkylated PAH, TOC, TCL VOCs, Total Solids	0 - 0.5'	Dark brown silt, trace fine sand, little organics (leaf litter/roots), slight odor. Water depth approximately 0.2'.	Several attempts made for volume; necessary grab samples. PID read 0.5 ppm for odor area.	SD-25

Notes:
Macrocore = Two-foot long solid barrel sampler encasing two-foot Lexan® tube to acquire and hold soil sample when pushing into ground.
PAH = Polycyclic Aromatic Hydrocarbons.
TCL VOC = Target Compound List Volatile Organic Compounds.
TOC = Total Organic Compounds.
Depths/Intervals given in feet (').
OF = Out-Fall.
GP = General Photo(s).
(') = Feet.
PID = Photo Ionization Detector.
NYSDEC = New York State Department of Environmental Conservation.

TABLE 2
SUMMARY OF SEDIMENT SAMPLE ANALYTICAL RESULTS - PRIORITY POLLUTANT POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID: Sample Depth(Inches): Date Collected:	Contaminated Sediments Benthic Aquatic Life Acute Toxicity (Bold)	Contaminated Sediments Benthic Aquatic Life Chronic Toxicity (Italics)	Contaminated Sediments Human Health Bioaccumulation (Shade)	Effects Range-Low (ER-L) (Bold)	Effects Range-Median (ER-M) (Shade)	Units	NG-SR-SD-01 0 - 3 11/08/11	NG-SR-SD-02 0 - 3 11/08/11	NG-SR-SD-03 0 - 7 11/08/11	NG-SR-SD-04 0 - 4 11/08/11	NG-SR-SD-05 0 - 4 11/08/11	NG-SR-SD-06 0 - 7 11/08/11
PAHs												
2-Methylnaphthalene	304	34	- -	- -	- -	mg/kg	0.018	0.005	0.037	0.085	0.189	0.024
Acenaphthene	- -	- -	- -	- -	- -	mg/kg	0.310	0.012	0.017	0.122	0.084	0.026
Acenaphthylene	- -	- -	- -	- -	- -	mg/kg	0.063	0.032	0.130	0.397	0.504	0.294
Anthracene	986	107	- -	- -	- -	mg/kg	*1.400*	0.066	0.247	*1.140*	2.880	0.671
Benzo(a)anthracene	94	12	1.3	- -	- -	mg/kg	***2.470***	*0.186*	*0.810*	***1.630***	*2.490*	***1.890***
Benzo(a)pyrene	- -	- -	1.3	- -	- -	mg/kg	2.160	0.194	0.823	1.640	2.260	1.840
Benzo(b)fluoranthene	- -	- -	1.3	- -	- -	mg/kg	1.780	0.167	0.707	1.290	1.790	1.370
Benzo(g,h,i)perylene	- -	- -	- -	- -	- -	mg/kg	1.100	0.124	0.480	0.967	1.070	1.050
Benzo(k)fluoranthene	- -	- -	1.3	- -	- -	mg/kg	1.670	0.155	0.663	1.160	1.670	1.420
Chrysene	- -	- -	1.3	- -	- -	mg/kg	2.140	0.193	0.762	1.450	2.180	1.710
Dibenzo(a,h)anthracene	- -	- -	- -	- -	- -	mg/kg	0.355	0.033	0.156	0.302	0.407	0.380
Fluoranthene	- -	1,020	- -	- -	- -	mg/kg	*4.880*	0.453	1.410	3.670	4.020	3.720
Fluorene	73	8	- -	- -	- -	mg/kg	***0.405***	0.027	0.054	*0.335*	0.494	*0.122*
Indeno(1,2,3-cd)pyrene	- -	- -	- -	- -	- -	mg/kg	1.250	0.131	0.580	1.130	1.320	1.280
Naphthalene	258	30	- -	- -	- -	mg/kg	0.022	0.010	0.116	*0.352*	0.905	0.059
Phenanthrene	- -	120	- -	- -	- -	mg/kg	*3.030*	0.272	0.690	*2.720*	2.590	*1.140*
Pyrene	8,775	961	- -	- -	- -	mg/kg	*3.900*	0.372	1.240	2.920	3.140	2.990
Total PAHs [17]	- -	- -	- -	4	35	mg/kg	**26.95**	2.43	**8.92**	**21.31**	**27.99**	**19.99**

See Notes on Page 5.

TABLE 2
SUMMARY OF SEDIMENT SAMPLE ANALYTICAL RESULTS - PRIORITY POLLUTANT POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID:	NG-SR-SD-07	NG-SR-SD-07	NG-SR-SD-08	NG-SR-SD-08	NG-SR-SD-09	NG-SR-SD-09	NG-SR-SD-09	NG-SR-SD-10	NG-SR-SD-11	NG-SR-SD-12	NG-SR-SD-12	NG-SR-SD-12
Sample Depth(Inches):	0 - 6	6 - 10	0 - 6	6 - 11	0 - 6	6 - 12	12 - 14	0 - 6	0 - 7	0 - 6	6 - 12	12 - 20
Date Collected:	11/08/11	11/08/11	11/08/11	11/08/11	11/08/11	11/08/11	11/08/11	11/08/11	11/08/11	11/09/11	11/09/11	11/09/11
PAHs												
2-Methylnaphthalene	0.012	0.010	0.039	0.009	0.0154 [0.031]	0.008	0.012	0.024	0.021	0.002	0.00444 U [0.00297]	0.002
Acenaphthene	0.039	0.017	0.012	0.003	0.0189 [0.017]	0.004	0.003	0.369	0.162	0.012	0.01 [0.0138]	0.016
Acenaphthylene	0.084	0.084	0.081	0.065	0.125 [0.113]	0.048 J	0.053	0.045	0.134	0.019	0.0199 [0.0168]	0.017
Anthracene	0.248	0.117	0.127	0.040	0.270 [0.494]	0.046 J	0.040	0.384	0.413	0.030	0.0417 J [0.0378]	0.055
Benzo(a)anthracene	*0.803*	*0.444*	*0.418*	0.063	*0.977 [0.714]*	*0.154 J*	0.111	***0.800***	***1.140***	*0.136*	*0.125 J [0.142]*	*0.219*
Benzo(a)pyrene	0.813	0.580	0.468	0.105	0.958 [0.702]	0.183	0.185	0.958	1.190	0.162	0.129 [0.159]	0.222
Benzo(b)fluoranthene	0.700	0.477	0.428	0.097	0.816 [0.602]	0.161 J	0.173	0.920	1.050	0.167	0.119 [0.159]	0.234
Benzo(g,h,i)perylene	0.510	0.439	0.307	0.204	0.591 [0.439]	0.165 J	0.173	0.637	0.762	0.129	0.0856 [0.12]	0.157
Benzo(k)fluoranthene	0.636	0.424	0.357	0.083	0.729 [0.559]	0.146 J	0.141	0.679	0.911	0.144	0.116 J [0.14]	0.200
Chrysene	0.713	0.409	0.388	0.066	0.867 [0.716]	0.153 J	0.128	0.864	1.140	0.171	0.137 J [0.169]	0.252
Dibenzo(a,h)anthracene	0.171	0.110	0.089	0.035	0.210 [0.132]	0.041 J	0.045	0.168	0.226	0.032	0.0237 [0.03]	0.046
Fluoranthene	1.440	0.858	0.807	0.060	1.580 [1.23]	0.234	0.167	2.230	2.590	0.390	0.319 [0.414]	0.514
Fluorene	0.065	0.025	0.028	0.003	0.047 [0.059]	0.007 J	0.005	*0.327*	*0.184*	0.013	0.0159 [0.0168]	0.020
Indeno(1,2,3-cd)pyrene	0.595	0.452	0.339	0.174	0.689 [0.50]	0.160 J	0.180	0.687	0.847	0.126	0.0914 [0.123]	0.172
Naphthalene	0.034	0.032	0.172	0.014	0.0432 [0.042]	0.0098 J	0.013	0.019	0.038	0.004	0.00444 U [0.00548]	0.003
Phenanthrene	0.499	0.290	0.387	0.014	0.478 [0.493]	0.077 J	0.068	*1.920*	*1.640*	0.198	0.158 J [0.248]	0.256
Pyrene	1.130	0.762	0.685	0.067	1.33 [1.04]	0.210	0.166	1.740	2.130	0.313	0.263 [0.328]	0.399
Total PAHs [17]	**8.49**	**5.53**	**5.13**	1.10	**9.744 [7.884]**	1.807 J	1.66	**12.77**	**14.58**	2.05	1.6542 J [2.12565]	2.78

See Notes on Page 5.

TABLE 2
SUMMARY OF SEDIMENT SAMPLE ANALYTICAL RESULTS - PRIORITY POLLUTANT POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID:	NG-SR-SD-13	NG-SR-SD-14	NG-SR-SD-14	NG-SR-SD-14	NG-SR-SD-14	NG-SR-SD-15	NG-SR-SD-16	NG-SR-SD-16	NG-SR-SD-16	NG-SR-SD-16	NG-SR-SD-16	NG-SR-SD-17
Sample Depth(Inches):	0 - 7	0 - 6	6 - 12	12 - 24	24 - 36	0 - 6	0 - 6	6 - 12	12 - 24	24 - 36	36 - 48	0 - 7
Date Collected:	11/09/11	11/09/11	11/09/11	11/09/11	11/09/11	11/09/11	11/09/11	11/09/11	11/09/11	11/09/11	11/09/11	11/09/11
PAHs												
2-Methylnaphthalene	0.001	0.034	0.015	0.0171 [0.0432]	0.011	0.004	0.0101 U	0.006	0.001	0.001	0.001	0.057
Acenaphthene	0.006	0.050	0.031	0.0428 [0.0325]	0.016	0.018	0.052	0.027	0.008	0.003	0.005	0.145
Acenaphthylene	0.022	0.223	0.144	0.111 [0.123]	0.073	0.152	0.305	0.188	0.019	0.009	0.014	0.211
Anthracene	0.035	0.263	0.166	0.181 [0.151]	0.080	0.199	0.304	0.206	0.033	0.016	0.021	*0.644*
Benzo(a)anthracene	*0.121*	*0.587*	*0.441*	*0.411 [0.402]*	*0.203*	*0.797*	***1.010***	***0.606***	*0.119*	*0.058*	*0.060*	***1.120***
Benzo(a)pyrene	0.138	0.620	0.521	0.464 [0.45]	0.252	0.784	1.300	0.698	0.128	0.057	0.065	1.000
Benzo(b)fluoranthene	0.129	0.542	0.398	0.384 [0.339]	0.222	0.685	1.030	0.572	0.115	0.052	0.059	0.757
Benzo(g,h,i)perylene	0.089	0.395	0.304	0.263 [0.249]	0.157	0.434	0.799	0.399	0.078	0.037	0.040	0.539
Benzo(k)fluoranthene	0.119	0.484	0.375	0.373 [0.329]	0.210	0.592	1.010	0.518	0.109	0.048	0.056	0.765
Chrysene	0.138	0.627	0.459	0.416 [0.41]	0.249	0.729	1.060	0.566	0.118	0.060	0.070	1.050
Dibenzo(a,h)anthracene	0.026	0.131	0.103	0.0862 [0.0805]	0.047	0.149	0.260	0.133	0.026	0.012	0.012	0.184
Fluoranthene	0.259	1.130	0.783	0.892 [0.784]	0.513	1.220	2.090	0.990	0.246	0.128	0.173	2.480
Fluorene	0.008	*0.113*	0.048	0.0514 [0.0425]	0.030	0.022	0.050	0.022	0.011	0.004	0.007	***0.327***
Indeno(1,2,3-cd)pyrene	0.096	0.451	0.347	0.298 [0.278]	0.172	0.495	0.881	0.430	0.087	0.041	0.044	0.609
Naphthalene	0.002	0.033	0.023	0.0213 [0.0394]	0.0163 J	0.008	0.021	0.012	0.003	0.002	0.002	0.014
Phenanthrene	0.117	0.839	0.433	0.506 [0.387]	0.308	0.371	0.776	0.238	0.119	0.049	0.101	*2.030*
Pyrene	0.218	1.040	0.776	0.794 [0.727]	0.456	1.120	1.810	0.880	0.209	0.107	0.144	2.200
Total PAHs [17]	1.52	**7.56**	**5.37**	**5.3118 [4.8671]**	3.015 J	**7.78**	**12.76**	**6.49**	1.43	0.69	0.87	**14.13**

See Notes on Page 5.

TABLE 2
SUMMARY OF SEDIMENT SAMPLE ANALYTICAL RESULTS - PRIORITY POLLUTANT POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID:	NG-SR-SD-18	NG-SR-SD-19	NG-SR-SD-20	NG-SR-SD-21	NG-SR-SD-22	NG-SR-SD-23	NG-SR-SD-24	NG-SR-SD-25
Sample Depth(Inches):	0 - 5	0 - 5	0 - 4	0 - 6	0 - 4	0 - 3	0 - 3	0 - 6
Date Collected:	11/09/11	11/09/11	11/09/11	11/09/11	11/10/11	11/10/11	11/10/11	11/10/11
PAHs								
2-Methylnaphthalene	0.025	0.347	0.010	0.005	0.004	0.002	0.010	0.019
Acenaphthene	0.267	0.686	0.070	0.014	0.009	0.010	0.101	0.139
Acenaphthylene	0.038	2.480	0.050	0.050	0.043	0.023	0.052	0.124
Anthracene	0.342	***23.100***	0.190	0.142	0.052	0.042	0.357	0.175
Benzo(a)anthracene	***0.898***	***26.600***	*0.646*	***0.623***	*0.105*	*0.142*	*0.648*	*0.516*
Benzo(a)pyrene	1.040	22.200	0.620	0.649	0.124	0.150	0.610	0.637
Benzo(b)fluoranthene	1.060	16.500	0.596	0.562	0.108	0.158	0.591	0.657
Benzo(g,h,i)perylene	0.681	8.060	0.392	0.428	0.079	0.114	0.413	0.511
Benzo(k)fluoranthene	0.759	10.600	0.487	0.513	0.101	0.122	0.517	0.559
Chrysene	1.020	21.200	0.652	0.617	0.121	0.160	0.648	0.654
Dibenzo(a,h)anthracene	0.212	3.350	0.129	0.130	0.025	0.033	0.134	0.130
Fluoranthene	2.480	*55.900*	1.460	1.160	0.226	0.352	1.400	1.310
Fluorene	*0.284*	***4.640***	0.082	0.032	0.010	0.012	0.108	0.107
Indeno(1,2,3-cd)pyrene	0.740	10.600	0.451	0.478	0.086	0.127	0.472	0.503
Naphthalene	0.043	0.440	0.021	0.011	0.006	0.004	0.079	0.036
Phenanthrene	*1.960*	*40.300*	0.869	0.360	0.096	0.166	0.907	0.524
Pyrene	1.920	*43.500*	1.190	0.958	0.212	0.288	1.150	1.110
Total PAHs [17]	**13.77**	**290.50**	**7.91**	**6.73**	1.41	1.90	**8.20**	**7.71**

See Notes on Page 5.

TABLE 2
SUMMARY OF SEDIMENT SAMPLE ANALYTICAL RESULTS - PRIORITY POLLUTANT POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Notes:

1. New York State Department of Environmental Conservation (NYSDEC) contaminated sediments levels of protection are from Technical Guidance for Screening Contaminated Sediments. NYSDEC, 1999.
2. Effects Range-Low (ER-L) and Effects Range-Median (ER-M) screening levels for total PAHs are from Table 70, Long and Morgan 1990 published in NYSDEC's Technical Guidance for Screening Contaminated Sediments. NYSDEC, 1999.
3. Benthic aquatic acute, benthic aquatic chronic, and human health bioaccumulation criteria were adjusted for each sample based on sample-specific Total Organic Carbon (TOC) concentrations.
4. Field duplicates are shown in brackets preceding the parent sample.

J - Indicates an estimated value.
U - The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
mg/kg - milligrams per kilogram.

TABLE 3
SUMMARY OF SEDIMENT SAMPLE ANALYTICAL RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS (PAHS)

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID:		NG-SR-SD-01	NG-SR-SD-02	NG-SR-SD-03	NG-SR-SD-04	NG-SR-SD-05	NG-SR-SD-06	NG-SR-SD-07	NG-SR-SD-07	NG-SR-SD-08	NG-SR-SD-08
Sample Depth():		0 - 3	0 - 3	0 - 7	0 - 4	0 - 4	0 - 7	0 - 6	6 - 10	0 - 6	6 - 11
Date Collected:	Units	11/08/11	11/08/11	11/08/11	11/08/11	11/08/11	11/08/11	11/08/11	11/08/11	11/08/11	11/08/11
Cis/Trans-Decalin	mg/kg	0.00104	0.000431	0.000901	0.00116	0.0184	0.000584	0.000626	0.000618	0.00228	0.00068
C1-Decalins	mg/kg	0.00157 U	0.00203	0.00111	0.00155	0.0168	0.018	0.00122	0.00112	0.0032	0.00181
C2-Decalins	mg/kg	0.00157 U	0.00199	0.00148	0.00308	0.0183	0.00247	0.00194	0.00183	0.00475	0.00343
C3-Decalins	mg/kg	0.00157 U	0.00177	0.00143	0.00236	0.0114	0.00205	0.00163	0.000927 U	0.00357	0.00281
C4-Decalins	mg/kg	0.00157 U	0.00331	0.00265	0.00536	0.0194	0.00441	0.00293	0.00322	0.00677	0.00454
Naphthalene	mg/kg	0.0222	0.00968	0.116	0.352	0.905	0.0591	0.0339	0.0323	0.172	0.0137
C1-Naphthalenes	mg/kg	0.026	0.00515	0.0342	0.0917	0.212	0.0235	0.0137	0.0118	0.0412	0.00836
C2-Naphthalenes	mg/kg	0.0774	0.00884	0.0499	0.207	0.4	0.0797	0.0264	0.0193	0.0566	0.00776
C3-Naphthalenes	mg/kg	0.0801	0.00916	0.0645	0.206	0.497	0.168	0.0429	0.0226	0.0676	0.00965
C4-Naphthalenes	mg/kg	0.033	0.00578	0.0378	0.0996	0.292	0.108	0.0303	0.0154	0.0411	0.0106
Benzothiophene	mg/kg	0.00157 U	0.000763 U	0.00999	0.0204	0.0753	0.00645	0.0031	0.00205	0.00841	0.00109
C1-Benzo(b)thiophenes	mg/kg	0.00157 U	0.000763 U	0.00327	0.00785	0.0173	0.0029	0.00152	0.00148	0.00336	0.00204
C2-Benzo(b)thiophenes	mg/kg	0.00383	0.00132	0.00301	0.0113	0.0182	0.00406	0.00178	0.0019	0.00247	0.00146
C3-Benzo(b)thiophenes	mg/kg	0.00566	0.00248	0.0047	0.013	0.0242	0.00935	0.00298	0.00298	0.00386	0.00231
C4-Benzo(b)thiophenes	mg/kg	0.0032	0.00178	0.00256	0.0058	0.015	0.00668	0.00203	0.00174	0.00205	0.00163
1,1'-Biphenyl	mg/kg	0.0077	0.00308	0.0138	0.0609	0.0828	0.00878	0.00465	0.00451	0.0176	0.00203
Dibenzofuran	mg/kg	0.122	0.0158	0.055	0.271	0.285	0.0503	0.0275	0.0157	0.0753	0.00265
Acenaphthylene	mg/kg	0.0628	0.0317	0.13	0.397	0.504	0.294	0.0837	0.0835	0.0808	0.0654
Acenaphthene	mg/kg	0.31	0.0122	0.0174	0.122	0.0839	0.0264	0.0389	0.0169	0.0119	0.00262
Fluorene	mg/kg	0.405	0.027	0.0541	0.335	0.494	0.122	0.0647	0.0247	0.0276	0.00279
C1-Fluorenes	mg/kg	0.133	0.00769	0.05	0.167	0.328	0.15	0.046	0.0192	0.0226	0.00414
C2-Fluorenes	mg/kg	0.0832	0.00696	0.0653	0.164	0.375	0.177	0.0494	0.0271	0.0357	0.0103
C3-Fluorenes	mg/kg	0.154 J	0.0195 J	0.1 J	0.12 J	0.293 J	0.202 J	0.0768 J	0.0392 J	0.0529 J	0.0144 J
Dibenzothiophene	mg/kg	0.166	0.0151	0.0385	0.15	0.155	0.0622	0.0279	0.0163	0.0214	0.00136
C1-Dibenzothiophenes	mg/kg	0.112	0.00981	0.0433	0.092	0.204	0.115	0.0348	0.0208	0.0227	0.0026
C2-Dibenzothiophenes	mg/kg	0.0762	0.0114	0.0398	0.0732	0.172	0.114	0.0335	0.0241	0.0221	0.00566
C3-Dibenzothiophenes	mg/kg	0.0502	0.00946	0.0292	0.0575	0.122	0.0752	0.0237	0.0229	0.0406	0.00691
C4-Dibenzothiophenes	mg/kg	0.0305	0.00649	0.0187	0.0344	0.076	0.0408	0.0133	0.0119	0.0101	0.00469
Anthracene	mg/kg	1.4	0.0655	0.247	1.14	2.88	0.671	0.248	0.117	0.127	0.0401
Phenanthrene	mg/kg	3.03	0.272	0.69	2.72	2.59	1.14	0.499	0.29	0.387	0.0139
C1-Phenanthrenes/Anthracenes	mg/kg	1.33	0.0818	0.512	1.19	2.59	1.37	0.387	0.184	0.25	0.0337
C2-Phenanthrenes/Anthracenes	mg/kg	0.546	0.0477	0.324	0.703	1.62	0.896	0.269	0.129	0.18	0.038
C3-Phenanthrenes/Anthracenes	mg/kg	0.175	0.0193	0.141	0.304	0.72	0.34	0.102	0.0544	0.0842	0.0242
C4-Phenanthrenes/Anthracenes	mg/kg	0.0563	0.00793	0.0487	0.0991	0.253	0.102	0.0325	0.0239	0.0341	0.0121
Carbazole	mg/kg	0.246	0.0234	0.0633	0.112	0.496	0.0468	0.0425	0.0389	0.0314	0.00491
Fluoranthene	mg/kg	4.88	0.453	1.41	3.67	4.02	3.72	1.44	0.858	0.807	0.0596
Pyrene	mg/kg	3.9	0.372	1.24	2.92	3.14	2.99	1.13	0.762	0.685	0.0674
C1-Fluoranthenes/Pyrenes	mg/kg	2.3	0.156	0.889	1.8	3.55	2.07	0.771	0.375	0.403	0.0665
C2-Fluoranthenes/Pyrenes	mg/kg	0.788	0.0748	0.482	0.785	1.67	1.15	0.383	0.2	0.23	0.053
C3-Fluoranthenes/Pyrenes	mg/kg	0.302	0.036	0.207	0.354	0.872	0.469	0.157	0.0885	0.11	0.0392
C4-Fluoranthenes/Pyrenes	mg/kg	0.21	0.0268	0.136	0.205	0.525	0.293	0.0955	0.061	0.0772	0.0281

See Notes on Page 9.

TABLE 3
SUMMARY OF SEDIMENT SAMPLE ANALYTICAL RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS (PAHS)

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID:		NG-SR-SD-01	NG-SR-SD-02	NG-SR-SD-03	NG-SR-SD-04	NG-SR-SD-05	NG-SR-SD-06	NG-SR-SD-07	NG-SR-SD-07	NG-SR-SD-08	NG-SR-SD-08
Sample Depth():		0 - 3	0 - 3	0 - 7	0 - 4	0 - 4	0 - 7	0 - 6	6 - 10	0 - 6	6 - 11
Date Collected:	Units	11/08/11	11/08/11	11/08/11	11/08/11	11/08/11	11/08/11	11/08/11	11/08/11	11/08/11	11/08/11
Naphthobenzothiophene	mg/kg	0.547	0.0514	0.171	0.308	0.475	0.358	0.155	0.0941	0.094	0.0141
C1-Naphthobenzothiophenes	mg/kg	0.239	0.0278	0.106	0.171	0.391	0.23	0.0812	0.0531	0.0532	0.016
C2-Naphthobenzothiophenes	mg/kg	0.152	0.0282	0.0646	0.0957	0.244	0.123	0.0404	0.037	0.0323	0.0124
C3-Naphthobenzothiophenes	mg/kg	0.118	0.0272	0.0485	0.0624	0.142	0.0692	0.0257	0.0329	0.022	0.0125
C4-Naphthobenzothiophenes	mg/kg	0.0845	0.0232	0.0326	0.0351	0.0818	0.0316	0.0117	0.0229	0.013	0.00905
Benzo(a)anthracene	mg/kg	2.47	0.186	0.81	1.63	2.49	1.89	0.803	0.444	0.418	0.0634
Chrysene	mg/kg	2.14	0.193	0.762	1.45	2.18	1.71	0.713	0.409	0.388	0.0661
C1-Chrysenes	mg/kg	0.853	0.0721	0.41	0.763	1.52	1.16	0.368	0.259	0.202	0.0484
C2-Chrysenes	mg/kg	0.339	0.0433	0.216	0.419	0.9	0.584	0.18	0.289	0.118	0.0354
C3-Chrysenes	mg/kg	0.26	0.0378	0.18	0.322	0.754	0.438	0.142	0.317	0.101	0.0378
C4-Chrysenes	mg/kg	0.107	0.0228	0.0852	0.141	0.342	0.192	0.0619	0.0316	0.0541	0.0278
Benzo(b)fluoranthene	mg/kg	1.78	0.167	0.707	1.29	1.79	1.37	0.7	0.477	0.428	0.0967
Benzo(k)fluoranthene	mg/kg	1.67	0.155	0.663	1.16	1.67	1.42	0.636	0.424	0.357	0.0827
Benzo(a)fluoranthene	mg/kg	0.455	0.0325	0.194	0.401	0.64	0.523	0.195	0.123	0.107	0.0494
Benzo(e)Pyrene	mg/kg	1.2	0.125	0.508	0.952	1.23	1.21	0.495	0.374	0.308	0.106
Benzo(a)pyrene	mg/kg	2.16	0.194	0.823	1.64	2.26	1.84	0.813	0.58	0.468	0.105
Perylene	mg/kg	0.549	0.0519	0.214	0.486	0.558	0.567	0.228	0.172	0.127	0.0312
Indeno(1,2,3-cd)pyrene	mg/kg	1.25	0.131	0.58	1.13	1.32	1.28	0.595	0.452	0.339	0.174
Dibenzo(a,h)anthracene	mg/kg	0.355	0.033	0.156	0.302	0.407	0.38	0.171	0.11	0.0892	0.0353
Benzo(g,h,i)perylene	mg/kg	1.1	0.124	0.48	0.967	1.07	1.05	0.51	0.439	0.307	0.204
2-Methylnaphthalene	mg/kg	0.0184	0.00457	0.0365	0.0846	0.189	0.0235	0.0118	0.0104	0.0387	0.00882
1-Methylnaphthalene	mg/kg	0.0249	0.00378	0.0198	0.0659	0.163	0.0147	0.0109	0.00909	0.0288	0.00475
2,6-Dimethylnaphthalene	mg/kg	0.031	0.00415	0.0218	0.112	0.18	0.0351	0.0101	0.00676	0.0184	0.00307
2,3,5-Trimethylnaphthalene	mg/kg	0.0147	0.00151	0.0126	0.0404	0.101	0.0324	0.00835	0.0042	0.0121	0.00132
4-Methyldibenzothiophene(4MDT)	mg/kg	0.0302	0.00307	0.0103	0.0214	0.0471	0.0282	0.00934	0.00587	0.00578	0.00103
2/3-Methyldibenzothiophene(2MDT)	mg/kg	0.0432	0.00351	0.0165	0.0346	0.0796	0.0434	0.0134	0.00784	0.00938	0.000855 U
1-Methyldibenzothiophene(1MDT)	mg/kg	0.0141	0.00121	0.00547	0.0115	0.0246	0.0141	0.00414	0.00258	0.00313	0.000855 U
3-Methylphenanthrene (3MP)	mg/kg	0.294	0.0181	0.101	0.242	0.457	0.248	0.0661	0.0352	0.0482	0.00389
2/4-Methylphenanthrene (2MP)	mg/kg	0.389	0.0246	0.142	0.324	0.657	0.371	0.106	0.0489	0.071	0.00616
2-Methylanthracene (2MA)	mg/kg	0.221	0.00967	0.0859	0.233	0.623	0.254	0.0689	0.0292	0.0352	0.00774
9-Methylphenanthrene (9MP)	mg/kg	0.242	0.0151	0.102	0.242	0.496	0.288	0.084	0.0398	0.0521	0.0105
1-Methylphenanthrene (1MP)	mg/kg	0.171	0.0121	0.0728	0.14	0.324	0.19	0.0567	0.0272	0.0395	0.00413
Retene	mg/kg	0.00157 U	0.000763 U	0.000863 U	0.000834 U	0.00183 U	0.000817 U	0.000768 U	0.000927 U	0.000902 U	0.000855 U
Benzo(b)fluorene	mg/kg	0.816	0.0428	0.233	0.554	1.04	0.479	0.199	0.08	0.101	0.0105
Total PAHs [17]	mg/kg	26.95	2.43	8.92	21.31	27.99	19.99	8.49	5.53	5.13	1.10
Total PAHs [34]	mg/kg	33.60 J	3.00 J	12.20 J	28.40 J	42.70 J	28.40 J	11.20 J	7.47 J	6.49 J	1.54 J
Total PAHs	mg/kg	38.96 J	3.59 J	14.59 J	32.80 J	51.11 J	33.62 J	13.17 J	8.77 J	8.29 J	1.91 J

See Notes on Page 9.

TABLE 3
SUMMARY OF SEDIMENT SAMPLE ANALYTICAL RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS (PAHS)

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID:		NG-SR-SD-09	NG-SR-SD-09	NG-SR-SD-09	NG-SR-SD-10	NG-SR-SD-11	NG-SR-SD-12	NG-SR-SD-12	NG-SR-SD-12	NG-SR-SD-13
Sample Depth():		0 - 6	6 - 12	12 - 14	0 - 6	0 - 7	0 - 6	6 - 12	12 - 20	0 - 7
Date Collected:	Units	11/08/11	11/08/11	11/08/11	11/08/11	11/08/11	11/09/11	11/09/11	11/09/11	11/09/11
Cis/Trans-Decalin	mg/kg	0.000925 [0.00117]	0.00128	0.000782	0.00941	0.00153 U	0.000436 U	0.00345 J [0.000429] UJ	0.00114	0.000409 U
C1-Decalins	mg/kg	0.00204 [0.00165]	0.00164	0.00358	0.0142	0.00318	0.000871 U	0.00444 U [0.000858] U	0.00146 U	0.000819 U
C2-Decalins	mg/kg	0.00262 [0.00248]	0.00259	0.00636	0.0101	0.00593	0.0013	0.00444 U [0.000858] U	0.00146 U	0.000819 U
C3-Decalins	mg/kg	0.00226 [0.00201]	0.00162	0.00506	0.00307 U	0.00305 U	0.000871 U	0.00444 U [0.000858] U	0.00146 U	0.000819 U
C4-Decalins	mg/kg	0.0039 [0.00404]	0.00239	0.00624	0.00307 U	0.00305 U	0.000871 U	0.00444 U [0.000858] U	0.00146 U	0.000819 U
Naphthalene	mg/kg	0.0432 [0.0424]	0.00984 J	0.0128	0.0191	0.0381	0.0036	0.00444 U [0.00548]	0.00314	0.0018
C1-Naphthalenes	mg/kg	0.0171 [0.0324]	0.00941	0.0114	0.0288	0.0238	0.00243	0.00444 U [0.00334]	0.00282	0.00142
C2-Naphthalenes	mg/kg	0.0381 [0.0527]	0.0198	0.0107	0.0492	0.0562	0.0054	0.0192 J [0.00577] J	0.0091	0.0037
C3-Naphthalenes	mg/kg	0.0649 [0.0596]	0.0229	0.00696	0.0574	0.0753	0.00519	0.0168 [0.00612]	0.00948	0.00477
C4-Naphthalenes	mg/kg	0.0431 [0.0354]	0.0121	0.00547	0.036	0.0437	0.0029	0.0109 J [0.00321] J	0.00572	0.0035
Benzothiophene	mg/kg	0.00346 [0.00255]	0.000932	0.00129	0.00307 U	0.00305 U	0.000871 U	0.00444 U [0.000858] U	0.00146 U	0.000819 U
C1-Benzo(b)thiophenes	mg/kg	0.00223 [0.00209]	0.00208	0.00318	0.0086	0.00351	0.000871 U	0.00444 U [0.000858] U	0.00232	0.000819 U
C2-Benzo(b)thiophenes	mg/kg	0.00326 [0.00295]	0.0012	0.0014	0.00661	0.00577	0.000871 U	0.0063 [0.000866] J	0.0021	0.000819 U
C3-Benzo(b)thiophenes	mg/kg	0.00456 [0.00399]	0.00182	0.00164	0.0123	0.0102	0.00203	0.00988 J [0.00199]	0.00404	0.00186
C4-Benzo(b)thiophenes	mg/kg	0.00516 [0.00262]	0.00122	0.000951 U	0.00759	0.0073	0.000871 U	0.00444 U [0.000863]	0.0019	0.000962
1,1'-Biphenyl	mg/kg	0.00567 [0.00722]	0.00235	0.00188	0.0132	0.0093	0.00158	0.00444 U [0.00196]	0.00189	0.000819 U
Dibenzofuran	mg/kg	0.0248 [0.0327]	0.00437	0.00565	0.169	0.0866	0.00594	0.00612 [0.0102]	0.00831	0.00312
Acenaphthylene	mg/kg	0.125 [0.113]	0.0481 J	0.053	0.0446	0.134	0.019	0.0199 [0.0168]	0.0171	0.0218
Acenaphthene	mg/kg	0.0189 [0.0173]	0.00354	0.00345	0.369	0.162	0.0118	0.01 [0.0138]	0.016	0.00605
Fluorene	mg/kg	0.0465 [0.0589]	0.00745 J	0.00527	0.327	0.184	0.013	0.0159 [0.0168]	0.0203	0.00757
C1-Fluorenes	mg/kg	0.0521 [0.041]	0.00971	0.00425	0.0528	0.0721	0.00487	0.0145 [0.00544]	0.00776	0.00463
C2-Fluorenes	mg/kg	0.0723 [0.0512]	0.017	0.0074	0.0397	0.0746	0.0068	0.0161 [0.00677]	0.01	0.00812
C3-Fluorenes	mg/kg	0.0841 J [0.0678] J	0.0211 J	0.0172 J	0.139 J	0.17 J	0.0287 J	0.00444 UJ [0.0298] J	0.0298 J	0.0183 J
Dibenzothiophene	mg/kg	0.0263 [0.0261]	0.00407	0.00398	0.131	0.0966	0.0106	0.00825 [0.013]	0.0136	0.00627
C1-Dibenzothiophenes	mg/kg	0.0447 [0.0345]	0.0065	0.00237	0.0478	0.0794	0.00608	0.00751 [0.00627]	0.00856	0.00665
C2-Dibenzothiophenes	mg/kg	0.0477 [0.0342]	0.0103	0.0052	0.0351	0.081	0.00755	0.0123 [0.00756]	0.0122	0.0113
C3-Dibenzothiophenes	mg/kg	0.0347 [0.0249]	0.00807	0.00574	0.0342	0.0626	0.00755	0.0137 [0.00624]	0.0104	0.0131
C4-Dibenzothiophenes	mg/kg	0.0208 [0.0148]	0.00563	0.00423	0.0308	0.0424	0.00424	0.00444 U [0.00419]	0.00903	0.00744
Anthracene	mg/kg	0.27 [0.494]	0.0456 J	0.0399	0.384	0.413	0.0304	0.0417 J [0.0378]	0.0546	0.0353
Phenanthrene	mg/kg	0.478 [0.493]	0.0774 J	0.0678	1.92	1.64	0.198	0.158 J [0.248]	0.256	0.117
C1-Phenanthrenes/Anthracenes	mg/kg	0.51 [0.447]	0.0865	0.0407	0.328	0.666	0.0568	0.0698 [0.0666]	0.0822	0.0538
C2-Phenanthrenes/Anthracenes	mg/kg	0.377 [0.289]	0.0698	0.0341	0.138	0.372	0.0326	0.0379 [0.0358]	0.0477	0.0432
C3-Phenanthrenes/Anthracenes	mg/kg	0.15 [0.113]	0.0313	0.0176	0.0551	0.147	0.013	0.0214 [0.0144]	0.0206	0.0222
C4-Phenanthrenes/Anthracenes	mg/kg	0.0473 [0.034]	0.0122	0.00851	0.0307	0.0577	0.00714	0.0187 [0.00647]	0.0108	0.0109
Carbazole	mg/kg	0.035 [0.0871]	0.00783	0.0141	0.211	0.149	0.0249	0.0179 [0.0264]	0.031	0.0133
Fluoranthene	mg/kg	1.58 [1.23]	0.234	0.167	2.23	2.59	0.39	0.319 [0.414]	0.514	0.259
Pyrene	mg/kg	1.33 [1.04]	0.21	0.166	1.74	2.13	0.313	0.263 [0.328]	0.399	0.218
C1-Fluoranthenes/Pyrenes	mg/kg	0.985 [0.737]	0.154	0.0944	0.589	1.04	0.123	0.122 [0.122]	0.185	0.119
C2-Fluoranthenes/Pyrenes	mg/kg	0.559 [0.36]	0.096	0.0748	0.255	0.53	0.0777	0.0719 [0.0703]	0.102	0.0731
C3-Fluoranthenes/Pyrenes	mg/kg	0.236 [0.153]	0.0557	0.0381	0.118	0.237	0.0332	0.0311 [0.0274]	0.0465	0.0383
C4-Fluoranthenes/Pyrenes	mg/kg	0.136 [0.0958]	0.0378	0.0284	0.104	0.169	0.0285	0.0245 [0.0221]	0.0351	0.0306

See Notes on Page 9.

TABLE 3
SUMMARY OF SEDIMENT SAMPLE ANALYTICAL RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS (PAHS)

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID:		NG-SR-SD-09		NG-SR-SD-09	NG-SR-SD-09	NG-SR-SD-10	NG-SR-SD-11	NG-SR-SD-12	NG-SR-SD-12		NG-SR-SD-12	NG-SR-SD-13
Sample Depth():		0 - 6		6 - 12	12 - 14	0 - 6	0 - 7	0 - 6	6 - 12		12 - 20	0 - 7
Date Collected:	Units	11/08/11		11/08/11	11/08/11	11/08/11	11/08/11	11/09/11	11/09/11		11/09/11	11/09/11
Naphthobenzothiophene	mg/kg	0.199	[0.144]	0.0338	0.025	0.231	0.29	0.0484	0.0346	[0.0446]	0.0754	0.0405
C1-Naphthobenzothiophenes	mg/kg	0.117	[0.081]	0.0249	0.0186	0.097	0.165	0.023	0.0216	[0.0188]	0.0334	0.0293
C2-Naphthobenzothiophenes	mg/kg	0.0619	[0.0445]	0.0175	0.0146	0.133	0.159	0.0223	0.0187	[0.0157]	0.0317	0.0268
C3-Naphthobenzothiophenes	mg/kg	0.042	[0.0293]	0.0137	0.0144	0.154	0.142	0.0205	0.0184	[0.0143]	0.0295	0.0222
C4-Naphthobenzothiophenes	mg/kg	0.0285	[0.0192]	0.0122	0.013	0.141	0.111	0.0162	0.0165	[0.012]	0.025	0.016
Benzo(a)anthracene	mg/kg	0.977	[0.714]	0.154 J	0.111	0.8	1.14	0.136	0.125 J	[0.142]	0.219	0.121
Chrysene	mg/kg	0.867	[0.716]	0.153 J	0.128	0.864	1.14	0.171	0.137 J	[0.169]	0.252	0.138
C1-Chrysenes	mg/kg	0.513	[0.36]	0.0862	0.0647	0.24	0.478	0.0574	0.0599	[0.0528]	0.0839	0.0688
C2-Chrysenes	mg/kg	0.257	[0.178]	0.0517	0.0404	0.134	0.267	0.0357	0.0275	[0.028]	0.0456	0.0445
C3-Chrysenes	mg/kg	0.199	[0.136]	0.0491	0.0383	0.158	0.23	0.0328	0.0528	[0.0261]	0.0461	0.0362
C4-Chrysenes	mg/kg	0.104	[0.0642]	0.0317	0.0274	0.115	0.141	0.0204	0.00444 UJ	[0.02] J	0.0346	0.026
Benzo(b)fluoranthene	mg/kg	0.816	[0.602]	0.161 J	0.173	0.92	1.05	0.167	0.119	[0.159]	0.234	0.129
Benzo(k)fluoranthene	mg/kg	0.729	[0.559]	0.146 J	0.141	0.679	0.911	0.144	0.116 J	[0.14]	0.2	0.119
Benzo(a)fluoranthene	mg/kg	0.242	[0.169]	0.0493	0.0456	0.136	0.213	0.023	0.0254	[0.0218]	0.0318	0.0229
Benzo(e)Pyrene	mg/kg	0.586	[0.443]	0.133	0.154	0.635	0.761	0.121	0.0879	[0.116]	0.166	0.0979
Benzo(a)pyrene	mg/kg	0.958	[0.702]	0.183	0.185	0.958	1.19	0.162	0.129	[0.159]	0.222	0.138
Perylene	mg/kg	0.258	[0.19]	0.0483	0.0539	0.27	0.359	0.0476	0.0627	[0.0455]	0.0707	0.039
Indeno(1,2,3-cd)pyrene	mg/kg	0.689	[0.5]	0.16 J	0.18	0.687	0.847	0.126	0.0914	[0.123]	0.172	0.096
Dibenzo(a,h)anthracene	mg/kg	0.21	[0.132]	0.0407 J	0.0448	0.168	0.226	0.0319	0.0237	[0.03]	0.0461	0.0263
Benzo(g,h,i)perylene	mg/kg	0.591	[0.439]	0.165 J	0.173	0.637	0.762	0.129	0.0856	[0.12]	0.157	0.0886
2-Methylnaphthalene	mg/kg	0.0154	[0.031]	0.00805	0.0121	0.0235	0.0209	0.00195	0.00444 U	[0.00297]	0.00225	0.00118
1-Methylnaphthalene	mg/kg	0.0129	[0.0218]	0.00752	0.00702	0.0229	0.0176	0.002	0.00444 U	[0.00236]	0.00227	0.00105
2,6-Dimethylnaphthalene	mg/kg	0.0138	[0.0218]	0.00497	0.00599	0.02	0.0236	0.00193	0.0064	[0.00216]	0.00236	0.00116
2,3,5-Trimethylnaphthalene	mg/kg	0.0119	[0.0126]	0.00474	0.00112	0.00517	0.015	0.000871 U	0.00444 U	[0.00108]	0.00146 U	0.000819 U
4-Methyldibenzothiophene(4MDT)	mg/kg	0.0113	[0.00886]	0.00235	0.0011	0.0142	0.0243	0.00215	0.00444 U	[0.00217]	0.00324	0.00246
2/3-Methyldibenzothiophene(2MDT)	mg/kg	0.0167	[0.0131]	0.0016	0.000951 U	0.0193	0.03	0.00201	0.00444 U	[0.00188]	0.0022	0.00123
1-Methyldibenzothiophene(1MDT)	mg/kg	0.0055	[0.00445]	0.000886 U	0.000951 U	0.00594	0.0104	0.000985	0.00444 U	[0.00102]	0.00146 U	0.000949
3-Methylphenanthrene (3MP)	mg/kg	0.0881	[0.0739]	0.016	0.00704	0.0819	0.143	0.0139	0.0154	[0.0158]	0.0193	0.0108
2/4-Methylphenanthrene (2MP)	mg/kg	0.13	[0.11]	0.0233	0.0102	0.0956	0.188	0.0178	0.0192	[0.0208]	0.0254	0.0146
2-Methylanthracene (2MA)	mg/kg	0.102	[0.118]	0.0125	0.00799	0.0333	0.0883	0.00484	0.00842	[0.00577]	0.00796	0.00691
9-Methylphenanthrene (9MP)	mg/kg	0.112	[0.0811]	0.0195	0.00888	0.0609	0.134	0.0107	0.0137	[0.0122]	0.0161	0.0116
1-Methylphenanthrene (1MP)	mg/kg	0.069	[0.0568]	0.0128	0.00549	0.047	0.0985	0.0094	0.0105	[0.0104]	0.0124	0.00836
Retene	mg/kg	0.000872 U	[0.00085] U	0.000886 U	0.00298	0.00307 U	0.00305 U	0.00369	0.0385 J	[0.00532] J	0.00847	0.005
Benzo(b)fluorene	mg/kg	0.235	[0.211]	0.0355	0.0173	0.203	0.271	0.0321	0.0258	[0.0303]	0.0541	0.0225
Total PAHs [17]	mg/kg	9.74	[7.88]	1.81 J	1.66	12.77	14.58	2.05	1.65 J	[2.13]	2.78	1.52
Total PAHs [34]	mg/kg	13.40 J	[10.6] J	2.52 J	2.16 J	15.20 J	18.70 J	2.51 J	2.18 J	[2.58] J	3.45 J	2.01 J
Total PAHs	mg/kg	15.98 J	[12.57] J	3.07 J	2.63 J	17.95 J	22.25 J	3.01 J	2.64 J	[3.04] J	4.17 J	2.49 J

See Notes on Page 9.

TABLE 3
SUMMARY OF SEDIMENT SAMPLE ANALYTICAL RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS (PAHS)

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID:		NG-SR-SD-14	NG-SR-SD-14	NG-SR-SD-14		NG-SR-SD-14	NG-SR-SD-15	NG-SR-SD-16	NG-SR-SD-16	NG-SR-SD-16	NG-SR-SD-16	NG-SR-SD-16
Sample Depth():		0 - 6	6 - 12	12 - 24		24 - 36	0 - 6	0 - 6	6 - 12	12 - 24	24 - 36	36 - 48
Date Collected:	Units	11/09/11	11/09/11	11/09/11		11/09/11	11/09/11	11/09/11	11/09/11	11/09/11	11/09/11	11/09/11
Cis/Trans-Decalin	mg/kg	0.00132	0.000707	0.00135	[0.00152]	0.00142 J	0.000889 U	0.00504 U	0.00263 U	0.000376 U	0.000431 U	0.000455 UJ
C1-Decalins	mg/kg	0.00216	0.00131	0.00261	[0.00296]	0.00209	0.00178 U	0.0101 U	0.00525 U	0.000752 U	0.000862 U	0.00091 U
C2-Decalins	mg/kg	0.00322	0.00193	0.00457	[0.00447]	0.00434	0.00408	0.0101 U	0.00525 U	0.000752 U	0.000862 U	0.00091 U
C3-Decalins	mg/kg	0.00257	0.000892 U	0.00182 U	[0.00354]	0.00344	0.00178 U	0.0101 U	0.00525 U	0.000752 U	0.000862 U	0.00091 U
C4-Decalins	mg/kg	0.00806	0.00358	0.00182 UJ	[0.00774] J	0.00635	0.00178 U	0.0101 U	0.00525 U	0.000752 U	0.000862 U	0.00091 U
Naphthalene	mg/kg	0.0331	0.0232	0.0213	[0.0394]	0.0163 J	0.00765	0.0212	0.0116	0.00314	0.00193	0.0017
C1-Naphthalenes	mg/kg	0.0477	0.0173	0.0174	[0.0425]	0.0117	0.00473	0.0136	0.00753	0.00181	0.00133	0.00175
C2-Naphthalenes	mg/kg	0.109	0.0393	0.0331	[0.0574]	0.023	0.0156	0.0324	0.0222	0.00368	0.00216	0.00605
C3-Naphthalenes	mg/kg	0.11	0.0446	0.0352	[0.0533]	0.0228	0.0322	0.0438	0.0359	0.00428	0.00323	0.00805
C4-Naphthalenes	mg/kg	0.0544	0.0267	0.0221	[0.0323]	0.0163	0.0284	0.0389	0.0278	0.00308	0.00182	0.00468
Benzothiophene	mg/kg	0.0016	0.0014	0.00182 U	[0.0015] U	0.000914 U	0.00178 U	0.0101 U	0.00525 U	0.000752 U	0.000862 U	0.00091 U
C1-Benzo(b)thiophenes	mg/kg	0.00338	0.00214	0.00202	[0.00259]	0.00125	0.00178 U	0.0101 U	0.00525 U	0.000752 U	0.000862 U	0.00091 U
C2-Benzo(b)thiophenes	mg/kg	0.00671	0.00422	0.00431	[0.00498]	0.00276	0.00318	0.0114	0.00791	0.000909	0.000862 U	0.00115
C3-Benzo(b)thiophenes	mg/kg	0.0108	0.00835	0.0082	[0.00985]	0.00429	0.00545	0.0182	0.0124	0.00212	0.000862 U	0.00322
C4-Benzo(b)thiophenes	mg/kg	0.00607	0.00481	0.00525	[0.00621]	0.00304	0.00439	0.0135	0.00841	0.00108	0.000862 U	0.00138
1,1'-Biphenyl	mg/kg	0.0091	0.005	0.00709	[0.00719]	0.00345	0.00181	0.0101 U	0.00525 U	0.000752 U	0.000862 U	0.00091 U
Dibenzofuran	mg/kg	0.0346	0.0162	0.0217	[0.0238]	0.0182	0.00767	0.0185	0.00754	0.00392	0.00211	0.00259
Acenaphthylene	mg/kg	0.223	0.144	0.111	[0.123]	0.0732	0.152	0.305	0.188	0.0192	0.00902	0.0144
Acenaphthene	mg/kg	0.0503	0.0306	0.0428	[0.0325]	0.0164	0.0182	0.0515	0.0266	0.00776	0.00323	0.00462
Fluorene	mg/kg	0.113	0.0481	0.0514	[0.0425]	0.0301	0.0224	0.0495	0.022	0.0108	0.00419	0.00722
C1-Fluorenes	mg/kg	0.0942	0.0433	0.0325	[0.0351]	0.0172	0.0276	0.0405	0.029	0.00444	0.00269	0.00585
C2-Fluorenes	mg/kg	0.108	0.0616	0.038	[0.0431]	0.0218	0.0497	0.0683	0.0457	0.00495	0.00349	0.00836
C3-Fluorenes	mg/kg	0.123 J	0.0702 J	0.0677 J	[0.0691] J	0.0506 J	0.0742 J	0.148 J	0.0762 J	0.0122 J	0.0062 J	0.017 J
Dibenzothiophene	mg/kg	0.0615	0.038	0.0342	[0.0294]	0.019	0.02	0.0505	0.019	0.00621	0.00255	0.00592
C1-Dibenzothiophenes	mg/kg	0.0969	0.0677	0.0563	[0.0634]	0.0253	0.0436	0.0639	0.0474	0.00509	0.00214	0.00716
C2-Dibenzothiophenes	mg/kg	0.108	0.0765	0.0666	[0.0863]	0.0278	0.056	0.106	0.068	0.00756	0.00407	0.0112
C3-Dibenzothiophenes	mg/kg	0.0725	0.0529	0.0496	[0.0615]	0.0249	0.0495	0.108	0.0678	0.00674	0.00348	0.00838
C4-Dibenzothiophenes	mg/kg	0.0312	0.0238	0.0257	[0.0316]	0.0139	0.0365	0.0736	0.0532	0.00433	0.00253	0.00485
Anthracene	mg/kg	0.263	0.166	0.181	[0.151]	0.0796	0.199	0.304	0.206	0.0329	0.016	0.021
Phenanthrene	mg/kg	0.839	0.433	0.506	[0.387]	0.308	0.371	0.776	0.238	0.119	0.0488	0.101
C1-Phenanthrenes/Anthracenes	mg/kg	0.628	0.362	0.292	[0.299]	0.146	0.382	0.444	0.321	0.0469	0.03	0.0541
C2-Phenanthrenes/Anthracenes	mg/kg	0.396	0.242	0.194	[0.237]	0.0983	0.297	0.388	0.27	0.0315	0.017	0.0358
C3-Phenanthrenes/Anthracenes	mg/kg	0.152	0.105	0.0792	[0.105]	0.0422	0.141	0.19	0.128	0.0133	0.00901	0.0172
C4-Phenanthrenes/Anthracenes	mg/kg	0.0459	0.0322	0.0303	[0.0413]	0.018	0.0568	0.0986	0.0682	0.00624	0.00672	0.0182
Carbazole	mg/kg	0.0723	0.0356	0.0438	[0.0268]	0.0277	0.0237	0.132	0.0217	0.0124	0.00288	0.0077
Fluoranthene	mg/kg	1.13	0.783	0.892	[0.784]	0.513	1.22	2.09	0.99	0.246	0.128	0.173
Pyrene	mg/kg	1.04	0.776	0.794	[0.727]	0.456	1.12	1.81	0.88	0.209	0.107	0.144
C1-Fluoranthenes/Pyrenes	mg/kg	0.816	0.578	0.477	[0.518]	0.238	0.723	1.02	0.611	0.104	0.0544	0.0739
C2-Fluoranthenes/Pyrenes	mg/kg	0.43	0.298	0.242	[0.268]	0.131	0.513	0.755	0.495	0.0566	0.0346	0.0438
C3-Fluoranthenes/Pyrenes	mg/kg	0.19	0.128	0.109	[0.126]	0.0645	0.251	0.423	0.287	0.0273	0.016	0.0206
C4-Fluoranthenes/Pyrenes	mg/kg	0.108	0.078	0.074	[0.0791]	0.0447	0.152	0.303	0.194	0.019	0.0112	0.0154

See Notes on Page 9.

TABLE 3
SUMMARY OF SEDIMENT SAMPLE ANALYTICAL RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS (PAHS)

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID:		NG-SR-SD-14	NG-SR-SD-14	NG-SR-SD-14		NG-SR-SD-14	NG-SR-SD-15	NG-SR-SD-16	NG-SR-SD-16	NG-SR-SD-16	NG-SR-SD-16	NG-SR-SD-16
Sample Depth():		0 - 6	6 - 12	12 - 24		24 - 36	0 - 6	0 - 6	6 - 12	12 - 24	24 - 36	36 - 48
Date Collected:	Units	11/09/11	11/09/11	11/09/11		11/09/11	11/09/11	11/09/11	11/09/11	11/09/11	11/09/11	11/09/11
Naphthobenzothiophene	mg/kg	0.175	0.135	0.122	[0.13]	0.0585	0.183	0.317	0.15	0.0293	0.0166	0.0201
C1-Naphthobenzothiophenes	mg/kg	0.146	0.116	0.0999	[0.123]	0.0465	0.14	0.25	0.171	0.018	0.0108	0.0146
C2-Naphthobenzothiophenes	mg/kg	0.103	0.0793	0.0811	[0.0995]	0.0401	0.124	0.288	0.229	0.0188	0.0107	0.0146
C3-Naphthobenzothiophenes	mg/kg	0.0585	0.047	0.0638	[0.0725]	0.0335	0.115	0.311	0.244	0.0194	0.0109	0.012
C4-Naphthobenzothiophenes	mg/kg	0.031	0.0297	0.0423	[0.0548]	0.0253	0.0961	0.304	0.221	0.0172	0.00935	0.00909
Benzo(a)anthracene	mg/kg	0.587	0.441	0.411	[0.402]	0.203	0.797	1.01	0.606	0.119	0.0582	0.0602
Chrysene	mg/kg	0.627	0.459	0.416	[0.41]	0.249	0.729	1.06	0.566	0.118	0.0597	0.0695
C1-Chrysenes	mg/kg	0.407	0.292	0.22	[0.253]	0.12	0.411	0.566	0.387	0.0502	0.0256	0.0361
C2-Chrysenes	mg/kg	0.239	0.161	0.144	[0.154]	0.0741	0.24	0.411	0.282	0.0308	0.0155	0.0201
C3-Chrysenes	mg/kg	0.14	0.111	0.0999	[0.118]	0.0532	0.191	0.427	0.294	0.0284	0.0157	0.0202
C4-Chrysenes	mg/kg	0.0695	0.0597	0.0607	[0.0663]	0.0317	0.118	0.305	0.198	0.0181	0.000862 U	0.00091 U
Benzo(b)fluoranthene	mg/kg	0.542	0.398	0.384	[0.339]	0.222	0.685	1.03	0.572	0.115	0.0524	0.0594
Benzo(k)fluoranthene	mg/kg	0.484	0.375	0.373	[0.329]	0.21	0.592	1.01	0.518	0.109	0.0481	0.0559
Benzo(a)fluoranthene	mg/kg	0.131	0.1	0.0898	[0.0906]	0.0462	0.16	0.237	0.154	0.0234	0.01	0.00996
Benzo(e)Pyrene	mg/kg	0.405	0.338	0.293	[0.284]	0.166	0.472	0.826	0.442	0.0855	0.037	0.0433
Benzo(a)pyrene	mg/kg	0.62	0.521	0.464	[0.45]	0.252	0.784	1.3	0.698	0.128	0.0574	0.065
Perylene	mg/kg	0.242	0.268	0.256	[0.226]	0.296	0.197	0.327	0.17	0.0356	0.0217	0.0246
Indeno(1,2,3-cd)pyrene	mg/kg	0.451	0.347	0.298	[0.278]	0.172	0.495	0.881	0.43	0.087	0.0411	0.0444
Dibenzo(a,h)anthracene	mg/kg	0.131	0.103	0.0862	[0.0805]	0.0469	0.149	0.26	0.133	0.0259	0.012	0.0123
Benzo(g,h,i)perylene	mg/kg	0.395	0.304	0.263	[0.249]	0.157	0.434	0.799	0.399	0.0779	0.0374	0.0397
2-Methylnaphthalene	mg/kg	0.0337	0.0146	0.0171	[0.0432]	0.0105	0.0042	0.0101 U	0.00577	0.00135	0.00117	0.00128
1-Methylnaphthalene	mg/kg	0.0447	0.014	0.0113	[0.0268]	0.00874	0.00296	0.0101 U	0.00542	0.00144	0.000981	0.00152
2,6-Dimethylnaphthalene	mg/kg	0.0373	0.0141	0.0144	[0.0233]	0.0102	0.0056	0.0101 U	0.00669	0.00136	0.000964	0.00197
2,3,5-Trimethylnaphthalene	mg/kg	0.0202	0.00765	0.00543	[0.00754]	0.00422	0.00515	0.0101 U	0.00525 U	0.000752 U	0.000862 U	0.00122
4-Methyldibenzothiophene(4MDT)	mg/kg	0.0327	0.0221	0.0177	[0.0206]	0.00711	0.0124	0.0186	0.0128	0.00169	0.000979	0.00298
2/3-Methyldibenzothiophene(2MDT)	mg/kg	0.0367	0.0256	0.0207	[0.0228]	0.0111	0.0168	0.024	0.0173	0.00127	0.000862 U	0.00173
1-Methyldibenzothiophene(1MDT)	mg/kg	0.0116	0.00849	0.00702	[0.00842]	0.00294	0.00515	0.0104	0.0069	0.00101	0.000862 U	0.00131
3-Methylphenanthrene (3MP)	mg/kg	0.146	0.082	0.0634	[0.0626]	0.0325	0.0711	0.0791	0.0532	0.0097	0.00623	0.0118
2/4-Methylphenanthrene (2MP)	mg/kg	0.165	0.0913	0.0782	[0.0783]	0.0411	0.0975	0.11	0.0776	0.0131	0.00832	0.0142
2-Methylanthracene (2MA)	mg/kg	0.0616	0.0408	0.0356	[0.0384]	0.0152	0.0618	0.0743	0.0608	0.00591	0.00387	0.00455
9-Methylphenanthrene (9MP)	mg/kg	0.142	0.0864	0.0675	[0.0728]	0.0326	0.0859	0.101	0.075	0.00969	0.00609	0.0112
1-Methylphenanthrene (1MP)	mg/kg	0.107	0.0579	0.0437	[0.048]	0.0224	0.0554	0.0619	0.0434	0.00713	0.00415	0.00919
Retene	mg/kg	0.000964 U	0.000892 U	0.00182 UJ	[0.0146] J	0.0111	0.00178 U	0.0101 U	0.00525 U	0.000752 U	0.0144	0.0547
Benzo(b)fluorene	mg/kg	0.167	0.127	0.112	[0.112]	0.0494	0.13	0.154	0.0761	0.0231	0.0114	0.0144
Total PAHs [17]	mg/kg	7.56	5.37	5.31	[4.87]	3.02 J	7.78	12.76	6.49	1.43	0.69	0.87
Total PAHs [34]	mg/kg	11.30 J	7.84 J	7.32 J	[7.16] J	4.25 J	10.60 J	17.10 J	9.39 J	1.80 J	0.89 J	1.21 J
Total PAHs	mg/kg	13.62 J	9.56 J	8.94 J	[8.88] J	5.13 J	13.23 J	21.93 J	12.36 J	2.19 J	1.09 J	1.48 J

See Notes on Page 9.

TABLE 3
SUMMARY OF SEDIMENT SAMPLE ANALYTICAL RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS (PAHS)

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID:		NG-SR-SD-17	NG-SR-SD-18	NG-SR-SD-19	NG-SR-SD-20	NG-SR-SD-21	NG-SR-SD-22	NG-SR-SD-23	NG-SR-SD-24	NG-SR-SD-25
Sample Depth():		0 - 7	0 - 5	0 - 5	0 - 4	0 - 6	0 - 4	0 - 3	0 - 3	0 - 6
Date Collected:	Units	11/09/11	11/09/11	11/09/11	11/09/11	11/09/11	11/10/11	11/10/11	11/10/11	11/10/11
Cis/Trans-Decalin	mg/kg	0.00161 UJ	0.000813 UJ	0.0102 J	0.000768 J	0.000447 UJ	0.000383 UJ	0.000413 UJ	0.00913	0.0114 J
C1-Decalins	mg/kg	0.00322	0.00163 U	0.0188	0.0016	0.0016	0.000888	0.000826 U	0.00445	0.00709
C2-Decalins	mg/kg	0.00322 U	0.00163 U	0.0389	0.00301	0.0023	0.00162	0.000826 U	0.00395 U	0.0114
C3-Decalins	mg/kg	0.00322 U	0.00163 U	0.0297	0.00122 U	0.000894 U	0.000767 U	0.000826 U	0.00395 U	0.00482 U
C4-Decalins	mg/kg	0.00322 U	0.00163 U	0.0608	0.0059	0.000894 U	0.00309	0.000826 U	0.00395 U	0.00482 U
Naphthalene	mg/kg	0.014	0.0426	0.44	0.0206	0.0105	0.00578	0.00366	0.0788	0.036
C1-Naphthalenes	mg/kg	0.084	0.0272	0.398	0.0118	0.00506	0.0042	0.00199	0.262	0.0319
C2-Naphthalenes	mg/kg	0.262	0.0329	2.85	0.0232	0.0148	0.00842	0.00513	0.172	0.1
C3-Naphthalenes	mg/kg	0.202	0.0241	3.69	0.0302	0.0232	0.0119	0.00633	0.121	0.0868
C4-Naphthalenes	mg/kg	0.073	0.0129	1.62	0.0232	0.0155	0.00932	0.00393	0.0526	0.0491
Benzothiophene	mg/kg	0.00322 U	0.00163 U	0.0276	0.00132	0.000894 U	0.000767 U	0.000826 U	0.0208	0.0068
C1-Benzo(b)thiophenes	mg/kg	0.0237	0.00177	0.02	0.0016	0.000894 U	0.000883	0.000826 U	0.0955	0.151
C2-Benzo(b)thiophenes	mg/kg	0.0224	0.00319	0.114	0.00269	0.00185	0.00195	0.00117	0.0208	0.0349
C3-Benzo(b)thiophenes	mg/kg	0.026	0.00447	0.187	0.00531	0.00384	0.00338	0.00216	0.0105	0.0293
C4-Benzo(b)thiophenes	mg/kg	0.0118	0.00274	0.0942	0.00346	0.00208	0.00241	0.00104	0.0051	0.0144
1,1'-Biphenyl	mg/kg	0.0146	0.00872	0.174	0.00684	0.00375	0.00203	0.00207	0.0139	0.0122
Dibenzofuran	mg/kg	0.08	0.134	1.8	0.0427	0.0125	0.0054	0.00524	0.0302	0.0388
Acenaphthylene	mg/kg	0.211	0.0379	2.48	0.05	0.0495	0.0427	0.0226	0.0515	0.124
Acenaphthene	mg/kg	0.145	0.267	0.686	0.0699	0.0136	0.00892	0.00964	0.101	0.139
Fluorene	mg/kg	0.327	0.284	4.64	0.0815	0.0316	0.0102	0.0121	0.108	0.107
C1-Fluorenes	mg/kg	0.184	0.0402	3.1	0.0302	0.0228	0.00788	0.00561	0.0689	0.0712
C2-Fluorenes	mg/kg	0.122	0.0285	2.43	0.0378	0.0294	0.0157	0.0067	0.0646	0.0661
C3-Fluorenes	mg/kg	0.116 J	0.152 J	1.89 J	0.109 J	0.0431 J	0.0266 J	0.0212 J	0.1 J	0.112 J
Dibenzothiophene	mg/kg	0.149	0.124	1.67	0.0502	0.0184	0.00712	0.00863	0.0415	0.071
C1-Dibenzothiophenes	mg/kg	0.187	0.0402	1.62	0.0361	0.0259	0.0228	0.00603	0.0415	0.048
C2-Dibenzothiophenes	mg/kg	0.15	0.0276	1.36	0.0327	0.0258	0.0352	0.00842	0.0378	0.0617
C3-Dibenzothiophenes	mg/kg	0.0864	0.0259	0.926	0.0254	0.0202	0.0325	0.00743	0.0304	0.0608
C4-Dibenzothiophenes	mg/kg	0.0517	0.024	0.454	0.0185	0.0137	0.0209	0.00452	0.0178	0.0544
Anthracene	mg/kg	0.644	0.342	23.1	0.19	0.142	0.0518	0.0421	0.357	0.175
Phenanthrene	mg/kg	2.03	1.96	40.3	0.869	0.36	0.0957	0.166	0.907	0.524
C1-Phenanthrenes/Anthracenes	mg/kg	1.16	0.372	20.2	0.332	0.25	0.0773	0.0627	0.563	0.289
C2-Phenanthrenes/Anthracenes	mg/kg	0.558	0.15	10.9	0.219	0.178	0.064	0.0362	0.335	0.232
C3-Phenanthrenes/Anthracenes	mg/kg	0.173	0.0543	3.94	0.0906	0.0786	0.0317	0.0146	0.129	0.121
C4-Phenanthrenes/Anthracenes	mg/kg	0.0573	0.0283	1.2	0.036	0.051	0.0172	0.00671	0.0466	0.0976
Carbazole	mg/kg	0.0513	0.256	1.01	0.112	0.03	0.0181	0.0176	0.0423	0.0751
Fluoranthene	mg/kg	2.48	2.48	55.9	1.46	1.16	0.226	0.352	1.4	1.31
Pyrene	mg/kg	2.2	1.92	43.5	1.19	0.958	0.212	0.288	1.15	1.11
C1-Fluoranthenes/Pyrenes	mg/kg	1.36	0.725	25.2	0.617	0.564	0.138	0.12	0.688	0.55
C2-Fluoranthenes/Pyrenes	mg/kg	0.521	0.331	9.94	0.349	0.265	0.0849	0.0703	0.414	0.391
C3-Fluoranthenes/Pyrenes	mg/kg	0.228	0.159	4.24	0.152	0.11	0.0511	0.0301	0.196	0.202
C4-Fluoranthenes/Pyrenes	mg/kg	0.157	0.146	2.42	0.0978	0.0758	0.0412	0.0226	0.129	0.174

See Notes on Page 9.

TABLE 3
SUMMARY OF SEDIMENT SAMPLE ANALYTICAL RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS (PAHS)

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID:		NG-SR-SD-17	NG-SR-SD-18	NG-SR-SD-19	NG-SR-SD-20	NG-SR-SD-21	NG-SR-SD-22	NG-SR-SD-23	NG-SR-SD-24	NG-SR-SD-25
Sample Depth():		0 - 7	0 - 5	0 - 5	0 - 4	0 - 6	0 - 4	0 - 3	0 - 3	0 - 6
Date Collected:	Units	11/09/11	11/09/11	11/09/11	11/09/11	11/09/11	11/10/11	11/10/11	11/10/11	11/10/11
Naphthobenzothiophene	mg/kg	0.303	0.295	3.63	0.158	0.153	0.0493	0.0414	0.138	0.177
C1-Naphthobenzothiophenes	mg/kg	0.23	0.123	2.32	0.0823	0.0684	0.0642	0.0196	0.0906	0.137
C2-Naphthobenzothiophenes	mg/kg	0.245	0.174	1.11	0.0552	0.0418	0.0792	0.0161	0.0758	0.179
C3-Naphthobenzothiophenes	mg/kg	0.23	0.171	0.578	0.0454	0.0315	0.0712	0.0158	0.0785	0.19
C4-Naphthobenzothiophenes	mg/kg	0.195	0.134	0.268	0.0308	0.0211	0.0536	0.0131	0.0747	0.165
Benzo(a)anthracene	mg/kg	1.12	0.898	26.6	0.646	0.623	0.105	0.142	0.648	0.516
Chrysene	mg/kg	1.05	1.02	21.2	0.652	0.617	0.121	0.16	0.648	0.654
C1-Chrysenes	mg/kg	0.57	0.334	10.2	0.287	0.254	0.0762	0.0543	0.326	0.302
C2-Chrysenes	mg/kg	0.302	0.252	5.06	0.15	0.121	0.0579	0.0271	0.194	0.182
C3-Chrysenes	mg/kg	0.262	0.235	3.82	0.124	0.098	0.0555	0.0238	0.186	0.208
C4-Chrysenes	mg/kg	0.172	0.134	1.66	0.0666	0.0485	0.0373	0.0172	0.119	0.149
Benzo(b)fluoranthene	mg/kg	0.757	1.06	16.5	0.596	0.562	0.108	0.158	0.591	0.657
Benzo(k)fluoranthene	mg/kg	0.765	0.759	10.6	0.487	0.513	0.101	0.122	0.517	0.559
Benzo(a)fluoranthene	mg/kg	0.178	0.141	4.9	0.119	0.129	0.0221	0.0236	0.117	0.104
Benzo(e)Pyrene	mg/kg	0.588	0.723	9.34	0.4	0.41	0.0887	0.108	0.426	0.492
Benzo(a)pyrene	mg/kg	1	1.04	22.2	0.62	0.649	0.124	0.15	0.61	0.637
Perylene	mg/kg	0.243	0.296	4.91	0.179	0.192	0.031	0.0418	0.152	0.22
Indeno(1,2,3-cd)pyrene	mg/kg	0.609	0.74	10.6	0.451	0.478	0.0857	0.127	0.472	0.503
Dibenzo(a,h)anthracene	mg/kg	0.184	0.212	3.35	0.129	0.13	0.0251	0.0325	0.134	0.13
Benzo(g,h,i)perylene	mg/kg	0.539	0.681	8.06	0.392	0.428	0.0786	0.114	0.413	0.511
2-Methylnaphthalene	mg/kg	0.0574	0.0249	0.347	0.0101	0.00473	0.00396	0.0018	0.0104	0.0189
1-Methylnaphthalene	mg/kg	0.0848	0.0197	0.314	0.00958	0.00394	0.00282	0.00141	0.43	0.0333
2,6-Dimethylnaphthalene	mg/kg	0.105	0.016	1.34	0.00971	0.00631	0.00294	0.00187	0.0365	0.0306
2,3,5-Trimethylnaphthalene	mg/kg	0.0342	0.00457	0.776	0.00512	0.00398	0.00168	0.00108	0.02	0.0109
4-Methyldibenzothiophene(4MDT)	mg/kg	0.0648	0.0115	0.322	0.00884	0.00581	0.00727	0.00211	0.0118	0.0166
2/3-Methyldibenzothiophene(2MDT)	mg/kg	0.068	0.0175	0.581	0.0153	0.0116	0.00941	0.00127	0.0116	0.0101
1-Methyldibenzothiophene(1MDT)	mg/kg	0.0231	0.00406	0.195	0.00403	0.00284	0.00302	0.00111	0.00577	0.00975
3-Methylphenanthrene (3MP)	mg/kg	0.266	0.0913	3.9	0.0696	0.048	0.0152	0.0139	0.114	0.0609
2/4-Methylphenanthrene (2MP)	mg/kg	0.316	0.118	5.17	0.0935	0.0674	0.0194	0.0178	0.155	0.0747
2-Methylanthracene (2MA)	mg/kg	0.124	0.0355	4.52	0.0509	0.0461	0.00912	0.0075	0.0938	0.0344
9-Methylphenanthrene (9MP)	mg/kg	0.245	0.0652	3.88	0.066	0.0516	0.0186	0.0127	0.109	0.0683
1-Methylphenanthrene (1MP)	mg/kg	0.188	0.0554	2.61	0.0475	0.0356	0.0126	0.00913	0.0744	0.0438
Retene	mg/kg	0.00322 U	0.00163 U	0.00534 U	0.033	0.119	0.000767 U	0.00221	0.00395 U	0.154
Benzo(b)fluorene	mg/kg	0.344	0.256	8.65	0.158	0.173	0.0245	0.0292	0.175	0.121
Total PAHs [17]	mg/kg	14.13	13.77	290.50	7.91	6.73	1.41	1.90	8.20	7.71
Total PAHs [34]	mg/kg	19.90 J	16.60 J	392.00 J	10.20 J	8.61 J	2.06 J	2.34 J	11.90 J	10.50 J
Total PAHs	mg/kg	23.71 J	19.69 J	441.59 J	12.11 J	10.18 J	2.84 J	2.78 J	13.93 J	13.46 J

See Notes on Page 9.

TABLE 3
SUMMARY OF SEDIMENT SAMPLE ANALYTICAL RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS (PAHS)

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Notes:

1. Field duplicates are shown in brackets preceding the parent sample.

J - Indicates an estimated value.

U - The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

mg/kg - milligrams per kilogram

TABLE 4
SUMMARY OF SEDIMENT SAMPLE ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID: Sample Depth(Inches): Date Collected:	Units	NG-SR-SD-24 0 - 3 11/10/11	NG-SR-SD-25 0 - 6 11/10/11
Volatile Organics			
1,1,1,2-Tetrachloroethane	mg/kg	0.038 U	0.050 U
1,1,1-Trichloroethane	mg/kg	0.038 U	0.050 U
1,1,2,2-Tetrachloroethane	mg/kg	0.038 U	0.050 U
1,1,2-Trichloroethane	mg/kg	0.056 U	0.075 U
1,1-Dichloroethane	mg/kg	0.056 U	0.075 U
1,1-Dichloroethene	mg/kg	0.038 U	0.050 U
1,1-Dichloropropene	mg/kg	0.19 U	0.25 U
1,2,3-Trichlorobenzene	mg/kg	0.19 U	0.25 U
1,2,3-Trichloropropane	mg/kg	0.38 U	0.50 U
1,2,4,5-Tetramethylbenzene	mg/kg	0.63	0.68
1,2,4-Trichlorobenzene	mg/kg	0.19 U	0.25 U
1,2,4-Trimethylbenzene	mg/kg	0.30	0.25 U
1,2-Dibromo-3-chloropropane	mg/kg	0.19 U	0.25 U
1,2-Dibromoethane	mg/kg	0.15 U	0.20 U
1,2-Dichlorobenzene	mg/kg	0.19 U	0.25 U
1,2-Dichloroethane	mg/kg	0.038 U	0.050 U
1,2-Dichloropropane	mg/kg	0.13 U	0.17 U
1,3,5-Trimethylbenzene	mg/kg	0.19 U	0.25 U
1,3-Dichlorobenzene	mg/kg	0.19 U	0.25 U
1,3-Dichloropropane	mg/kg	0.19 U	0.25 U
1,4-Dichlorobenzene	mg/kg	0.19 U	0.25 U
1,4-Diethylbenzene	mg/kg	0.16	0.20 U
2,2-Dichloropropane	mg/kg	0.19 U	0.25 U
2-Butanone	mg/kg	0.38 U	0.50 U
2-Chlorotoluene	mg/kg	0.19 U	0.25 U
2-Hexanone	mg/kg	0.38 U	0.50 U
4-Chlorotoluene	mg/kg	0.19 U	0.25 U
4-Ethyltoluene	mg/kg	0.15 U	0.20 U
4-Methyl-2-pentanone	mg/kg	0.38 U	0.50 U
Acetone	mg/kg	0.38 U	0.50 U
Acrylonitrile	mg/kg	0.38 U	0.50 U
Benzene	mg/kg	0.038 U	0.050 U
Bromobenzene	mg/kg	0.19 U	0.25 U
Bromochloromethane	mg/kg	0.19 U	0.25 U
Bromodichloromethane	mg/kg	0.038 U	0.050 U
Bromoform	mg/kg	0.15 U	0.20 U
Bromomethane	mg/kg	0.075 U	0.10 U
Carbon Disulfide	mg/kg	0.38 U	0.50 U
Carbon Tetrachloride	mg/kg	0.038 U	0.050 U
Chlorobenzene	mg/kg	0.038 U	0.050 U
Chloroethane	mg/kg	0.075 U	0.10 U
Chloroform	mg/kg	0.056 U	0.075 U
Chloromethane	mg/kg	0.19 U	0.25 U
cis-1,2-Dichloroethene	mg/kg	0.038 U	0.050 U
cis-1,3-Dichloropropene	mg/kg	0.038 U	0.050 U
Dibromochloromethane	mg/kg	0.038 U	0.050 U
Dibromomethane	mg/kg	0.38 U	0.50 U
Dichlorodifluoromethane	mg/kg	0.38 U	0.50 U
Diethyl Ether	mg/kg	0.19 U	0.25 U
Ethylbenzene	mg/kg	0.066	0.050 U
Hexachlorobutadiene	mg/kg	0.19 U	0.25 U
Isopropylbenzene	mg/kg	0.038 U	0.050 U
Methyl tert-butyl ether	mg/kg	0.075 U	0.10 U
Methylene Chloride	mg/kg	0.38 U	0.50 U
n-Butylbenzene	mg/kg	0.038	0.050 U
n-Propylbenzene	mg/kg	0.12	0.050 U
o-Xylene	mg/kg	0.075 U	0.10 U
p/m-Xylene	mg/kg	0.075 U	0.10 U

See Notes on Page 2.

TABLE 4
SUMMARY OF SEDIMENT SAMPLE ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID: Sample Depth(Inches): Date Collected:	Units	NG-SR-SD-24 0 - 3 11/10/11	NG-SR-SD-25 0 - 6 11/10/11
Volatile Organics			
p-Isopropyltoluene	mg/kg	0.041 J	0.050 U
sec-Butylbenzene	mg/kg	0.038 U	0.063
Styrene	mg/kg	0.075 U	0.10 U
tert-Butylbenzene	mg/kg	0.19 U	0.25 U
Tetrachloroethene	mg/kg	0.038 U	0.050 U
Toluene	mg/kg	0.056 U	0.075 U
trans-1,2-Dichloroethene	mg/kg	0.056 U	0.075 U
trans-1,3-Dichloropropene	mg/kg	0.038 U	0.050 U
trans-1,4-Dichloro-2-butene	mg/kg	0.19 U	0.25 U
Trichloroethene	mg/kg	0.038 U	0.050 U
Trichlorofluoromethane	mg/kg	0.19 U	0.25 U
Vinyl Acetate	mg/kg	0.38 U	0.50 U
Vinyl Chloride	mg/kg	0.075 U	0.10 U
Naphthalene	mg/kg	0.19 U	0.25 U
Total BTEX	mg/kg	0.066	ND

Notes:
J - Indicates an estimated value.
ND - None detected.
U - The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

TABLE 5
SUMMARY OF TOTAL ORGANIC CARBON (TOC) DETECTED IN SEDIMENT SAMPLES

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID: / Sample Depth(Feet): / Date Collected:	Units	NG-SR-SD-01 0 - 3 11/08/11	NG-SR-SD-02 0 - 3 11/08/11	NG-SR-SD-03 0 - 7 11/08/11	NG-SR-SD-04 0 - 4 11/08/11	NG-SR-SD-05 0 -4 11/08/11	NG-SR-SD-06 0 - 7 11/08/11	NG-SR-SD-07 0 - 6 11/08/11	NG-SR-SD-07 6 - 10 11/08/11
Total Organic Carbon									
Total Organic Carbon (Rep1)	%	0.214	0.485	1.97	1.06	6.34	0.645	0.885	1.11

Location ID: / Sample Depth(Feet): / Date Collected:	Units	NG-SR-SD-08 0 - 6 11/08/11	NG-SR-SD-08 6 - 11 11/08/11	NG-SR-SD-09 0 - 6 11/08/11	NG-SR-SD-09 6 - 12 11/08/11	NG-SR-SD-09 12 - 14 11/08/11	NG-SR-SD-10 0 - 6 11/08/11	NG-SR-SD-11 0 - 7 11/08/11	NG-SR-SD-12 0 - 6 11/09/11
Total Organic Carbon									
Total Organic Carbon (Rep1)	%	1.24	0.866	1.27 [1.02]	0.87	1.16	0.529	0.551	0.314

Location ID: / Sample Depth(Feet): / Date Collected:	Units	NG-SR-SD-12 6 - 12 11/09/11	NG-SR-SD-12 12 - 20 11/09/11	NG-SR-SD-13 0 - 7 11/09/11	NG-SR-SD-14 0 - 6 11/09/11	NG-SR-SD-14 6 - 12 11/09/11	NG-SR-SD-14 12 - 24 11/09/11	NG-SR-SD-14 24 - 36 11/09/11	NG-SR-SD-15 0 - 6 11/09/11
Total Organic Carbon									
Total Organic Carbon (Rep1)	%	1.23 J [0.254 J]	1.14	0.341	0.704	0.712	1.12 [0.888]	1.02	1.46

Location ID: / Sample Depth(Feet): / Date Collected:	Units	NG-SR-SD-16 0 - 6 11/09/11	NG-SR-SD-16 6 - 12 11/09/11	NG-SR-SD-16 12 - 24 11/09/11	NG-SR-SD-16 24 - 36 11/09/11	NG-SR-SD-16 36 - 48 11/09/11	NG-SR-SD-17 0 - 7 11/09/11	NG-SR-SD-18 0 - 5 11/09/11	NG-SR-SD-19 0 - 5 11/09/11
Total Organic Carbon									
Total Organic Carbon (Rep1)	%	0.965	0.431	0.158	0.293	0.474	0.326	0.728	1.91

Location ID: / Sample Depth(Feet): / Date Collected:	Units	NG-SR-SD-20 0 - 4 11/09/11	NG-SR-SD-21 0 - 6 11/09/11	NG-SR-SD-22 0 - 4 11/10/11	NG-SR-SD-23 0 - 3 11/10/11	NG-SR-SD-24 0 - 3 11/10/11	NG-SR-SD-25 0 - 6 11/10/11
Total Organic Carbon							
Total Organic Carbon (Rep1)	%	1.22	0.653	0.499	0.771	1.82	3.63

Figures

City: SYR Div/Group: 90 Created By: Sruti Pulugurtha Last Saved By: jrapp
Project (B0036706.0001.00005)
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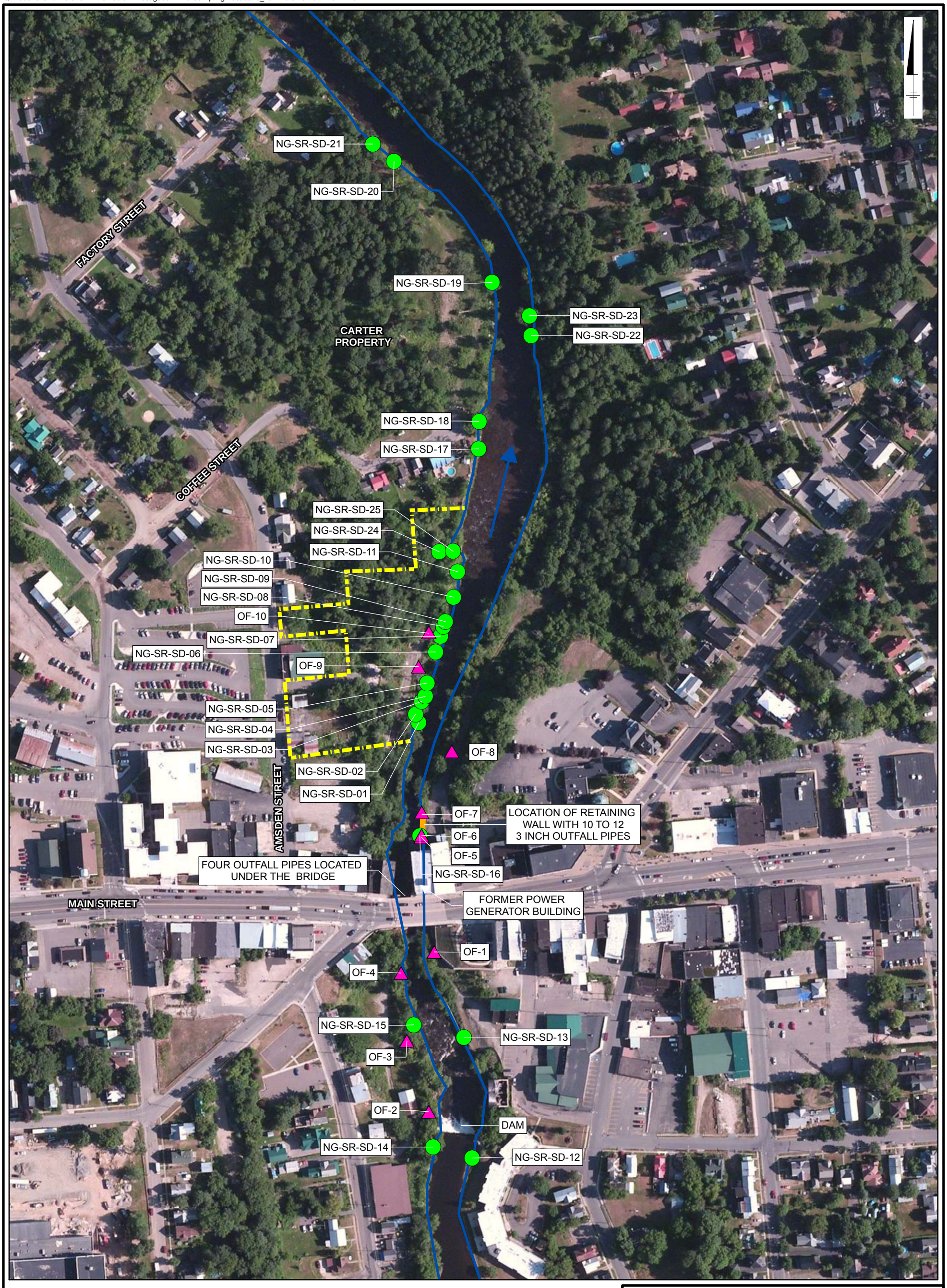


LEGEND:

- OUTFALL LOCATIONS
- SAMPLE LOCATIONS
- NATIONAL GRID PROPERTY LINE
- RETAINING WALL
- SHORELINE
- DIRECTION OF RIVER FLOW

0 200 400 Feet
GRAPHIC SCALE

NOTE:

1. 2010 IMAGERY PROVIDED BY BING IMAGERY SERVICE LICENSED THROUGH ESRI SOFTWARE.

NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

OUTFALL AND SAMPLING LOCATION MAP

ARCADIS

FIGURE
1

City: SYR Div/Group: 90 Created By: Sruti Pulugurtha Last Saved By: jrapp
Project (B0036706.0001.00005)
Q:\NationalGrid\MaloneNY\Remedial Investigation\mxd\Sampling Locations_Zoom1_labelsOFF.mxd 3/6/2012 4:26:51 PM

FOUR OUTFALL PIPES
LOCATED UNDER THE BRIDGE

OF-1

OF-4

OF-3

OF-2

NG-SR-SD-15	
Depth(Inches)	(0 – 6")
Date	11/9/2011
Total PAHs	7.78

NG-SR-SD-13	
Depth(Inches)	(0 – 7")
Date	11/9/2011
Total PAHs	1.52

NG-SR-SD-14				
Depth(Inches)	(0 – 6")	(6 – 12")	(12 – 24")	(24 – 36")
Date	11/9/2011	11/9/2011	11/9/2011	11/9/2011
Total PAHs	7.56	5.37	5.31 [4.87]	3.02 J

NG-SR-SD-12			
Depth(Inches)	(0 – 6")	(6 – 12")	(12 – 20")
Date	11/9/2011	11/9/2011	11/9/2011
Total PAHs	2.05	1.65 J [2.13]	2.78

C

B

A

LEGEND:

- OUTFALL LOCATIONS
- SAMPLE LOCATIONS
- SHORELINE

0 70 140 Feet
GRAPHIC SCALE

NOTE:
1. 2010 IMAGERY PROVIDED BY BING IMAGERY SERVICE LICENSED THROUGH ESRI SOFTWARE.

NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

OUTFALL AND SAMPLING LOCATION MAP - ZOOM A

ARCADIS

FIGURE
1A

NG-SR-SD-25	
Depth(Inches)	(0 – 6")
Date	11/10/2011
Total PAHs	7.71

NG-SR-SD-24	
Depth(Inches)	(0 – 3")
Date	11/10/2011
Total PAHs	8.20

NG-SR-SD-11	
Depth(Inches)	(0 – 7")
Date	11/8/2011
Total PAHs	14.58

NG-SR-SD-10	
Depth(Inches)	(0 – 6")
Date	11/8/2011
Total PAHs	12.77

NG-SR-SD-05	
Depth()	(0 – 4")
Date	11/8/2011
Total PAHs	27.99

NG-SR-SD-04	
Depth()	(0 – 4")
Date	11/8/2011
Total PAHs	21.31

NG-SR-SD-03	
Depth()	(0 – 7")
Date	11/8/2011
Total PAHs	8.92

NG-SR-SD-02	
Depth()	(0 – 3")
Date	11/8/2011
Total PAHs	2.43

NG-SR-SD-01	
Depth()	(0 – 3")
Date	11/8/2011
Total PAHs	26.95

NG-SR-SD-09			
Depth(Inches)	(0 – 6")	(6 – 12")	(12 – 14")
Date	11/8/2011	11/8/2011	11/8/2011
Total PAHs	9.74 [7.88]	1.81 J	1.66

NG-SR-SD-08		
Depth(Inches)	(0 – 6")	(6 – 11")
Date	11/8/2011	11/8/2011
Total PAHs	5.13	1.10

NG-SR-SD-07		
Depth(Inches)	(0 – 6")	(6 – 10")
Date	11/8/2011	11/8/2011
Total PAHs	8.49	5.53

NG-SR-SD-06	
Depth(Inches)	(0 – 7")
Date	11/8/2011
Total PAHs	19.99

NG-SR-SD-16					
Depth(Inches)	(0 – 6")	(6 – 12")	(12 – 24")	(24 – 36")	(36 – 48")
Date	11/9/2011	11/9/2011	11/9/2011	11/9/2011	11/9/2011
Total PAHs	12.76	6.49	1.43	0.69	0.87

SEEP AREA
FLOODPLAIN AREA
OF-10
OF-9
TAR PATTY EXTENT
COAL TAR SEEP IN ROCK
OF-8
OF-7
LOCATION OF RETAINING WALL WITH 10 TO 12 3 INCH OUTFALL PIPES
OF-6
OF-5
FOUR OUTFALL PIPES LOCATED UNDER THE BRIDGE

C
B
A

LEGEND:
- OUTFALL LOCATIONS
- SAMPLE LOCATIONS
- NATIONAL GRID PROPERTY LINE
- RETAINING WALL
- AREA OF VISIBLE COAL TAR
- TAR PATTY EXTENT
- SHORELINE

NOTE:
1. 2010 IMAGERY PROVIDED BY BING IMAGERY SERVICE LICENSED THROUGH ESRI SOFTWARE.

0 70 140 Feet
GRAPHIC SCALE

NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

OUTFALL AND SAMPLING LOCATION MAP - ZOOM B

ARCADIS

FIGURE
1B

City: SYR Div/Group: 90 Created By: Sruti Pulugurtha Last Saved By: jrapp
Project (B0036706.0001.00005)
Q:\NationalGrid\MaloneNY\Remedial Investigation\mxd\Sampling Locations_Zoom3_labelsOFF.mxd 3/7/2012 9:15:46 AM

NG-SR-SD-21	
Depth(Inches)	(0 – 6")
Date	11/9/2011
Total PAHs	6.73

NG-SR-SD-20	
Depth(Inches)	(0 – 4")
Date	11/9/2011
Total PAHs	7.91

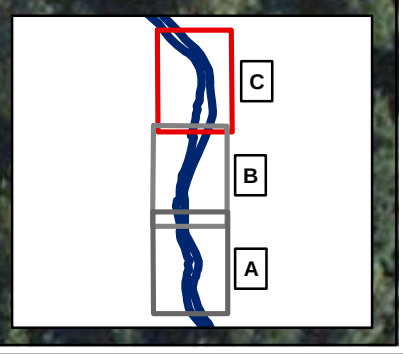
NG-SR-SD-19	
Depth(Inches)	(0 – 5")
Date	11/9/2011
Total PAHs	290.50

NG-SR-SD-23	
Depth(Inches)	(0 – 3")
Date	11/10/2011
Total PAHs	1.90

NG-SR-SD-22	
Depth(Inches)	(0 – 4")
Date	11/10/2011
Total PAHs	1.41

NG-SR-SD-18	
Depth(Inches)	(0 – 5")
Date	11/9/2011
Total PAHs	13.77

NG-SR-SD-17	
Depth(Inches)	(0 – 7")
Date	11/9/2011
Total PAHs	14.13



LEGEND:
- OUTFALL LOCATIONS
- SAMPLE LOCATIONS
- NATIONAL GRID PROPERTY LINE
- SHORELINE

0 70 140 Feet
GRAPHIC SCALE

NOTE:
1. 2010 IMAGERY PROVIDED BY BING IMAGERY SERVICE LICENSED THROUGH ESRI SOFTWARE.

NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

OUTFALL AND SAMPLING LOCATION MAP - ZOOM C

ARCADIS

FIGURE 1C

Attachment A

Photographic Log of Features Observed Along the Upstream and Adjacent Reaches of the River

GP-01: West side of bank looking upstream of Salmon River, site immediately to the right. Survey stake in lower right corner is NG-SR-SD-05. The view is of the municipal sewer pipe with the tar patty area extent in the background. The downstream extent of patty is upstream from NG-SR-SD-05, approximately 5 – 10' and just west of the pipe. Note the power-generating building on the east side of river, in the background.

GP-02: View of tar-like material under large rock located within the general area of the tar patty extent.

GP-03: West side of the riverbank looking downstream. Lower left of photo is survey point “upstream extent tar patty”. Note tar patty cover with soil, rocks, and debris. Wooden stake to right marks extent of patty into river.

GP-04: West side of riverbank at a section of tar seam in the rock wall-face. Survey point in upper right hand corner is NG-SR-SD-02

GP-05: Tar drips down foundation wall of former powerhouse on western riverbank of site, immediately upstream from tar patty. Survey point NG-SR-SD-02 borders the southern (upstream) side of the rock wall.

GP-06: Exposed bedrock along west side of riverbank within the tar seam in rock area.

GP-07: Looking downstream on west side of riverbank along bedrock face along southern portion of site. Survey point in foreground is NG-SR-SD-01 (collected approx. 5 feet into river from stake). In the middle ground is survey point “upstream tar seam in rock” and in far back ground is survey point NG-SR-SD-02.

GP-08: 18-24” diameter metal pipes on east side of river under Main St. Bridge. Pipes go up and over exposed bedrock and under the large feeder pipe to power generator building. The pipes are about 60’ apart from each other.

GP-09: Large (8’ - 10’ diameter) power-generating feeder pipe. Notice that pipes from photo GP-08 run underneath the municipal pipe and into river.

GP-10: Picture of one of the two 18-24” metal pipes under bridge on east side of river.

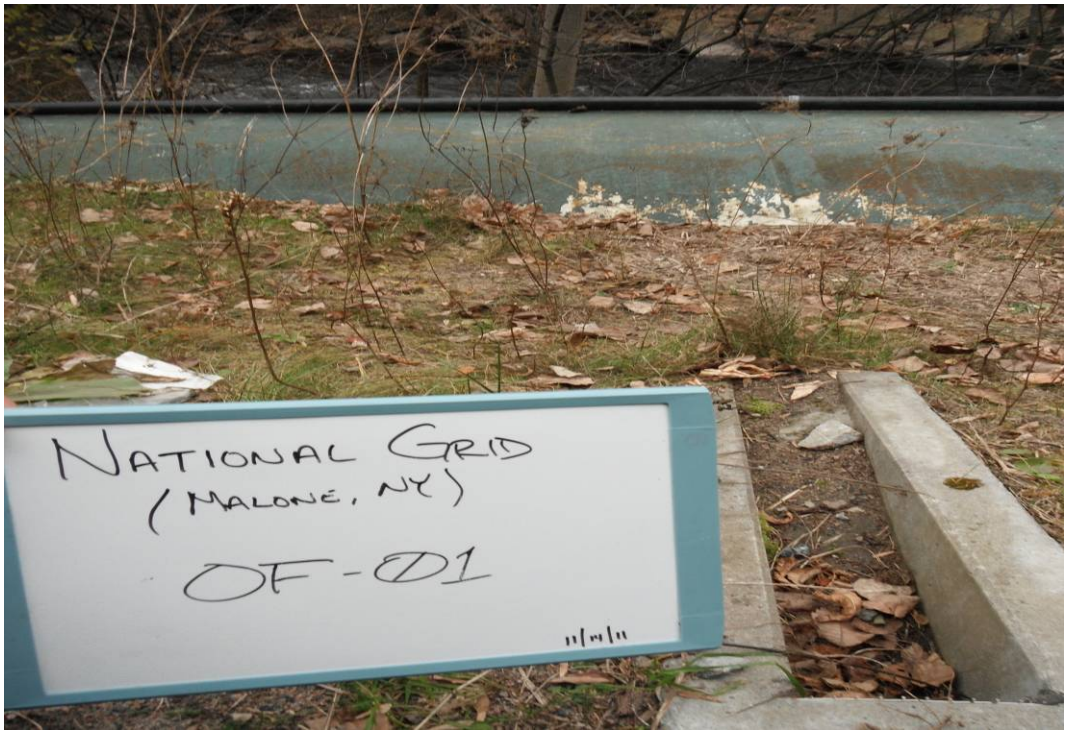
GP-11: Picture of the other 18-24” metal pipes under bridge on east side of river.

GP-12: View of two 24” diameter pipes on west side of river under Main St. Bridge. The distance between the two is roughly 45’. Pipes apparently drain storm water from roads/parking lots.

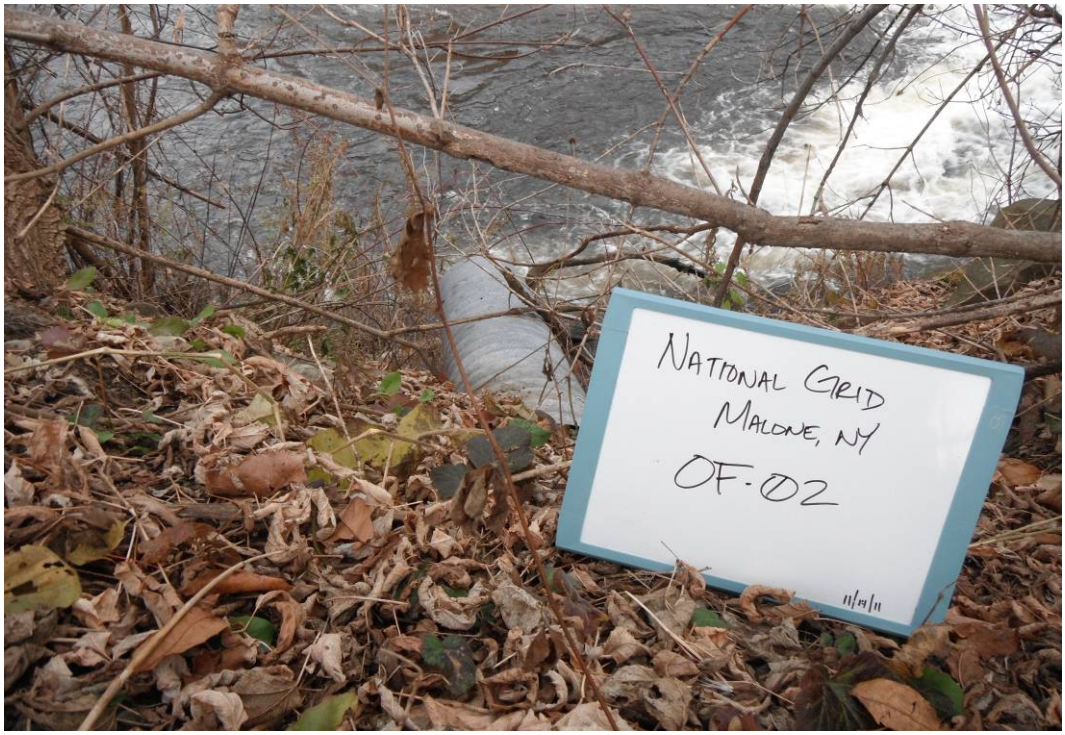
GP-13: Picture of the more upstream of the two 24” metal pipes under bridge on west side of river. Notice two small 3-4” metal pipes coming out of retaining wall just left and slightly below large pipe.

GP-14: Picture of the more downstream of the two 24” metal pipes under bridge on west side of river.

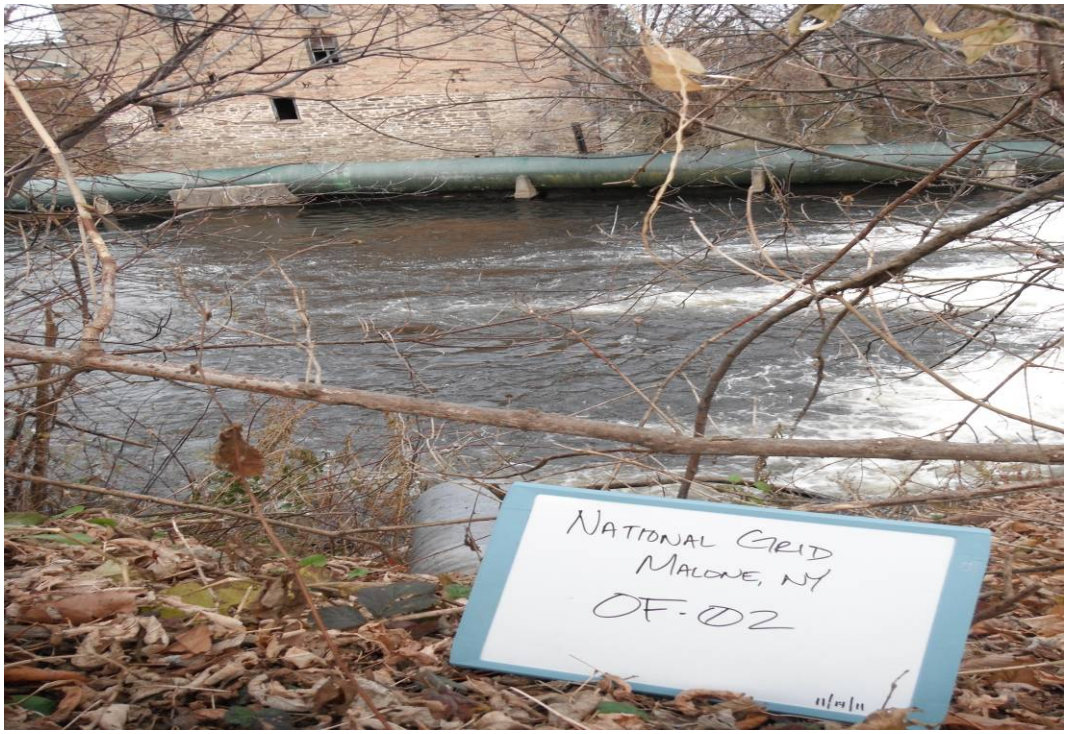
OF-01: PVC pipe about 30' from river and about 20' above river elevation. Located about 50' upstream on east side of river in the middle of a footpath. No discharge was observed at time of photo.



OF-01 (continued): Looking west towards the river above large power generating feeder pipe.



OF-02: CMP 12" pipe approximately 5-10' up from west side of river. The pipe is about 30' downstream of dam and roughly 15-20' higher than river elevation. No discharge was observed at time of photo.

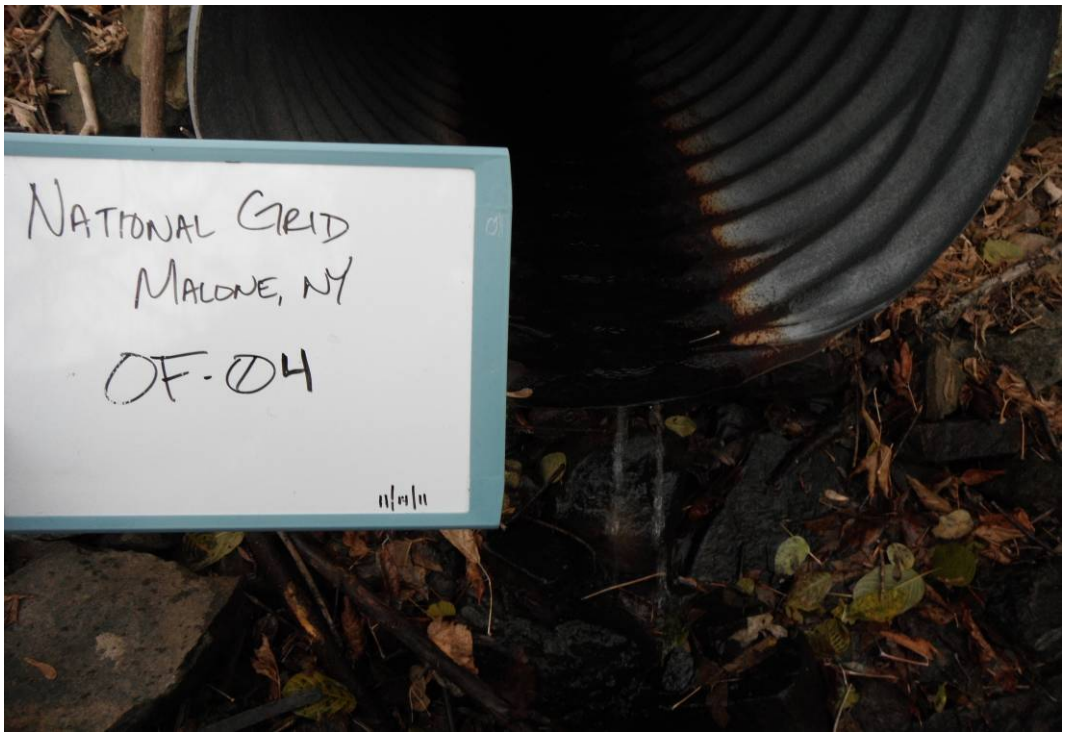


OF-02 (continued): Looking east towards large feeder pipe and abandoned building.

OF-03: 18” HDPE pipe on west side of river. The pipe is about 30’ from the riverbank, roughly 10’ higher than river elevation, and approximately 200’ upstream from bridge. Approximate 10 mL/min discharge observed at time of photo.

OF-03 (continued): Looking up the river bank on the west side.

OF-04: 24” CMP on west side of river. Pipe is approximately 5-10’ from the river bank, about 5’ higher than river elevation, and roughly 100’ upstream from bridge. A discharge rate of approximately 1000-1500 mL/min observed at time of photo.



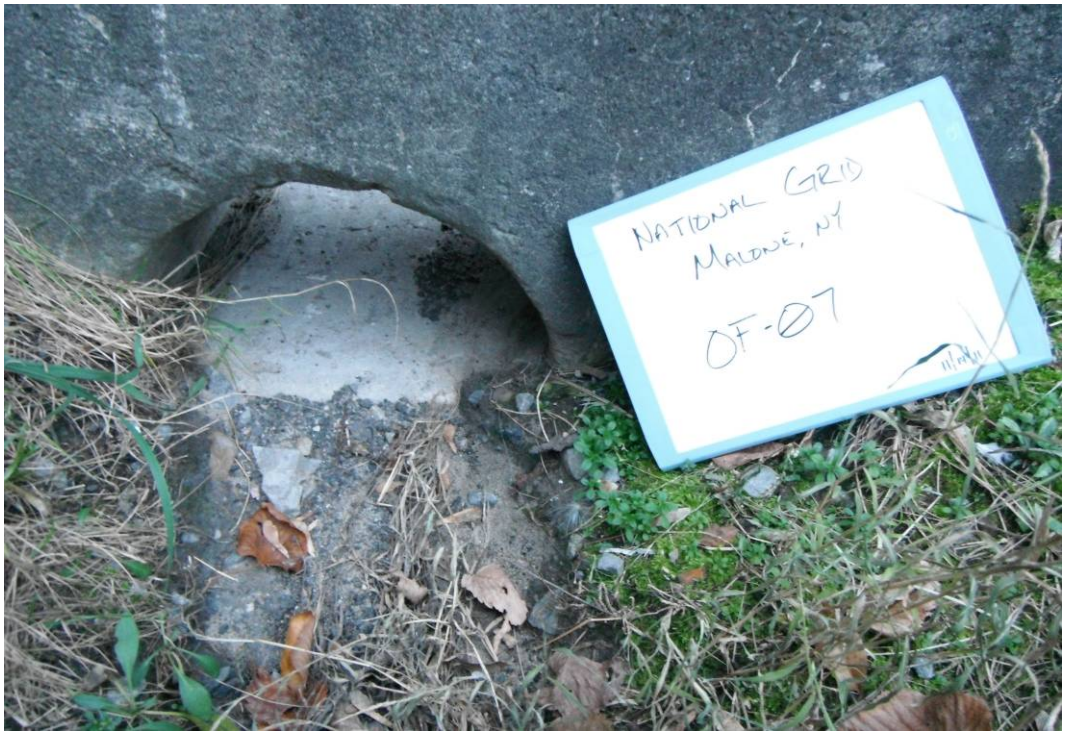
OF-04 (continued): View of pipe with discharge.

OF-05: 8” Cast iron pipe on east side of river bank and tucked into corner of building that has the old power-generator. This is also the general location of sediment sample NG-SR-SD-16. No discharge observed at time of photo.

OF-05: In the background you can see the old power-generator looking upstream.

OF-06: 8" PVC pipe on east side of river. Power generator building immediately left on photo. The pipe is approximately 30' above river elevation. Large sediment deposit below is location of NG-SR-SD-16. No discharge observed from pipe at time of photo.

OF-06 (continued): Source of the pipe that comes from the building, runs under driveway, and extends through retaining wall by the river.



OF-07: Half-moon drainage hole through concrete wall, 12” in diameter. Located on top of retaining wall on east side of river about 5’ north and 3’ higher than OF-06. Apparently drains driveway run off.

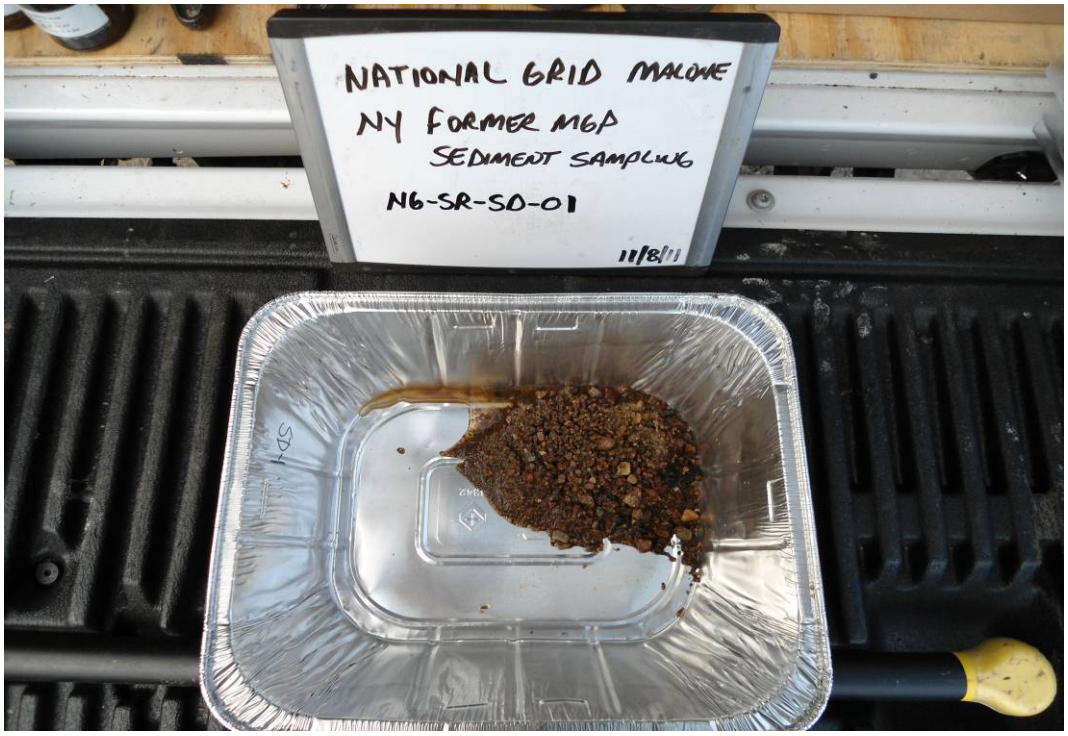
OF-07 (continued): Distant view of OF-07. Notice makeshift channel to promote drainage toward hole.

OF-08: 10” HDPE pipe on east side of river. The pipe is about 30’ higher than river elevation and about 15’ from river’s edge.

OF-08 (continued): From pipe looking west into river. Site is in the background on opposite side of river.

Attachment B

Photographic Log of Collected Sediment Samples

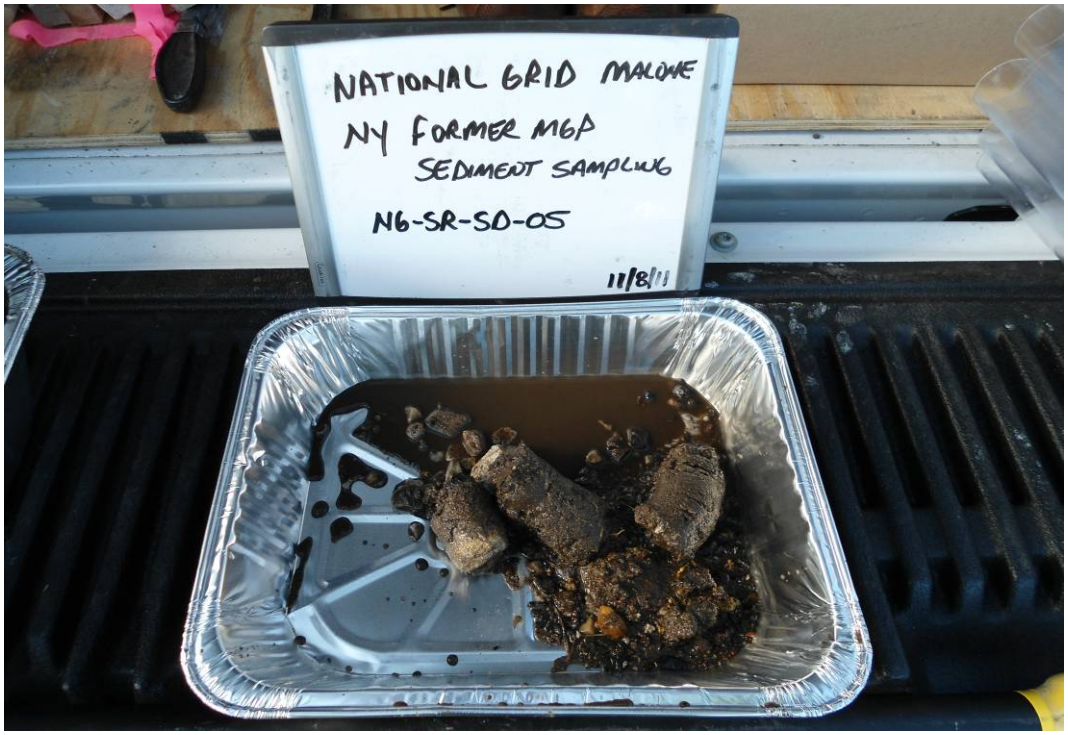


NG-SR-SD-01: Gray brown fine to coarse sand, little fine gravel. No impacts were observed.

NG-SR-SD-02: Gray brown fine to coarse sand, little/some fine to coarse gravel. No impacts observed.

NG-SR-SD-03: Gray brown fine to medium sand, trace coarse sand, trace fine to coarse gravel. No impacts observed.

NG-SR-SD-04: Gray brown fine to medium sand, trace coarse sand, trace fine to coarse gravel. No impacts observed.



NG-SR-SD-05: Dark gray brown fine to coarse sand, trace fine to coarse gravel, trace silt. No impacts observed.

NG-SR-SD-06: Brown fine sand, trace medium to coarse sand, trace fine to coarse gravel. No impacts observed.

NG-SR-SD-07: (0 – 10”) Brown fine sand, trace medium to coarse sand. No impacts observed in either sample.

NG-SR-SD-08: (0 – 6”) Dark brown fine sand, trace silt, trace organics (roots). (6 – 11”) Dark brown fine sand, trace silt, trace brick. No impacts observed in either sample interval.

NG-SR-SD-09: (0 – 6") Dark brown fine sand, trace silt, trace organics (roots). (6 – 12") Same as above (SAA). (12 – 14") SAA, trace wood. No impacts observed in samples.

NG-SR-SD-10: Brown fine to medium sand, little coarse sand, little fine to coarse gravel. No impacts observed.

NG-SR-SD-11: Dark brown fine to medium sand, little coarse sand, little fine to coarse gravel. No impacts observed.

NG-SR-SD-12: (0 – 6") Brown fine sand, trace organics (roots). (6 – 12") Brown fine sand, trace organics (leaf litter). (12 – 20") SAA. No impacts observed in samples.

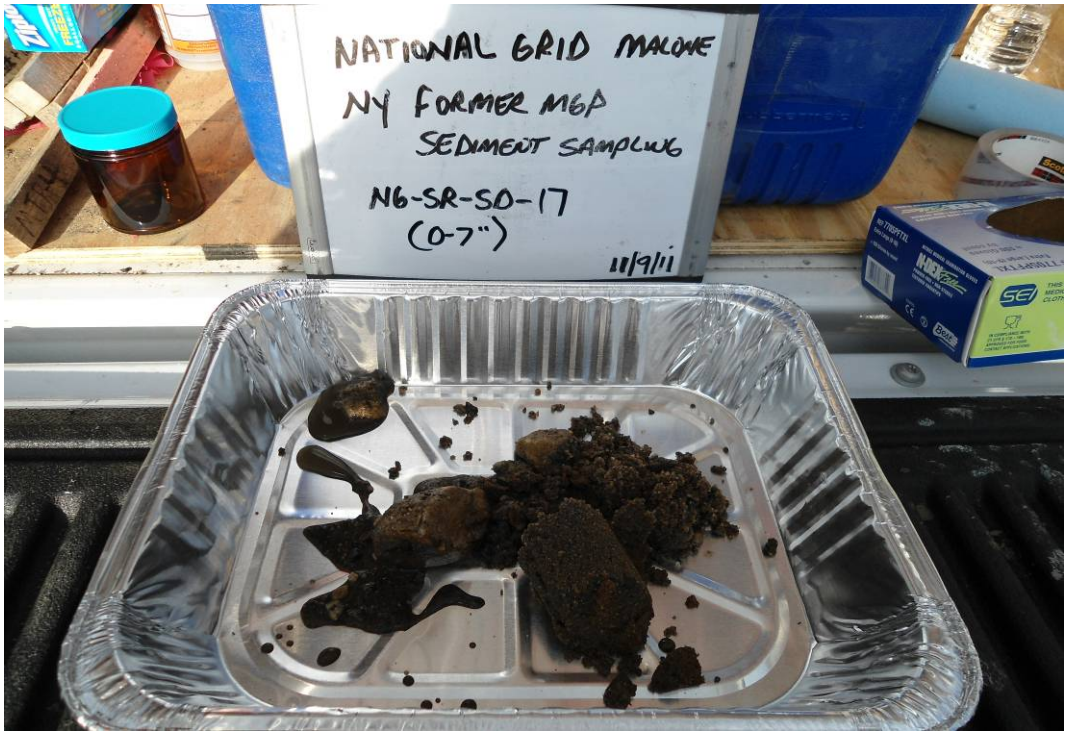
NG-SR-SD-13: Brown fine sand, trace organics (twigs), trace brick. No impacts observed.

NG-SR-SD-14: (0 – 6") Brown fine sand, trace organics (roots). (6 – 12") SAA. (12 – 24") SAA, trace silt. (24 – 36") SAA. No impacts observed in samples.

NG-SR-SD-15: Brown fine to coarse sand, little fine to coarse gravel. No impacts observed.

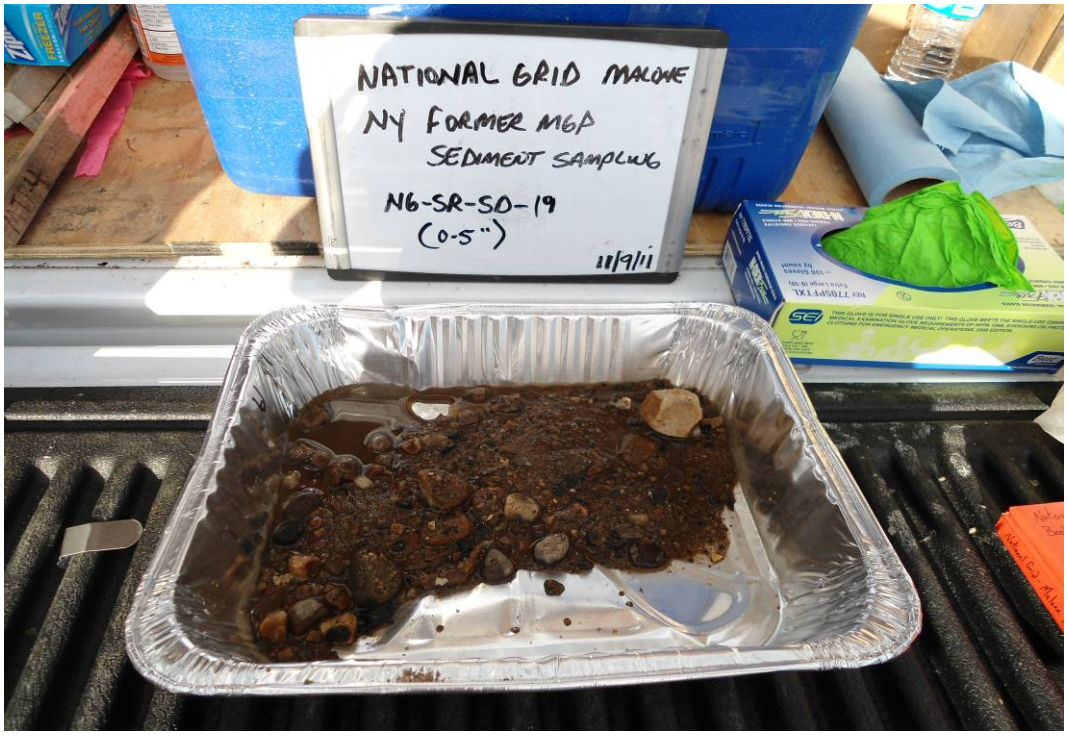
NG-SR-SD-16: (0 – 6") Brown fine to medium sand, trace organics (vegetation). (6 – 12") SAA. (12 – 24") Brown fine to medium sand. No impacts observed in samples.

NG-SR-SD-16 (Continued): (24 – 36") Brown fine to medium sand, trace wood. (36 – 48") SAA. No impacts observed in samples.



NG-SR-SD-17: Brown fine to medium sand, little coarse sand, trace fine to coarse gravel, slight odor. No visual impacts observed.

NG-SR-SD-18: Brown fine to medium sand, little coarse sand, trace fine to coarse gravel. No impacts observed.



NG-SR-SD-19: Brown fine to coarse sand, little/some fine to coarse gravel. No impacts observed.

NG-SR-SD-20: Dark brown fine sand, trace silt, trace fine to coarse gravel. No impacts observed.

NG-SR-SD-21: Dark brown fine sand, trace organics (wood), trace fine to medium gravel. No impacts observed.

NG-SR-SD-22: Brown fine to coarse sand and fine to coarse gravel. No impacts observed.

NG-SR-SD-23: Brown fine to coarse sand, little fine to medium gravel, trace organics (vegetation/twigs). No impacts observed.

NG-SR-SD-24: Dark brown silt, little organics (roots), trace fine to coarse sand, trace fine to medium gravel, slight odor. PID readings measured 1.8 ppm. No visual impacts.

NG-SR-SD-25: Dark brown silt, trace fine sand, trace organics (leaf litter/ roots), slight odor. PID readings measured 0.5 ppm. No visual impacts.

Attachment C

Forensic Evaluation

ARCADIS
Infrastructure, environment, buildings

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Suite 300
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MEMO

To:
File

Copies:
Scott Powlin

From:
Ted C. Sauer

Date:
March 30, 2012

ARCADIS Project No.:
B0036706

Subject:
Forensic Evaluation of Sediment Samples Collected in the Salmon River Upstream, Adjacent to, and Downstream of the NG Former MGP (Amsden Street) Site in Malone, NY

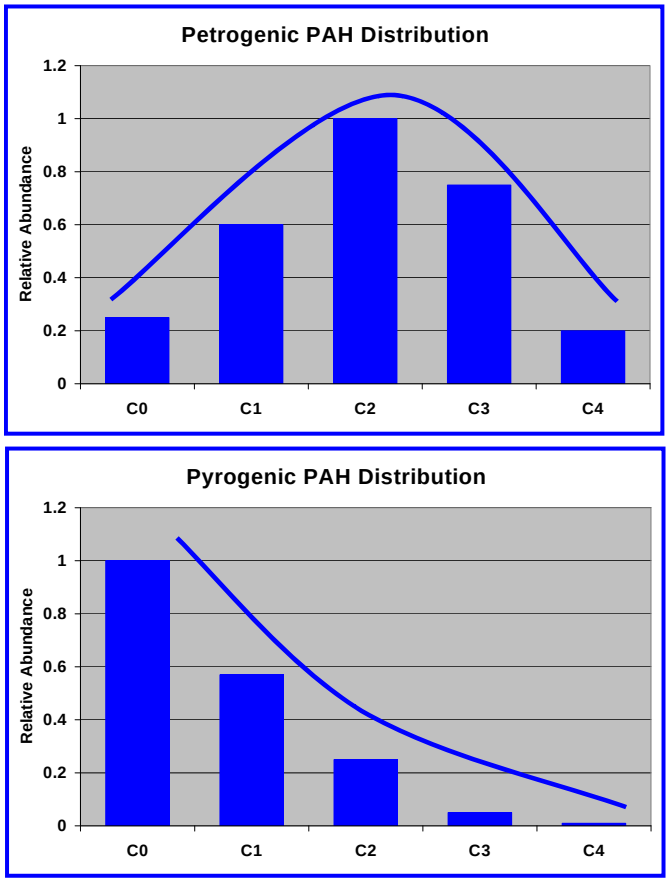
As part of an on-going Remedial Investigation of the National Grid (NG) former manufactured gas plant (MGP) Site on Amsden Street in Malone, New York, sediment samples were collected in the Salmon River upstream, adjacent to, and downstream of the Site for forensic polycyclic aromatic hydrocarbon (PAH) analysis. The purpose of this memorandum is to document the forensic assessment of potential sources of PAHs in the collected sediment samples.

Thirty-eight sediment samples were collected at 25 stations (SD-01 through SD-25) on the river (Figure 1). In addition to surface sediment (e.g., approximately 0-6 inches) samples collected at all stations, subsurface samples were also collected at stations SD-07, -08, -09, -12, -14, and -16. Upstream samples were collected at 5 stations (SD-12 through SD-16), four of which were taken upstream from the Main Street bridge, and one downstream of the bridge on the downstream side of a former power generator building (SD-16). Stations SD-12 and SD-14 were collected behind the river dam, approximately 900 feet upstream from the Site. Thirteen samples were collected adjacent to the Site (SD-01 through SD-11, SD-24, and SD-25), five of which were collected in an area of a solidified tar patty (SD-01 through SD-05). Downstream sediments were collected at seven locations (SD-17 through SD-23).

PAHs that include the parent and alkyl groups of 2- to 6-ring PAHs were analyzed by modified EPA Method 8270 in river sediment samples. Results are provided in tables (Appendix A) in the PAH data summarized in the PAH compositional fingerprints (Appendix B). PAH diagnostic ratios were calculated and PAH double ratio plots were prepared to help with the evaluation. The PAH diagnostic ratios are useful in identifying PAH compositional differences/ similarities that suggest potential PAH sources in samples (Yunker et al., 2000; Stout et al., 2000; EPRI, 2000). Multiple lines of evidence from the forensic data were used to identify potential sources of the PAHs in the sediment samples. As part of this evaluation, a representative sample of coal tar collected from the Site was included. Data for the coal tar Site sample were provided in a previously prepared memorandum to File from Ted Sauer, dated January 11, 2011 (‘Forensic Evaluation of PAHs in Tar Samples Collected at the NG Former MGP Site and

Downstream of the Site in Malone, NY'). The memorandum was included as Attachment 1 of the March 2, 2011 RI Data summary Report to the New York State Department of Environmental Conservation (NYSDEC).

Evaluation of the PAH compositions of the sediment samples (Appendix B) indicates that PAHs in all samples have a pyrogenic origin evident by the dominance of the parent PAH in a family of PAHs (e.g., phenanthrene, C1-phenanthrenes, C2-phenanthrenes etc.) with decreasing PAH alkyl group concentration with increasing PAH alkylation (see chart). Some samples [SD-05 (0-6"), SD-16 (0-6"), SD-16 (6-12"), SD-22 (0-4"), and SD-25 (0-6")] may contain a trace amount of petroleum PAHs as evidenced by the relative slight increase in alkyl groups of the 4-ring PAHs. This possible petroleum contribution, probably residual mix of heavy oils (e.g. crankcase oil, lube oil), is a component of background PAHs for the river. The PAH composition and concentrations of the sediment samples are consistent with background combustion product PAHs typical of industrial/urban influenced river sediments (Stout et al., 2004). These background combustion product PAHs may have originated from a variety of sources such as forest fires, fuel and coal combustion, anthropogenic burning, and entered the river from general runoff, point discharges and atmospheric deposition. A representative PAH composition of the upstream samples is shown on Figure 2.



Representations of the relative amounts of PAH alkyl groups for petrogenic and pyrogenic PAH source materials

The range of PAH concentrations in the sediment samples is summarized on Figure 3. Total priority pollutant (plus 2-methylnaphthalene) PAH (17; Total PPPAH) concentrations in upstream samples from Stations SD-12 to SD-16 (red symbols) range from 0.69mg/kg at SD-16 (24-36 inches) to 12.8 mg/kg at SD-16 (0-6 inches). Total PPPAH concentrations in the samples adjacent to the site from Stations SD-01 to SD-09 (black symbols) range from 1.1 mg/kg at SD-08 (6-11 inches) to 28.0 mg/kg at SD-05 (0-6 inches). Total PPPAH concentrations in the samples nearly adjacent to the site (Stations SD-10, SD-11, SD-24 and SD-25 [blue symbols]) range from 7.71 mg/kg at SD-25 (0-

6 inches) to 14.6 mg/kg at SD-11 (0-6 inches). Total PPPAH concentrations in the samples downstream of the site from Stations SD-17 to SD-23 (green symbols) range from 1.41 mg/kg at SD-22 (0-6 inches) to 14.1 mg/kg at SD-17 (0-7 inches), except at SD-19 (0-5 inches) where the Total PPPAH concentration is 291 mg/kg. As shown on Figure 3, most of the samples are clustered in the concentration range between 0 and 15 mg/kg except for four surface (0-6 inches or less) samples adjacent to the site from stations SD-01, SD-04, SD-05, and SD-06, which were slightly higher in concentration (between 20 and 28 mg/kg) and one of the downstream samples, SD-19, which was higher in concentration (291 mg/kg) than all the other samples.

The PAH compositions of all sediment samples are dominated by the heavier 4- to 6-ring PAHs evident by the low 2-&3-ring PAHs/Total PAH ratios shown on Figure 3, which is typical of background PAH compositions (Stout et al., 2004). (Note that the Total PAH concentrations on Figure 3 include all the forensic PAHs, which is different than the Total PPPAH concentrations which include the 16 priority pollutant PAHs (plus 2-methylnaphthalene). The PAH compositional characteristics for the sediment samples are summarized in double ratio plots of the PAH diagnostic ratios commonly used in PAH source evaluations (Costa et al., 2004; Costa and Sauer, 2005; Yunker et al., 2002). The double ratio plot of Benz(a)anthracene/Chrysene (BAA/C) vs. Fluoranthene/Pyrene (Fl/Py)on Figure 4 shows a cluster of samples with Fl/Py ratios between 1.0 and 1.3 and BAA/C ratios of less than 1.0, indicated by the lower circle and a cluster of samples with Fl/Py ratios between 1.1 and 1.3 and BAA/C ratios of greater than 1.0, indicated by the upper circle. The lower circle reflects background PAH compositions observed in the upstream samples. The PAH compositions of many of the adjacent and near Site and downstream samples fall within the upstream PAH composition circle also, and indicate the predominance of background PAHs in these samples. Most of the samples with background PAH compositions have relatively low Total PAH concentrations (<15 mg/kg Total PPPAHs), (Figure 3)

Compositionally, a few higher PAH concentration samples adjacent to the Site (e.g., SD-01) have a slightly different pyrogenic signature than the other samples (e.g., upstream samples), evident in the PAH diagnostic ratio plot (Figure 4). Comparison of the PAH compositions of the upstream samples (Figure 2) with a representative sample taken adjacent to the Site (Figure 5) shows very similar compositions. Only the PAH diagnostic ratios provide information to suggest a difference in compositions (Figure 4). In Figures 4 and 6, the upper circle represents a tight cluster of adjacent Site samples (black symbols) with BAA/C ratio values greater than 1.0. Since these samples were collected near areas of observed hardened coal tar residual (SD-01, SD-04, SD-05, SD-06, SD-07, SD-09), the different compositional characteristic of these samples is probably due to a contribution of coal tar residual in the samples. Except for SD-19, Total PPPAH concentrations are no higher than 28 mg/kg. Further, these samples fall compositionally in the area of a representative Site residual coal tar sample (Site Tar on Figure 4; which appears to be originated from a coal carbonization (CC) process). If the compositional difference is due to coal tar product residual, the coal tar residual is well weathered as shown on Figure 3 where the 2-&3-ring PAHs/TPAH ratio is between 0.18 to 0.33 indicating significant loss of naphthalenes and phenanthrenes compared to fresh coal tar. These samples have the same degree of absence of 2-&3-ring PAHs as the

upstream and other background-influenced samples. Fresh coal tar has a 2-&3-ring PAHs/TPAH ratio of 0.5 to 0.6.

The PAH composition of SD-19 downstream (Appendix B) has a slightly different BAA/C ratio than the other samples that probably contain some coal tar residual. Based on the PAH composition and the relatively high concentration of 291 mg/kg Total PPPAH of this sample, this sample appears to contain coal tar residual. However, the PAH diagnostic ratios (Figure 4) indicate a different source of coal tar material. None of the Site-related coal tar samples (5 samples; see 2011 Memorandum) had similar PAH diagnostic ratios as the SD-19 sample. A source of coal tar residual may be from the Site, but an additional source should be considered since there is PAH compositional difference in this sample compared to Site-related coal tars. Sealcoat products used on macadam (e.g., parking lots and roads) are a source of coal tar product PAHs and have been recently found to be major contributor from runoff to both PAH loading and sediment PAH concentrations in waterways (Yang et al, 2010).

In summary, the PAHs in all the river sediments originate from pyrogenic sources, but trace levels of petroleum PAHs may be a minor contributor in some samples. All sediments contain pyrogenic PAHs from combustion product sources, dominated by 4- to 6-ring PAHs and generally containing Total PPPAHs concentrations between 1 and 15 mg/kg. PAH compositions of upstream samples are typical of those of background urban sediments and are evident also in almost all near-Site and downstream samples. Sediments adjacent to the Site (SD-01, SD-04, SD-05, SD-06, SD-07, SD-09) appear to have some contribution of coal tar residual PAHs which is apparent from a slight compositional difference between adjacent Site samples and the other samples, in addition to slightly higher PAH concentration (<28 mg/kg). These higher concentrations were located in the area of visual hardened tar between SD-01 and SD-06. One downstream sample at SD-19 sample had a Total PPPAH concentration of 291 mg/kg and a PAH composition that indicated a contribution of coal tar residual. However, the PAH composition difference of SD-19 sample and other Site-related coal tars indicates a different and unknown source of coal tar in SD-19.

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Figures

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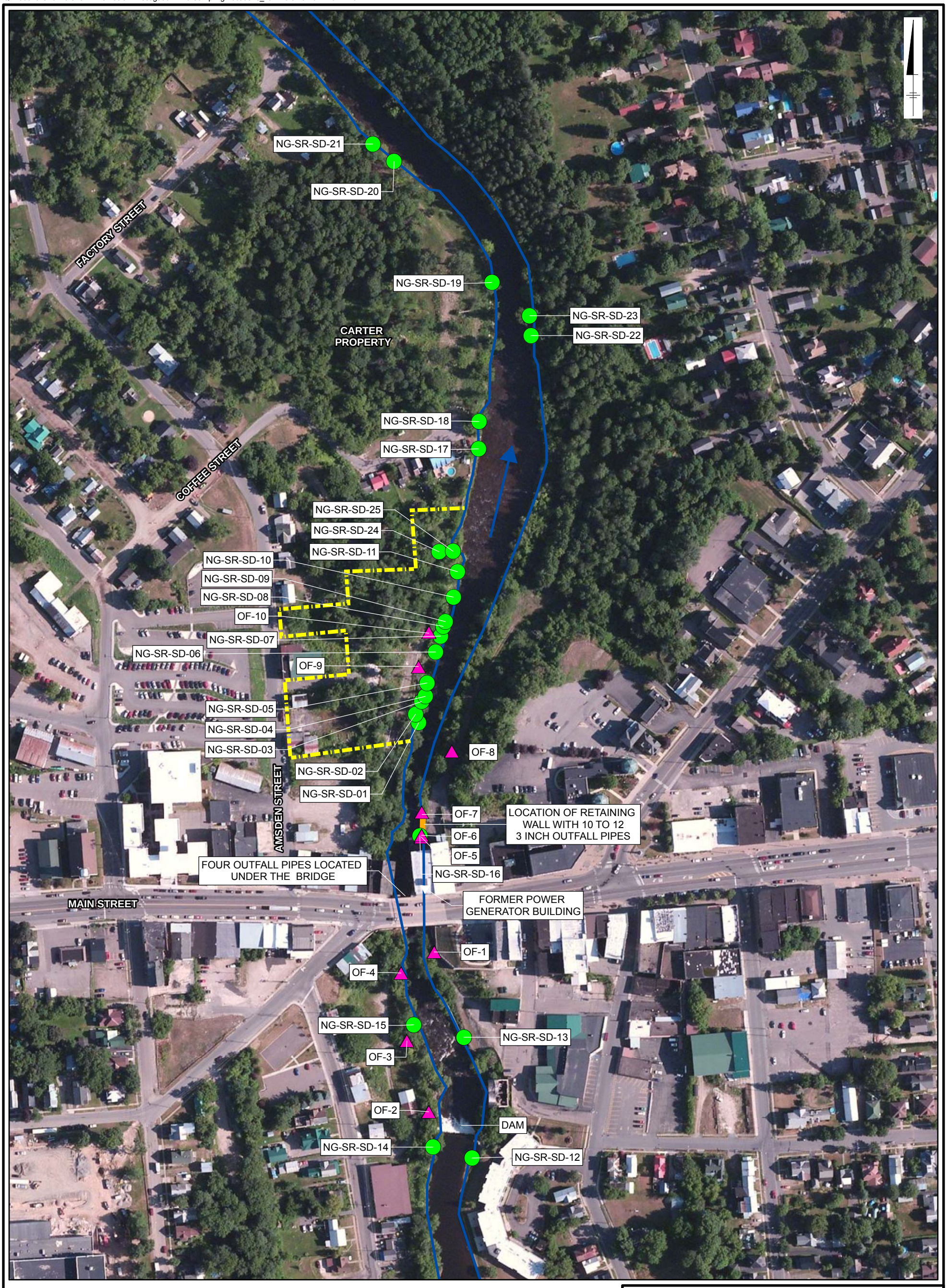

LEGEND:

- OUTFALL LOCATIONS
- SAMPLE LOCATIONS
- NATIONAL GRID PROPERTY LINE
- RETAINING WALL
- SHORELINE
- DIRECTION OF RIVER FLOW

0 200 400 Feet
GRAPHIC SCALE

NOTE:

1. 2010 IMAGERY PROVIDED BY BING IMAGERY SERVICE LICENSED THROUGH ESRI SOFTWARE.

NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

OUTFALL AND SAMPLING LOCATION MAP

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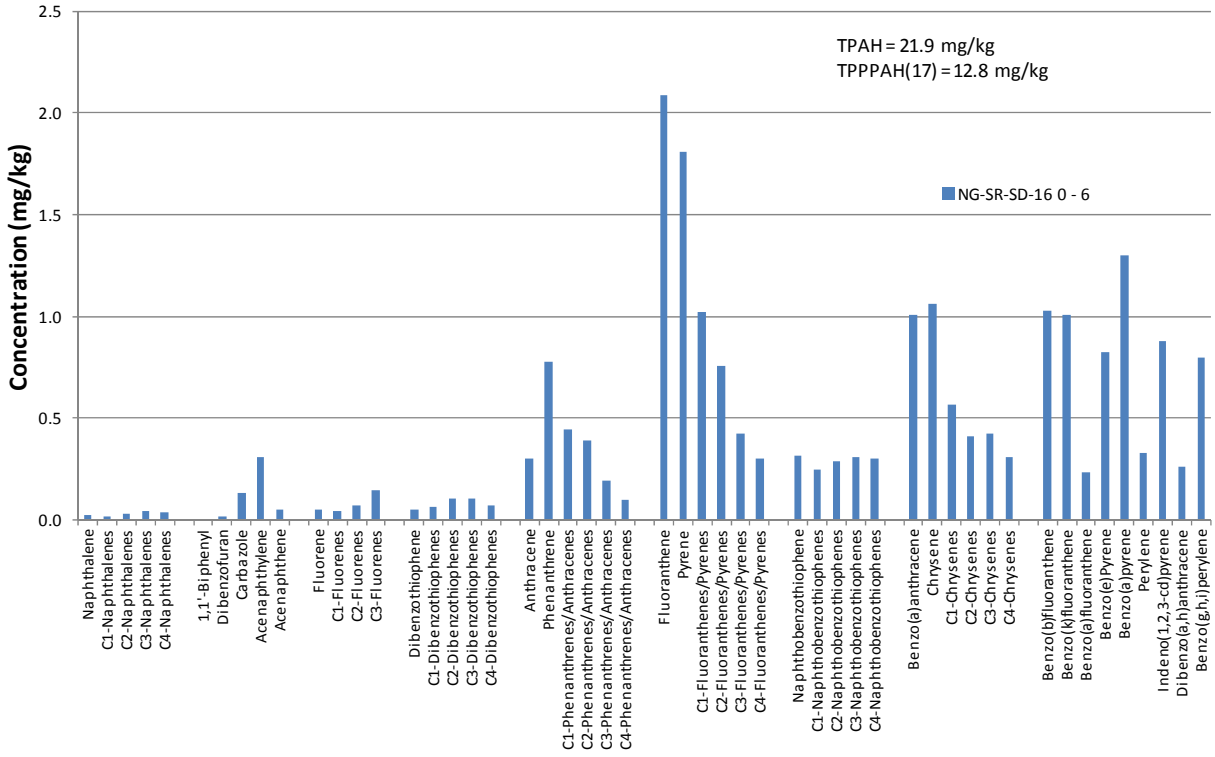
FIGURE
1

Figure 2. PAH Composition of SD-16 (0-6"), Upstream of Site NG Former MGP Site on Amsden Street in Malone, NY



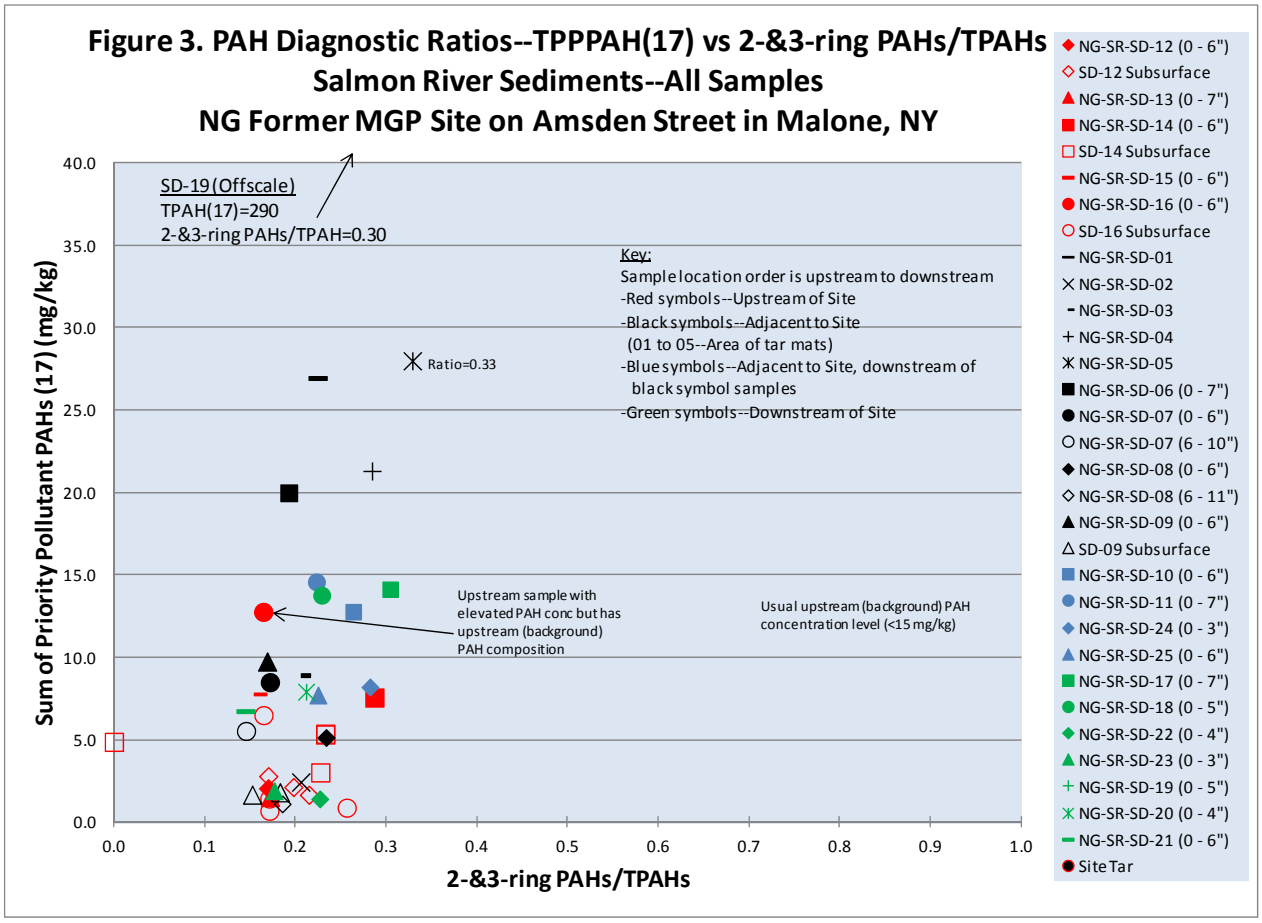


Figure 3. PAH Diagnostic Ratios--TPPPAH(17) vs 2-&3-ring PAHs/TPAHs
Salmon River Sediments--All Samples
NG Former MGP Site on Amsden Street in Malone, NY
SD-19 (Offscale)
TPAH(17)=290
2-&3-ring PAHs/TPAH=0.30
Ratio=0.33
Key:
Sample location order is upstream to downstream
-Red symbols--Upstream of Site
-Black symbols--Adjacent to Site
(01 to 05--Area of tar mats)
-Blue symbols--Adjacent to Site, downstream of black symbol samples
-Green symbols--Downstream of Site
Upstream sample with elevated PAH conc but has upstream (background) PAH composition
Usual upstream (background) PAH concentration level (<15 mg/kg)
Sum of Priority Pollutant PAHs (17) (mg/kg)
2-&3-ring PAHs/TPAHs
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
NG-SR-SD-12 (0 - 6")
SD-12 Subsurface
NG-SR-SD-13 (0 - 7")
NG-SR-SD-14 (0 - 6")
SD-14 Subsurface
NG-SR-SD-15 (0 - 6")
NG-SR-SD-16 (0 - 6")
SD-16 Subsurface
NG-SR-SD-01
NG-SR-SD-02
NG-SR-SD-03
NG-SR-SD-04
NG-SR-SD-05
NG-SR-SD-06 (0 - 7")
NG-SR-SD-07 (0 - 6")
NG-SR-SD-07 (6 - 10")
NG-SR-SD-08 (0 - 6")
NG-SR-SD-08 (6 - 11")
NG-SR-SD-09 (0 - 6")
SD-09 Subsurface
NG-SR-SD-10 (0 - 6")
NG-SR-SD-11 (0 - 7")
NG-SR-SD-24 (0 - 3")
NG-SR-SD-25 (0 - 6")
NG-SR-SD-17 (0 - 7")
NG-SR-SD-18 (0 - 5")
NG-SR-SD-22 (0 - 4")
NG-SR-SD-23 (0 - 3")
NG-SR-SD-19 (0 - 5")
NG-SR-SD-20 (0 - 4")
NG-SR-SD-21 (0 - 6")
Site Tar

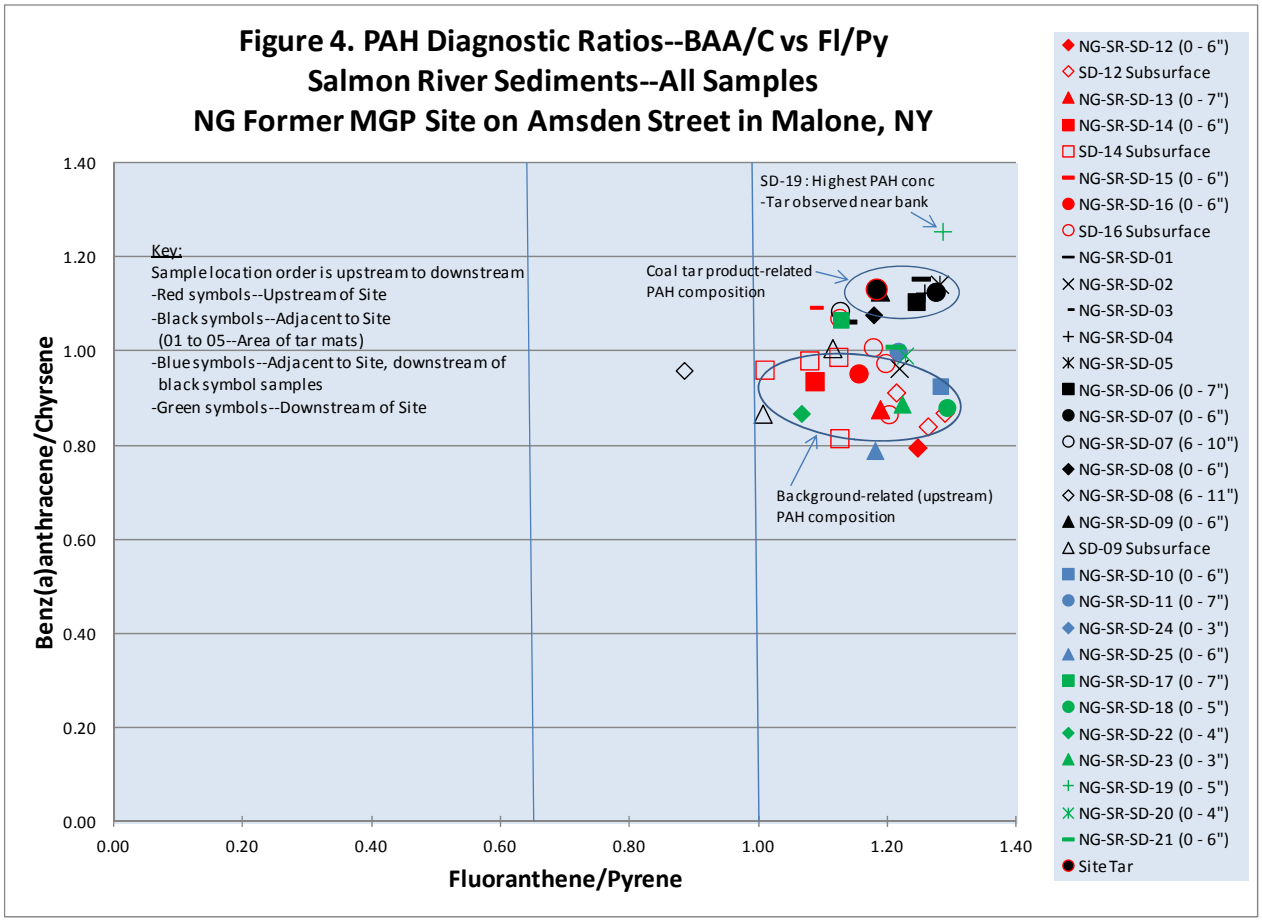


Figure 4. PAH Diagnostic Ratios--BAA/C vs Fl/Py
Salmon River Sediments--All Samples
NG Former MGP Site on Amsden Street in Malone, NY
Benz(a)anthracene/Chyrsene
Fluoranthene/Pyrene
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
Key:
Sample location order is upstream to downstream
-Red symbols--Upstream of Site
-Black symbols--Adjacent to Site
(01 to 05--Area of tar mats)
-Blue symbols--Adjacent to Site, downstream of black symbol samples
-Green symbols--Downstream of Site
SD-19 : Highest PAH conc
-Tar observed near bank
Coal tar product-related
PAH composition
Background-related (upstream)
PAH composition
NG-SR-SD-12 (0 - 6")
SD-12 Subsurface
NG-SR-SD-13 (0 - 7")
NG-SR-SD-14 (0 - 6")
SD-14 Subsurface
NG-SR-SD-15 (0 - 6")
NG-SR-SD-16 (0 - 6")
SD-16 Subsurface
NG-SR-SD-01
NG-SR-SD-02
NG-SR-SD-03
NG-SR-SD-04
NG-SR-SD-05
NG-SR-SD-06 (0 - 7")
NG-SR-SD-07 (0 - 6")
NG-SR-SD-07 (6 - 10")
NG-SR-SD-08 (0 - 6")
NG-SR-SD-08 (6 - 11")
NG-SR-SD-09 (0 - 6")
SD-09 Subsurface
NG-SR-SD-10 (0 - 6")
NG-SR-SD-11 (0 - 7")
NG-SR-SD-24 (0 - 3")
NG-SR-SD-25 (0 - 6")
NG-SR-SD-17 (0 - 7")
NG-SR-SD-18 (0 - 5")
NG-SR-SD-22 (0 - 4")
NG-SR-SD-23 (0 - 3")
NG-SR-SD-19 (0 - 5")
NG-SR-SD-20 (0 - 4")
NG-SR-SD-21 (0 - 6")
Site Tar

Figure 5. PAH Composition of SD-01 (0-6") Adjacent to Site NG Former MGP Site on Amsden Street in Malone, NY

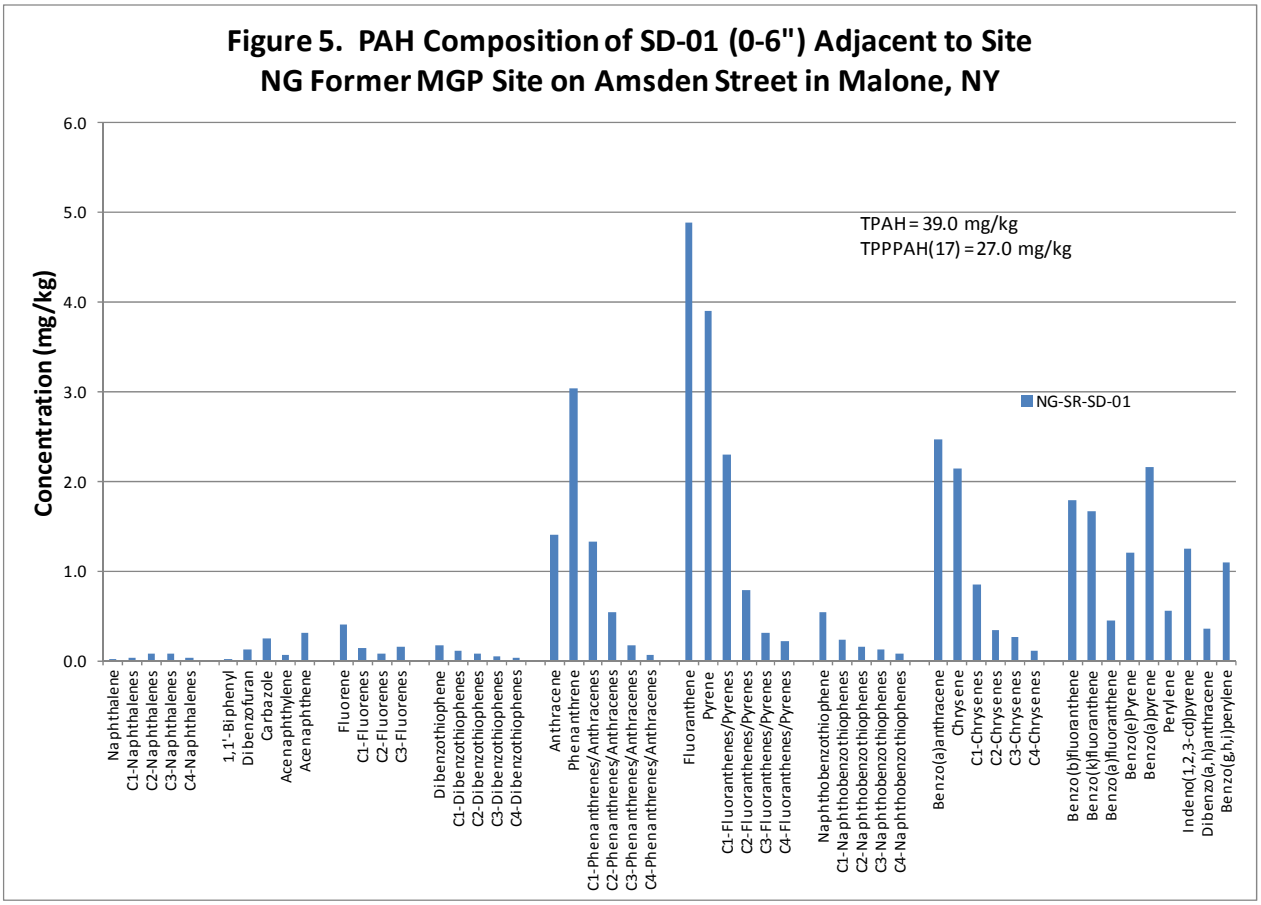
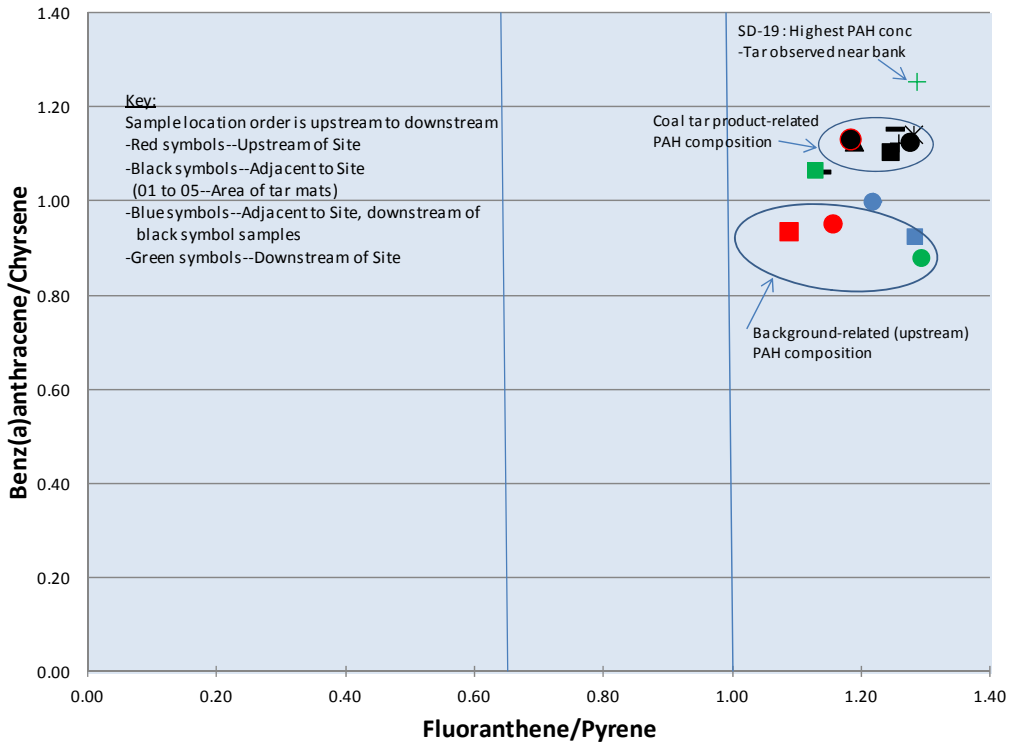


Figure 6. PAH Diagnostic Ratios--BAA/C vs Fl/Py
Salmon River Sediments--Samples with TPPPAH > 8 mg/kg
NG Former MGP Site on Amsden Street in Malone, NY



- NG-SR-SD-12 (0 - 6")
- SD-12 Subsurface
- NG-SR-SD-13 (0 - 7")
- NG-SR-SD-14 (0 - 6")
- SD-14 Subsurface
- NG-SR-SD-15 (0 - 6")
- NG-SR-SD-16 (0 - 6")
- SD-16 Subsurface
- NG-SR-SD-01
- NG-SR-SD-02
- NG-SR-SD-03
- NG-SR-SD-04
- NG-SR-SD-05
- NG-SR-SD-06 (0 - 7")
- NG-SR-SD-07 (0 - 6")
- NG-SR-SD-07 (6 - 10")
- NG-SR-SD-08 (0 - 6")
- NG-SR-SD-08 (6 - 11")
- NG-SR-SD-09 (0 - 6")
- SD-09 Subsurface
- NG-SR-SD-10 (0 - 6")
- NG-SR-SD-11 (0 - 7")
- NG-SR-SD-24 (0 - 3")
- NG-SR-SD-25 (0 - 6")
- NG-SR-SD-17 (0 - 7")
- NG-SR-SD-18 (0 - 5")
- NG-SR-SD-22 (0 - 4")
- NG-SR-SD-23 (0 - 3")
- NG-SR-SD-19 (0 - 5")
- NG-SR-SD-20 (0 - 4")
- NG-SR-SD-21 (0 - 6")
- Site Tar

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Appendix A

PAH Concentrations and Diagnostic Ratios in Salmon River Sediment Samples and Site Coal Tar

TABLE A1
PAHs CONCENTRATIONS AND DIAGNOSTIC RATIOS IN SALMON RIVER SEDIMENT SAMPLES AND SITE COAL TAR

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
REMEDIAL INVESTIGATION
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID:		NG-SR-SD-01	NG-SR-SD-02	NG-SR-SD-03	NG-SR-SD-04	NG-SR-SD-05	NG-SR-SD-06	NG-SR-SD-07	NG-SR-SD-07	NG-SR-SD-08	NG-SR-SD-08
Sample Depth():							0 - 7	0 - 6	6 - 10	0 - 6	6 - 11
Date Collected:		11/08/11	11/08/11	11/08/11	11/08/11	11/08/11	11/08/11	11/08/11	11/08/11	11/08/11	11/08/11
Reporting Limits	Units	0.00157 U							0.000927 U		
Cis/Trans-Decalin	mg/kg	0.00104	0.000431	0.000901	0.00116	0.0184	0.000584	0.000626	0.000618	0.00228	0.00068
C1-Decalins	mg/kg	0 U	0.00203	0.00111	0.00155	0.0168	0.018	0.00122	0.00112	0.0032	0.00181
C2-Decalins	mg/kg	0 U	0.00199	0.00148	0.00308	0.0183	0.00247	0.00194	0.00183	0.00475	0.00343
C3-Decalins	mg/kg	0 U	0.00177	0.00143	0.00236	0.0114	0.00205	0.00163	0 U	0.00357	0.00281
C4-Decalins	mg/kg	0 U	0.00331	0.00265	0.00536	0.0194	0.00441	0.00293	0.00322	0.00677	0.00454
Benzothiophene	mg/kg	0.000 U	0.000763 U	0.00999	0.0204	0.0753	0.00645	0.0031	0.00205	0.00841	0.00109
C1-Benzo(b)thiophenes	mg/kg	0.000 U	0.000763 U	0.00327	0.00785	0.0173	0.0029	0.00152	0.00148	0.00336	0.00204
C2-Benzo(b)thiophenes	mg/kg	0.004	0.00132	0.00301	0.0113	0.0182	0.00406	0.00178	0.0019	0.00247	0.00146
C3-Benzo(b)thiophenes	mg/kg	0.006	0.00248	0.0047	0.013	0.0242	0.00935	0.00298	0.00298	0.00386	0.00231
C4-Benzo(b)thiophenes	mg/kg	0.003	0.00178	0.00256	0.0058	0.015	0.00668	0.00203	0.00174	0.00205	0.00163
Naphthalene	mg/kg	0.022	0.00968	0.116	0.352	0.905	0.0591	0.0339	0.0323	0.172	0.0137
C1-Naphthalenes	mg/kg	0.026	0.00515	0.0342	0.0917	0.212	0.0235	0.0137	0.0118	0.0412	0.00836
C2-Naphthalenes	mg/kg	0.077	0.00884	0.0499	0.207	0.4	0.0797	0.0264	0.0193	0.0566	0.00776
C3-Naphthalenes	mg/kg	0.080	0.00916	0.0645	0.206	0.497	0.168	0.0429	0.0226	0.0676	0.00965
C4-Naphthalenes	mg/kg	0.033	0.00578	0.0378	0.0996	0.292	0.108	0.0303	0.0154	0.0411	0.0106
1,1'-Biphenyl	mg/kg	0.008	0.00308	0.0138	0.0609	0.0828	0.00878	0.00465	0.00451	0.0176	0.00203
Dibenzofuran	mg/kg	0.122	0.0158	0.055	0.271	0.285	0.0503	0.0275	0.0157	0.0753	0.00265
Carbazole	mg/kg	0.246	0.0234	0.0633	0.112	0.496	0.0468	0.0425	0.0389	0.0314	0.00491
Acenaphthylene	mg/kg	0.063	0.0317	0.13	0.397	0.504	0.294	0.0837	0.0835	0.0808	0.0654
Acenaphthene	mg/kg	0.310	0.0122	0.0174	0.122	0.0839	0.0264	0.0389	0.0169	0.0119	0.00262
Fluorene	mg/kg	0.405	0.027	0.0541	0.335	0.494	0.122	0.0647	0.0247	0.0276	0.00279
C1-Fluorenes	mg/kg	0.133	0.00769	0.05	0.167	0.328	0.15	0.046	0.0192	0.0226	0.00414
C2-Fluorenes	mg/kg	0.083	0.00696	0.0653	0.164	0.375	0.177	0.0494	0.0271	0.0357	0.0103
C3-Fluorenes	mg/kg	0.154 J	0.0195 J	0.1 J	0.12 J	0.293 J	0.202 J	0.0768 J	0.0392 J	0.0529 J	0.0144 J
Dibenzothiophene	mg/kg	0.166	0.0151	0.0385	0.15	0.155	0.0622	0.0279	0.0163	0.0214	0.00136
C1-Dibenzothiophenes	mg/kg	0.112	0.00981	0.0433	0.092	0.204	0.115	0.0348	0.0208	0.0227	0.0026
C2-Dibenzothiophenes	mg/kg	0.076	0.0114	0.0398	0.0732	0.172	0.114	0.0335	0.0241	0.0221	0.00566
C3-Dibenzothiophenes	mg/kg	0.050	0.00946	0.0292	0.0575	0.122	0.0752	0.0237	0.0229	0.0406	0.00691
C4-Dibenzothiophenes	mg/kg	0.031	0.00649	0.0187	0.0344	0.076	0.0408	0.0133	0.0119	0.0101	0.00469
Anthracene	mg/kg	1.400	0.0655	0.247	1.14	2.88	0.671	0.248	0.117	0.127	0.0401
Phenanthrene	mg/kg	3.030	0.272	0.69	2.72	2.59	1.14	0.499	0.29	0.387	0.0139
C1-Phenanthrenes/Anthracenes	mg/kg	1.330	0.0818	0.512	1.19	2.59	1.37	0.387	0.184	0.25	0.0337
C2-Phenanthrenes/Anthracenes	mg/kg	0.546	0.0477	0.324	0.703	1.62	0.896	0.269	0.129	0.18	0.038
C3-Phenanthrenes/Anthracenes	mg/kg	0.175	0.0193	0.141	0.304	0.72	0.34	0.102	0.0544	0.0842	0.0242
C4-Phenanthrenes/Anthracenes	mg/kg	0.056	0.00793	0.0487	0.0991	0.253	0.102	0.0325	0.0239	0.0341	0.0121
Fluoranthene	mg/kg	4.880	0.453	1.41	3.67	4.02	3.72	1.44	0.858	0.807	0.0596
Pyrene	mg/kg	3.900	0.372	1.24	2.92	3.14	2.99	1.13	0.762	0.685	0.0674
C1-Fluoranthenes/Pyrenes	mg/kg	2.300	0.156	0.889	1.8	3.55	2.07	0.771	0.375	0.403	0.0665
C2-Fluoranthenes/Pyrenes	mg/kg	0.788	0.0748	0.482	0.785	1.67	1.15	0.383	0.2	0.23	0.053
C3-Fluoranthenes/Pyrenes	mg/kg	0.302	0.036	0.207	0.354	0.872	0.469	0.157	0.0885	0.11	0.0392
C4-Fluoranthenes/Pyrenes	mg/kg	0.210	0.0268	0.136	0.205	0.525	0.293	0.0955	0.061	0.0772	0.0281

See Notes on Page 9.

TABLE A1
PAHs CONCENTRATIONS AND DIAGNOSTIC RATIOS IN SALMON RIVER SEDIMENT SAMPLES AND SITE COAL TAR

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
REMEDIAL INVESTIGATION
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID: Sample Depth(): Date Collected: Reporting Limits	Units	NG-SR-SD-01 11/08/11 0.00157 U	NG-SR-SD-02 11/08/11	NG-SR-SD-03 11/08/11	NG-SR-SD-04 11/08/11	NG-SR-SD-05 11/08/11	NG-SR-SD-06 0 - 7 11/08/11	NG-SR-SD-07 0 - 6 11/08/11	NG-SR-SD-07 6 - 10 11/08/11 0.000927 U	NG-SR-SD-08 0 - 6 11/08/11	NG-SR-SD-08 6 - 11 11/08/11
Naphthobenzothiophene	mg/kg	0.547	0.0514	0.171	0.308	0.475	0.358	0.155	0.0941	0.094	0.0141
C1-Naphthobenzothiophenes	mg/kg	0.239	0.0278	0.106	0.171	0.391	0.23	0.0812	0.0531	0.0532	0.016
C2-Naphthobenzothiophenes	mg/kg	0.152	0.0282	0.0646	0.0957	0.244	0.123	0.0404	0.037	0.0323	0.0124
C3-Naphthobenzothiophenes	mg/kg	0.118	0.0272	0.0485	0.0624	0.142	0.0692	0.0257	0.0329	0.022	0.0125
C4-Naphthobenzothiophenes	mg/kg	0.085	0.0232	0.0326	0.0351	0.0818	0.0316	0.0117	0.0229	0.013	0.00905
Benzo(a)anthracene	mg/kg	2.470	0.186	0.81	1.63	2.49	1.89	0.803	0.444	0.418	0.0634
Chrysene	mg/kg	2.140	0.193	0.762	1.45	2.18	1.71	0.713	0.409	0.388	0.0661
C1-Chrysenes	mg/kg	0.853	0.0721	0.41	0.763	1.52	1.16	0.368	0.259	0.202	0.0484
C2-Chrysenes	mg/kg	0.339	0.0433	0.216	0.419	0.9	0.584	0.18	0.289	0.118	0.0354
C3-Chrysenes	mg/kg	0.260	0.0378	0.18	0.322	0.754	0.438	0.142	0.317	0.101	0.0378
C4-Chrysenes	mg/kg	0.107	0.0228	0.0852	0.141	0.342	0.192	0.0619	0.0316	0.0541	0.0278
Benzo(b)fluoranthene	mg/kg	1.780	0.167	0.707	1.29	1.79	1.37	0.7	0.477	0.428	0.0967
Benzo(k)fluoranthene	mg/kg	1.670	0.155	0.663	1.16	1.67	1.42	0.636	0.424	0.357	0.0827
Benzo(a)fluoranthene	mg/kg	0.455	0.0325	0.194	0.401	0.64	0.523	0.195	0.123	0.107	0.0494
Benzo(e)Pyrene	mg/kg	1.200	0.125	0.508	0.952	1.23	1.21	0.495	0.374	0.308	0.106
Benzo(a)pyrene	mg/kg	2.160	0.194	0.823	1.64	2.26	1.84	0.813	0.58	0.468	0.105
Perylene	mg/kg	0.549	0.0519	0.214	0.486	0.558	0.567	0.228	0.172	0.127	0.0312
Indeno(1,2,3-cd)pyrene	mg/kg	1.250	0.131	0.58	1.13	1.32	1.28	0.595	0.452	0.339	0.174
Dibenzo(a,h)anthracene	mg/kg	0.355	0.033	0.156	0.302	0.407	0.38	0.171	0.11	0.0892	0.0353
Benzo(g,h,i)perylene	mg/kg	1.100	0.124	0.48	0.967	1.07	1.05	0.51	0.439	0.307	0.204
2-Methylnaphthalene	mg/kg	0.018	0.00457	0.0365	0.0846	0.189	0.0235	0.0118	0.0104	0.0387	0.00882
1-Methylnaphthalene	mg/kg	0.025	0.00378	0.0198	0.0659	0.163	0.0147	0.0109	0.00909	0.0288	0.00475
2,6-Dimethylnaphthalene	mg/kg	0.031	0.00415	0.0218	0.112	0.18	0.0351	0.0101	0.00676	0.0184	0.00307
2,3,5-Trimethylnaphthalene	mg/kg	0.015	0.00151	0.0126	0.0404	0.101	0.0324	0.00835	0.0042	0.0121	0.00132
4-Methyldibenzothiophene(4MDT)	mg/kg	0.030	0.00307	0.0103	0.0214	0.0471	0.0282	0.00934	0.00587	0.00578	0.00103
2/3-Methyldibenzothiophene(2MDT)	mg/kg	0.043	0.00351	0.0165	0.0346	0.0796	0.0434	0.0134	0.00784	0.00938	0.000855 U
1-Methyldibenzothiophene(1MDT)	mg/kg	0.014	0.00121	0.00547	0.0115	0.0246	0.0141	0.00414	0.00258	0.00313	0.000855 U
3-Methylphenanthrene (3MP)	mg/kg	0.294	0.0181	0.101	0.242	0.457	0.248	0.0661	0.0352	0.0482	0.00389
2/4-Methylphenanthrene (2MP)	mg/kg	0.389	0.0246	0.142	0.324	0.657	0.371	0.106	0.0489	0.071	0.00616
2-Methylanthracene (2MA)	mg/kg	0.221	0.00967	0.0859	0.233	0.623	0.254	0.0689	0.0292	0.0352	0.00774
9-Methylphenanthrene (9MP)	mg/kg	0.242	0.0151	0.102	0.242	0.496	0.288	0.084	0.0398	0.0521	0.0105
1-Methylphenanthrene (1MP)	mg/kg	0.171	0.0121	0.0728	0.14	0.324	0.19	0.0567	0.0272	0.0395	0.00413
Retene	mg/kg	0.002 U	0.000763 U	0.000863 U	0.000834 U	0.00183 U	0.000817 U	0.000768 U	0.000927 U	0.000902 U	0.000855 U
Benzo(b)fluorene	mg/kg	0.816	0.0428	0.233	0.554	1.04	0.479	0.199	0.08	0.101	0.0105
Total Priority Pollutant (17) PAHs	mg/kg	26.953	2.43065	8.922	21.3096	27.9929	19.986	8.491	5.5298	5.1312	1.10153
Total PAHs (includes Decalins)	mg/kg	38.957 J	3.592341 J	14.589501 J	32.79946 J	51.1058 J	33.616534 J	13.173206 J	8.767448 J	8.29222 J	1.90538 J
Total PAHs (excludes Decalins)		39.0	3.6	14.6	32.8	51.0	33.6	13.2	8.8	8.3	1.9
Fl/Py		1.25	1.22	1.14	1.26	1.28	1.24	1.27	1.13	1.18	0.88
BAA/C		1.15	0.96	1.06	1.12	1.14	1.11	1.13	1.09	1.08	0.96
BAP/BEP		1.80	1.55	1.62	1.72	1.84	1.52	1.64	1.55	1.52	0.99
2-&3-PAHs/TPAH		0.22	0.21	0.21	0.28	0.33	0.19	0.17	0.15	0.23	0.19

See Notes on Page 9.

TABLE A1
PAHs CONCENTRATIONS AND DIAGNOSTIC RATIOS IN SALMON RIVER SEDIMENT SAMPLES AND SITE COAL TAR

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
REMEDIAL INVESTIGATION
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID:	NG-SR-SD-09		NG-SR-SD-09	NG-SR-SD-09	NG-SR-SD-10	NG-SR-SD-11	NG-SR-SD-12	NG-SR-SD-12		NG-SR-SD-12	NG-SR-SD-13
Sample Depth():	0 - 6		6 - 12	12 - 14	0 - 6	0 - 7	0 - 6	6 - 12		12 - 20	0 - 7
Date Collected:	11/08/11		11/08/11	11/08/11	11/08/11	11/08/11	11/09/11	11/09/11		11/09/11	11/09/11
Reporting Limits				0.000951 U	0.00307 U	0.00305 U	0.000871 U	0.00444 U	[0.000858] U	0.00146 U	0.000819 U
Cis/Trans-Decalin	0.000925	0.00117	0.00128	0.000782	0.00941	0 U	0 U	0.00345 J	0.00 UJ	0.00114	0 U
C1-Decalins	0.00204	0.00165	0.00164	0.00358	0.0142	0.00318	0 U	0 U	0.00 U	0 U	0 U
C2-Decalins	0.00262	0.00248	0.00259	0.00636	0.0101	0.00593	0.0013	0 U	0.00 U	0 U	0 U
C3-Decalins	0.00226	0.00201	0.00162	0.00506	0 U	0 U	0 U	0 U	0.00 U	0 U	0 U
C4-Decalins	0.0039	0.00404	0.00239	0.00624	0 U	0 U	0 U	0 U	0.00 U	0 U	0 U
Benzothiophene	0.00346	0.00255	0.000932	0.00129	0 U	0 U	0 U	0 U	0.00 U	0 U	0 U
C1-Benzo(b)thiophenes	0.00223	0.00209	0.00208	0.00318	0.0086	0.00351	0 U	0 U	0.00 U	0.00232	0 U
C2-Benzo(b)thiophenes	0.00326	0.00295	0.0012	0.0014	0.00661	0.00577	0 U	0.0063	0.000866 J	0.0021	0 U
C3-Benzo(b)thiophenes	0.00456	0.00399	0.00182	0.00164	0.0123	0.0102	0.00203	0.00988 J	0.00199	0.00404	0.00186
C4-Benzo(b)thiophenes	0.00516	0.00262	0.00122	0.000951 U	0.00759	0.0073	0 U	0 U	0.000863	0.0019	0.000962
Naphthalene	0.0432	0.0424	0.00984 J	0.0128	0.0191	0.0381	0.0036	0.00444 U	0.00548	0.00314	0.0018
C1-Naphthalenes	0.0171	0.0324	0.00941	0.0114	0.0288	0.0238	0.00243	0.00444 U	0.00334	0.00282	0.00142
C2-Naphthalenes	0.0381	0.0527	0.0198	0.0107	0.0492	0.0562	0.0054	0.0192 J	0.00577 J	0.0091	0.0037
C3-Naphthalenes	0.0649	0.0596	0.0229	0.00696	0.0574	0.0753	0.00519	0.0168	0.00612	0.00948	0.00477
C4-Naphthalenes	0.0431	0.0354	0.0121	0.00547	0.036	0.0437	0.0029	0.0109 J	0.00321 J	0.00572	0.0035
1,1'-Biphenyl	0.00567	0.00722	0.00235	0.00188	0.0132	0.0093	0.00158	0.00444 U	0.00196	0.00189	0.000819 U
Dibenzofuran	0.0248	0.0327	0.00437	0.00565	0.169	0.0866	0.00594	0.00612	0.0102	0.00831	0.00312
Carbazole	0.035	0.0871	0.00783	0.0141	0.211	0.149	0.0249	0.0179	0.0264	0.031	0.0133
Acenaphthylene	0.125	0.113	0.0481 J	0.053	0.0446	0.134	0.019	0.0199	0.0168	0.0171	0.0218
Acenaphthene	0.0189	0.0173	0.00354	0.00345	0.369	0.162	0.0118	0.01	0.0138	0.016	0.00605
Fluorene	0.0465	0.0589	0.00745 J	0.00527	0.327	0.184	0.013	0.0159	0.0168	0.0203	0.00757
C1-Fluorenes	0.0521	0.041	0.00971	0.00425	0.0528	0.0721	0.00487	0.0145	0.00544	0.00776	0.00463
C2-Fluorenes	0.0723	0.0512	0.017	0.0074	0.0397	0.0746	0.0068	0.0161	0.00677	0.01	0.00812
C3-Fluorenes	0.0841 J	0.0678 J	0.0211 J	0.0172 J	0.139 J	0.17 J	0.0287 J	0.00444 UJ	0.0298 J	0.0298 J	0.0183 J
Dibenzothiophene	0.0263	0.0261	0.00407	0.00398	0.131	0.0966	0.0106	0.00825	0.013	0.0136	0.00627
C1-Dibenzothiophenes	0.0447	0.0345	0.0065	0.00237	0.0478	0.0794	0.00608	0.00751	0.00627	0.00856	0.00665
C2-Dibenzothiophenes	0.0477	0.0342	0.0103	0.0052	0.0351	0.081	0.00755	0.0123	0.00756	0.0122	0.0113
C3-Dibenzothiophenes	0.0347	0.0249	0.00807	0.00574	0.0342	0.0626	0.00755	0.0137	0.00624	0.0104	0.0131
C4-Dibenzothiophenes	0.0208	0.0148	0.00563	0.00423	0.0308	0.0424	0.00424	0 U	0.00419	0.00903	0.00744
Anthracene	0.27	0.494	0.0456 J	0.0399	0.384	0.413	0.0304	0.0417 J	0.0378	0.0546	0.0353
Phenanthrene	0.478	0.493	0.0774 J	0.0678	1.92	1.64	0.198	0.158 J	0.248	0.256	0.117
C1-Phenanthrenes/Anthracenes	0.51	0.447	0.0865	0.0407	0.328	0.666	0.0568	0.0698	0.0666	0.0822	0.0538
C2-Phenanthrenes/Anthracenes	0.377	0.289	0.0698	0.0341	0.138	0.372	0.0326	0.0379	0.0358	0.0477	0.0432
C3-Phenanthrenes/Anthracenes	0.15	0.113	0.0313	0.0176	0.0551	0.147	0.013	0.0214	0.0144	0.0206	0.0222
C4-Phenanthrenes/Anthracenes	0.0473	0.034	0.0122	0.00851	0.0307	0.0577	0.00714	0.0187	0.00647	0.0108	0.0109
Fluoranthene	1.58	1.23	0.234	0.167	2.23	2.59	0.39	0.319	0.414	0.514	0.259
Pyrene	1.33	1.04	0.21	0.166	1.74	2.13	0.313	0.263	0.328	0.399	0.218
C1-Fluoranthenes/Pyrenes	0.985	0.737	0.154	0.0944	0.589	1.04	0.123	0.122	0.122	0.185	0.119
C2-Fluoranthenes/Pyrenes	0.559	0.36	0.096	0.0748	0.255	0.53	0.0777	0.0719	0.0703	0.102	0.0731
C3-Fluoranthenes/Pyrenes	0.236	0.153	0.0557	0.0381	0.118	0.237	0.0332	0.0311	0.0274	0.0465	0.0383
C4-Fluoranthenes/Pyrenes	0.136	0.0958	0.0378	0.0284	0.104	0.169	0.0285	0.0245	0.0221	0.0351	0.0306

See Notes on Page 9.

TABLE A1
PAHs CONCENTRATIONS AND DIAGNOSTIC RATIOS IN SALMON RIVER SEDIMENT SAMPLES AND SITE COAL TAR

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
REMEDIAL INVESTIGATION
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID:	NG-SR-SD-09		NG-SR-SD-09	NG-SR-SD-09	NG-SR-SD-10	NG-SR-SD-11	NG-SR-SD-12	NG-SR-SD-12		NG-SR-SD-12	NG-SR-SD-13
Sample Depth():	0 - 6		6 - 12	12 - 14	0 - 6	0 - 7	0 - 6	6 - 12		12 - 20	0 - 7
Date Collected:	11/08/11		11/08/11	11/08/11	11/08/11	11/08/11	11/09/11	11/09/11		11/09/11	11/09/11
Reporting Limits				0.000951 U	0.00307 U	0.00305 U	0.000871 U	0.00444 U	[0.000858] U	0.00146 U	0.000819 U
Naphthobenzothiophene	0.199	0.144	0.0338	0.025	0.231	0.29	0.0484	0.0346	0.0446	0.0754	0.0405
C1-Naphthobenzothiophenes	0.117	0.081	0.0249	0.0186	0.097	0.165	0.023	0.0216	0.0188	0.0334	0.0293
C2-Naphthobenzothiophenes	0.0619	0.0445	0.0175	0.0146	0.133	0.159	0.0223	0.0187	0.0157	0.0317	0.0268
C3-Naphthobenzothiophenes	0.042	0.0293	0.0137	0.0144	0.154	0.142	0.0205	0.0184	0.0143	0.0295	0.0222
C4-Naphthobenzothiophenes	0.0285	0.0192	0.0122	0.013	0.141	0.111	0.0162	0.0165	0.012	0.025	0.016
Benzo(a)anthracene	0.977	0.714	0.154 J	0.111	0.8	1.14	0.136	0.125 J	0.142	0.219	0.121
Chrysene	0.867	0.716	0.153 J	0.128	0.864	1.14	0.171	0.137 J	0.169	0.252	0.138
C1-Chrysenes	0.513	0.36	0.0862	0.0647	0.24	0.478	0.0574	0.0599	0.0528	0.0839	0.0688
C2-Chrysenes	0.257	0.178	0.0517	0.0404	0.134	0.267	0.0357	0.0275	0.028	0.0456	0.0445
C3-Chrysenes	0.199	0.136	0.0491	0.0383	0.158	0.23	0.0328	0.0528	0.0261	0.0461	0.0362
C4-Chrysenes	0.104	0.0642	0.0317	0.0274	0.115	0.141	0.0204	0 UJ	0.02 J	0.0346	0.026
Benzo(b)fluoranthene	0.816	0.602	0.161 J	0.173	0.92	1.05	0.167	0.119	0.159	0.234	0.129
Benzo(k)fluoranthene	0.729	0.559	0.146 J	0.141	0.679	0.911	0.144	0.116 J	0.14	0.2	0.119
Benzo(a)fluoranthene	0.242	0.169	0.0493	0.0456	0.136	0.213	0.023	0.0254	0.0218	0.0318	0.0229
Benzo(e)Pyrene	0.586	0.443	0.133	0.154	0.635	0.761	0.121	0.0879	0.116	0.166	0.0979
Benzo(a)pyrene	0.958	0.702	0.183	0.185	0.958	1.19	0.162	0.129	0.159	0.222	0.138
Perylene	0.258	0.19	0.0483	0.0539	0.27	0.359	0.0476	0.0627	0.0455	0.0707	0.039
Indeno(1,2,3-cd)pyrene	0.689	0.5	0.16 J	0.18	0.687	0.847	0.126	0.0914	0.123	0.172	0.096
Dibenzo(a,h)anthracene	0.21	0.132	0.0407 J	0.0448	0.168	0.226	0.0319	0.0237	0.03	0.0461	0.0263
Benzo(g,h,i)perylene	0.591	0.439	0.165 J	0.173	0.637	0.762	0.129	0.0856	0.12	0.157	0.0886
2-Methylnaphthalene	0.0154	0.031	0.00805	0.0121	0.0235	0.0209	0.00195	0.00444 U	0.00297	0.00225	0.00118
1-Methylnaphthalene	0.0129	0.0218	0.00752	0.00702	0.0229	0.0176	0.002	0.00444 U	0.00236	0.00227	0.00105
2,6-Dimethylnaphthalene	0.0138	0.0218	0.00497	0.00599	0.02	0.0236	0.00193	0.0064	0.00216	0.00236	0.00116
2,3,5-Trimethylnaphthalene	0.0119	0.0126	0.00474	0.00112	0.00517	0.015	0.000871 U	0.00444 U	0.00108	0.00146 U	0.000819 U
4-Methyldibenzothiophene(4MDT)	0.0113	0.00886	0.00235	0.0011	0.0142	0.0243	0.00215	0.00444 U	0.00217	0.00324	0.00246
2/3-Methyldibenzothiophene(2MDT)	0.0167	0.0131	0.0016	0.000951 U	0.0193	0.03	0.00201	0.00444 U	0.00188	0.0022	0.00123
1-Methyldibenzothiophene(1MDT)	0.0055	0.00445	0.000886 U	0.000951 U	0.00594	0.0104	0.000985	0.00444 U	0.00102	0.00146 U	0.000949
3-Methylphenanthrene (3MP)	0.0881	0.0739	0.016	0.00704	0.0819	0.143	0.0139	0.0154	0.0158	0.0193	0.0108
2/4-Methylphenanthrene (2MP)	0.13	0.11	0.0233	0.0102	0.0956	0.188	0.0178	0.0192	0.0208	0.0254	0.0146
2-Methylanthracene (2MA)	0.102	0.118	0.0125	0.00799	0.0333	0.0883	0.00484	0.00842	0.00577	0.00796	0.00691
9-Methylphenanthrene (9MP)	0.112	0.0811	0.0195	0.00888	0.0609	0.134	0.0107	0.0137	0.0122	0.0161	0.0116
1-Methylphenanthrene (1MP)	0.069	0.0568	0.0128	0.00549	0.047	0.0985	0.0094	0.0105	0.0104	0.0124	0.00836
Retene	0.000872 U	0.00085 U	0.000886 U	0.00298	0.00307 U	0.00305 U	0.00369	0.0385 J	0.00532 J	0.00847	0.005
Benzo(b)fluorene	0.235	0.211	0.0355	0.0173	0.203	0.271	0.0321	0.0258	0.0303	0.0541	0.0225
Total Priority Pollutant (17) PAHs	9.744	7.8836	1.80668 J	1.66312	12.7702	14.578	2.04765	1.6542 J	2.12565	2.78449	1.5236
Total PAHs (includes Decalins)	15.978085 J	12.56677 J	3.071242 J	2.633592 J	17.95231 J	22.25029 J	3.014 J	2.64041 J	3.043339 J	4.16701 J	2.492062 J
Total PAHs (excludes Decalins)	16.0	12.6	3.1	2.6	17.9	22.2	3.0	2.7	3.0	4.2	2.5
Fl/Py	1.19	1.18	1.11	1.01	1.28	1.22	1.25	1.21	1.26	1.29	1.19
BAA/C	1.13	1.00	1.01	0.87	0.93	1.00	0.80	0.91	0.84	0.87	0.88
BAP/BEP	1.63	1.58	1.38	1.20	1.51	1.56	1.34	1.47	1.37	1.34	1.41
2-&3-PAHs/TPAH	0.17	0.22	0.18	0.15	0.26	0.22	0.17	0.21	0.20	0.17	0.17

See Notes on Page 9.

TABLE A1
PAHs CONCENTRATIONS AND DIAGNOSTIC RATIOS IN SALMON RIVER SEDIMENT SAMPLES AND SITE COAL TAR

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
REMEDIAL INVESTIGATION
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID:	NG-SR-SD-14	NG-SR-SD-14	NG-SR-SD-14		NG-SR-SD-14	NG-SR-SD-15	NG-SR-SD-16	NG-SR-SD-16	NG-SR-SD-16	NG-SR-SD-16	NG-SR-SD-16
Sample Depth():	0 - 6	6 - 12	12 - 24		24 - 36	0 - 6	0 - 6	6 - 12	12 - 24	24 - 36	36 - 48
Date Collected:	11/09/11	11/09/11	11/09/11		11/09/11	11/09/11	11/09/11	11/09/11	11/09/11	11/09/11	11/09/11
Reporting Limits		0.000892 U	0.00182 U	[0.0015] U		0.00178 U	0.0101 U	0.00525 U	0.000752 U	0.000862 U	0.00091 U
Cis/Trans-Decalin	0.00132	0.000707	0.00135	0.00152	0.00142 J	0 U	0 U	0 U	0 U	0 U	0 UJ
C1-Decalins	0.00216	0.00131	0.00261	0.00296	0.00209	0 U	0 U	0 U	0 U	0 U	0 U
C2-Decalins	0.00322	0.00193	0.00457	0.00447	0.00434	0.00408	0 U	0 U	0 U	0 U	0 U
C3-Decalins	0.00257	0 U	0 U	0.00354	0.00344	0 U	0 U	0 U	0 U	0 U	0 U
C4-Decalins	0.00806	0.00358	0 UJ	0.00774 J	0.00635	0 U	0 U	0 U	0 U	0 U	0 U
Benzothiophene	0.0016	0.0014	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U
C1-Benzo(b)thiophenes	0.00338	0.00214	0.00202	0.00259	0.00125	0 U	0 U	0 U	0 U	0 U	0 U
C2-Benzo(b)thiophenes	0.00671	0.00422	0.00431	0.00498	0.00276	0.00318	0.0114	0.00791	0.000909	0 U	0.00115
C3-Benzo(b)thiophenes	0.0108	0.00835	0.0082	0.00985	0.00429	0.00545	0.0182	0.0124	0.00212	0 U	0.00322
C4-Benzo(b)thiophenes	0.00607	0.00481	0.00525	0.00621	0.00304	0.00439	0.0135	0.00841	0.00108	0 U	0.00138
Naphthalene	0.0331	0.0232	0.0213	0.0394	0.0163 J	0.00765	0.0212	0.0116	0.00314	0.00193	0.0017
C1-Naphthalenes	0.0477	0.0173	0.0174	0.0425	0.0117	0.00473	0.0136	0.00753	0.00181	0.00133	0.00175
C2-Naphthalenes	0.109	0.0393	0.0331	0.0574	0.023	0.0156	0.0324	0.0222	0.00368	0.00216	0.00605
C3-Naphthalenes	0.11	0.0446	0.0352	0.0533	0.0228	0.0322	0.0438	0.0359	0.00428	0.00323	0.00805
C4-Naphthalenes	0.0544	0.0267	0.0221	0.0323	0.0163	0.0284	0.0389	0.0278	0.00308	0.00182	0.00468
1,1'-Biphenyl	0.0091	0.005	0.00709	0.00719	0.00345	0.00181	0 U	0 U	0 U	0 U	0 U
Dibenzofuran	0.0346	0.0162	0.0217	0.0238	0.0182	0.00767	0.0185	0.00754	0.00392	0.00211	0.00259
Carbazole	0.0723	0.0356	0.0438	0.0268	0.0277	0.0237	0.132	0.0217	0.0124	0.00288	0.0077
Acenaphthylene	0.223	0.144	0.111	0.123	0.0732	0.152	0.305	0.188	0.0192	0.00902	0.0144
Acenaphthene	0.0503	0.0306	0.0428	0.0325	0.0164	0.0182	0.0515	0.0266	0.00776	0.00323	0.00462
Fluorene	0.113	0.0481	0.0514	0.0425	0.0301	0.0224	0.0495	0.022	0.0108	0.00419	0.00722
C1-Fluorenes	0.0942	0.0433	0.0325	0.0351	0.0172	0.0276	0.0405	0.029	0.00444	0.00269	0.00585
C2-Fluorenes	0.108	0.0616	0.038	0.0431	0.0218	0.0497	0.0683	0.0457	0.00495	0.00349	0.00836
C3-Fluorenes	0.123 J	0.0702 J	0.0677 J	0.0691 J	0.0506 J	0.0742 J	0.148 J	0.0762 J	0.0122 J	0.0062 J	0.017 J
Dibenzothiophene	0.0615	0.038	0.0342	0.0294	0.019	0.02	0.0505	0.019	0.00621	0.00255	0.00592
C1-Dibenzothiophenes	0.0969	0.0677	0.0563	0.0634	0.0253	0.0436	0.0639	0.0474	0.00509	0.00214	0.00716
C2-Dibenzothiophenes	0.108	0.0765	0.0666	0.0863	0.0278	0.056	0.106	0.068	0.00756	0.00407	0.0112
C3-Dibenzothiophenes	0.0725	0.0529	0.0496	0.0615	0.0249	0.0495	0.108	0.0678	0.00674	0.00348	0.00838
C4-Dibenzothiophenes	0.0312	0.0238	0.0257	0.0316	0.0139	0.0365	0.0736	0.0532	0.00433	0.00253	0.00485
Anthracene	0.263	0.166	0.181	0.151	0.0796	0.199	0.304	0.206	0.0329	0.016	0.021
Phenanthrene	0.839	0.433	0.506	0.387	0.308	0.371	0.776	0.238	0.119	0.0488	0.101
C1-Phenanthrenes/Anthracenes	0.628	0.362	0.292	0.299	0.146	0.382	0.444	0.321	0.0469	0.03	0.0541
C2-Phenanthrenes/Anthracenes	0.396	0.242	0.194	0.237	0.0983	0.297	0.388	0.27	0.0315	0.017	0.0358
C3-Phenanthrenes/Anthracenes	0.152	0.105	0.0792	0.105	0.0422	0.141	0.19	0.128	0.0133	0.00901	0.0172
C4-Phenanthrenes/Anthracenes	0.0459	0.0322	0.0303	0.0413	0.018	0.0568	0.0986	0.0682	0.00624	0.00672	0.0182
Fluoranthene	1.13	0.783	0.892	0.784	0.513	1.22	2.09	0.99	0.246	0.128	0.173
Pyrene	1.04	0.776	0.794	0.727	0.456	1.12	1.81	0.88	0.209	0.107	0.144
C1-Fluoranthenes/Pyrenes	0.816	0.578	0.477	0.518	0.238	0.723	1.02	0.611	0.104	0.0544	0.0739
C2-Fluoranthenes/Pyrenes	0.43	0.298	0.242	0.268	0.131	0.513	0.755	0.495	0.0566	0.0346	0.0438
C3-Fluoranthenes/Pyrenes	0.19	0.128	0.109	0.126	0.0645	0.251	0.423	0.287	0.0273	0.016	0.0206
C4-Fluoranthenes/Pyrenes	0.108	0.078	0.074	0.0791	0.0447	0.152	0.303	0.194	0.019	0.0112	0.0154

See Notes on Page 9.

TABLE A1
PAHs CONCENTRATIONS AND DIAGNOSTIC RATIOS IN SALMON RIVER SEDIMENT SAMPLES AND SITE COAL TAR

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
REMEDIAL INVESTIGATION
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID:	NG-SR-SD-14	NG-SR-SD-14	NG-SR-SD-14		NG-SR-SD-14	NG-SR-SD-15	NG-SR-SD-16	NG-SR-SD-16	NG-SR-SD-16	NG-SR-SD-16	NG-SR-SD-16
Sample Depth():	0 - 6	6 - 12	12 - 24		24 - 36	0 - 6	0 - 6	6 - 12	12 - 24	24 - 36	36 - 48
Date Collected:	11/09/11	11/09/11	11/09/11		11/09/11	11/09/11	11/09/11	11/09/11	11/09/11	11/09/11	11/09/11
Reporting Limits		0.000892 U	0.00182 U	[0.0015] U		0.00178 U	0.0101 U	0.00525 U	0.000752 U	0.000862 U	0.00091 U
Naphthobenzothiophene	0.175	0.135	0.122	0.13	0.0585	0.183	0.317	0.15	0.0293	0.0166	0.0201
C1-Naphthobenzothiophenes	0.146	0.116	0.0999	0.123	0.0465	0.14	0.25	0.171	0.018	0.0108	0.0146
C2-Naphthobenzothiophenes	0.103	0.0793	0.0811	0.0995	0.0401	0.124	0.288	0.229	0.0188	0.0107	0.0146
C3-Naphthobenzothiophenes	0.0585	0.047	0.0638	0.0725	0.0335	0.115	0.311	0.244	0.0194	0.0109	0.012
C4-Naphthobenzothiophenes	0.031	0.0297	0.0423	0.0548	0.0253	0.0961	0.304	0.221	0.0172	0.00935	0.00909
Benzo(a)anthracene	0.587	0.441	0.411	0.402	0.203	0.797	1.01	0.606	0.119	0.0582	0.0602
Chrysene	0.627	0.459	0.416	0.41	0.249	0.729	1.06	0.566	0.118	0.0597	0.0695
C1-Chrysenes	0.407	0.292	0.22	0.253	0.12	0.411	0.566	0.387	0.0502	0.0256	0.0361
C2-Chrysenes	0.239	0.161	0.144	0.154	0.0741	0.24	0.411	0.282	0.0308	0.0155	0.0201
C3-Chrysenes	0.14	0.111	0.0999	0.118	0.0532	0.191	0.427	0.294	0.0284	0.0157	0.0202
C4-Chrysenes	0.0695	0.0597	0.0607	0.0663	0.0317	0.118	0.305	0.198	0.0181	0.000862 U	0.00091 U
Benzo(b)fluoranthene	0.542	0.398	0.384	0.339	0.222	0.685	1.03	0.572	0.115	0.0524	0.0594
Benzo(k)fluoranthene	0.484	0.375	0.373	0.329	0.21	0.592	1.01	0.518	0.109	0.0481	0.0559
Benzo(a)fluoranthene	0.131	0.1	0.0898	0.0906	0.0462	0.16	0.237	0.154	0.0234	0.01	0.00996
Benzo(e)Pyrene	0.405	0.338	0.293	0.284	0.166	0.472	0.826	0.442	0.0855	0.037	0.0433
Benzo(a)pyrene	0.62	0.521	0.464	0.45	0.252	0.784	1.3	0.698	0.128	0.0574	0.065
Perylene	0.242	0.268	0.256	0.226	0.296	0.197	0.327	0.17	0.0356	0.0217	0.0246
Indeno(1,2,3-cd)pyrene	0.451	0.347	0.298	0.278	0.172	0.495	0.881	0.43	0.087	0.0411	0.0444
Dibenzo(a,h)anthracene	0.131	0.103	0.0862	0.0805	0.0469	0.149	0.26	0.133	0.0259	0.012	0.0123
Benzo(g,h,i)perylene	0.395	0.304	0.263	0.249	0.157	0.434	0.799	0.399	0.0779	0.0374	0.0397
2-Methylnaphthalene	0.0337	0.0146	0.0171	0.0432	0.0105	0.0042	0.0101 U	0.00577	0.00135	0.00117	0.00128
1-Methylnaphthalene	0.0447	0.014	0.0113	0.0268	0.00874	0.00296	0.0101 U	0.00542	0.00144	0.000981	0.00152
2,6-Dimethylnaphthalene	0.0373	0.0141	0.0144	0.0233	0.0102	0.0056	0.0101 U	0.00669	0.00136	0.000964	0.00197
2,3,5-Trimethylnaphthalene	0.0202	0.00765	0.00543	0.00754	0.00422	0.00515	0.0101 U	0.00525 U	0.000752 U	0.000862 U	0.00122
4-Methyldibenzothiophene(4MDT)	0.0327	0.0221	0.0177	0.0206	0.00711	0.0124	0.0186	0.0128	0.00169	0.000979	0.00298
2/3-Methyldibenzothiophene(2MDT)	0.0367	0.0256	0.0207	0.0228	0.0111	0.0168	0.024	0.0173	0.00127	0.000862 U	0.00173
1-Methyldibenzothiophene(1MDT)	0.0116	0.00849	0.00702	0.00842	0.00294	0.00515	0.0104	0.0069	0.00101	0.000862 U	0.00131
3-Methylphenanthrene (3MP)	0.146	0.082	0.0634	0.0626	0.0325	0.0711	0.0791	0.0532	0.0097	0.00623	0.0118
2/4-Methylphenanthrene (2MP)	0.165	0.0913	0.0782	0.0783	0.0411	0.0975	0.11	0.0776	0.0131	0.00832	0.0142
2-Methylanthracene (2MA)	0.0616	0.0408	0.0356	0.0384	0.0152	0.0618	0.0743	0.0608	0.00591	0.00387	0.00455
9-Methylphenanthrene (9MP)	0.142	0.0864	0.0675	0.0728	0.0326	0.0859	0.101	0.075	0.00969	0.00609	0.0112
1-Methylphenanthrene (1MP)	0.107	0.0579	0.0437	0.048	0.0224	0.0554	0.0619	0.0434	0.00713	0.00415	0.00919
Retene	0.000964 U	0.000892 U	0.00182 UJ	0.0146 J	0.0111	0.00178 U	0.0101 U	0.00525 U	0.000752 U	0.0144	0.0547
Benzo(b)fluorene	0.167	0.127	0.112	0.112	0.0494	0.13	0.154	0.0761	0.0231	0.0114	0.0144
Total Priority Pollutant (17) PAHs	7.5621	5.3665	5.3118	4.8671	3.015 J	7.77945	12.7572	6.48997	1.42895	0.68564	0.87462
Total PAHs (includes Decalins)	13.61959 J	9.558947 J	8.944 J	8.87565 J	5.13093 J	13.22646 J	21.9289 J	12.35809 J	2.191939 J	1.08793 J	1.48228 J
Total PAHs (excludes Decalins)	13.6	9.6	8.9	8.9	5.1	13.2	21.9	12.4	2.2	1.1	1.5
Fl/Py	1.09	1.01	1.12	1.08	1.13	1.09	1.15	1.13	1.18	1.20	1.20
BAA/C	0.94	0.96	0.99	0.98	0.82	1.09	0.95	1.07	1.01	0.97	0.87
BAP/BEP	1.53	1.54	1.58	1.58	1.52	1.66	1.57	1.58	1.50	1.55	1.50
2-&3-PAHs/TPAH	0.29	0.23	0.23	0.24	0.23	0.16	0.16	0.16	0.17	0.17	0.26

See Notes on Page 9.

TABLE A1
PAHs CONCENTRATIONS AND DIAGNOSTIC RATIOS IN SALMON RIVER SEDIMENT SAMPLES AND SITE COAL TAR

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
REMEDIAL INVESTIGATION
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID:	NG-SR-SD-17	NG-SR-SD-18	NG-SR-SD-19	NG-SR-SD-20	NG-SR-SD-21	NG-SR-SD-22	NG-SR-SD-23	NG-SR-SD-24	NG-SR-SD-25	Access Rd Tar-1
Sample Depth():	0 - 7	0 - 5	0 - 5	0 - 4	0 - 6	0 - 4	0 - 3	0 - 3	0 - 6	1012001-01
Date Collected:	11/09/11	11/09/11	11/09/11	11/09/11	11/09/11	11/10/11	11/10/11	11/10/11	11/10/11	11/23/2010
Reporting Limits	0.00322 U	0.00163 U		0.00122 U	0.000894 U	0.000767 U	0.000826 U	0.00395 U	0.00482 U	42.0 U
Cis/Trans-Decalin	0 UJ	0 UJ	0.0102 J	0.000768 J	0 UJ	0 UJ	0 UJ	0.00913	0.0114 J	0.0 U
C1-Decalins	0	0 U	0.0188	0.0016	0.0016	0.000888	0 U	0.00445	0.00709	0.0 U
C2-Decalins	0 U	0 U	0.0389	0.00301	0.0023	0.00162	0 U	0 U	0.0114	0.0 U
C3-Decalins	0 U	0 U	0.0297	0 U	0 U	0 U	0 U	0 U	0 U	0.0 U
C4-Decalins	0 U	0 U	0.0608	0.0059	0 U	0.00309	0 U	0 U	0 U	0.0 U
Benzothiophene	0 U	0 U	0.0276	0.00132	0 U	0 U	0 U	0.0208	0.0068	2510
C1-Benzo(b)thiophenes	0.0237	0.00177	0.02	0.0016	0 U	0.000883	0 U	0.0955	0.151	409
C2-Benzo(b)thiophenes	0.0224	0.00319	0.114	0.00269	0.00185	0.00195	0.00117	0.0208	0.0349	154
C3-Benzo(b)thiophenes	0.026	0.00447	0.187	0.00531	0.00384	0.00338	0.00216	0.0105	0.0293	62.1
C4-Benzo(b)thiophenes	0.0118	0.00274	0.0942	0.00346	0.00208	0.00241	0.00104	0.0051	0.0144	0.0 U
Naphthalene	0.014	0.0426	0.44	0.0206	0.0105	0.00578	0.00366	0.0788	0.036	69800
C1-Naphthalenes	0.084	0.0272	0.398	0.0118	0.00506	0.0042	0.00199	0.262	0.0319	7770
C2-Naphthalenes	0.262	0.0329	2.85	0.0232	0.0148	0.00842	0.00513	0.172	0.1	2420
C3-Naphthalenes	0.202	0.0241	3.69	0.0302	0.0232	0.0119	0.00633	0.121	0.0868	844
C4-Naphthalenes	0.073	0.0129	1.62	0.0232	0.0155	0.00932	0.00393	0.0526	0.0491	223
1,1'-Biphenyl	0.0146	0.00872	0.174	0.00684	0.00375	0.00203	0.00207	0.0139	0.0122	3270
Dibenzofuran	0.08	0.134	1.8	0.0427	0.0125	0.0054	0.00524	0.0302	0.0388	11600
Carbazole	0.0513	0.256	1.01	0.112	0.03	0.0181	0.0176	0.0423	0.0751	6210
Acenaphthylene	0.211	0.0379	2.48	0.05	0.0495	0.0427	0.0226	0.0515	0.124	20800
Acenaphthene	0.145	0.267	0.686	0.0699	0.0136	0.00892	0.00964	0.101	0.139	1570
Fluorene	0.327	0.284	4.64	0.0815	0.0316	0.0102	0.0121	0.108	0.107	10000
C1-Fluorenes	0.184	0.0402	3.1	0.0302	0.0228	0.00788	0.00561	0.0689	0.0712	956
C2-Fluorenes	0.122	0.0285	2.43	0.0378	0.0294	0.0157	0.0067	0.0646	0.0661	315
C3-Fluorenes	0.116 J	0.152 J	1.89 J	0.109 J	0.0431 J	0.0266 J	0.0212 J	0.1 J	0.112 J	314
Dibenzothiophene	0.149	0.124	1.67	0.0502	0.0184	0.00712	0.00863	0.0415	0.071	3430
C1-Dibenzothiophenes	0.187	0.0402	1.62	0.0361	0.0259	0.0228	0.00603	0.0415	0.048	558
C2-Dibenzothiophenes	0.15	0.0276	1.36	0.0327	0.0258	0.0352	0.00842	0.0378	0.0617	242
C3-Dibenzothiophenes	0.0864	0.0259	0.926	0.0254	0.0202	0.0325	0.00743	0.0304	0.0608	127
C4-Dibenzothiophenes	0.0517	0.024	0.454	0.0185	0.0137	0.0209	0.00452	0.0178	0.0544	59.9
Anthracene	0.644	0.342	23.1	0.19	0.142	0.0518	0.0421	0.357	0.175	14900
Phenanthrene	2.03	1.96	40.3	0.869	0.36	0.0957	0.166	0.907	0.524	56800
C1-Phenanthrenes/Anthracenes	1.16	0.372	20.2	0.332	0.25	0.0773	0.0627	0.563	0.289	5610
C2-Phenanthrenes/Anthracenes	0.558	0.15	10.9	0.219	0.178	0.064	0.0362	0.335	0.232	1520
C3-Phenanthrenes/Anthracenes	0.173	0.0543	3.94	0.0906	0.0786	0.0317	0.0146	0.129	0.121	424
C4-Phenanthrenes/Anthracenes	0.0573	0.0283	1.2	0.036	0.051	0.0172	0.00671	0.0466	0.0976	118
Fluoranthene	2.48	2.48	55.9	1.46	1.16	0.226	0.352	1.4	1.31	37000
Pyrene	2.2	1.92	43.5	1.19	0.958	0.212	0.288	1.15	1.11	31300
C1-Fluoranthenes/Pyrenes	1.36	0.725	25.2	0.617	0.564	0.138	0.12	0.688	0.55	7240
C2-Fluoranthenes/Pyrenes	0.521	0.331	9.94	0.349	0.265	0.0849	0.0703	0.414	0.391	1250
C3-Fluoranthenes/Pyrenes	0.228	0.159	4.24	0.152	0.11	0.0511	0.0301	0.196	0.202	424
C4-Fluoranthenes/Pyrenes	0.157	0.146	2.42	0.0978	0.0758	0.0412	0.0226	0.129	0.174	351 G

See Notes on Page 9.

TABLE A1
PAHs CONCENTRATIONS AND DIAGNOSTIC RATIOS IN SALMON RIVER SEDIMENT SAMPLES AND SITE COAL TAR

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
REMEDIAL INVESTIGATION
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Location ID:	NG-SR-SD-17	NG-SR-SD-18	NG-SR-SD-19	NG-SR-SD-20	NG-SR-SD-21	NG-SR-SD-22	NG-SR-SD-23	NG-SR-SD-24	NG-SR-SD-25	Access Rd Tar-1
Sample Depth():	0 - 7	0 - 5	0 - 5	0 - 4	0 - 6	0 - 4	0 - 3	0 - 3	0 - 6	1012001-01
Date Collected:	11/09/11	11/09/11	11/09/11	11/09/11	11/09/11	11/10/11	11/10/11	11/10/11	11/10/11	11/23/2010
Reporting Limits	0.00322 U	0.00163 U		0.00122 U	0.000894 U	0.000767 U	0.000826 U	0.00395 U	0.00482 U	42.0 U
Naphthobenzothiophene	0.303	0.295	3.63	0.158	0.153	0.0493	0.0414	0.138	0.177	1740
C1-Naphthobenzothiophenes	0.23	0.123	2.32	0.0823	0.0684	0.0642	0.0196	0.0906	0.137	391
C2-Naphthobenzothiophenes	0.245	0.174	1.11	0.0552	0.0418	0.0792	0.0161	0.0758	0.179	142
C3-Naphthobenzothiophenes	0.23	0.171	0.578	0.0454	0.0315	0.0712	0.0158	0.0785	0.19	126
C4-Naphthobenzothiophenes	0.195	0.134	0.268	0.0308	0.0211	0.0536	0.0131	0.0747	0.165	0.0 U
Benzo(a)anthracene	1.12	0.898	26.6	0.646	0.623	0.105	0.142	0.648	0.516	11300
Chrysene	1.05	1.02	21.2	0.652	0.617	0.121	0.16	0.648	0.654	9980
C1-Chrysenes	0.57	0.334	10.2	0.287	0.254	0.0762	0.0543	0.326	0.302	1960
C2-Chrysenes	0.302	0.252	5.06	0.15	0.121	0.0579	0.0271	0.194	0.182	630
C3-Chrysenes	0.262	0.235	3.82	0.124	0.098	0.0555	0.0238	0.186	0.208	614
C4-Chrysenes	0.172	0.134	1.66	0.0666	0.0485	0.0373	0.0172	0.119	0.149	501
Benzo(b)fluoranthene	0.757	1.06	16.5	0.596	0.562	0.108	0.158	0.591	0.657	9050
Benzo(k)fluoranthene	0.765	0.759	10.6	0.487	0.513	0.101	0.122	0.517	0.559	7950
Benzo(a)fluoranthene	0.178	0.141	4.9	0.119	0.129	0.0221	0.0236	0.117	0.104	2500
Benzo(e)Pyrene	0.588	0.723	9.34	0.4	0.41	0.0887	0.108	0.426	0.492	6470
Benzo(a)pyrene	1	1.04	22.2	0.62	0.649	0.124	0.15	0.61	0.637	13900
Perylene	0.243	0.296	4.91	0.179	0.192	0.031	0.0418	0.152	0.22	3670
Indeno(1,2,3-cd)pyrene	0.609	0.74	10.6	0.451	0.478	0.0857	0.127	0.472	0.503	7660
Dibenzo(a,h)anthracene	0.184	0.212	3.35	0.129	0.13	0.0251	0.0325	0.134	0.13	1530
Benzo(g,h,i)perylene	0.539	0.681	8.06	0.392	0.428	0.0786	0.114	0.413	0.511	7880
2-Methylnaphthalene	0.0574	0.0249	0.347	0.0101	0.00473	0.00396	0.0018	0.0104	0.0189	4110
1-Methylnaphthalene	0.0848	0.0197	0.314	0.00958	0.00394	0.00282	0.00141	0.43	0.0333	8550
2,6-Dimethylnaphthalene	0.105	0.016	1.34	0.00971	0.00631	0.00294	0.00187	0.0365	0.0306	1300
2,3,5-Trimethylnaphthalene	0.0342	0.00457	0.776	0.00512	0.00398	0.00168	0.00108	0.02	0.0109	109
4-Methyldibenzothiophene(4MDT)	0.0648	0.0115	0.322	0.00884	0.00581	0.00727	0.00211	0.0118	0.0166	116
2/3-Methyldibenzothiophene(2MDT)	0.068	0.0175	0.581	0.0153	0.0116	0.00941	0.00127	0.0116	0.0101	212
1-Methyldibenzothiophene(1MDT)	0.0231	0.00406	0.195	0.00403	0.00284	0.00302	0.00111	0.00577	0.00975	69.3
3-Methylphenanthrene (3MP)	0.266	0.0913	3.9	0.0696	0.048	0.0152	0.0139	0.114	0.0609	1370
2/4-Methylphenanthrene (2MP)	0.316	0.118	5.17	0.0935	0.0674	0.0194	0.0178	0.155	0.0747	1820
2-Methylanthracene (2MA)	0.124	0.0355	4.52	0.0509	0.0461	0.00912	0.0075	0.0938	0.0344	680
9-Methylphenanthrene (9MP)	0.245	0.0652	3.88	0.066	0.0516	0.0186	0.0127	0.109	0.0683	870
1-Methylphenanthrene (1MP)	0.188	0.0554	2.61	0.0475	0.0356	0.0126	0.00913	0.0744	0.0438	723
Retene	0.00322 U	0.00163 U	0.00534 U	0.033	0.119	0.000767 U	0.00221	0.00395 U	0.154	42.0 U
Benzo(b)fluorene	0.344	0.256	8.65	0.158	0.173	0.0245	0.0292	0.175	0.121	42.0 U
Total Priority Pollutant (17) PAHs	14.1324	13.7684	290.503	7.9141	6.72993	1.40546	1.9034	8.1967	7.7109	
Total PAHs (includes Decalins)	23.70742 J	19.69149 J	441.5852 J	12.110198 J	10.18168 J	2.835391 J	2.78181 J	13.92728 J	13.45899 J	388,575
Total PAHs (excludes Decalins)	23.7	19.7	441.4	12.1	10.2	2.8	2.8	13.9	13.4	388,575
Fl/Py	1.13	1.29	1.29	1.23	1.21	1.07	1.22	1.22	1.18	1.18
BAA/C	1.07	0.88	1.25	0.99	1.01	0.87	0.89	1.00	0.79	1.13
BAP/BEP	1.70	1.44	2.38	1.55	1.58	1.40	1.39	1.43	1.29	
2-&3-PAHs/TPAH	0.30	0.23	0.30	0.21	0.15	0.23	0.18	0.28	0.22	0.57

See Notes on Page 9.

TABLE A1
PAHs CONCENTRATIONS AND DIAGNOSTIC RATIOS IN SALMON RIVER SEDIMENT SAMPLES AND SITE COAL TAR

2011 SALMON RIVER SEDIMENT INVESTIGATION
NATIONAL GRID
REMEDIAL INVESTIGATION
MALONE (AMSDEN STREET) FORMER MGP SITE
MALONE, NEW YORK

Notes:
J - Indicates an estimated value.
U - The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

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Appendix B

PAH Compositional Fingerprints

Figure B1. PAH Composition of Sediment Sample SD-01
NG Former MGP Site at Amsden Street in Malone, NY

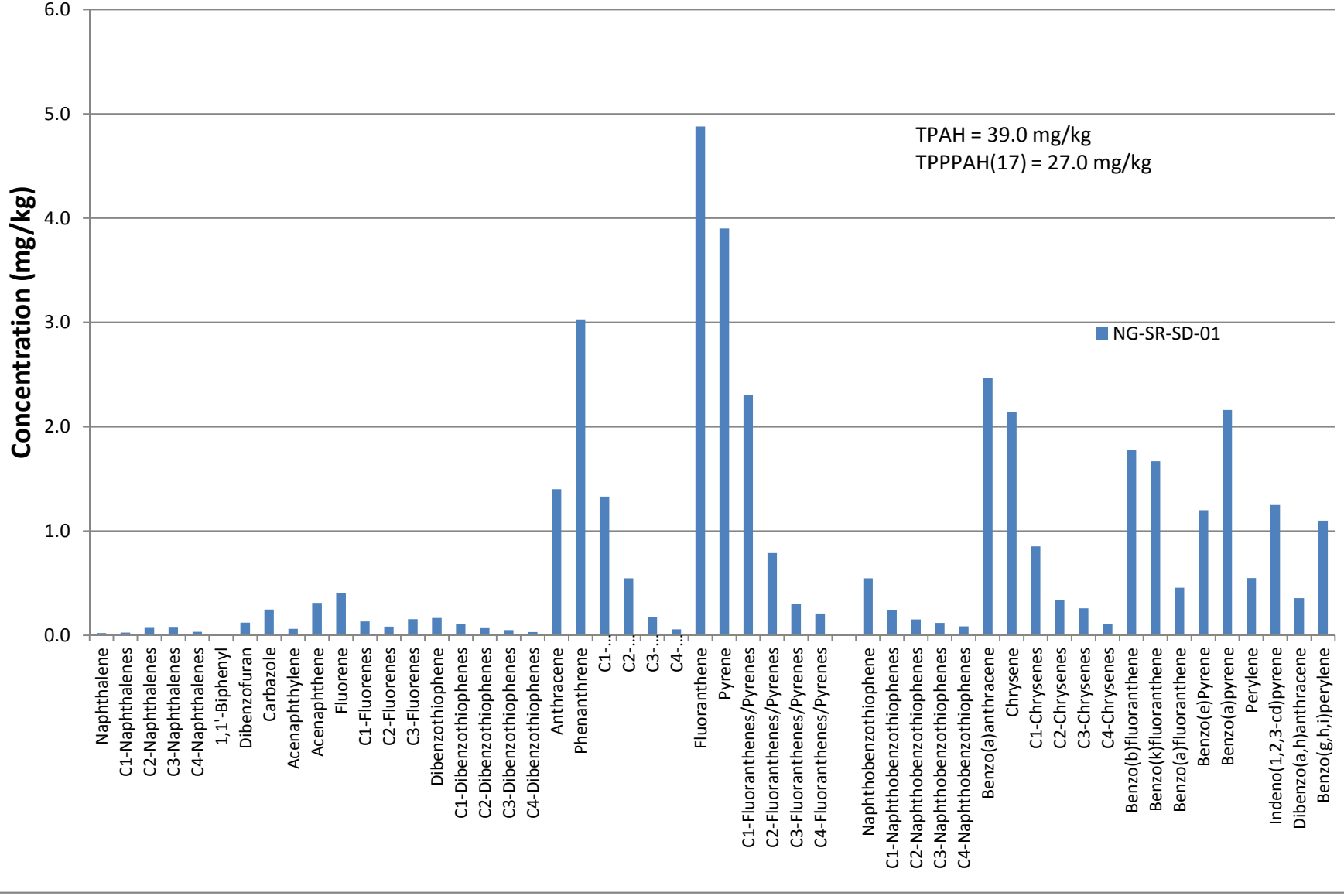

Figure B2. PAH Composition of Sediment Sample SD-02
NG Former MGP Site at Amsden Street in Malone, NY

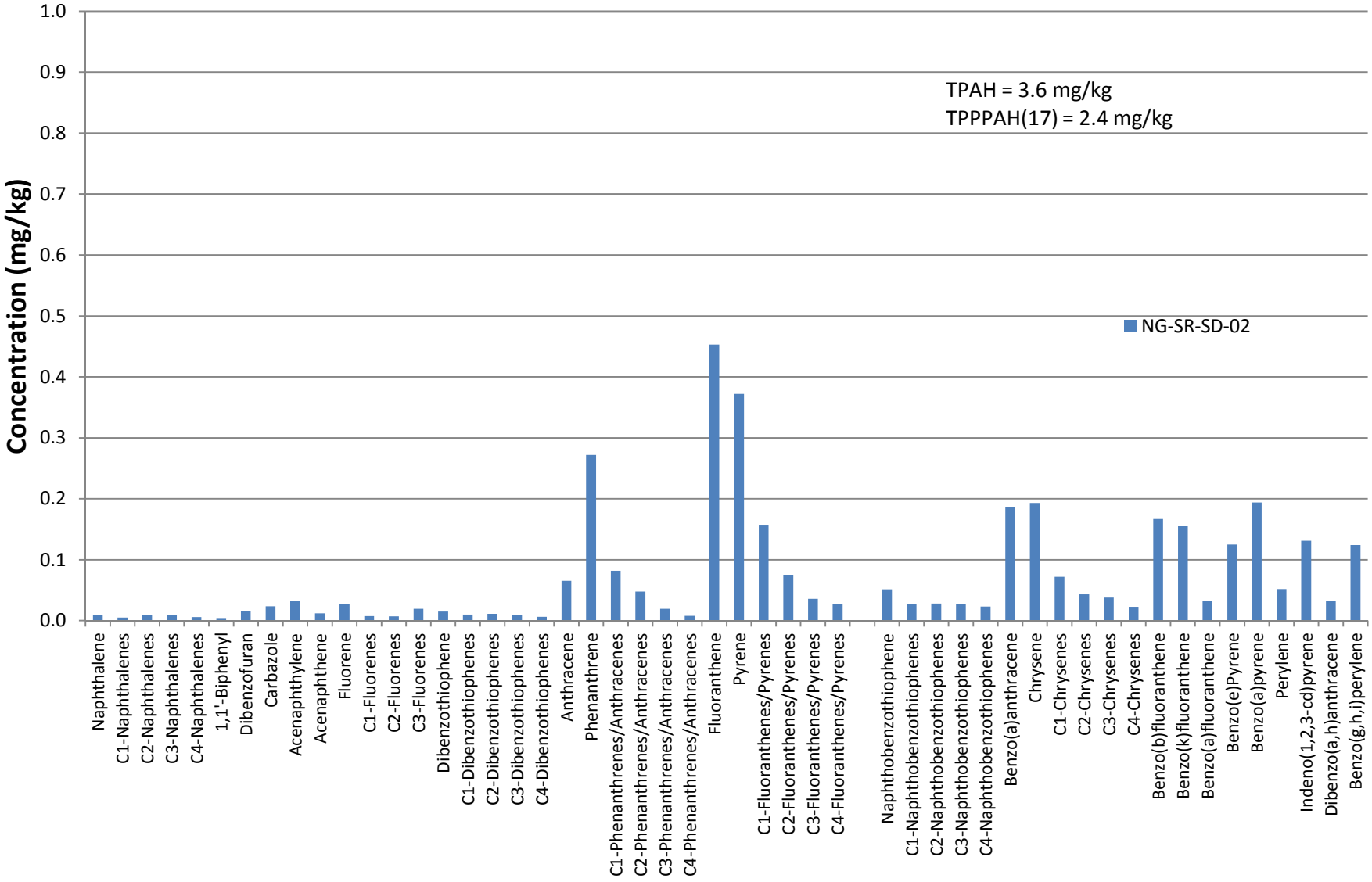

Figure B3. PAH Composition of Sediment Sample SD-03
NG Former MGP Site at Amsden Street in Malone, NY

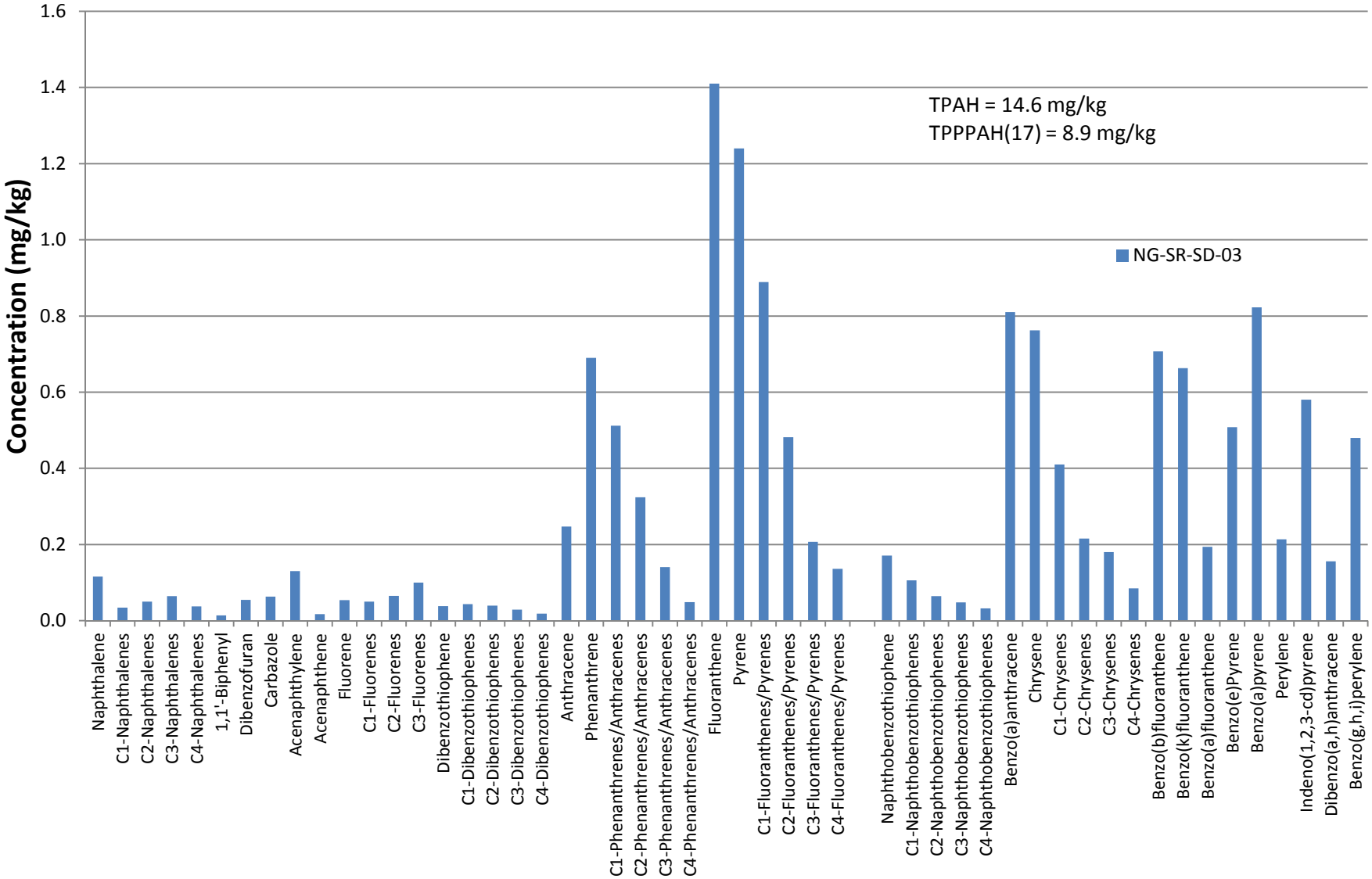

Figure B4. PAH Composition of Sediment Sample SD-04
NG Former MGP Site at Amsden Street in Malone, NY

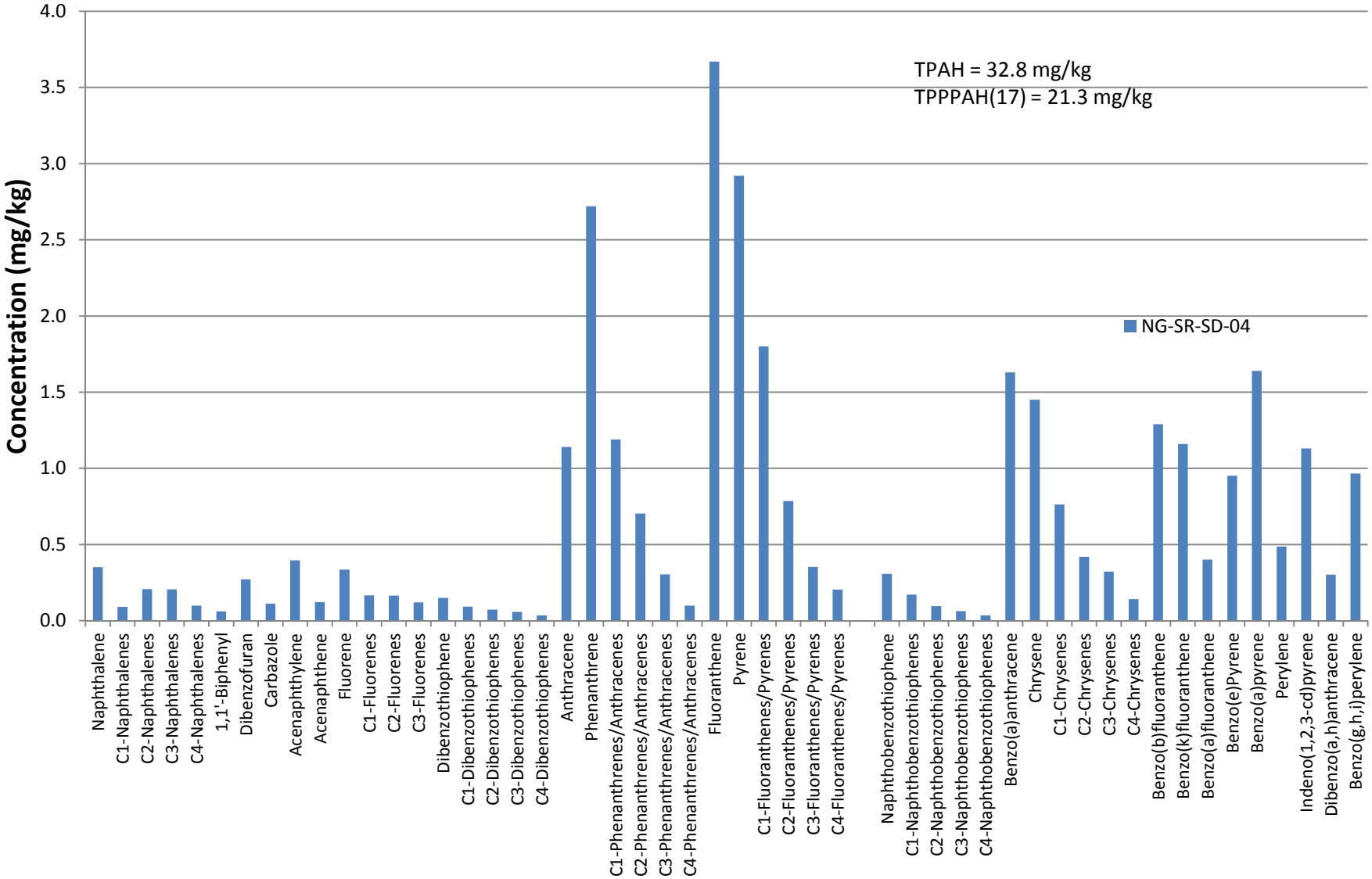

Figure B5. PAH Composition of Sediment Sample SD-05
NG Former MGP Site at Amsden Street in Malone, NY

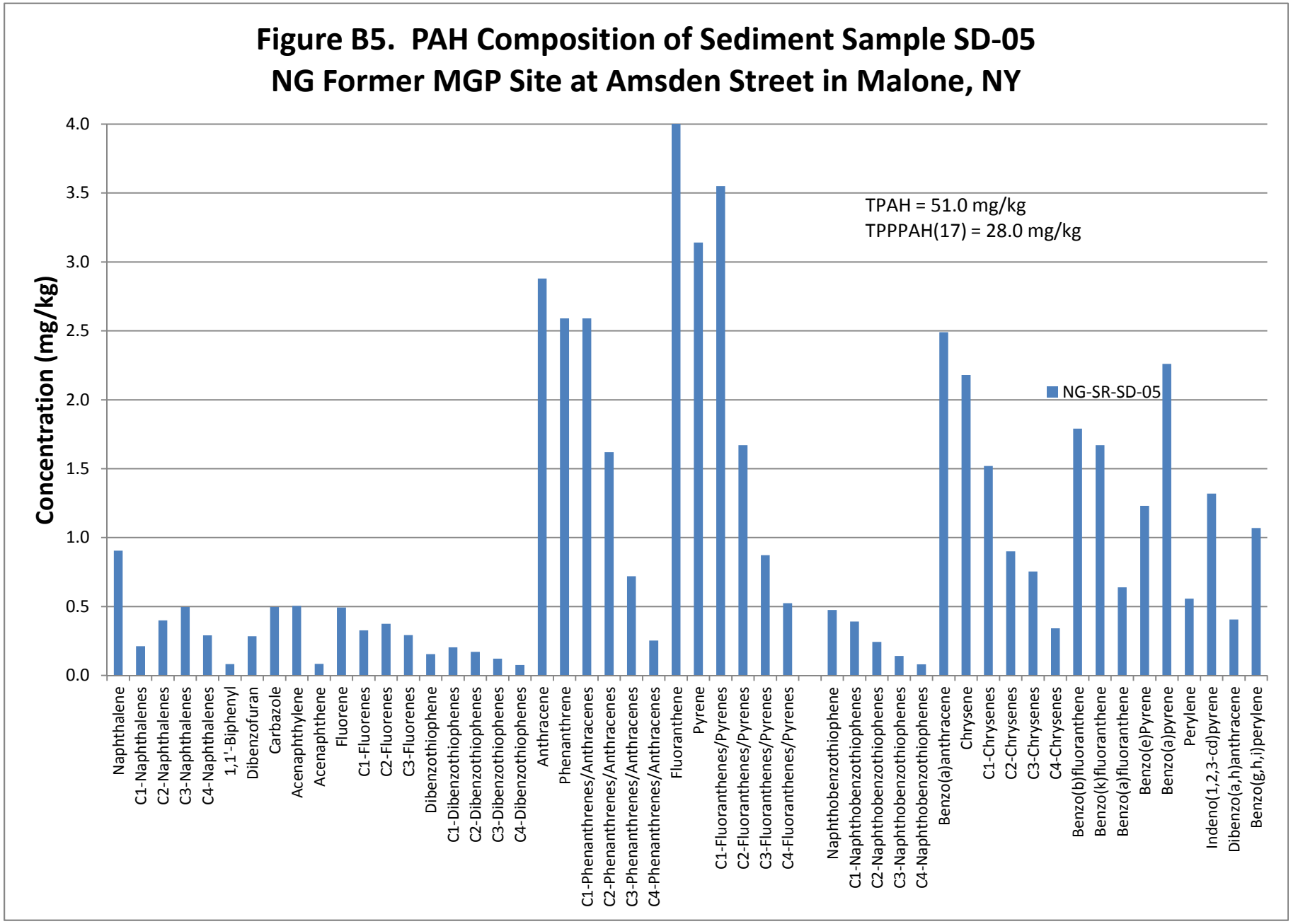

Figure B6. PAH Composition of Sediment Sample SD-06 (0-7")
NG Former MGP Site at Amsden Street in Malone, NY

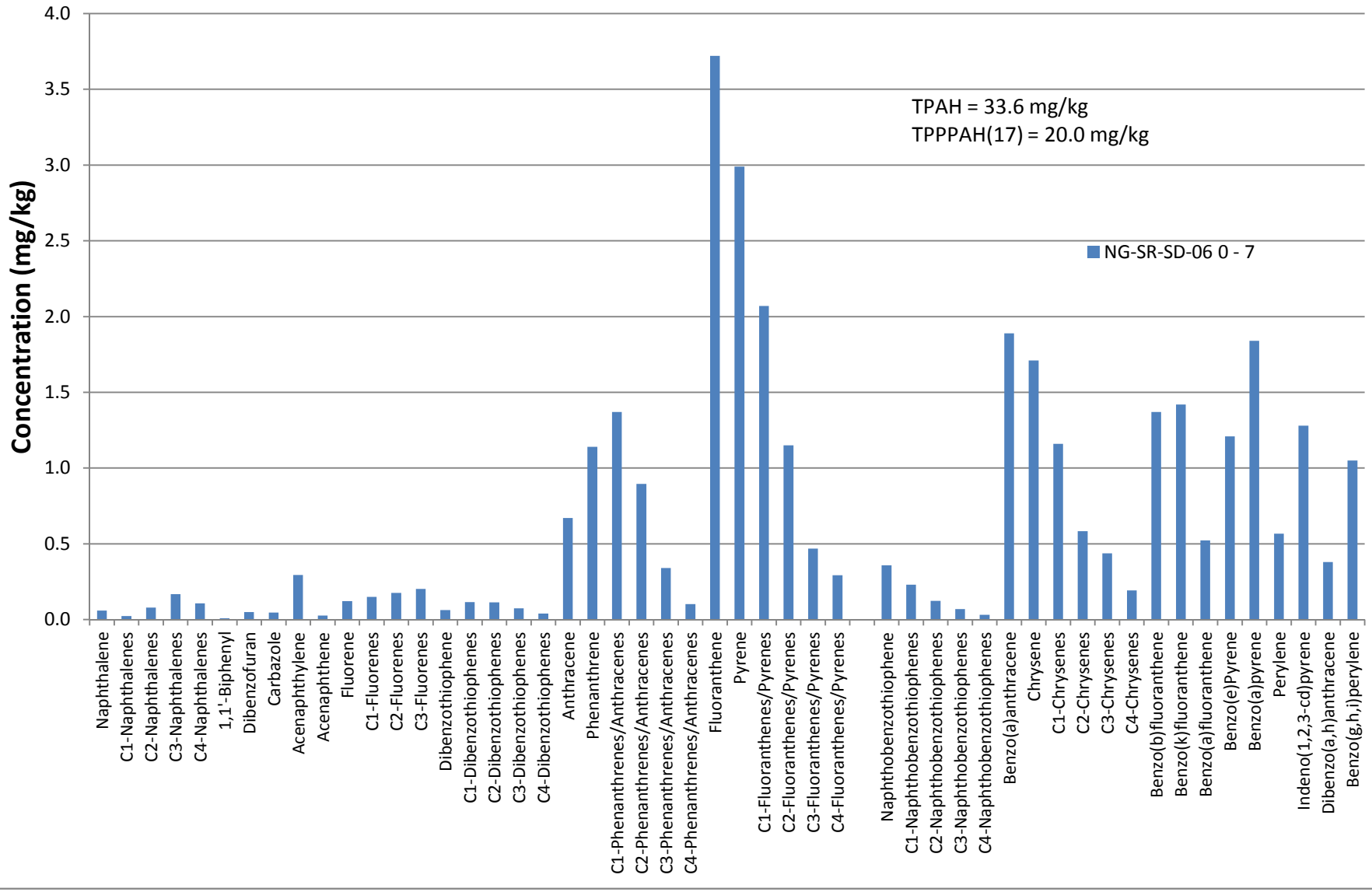

Figure B7a. PAH Composition of Sediment Sample SD-07 (0-6")
NG Former MGP Site at Amsden Street in Malone, NY

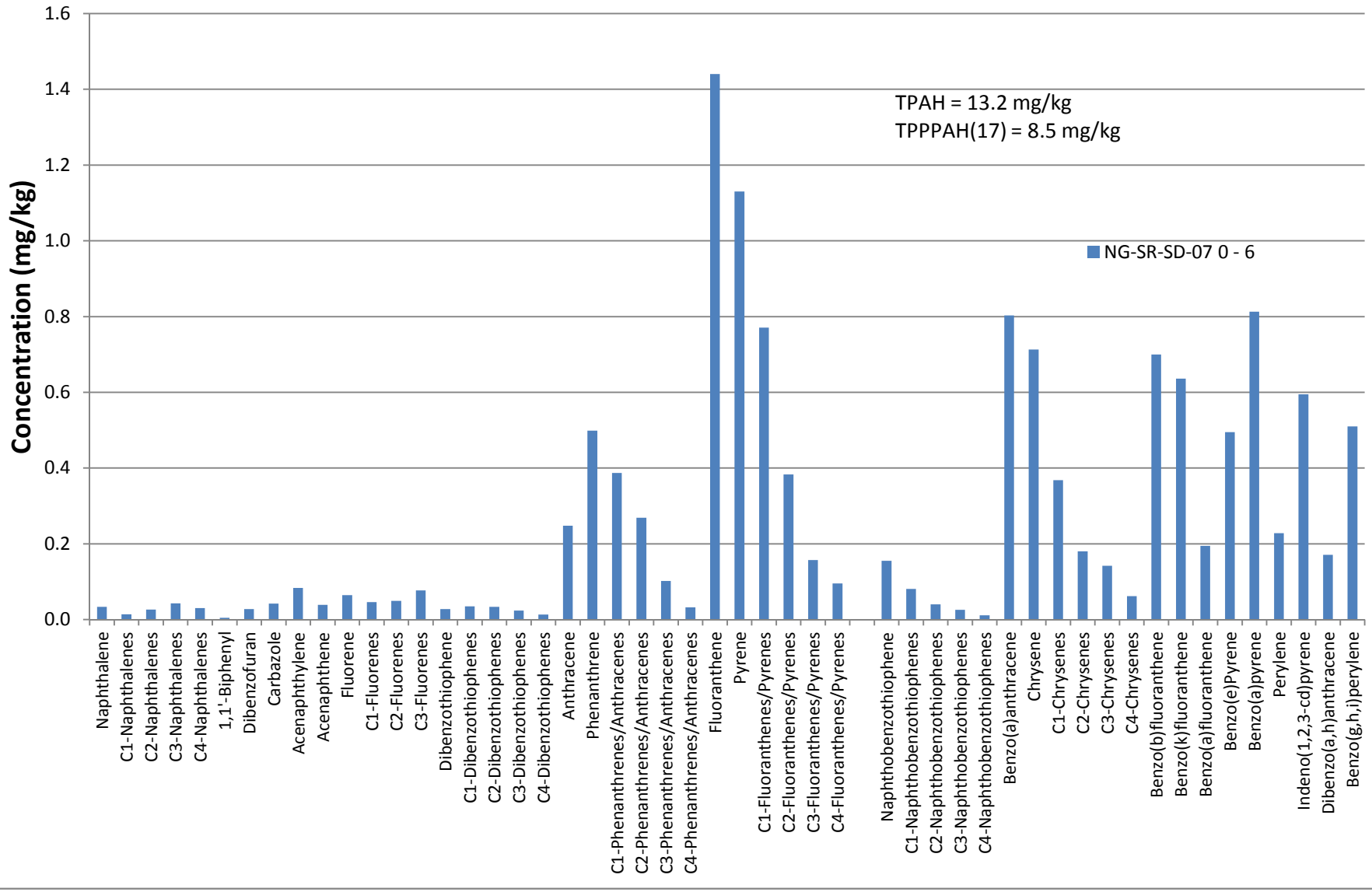

Figure B7b. PAH Composition of Sediment Sample SD-07 (6-10")
NG Former MGP Site at Amsden Street in Malone, NY

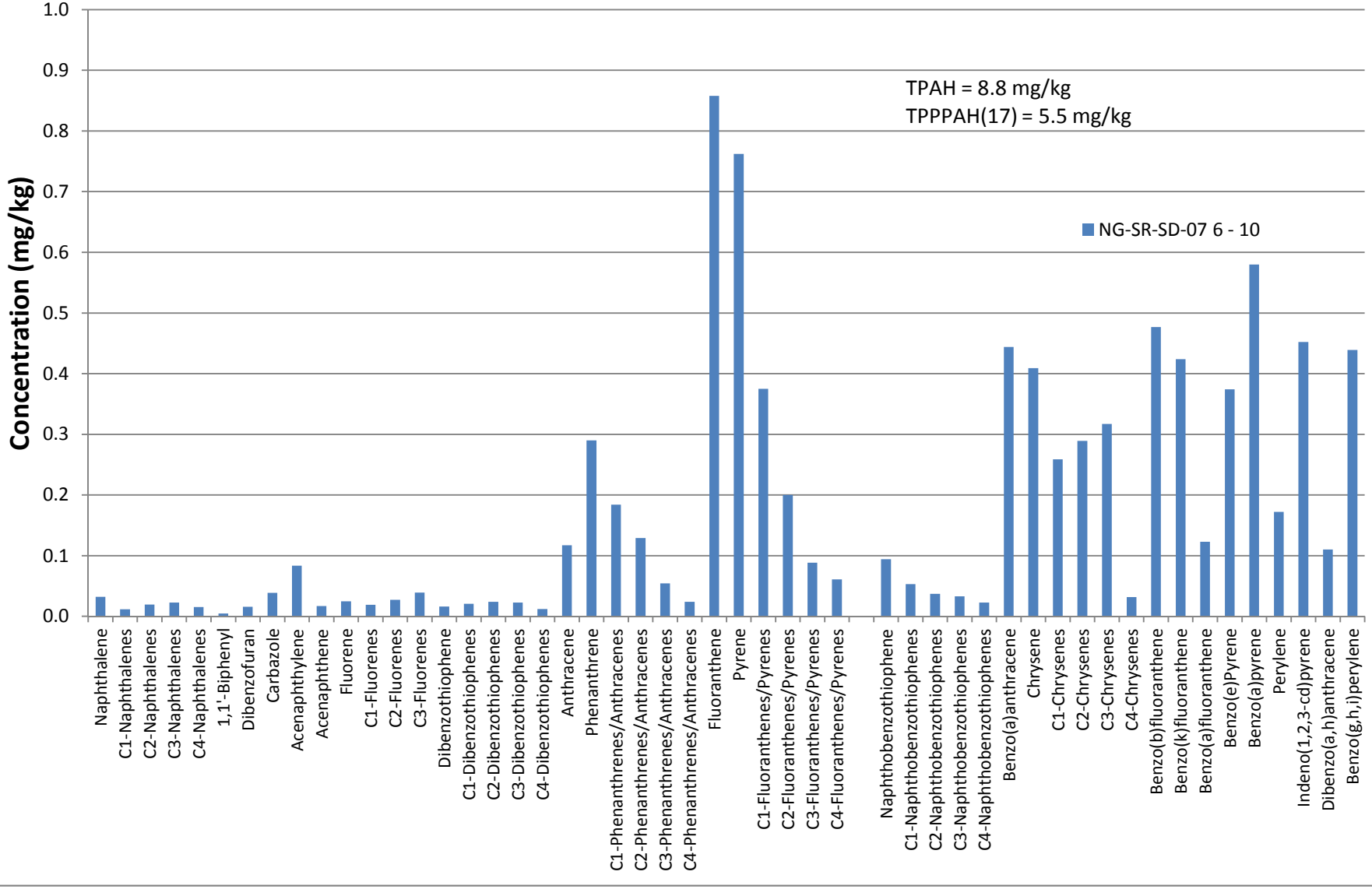

Figure B8a. PAH Composition of Sediment Sample SD-08 (0-6")
NG Former MGP Site at Amsden Street in Malone, NY

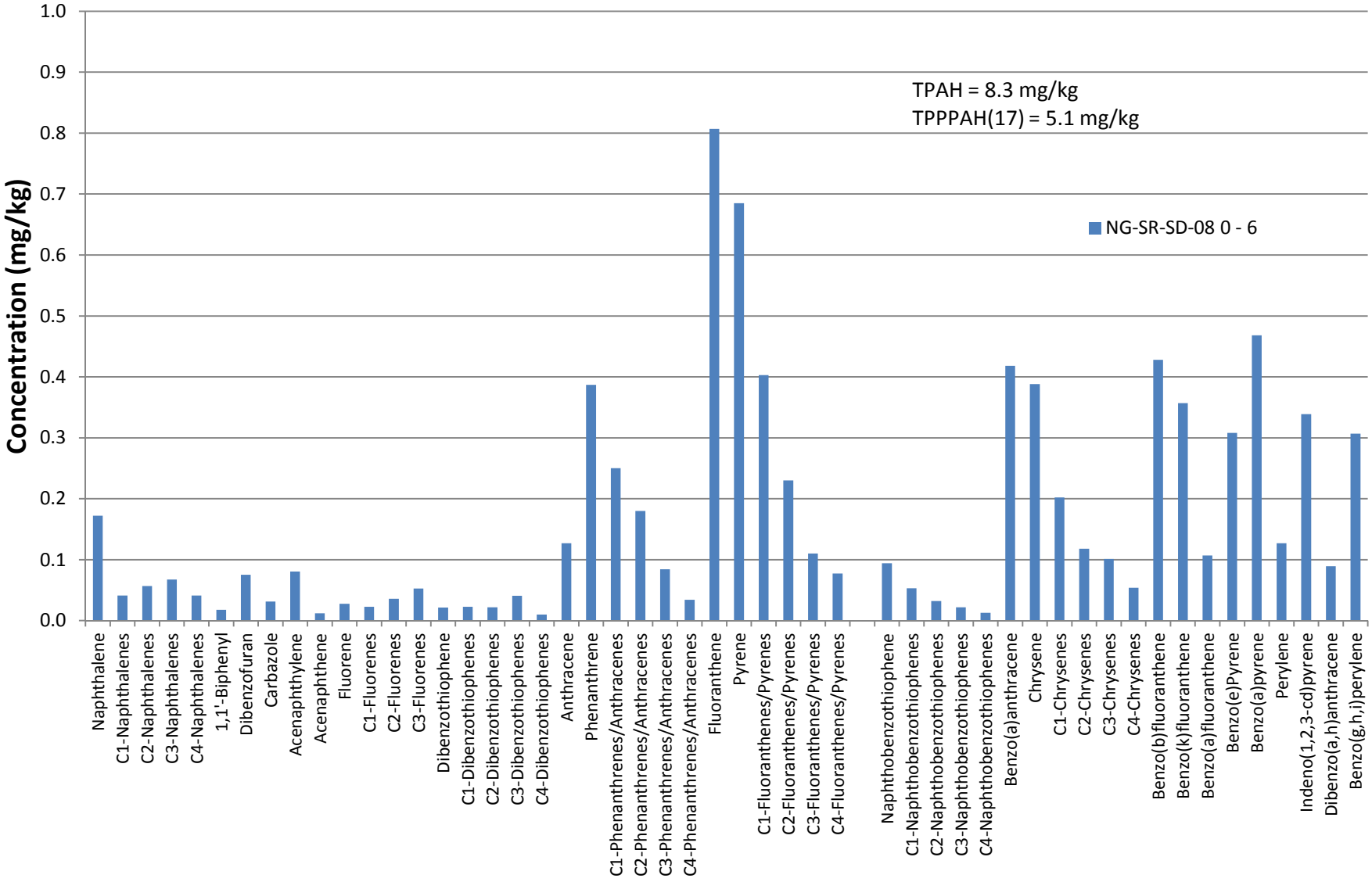

Figure B8b. PAH Composition of Sediment Sample SD-08 (6-11")
NG Former MGP Site at Amsden Street in Malone, NY

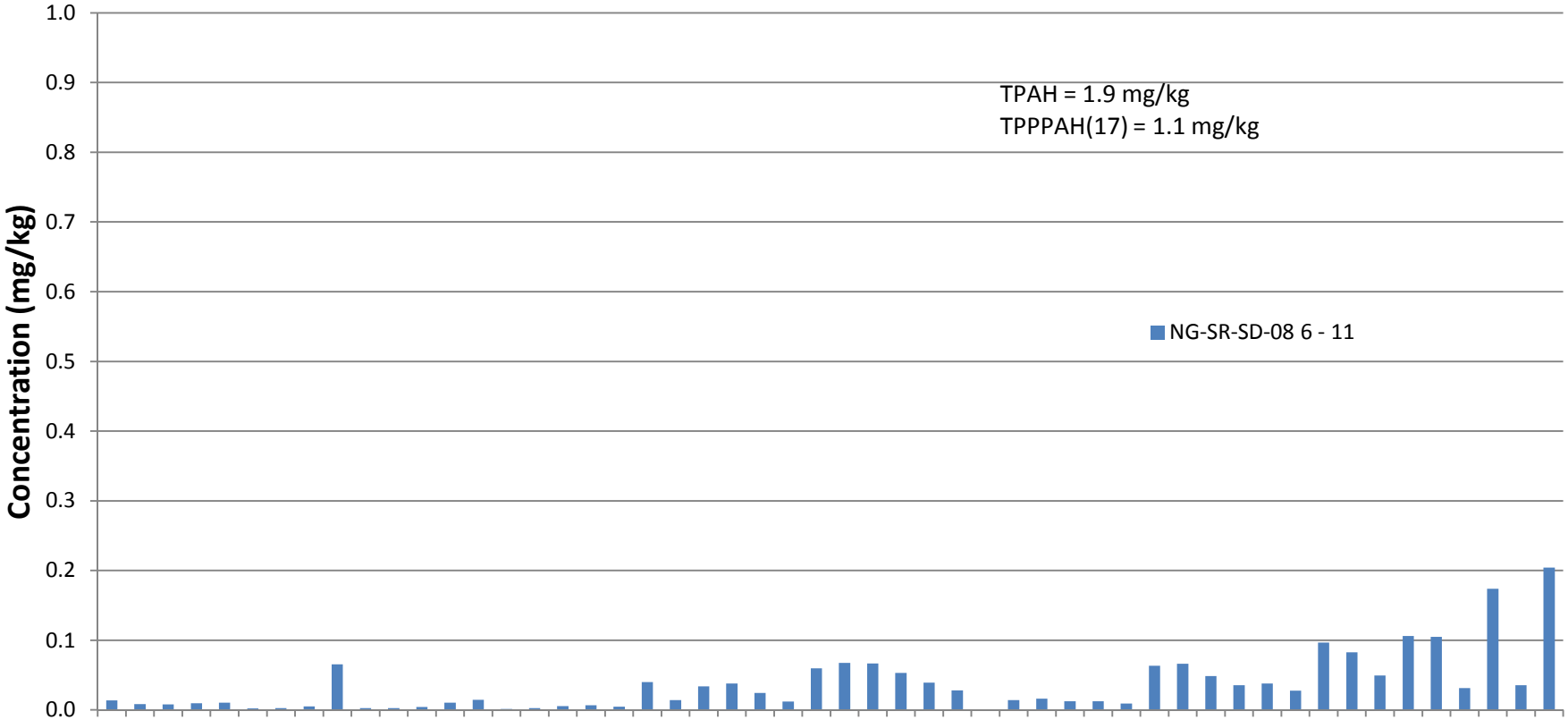

Figure B9a. PAH Composition of Sediment Sample SD-09 (0-6")
NG Former MGP Site at Amsden Street in Malone, NY

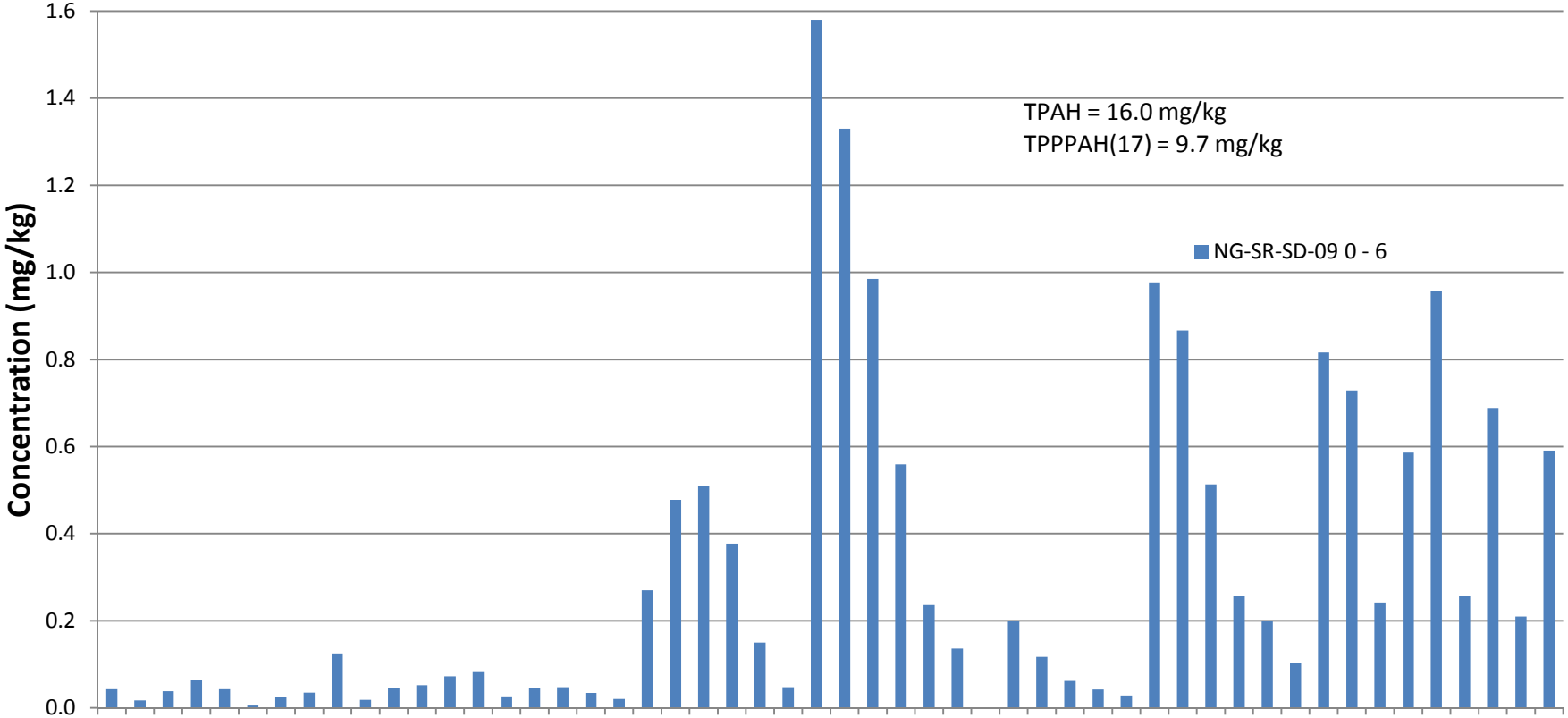

Figure B9b. PAH Composition of Sediment Sample SD-09 (6-12")
NG Former MGP Site at Amsden Street in Malone, NY

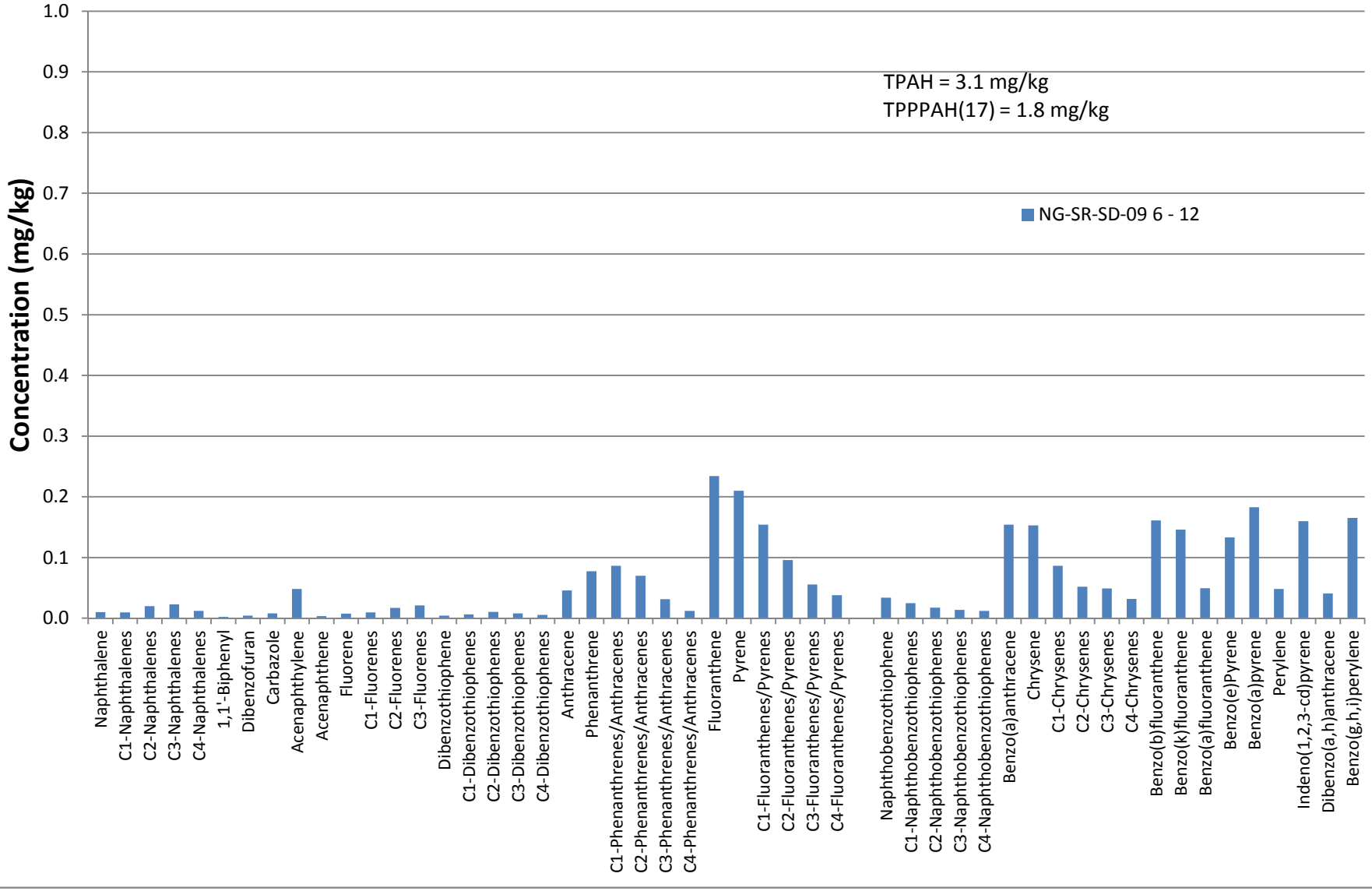

Figure B9c. PAH Composition of Sediment Sample SD-09 (12-14")
NG Former MGP Site at Amsden Street in Malone, NY

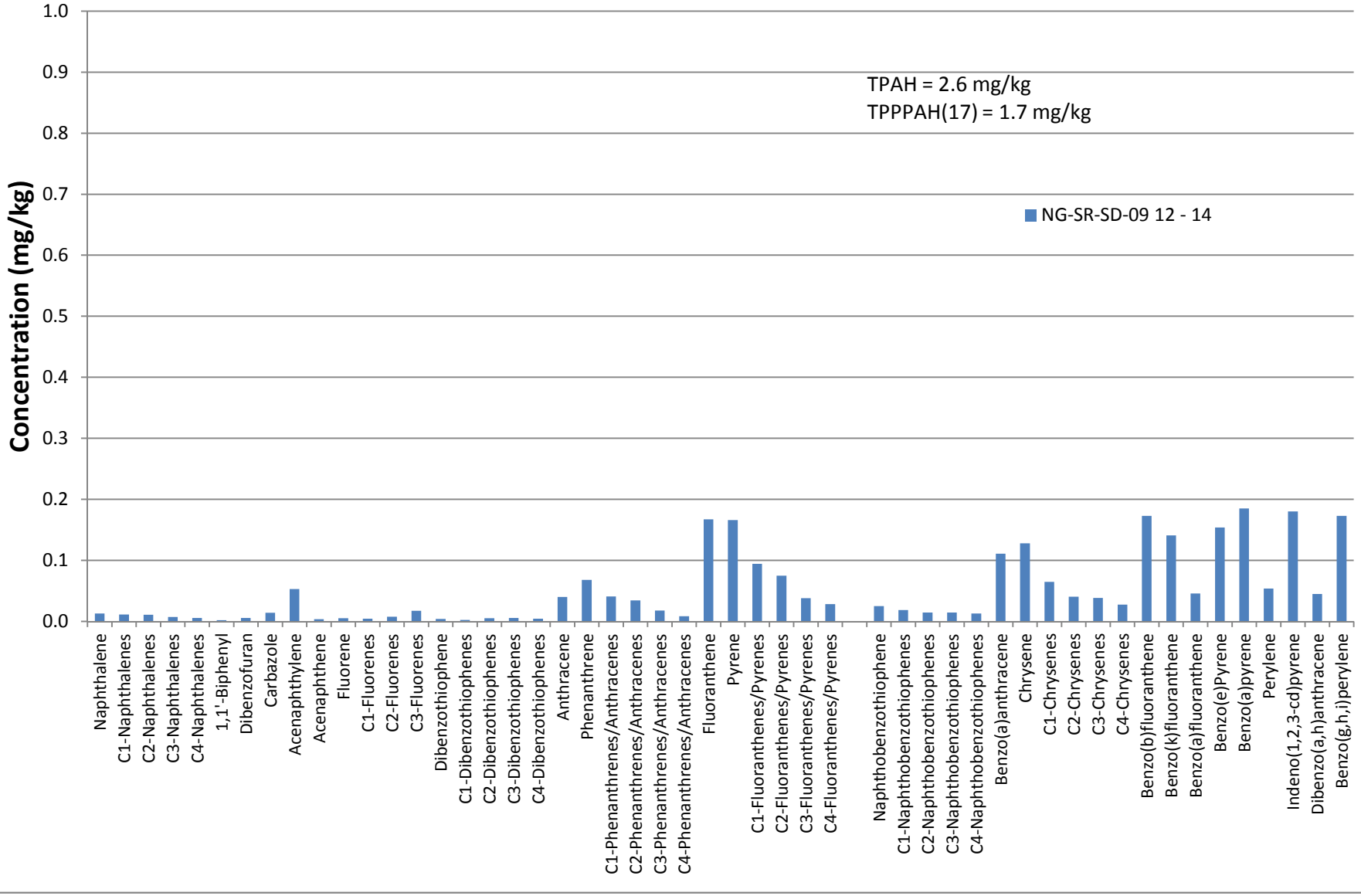

Figure B10. PAH Composition of Sediment Sample SD-10 (0-6")
NG Former MGP Site at Amsden Street in Malone, NY

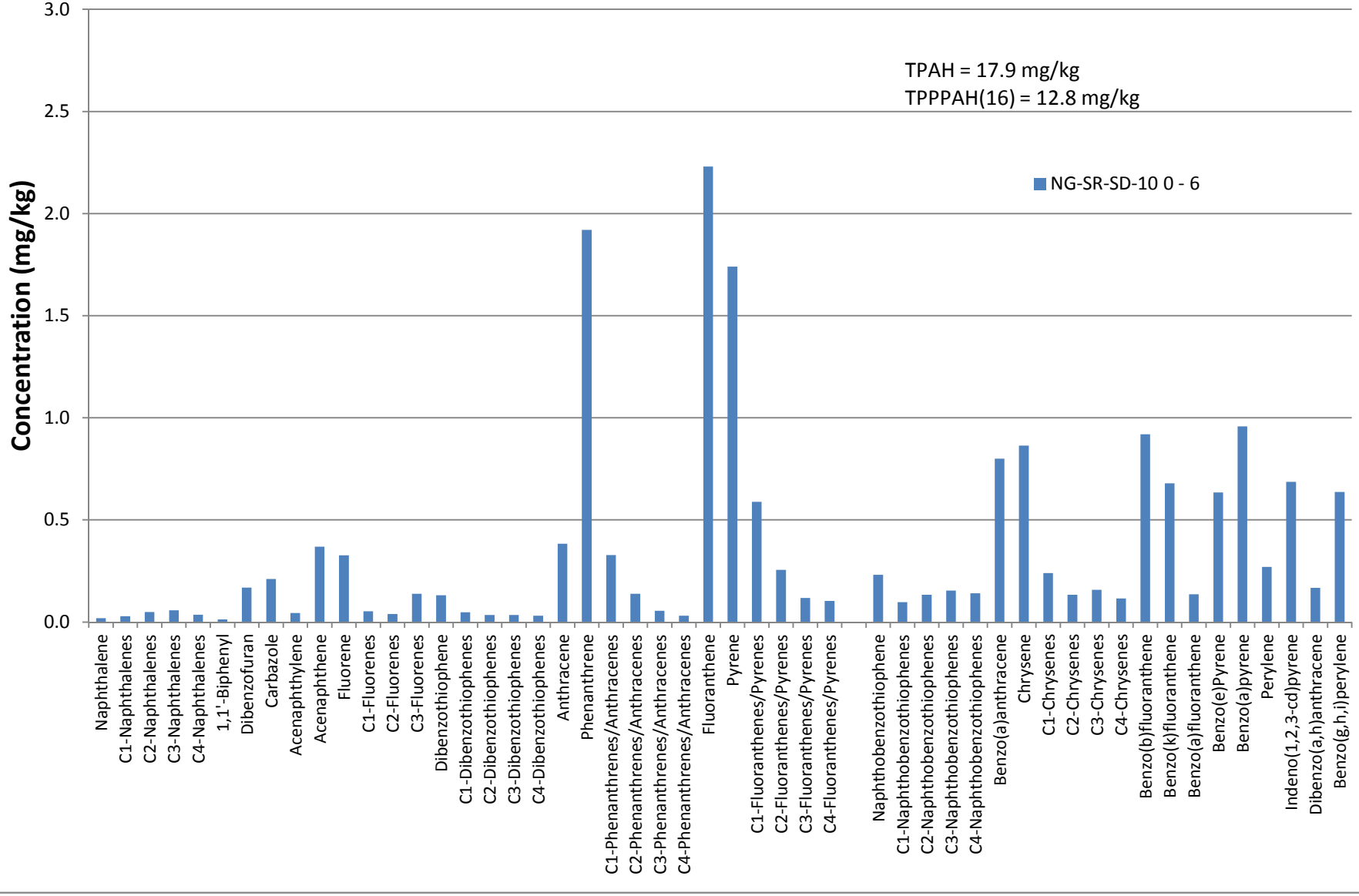

Figure B11. PAH Composition of Sediment Sample SD-11 (0-7")
NG Former MGP Site at Amsden Street in Malone, NY

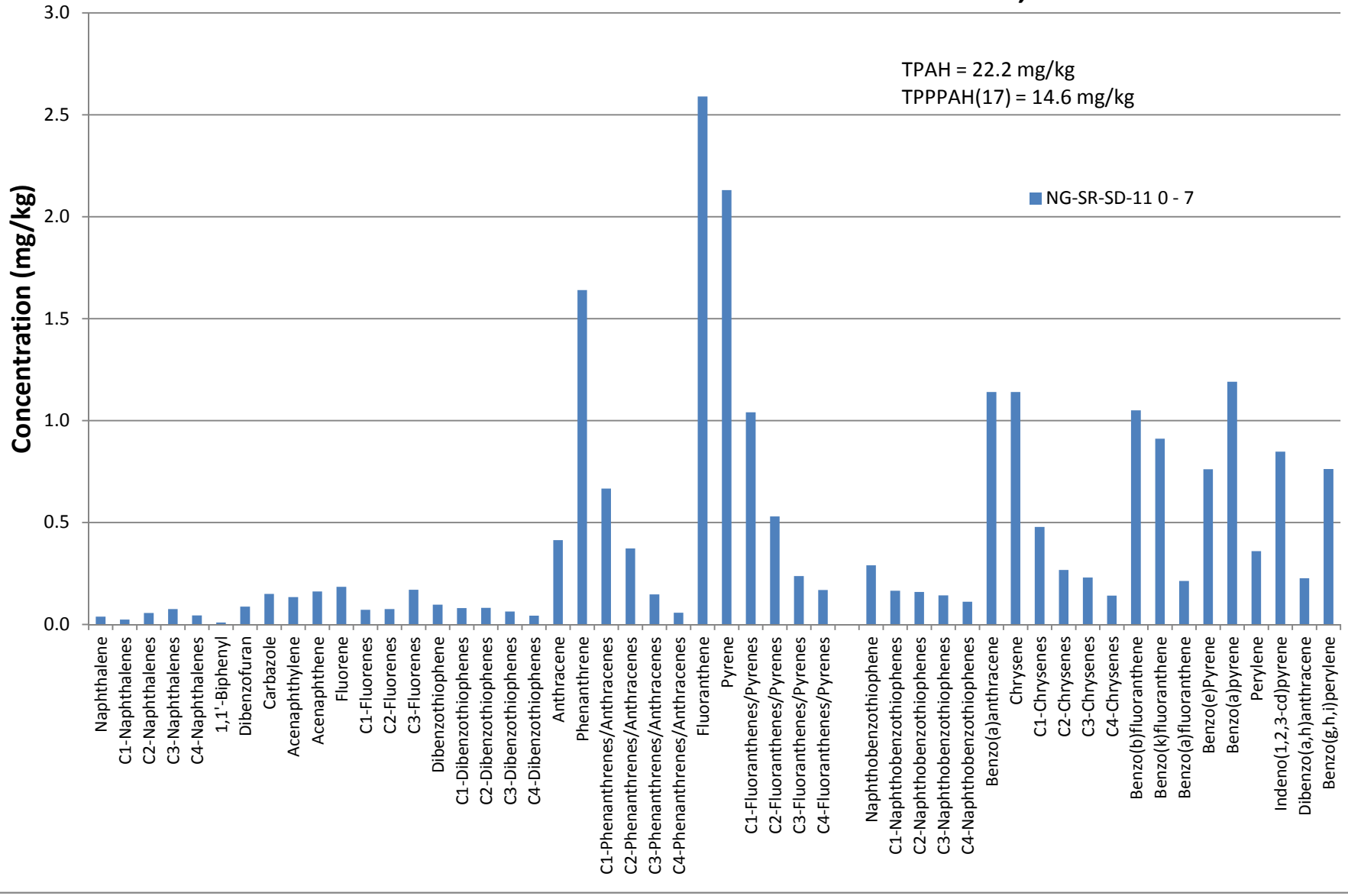

Figure B12a. PAH Composition of Sediment Sample SD-12 (0-6")
NG Former MGP Site at Amsden Street in Malone, NY

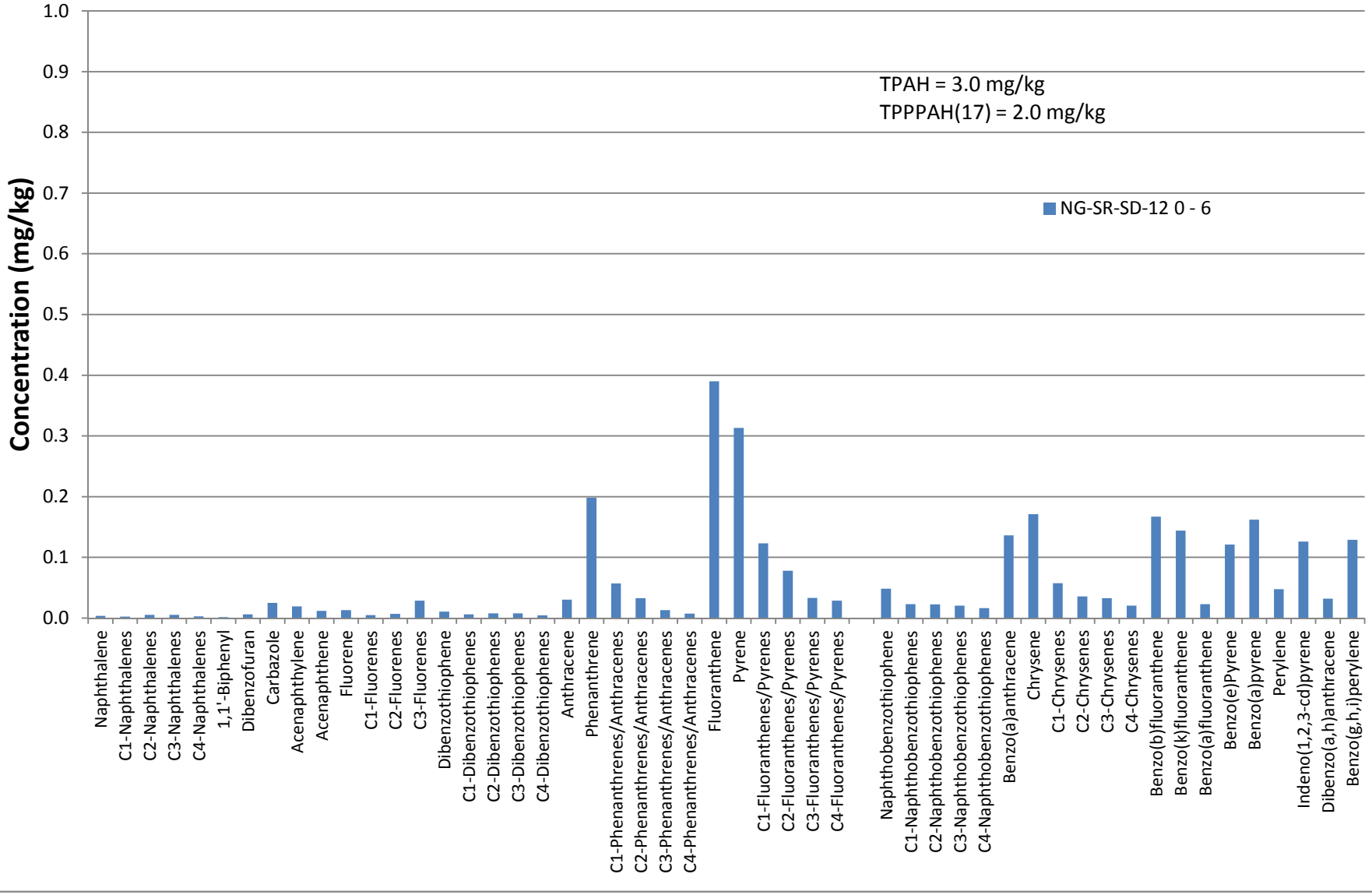

Figure B12b. PAH Composition of Sediment Sample SD-12 (6-12")
NG Former MGP Site at Amsden Street in Malone, NY

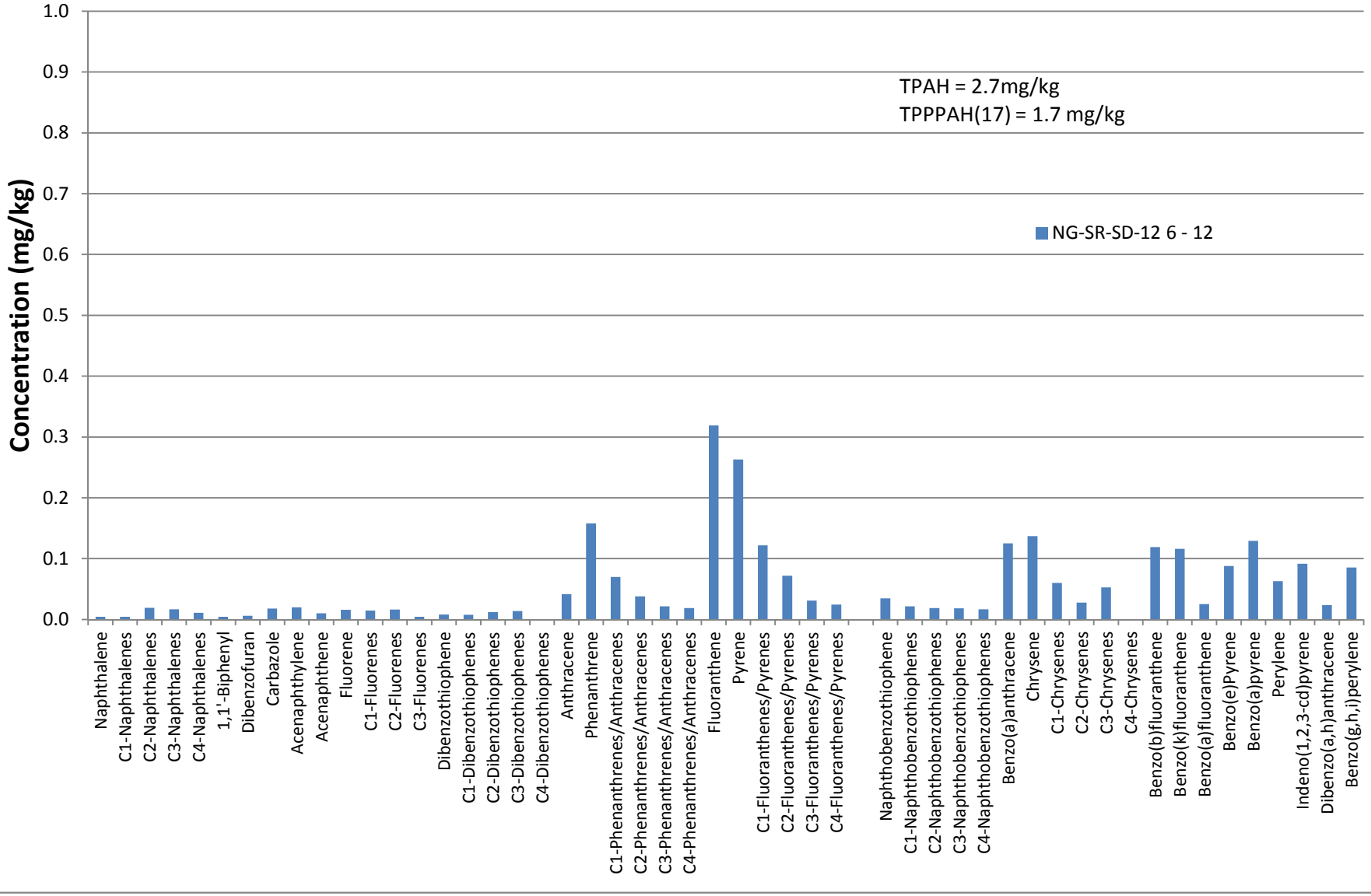

Figure B12c. PAH Composition of Sediment Sample SD-12 (12-20")
NG Former MGP Site at Amsden Street in Malone, NY

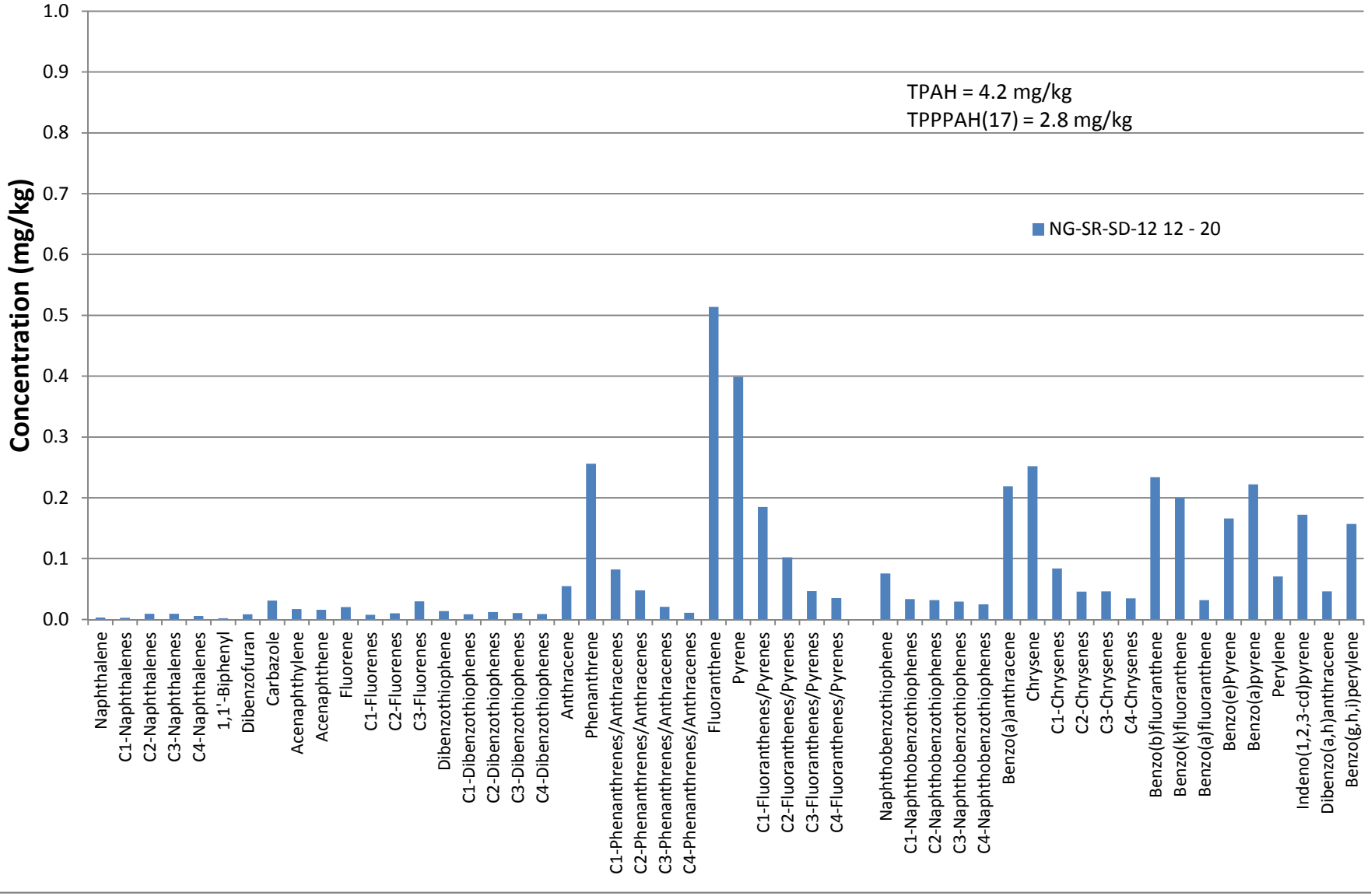

Figure B13. PAH Composition of Sediment Sample SD-13 (0-7")
NG Former MGP Site at Amsden Street in Malone, NY

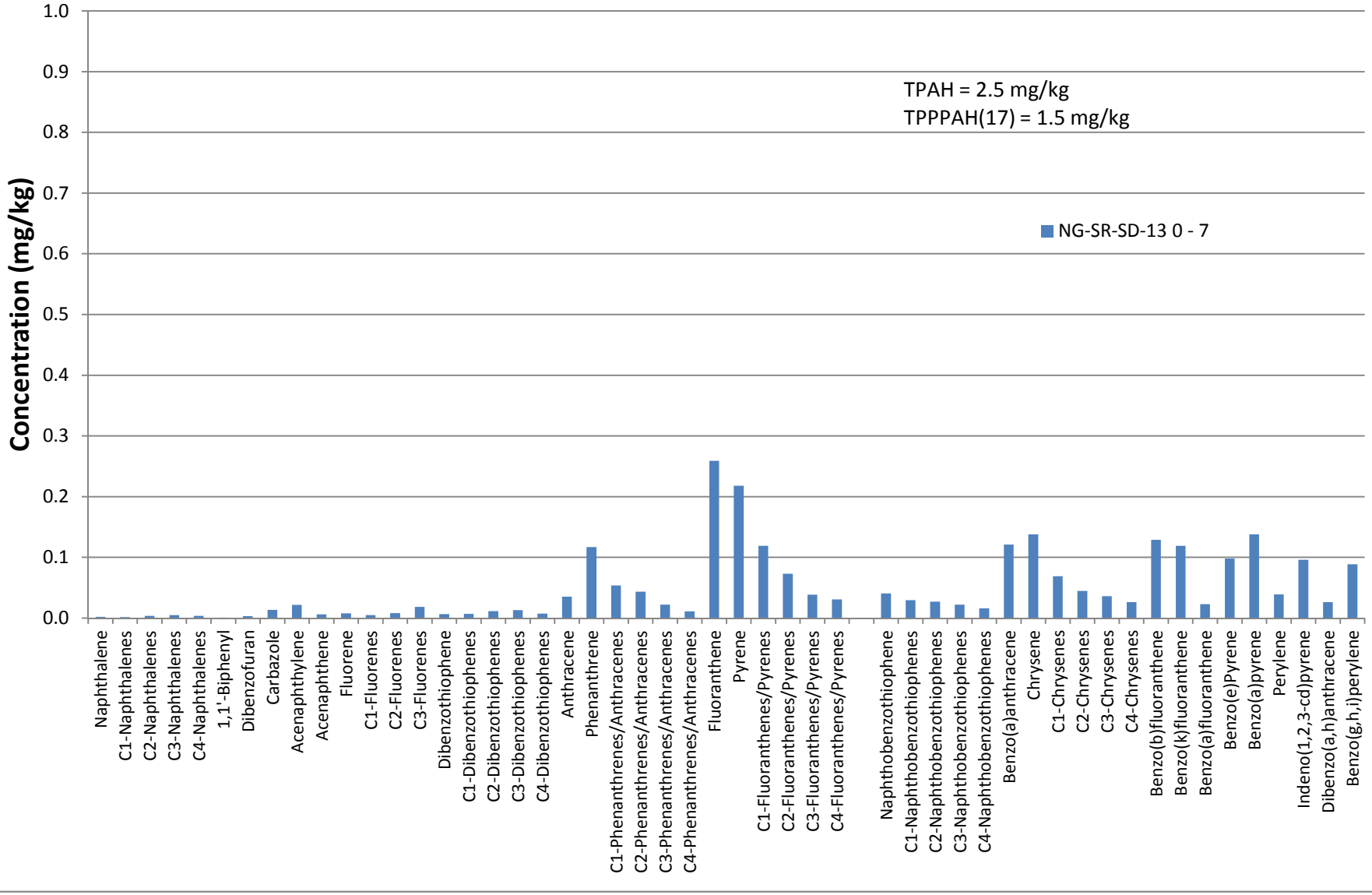

Figure B14a. PAH Composition of Sediment Sample SD-14 (0-6")
NG Former MGP Site at Amsden Street in Malone, NY

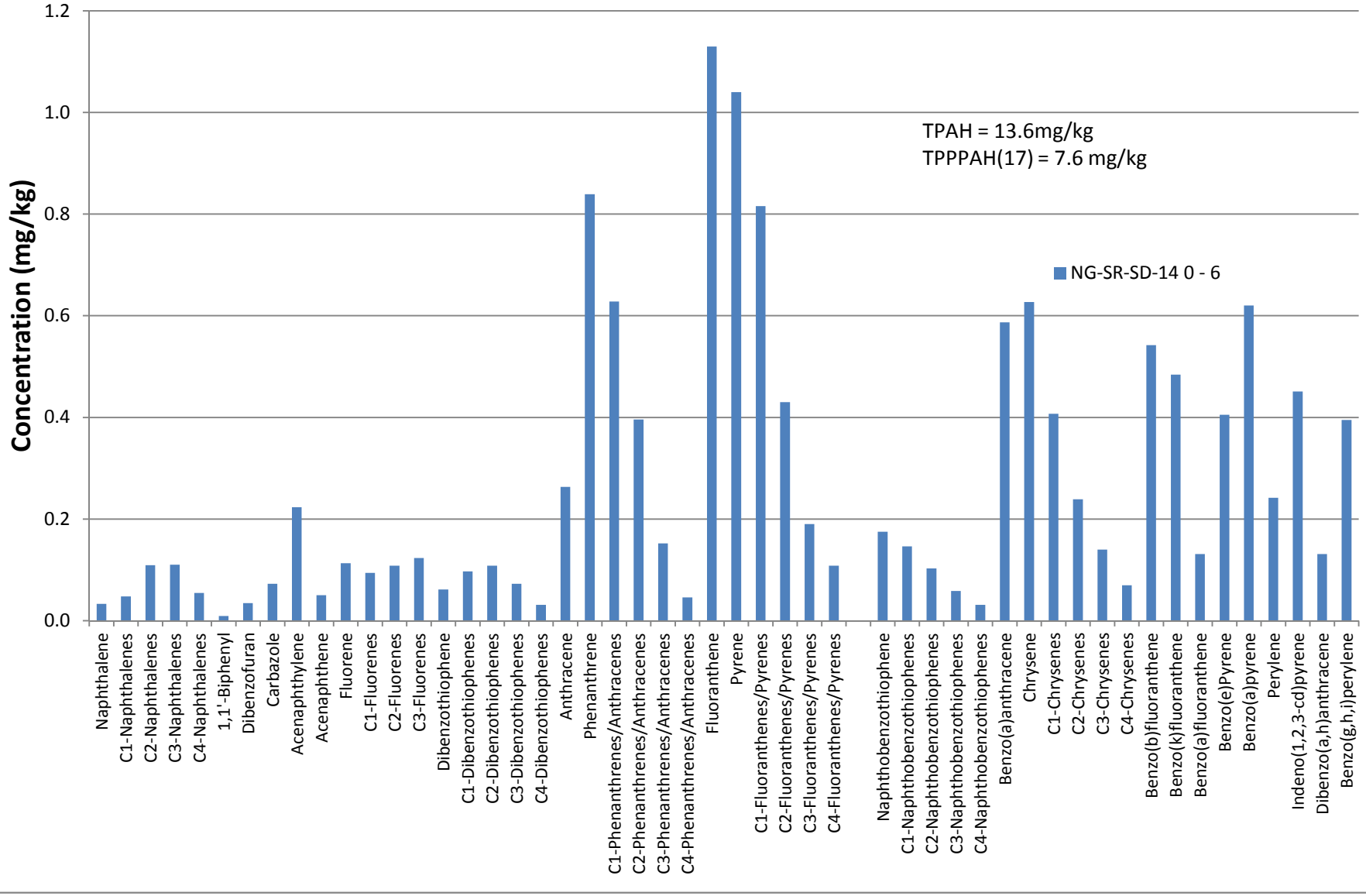

Figure B14b. PAH Composition of Sediment Sample SD-14 (6-12")
NG Former MGP Site at Amsden Street in Malone, NY

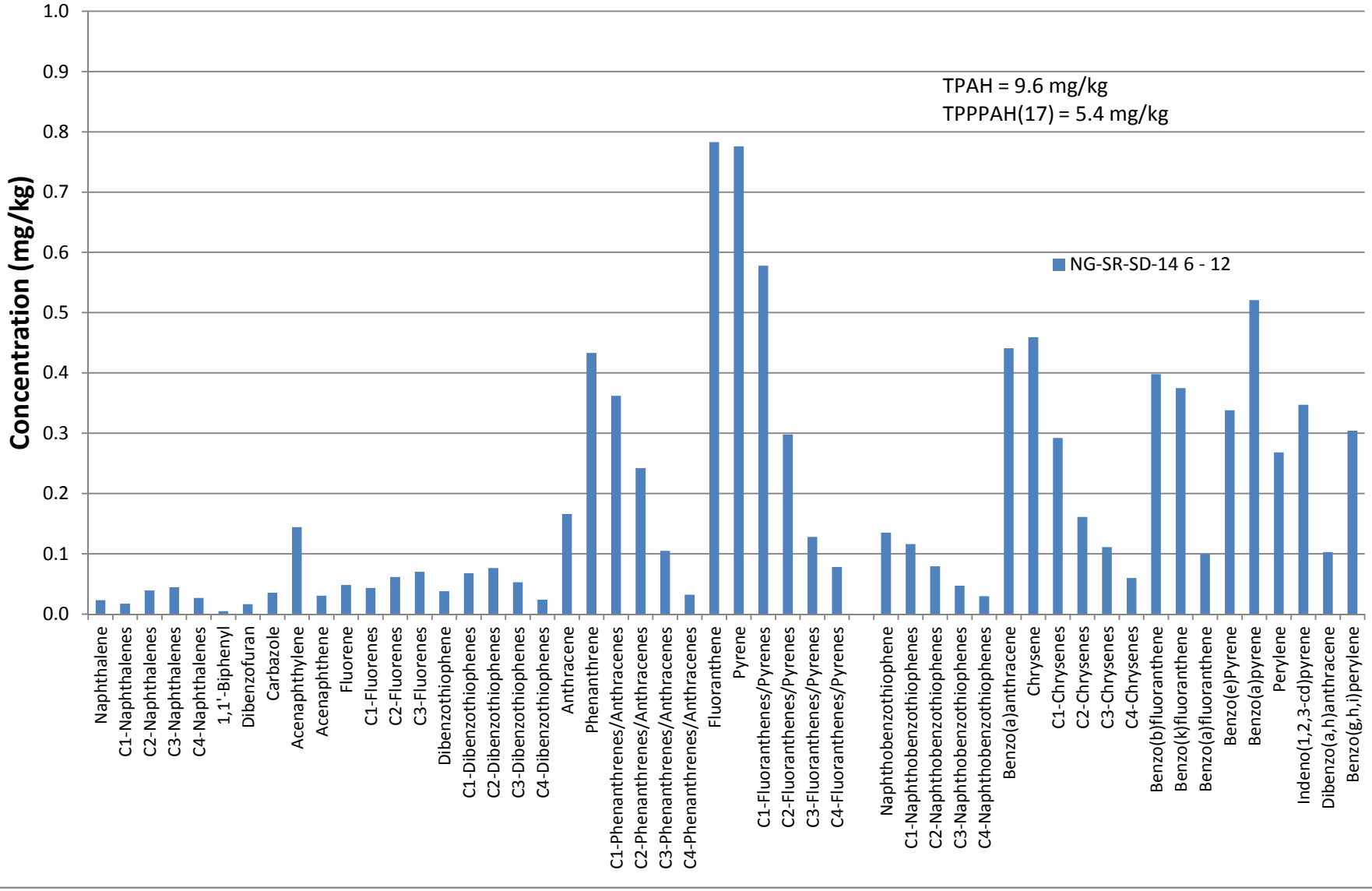

Figure B14c. PAH Composition of Sediment Sample SD-14 (12-24")
NG Former MGP Site at Amsden Street in Malone, NY

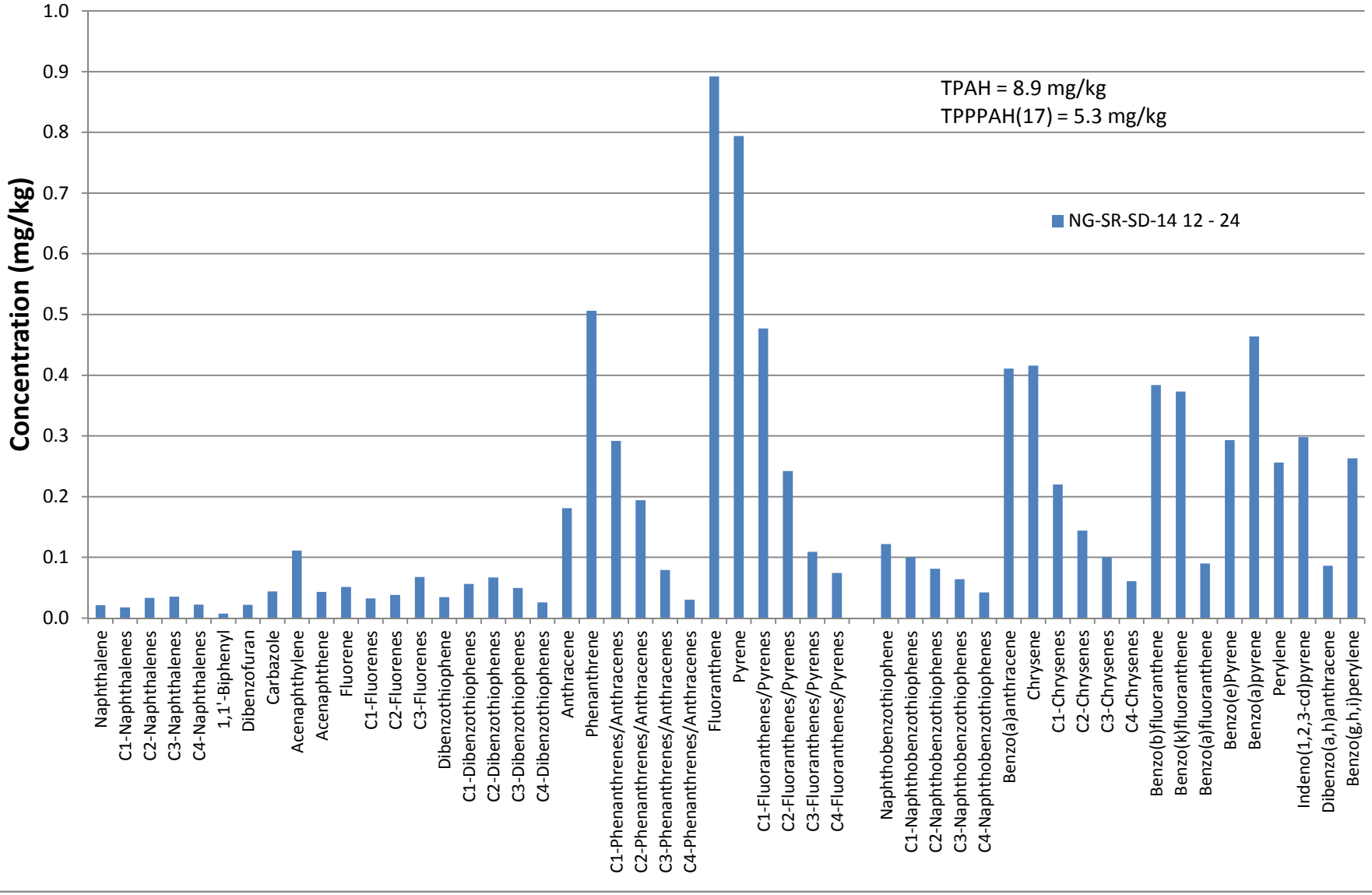

Figure B14d. PAH Composition of Sediment Sample SD-14 (24-36")
NG Former MGP Site at Amsden Street in Malone, NY

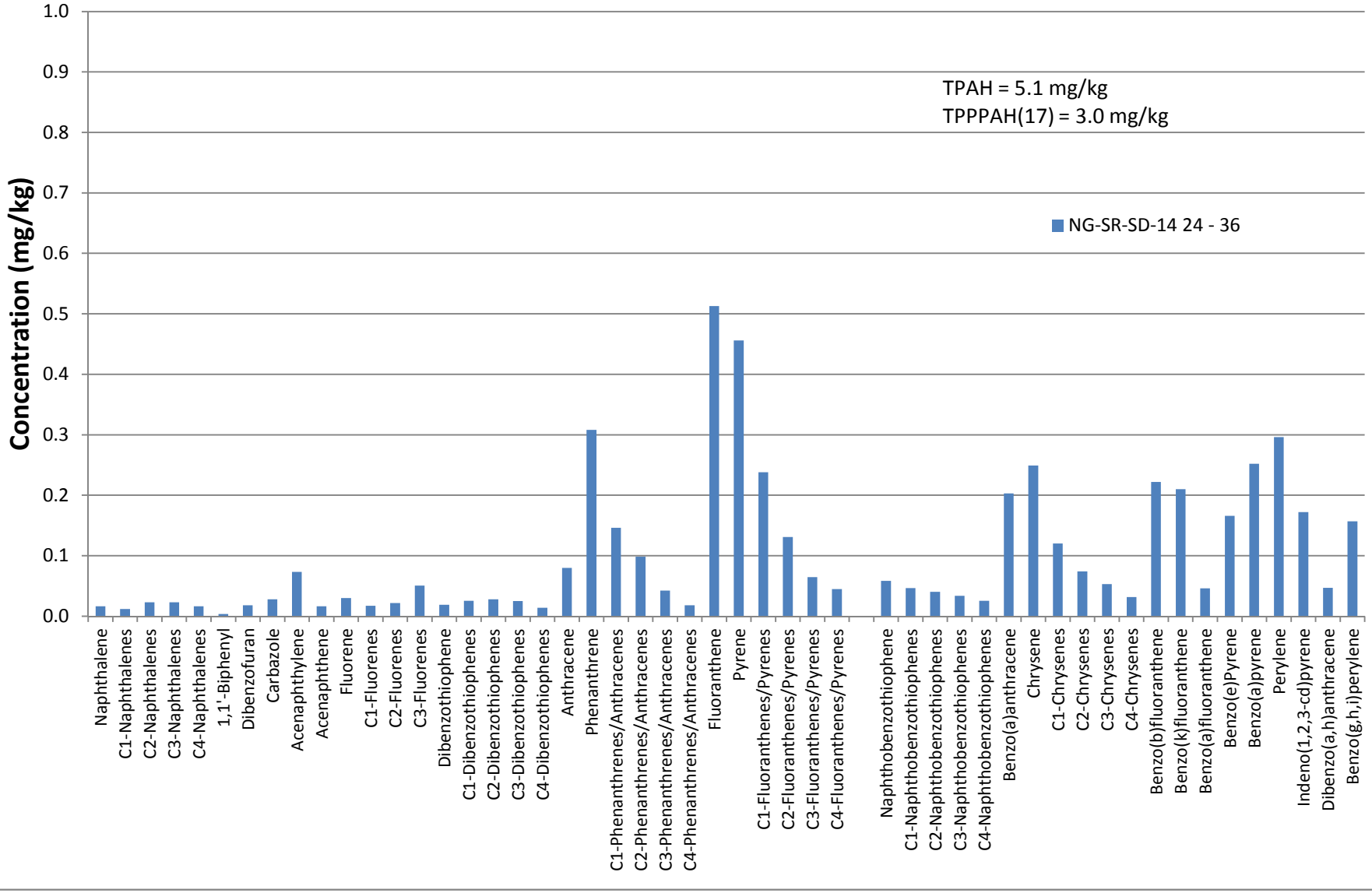

Figure B15. PAH Composition of Sediment Sample SD-15 (0-6")
NG Former MGP Site at Amsden Street in Malone, NY

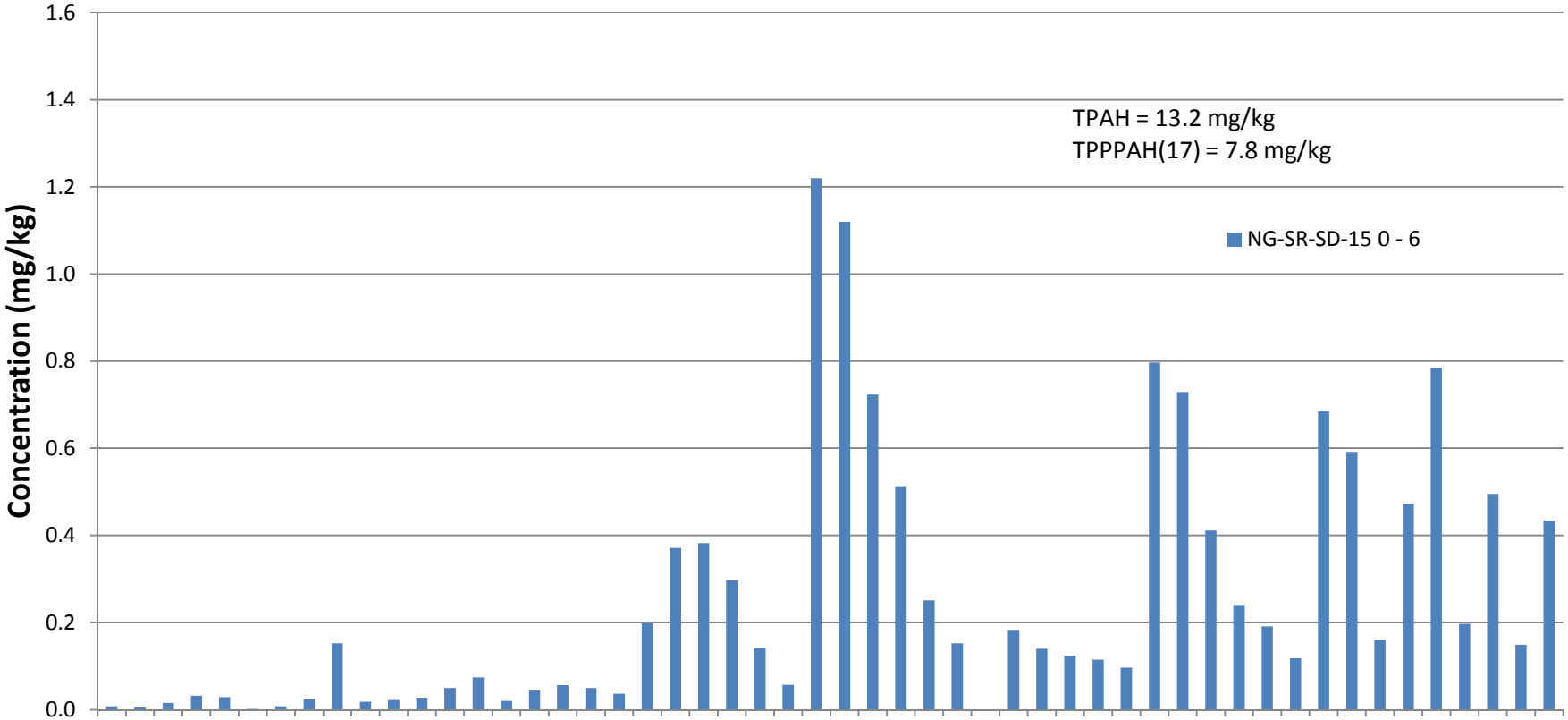

Figure B16a. PAH Composition of Sediment Sample SD-16 (0-6")
NG Former MGP Site at Amsden Street in Malone, NY

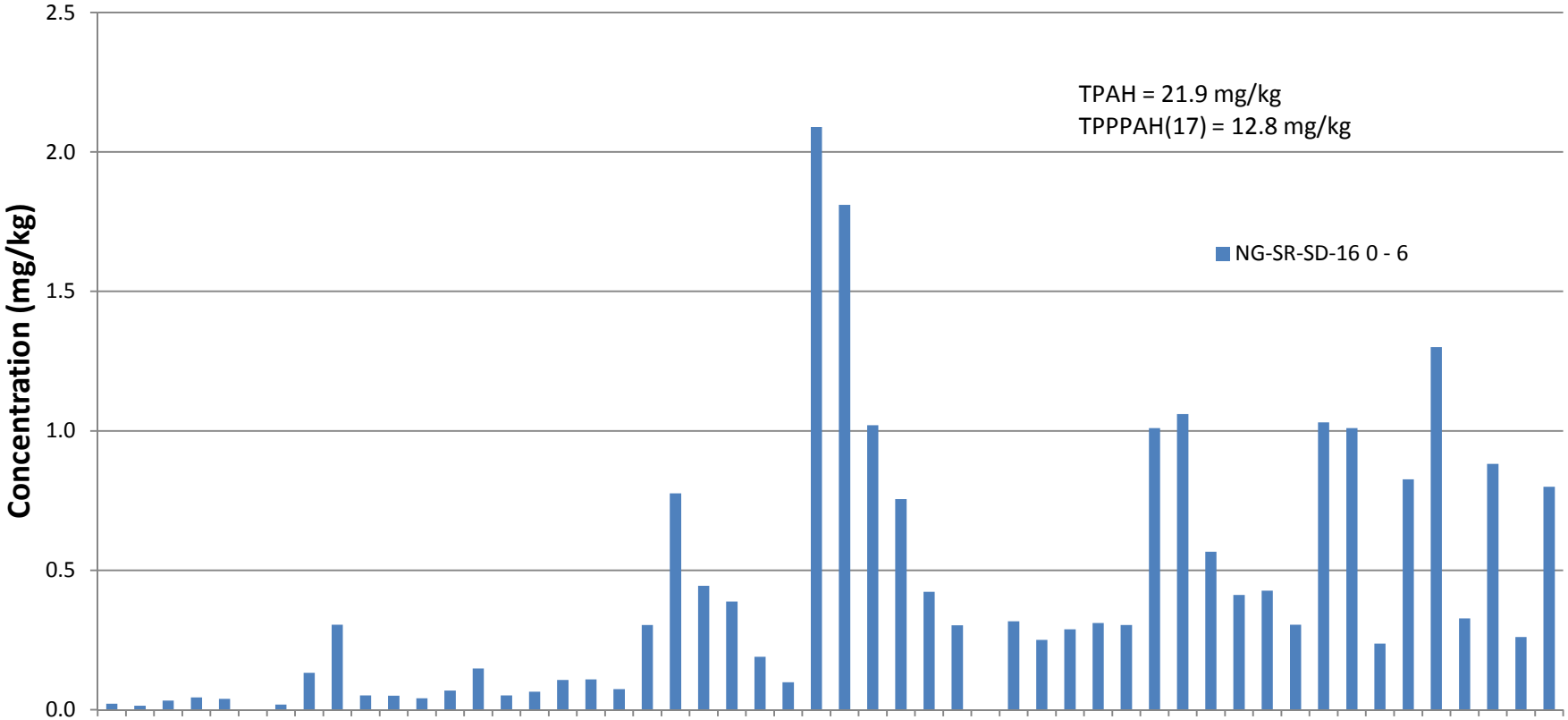

Figure B16b. PAH Composition of Sediment Sample SD-16 (6-12")
NG Former MGP Site at Amsden Street in Malone, NY

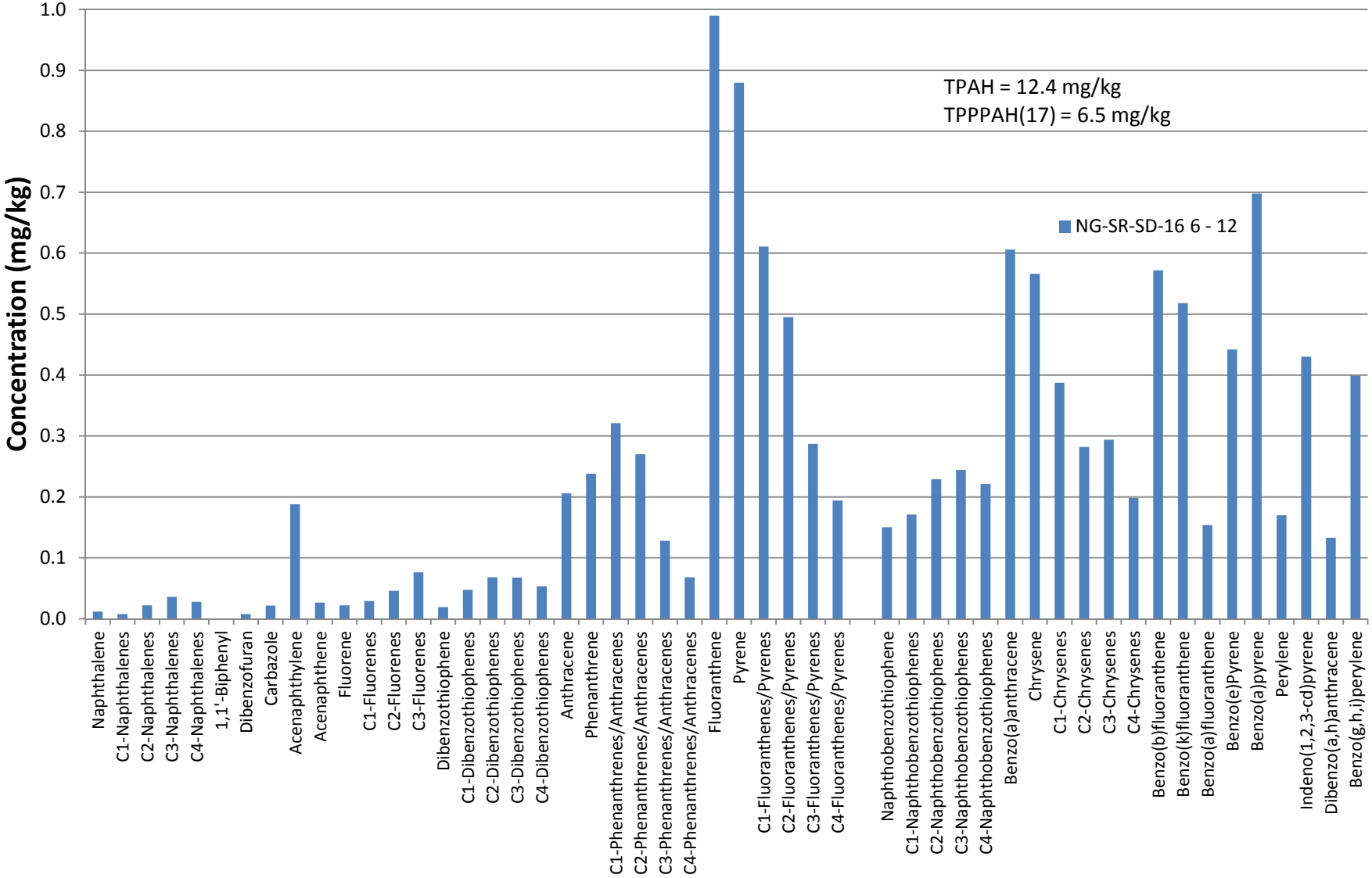

Figure B16c. PAH Composition of Sediment Sample SD-16 (12-24")
NG Former MGP Site at Amsden Street in Malone, NY

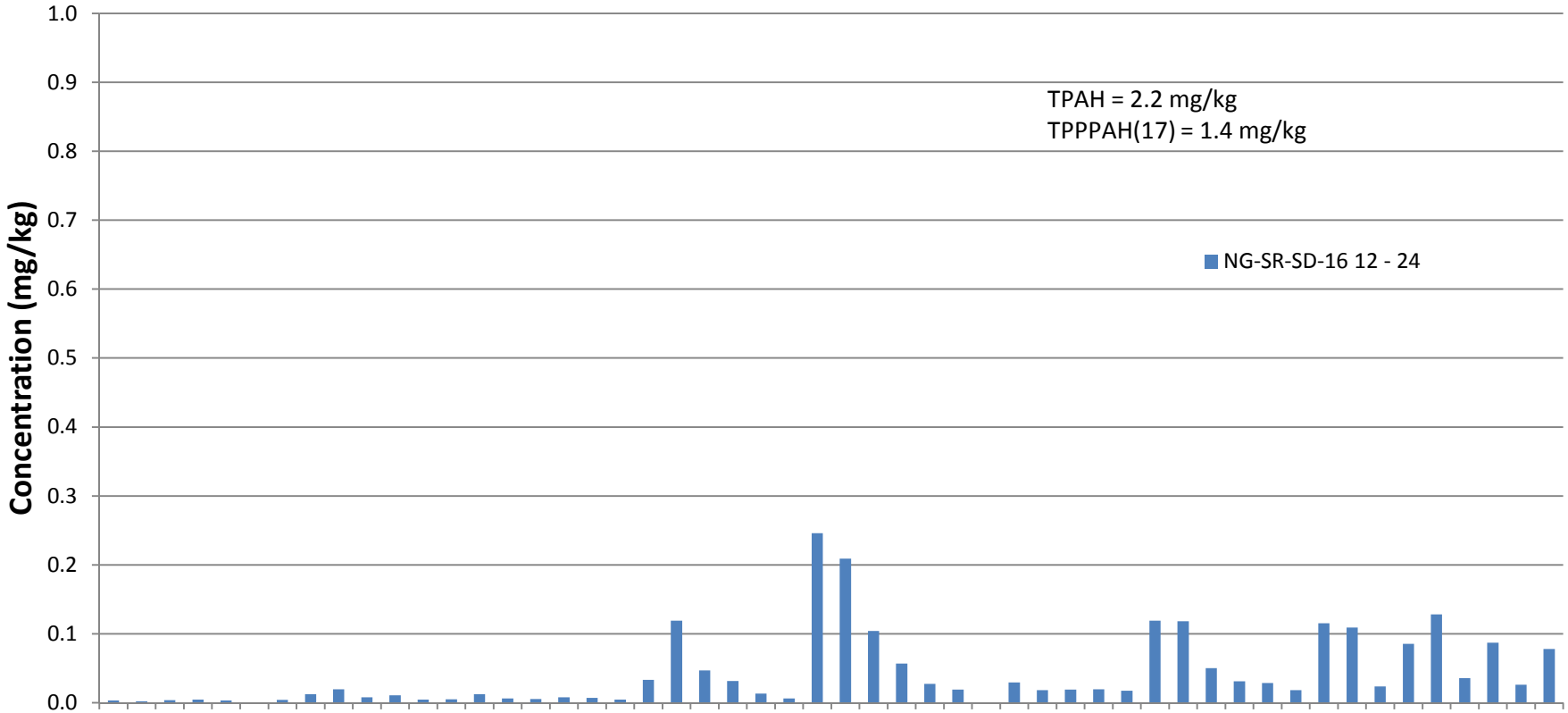

Figure B16d. PAH Composition of Sediment Sample SD-16 (24-36")
NG Former MGP Site at Amsden Street in Malone, NY

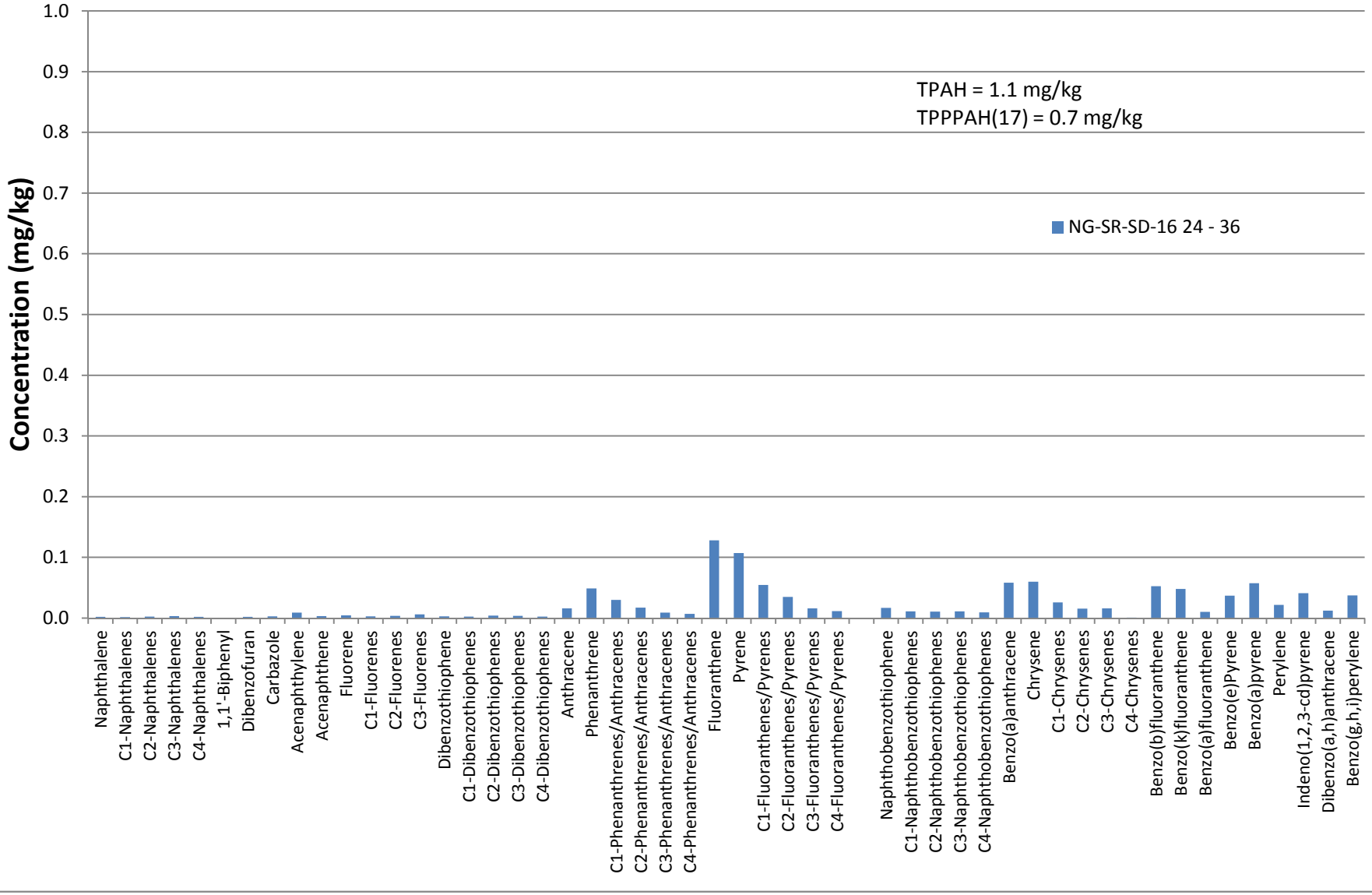

Figure B16e. PAH Composition of Sediment Sample SD-16 (36-48")
NG Former MGP Site at Amsden Street in Malone, NY

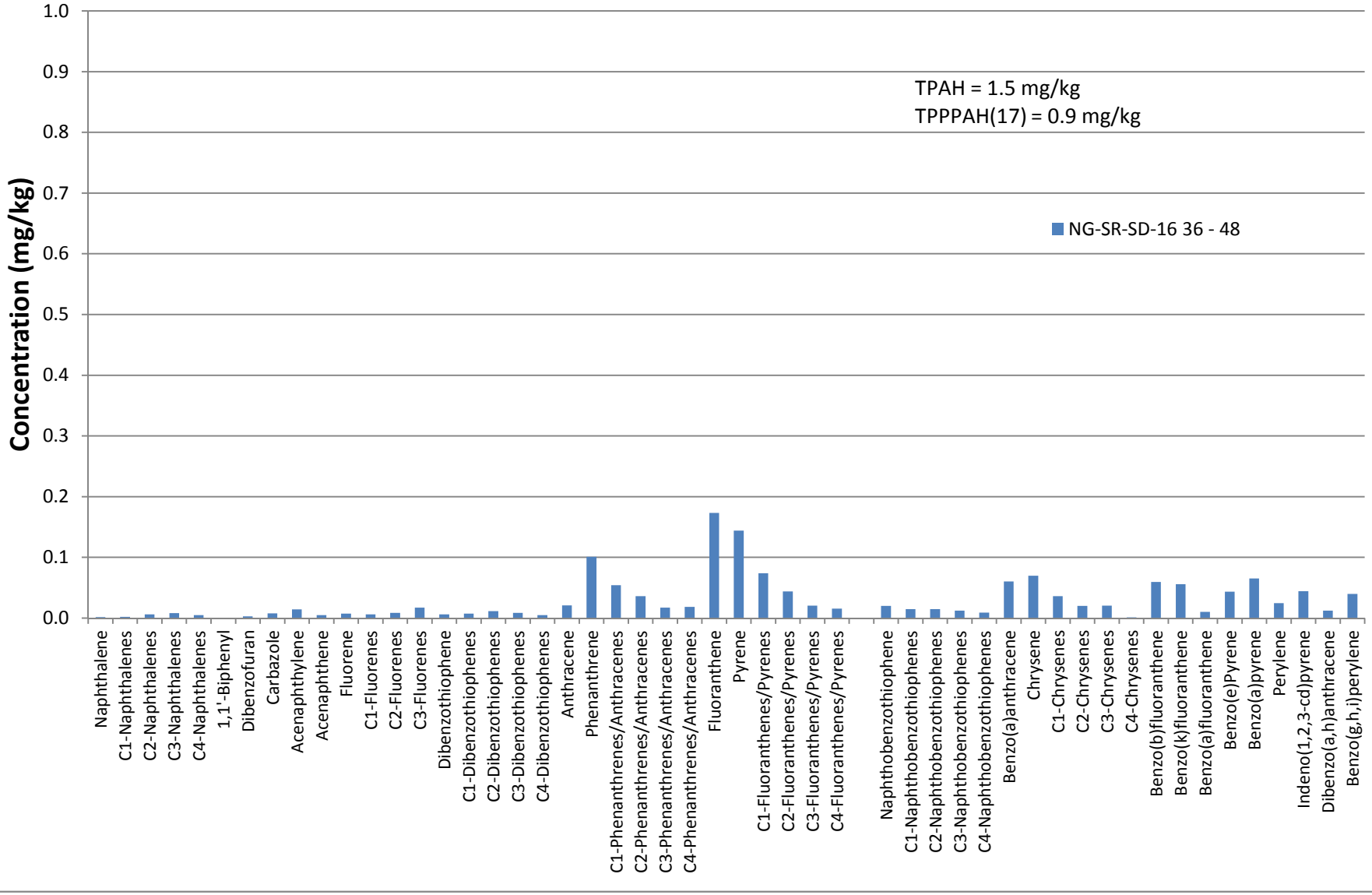

Figure B17. PAH Composition of Sediment Sample SD-17 (0-7")
NG Former MGP Site at Amsden Street in Malone, NY

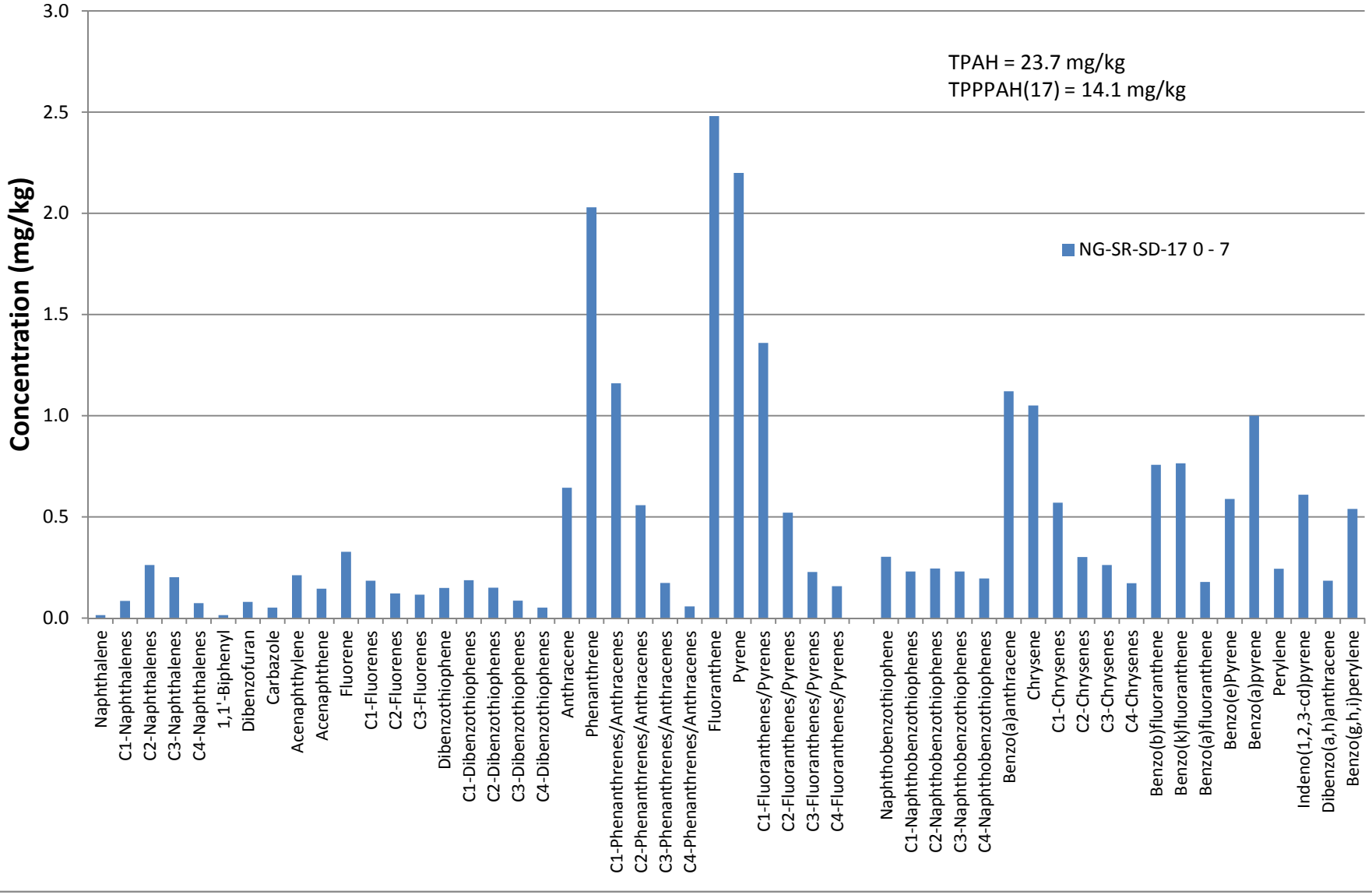

Figure B18. PAH Composition of Sediment Sample SD-18 (0-5")
NG Former MGP Site at Amsden Street in Malone, NY

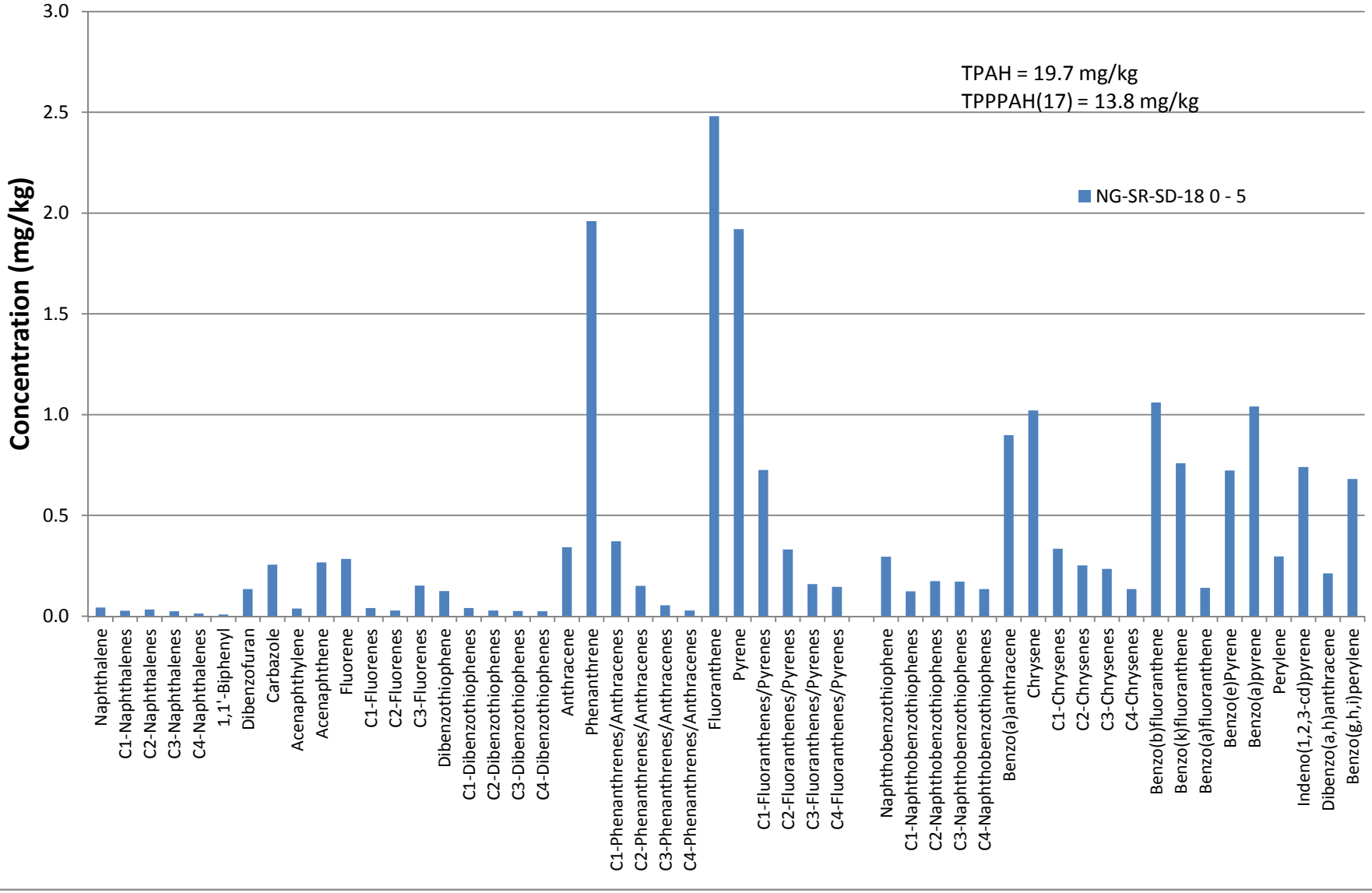

Figure B19. PAH Composition of Sediment Sample SD-19 (0-5")
NG Former MGP Site at Amsden Street in Malone, NY

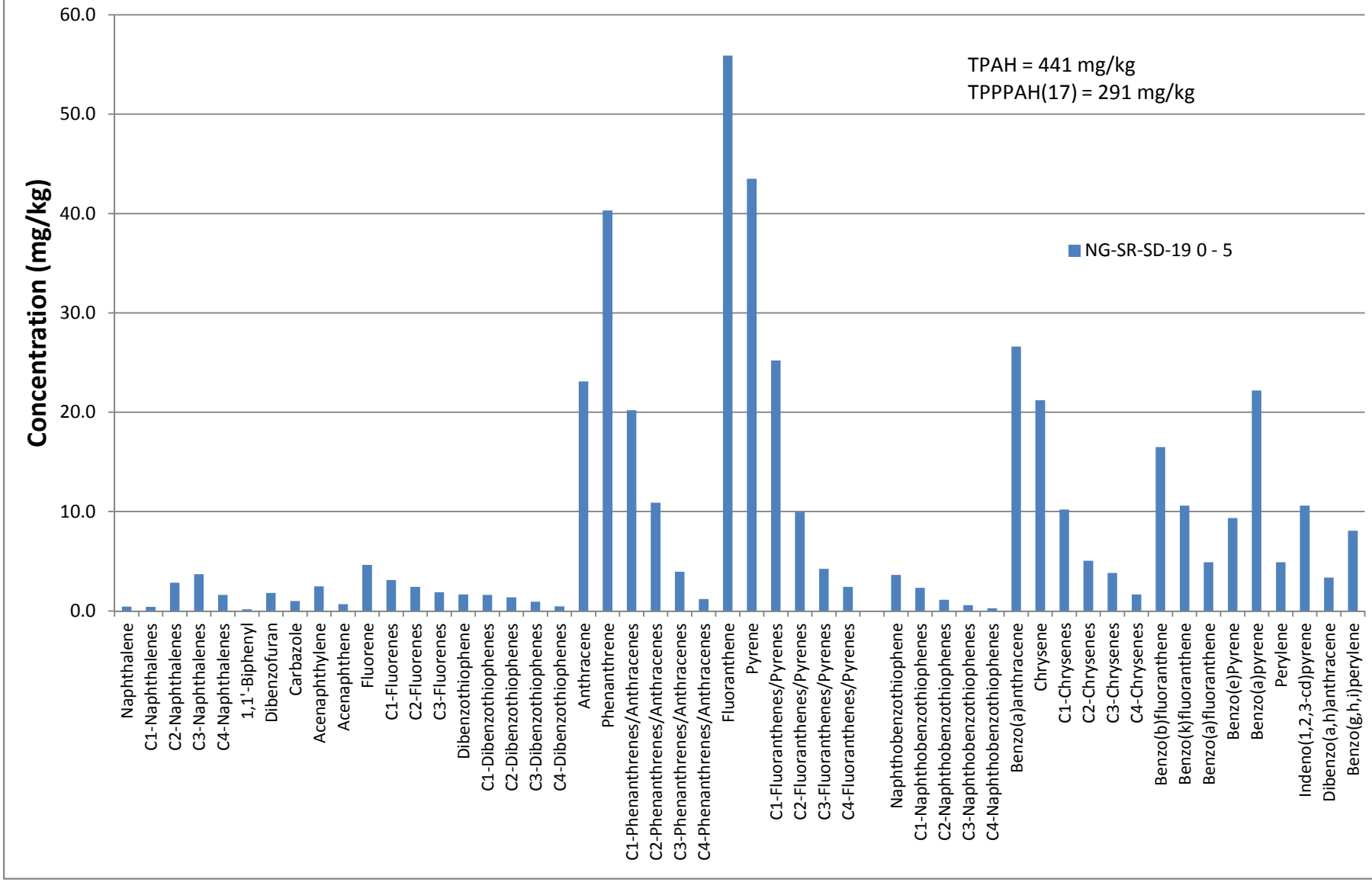

Figure B20. PAH Composition of Sediment Sample SD-20 (0-4")
NG Former MGP Site at Amsden Street in Malone, NY

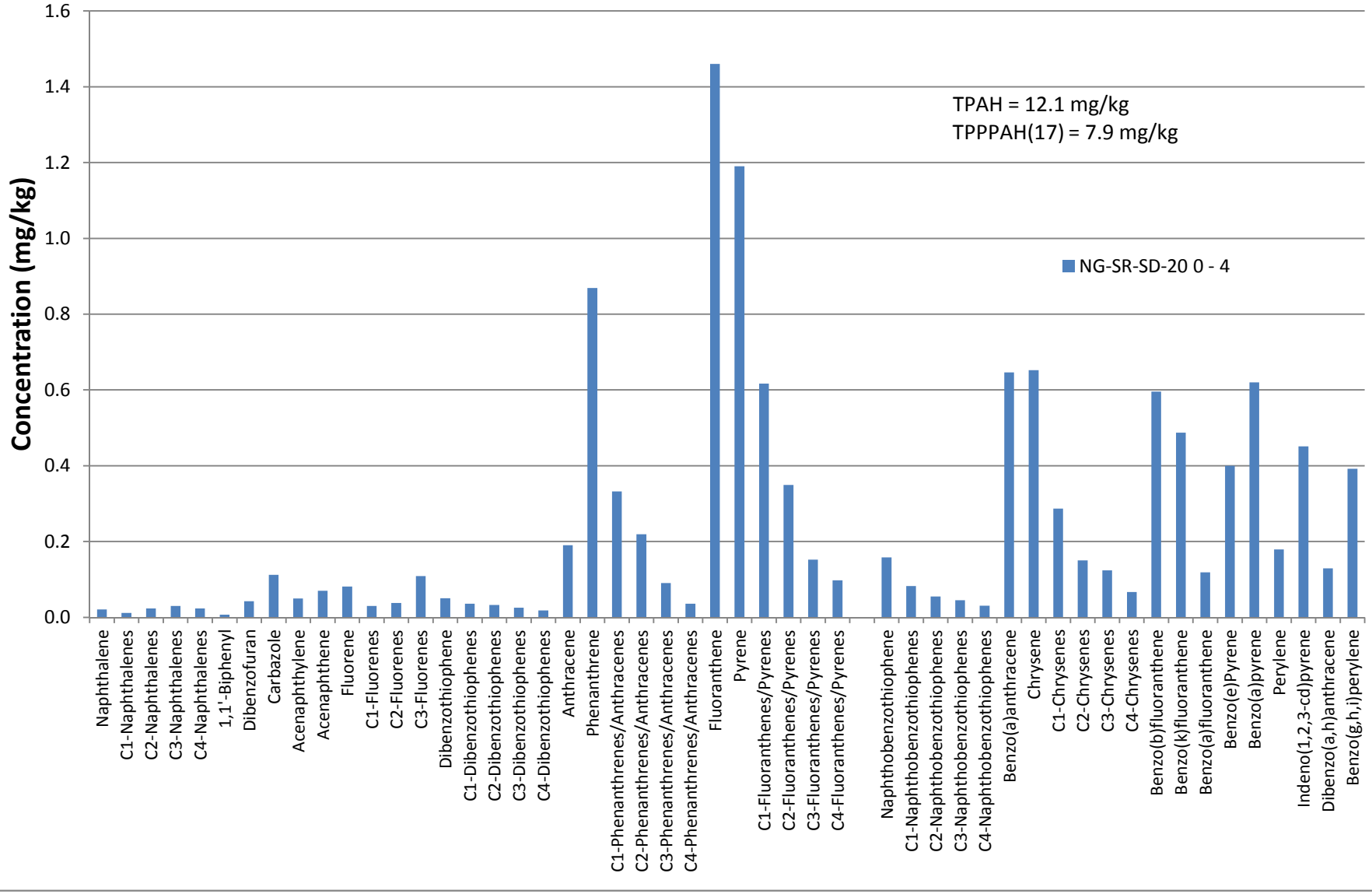

Figure B21. PAH Composition of Sediment Sample SD-21 (0-6")
NG Former MGP Site at Amsden Street in Malone, NY

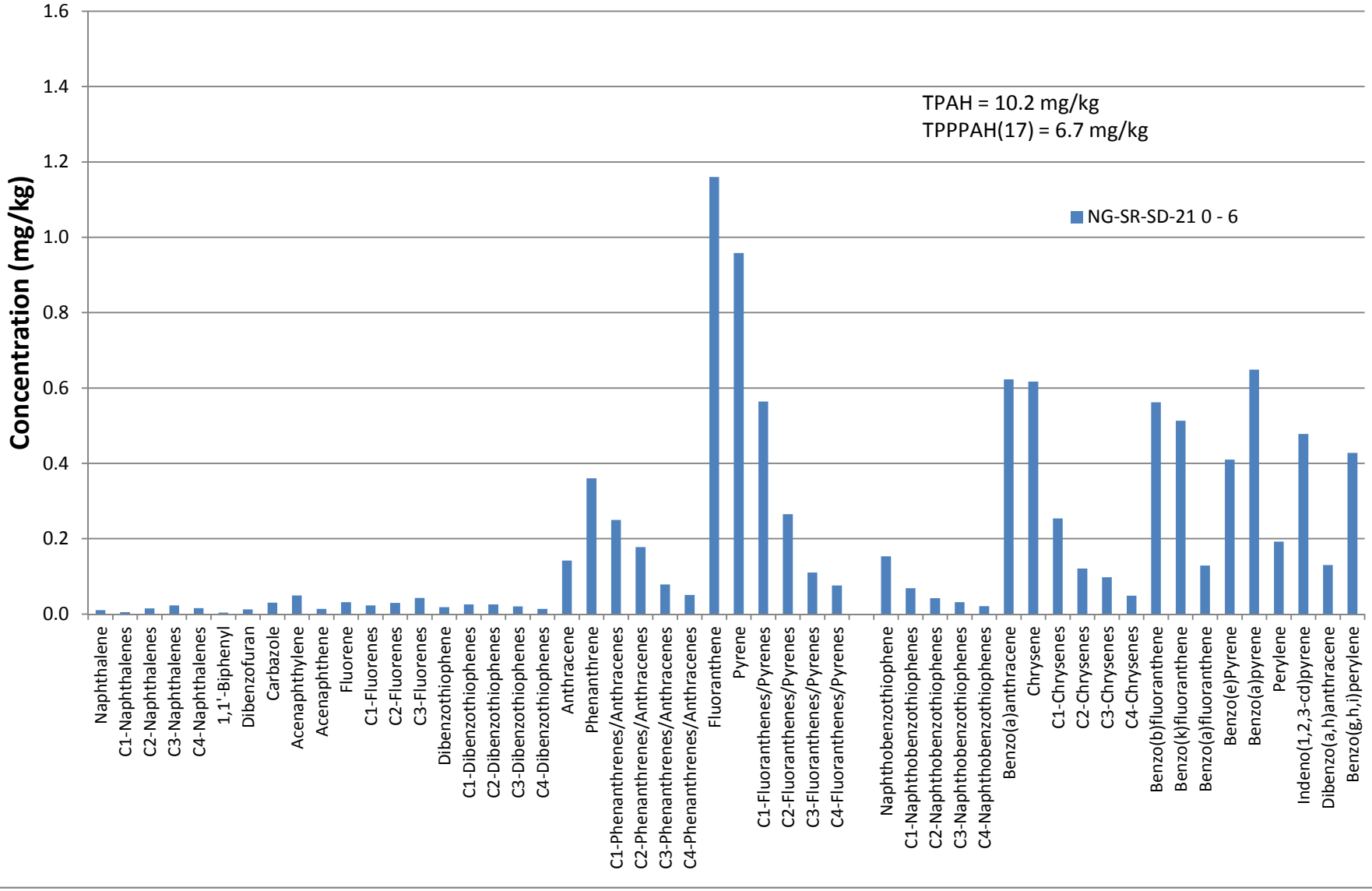

Figure B22. PAH Composition of Sediment Sample SD-22 (0-4")
NG Former MGP Site at Amsden Street in Malone, NY

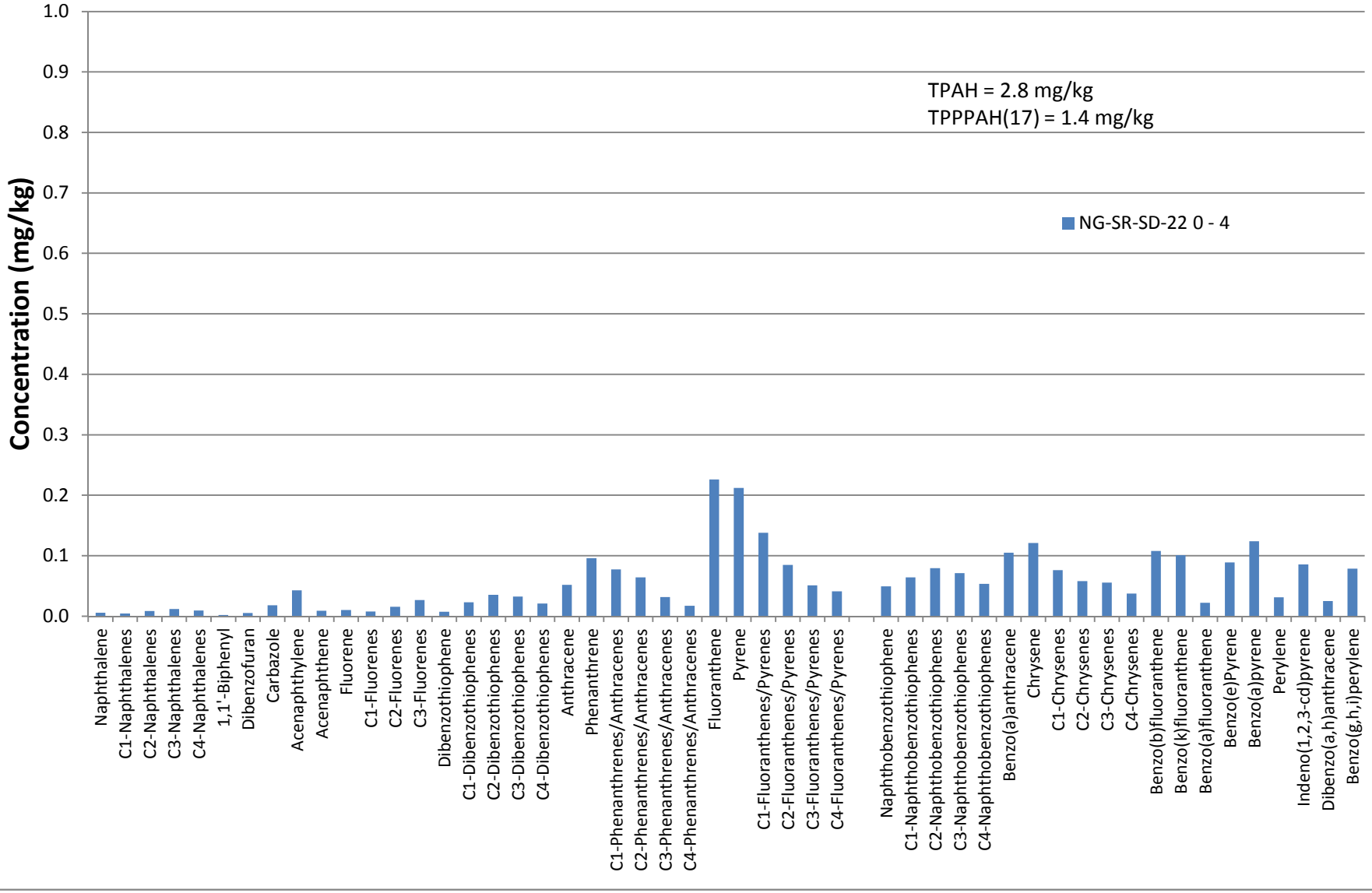

Figure B23. PAH Composition of Sediment Sample SD-23 (0-3")
NG Former MGP Site at Amsden Street in Malone, NY

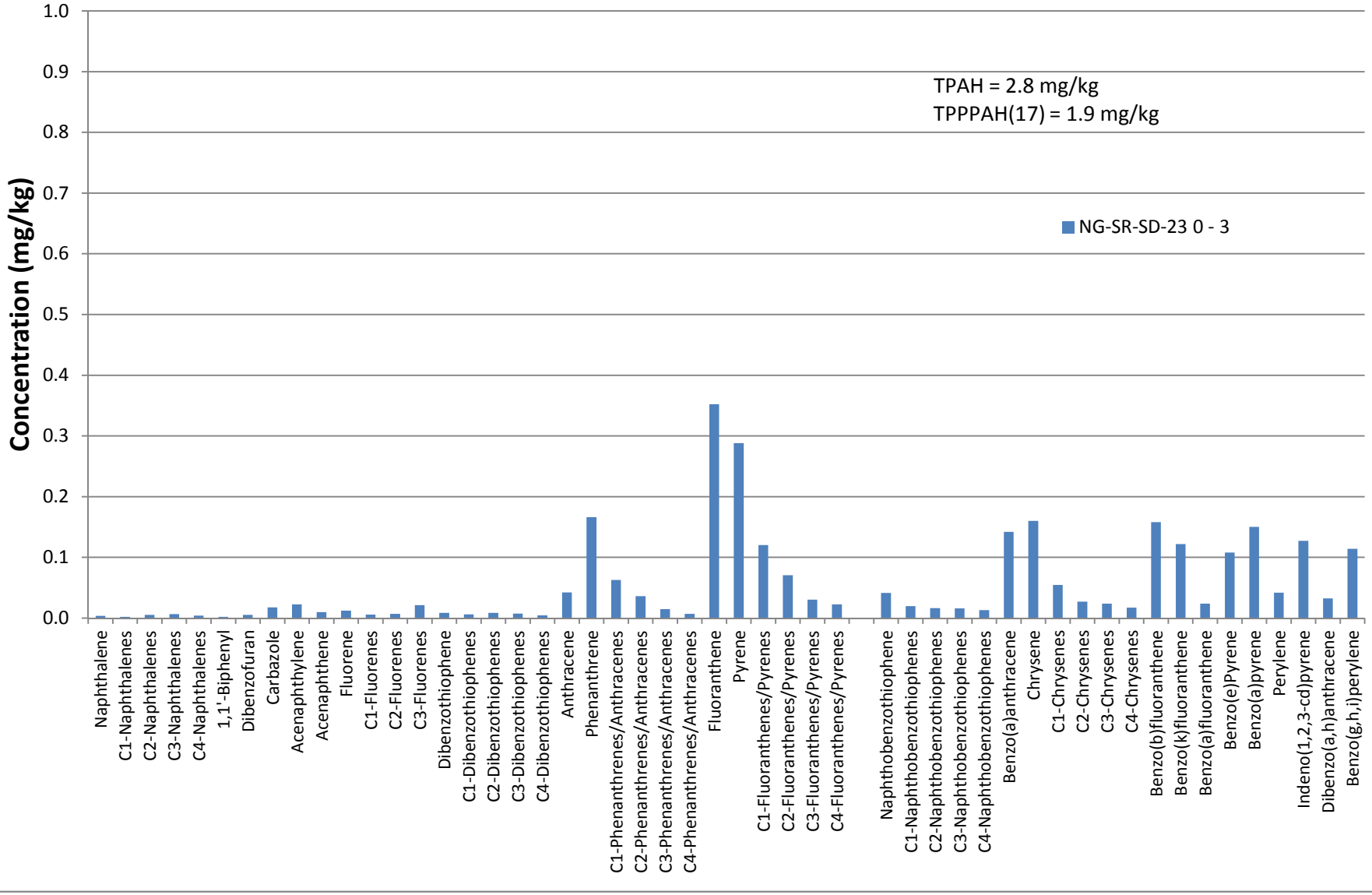

Figure B24. PAH Composition of Sediment Sample SD-24 (0-3")
NG Former MGP Site at Amsden Street in Malone, NY

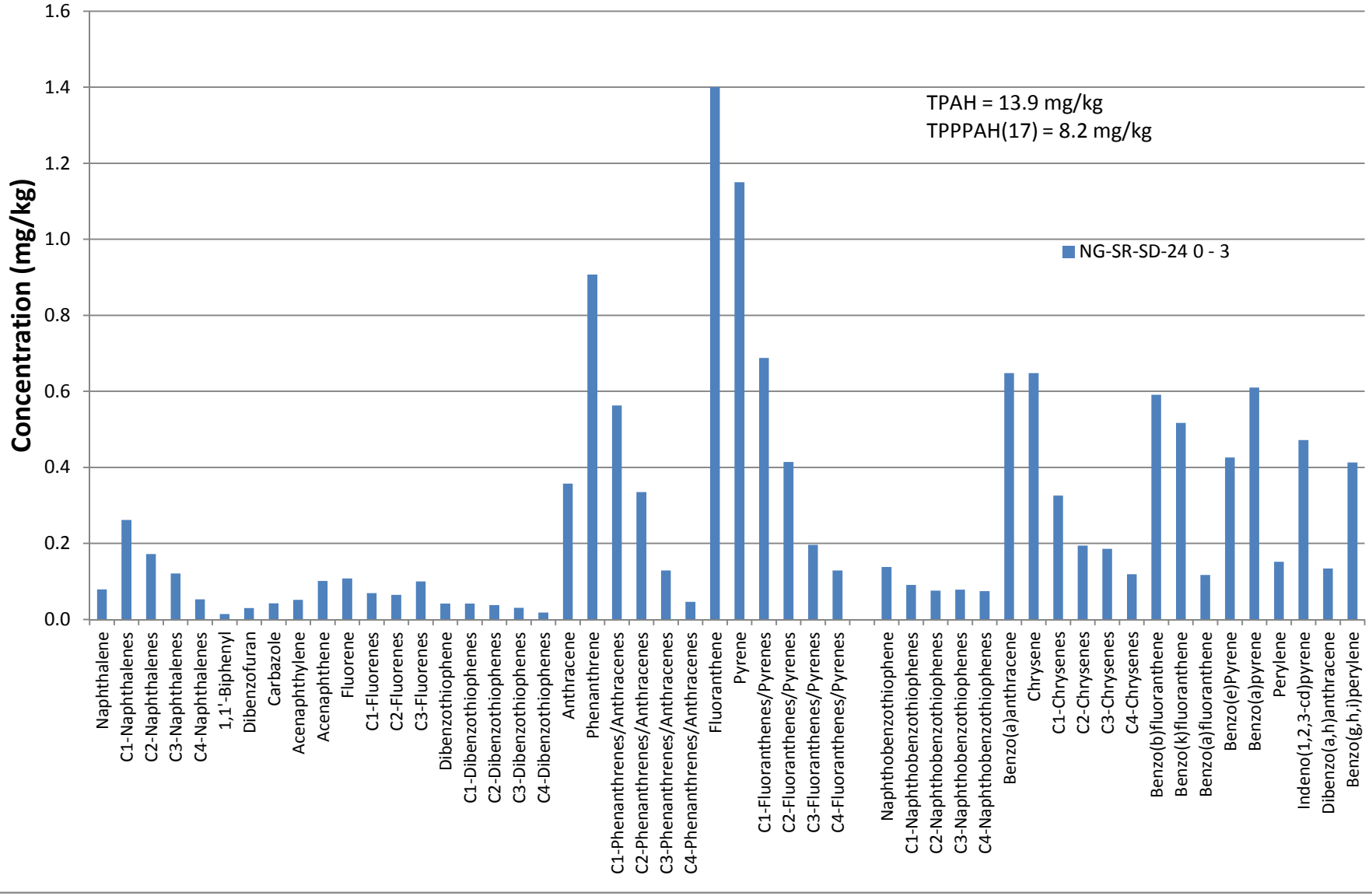

Figure B25. PAH Composition of Sediment Sample SD-25 (0-6")
NG Former MGP Site at Amsden Street in Malone, NY