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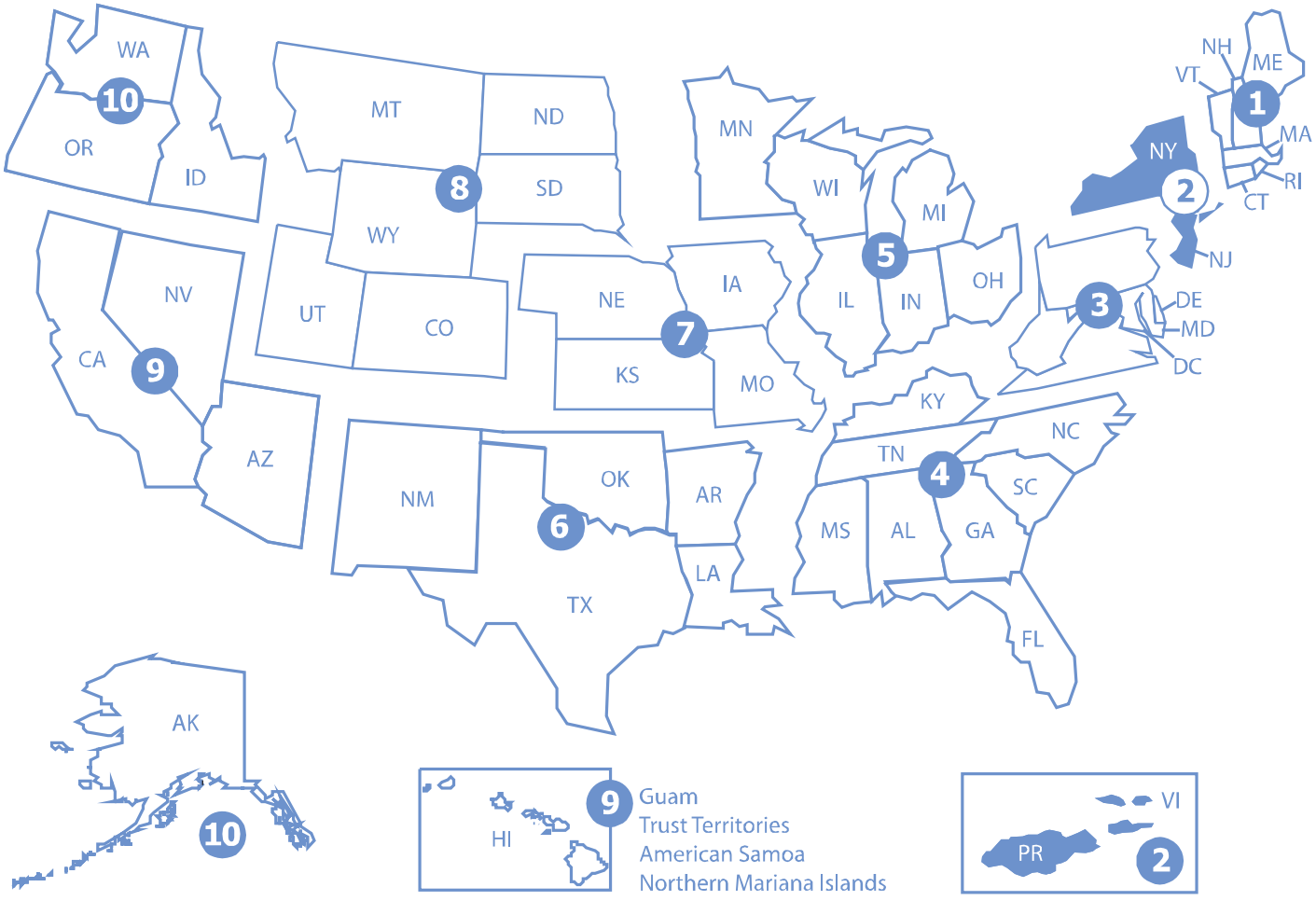
Office of Solid Waste and Emergency Response

Support Document for the Revised National Priorities List Final Rule – Gowanus Canal



Support Document for the Revised National Priorities List Final Rule Gowanus Canal

March 2010

Site Assessment and Remedy Decisions Branch
Office of Superfund Remediation and Technology Innovation
Office of Solid Waste and Emergency Response
U.S. Environmental Protection Agency
Washington, DC 20460

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Executive Summary

Section 105(a)(8)(B) of CERCLA, as amended by SARA, requires that the EPA prepare a list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States. An original National Priorities List (NPL) was promulgated on September 8, 1983 (48 FR 40658). CERCLA requires that EPA update the list at least annually.

This document provides responses to public comments received on the Gowanus Canal site, proposed on April 9, 2009 (74 FR 16162). This site is being added to the NPL based on an evaluation under EPA's Hazard Ranking System (HRS) in a final rule published in the *Federal Register* in March 2010

Introduction

This document explains the rationale for adding the Gowanus Canal site in Brooklyn, New York, to the National Priorities List (NPL) of uncontrolled hazardous waste sites and also provides the responses to public comments received on this site. The EPA proposed this site on April 9, 2010 (74 FR 16162). This site is being added to the NPL based on an evaluation under the Hazard Ranking System (HRS) in a final rule published in the *Federal Register* in March 2010.

Background of the NPL

In 1980, Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. Sections 9601 *et seq*. in response to the dangers of uncontrolled hazardous waste sites. CERCLA was amended on October 17, 1986, by the Superfund Amendments and Reauthorization Act (SARA), Public Law No. 99-499, stat., 1613 *et seq.* To implement CERCLA, EPA promulgated the revised National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300, on July 16, 1982 (47 FR 31180), pursuant to CERCLA Section 105 and Executive Order 12316 (46 FR 42237, August 20, 1981). The NCP, further revised by EPA on September 16, 1985 (50 FR 37624) and November 20, 1985 (50 FR 47912), sets forth guidelines and procedures needed to respond under CERCLA to releases and threatened releases of hazardous substances, pollutants, or contaminants. On March 8, 1990 (55 FR 8666), EPA further revised the NCP in response to SARA.

Section 105(a)(8)(A) of CERCLA, as amended by SARA, requires that the NCP include

> criteria for determining priorities among releases or threatened releases throughout the United States for the purpose of taking remedial action and, to the extent practicable, take into account the potential urgency of such action, for the purpose of taking removal action.

Removal action involves cleanup or other actions that are taken in response to emergency conditions or on a short-term or temporary basis (CERCLA Section 101). Remedial action is generally long-term in nature and involves response actions that are consistent with a permanent remedy for a release (CERCLA Section 101). Criteria for placing sites on the NPL, which makes them eligible for remedial actions financed by the Trust Fund established under CERCLA, were included in the HRS. EPA promulgated the HRS as Appendix A of the NCP (47 FR 31219, July 16, 1982). On December 14, 1990 (56 FR 51532), EPA promulgated revisions to the HRS in response to SARA, and established the effective date for the HRS revisions as March 15, 1991.

Section 105(a)(8)(B) of CERCLA, as amended, requires that the statutory criteria provided by the HRS be used to prepare a list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States. The list, which is Appendix B of the NCP, is the NPL.

An original NPL of 406 sites was promulgated on September 8, 1983 (48 FR 40658). At that time, an HRS score of 28.5 was established as the cutoff for listing because it yielded an initial NPL of at least 400 sites, as suggested by CERCLA. The NPL has been expanded several times since then, most recently on November 4, 2009 (74 FR 57085). The Agency also has published a number of proposed rulemakings to add sites to the NPL. The most recent proposal was on September 23, 2009 (74 FR 48504).

Development of the NPL

The primary purpose of the NPL is stated in the legislative history of CERCLA (Report of the Committee on Environment and Public Works, Senate Report No. 96-848, 96th Cong., 2d Sess. 60 [1980]).

> The priority list serves primarily informational purposes, identifying for the States and the public those facilities and sites or other releases which appear to warrant remedial actions. Inclusion of a facility or site on the list does not in itself reflect a judgment of the activities of its owner or operator, it does not require those persons to undertake any action, nor does it assign liability to any person. Subsequent government actions will be necessary in order to do so, and these actions will be attended by all appropriate procedural safeguards.

The NPL, therefore, is primarily an informational and management tool. The identification of a site for the NPL is intended primarily to guide EPA in determining which sites warrant further investigation to assess the nature and extent of the human health and environmental risks associated with the site and to determine what CERCLA-financed remedial action(s), if any, may be appropriate. The NPL also serves to notify the public of sites EPA believes warrant further investigation. Finally, listing a site may, to the extent potentially responsible parties are identifiable at the time of listing, serve as notice to such parties that the Agency may initiate CERCLA-financed remedial action.

CERCLA Section 105(a)(8)(B) directs EPA to list priority sites among the known releases or threatened release of hazardous substances, pollutants, or contaminants, and Section 105(a)(8)(A) directs EPA to consider certain enumerated and other appropriate factors in doing so. Thus, as a matter of policy, EPA has the discretion not to use CERCLA to respond to certain types of releases. Where other authorities exist, placing sites on the NPL for possible remedial action under CERCLA may not be appropriate. Therefore, EPA has chosen not to place certain types of sites on the NPL even though CERCLA does not exclude such action. If, however, the Agency later determines that sites not listed as a matter of policy are not being properly responded to, the Agency may consider placing them on the NPL.

Hazard Ranking System

The HRS is the principle mechanism EPA uses to place uncontrolled waste sites on the NPL. It is a numerically based screening system that uses information from initial, limited investigations -- the preliminary assessment and site inspection -- to assess the relative potential of sites to pose a threat to human health or the environment. HRS scores, however, do not determine the sequence in which EPA funds remedial response actions, because the information collected to develop HRS scores is not sufficient in itself to determine either the extent of contamination or the appropriate response for a particular site. Moreover, the sites with the highest scores do not necessarily come to the Agency's attention first, so that addressing sites strictly on the basis of ranking would in some cases require stopping work at sites where it was already underway. Thus, EPA relies on further, more detailed studies in the remedial investigation/feasibility study that typically follows listing.

The HRS uses a structured value analysis approach to scoring sites. This approach assigns numerical values to factors that relate to or indicate risk, based on conditions at the site. The factors are grouped into three categories. Each category has a maximum value. The categories are:

- likelihood that a site has released or has the potential to release hazardous substances into the environment;
- characteristics of the waste (toxicity and waste quantity); and

- people or sensitive environments (targets) affected by the release.

Under the HRS, four pathways can be scored for one or more threats as identified below:

- Ground Water Migration (S_{gw})
  - drinking water

- Surface Water Migration (S_{sw})
  The following threats are evaluated for two separate migration components, overland/flood migration and ground water to surface water.
  - drinking water
  - human food chain
  - sensitive environments

- Soil Exposure (S_s)
  - resident population
  - nearby population
  - sensitive environments

- Air Migration (S_a)
  - population
  - sensitive environments

After scores are calculated for one or more pathways according to prescribed guidelines, they are combined using the following root-mean-square equation to determine the overall site score (S), which ranges from 0 to 100**:**

$$S = \sqrt{\frac{S_{gw}^2 + S_{sw}^2 + S_s^2 + S_a^2}{4}}$$

If all pathway scores are low, the HRS score is low. However, the HRS score can be relatively high even if only one pathway score is high. This is an important requirement for HRS scoring because some extremely dangerous sites pose threats through only one pathway. For example, buried leaking drums of hazardous substances can contaminate drinking water wells, but – if the drums are buried deep enough and the substances not very volatile – not surface water or air.

Other Mechanisms for Listing

There are two mechanisms other than the HRS by which sites can be placed on the NPL. The first of these mechanisms, authorized by the NCP at 40 CFR 300.425(c)(2), allows each State and Territory to designate one site as its highest priority regardless of score. The last mechanism, authorized by the NCP at 40 CFR 300.425(c)(3), allows listing a site if it meets the following three requirements:

- Agency for Toxic Substances and Disease Registry (ATSDR) of the U.S. Public Health Service has issued a health advisory that recommends dissociation of individuals from the release;
- EPA determines the site poses a significant threat to public health; and
- EPA anticipates it will be more cost-effective to use its remedial authority than to use its emergency removal authority to respond to the site.

Organization of this Document

The following section contains EPA responses to site-specific public comments received on the proposal of the Gowanus Canal site on April 9, 2009 (74 FR 16162). The site discussion begins with a list of commenters, followed by a site description, a summary of comments, and Agency responses to each comment. A concluding statement indicates the effect of the comments on the HRS score for the site.

Glossary

The following acronyms and abbreviations are used throughout the text:

Agency	U.S. Environmental Protection Agency
ASTM	American Society for Testing and Materials
ATSDR	Agency for Toxic Substances and Disease Registry
BAZ	Biologically active zone
BCF	Bioconcentration factor
°C	Degrees Celsius
CARP	Contamination Assessment and Reduction Project
CBID	Central Brooklyn Independent Democrats
CCMP	Comprehensive conservation and management plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. Sections 9601 *et seq*., also known as Superfund
CFR	Code of federal regulations
CGNA	Carroll Gardens Neighborhood Association
CLP	EPA Contract Laboratory Program
CRP	Community relations plan
CSM	Conceptual site model
CSMA	Court Street Merchants Association, Inc.
CSO	Combined sewer overflow
CWA	Clean Water Act
D.C. Cir	U.S. Court of Appeals for the District of Columbia Circuit
DCP	Department of City Planning
EDC	Economic Development Corporation
EP	Equilibrium partitioning
EPA	U.S. Environmental Protection Agency, also USEPA
ERM	Effect Range-Median sediment criteria
FR	Federal register
FROGG	Friends and Residents of Greater Gowanus

FS	Feasibility study
HEP	Hudson Estuary Program
HRS	Hazard Ranking System, Appendix A of the NCP
HRS score	Overall site score calculated using the Hazard Ranking System; ranges from 0 to 100
HWQ	Hazardous waste quantity
LAB	Linear alkyl benzene
logk_{ow}	n-octanol-water partition coefficient
µg/kg	Microgram per kilogram
mg/kg	Milligram per kilogram
mgd	Million gallons per day
MGP	Manufactured gas plant
MIT	Massachusetts Institute of Technology
MSL	Mean Sea Level
NAPL	Non-aqueous phase liquid
NCP	National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300
NPL	National Priorities List, Appendix B of the NCP
NRDC	Natural Resources Defense Council
NYC DEP	New York City Department of Environmental Protection
NYS DEC	New York State Department of Environmental Conservation
OIRA	Office of Information and Regulatory Affairs
OMB	Office of Management and Budget
OSWER	USEPA's Office of Solid Waste and Emergency Response
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PPE	Probable point of entry
PRP	Potentially responsible party
QA	Quality assurance
QC	Quality control
RCRA	Resource Conservation and Recovery Act
RI	Remedial investigation
SA	Superfund alternative
SARA	Superfund Amendments and Reauthorization Act
SBREFA	Small Business Regulatory Enforcement Fairness Act

SPT	Standard penetration test
SQL	Sample quantitation limit
SVOC	Semi-volatile organic compounds
TAG	Technical assistance grant
TCLP	Toxicity characteristic leaching procedure
TOC	Total organic carbon
ULURP	Uniform land use review procedure
URRI	Urban Rivers Restoration Initiative
USACE	U.S. Army Corp of Engineers
USFDA	U.S. Food and Drug Administration
USPS	U.S. Postal Service
VCA	Voluntary cleanup agreement
VOC	Volatile organic compound
WRDA	Water Resource Development Act of 2000

1. List of Commenters and Correspondence

EPA-HQ-SFUND-2009-0063-0005	Comment, dated April 15, 2009, from Deanna Zammit, Public Commenter
EPA-HQ-SFUND-2009-0063-0006	Comment, dated April 10, 2009, from Maureen Flaherty, Public Commenter
EPA-HQ-SFUND-2009-0063-0007	Comment, dated April 15, 2009, from E. Georg, Public Commenter
EPA-HQ-SFUND-2009-0063-0008	Comment, dated April 15, 2009, from S. Clausen, Public Commenter
EPA-HQ-SFUND-2009-0063-0009	Comment, dated April 15, 2009, from J. Hicks, Public Commenter
EPA-HQ-SFUND-2009-0063-0010	Comment, dated April 15, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0011	Comment, dated April 16, 2009, from J. Hatheway, Public Commenter
EPA-HQ-SFUND-2009-0063-0012	Comment, dated April 17, 2009, from R. Rothblatt, Public Commenter
EPA-HQ-SFUND-2009-0063-0013	Comment, dated April 17, 2009, from Jonathan Schwartz, Public Commenter
EPA-HQ-SFUND-2009-0063-0014	Comment, dated April 17, 2009, from M. Regenbogen, Public Commenter
EPA-HQ-SFUND-2009-0063-0015	Comment, dated April 15, 2009, from D. Munhall, Public Commenter
EPA-HQ-SFUND-2009-0063-0016	Comment, dated April 12, 2009, from Jay Sinrod, Public Commenter
EPA-HQ-SFUND-2009-0063-0017	Comment, dated April 15, 2009, from Leonard Barszap, Public Commenter
EPA-HQ-SFUND-2009-0063-0018	Comment, dated April 16, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0019	Comment, dated April 23, 2009, from Deirdre Lockwood, Public Commenter
EPA-HQ-SFUND-2009-0063-0020	Comment, dated April 20, 2009, from Katia Kelly, Public Commenter

EPA-HQ-SFUND-2009-0063-0021	Comment, dated April 21, 2009, from Becky Hersch, Public Commenter
EPA-HQ-SFUND-2009-0063-0022	Comment, dated April 23, 2009, from A. Sloat, Public Commenter
EPA-HQ-SFUND-2009-0063-0023	Comment, dated April 24, 2009, from Anthony Deen, Public Commenter
EPA-HQ-SFUND-2009-0063-0024	Comment, dated April 21, 2009, from M. Hedge, Public Commenter
EPA-HQ-SFUND-2009-0063-0024.1	Comment attachment, dated April 21, 2009, from M. Hedge, Public Commenter
EPA-HQ-SFUND-2009-0063-0025	Comment, dated April 22, 2009, from Jim Protos, Public Commenter
EPA-HQ-SFUND-2009-0063-0026	Comment, dated April 23, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0027	Comment, dated April 22, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0028	Comment, dated April 24, 2009, from Anthony Deen, Public Commenter
EPA-HQ-SFUND-2009-0063-0029	Comment, dated April 24, 2009, from Robbin Slade, Public Commenter
EPA-HQ-SFUND-2009-0063-0030	Comment, dated April 26, 2009, from Chris McVoy, Public Commenter
EPA-HQ-SFUND-2009-0063-0031	Comment, dated April 26, 2009, from John Golden, Public Commenter
EPA-HQ-SFUND-2009-0063-0032	Comment, dated April 27, 2009, from Dave Abraham, Public Commenter
EPA-HQ-SFUND-2009-0063-0033	Comment, dated April 26, 2009, from Lauren Deen, Public Commenter
EPA-HQ-SFUND-2009-0063-0034	Comment, dated April 27, 2009, from Ben Schrank, Public Commenter
EPA-HQ-SFUND-2009-0063-0035	Comment, dated April 27, 2009, from Jim Protos, Public Commenter
EPA-HQ-SFUND-2009-0063-0036	Comment, dated April 29, 2009, from Dan Sacher, Public Commenter

EPA-HQ-SFUND-2009-0063-0037	Comment, dated April 30, 2009, from R. Levy, Public Commenter
EPA-HQ-SFUND-2009-0063-0038	Comment, dated May 02, 2009, from Maryann Young, Public Commenter
EPA-HQ-SFUND-2009-0063-0039	Comment, dated May 02, 2009, from Ben Sigelman, Public Commenter
EPA-HQ-SFUND-2009-0063-0040	Comment, dated May 03, 2009, from S. Jones, Public Commenter
EPA-HQ-SFUND-2009-0063-0041	Correspondence, dated May 04, 2009, from Terry Jeng, memorandum authorizing extension of the comment period for EPA-HQ-SFUND-0063.
EPA-HQ-SFUND-2009-0063-0042	Comment, dated May 01, 2009, from Leslie Shipman, Director of Programs, National Book Foundation
EPA-HQ-SFUND-2009-0063-0043	Comment, dated May 04, 2009, from Michael Heimbinder, Executive Director, HabitatMap, Inc.
EPA-HQ-SFUND-2009-0063-0044	Comment, dated May 12, 2009, from Steve Gelmis, Public Commenter
EPA-HQ-SFUND-2009-0063-0045	Comment, dated May 16, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0046	Comment, dated April 30, 2009, from Phil Zulli, Public Commenter
EPA-HQ-SFUND-2009-0063-0047	Comment, dated April 30, 2009, from Mr. & Mrs. Gerald Miller, Public Commenters
EPA-HQ-SFUND-2009-0063-0048	Comment, dated April 29, 2009, from Lauren Hlavenka, Public Commenter
EPA-HQ-SFUND-2009-0063-0049	Comment, dated April 27, 2009, from Robert Puca, Public Commenter
EPA-HQ-SFUND-2009-0063-0050	Comment, dated April 27, 2009, from Edgar L. Freud, P.E., Public Commenter
EPA-HQ-SFUND-2009-0063-0051	Comment, dated May 04, 2009, from Colleen O'Neal, Ph.D., Public Commenter
EPA-HQ-SFUND-2009-0063-0052	Comment, dated May 03, 2009, from Patricia Perlo, Public Commenter
EPA-HQ-SFUND-2009-0063-0053	Comment, dated May 02, 2009, from Debra, Christopher & Rachel Lyon, Public Commenters

EPA-HQ-SFUND-2009-0063-0054	Comment, dated May 02, 2009, from Frank Shifreen, Public Commenter
EPA-HQ-SFUND-2009-0063-0055	Comment, dated April 30, 2009, from Beverly DiCovello, Public Commenter
EPA-HQ-SFUND-2009-0063-0056	Comment, dated April 30, 2009, from Chris Mark, Public Commenter
EPA-HQ-SFUND-2009-0063-0057	Comment, dated April 23, 2009, from Matt Gearhart, Public Commenter
EPA-HQ-SFUND-2009-0063-0058	Comment, dated April 23, 2009, from Evan Kessler, Public Commenter
EPA-HQ-SFUND-2009-0063-0059	Comment, dated April 23, 2009, from John Karian, Public Commenter
EPA-HQ-SFUND-2009-0063-0060	Comment, dated April 23, 2009, from Sulaiman Beg, Public Commenter
EPA-HQ-SFUND-2009-0063-0061	Comment, dated April 23, 2009, from Jason Stefanik, Public Commenter
EPA-HQ-SFUND-2009-0063-0062	Comment, dated April 23, 2009, from Jean & Scott Farson, Public Commenters
EPA-HQ-SFUND-2009-0063-0063	Comment, dated April 27, 2009, from Laura Bassett, Public Commenter
EPA-HQ-SFUND-2009-0063-0064	Comment, dated April 27, 2009, from Carol Milano, Public Commenter
EPA-HQ-SFUND-2009-0063-0065	Comment, dated April 25, 2009, from Maryann Young, Public Commenter
EPA-HQ-SFUND-2009-0063-0066	Comment, dated April 24, 2009, from Mike Horan, Public Commenter
EPA-HQ-SFUND-2009-0063-0067	Comment, dated April 24, 2009, from Summer Sheridan, Public Commenter
EPA-HQ-SFUND-2009-0063-0068	Comment, dated April 24, 2009, from Andy Seestedt, Public Commenter
EPA-HQ-SFUND-2009-0063-0069	Comment, dated May 25, 2009, from L. McTernan, Public Commenter
EPA-HQ-SFUND-2009-0063-0069.1	Comment attachment, dated May 25, 2009, from L. McTernan, Public Commenter

EPA-HQ-SFUND-2009-0063-0069.2	Comment attachment, dated May 25, 2009, from L. McTernan, Public Commenter
EPA-HQ-SFUND-2009-0063-0070	Comment, dated May 23, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0071	Comment, dated May 08, 2009, from Susan Quilligan, dlandstudio llc
EPA-HQ-SFUND-2009-0063-0072	Comment, dated May 07, 2009, from Lisa Kersavage, Public Commenter
EPA-HQ-SFUND-2009-0063-0073	Comment, dated May 27, 2009, from M. Varous, Public Commenter
EPA-HQ-SFUND-2009-0063-0074	Comment, dated April 30, 2009, from Andrew Solomon, Public Commenter
EPA-HQ-SFUND-2009-0063-0074.1	Comment attachment, dated April 30, 2009, from Andrew Solomon, Public Commenter
EPA-HQ-SFUND-2009-0063-0075	Comment, dated June 02, 2009, from M. Maugenest, Public Commenter
EPA-HQ-SFUND-2009-0063-0076	Comment, dated June 02, 2009, from Jeffery Broesche, Public Commenter
EPA-HQ-SFUND-2009-0063-0077	Comment, dated June 05, 2009, from J. Garcia, Public Commenter
EPA-HQ-SFUND-2009-0063-0078	Comment, dated June 06, 2009, from Charles Danner, Public Commenter
EPA-HQ-SFUND-2009-0063-0079	Comment, dated June 04, 2009, from O. Bertram-Nothnagel, Public Commenter
EPA-HQ-SFUND-2009-0063-0080	Comment, dated May 27, 2009, from Mass Comment Campaign titled “I support the EPA’s designation of the Gowanus District as a Superfund Site …” sponsoring organization unknown (30)
EPA-HQ-SFUND-2009-0063-0081	Comment, dated May 26, 2009, from M. Bordman & M. Karwowski, Public Commenters
EPA-HQ-SFUND-2009-0063-0081.1	Comment attachment, dated May 26, 2009, from M. Bordman & M. Karwowski, Public Commenters
EPA-HQ-SFUND-2009-0063-0082	Comment, dated May 27, 2009, from Eli Janney, Public Commenter

EPA-HQ-SFUND-2009-0063-0082.1	Comment attachment, dated May 27, 2009, from Eli Janney, Public Commenter
EPA-HQ-SFUND-2009-0063-0083	Comment, dated May 26, 2009, from Katrina Balling, Public Commenter
EPA-HQ-SFUND-2009-0063-0083.1	Comment attachment, dated May 26, 2009, from Katrina Balling, Public Commenter
EPA-HQ-SFUND-2009-0063-0084	Comment, dated May 26, 2009, from Kathryn Roake, Public Commenter
EPA-HQ-SFUND-2009-0063-0084.1	Comment attachment, dated May 26, 2009, from Kathryn Roake, Public Commenter
EPA-HQ-SFUND-2009-0063-0085	Comment, dated May 26, 2009, from Leah Stern, Public Commenter
EPA-HQ-SFUND-2009-0063-0085.1	Comment attachment, dated May 26, 2009, from Leah Stern, Public Commenter
EPA-HQ-SFUND-2009-0063-0086	Comment, dated May 26, 2009, from A. Murphy, Public Commenter
EPA-HQ-SFUND-2009-0063-0086.1	Comment attachment, dated May 26, 2009, from A. Murphy, Public Commenter
EPA-HQ-SFUND-2009-0063-0087	Comment, dated May 26, 2009, from Marilyn Oliva, Public Commenter
EPA-HQ-SFUND-2009-0063-0087.1	Comment attachment, dated May 26, 2009, from Marilyn Oliva, Public Commenter
EPA-HQ-SFUND-2009-0063-0088	Comment, dated May 22, 2009, from Brandy Anderson, Public Commenter
EPA-HQ-SFUND-2009-0063-0088.1	Comment attachment, dated May 22, 2009, from Brandy Anderson, Public Commenter
EPA-HQ-SFUND-2009-0063-0089	Comment, dated May 19, 2009, from Judy Pantano, Public Commenter
EPA-HQ-SFUND-2009-0063-0089.1	Comment attachment, dated May 19, 2009, from Judy Pantano, Public Commenter
EPA-HQ-SFUND-2009-0063-0090	Comment, dated May 17, 2009, from Maggie Orstein, Public Commenter
EPA-HQ-SFUND-2009-0063-0090.1	Comment attachment, dated May 17, 2009, from Maggie Orstein, Public Commenter

EPA-HQ-SFUND-2009-0063-0091	Comment, dated May 29, 2009, from Laurel Dick, Public Commenter
EPA-HQ-SFUND-2009-0063-0091.1	Comment attachment, dated May 29, 2009, from Laurel Dick, Public Commenter
EPA-HQ-SFUND-2009-0063-0092	Comment, dated May 27, 2009, from Marilyn Gold, Public Commenter
EPA-HQ-SFUND-2009-0063-0092.1	Comment attachment, dated May 27, 2009, from Marilyn Gold, Public Commenter
EPA-HQ-SFUND-2009-0063-0093	Comment, dated May 28, 2009, from Mitri Tadros, Public Commenter
EPA-HQ-SFUND-2009-0063-0093.1	Comment attachment, dated May 28, 2009, from Mitri Tadros, Public Commenter
EPA-HQ-SFUND-2009-0063-0094	Comment, dated May 26, 2009, from Lesley A. Unruh, Public Commenter
EPA-HQ-SFUND-2009-0063-0094.1	Comment attachment, dated May 26, 2009, from Lesley A. Unruh, Public Commenter
EPA-HQ-SFUND-2009-0063-0095	Comment, dated May 19, 2009, from Scott Whittle, Public Commenter
EPA-HQ-SFUND-2009-0063-0095.1	Comment attachment, dated May 19, 2009, from Scott Whittle, Public Commenter
EPA-HQ-SFUND-2009-0063-0096	Comment, dated May 23, 2009, from Sarah Lichtman, Public Commenter
EPA-HQ-SFUND-2009-0063-0096.1	Comment attachment, dated May 23, 2009, from Sarah Lichtman, Public Commenter
EPA-HQ-SFUND-2009-0063-0097	Comment, dated May 18, 2009, from Alex Davidson, Public Commenter
EPA-HQ-SFUND-2009-0063-0097.1	Comment attachment, dated May 18, 2009, from Alex Davidson, Public Commenter
EPA-HQ-SFUND-2009-0063-0098	Comment, dated May 23, 2009, from Danielle Lehtinen, Public Commenter
EPA-HQ-SFUND-2009-0063-0098.1	Comment attachment, dated May 23, 2009, from Danielle Lehtinen, Public Commenter
EPA-HQ-SFUND-2009-0063-0099	Comment, dated May 18, 2009, from Nicholas Mabry, Public Commenter

EPA-HQ-SFUND-2009-0063-0099.1	Comment attachment, dated May 18, 2009, from Nicholas Mabry, Public Commenter
EPA-HQ-SFUND-2009-0063-0100	Comment, dated May 18, 2009, from James G. Johnson, Public Commenter
EPA-HQ-SFUND-2009-0063-0100.1	Comment attachment, dated May 18, 2009, from James G. Johnson, Public Commenter
EPA-HQ-SFUND-2009-0063-0101	Comment, dated May 19, 2009, from M. Feinsilber, Public Commenter
EPA-HQ-SFUND-2009-0063-0101.1	Comment attachment, dated May 19, 2009, from M. Feinsilber, Public Commenter
EPA-HQ-SFUND-2009-0063-0102	Comment, dated May 26, 2009, from David Shimoni, Public Commenter
EPA-HQ-SFUND-2009-0063-0102.1	Comment attachment, dated May 26, 2009, from David Shimoni, Public Commenter
EPA-HQ-SFUND-2009-0063-0103	Comment, dated May 19, 2009, from Myrel Glick, Public Commenter
EPA-HQ-SFUND-2009-0063-0103.1	Comment attachment, dated May 19, 2009, from Myrel Glick, Public Commenter
EPA-HQ-SFUND-2009-0063-0104	Comment, dated May 18, 2009, from Cecil Holland Jr., Public Commenter
EPA-HQ-SFUND-2009-0063-0104.1	Comment attachment, dated May 18, 2009, from Cecil Holland Jr., Public Commenter
EPA-HQ-SFUND-2009-0063-0105	Comment, dated May 18, 2009, from Barry Grossman, Public Commenter
EPA-HQ-SFUND-2009-0063-0105.1	Comment attachment, dated May 18, 2009, from Barry Grossman, Public Commenter
EPA-HQ-SFUND-2009-0063-0106	Comment, dated May 25, 2009, from Jen McCulloch, Public Commenter
EPA-HQ-SFUND-2009-0063-0106.1	Comment attachment, dated May 25, 2009, from Jen McCulloch, Public Commenter
EPA-HQ-SFUND-2009-0063-0107	Comment, dated May 19, 2009, from Michelle O'Donnell, Public Commenter
EPA-HQ-SFUND-2009-0063-0107.1	Comment attachment, dated May 19, 2009, from Michelle O'Donnell, Public Commenter

EPA-HQ-SFUND-2009-0063-0108	Comment, dated May 21, 2009, from W. Christian Burgess, Public Commenter
EPA-HQ-SFUND-2009-0063-0109	Comment, dated May 22, 2009, from Crista Giuliani, Public Commenter
EPA-HQ-SFUND-2009-0063-0110	Comment, dated May 21, 2009, from Sarah Woodside Gallagher, Public Commenter
EPA-HQ-SFUND-2009-0063-0111	Comment, dated May 24, 2009, from Katherine Schwarz, Public Commenter
EPA-HQ-SFUND-2009-0063-0111.1	Comment attachment, dated May 24, 2009, from Katherine Schwarz, Public Commenter
EPA-HQ-SFUND-2009-0063-0112	Comment, dated May 19, 2009, from N. Pantano, Public Commenter
EPA-HQ-SFUND-2009-0063-0112.1	Comment attachment, dated May 19, 2009, from N. Pantano, Public Commenter
EPA-HQ-SFUND-2009-0063-0113	Comment, dated May 22, 2009, from BarBara Menkes, Public Commenter
EPA-HQ-SFUND-2009-0063-0114	Comment, dated May 23, 2009, from Brian Fink, Public Commenter
EPA-HQ-SFUND-2009-0063-0115	Comment, dated May 25, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0116	Comment, dated May 24, 2009, from Rose Rabin, Public Commenter
EPA-HQ-SFUND-2009-0063-0116.1	Comment attachment, dated May 24, 2009, from Rose Rabin, Public Commenter
EPA-HQ-SFUND-2009-0063-0117	Comment, dated May 19, 2009, from Linda Mariano, Representative, Friends and Residents of Greater Gowanus (FROGG)
EPA-HQ-SFUND-2009-0063-0117.1	Comment attachment, dated May 19, 2009, from Linda Mariano, Representative, Friends and Residents of Greater Gowanus (FROGG)
EPA-HQ-SFUND-2009-0063-0118	Comment, dated May 21, 2009, from Margo Bettencourt, Public Commenter
EPA-HQ-SFUND-2009-0063-0118.1	Comment attachment, dated May 21, 2009, from Margo Bettencourt, Public Commenter

EPA-HQ-SFUND-2009-0063-0119	Comment, dated May 24, 2009, from Frances, Salvatore and Robert Fevola, Public Commenters
EPA-HQ-SFUND-2009-0063-0119.1	Comment attachment, dated May 24, 2009, from Frances, Salvatore and Robert Fevola, Public Commenters
EPA-HQ-SFUND-2009-0063-0120	Comment, dated May 28, 2009, from Dan Miner, Chair, Sierra Club New York City
EPA-HQ-SFUND-2009-0063-0120.1	Comment attachment, dated May 28, 2009, from Dan Miner, Chair, Sierra Club New York City
EPA-HQ-SFUND-2009-0063-0121	Comment, dated May 26, 2009, from Leah K. Clarkson, Public Commenter
EPA-HQ-SFUND-2009-0063-0121.1	Comment attachment, dated May 26, 2009, from Leah K. Clarkson, Public Commenter
EPA-HQ-SFUND-2009-0063-0122	Comment, dated May 26, 2009, from John M. Kirby, Public Commenter
EPA-HQ-SFUND-2009-0063-0123	Comment, dated May 19, 2009, from Deidre Hoguet, Public Commenter
EPA-HQ-SFUND-2009-0063-0123.1	Comment attachment, dated May 19, 2009, from Deidre Hoguet, Public Commenter
EPA-HQ-SFUND-2009-0063-0124	Comment, dated May 19, 2009, from Greg Johnson, Public Commenter
EPA-HQ-SFUND-2009-0063-0124.1	Comment attachment, dated May 19, 2009, from Greg Johnson, Public Commenter
EPA-HQ-SFUND-2009-0063-0125	Comment, dated June 09, 2009, from Allin Chung, Public Commenter
EPA-HQ-SFUND-2009-0063-0126	Comment, dated June 09, 2009, from Helen Missale, Public Commenter
EPA-HQ-SFUND-2009-0063-0127	Comment, dated June 09, 2009, from T. McMahon, Public Commenter
EPA-HQ-SFUND-2009-0063-0128	Comment, dated June 09, 2009, from Bill Appel, Acting Executive Director, Gowanus Canal Community Development Corporation
EPA-HQ-SFUND-2009-0063-0129	Comment, dated June 10, 2009, from Byron Woollen, Public Commenter

EPA-HQ-SFUND-2009-0063-0130	Comment, dated June 10, 2009, from M. Kotik, Public Commenter
EPA-HQ-SFUND-2009-0063-0131	Comment, dated June 09, 2009, from Laura McKenna, Public Commenter
EPA-HQ-SFUND-2009-0063-0132	Comment, dated June 09, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0133	Comment, dated May 19, 2009, from Esmèe (no surname provided), Public Commenter
EPA-HQ-SFUND-2009-0063-0133.1	Comment attachment, dated May 19, 2009, from Esmèe (no surname provided), Public Commenter
EPA-HQ-SFUND-2009-0063-0134	Comment, dated May 27, 2009, from I. Donald Weston, Chair, Urban Design Committee, Brooklyn Chapter AIA
EPA-HQ-SFUND-2009-0063-0134.1	Comment attachment, dated May 27, 2009, from I. Donald Weston, Chair, Urban Design Committee, Brooklyn Chapter AIA
EPA-HQ-SFUND-2009-0063-0135	Comment, dated May 12, 2009, from Scott Konzelmann, Public Commenter
EPA-HQ-SFUND-2009-0063-0135.1	Comment attachment, dated May 12, 2009, from Scott Konzelmann, Public Commenter
EPA-HQ-SFUND-2009-0063-0136	Comment, dated May 11, 2009, from Frances Chapman, Public Commenter
EPA-HQ-SFUND-2009-0063-0136.1	Comment attachment, dated May 11, 2009, from Frances Chapman, Public Commenter
EPA-HQ-SFUND-2009-0063-0137	Comment, dated May 11, 2009, from Amy Miller-Krezelak, Public Commenter
EPA-HQ-SFUND-2009-0063-0137.1	Comment attachment, dated May 11, 2009, from Amy Miller-Krezelak, Public Commenter
EPA-HQ-SFUND-2009-0063-0138	Comment, dated May 07, 2009, from Cheryl Powell, Public Commenter
EPA-HQ-SFUND-2009-0063-0138.1	Comment attachment, dated May 07, 2009, from Cheryl Powell, Public Commenter
EPA-HQ-SFUND-2009-0063-0139	Comment, dated May 11, 2009, from A. Rosner, Public Commenter
EPA-HQ-SFUND-2009-0063-0139.1	Comment attachment, dated May 11, 2009, from A. Rosner, Public Commenter

EPA-HQ-SFUND-2009-0063-0140	Comment, dated May 11, 2009, from Gina Vutera, Public Commenter
EPA-HQ-SFUND-2009-0063-0140.1	Comment attachment, dated May 11, 2009, from Gina Vutera, Public Commenter
EPA-HQ-SFUND-2009-0063-0141	Comment, dated May 12, 2009, from Cheryll A. Lynn, Public Commenter
EPA-HQ-SFUND-2009-0063-0141.1	Comment attachment, dated May 12, 2009, from Cheryll A. Lynn, Public Commenter
EPA-HQ-SFUND-2009-0063-0142	Comment, dated May 19, 2009, from Phoebe Legere, Public Commenter
EPA-HQ-SFUND-2009-0063-0143	Comment, dated May 19, 2009, from Desiree Belsito Esq., Public Commenter
EPA-HQ-SFUND-2009-0063-0144	Comment, dated May 19, 2009, from Daniel Bowman Simon, Public Commenter
EPA-HQ-SFUND-2009-0063-0145	Comment, dated May 16, 2009, from Steven Paul Mark, Attorney at Law
EPA-HQ-SFUND-2009-0063-0146	Comment, dated May 11, 2009, from Daniel Polano, Public Commenter
EPA-HQ-SFUND-2009-0063-0146.1	Comment attachment, dated May 11, 2009, from Daniel Polano, Public Commenter
EPA-HQ-SFUND-2009-0063-0147	Comment, dated May 30, 2009, from Rita Raftery, Public Commenter
EPA-HQ-SFUND-2009-0063-0148	Comment, dated May 28, 2009, from Anthony P. Cappo, Public Commenter
EPA-HQ-SFUND-2009-0063-0149	Comment, dated May 27, 2009, from Sara M. Ingram, Public Commenter
EPA-HQ-SFUND-2009-0063-0150	Comment, dated May 26, 2009, from William J. Gorman, Public Commenter
EPA-HQ-SFUND-2009-0063-0151	Comment, dated June 04, 2009, from Margaret Maugenest, Public Commenter
EPA-HQ-SFUND-2009-0063-0152	Comment, dated June 01, 2009, from Lily Hou, Public Commenter
EPA-HQ-SFUND-2009-0063-0153	Comment, dated May 30, 2009, from Rita Raftery, Public Commenter

EPA-HQ-SFUND-2009-0063-0154	Comment, dated May 28, 2009, from Anthony P. Cappo, Public Commenter
EPA-HQ-SFUND-2009-0063-0155	Comment, dated May 27, 2009, from Sara M. Ingram, Public Commenter
EPA-HQ-SFUND-2009-0063-0156	Comment, dated May 26, 2009, from William J. Gorman, Public Commenter
EPA-HQ-SFUND-2009-0063-0157	Comment, dated May 08, 2009, from Vincent Fiore, Public Commenter
EPA-HQ-SFUND-2009-0063-0157.1	Comment attachment, dated May 08, 2009, from Vincent Fiore, Public Commenter
EPA-HQ-SFUND-2009-0063-0158	Comment, dated May 23, 2009, from Rachel Kueny, Public Commenter
EPA-HQ-SFUND-2009-0063-0158.1	Comment attachment, dated May 23, 2009, from Rachel Kueny, Public Commenter
EPA-HQ-SFUND-2009-0063-0159	Comment, dated May 28, 2009, from Gary Winkel, Public Commenter
EPA-HQ-SFUND-2009-0063-0159.1	Comment attachment, dated May 28, 2009, from Gary Winkel, Public Commenter
EPA-HQ-SFUND-2009-0063-0160	Comment, dated May 16, 2009, from H. Dilmanian, Public Commenter
EPA-HQ-SFUND-2009-0063-0160.1	Comment attachment, dated May 16, 2009, from H. Dilmanian, Public Commenter
EPA-HQ-SFUND-2009-0063-0161	Comment, dated May 23, 2009, from David Gordan, Public Commenter
EPA-HQ-SFUND-2009-0063-0161.1	Comment attachment, dated May 23, 2009, from David Gordan, Public Commenter
EPA-HQ-SFUND-2009-0063-0162	Comment, dated May 06, 2009, from Lucy Koteen, Public Commenter
EPA-HQ-SFUND-2009-0063-0162.1	Comment attachment, dated May 06, 2009, from Lucy Koteen, Public Commenter
EPA-HQ-SFUND-2009-0063-0163	Comment, dated June 01, 2009, from Muzza Eaton, Public Commenter
EPA-HQ-SFUND-2009-0063-0163.1	Comment attachment, dated June 01, 2009, from Muzza Eaton, Public Commenter

EPA-HQ-SFUND-2009-0063-0164	Comment, dated May 20, 2009, Bob Zuckerman, Public Commenter
EPA-HQ-SFUND-2009-0063-0164.1	Comment attachment, dated May 20, 2009, Bob Zuckerman, Public Commenter
EPA-HQ-SFUND-2009-0063-0165	Comment, dated May 13, 2009, from Marisa Singer, Public Commenter
EPA-HQ-SFUND-2009-0063-0165.1	Comment attachment, dated May 13, 2009, from Marisa Singer, Public Commenter
EPA-HQ-SFUND-2009-0063-0166	Comment, dated May 28, 2009, from Franklin Siegel, Public Commenter
EPA-HQ-SFUND-2009-0063-0166.1	Comment attachment, dated May 28, 2009, from Franklin Siegel, Public Commenter
EPA-HQ-SFUND-2009-0063-0167	Comment, dated May 18, 2009, from Jane B. Freidson, Public Commenter
EPA-HQ-SFUND-2009-0063-0167.1	Comment attachment, dated May 18, 2009, from Jane B. Freidson, Public Commenter
EPA-HQ-SFUND-2009-0063-0168	Comment, dated June 01, 2009, from Pearl Abbott, Public Commenter
EPA-HQ-SFUND-2009-0063-0168.1	Comment attachment, dated June 01, 2009, from Pearl Abbott, Public Commenter
EPA-HQ-SFUND-2009-0063-0169	Comment, dated June 01, 2009, from Liam Veuve, Public Commenter
EPA-HQ-SFUND-2009-0063-0169.1	Comment attachment, dated June 01, 2009, from Liam Veuve, Public Commenter
EPA-HQ-SFUND-2009-0063-0170	Comment, dated June 01, 2009, from Lesley & Michael Brovner, Public Commenters
EPA-HQ-SFUND-2009-0063-0170.1	Comment attachment, dated June 01, 2009, from Lesley & Michael Brovner, Public Commenters
EPA-HQ-SFUND-2009-0063-0171	Comment, dated June 01, 2009, from Martha L. Doggett, Public Commenter
EPA-HQ-SFUND-2009-0063-0171.1	Comment attachment, dated June 01, 2009, from Martha L. Doggett, Public Commenter
EPA-HQ-SFUND-2009-0063-0172	Comment, dated June 01, 2009, from Ellen Freeberg, Public Commenter

EPA-HQ-SFUND-2009-0063-0172.1	Comment attachment, dated June 01, 2009, from Ellen Freeberg, Public Commenter
EPA-HQ-SFUND-2009-0063-0173	Comment, dated June 01, 2009, from David Whitlock, Public Commenter
EPA-HQ-SFUND-2009-0063-0173.1	Comment attachment, dated June 01, 2009, from David Whitlock, Public Commenter
EPA-HQ-SFUND-2009-0063-0174	Comment, dated June 13, 2009, from David Congdon, Public Commenter
EPA-HQ-SFUND-2009-0063-0175	Comment, dated June 10, 2009, from Byron Woollen, Public Commenter
EPA-HQ-SFUND-2009-0063-0176	Comment, dated June 11, 2009, from Jane Janiak, Public Commenter
EPA-HQ-SFUND-2009-0063-0177	Comment, dated June 12, 2009, from Erick Cransford, Public Commenter
EPA-HQ-SFUND-2009-0063-0178	Comment, dated June 12, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0179	Comment, dated June 12, 2009, from Marc Fouerteh, Public Commenter
EPA-HQ-SFUND-2009-0063-0180	Comment, dated June 12, 2009, from Kenneth Freeman, President, Park Slope Civic Council
EPA-HQ-SFUND-2009-0063-0181	Comment, dated June 11, 2009, from Ofer Cohen, Managing Director, TerraCRG
EPA-HQ-SFUND-2009-0063-0182	Comment, dated June 15, 2009, from Babette Krolik, Public Commenter
EPA-HQ-SFUND-2009-0063-0183	Comment, dated June 12, 2009, from Lloyd Jagai, Public Commenter
EPA-HQ-SFUND-2009-0063-0184	Comment, dated June 15, 2009, from David P. Jaffe, General Manager, Advanced Jaf Holding LLC
EPA-HQ-SFUND-2009-0063-0185	Comment, dated June 04, 2009, from Tom Gilroy, Public Commenter
EPA-HQ-SFUND-2009-0063-0185.1	Comment attachment, dated June 04, 2009, from Tom Gilroy, Public Commenter

EPA-HQ-SFUND-2009-0063-0186	Comment, dated April 22, 2009, from Joseph and Linda Mariano, Friends and Residents of Greater Gowanus (FROGG)
EPA-HQ-SFUND-2009-0063-0186.1	Comment attachment, dated April 22, 2009, from Joseph and Linda Mariano, Friends and Residents of Greater Gowanus (FROGG)
EPA-HQ-SFUND-2009-0063-0186.2	Comment attachment, dated April 22, 2009, from Joseph and Linda Mariano, Friends and Residents of Greater Gowanus (FROGG)
EPA-HQ-SFUND-2009-0063-0186.3	Comment attachment, dated April 22, 2009, from Joseph and Linda Mariano, Friends and Residents of Greater Gowanus (FROGG)
EPA-HQ-SFUND-2009-0063-0186.4	Comment attachment, dated April 22, 2009, from Joseph and Linda Mariano, Friends and Residents of Greater Gowanus (FROGG)
EPA-HQ-SFUND-2009-0063-0187	Comment, dated June 16, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0188	Comment, dated June 16, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0189	Comment, dated June 03, 2009, from Mia MacDonald, Public Commenter
EPA-HQ-SFUND-2009-0063-0189.1	Comment attachment, dated June 03, 2009, from Mia MacDonald, Public Commenter
EPA-HQ-SFUND-2009-0063-0190	Comment, dated June 21, 2009, from John Englund, Public Commenter
EPA-HQ-SFUND-2009-0063-0191	Comment, dated June 20, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0192	Comment, dated June 11, 2009, from Joan Guido, Vice President Operations, FORO Marble Co., Inc.
EPA-HQ-SFUND-2009-0063-0192.1	Comment attachment, dated June 11, 2009, from Joan Guido, Vice President Operations, FORO Marble Co.,Inc.
EPA-HQ-SFUND-2009-0063-0193	Comment, dated June 22, 2009, from M. Maugenest, Public Commenter
EPA-HQ-SFUND-2009-0063-0194	Comment, dated June 22, 2009, from Anonymous Public Commenter

EPA-HQ-SFUND-2009-0063-0195	Comment, dated June 22, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0196	Comment, dated June 23, 2009, from M. Denton, Public Commenter
EPA-HQ-SFUND-2009-0063-0197	Comment, dated June 23, 2009, from M. Lindley, Public Commenter
EPA-HQ-SFUND-2009-0063-0198	Comment, dated June 02, 2009, from Annette Previti, Public Commenter
EPA-HQ-SFUND-2009-0063-0198.1	Comment attachment, dated June 02, 2009, from Annette Previti, Public Commenter
EPA-HQ-SFUND-2009-0063-0199	Comment, dated June 02, 2009, from Andrew Brown, Public Commenter
EPA-HQ-SFUND-2009-0063-0199.1	Comment attachment, dated June 02, 2009, from Andrew Brown, Public Commenter
EPA-HQ-SFUND-2009-0063-0200	Comment, dated June 04, 2009, from Diane D. Buxbaum, MPH, Public Commenter
EPA-HQ-SFUND-2009-0063-0200.1	Comment attachment, dated June 04, 2009, from Diane D. Buxbaum, MPH, Public Commenter
EPA-HQ-SFUND-2009-0063-0201	Comment, dated June 24, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0202	Comment, dated June 22, 2009, from Hash Reichardt, Public Commenter
EPA-HQ-SFUND-2009-0063-0203	Comment, dated June 29, 2009, from Elizabeth Dickman, Public Commenter
EPA-HQ-SFUND-2009-0063-0204	Comment, dated June 27, 2009, from Reade Kem, Public Commenter
EPA-HQ-SFUND-2009-0063-0205	Comment, dated June 26, 2009, from Richard I. Ulman, Public Commenter
EPA-HQ-SFUND-2009-0063-0206	Comment, dated June 24, 2009, from David Von Spreckelsen, Toll Brothers, Inc.
EPA-HQ-SFUND-2009-0063-0206.1	Comment attachment, dated June 24, 2009, from David Von Spreckelsen, Toll Brothers, Inc.
EPA-HQ-SFUND-2009-0063-0207	Comment, dated June 26, 2009, from Lily Hou, Public Commenter

EPA-HQ-SFUND-2009-0063-0208	Comment, dated June 25, 2009, from Ron Moelis, Chief Executive Officer, L+M development Partners, Inc.
EPA-HQ-SFUND-2009-0063-0208.1	Comment attachment, dated June 25, 2009, from Ron Moelis, Chief Executive Officer, L+M development Partners, Inc.
EPA-HQ-SFUND-2009-0063-0209	Comment, dated June 22, 2009, from Isaac Katan, Katan Developers LLC
EPA-HQ-SFUND-2009-0063-0210	Comment, dated June 21, 2009, from Beth O'Neill, Public Commenter
EPA-HQ-SFUND-2009-0063-0211	Comment, dated June 20, 2009, from Michael Sivak, Public Commenter
EPA-HQ-SFUND-2009-0063-0212	Comment, dated June 18, 2009, from Rachelle Therrien, Public Commenter
EPA-HQ-SFUND-2009-0063-0213	Comment, dated June 18, 2009, from JoAnne Dally, Public Commenter
EPA-HQ-SFUND-2009-0063-0214	Comment, dated June 18, 2009, from Frederic Gindrey, Public Commenter
EPA-HQ-SFUND-2009-0063-0215	Comment, dated June 26, 2009, from Victoria Beerman, Public Commenter
EPA-HQ-SFUND-2009-0063-0216	Comment, dated June 22, 2009, from Steve Damato, Public Commenter
EPA-HQ-SFUND-2009-0063-0217	Comment, dated June 29, 2009, from Ned Vizzini, Public Commenter
EPA-HQ-SFUND-2009-0063-0218	Comment, dated June 30, 2009, from Jeffery Schiff, Public Commenter
EPA-HQ-SFUND-2009-0063-0219	Comment, dated June 29, 2009, from Wrolf Courtney, Public Commenter
EPA-HQ-SFUND-2009-0063-0220	Comment, dated June 27, 2009, from Gennaro Brooks-Church, Eco Brooklyn Inc. – Green Real Estate, Renovation
EPA-HQ-SFUND-2009-0063-0221	Comment, dated June 27, 2009, from Lucy Koteen, President, Central Brooklyn Independent Democrats (CBID)
EPA-HQ-SFUND-2009-0063-0222	Comment, dated June 09, 2009, from Scott McNabb, Public Commenter

EPA-HQ-SFUND-2009-0063-0222.1	Comment attachment, dated June 09, 2009, from Scott McNabb, Public Commenter
EPA-HQ-SFUND-2009-0063-0223	Comment, dated June 08, 2009, from David Deloatch, Public Commenter
EPA-HQ-SFUND-2009-0063-0223.1	Comment attachment, dated June 08, 2009, from David Deloatch, Public Commenter
EPA-HQ-SFUND-2009-0063-0224	Comment, dated June 08, 2009, from Sarah Ferguson, Public Commenter
EPA-HQ-SFUND-2009-0063-0224.1	Comment attachment, dated June 08, 2009, from Sarah Ferguson, Public Commenter
EPA-HQ-SFUND-2009-0063-0225	Comment, dated June 06, 2009, from A. Haft, Public Commenter
EPA-HQ-SFUND-2009-0063-0225.1	Comment attachment, dated June 06, 2009, from A. Haft, Public Commenter
EPA-HQ-SFUND-2009-0063-0226	Comment, dated June 09, 2009, from Jennifer Capobianco, Public Commenter
EPA-HQ-SFUND-2009-0063-0226.1	Comment attachment, dated June 09, 2009, from Jennifer Capobianco, Public Commenter
EPA-HQ-SFUND-2009-0063-0227	Comment, dated June 08, 2009, from S. Felton, Public Commenter
EPA-HQ-SFUND-2009-0063-0227.1	Comment attachment, dated June 08, 2009, from S. Felton, Public Commenter
EPA-HQ-SFUND-2009-0063-0228	Comment, dated June 09, 2009, from Rob Kaye, Public Commenter
EPA-HQ-SFUND-2009-0063-0228.1	Comment attachment, dated June 09, 2009, from Rob Kaye, Public Commenter
EPA-HQ-SFUND-2009-0063-0229	Comment, dated June 29, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0230	Comment, dated June 28, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0231	Comment, dated June 28, 2009, from Judith Thompson, President, Carroll Gardens Plan 2030, Inc.
EPA-HQ-SFUND-2009-0063-0232	Comment, dated June 09, 2009, from Kelsey Jones, Public Commenter

EPA-HQ-SFUND-2009-0063-0232.1	Comment attachment, dated June 09, 2009, from Kelsey Jones, Public Commenter
EPA-HQ-SFUND-2009-0063-0233	Comment, dated June 08, 2009, from G. Kelly, Public Commenter
EPA-HQ-SFUND-2009-0063-0233.1	Comment attachment, dated June 08, 2009, from G. Kelly, Public Commenter
EPA-HQ-SFUND-2009-0063-0234	Comment, dated June 09, 2009, from Jacob Molyneux, Public Commenter
EPA-HQ-SFUND-2009-0063-0234.1	Comment attachment, dated June 09, 2009, from Jacob Molyneux, Public Commenter
EPA-HQ-SFUND-2009-0063-0235	Comment, dated June 30, 2009, from Kristen Ellis, Public Commenter
EPA-HQ-SFUND-2009-0063-0236	Comment, dated June 30, 2009, from Linda Halpern Campbell, Public Commenter
EPA-HQ-SFUND-2009-0063-0237	Comment, dated June 30, 2009, from Renee Kaufman, Public Commenter
EPA-HQ-SFUND-2009-0063-0238	Comment, dated June 16, 2009, from Martin Rowe, Public Commenter
EPA-HQ-SFUND-2009-0063-0238.1	Comment attachment, dated June 16, 2009, from Martin Rowe, Public Commenter
EPA-HQ-SFUND-2009-0063-0239	Comment, dated July 01, 2009, from Ilene Jaroslaw, Public Commenter
EPA-HQ-SFUND-2009-0063-0240	Comment, dated July 01, 2009, from Doris C. & Leo Hoenig, Public Commenters
EPA-HQ-SFUND-2009-0063-0241	Comment, dated July 01, 2009, from Lucy Koteen, Public Commenter
EPA-HQ-SFUND-2009-0063-0242	Comment, dated July 01, 2009, from Bekah Wilcox, Public Commenter
EPA-HQ-SFUND-2009-0063-0243	Comment, dated July 01, 2009, from June Muller, Public Commenter
EPA-HQ-SFUND-2009-0063-0244	Comment, dated July 01, 2009, from Dan Avallone, Public Commenter
EPA-HQ-SFUND-2009-0063-0245	Comment, dated June 15, 2009, from Daniel Schottenfeld, Public Commenter

EPA-HQ-SFUND-2009-0063-0245.1	Comment attachment, dated June 15, 2009, from Daniel Schottenfeld, Public Commenter
EPA-HQ-SFUND-2009-0063-0246	Comment, dated June 15, 2009, from I. Slyke, Public Commenter
EPA-HQ-SFUND-2009-0063-0246.1	Comment attachment, dated June 15, 2009, from I. Slyke, Public Commenter
EPA-HQ-SFUND-2009-0063-0247	Comment, dated June 10, 2009, from D. H. Burchfield, Public Commenter
EPA-HQ-SFUND-2009-0063-0247.1	Comment attachment, dated June 10, 2009, from D. H. Burchfield, Public Commenter
EPA-HQ-SFUND-2009-0063-0248	Comment, dated June 16, 2009, from Thomas Weaver, Public Commenter
EPA-HQ-SFUND-2009-0063-0248.1	Comment attachment, dated June 16, 2009, from Thomas Weaver, Public Commenter
EPA-HQ-SFUND-2009-0063-0249	Comment, dated June 16, 2009, from Lana Hoerburger, Public Commenter
EPA-HQ-SFUND-2009-0063-0249.1	Comment attachment, dated June 16, 2009, from Lana Hoerburger, Public Commenter
EPA-HQ-SFUND-2009-0063-0250	Comment, dated June 16, 2009, from Nancy Wolf, Public Commenter
EPA-HQ-SFUND-2009-0063-0250.1	Comment attachment, dated June 16, 2009, from Nancy Wolf, Public Commenter
EPA-HQ-SFUND-2009-0063-0251	Comment, dated July 01, 2009, from Timothy B. Rosser, Public Commenter
EPA-HQ-SFUND-2009-0063-0252	Comment, dated July 01, 2009, from Kathleen and Douglas Newton, Public Commenters
EPA-HQ-SFUND-2009-0063-0253	Comment, dated July 01, 2009, from Dana Ivey, Public Commenter
EPA-HQ-SFUND-2009-0063-0254	Comment, dated July 01, 2009, from Ursula Hahn, Public Commenter
EPA-HQ-SFUND-2009-0063-0255	Comment, dated July 03, 2009, from J. Murray, Public Commenter
EPA-HQ-SFUND-2009-0063-0256	Comment, dated July 03, 2009, from Cynthia Gonzalez, Chairwoman, Carroll Gardens Association, Inc.

EPA-HQ-SFUND-2009-0063-0257	Comment, dated July 02, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0258	Comment, dated July 02, 2009, from Mark Zimet, Public Commenter
EPA-HQ-SFUND-2009-0063-0259	Comment, dated July 01, 2009, from Joanne B. Wright, Public Commenter
EPA-HQ-SFUND-2009-0063-0260	Comment, dated July 01, 2009, from Dan Cayer, Public Commenter
EPA-HQ-SFUND-2009-0063-0261	Comment, dated July 01, 2009, from Leslie Casey, Ph.D., Public Commenter
EPA-HQ-SFUND-2009-0063-0262	Comment, dated July 01, 2009, from Joan Erskine, Public Commenter
EPA-HQ-SFUND-2009-0063-0263	Comment, dated July 01, 2009, from Dr. Meredith Linn, Public Commenter
EPA-HQ-SFUND-2009-0063-0264	Comment, dated July 01, 2009, from Dr. Joseph R. Parrish, Jr., Public Commenter
EPA-HQ-SFUND-2009-0063-0265	Comment, dated July 01, 2009, from Jose E. Llufrio, Public Commenter
EPA-HQ-SFUND-2009-0063-0266	Comment, dated July 02, 2009, from Kirsten Shaw, Public Commenter
EPA-HQ-SFUND-2009-0063-0267	Comment, dated July 01, 2009, from Jenene G. Garey, Public Commenter
EPA-HQ-SFUND-2009-0063-0268	Comment, dated July 06, 2009, from Erica Bell, Public Commenter
EPA-HQ-SFUND-2009-0063-0269	Comment, dated July 06, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0270	Comment, dated July 06, 2009, from Sam Zalutsky, Public Commenter
EPA-HQ-SFUND-2009-0063-0271	Comment, dated July 06, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0272	Comment, dated July 06, 2009, from O. Foote, Public Commenter
EPA-HQ-SFUND-2009-0063-0273	Comment, dated July 06, 2009, from Anonymous Public Commenter

EPA-HQ-SFUND-2009-0063-0274	Comment, dated July 06, 2009, from Elliott Phear, Public Commenter
EPA-HQ-SFUND-2009-0063-0275	Comment, dated July 06, 2009, from Elizabeth Bagot, Public Commenter
EPA-HQ-SFUND-2009-0063-0276	Comment, dated July 06, 2009, from Laura Edidin, Public Commenter
EPA-HQ-SFUND-2009-0063-0277	Comment, dated July 02, 2009, from Ben Schrank, Public Commenter
EPA-HQ-SFUND-2009-0063-0278	Comment, dated July 04, 2009, from M. Menger, Public Commenter
EPA-HQ-SFUND-2009-0063-0279	Comment, dated July 03, 2009, from K. Duffy-Acevedo, Public Commenter
EPA-HQ-SFUND-2009-0063-0280	Comment, dated July 06, 2009, from R. Brown, Public Commenter
EPA-HQ-SFUND-2009-0063-0281	Comment, dated July 06, 2009, from J. Anker, Public Commenter
EPA-HQ-SFUND-2009-0063-0282	Comment, dated July 02, 2009, from Edward R. Stewart, Public Commenter
EPA-HQ-SFUND-2009-0063-0283	Comment, dated July 06, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0284	Comment, dated July 06, 2009, from B. Chezar, Public Commenter
EPA-HQ-SFUND-2009-0063-0285	Comment, dated July 06, 2009, from Ashley Murray, Public Commenter
EPA-HQ-SFUND-2009-0063-0286	Comment, dated July 06, 2009, from Barbara Wally, Public Commenter
EPA-HQ-SFUND-2009-0063-0287	Comment, dated July 06, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0288	Comment, dated July 06, 2009, from G. Sutton, Public Commenter
EPA-HQ-SFUND-2009-0063-0289	Comment, dated July 06, 2009, from Joseph J. Seebode on behalf of Aniello L. Tortora, Colonel, U.S. Army, District Engineer, United States Army Corps of Engineers, New York District

EPA-HQ-SFUND-2009-0063-0289.1	Comment attachment, dated July 06, 2009, from Joseph J. Seebode on behalf of Aniello L. Tortora, Colonel, U.S. Army, District Engineer, United States Army Corps of Engineers, New York District
EPA-HQ-SFUND-2009-0063-0290	Comment, dated July 06, 2009, from E. Bogaty, Public Commenter
EPA-HQ-SFUND-2009-0063-0291	Comment, dated July 07, 2009, from Jeff Schwartz, Liberty Industrial Gas & Welding Supply
EPA-HQ-SFUND-2009-0063-0292	Comment, dated July 07, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0293	Comment, dated July 07, 2009, from J. Loyd, Public Commenter
EPA-HQ-SFUND-2009-0063-0294	Comment, dated July 06, 2009, from Nick Lembo, Monadnock Construction, Inc.
EPA-HQ-SFUND-2009-0063-0295	Comment, dated July 06, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0296	Comment, dated July 06, 2009, from Owen Foote, Gowanus Dredgers Canoe Club
EPA-HQ-SFUND-2009-0063-0297	Comment, dated July 06, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0298	Comment, dated July 01, 2009, from Mass Comment Campaign titled “I believe that the most effective way to achieve a clean Gowanus in accordance with the high environmental and safety standards that are a part of the EPA’s Superfund National Priorities List program” sponsoring organization unknown (12)
EPA-HQ-SFUND-2009-0063-0299	Comment, dated July 07, 2009, from Frances Dirks FNP, Public Commenter
EPA-HQ-SFUND-2009-0063-0300	Comment, dated July 07, 2009, from A. Lynn, Public Commenter
EPA-HQ-SFUND-2009-0063-0301	Comment, dated July 07, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0302	Comment, dated July 07, 2009, from Allison Prete, Public Commenter
EPA-HQ-SFUND-2009-0063-0303	Comment, dated July 07, 2009, from K. McLaughlin, Public Commenter

EPA-HQ-SFUND-2009-0063-0304	Comment, dated July 07, 2009, from Eric McClure, Campaign Coordinator, Park Slope Neighbors
EPA-HQ-SFUND-2009-0063-0305	Comment, dated July 07, 2009, from L. Sedia, Public Commenter
EPA-HQ-SFUND-2009-0063-0306	Comment, dated July 07, 2009, from Ronald R. Engleman Jr., PE, Public Commenter
EPA-HQ-SFUND-2009-0063-0307	Comment, dated July 07, 2009, from Tara. E. Tarpey, Public Commenter
EPA-HQ-SFUND-2009-0063-0308	Comment, dated July 07, 2009, from S. Neal, Public Commenter
EPA-HQ-SFUND-2009-0063-0309	Comment, dated July 07, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0310	Comment, dated July 07, 2009, from Andrew Cohen, Public Commenter
EPA-HQ-SFUND-2009-0063-0311	Comment, dated July 07, 2009, from Stephan von Muehlen, Mare Liberum Collective, EnergyHub Inc.
EPA-HQ-SFUND-2009-0063-0312	Comment, dated July 07, 2009, from Mark Kolman, Executive Director, Selectively Evolving Environments, Inc.
EPA-HQ-SFUND-2009-0063-0313	Comment, dated July 07, 2009, from A. Ichikawa, Public Commenter
EPA-HQ-SFUND-2009-0063-0314	Comment, dated July 07, 2009, from Devorah Greenspan, Public Commenter
EPA-HQ-SFUND-2009-0063-0315	Comment, dated July 07, 2009, from A. Salazar, Public Commenter
EPA-HQ-SFUND-2009-0063-0316	Comment, dated June 22, 2009, from James Bewley, Public Commenter
EPA-HQ-SFUND-2009-0063-0316.1	Comment attachment, dated June 22, 2009, from James Bewley, Public Commenter
EPA-HQ-SFUND-2009-0063-0317	Comment, dated June 22, 2009, from Robert B. Snyder, Public Commenter
EPA-HQ-SFUND-2009-0063-0317.1	Comment attachment, dated June 22, 2009, from Robert B. Snyder, Public Commenter
EPA-HQ-SFUND-2009-0063-0318	Comment, dated July 06, 2009, from James V. Vogel, East Pacific Block Association

EPA-HQ-SFUND-2009-0063-0318.1	Comment attachment, dated July 06, 2009, from James V. Vogel, East Pacific Block Association
EPA-HQ-SFUND-2009-0063-0319	Comment, dated June 22, 2009, from E. Carleton, Public Commenter
EPA-HQ-SFUND-2009-0063-0319.1	Comment attachment, dated June 22, 2009, from E. Carleton, Public Commenter
EPA-HQ-SFUND-2009-0063-0320	Comment, dated July 08, 2009, from Lizzie Olesker, Public Commenter
EPA-HQ-SFUND-2009-0063-0321	Comment, dated July 07, 2009, from Warren Cohen, Public Commenter
EPA-HQ-SFUND-2009-0063-0322	Comment, dated July 08, 2009, from Brad Lander, Public Commenter
EPA-HQ-SFUND-2009-0063-0323	Comment, dated July 08, 2009, from Dan Torop, Public Commenter
EPA-HQ-SFUND-2009-0063-0324	Comment, dated July 08, 2009, from Eric McClure, Campaign Coordinator, Park Slope Neighbors
EPA-HQ-SFUND-2009-0063-0325	Comment, dated July 08, 2009, from Richard Cantor and Andrea Lilienthal, Public Commenters
EPA-HQ-SFUND-2009-0063-0326	Comment, dated July 08, 2009, from Eric McClure, Campaign Coordinator, Park Slope Neighbors
EPA-HQ-SFUND-2009-0063-0327	Comment, dated July 08, 2009, from Bethany Hatheway, Public Commenter
EPA-HQ-SFUND-2009-0063-0328	Comment, dated July 08, 2009, from Hugh Kimball, Public Commenter
EPA-HQ-SFUND-2009-0063-0329	Comment, dated July 08, 2009, from Tina Levy, Public Commenter
EPA-HQ-SFUND-2009-0063-0330	Comment, dated July 08, 2009, from Cynthia Vos-Wein, Public Commenter
EPA-HQ-SFUND-2009-0063-0331	Comment, dated July 08, 2009, from Ros Morley, Public Commenter
EPA-HQ-SFUND-2009-0063-0332	Comment, dated July 08, 2009, from J. Doh, Public Commenter
EPA-HQ-SFUND-2009-0063-0333	Comment, dated July 08, 2009, from Anonymous Public Commenter

EPA-HQ-SFUND-2009-0063-0334	Comment, dated July 08, 2009, from Peter Pierce, Public Commenter
EPA-HQ-SFUND-2009-0063-0335	Comment, dated July 08, 2009, from David von Spreckelsen, The ELM Group on behalf of Toll Brooklyn, LP
EPA-HQ-SFUND-2009-0063-0335.1	Comment attachment, dated July 08, 2009, from David von Spreckelsen, The ELM Group on behalf of Toll Brooklyn, LP
EPA-HQ-SFUND-2009-0063-0336	Comment, dated July 08, 2009, from L. Cirando, Public Commenter
EPA-HQ-SFUND-2009-0063-0337	Comment, dated July 08, 2009, from H. Thomason, Public Commenter
EPA-HQ-SFUND-2009-0063-0338	Comment, dated July 08, 2009, from David Jou, Ugly Duckling Presse
EPA-HQ-SFUND-2009-0063-0339	Comment, dated July 08, 2009, from Jessamyn Waldman, Hot Bread Kitchen
EPA-HQ-SFUND-2009-0063-0340	Comment, dated July 08, 2009, from Noah Walley, Public Commenter
EPA-HQ-SFUND-2009-0063-0341	Comment, dated July 08, 2009, from WFM Properties Brooklyn, LLC
EPA-HQ-SFUND-2009-0063-0342	Comment, dated July 08, 2009, from Marlene Donnelly and Benjamin Ellis, Friends & Residents of Greater Gowanus (FROGG)
EPA-HQ-SFUND-2009-0063-0343	Comment, dated July 08, 2009, from Edward Morris, The Canary Project
EPA-HQ-SFUND-2009-0063-0344	Comment, dated July 08, 2009, from K. Developers, Public Commenter
EPA-HQ-SFUND-2009-0063-0345	Comment, dated July 08, 2009, from Katie Taber, Division 13 Productions
EPA-HQ-SFUND-2009-0063-0346	Comment, dated July 08, 2009, from S. Snider, Public Commenter
EPA-HQ-SFUND-2009-0063-0347	Comment, dated July 08, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0348	Comment, dated July 08, 2009, from S. Buschkuhl, Public Commenter

EPA-HQ-SFUND-2009-0063-0349	Comment, dated July 08, 2009, from R. Davis, Public Commenter
EPA-HQ-SFUND-2009-0063-0350	Comment, dated June 17, 2009, from Mass Comment Campaign titled "As property owners of a thriving business along the Gowanus Canal…" sponsored by PMC (5)
EPA-HQ-SFUND-2009-0063-0351	Comment, dated July 08, 2009, from C. Hiebert, Public Commenter
EPA-HQ-SFUND-2009-0063-0352	Comment, dated July 08, 2009, from A. Kendall, Public Commenter
EPA-HQ-SFUND-2009-0063-0353	Comment, dated July 08, 2009, from P. West, Public Commenters
EPA-HQ-SFUND-2009-0063-0354	Comment, dated July 08, 2009, from L. Beeferman, Public Commenter
EPA-HQ-SFUND-2009-0063-0355	Comment, dated July 08, 2009, from Judith Ornstein, Public Commenter
EPA-HQ-SFUND-2009-0063-0356	Comment, dated July 08, 2009, from J. Cooper, Public Commenter
EPA-HQ-SFUND-2009-0063-0357	Comment, dated July 08, 2009, from S. London, Public Commenter
EPA-HQ-SFUND-2009-0063-0358	Comment, dated July 08, 2009, from Juris Cimbulis, Public Commenter
EPA-HQ-SFUND-2009-0063-0359	Comment, dated July 08, 2009, from Charles F. Willard, Director, Site Investigation and Remediation, National Grid
EPA-HQ-SFUND-2009-0063-0359.1	Comment attachment, dated July 08, 2009, from Charles F. Willard, Director, Site Investigation and Remediation, National Grid
EPA-HQ-SFUND-2009-0063-0360	Comment, dated July 08, 2009, from C. Mackellar, Public Commenter
EPA-HQ-SFUND-2009-0063-0361	Comment, dated July 08, 2009, from J. Presant, Public Commenter
EPA-HQ-SFUND-2009-0063-0362	Comment, dated July 08, 2009, from R. Brittain, Public Commenter

EPA-HQ-SFUND-2009-0063-0363	Comment, dated July 08, 2009, from P. Ficks, Public Commenter
EPA-HQ-SFUND-2009-0063-0364	Comment, dated July 08, 2009, from A. Krasnow, Public Commenter
EPA-HQ-SFUND-2009-0063-0365	Comment, dated July 08, 2009, from N. Ginzel, Public Commenter
EPA-HQ-SFUND-2009-0063-0366	Comment, dated July 08, 2009, from D. Mecum, Public Commenter
EPA-HQ-SFUND-2009-0063-0367	Comment, dated July 08, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0368	Comment, dated June 05, 2009, from Jordan Zinovich, Public Commenter
EPA-HQ-SFUND-2009-0063-0368.1	Comment attachment, dated June 05, 2009, from Jordan Zinovich, Public Commenter
EPA-HQ-SFUND-2009-0063-0369	Comment, dated June 15, 2009, from Vanessa Twyford, Public Commenter
EPA-HQ-SFUND-2009-0063-0369.1	Comment attachment, dated June 15, 2009, from Vanessa Twyford, Public Commenter
EPA-HQ-SFUND-2009-0063-0370	Comment, dated July 08, 2009, from Christopher Len, Esq., Staff Attorney, NY/NJ Baykeeper
EPA-HQ-SFUND-2009-0063-0371	Comment, dated June 16, 2009, from Oronzo Sardone, Bay Ridge Iron Restoration Inc.
EPA-HQ-SFUND-2009-0063-0371.1	Comment attachment, dated June 16, 2009, from Oronzo Sardone, Bay Ridge Iron Restoration Inc.
EPA-HQ-SFUND-2009-0063-0372	Comment, dated July 07, 2009, from Andrew Jackson, The Hudson Companies, Inc. on behalf of Gowanus Green
EPA-HQ-SFUND-2009-0063-0372.1	Comment attachment, dated July 07, 2009, from Andrew Jackson, The Hudson Companies, Inc. on behalf of Gowanus Green
EPA-HQ-SFUND-2009-0063-0373	Comment, dated July 08, 2009, from C. Bullard, Public Commenter
EPA-HQ-SFUND-2009-0063-0374	Comment, dated July 08, 2009, from J. Fain, Public Commenter

EPA-HQ-SFUND-2009-0063-0375	Comment, dated July 08, 2009, from K. Cusack, Public Commenter
EPA-HQ-SFUND-2009-0063-0376	Comment, dated July 08, 2009, from S. Moore, Public Commenter
EPA-HQ-SFUND-2009-0063-0377	Comment, dated July 08, 2009, from J. Jean Austin, Brooklyn Bridge Realty Ltd.
EPA-HQ-SFUND-2009-0063-0378	Comment, dated July 08, 2009, from S. Johnson and L. Caruso, Public Commenters
EPA-HQ-SFUND-2009-0063-0379	Comment, dated July 08, 2009, from Gary G. Reilly, Esq., Public Commenter
EPA-HQ-SFUND-2009-0063-0380	Comment, dated July 08, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0381	Comment, dated July 08, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0382	Comment, dated July 08, 2009, from J. Weber, Public Commenter
EPA-HQ-SFUND-2009-0063-0383	Comment, dated July 02, 2009, from H. Zook, Public Commenter
EPA-HQ-SFUND-2009-0063-0383.1	Comment attachment, dated July 02, 2009, from H. Zook, Public Commenter
EPA-HQ-SFUND-2009-0063-0384	Comment, dated July 02, 2009, from S. Retig, Public Commenter
EPA-HQ-SFUND-2009-0063-0384.1	Comment attachment, dated July 02, 2009, from S. Retig, Public Commenter
EPA-HQ-SFUND-2009-0063-0385	Comment, dated July 02, 2009, from Kari Zolesak, Public Commenter
EPA-HQ-SFUND-2009-0063-0385.1	Comment attachment, dated July 02, 2009, from Kari Zolesak, Public Commenter
EPA-HQ-SFUND-2009-0063-0386	Comment, dated July 02, 2009, from Cally Rieman, Public Commenter
EPA-HQ-SFUND-2009-0063-0386.1	Comment attachment, dated July 02, 2009, from Cally Rieman, Public Commenter
EPA-HQ-SFUND-2009-0063-0387	Comment, dated July 02, 2009, from Benjamin Horn, Public Commenter

EPA-HQ-SFUND-2009-0063-0387.1	Comment attachment, dated July 02, 2009, from Benjamin Horn, Public Commenter
EPA-HQ-SFUND-2009-0063-0388	Comment, dated June 19, 2009, from Janice Badalutz, Public Commenter
EPA-HQ-SFUND-2009-0063-0388.1	Comment attachment, dated June 19, 2009, from Janice Badalutz, Public Commenter
EPA-HQ-SFUND-2009-0063-0389	Comment, dated June 16, 2009, from Paul J. Morra, Crusader Candle Co., Inc.
EPA-HQ-SFUND-2009-0063-0389.1	Comment attachment, dated June 16, 2009, from Paul J. Morra, Crusader Candle Co., Inc.
EPA-HQ-SFUND-2009-0063-0390	Comment, dated June 24, 2009, from William P. & Jeanette B. Jeanes, Public Commenters
EPA-HQ-SFUND-2009-0063-0390.1	Comment attachment, dated June 24, 2009, from William P. & Jeanette B. Jeanes, Public Commenters
EPA-HQ-SFUND-2009-0063-0391	Comment, dated July 02, 2009, from Jean Austin, Public Commenter
EPA-HQ-SFUND-2009-0063-0391.1	Comment attachment, dated July 02, 2009, from Jean Austin, Public Commenter
EPA-HQ-SFUND-2009-0063-0392	Comment, dated July 02, 2009, from C. Roberts, Public Commenter
EPA-HQ-SFUND-2009-0063-0392.1	Comment attachment, dated July 02, 2009, from C. Roberts, Public Commenter
EPA-HQ-SFUND-2009-0063-0393	Comment, dated July 08, 2009, from K. Kivland, Public Commenter
EPA-HQ-SFUND-2009-0063-0394	Comment, dated July 07, 2009, from Mass Campaign titled “The plan the Bloomberg administration has hastily slapped together…” sponsoring organization unknown (4)
EPA-HQ-SFUND-2009-0063-0395	Comment, dated July 08, 2009, from D. Juliet, Public Commenter
EPA-HQ-SFUND-2009-0063-0396	Comment, dated July 08, 2009, from S. Lynen, Public Commenter
EPA-HQ-SFUND-2009-0063-0397	Comment, dated July 08, 2009, from C. Ascenzo, Public Commenter

EPA-HQ-SFUND-2009-0063-0398	Comment, dated July 08, 2009, from Cas Holloway, City of New York
EPA-HQ-SFUND-2009-0063-0398.1	Comment attachment, dated July 08, 2009, from Cas Holloway, City of New York
EPA-HQ-SFUND-2009-0063-0398.2	Comment attachment, dated July 08, 2009, from Cas Holloway, City of New York
EPA-HQ-SFUND-2009-0063-0399	Comment, dated June 12, 2009, from Joan Guido, Vice President Operations, Foro Marble Co., Inc.
EPA-HQ-SFUND-2009-0063-0399.1	Comment, dated June 12, 2009, from Joan Guido, Vice President Operations, Foro Marble Co., Inc.
EPA-HQ-SFUND-2009-0063-0400	Comment, dated June 13, 2009, from Koen (surname illegible), Public Commenter
EPA-HQ-SFUND-2009-0063-0400.1	Comment attachment, dated June 13, 2009, from Koen (surname illegible), Public Commenter
EPA-HQ-SFUND-2009-0063-0401	Comment, dated July 07, 2009, from E. Williams, et al.
EPA-HQ-SFUND-2009-0063-0401.1	Comment attachment, dated July 07, 2009, from E. Williams, et al.
EPA-HQ-SFUND-2009-0063-0402	Comment, dated July 01, 2009, from Barrie Olsen, Public Commenter
EPA-HQ-SFUND-2009-0063-0403	Comment, dated July 07, 2009, from Peter W. Zimmermann, Principal, Environmental Liability Management, LLC. (ELM) on behalf of Toll Brooklyn, LP
EPA-HQ-SFUND-2009-0063-0403.1	Comment attachment, dated July 07, 2009, from Peter W. Zimmermann, Principal, Environmental Liability Management, LLC. (ELM) on behalf of Toll Brooklyn, LP
EPA-HQ-SFUND-2009-0063-0404	Comment, dated July 06, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0405	Comment, dated June 15, 2009, from Kendah El-Ali, Public Commenter
EPA-HQ-SFUND-2009-0063-0405.1	Comment attachment, dated June 15, 2009, from Kendah El-Ali, Public Commenter
EPA-HQ-SFUND-2009-0063-0406	Comment, dated June 24, 2009, from Jonathan Edward Cross, Public Commenter

EPA-HQ-SFUND-2009-0063-0406.1	Comment attachment, dated June 24, 2009, from Jonathan Edward Cross, Public Commenter
EPA-HQ-SFUND-2009-0063-0407	Comment, dated June 24, 2009, from Eric Jenes, Public Commenter
EPA-HQ-SFUND-2009-0063-0407.1	Comment attachment, dated June 24, 2009, from Eric Jenes, Public Commenter
EPA-HQ-SFUND-2009-0063-0408	Comment, dated June 29, 2009, from S. Blachman, Public Commenter
EPA-HQ-SFUND-2009-0063-0408.1	Comment attachment, dated June 29, 2009, from S. Blachman, Public Commenter
EPA-HQ-SFUND-2009-0063-0409	Comment, dated June 24, 2009, from N. Sazvatore, Public Commenter
EPA-HQ-SFUND-2009-0063-0409.1	Comment attachment, dated June 24, 2009, from N. Sazvatore, Public Commenter
EPA-HQ-SFUND-2009-0063-0410	Comment, dated June 22, 2009, from G. Wagoner, Public Commenter
EPA-HQ-SFUND-2009-0063-0410.1	Comment attachment, dated June 22, 2009, from G. Wagoner, Public Commenter
EPA-HQ-SFUND-2009-0063-0411	Comment, dated June 22, 2009, from E. Rubenstern, Public Commenter
EPA-HQ-SFUND-2009-0063-0411.1	Comment attachment, dated June 22, 2009, from E. Rubenstern, Public Commenter
EPA-HQ-SFUND-2009-0063-0412	Comment, dated June 22, 2009, from L. Siry, Public Commenter
EPA-HQ-SFUND-2009-0063-0412.1	Comment attachment, dated June 22, 2009, from L. Siry, Public Commenter
EPA-HQ-SFUND-2009-0063-0413	Comment, dated June 22, 2009, from Aaron Padwee, Public Commenter
EPA-HQ-SFUND-2009-0063-0413.1	Comment attachment, dated June 22, 2009, from Aaron Padwee, Public Commenter
EPA-HQ-SFUND-2009-0063-0414	Comment, dated July 07, 2009, from M. Fuentes, Public Commenter
EPA-HQ-SFUND-2009-0063-0414.1	Comment attachment, dated July 07, 2009, from M. Fuentes, Public Commenter

EPA-HQ-SFUND-2009-0063-0415	Comment, dated July 07, 2009, from G. Antoine, Public Commenter
EPA-HQ-SFUND-2009-0063-0415.1	Comment attachment, dated July 07, 2009, from G. Antoine, Public Commenter
EPA-HQ-SFUND-2009-0063-0416	Comment, dated July 02, 2009, from Nick and Tina Cinalli, Public Commenters
EPA-HQ-SFUND-2009-0063-0416.1	Comment attachment, dated July 02, 2009, from Nick and Tina Cinalli, Public Commenters
EPA-HQ-SFUND-2009-0063-0417	Comment, dated July 02, 2009, from Vincent Mazzone, President, Court Street Merchants Association, Inc. (CSMA)
EPA-HQ-SFUND-2009-0063-0417.1	Comment attachment, dated July 02, 2009, from Vincent Mazzone, President, Court Street Merchants Association, Inc. (CSMA)
EPA-HQ-SFUND-2009-0063-0418	Comment, dated June 29, 2009, from M. Takabayashi, Public Commenter
EPA-HQ-SFUND-2009-0063-0418.1	Comment attachment, dated June 29, 2009, from M. Takabayashi, Public Commenter
EPA-HQ-SFUND-2009-0063-0419	Comment, dated June 29, 2009, from E. Shinozaki, Public Commenter
EPA-HQ-SFUND-2009-0063-0419.1	Comment attachment, dated June 29, 2009, from E. Shinozaki, Public Commenter
EPA-HQ-SFUND-2009-0063-0420	Comment, dated June 29, 2009, from K. Mak, Public Commenter
EPA-HQ-SFUND-2009-0063-0420.1	Comment attachment, dated June 29, 2009, from K. Mak, Public Commenter
EPA-HQ-SFUND-2009-0063-0421	Comment, dated June 29, 2009, from Lorraine Vasquez, Public Commenter
EPA-HQ-SFUND-2009-0063-0421.1	Comment attachment, dated June 29, 2009, from Lorraine Vasquez, Public Commenter
EPA-HQ-SFUND-2009-0063-0422	Comment, dated July 02, 2009, from Steve Geiger, Public Commenter
EPA-HQ-SFUND-2009-0063-0423	Comment, dated July 02, 2009, from Alexandra Hoffman, Public Commenter

EPA-HQ-SFUND-2009-0063-0424	Comment, dated July 07, 2009, from Rose Marie Foglia, Public Commenter
EPA-HQ-SFUND-2009-0063-0425	Comment, dated June 22, 2009, from Susan Sporer, Public Commenter
EPA-HQ-SFUND-2009-0063-0425.1	Comment attachment, dated June 22, 2009, from Susan Sporer, Public Commenter
EPA-HQ-SFUND-2009-0063-0426	Comment, dated June 25, 2009, from George Slessinger, Public Commenter
EPA-HQ-SFUND-2009-0063-0426.1	Comment attachment, dated June 25, 2009, from George Slessinger, Public Commenter
EPA-HQ-SFUND-2009-0063-0427	Comment, dated July 02, 2009, from Alan & Cynthia Lantz, Public Commenters
EPA-HQ-SFUND-2009-0063-0428	Comment, dated July 02, 2009, from Stephan de Sève, Public Commenter
EPA-HQ-SFUND-2009-0063-0429	Comment, dated July 06, 2009, from Anonymous Public Commenter
EPA-HQ-SFUND-2009-0063-0430	Comment, dated June 30, 2009, from Michael Dimen, Public Commenter
EPA-HQ-SFUND-2009-0063-0430.1	Comment attachment, dated June 30, 2009, from Michael Dimen, Public Commenter
EPA-HQ-SFUND-2009-0063-0431	Comment, dated June 30, 2009, from Michael Bennett, Public Commenter
EPA-HQ-SFUND-2009-0063-0431.1	Comment attachment, dated June 30, 2009, from Michael Bennett, Public Commenter
EPA-HQ-SFUND-2009-0063-0432	Comment, dated June 30, 2009, from John C. Markowitz, M.D., Public Commenter
EPA-HQ-SFUND-2009-0063-0432.1	Comment attachment, dated June 30, 2009, from John C. Markowitz, M.D., Public Commenter
EPA-HQ-SFUND-2009-0063-0433	Comment, dated June 30, 2009, from Sarah Woodside Gallagher, Public Commenter
EPA-HQ-SFUND-2009-0063-0433.1	Comment attachment, dated June 30, 2009, from Sarah Woodside Gallagher, Public Commenter
EPA-HQ-SFUND-2009-0063-0434	Comment, dated June 30, 2009, from Carol Carson, Public Commenter

EPA-HQ-SFUND-2009-0063-0434.1	Comment attachment, dated June 30, 2009, from Carol Carson, Public Commenter
EPA-HQ-SFUND-2009-0063-0435	Comment, dated July 02, 2009, from Barbara Seiger, Public Commenter
EPA-HQ-SFUND-2009-0063-0436	Comment, dated July 02, 2009, from Sabine Aronowsky, Public Commenter
EPA-HQ-SFUND-2009-0063-0437	Comment, dated June 30, 2009, from Irene Van Slyke, Public Commenter
EPA-HQ-SFUND-2009-0063-0438	Comment, dated June 22, 2009, from N. Mancino, Public Commenter
EPA-HQ-SFUND-2009-0063-0438.1	Comment attachment, dated June 22, 2009, from N. Mancino, Public Commenter
EPA-HQ-SFUND-2009-0063-0439	Comment, dated June 29, 2009, from Gretchen MacKenzie, Public Commenter
EPA-HQ-SFUND-2009-0063-0439.1	Comment attachment, dated June 29, 2009, from Gretchen MacKenzie, Public Commenter
EPA-HQ-SFUND-2009-0063-0440	Notes from June 19, 2009 meeting between EPA and New York City Officials and Consultants regarding the Gowanus Canal Proposed Superfund Site
EPA-HQ-SFUND-2009-0063-0441	Comment, dated July 01, 2009, from Kevin K. Johnson, Public Commenter
EPA-HQ-SFUND-2009-0063-0441.1	Comment attachment, dated July 01, 2009, from Kevin K. Johnson, Public Commenter
EPA-HQ-SFUND-2009-0063-0442	Comment, dated July 01, 2009, from Gary Keir, Public Commenter
EPA-HQ-SFUND-2009-0063-0442.1	Comment attachment, dated July 01, 2009, from Kevin K. Johnson, Public Commenter
EPA-HQ-SFUND-2009-0063-0443	Comment, dated July 01, 2009, from Glenn Fleischman, Public Commenter
EPA-HQ-SFUND-2009-0063-0443.1	Comment attachment, dated July 01, 2009, from Glenn Fleischman, Public Commenter
EPA-HQ-SFUND-2009-0063-0444	Comment, dated July 01, 2009, from Susan Weltman, Public Commenter
EPA-HQ-SFUND-2009-0063-0444.1	Comment attachment, dated July 01, 2009, from Susan Weltman, Public Commenter

EPA-HQ-SFUND-2009-0063-0445	Comment, dated July 01, 2009, from Paul Sheridan, Public Commenter
EPA-HQ-SFUND-2009-0063-0445.1	Comment attachment, dated July 01, 2009, from Paul Sheridan, Public Commenter
EPA-HQ-SFUND-2009-0063-0446	Comment, dated July 01, 2009, from Dan Avallone, Public Commenter
EPA-HQ-SFUND-2009-0063-0446.1	Comment attachment, dated July 01, 2009, from Dan Avallone, Public Commenter
EPA-HQ-SFUND-2009-0063-0447	Comment, dated July 01, 2009, from Clint Padgitt, Public Commenter
EPA-HQ-SFUND-2009-0063-0447.1	Comment attachment, dated July 01, 2009, from Clint Padgitt, Public Commenter
EPA-HQ-SFUND-2009-0063-0448	Comment, dated July 01, 2009, from Lisa North, Public Commenter
EPA-HQ-SFUND-2009-0063-0448.1	Comment attachment, dated July 01, 2009, from Lisa North, Public Commenter
EPA-HQ-SFUND-2009-0063-0449	Comment, dated July 01, 2009, from Ilene Jaroslaw, Public Commenter
EPA-HQ-SFUND-2009-0063-0449.1	Comment attachment, dated July 01, 2009, from Ilene Jaroslaw, Public Commenter
EPA-HQ-SFUND-2009-0063-0450	Attendees List, Agenda and Handouts from June 19, 2009 meeting between EPA and New York City Officials and Consultants regarding the Gowanus Canal Proposed Superfund Site
EPA-HQ-SFUND-2009-0063-0451	Comment, dated June 29, 2009, from Mass Comment Campaign titled “I support the City of New York’s Alternative Plan…” Sponsored by Clean Gowanus Now! (13)
EPA-HQ-SFUND-2009-0063-0452	Comment, dated July 07, 2009, from Mass Comment Campaign titled “I am convinced that it will take an all-inclusive, EPA supervised, total remediation of the canal…” sponsoring organization unknown (21)
EPA-HQ-SFUND-2009-0063-0453	Comment, dated July 01, 2009, from Gladys S. Brown, Public Commenter
EPA-HQ-SFUND-2009-0063-0453.1	Comment attachment, dated July 01, 2009, from Gladys S. Brown, Public Commenter

EPA-HQ-SFUND-2009-0063-0454	Comment, dated June 29, 2009, from David Burney, Public Commenter
EPA-HQ-SFUND-2009-0063-0454.1	Comment attachment, dated June 29, 2009, from David Burney, Public Commenter
EPA-HQ-SFUND-2009-0063-0455	Comment, dated July 01, 2009, from Arlene Kramer Richards, Public Commenter
EPA-HQ-SFUND-2009-0063-0455.1	Comment attachment, dated July 01, 2009, from Arlene Kramer Richards, Public Commenter
EPA-HQ-SFUND-2009-0063-0456	Comment, dated July 01, 2009, from Lisa Wilsher, Public Commenter
EPA-HQ-SFUND-2009-0063-0456.1	Comment attachment, dated July 01, 2009, from Lisa Wilsher, Public Commenter
EPA-HQ-SFUND-2009-0063-0457	Comment, dated July 01, 2009, from Marcia Robinson, Public Commenter
EPA-HQ-SFUND-2009-0063-0457.1	Comment attachment, dated July 01, 2009, from Marcia Robinson, Public Commenter
EPA-HQ-SFUND-2009-0063-0458	Comment, dated June 29, 2009, from Jerry Greenward, Public Commenter
EPA-HQ-SFUND-2009-0063-0458.1	Comment attachment, dated June 29, 2009, from Jerry Greenward, Public Commenter
EPA-HQ-SFUND-2009-0063-0459	Comment, dated June 29, 2009, from Philip Scafuri, Public Commenter
EPA-HQ-SFUND-2009-0063-0459.1	Comment attachment, dated June 29, 2009, from Philip Scafuri, Public Commenter
EPA-HQ-SFUND-2009-0063-0460	Comment, dated July 06, 2009, from Bette Stoltz, Public Commenter
EPA-HQ-SFUND-2009-0063-0460.1	Comment attachment, dated July 06, 2009, from Bette Stoltz, Public Commenter
EPA-HQ-SFUND-2009-0063-0461	Comment, dated June 29, 2009, from Bill Munks, Public Commenter
EPA-HQ-SFUND-2009-0063-0461.1	Comment attachment, dated June 29, 2009, from Bill Munks, Public Commenter
EPA-HQ-SFUND-2009-0063-0462	Comment, dated June 29, 2009, from Jobco Incorporated

EPA-HQ-SFUND-2009-0063-0462.1	Comment attachment, dated June 29, 2009, from Jobco Incorporated
EPA-HQ-SFUND-2009-0063-0463	Comment, dated July 01, 2009, from Jillian Flynn, Public Commenter
EPA-HQ-SFUND-2009-0063-0463.1	Comment attachment, dated July 01, 2009, from Jillian Flynn, Public Commenter
EPA-HQ-SFUND-2009-0063-0464	Comment, dated July 01, 2009, from David Palughi, Public Commenter
EPA-HQ-SFUND-2009-0063-0464.1	Comment attachment, dated July 01, 2009, from David Palughi, Public Commenter
EPA-HQ-SFUND-2009-0063-0465	Comment, dated July 01, 2009, from Joanne B. Wright, Public Commenter
EPA-HQ-SFUND-2009-0063-0465.1	Comment attachment, dated July 01, 2009, from Joanne B. Wright, Public Commenter
EPA-HQ-SFUND-2009-0063-0466	Comment, dated July 01, 2009, from William Gillen, Public Commenter
EPA-HQ-SFUND-2009-0063-0466.1	Comment attachment, dated July 01, 2009, from William Gillen, Public Commenter
EPA-HQ-SFUND-2009-0063-0467	Comment, dated July 02, 2009, from Enid Braun, Public Commenter
EPA-HQ-SFUND-2009-0063-0468	Comment, dated July 02, 2009, from Stephen Nosal, Public Commenter
EPA-HQ-SFUND-2009-0063-0469	Comment, dated July 8, 2009, from Triada Samaras, Public Commenter
EPA-HQ-SFUND-2009-0063-0469.1	Comment attachment, dated July 8, 2009, from Triada Samaras, Public Commenter
EPA-HQ-SFUND-2009-0063-0470	Comment, dated July 08, 2009, from Jeanne A. Grifo, Public Commenter
EPA-HQ-SFUND-2009-0063-0471	Comment, dated July 08, 2009, from Michelle de la Uz, Executive Director, Fifth Avenue Committee, Inc.
EPA-HQ-SFUND-2009-0063-0472	Comment, dated July 08, 2009, from Roberta F. & James S. Vaughan, Public Commenter
EPA-HQ-SFUND-2009-0063-0473	Comment, dated July 08, 2009, from Behzad Amiri, Public Commenter

EPA-HQ-SFUND-2009-0063-0474	Comment, dated July 08, 2009, from Alison Cohen, Public Commenter
EPA-HQ-SFUND-2009-0063-0475	Comment, dated July 09, 2009, from Margaret L. Seely, Public Commenter
EPA-HQ-SFUND-2009-0063-0476	Comment, dated July 07, 2009, from Andrew Jackson, the Hudson Companies, Inc. on behalf of David Kramer, Hudson Third LLC
EPA-HQ-SFUND-2009-0063-0476.1	Comment attachment, dated July 07, 2009, from Andrew Jackson, the Hudson Companies, Inc. on behalf of David Kramer, Hudson Third LLC
EPA-HQ-SFUND-2009-0063-0477	Comment, dated July 08, 2009, from Margaret Maugenest & Kevin Duffy, Public Commenters
EPA-HQ-SFUND-2009-0063-0477.1	Comment attachment, dated July 08, 2009, from Margaret Maugenest & Kevin Duffy, Public Commenters
EPA-HQ-SFUND-2009-0063-0478	Comment, dated July 08, 2009, from E. Krantz on behalf of KINGSPB LLC
EPA-HQ-SFUND-2009-0063-0478.1	Comment attachment, dated July 08, 2009, from E. Krantz on behalf of KINGSPB LLC
EPA-HQ-SFUND-2009-0063-0479	Comment, dated July 08, 2009, from Tom Gray on behalf of Bill de Blasio, Assistant Majority Leader, The Council of the City of New York
EPA-HQ-SFUND-2009-0063-0479.1	Comment attachment, dated July 08, 2009, from Tom Gray on behalf of Bill de Blasio, Assistant Majority Leader, The Council of the City of New York
EPA-HQ-SFUND-2009-0063-0479.2	Comment attachment, dated July 08, 2009, from Tom Gray on behalf of Bill de Blasio, Assistant Majority Leader, The Council of the City of New York
EPA-HQ-SFUND-2009-0063-0480	Comment, dated July 08, 2009, from Lauren Elvers Collins, Acting Executive Director, Gowanus Canal Conservancy
EPA-HQ-SFUND-2009-0063-0481	Comment, dated July 01, 2009, from Kimiye Corwin, Public Commenter
EPA-HQ-SFUND-2009-0063-0482	Comment, dated July 01, 2009, from Aileen Renner, Public Commenter
EPA-HQ-SFUND-2009-0063-0483	Comment, dated July 02, 2009, from Sherie Helstien, Public Commenter

EPA-HQ-SFUND-2009-0063-0484	Comment, dated July 02, 2009, from Enid Braun, Public Commenter
EPA-HQ-SFUND-2009-0063-0485	Comment, dated July 02, 2009, from Brian Minahan, Public Commenter
EPA-HQ-SFUND-2009-0063-0486	Comment, dated July 03 2009, from Janet Li, Public Commenter
EPA-HQ-SFUND-2009-0063-0487	Comment, dated July 05, 2009, from Ellen Hoyt, Public Commenter
EPA-HQ-SFUND-2009-0063-0488	Comment, dated July 06, 2009, from Roy W. Sloane, The Cobble Hill Association, Inc.
EPA-HQ-SFUND-2009-0063-0489	Comment, dated June 27, 2009, from Charles F. Vadala, Jr., Public Commenter
EPA-HQ-SFUND-2009-0063-0490	Comment, dated July 07, 2009, from Judith A. Francis, Public Commenter
EPA-HQ-SFUND-2009-0063-0491	Comment, dated July 03, 2009, from Joseph Martin Carasso, Public Commenter
EPA-HQ-SFUND-2009-0063-0492	Comment, dated July 03, 2009, from Brian Machida, Public Commenter
EPA-HQ-SFUND-2009-0063-0493	Comment, dated July 03, 2009, from Shira Margulies, Public Commenter
EPA-HQ-SFUND-2009-0063-0494	Comment, dated July 03, 2009, from Lauryn Slotnick, Public Commenter
EPA-HQ-SFUND-2009-0063-0495	Comment, dated July 03, 2009, from Joan Bredthauer, Public Commenter
EPA-HQ-SFUND-2009-0063-0496	Comment, dated July 03, 2009, from Mary Ellen Smith, Public Commenter
EPA-HQ-SFUND-2009-0063-0497	Comment, dated July 05, 2009, from Enid Braun, Public Commenter
EPA-HQ-SFUND-2009-0063-0498	Comment, dated July 05, 2009, from Joseph Quirk, Public Commenter
EPA-HQ-SFUND-2009-0063-0499	Comment, dated July 06, 2009, from Peter Needle, Public Commenter
EPA-HQ-SFUND-2009-0063-0500	Comment, dated July 06, 2009, from Jane Potenzo, Public Commenter

EPA-HQ-SFUND-2009-0063-0501	Comment, dated July 06, 2009, from Cheryl Krauss, Public Commenter
EPA-HQ-SFUND-2009-0063-0502	Comment, dated July 06, 2009, from Alice Henkin, Public Commenter
EPA-HQ-SFUND-2009-0063-0503	Comment, dated July 07, 2009, from Mary Prlain, Public Commenter
EPA-HQ-SFUND-2009-0063-0504	Comment, dated July 07, 2009, from George Forss, Public Commenter
EPA-HQ-SFUND-2009-0063-0505	Comment, dated July 07, 2009, from Lauren Young, Public Commenter
EPA-HQ-SFUND-2009-0063-0506	Comment, dated July 07, 2009, from Anne Cavallaro, Public Commenter
EPA-HQ-SFUND-2009-0063-0507	Comment, dated July 07, 2009, from Ludger K. Balan, Executive, Environmental Program Director, The Urban Divers Estuary Conservancy
EPA-HQ-SFUND-2009-0063-0508	Comment, dated June 25, 2009, from Daniel Tinneny, Public Commenter
EPA-HQ-SFUND-2009-0063-0508.1	Comment attachment, dated June 25, 2009, from Daniel Tinneny, Public Commenter
EPA-HQ-SFUND-2009-0063-0509	Comment, dated June 26, 2009, from Angelo (surname illegible), Public Commenter
EPA-HQ-SFUND-2009-0063-0509.1	Comment attachment, dated June 26, 2009, from Angelo (surname illegible), Public Commente
EPA-HQ-SFUND-2009-0063-0510	Comment, dated June 25, 2009, from Philip Ameduri, Public Commenter
EPA-HQ-SFUND-2009-0063-0510.1	Comment attachment, dated June 25, 2009, from Philip Ameduri, Public Commenter
EPA-HQ-SFUND-2009-0063-0511	Comment, dated June 26, 2009, from (name illegible), Public Commenter
EPA-HQ-SFUND-2009-0063-0511.1	Comment attachment, dated June 26, 2009, from (name illegible), Public Commenter
EPA-HQ-SFUND-2009-0063-0512	Comment, dated June 25, 2009, from Tony Manesio, Public Commenter

EPA-HQ-SFUND-2009-0063-0512.1	Comment attachment, dated June 25, 2009, from Tony Manesio, Public Commenter
EPA-HQ-SFUND-2009-0063-0513	Comment, dated June 25, 2009, from Nick (surname illegible), Public Commenter
EPA-HQ-SFUND-2009-0063-0513.1	Comment attachment, dated June 25, 2009, from Nick (surname illegible), Public Commenter
EPA-HQ-SFUND-2009-0063-0514	Comment, dated June 26, 2009, from Robert (surname illegible), Public Commenter
EPA-HQ-SFUND-2009-0063-0514.1	Comment attachment, dated June 26, 2009, from Robert (surname illegible), Public Commenter
EPA-HQ-SFUND-2009-0063-0515	Comment, dated June 26, 2009, from Scott Farson, Public Commenter
EPA-HQ-SFUND-2009-0063-0515.1	Comment attachment, dated June 26, 2009, from Scott Farson, Public Commenter
EPA-HQ-SFUND-2009-0063-0516	Comment, dated June 26, 2009, from L. Chellberg, Public Commenter
EPA-HQ-SFUND-2009-0063-0516.1	Comment attachment, dated June 26, 2009, from L. Chellberg, Public Commenter
EPA-HQ-SFUND-2009-0063-0517	Comment, dated June 26, 2009, from J. Farson, Public Commenter
EPA-HQ-SFUND-2009-0063-0517.1	Comment attachment, dated June 26, 2009, from J. Farson, Public Commenter
EPA-HQ-SFUND-2009-0063-0518	Comment, dated June 18, 2009, from Ari Biernoff, Public Commenter
EPA-HQ-SFUND-2009-0063-0518.1	Comment attachment, dated June 18, 2009, from Ari Biernoff, Public Commenter
EPA-HQ-SFUND-2009-0063-0519	Comment, dated June 18, 2009, from Carol Towey, Public Commenter
EPA-HQ-SFUND-2009-0063-0519.1	Comment attachment, dated June 18, 2009, from Carol Towey, Public Commenter
EPA-HQ-SFUND-2009-0063-0520	Comment, dated June 23, 2009, from Salvatore J. Scotto, Public Commenter
EPA-HQ-SFUND-2009-0063-0520.1	Comment attachment, dated June 23, 2009, from Salvatore J. Scotto, Public Commenter

EPA-HQ-SFUND-2009-0063-0521	Comment, dated July 07, 2009, from Steve Pav, Public Commenter
EPA-HQ-SFUND-2009-0063-0522	Comment, dated July 07, 2009, from Adam Eisenstat, Public Commenter
EPA-HQ-SFUND-2009-0063-0523	Comment, dated July 07, 2009, from Rose Murphy, Public Commenter
EPA-HQ-SFUND-2009-0063-0524	Comment, dated July 07, 2009, from Anne D. Bernstein, Public Commenter
EPA-HQ-SFUND-2009-0063-0525	Comment, dated July 07, 2009, from Jay A. Lubow, Senior Principal, Applied Design Initiative, LLC
EPA-HQ-SFUND-2009-0063-0526	Comment, dated July 07, 2009, from Cynthia P. Simmons, Public Commenter
EPA-HQ-SFUND-2009-0063-0527	Comment, dated July 07, 2009, from Leslie Shipman, Public Commenter
EPA-HQ-SFUND-2009-0063-0528	Comment, dated July 07, 2009, from Jillian Mulvihill, Public Commenters
EPA-HQ-SFUND-2009-0063-0529	Comment, dated July 07, 2009, from Joan Griffiths Vega, Public Commenter
EPA-HQ-SFUND-2009-0063-0530	Comment, dated July 07, 2009, from Neal Rosenstein, Public Commenter
EPA-HQ-SFUND-2009-0063-0531	Comment, dated July 07, 2009, from Vesna Bricelj, Public Commenter
EPA-HQ-SFUND-2009-0063-0532	Comment, dated July 07, 2009, from Michael Pfeffer, Public Commenter
EPA-HQ-SFUND-2009-0063-0533	Comment, dated July 08, 2009, from Russ Feinberg, Public Commenter
EPA-HQ-SFUND-2009-0063-0534	Comment, dated July 08, 2009, from Brad Lander, Public Commenter
EPA-HQ-SFUND-2009-0063-0535	Comment, dated July 07, 2009, from David Hecht, Public Commenter
EPA-HQ-SFUND-2009-0063-0536	Comment, dated July 07, 2009, from Kathleen Zbylut, Public Commenter
EPA-HQ-SFUND-2009-0063-0537	Comment, dated July 07, 2009, from Paula Z. Segal, Public Commenter

EPA-HQ-SFUND-2009-0063-0538	Comment, dated July 07, 2009, from Judith E. Fletcher, Public Commenter
EPA-HQ-SFUND-2009-0063-0539	Comment, dated July 07, 2009, from Laura Shippey, Public Commenter
EPA-HQ-SFUND-2009-0063-0540	Comment, dated July 07, 2009, from Lucy De Carlo, Public Commenter
EPA-HQ-SFUND-2009-0063-0541	Comment, dated July 07, 2009, from Win Clevenger, Public Commenter
EPA-HQ-SFUND-2009-0063-0542	Comment, dated July 07, 2009, from Joshua Fontaine, Public Commenter
EPA-HQ-SFUND-2009-0063-0543	Comment, dated July 07, 2009, from Erin Keating, Public Commenter
EPA-HQ-SFUND-2009-0063-0544	Comment, dated July 07, 2009, from Robert Durante, Public Commenter
EPA-HQ-SFUND-2009-0063-0545	Comment, dated July 07, 2009, from Christopher Messina, Public Commenter
EPA-HQ-SFUND-2009-0063-0546	Comment, dated July 04, 2009, from Adam Armstrong, Public Commenter
EPA-HQ-SFUND-2009-0063-0547	Comment, dated July 08, 2009, from Kathryn Cervino, Public Commenter
EPA-HQ-SFUND-2009-0063-0548	Comment, dated July 08, 2009, from Margaret Maugenest, Friends and Residents of the Greater Gowanus (FROGG)
EPA-HQ-SFUND-2009-0063-0549	Comment, dated July 08, 2009, from Sybil Hannah, Public Commenter
EPA-HQ-SFUND-2009-0063-0550	Comment, dated July 08, 2009, from Lezllie Dalton, Public Commenter
EPA-HQ-SFUND-2009-0063-0551	Comment, dated July 08, 2009, from David Lundell, Public Commenter
EPA-HQ-SFUND-2009-0063-0552	Comment, dated July 08, 2009, from Dr. James M. Cervino, Public Commenter
EPA-HQ-SFUND-2009-0063-0553	Comment, dated July 08, 2009, from Adam J. Schwartz, The Academy of Urban Planning
EPA-HQ-SFUND-2009-0063-0554	Comment, dated July 08, 2009, from Edward S. Sawchuk, P.C., Attorney, Vichar Inc.

EPA-HQ-SFUND-2009-0063-0555	Comment, dated July 08, 2009, from Nimita Shah, Senior Project Manager, Toll Brothers, Inc.
EPA-HQ-SFUND-2009-0063-0556	Comment, dated July 08, 2009, from Alison Lincoln, Public Commenter
EPA-HQ-SFUND-2009-0063-0557	Comment, dated July 08, 2009, from Peter Pierce, Public Commenter
EPA-HQ-SFUND-2009-0063-0558	Comment, dated July 08, 2009, from Kristina Wollschlaeger, Public Commenter
EPA-HQ-SFUND-2009-0063-0559	Comment, dated July 08, 2009, from Adam Gottlieb, Public Commenter
EPA-HQ-SFUND-2009-0063-0560	Comment, dated July 08, 2009, from Maria Pagano, President, Carrol Gardens Neighborhood Association (CGNA)
EPA-HQ-SFUND-2009-0063-0561	Comment, dated July 08, 2009, from Marty Kahn, Public Commenter
EPA-HQ-SFUND-2009-0063-0562	Comment, dated July 08, 2009, from Scott Avram, Public Commenters
EPA-HQ-SFUND-2009-0063-0563	Comment, dated July 08, 2009, from Martha Cid, Public Commenter
EPA-HQ-SFUND-2009-0063-0564	Comment, dated July 08, 2009, from David Yassky, Public Commenter
EPA-HQ-SFUND-2009-0063-0565	Comment, dated July 08, 2009, from Joan Faulkner, Public Commenter
EPA-HQ-SFUND-2009-0063-0566	Comment, dated July 08, 2009, from Mikel Brown, Public Commenter
EPA-HQ-SFUND-2009-0063-0567	Comment, dated July 08, 2009, from Michelle Perreault, Public Commenter
EPA-HQ-SFUND-2009-0063-0568	Comment, dated July 08, 2009, from Norman Cox, Public Commenter
EPA-HQ-SFUND-2009-0063-0569	Comment, dated July 08, 2009, from Steven Miller, Public Commenter
EPA-HQ-SFUND-2009-0063-0570	Comment, dated July 08, 2009, from Daniel Kianmahd, Toll Brothers

EPA-HQ-SFUND-2009-0063-0571	Comment, dated July 08, 2009, from Wylie Goodman, Public Commenter
EPA-HQ-SFUND-2009-0063-0572	Comment, dated July 08, 2009, from Margaret Maugenest, Public Commenter
EPA-HQ-SFUND-2009-0063-0573	Comment, dated July 08, 2009, from Lois Marie Gibbs, Campaign Coordinator, Center for Health, Environment & Justice (CHEJ)
EPA-HQ-SFUND-2009-0063-0574	Comment, dated July 08, 2009, from Nancy and Marino Mazzei, Public Commenters
EPA-HQ-SFUND-2009-0063-0575	Comment, dated July 08, 2009, from Maria Pagano, President, Carroll Gardens Neighborhood Association (CGNA)
EPA-HQ-SFUND-2009-0063-0576	Comment, dated July 08, 2009, from Amy Holman, Public Commenter
EPA-HQ-SFUND-2009-0063-0577	Comment, dated July 08, 2009, from Josh Skaller, Public Commenter
EPA-HQ-SFUND-2009-0063-0578	Comment, dated July 08, 2009, from Betty Lester, Public Commenter
EPA-HQ-SFUND-2009-0063-0579	Comment, dated July 08, 2009, from John Gullixson, Public Commenter
EPA-HQ-SFUND-2009-0063-0580	Comment, dated July 08, 2009, from Yuwadee Tantipech, Public Commenter
EPA-HQ-SFUND-2009-0063-0581	Comment, dated July 2, 2009, from Lori Hoepner, Public Commenter
EPA-HQ-SFUND-2009-0063-0582	Comment, dated July 08, 2009, from Eric McClure, Treasurer, Park Slope Civic Council
EPA-HQ-SFUND-2009-0063-0582.1	Comment attachment, dated July 08, 2009, from Eric McClure, Treasurer, Park Slope Civic Council
EPA-HQ-SFUND-2009-0063-0583	Comment, dated July 08, 2009, from M. Feldmann, Public Commenter
EPA-HQ-SFUND-2009-0063-0584	Comment, dated July 06, 2009, from David Briggs and Anthony Deen, Gowanus by Design
EPA-HQ-SFUND-2009-0063-0584.1	Comment attachment, dated July 06, 2009, from David Briggs and Anthony Deen, Gowanus by Design

EPA-HQ-SFUND-2009-0063-0585	Comment, dated July 07, 2009, from Lenny Siegel, Executive Director, Center for Public Environmental Oversight
EPA-HQ-SFUND-2009-0063-0586	Comment, dated July 02, 2009, from Bill & Kathy Appel, Public Commenters
EPA-HQ-SFUND-2009-0063-0586.1	Comment attachment, dated July 02, 2009, from Bill & Kathy Appel, Public Commenters
EPA-HQ-SFUND-2009-0063-0587	Comment, dated July 7, 2009, from Lois Martinez, Public Commenter
EPA-HQ-SFUND-2009-0063-0587.1	Comment attachment, dated July 7, 2009, from Lois Martinez, Public Commenter
EPA-HQ-SFUND-2009-0063-0588	Comment, dated June 29, 2009, from Cody Healey-Conelly, Public Commenter
EPA-HQ-SFUND-2009-0063-0588.1	Comment attachment, dated June 29, 2009, from Cody Healey-Conelly, Public Commenter
EPA-HQ-SFUND-2009-0063-0589	Comment, dated July 08, 2009, from Nathan F. Elbogen, Managing Director, LMS Realty Associates LLC
EPA-HQ-SFUND-2009-0063-0589.1	Comment attachment, dated July 08, 2009, from Nathan F. Elbogen, Managing Director, LMS Realty Associates LLC
EPA-HQ-SFUND-2009-0063-0590	Comment, dated June 24, 2009, from Ron Moelis, Chief Executive Officer, L + M Development Partners
EPA-HQ-SFUND-2009-0063-0590.1	Comment attachment, dated June 24, 2009, from Ron Moelis, Chief Executive Officer, L + M Development Partners
EPA-HQ-SFUND-2009-0063-0591	Comment, dated June 25, 2009, from G. Martin, Public Commenter
EPA-HQ-SFUND-2009-0063-0591.1	Comment attachment, dated June 25, 2009, from G. Martin, Public Commenter
EPA-HQ-SFUND-2009-0063-0592	Comment, dated June 25, 2009, from F. Mario, Public Commenter
EPA-HQ-SFUND-2009-0063-0592.1	Comment attachment, dated June 25, 2009, from F. Mario, Public Commenter
EPA-HQ-SFUND-2009-0063-0593	Comment, dated June 25, 2009, from S. Fountel, Public Commenter

EPA-HQ-SFUND-2009-0063-0593.1	Comment attachment, dated June 25, 2009, from S. Fountel, Public Commenter
EPA-HQ-SFUND-2009-0063-0594	Comment, dated June 25, 2009, from A. Waye, Public Commenter
EPA-HQ-SFUND-2009-0063-0594.1	Comment attachment, dated June 25, 2009, from A. Waye, Public Commenter
EPA-HQ-SFUND-2009-0063-0595	Comment, dated June 25, 2009, from Marc Fouerto, Public Commenter
EPA-HQ-SFUND-2009-0063-0595.1	Comment attachment, dated June 25, 2009, from Marc Fouerto, Public Commenter
EPA-HQ-SFUND-2009-0063-0596	Comment, dated June 25, 2009, from Jacqueline Austin, Public Commenter
EPA-HQ-SFUND-2009-0063-0596.1	Comment attachment, dated June 25, 2009, from Jacqueline Austin, Public Commenter
EPA-HQ-SFUND-2009-0063-0597	Comment, dated June 25, 2009, from S. Maraio, Public Commenter
EPA-HQ-SFUND-2009-0063-0597.1	Comment attachment, dated June 25, 2009, from S. Maraio, Public Commenter
EPA-HQ-SFUND-2009-0063-0598	Comment, dated June 25, 2009, from Vito (surname illegible), Public Commenter
EPA-HQ-SFUND-2009-0063-0598.1	Comment attachment, dated June 25, 2009, from Vito (surname illegible), Public Commenter
EPA-HQ-SFUND-2009-0063-0599	Comment, dated June 25, 2009, from E. Menesier, Public Commenters
EPA-HQ-SFUND-2009-0063-0599.1	Comment attachment, dated June 25, 2009, from E. Menesier, Public Commenters
EPA-HQ-SFUND-2009-0063-0600	Comment, dated June 25, 2009, from J. Benet, Public Commenter
EPA-HQ-SFUND-2009-0063-0600.1	Comment attachment, dated June 25, 2009, from J. Benet, Public Commenter
EPA-HQ-SFUND-2009-0063-0601	Comment, dated June 25, 2009, from Sophia Fouerte, Public Commenter
EPA-HQ-SFUND-2009-0063-0601.1	Comment attachment, dated June 25, 2009, from Sophia Fouerte, Public Commenter

EPA-HQ-SFUND-2009-0063-0602	Comment, dated June 25, 2009, from Joseph Cagliano, Public Commenter
EPA-HQ-SFUND-2009-0063-0602.1	Comment attachment, dated June 25, 2009, from Joseph Cagliano, Public Commenter
EPA-HQ-SFUND-2009-0063-0603	Comment, dated June 25, 2009, from Jeff Wyner, Public Commenter
EPA-HQ-SFUND-2009-0063-0603.1	Comment attachment, dated June 25, 2009, from Jeff Wyner, Public Commenter
EPA-HQ-SFUND-2009-0063-0604	Comment, dated June 25, 2009, from Eileen O'Dowd, Public Commenter
EPA-HQ-SFUND-2009-0063-0604.1	Comment attachment, dated June 25, 2009, from Eileen O'Dowd, Public Commenter
EPA-HQ-SFUND-2009-0063-0605	Comment, dated June 25, 2009, from Carmen Robello, Public Commenter
EPA-HQ-SFUND-2009-0063-0605.1	Comment attachment, dated June 25, 2009, from Carmen Robello, Public Commenter
EPA-HQ-SFUND-2009-0063-0606	Comment, dated June 25, 2009, from (name illegible), Public Commenter
EPA-HQ-SFUND-2009-0063-0606.1	Comment attachment, dated June 25, 2009, from (name illegible), Public Commenter
EPA-HQ-SFUND-2009-0063-0607	Comment, dated June 25, 2009, from Andra Grants, Public Commenter
EPA-HQ-SFUND-2009-0063-0607.1	Comment attachment, dated June 25, 2009, from Andra Grants, Public Commenter
EPA-HQ-SFUND-2009-0063-0608	Comment, dated July 02, 2009, from Karla Roberts, Public Commenter
EPA-HQ-SFUND-2009-0063-0609	Comment, dated July 03, 2009, from Shira Margulies, Public Commenter
EPA-HQ-SFUND-2009-0063-0609.1	Comment attachment, dated July 03, 2009, from Shira Margulies, Public Commenter
EPA-HQ-SFUND-2009-0063-0610	Comment, dated July 02, 2009, from Phaedra Amelia Thomas, Public Commenter
EPA-HQ-SFUND-2009-0063-0610.1	Comment attachment, dated July 02, 2009, from Phaedra Amelia Thomas, Public Commenter

EPA-HQ-SFUND-2009-0063-0611	Comment, dated Jun 20, 2009, from Joseph Igneri, Public Commenter
EPA-HQ-SFUND-2009-0063-0611.1	Comment attachment, dated Jun 20, 2009, from Joseph Igneri, Public Commenter
EPA-HQ-SFUND-2009-0063-0612	Comment, dated July 08, 2009, from Derek Bupp, NYC Property Care, LLC
EPA-HQ-SFUND-2009-0063-0612.1	Comment attachment, dated July 08, 2009, from Derek Bupp, NYC Property Care, LLC
EPA-HQ-SFUND-2009-0063-0613	Comment, dated July 02, 2009, from Lori Hoepner, Public Commenter
EPA-HQ-SFUND-2009-0063-0613.1	Comment attachment, dated July 02, 2009, from Lori Hoepner, Public Commenter
EPA-HQ-SFUND-2009-0063-0614	Comment, dated July 04, 2009, from Eric Miller, Public Commenter
EPA-HQ-SFUND-2009-0063-0614.1	Comment attachment, dated July 04, 2009, from Eric Miller, Public Commenter
EPA-HQ-SFUND-2009-0063-0615	Comment, dated July 02, 2009, from Ben Schrank, Public Commenter
EPA-HQ-SFUND-2009-0063-0615.1	Comment attachment, dated July 02, 2009, from Ben Schrank, Public Commenter
EPA-HQ-SFUND-2009-0063-0616	Comment, dated July 03, 2009, from Michael Salvatore, Public Commenter
EPA-HQ-SFUND-2009-0063-0616.1	Comment attachment, dated July 03, 2009, from Michael Salvatore, Public Commenter
EPA-HQ-SFUND-2009-0063-0617	Comment, dated June 24, 2009, from Michael Pontone, SBC Realty Group, Inc.
EPA-HQ-SFUND-2009-0063-0617.1	Comment attachment, dated June 24, 2009, from Michael Pontone, SBC Realty Group, Inc.
EPA-HQ-SFUND-2009-0063-0618	Comment, dated July 02, 2009, from Barbara Charton, Public Commenter
EPA-HQ-SFUND-2009-0063-0618.1	Comment attachment, dated July 02, 2009, from Barbara Charton, Public Commenter
EPA-HQ-SFUND-2009-0063-0619	Comment, dated July 03, 2009, from Jason Murry, Public Commenter

EPA-HQ-SFUND-2009-0063-0619.1	Comment attachment, dated July 03, 2009, from Jason Murry, Public Commenter
EPA-HQ-SFUND-2009-0063-0620	Comment, dated July 07, 2009, from Eric Bluestone, Member, et al., Bluestone Gowanus Green Partners LLC
EPA-HQ-SFUND-2009-0063-0620.1	Comment attachment, dated July 07, 2009, from Eric Bluestone, Member, et al., Bluestone Gowanus Green Partners LLC
EPA-HQ-SFUND-2009-0063-0621	Comment, dated July 08, 2009, from Carl Hum, President & CEO, Brooklyn Chamber of Commerce
EPA-HQ-SFUND-2009-0063-0621.1	Comment attachment, dated July 08, 2009, from Carl Hum, President & CEO, Brooklyn Chamber of Commerce
EPA-HQ-SFUND-2009-0063-0622	Comment, dated April 15, 2009, from Lucy DeCarlo, Public Commenter
EPA-HQ-SFUND-2009-0063-0622.1	Comment attachment, dated April 15, 2009, from Lucy DeCarlo, Public Commenter
EPA-HQ-SFUND-2009-0063-0623	Comment, dated April 09, 2009, from Kirsten Drabin-Gray, Public Commenter
EPA-HQ-SFUND-2009-0063-0623.1	Comment attachment, dated April 09, 2009, from Kirsten Drabin-Gray, Public Commenter
EPA-HQ-SFUND-2009-0063-0624	Comment, dated June 27, 2009, from Betsy Okner, Public Commenter
EPA-HQ-SFUND-2009-0063-0624.1	Comment attachment, dated June 27, 2009, from Betsy Okner, Public Commenter
EPA-HQ-SFUND-2009-0063-0625	Comment, dated April 17, 2009, from Lynne Beltran, Public Commenter
EPA-HQ-SFUND-2009-0063-0625.1	Comment attachment, dated April 17, 2009, from Lynne Beltran, Public Commenter
EPA-HQ-SFUND-2009-0063-0626	Comment, dated April 22, 2009, from B. Katleman, Public Commenter
EPA-HQ-SFUND-2009-0063-0626.1	Comment attachment, dated April 22, 2009, from B. Katleman, Public Commenter
EPA-HQ-SFUND-2009-0063-0627	Comment, dated April 23, 2009, from Cynthia P. Simmons, Esq., Public Commenter

EPA-HQ-SFUND-2009-0063-0627.1	Comment attachment, dated April 23, 2009, from Cynthia P. Simmons, Esq., Public Commenter
EPA-HQ-SFUND-2009-0063-0628	Comment, dated April 30, 2009, from Manuela Paul, Public Commenter
EPA-HQ-SFUND-2009-0063-0628.1	Comment attachment, dated April 30, 2009, from Manuela Paul, Public Commenter
EPA-HQ-SFUND-2009-0063-0629	Comment, dated June 23, 2009, from Cyrille Phipps, Public Commenter
EPA-HQ-SFUND-2009-0063-0629.1	Comment attachment, dated June 23, 2009, from Cyrille Phipps, Public Commenter
EPA-HQ-SFUND-2009-0063-0630	Comment, dated June 11, 2009, from Michael King, Public Commenter
EPA-HQ-SFUND-2009-0063-0630.1	Comment attachment, dated June 11, 2009, from Michael King, Public Commenter
EPA-HQ-SFUND-2009-0063-0631	Comment, dated June 02, 2009, from Lucy DeCarlo, Public Commenter
EPA-HQ-SFUND-2009-0063-0631.1	Comment attachment, dated June 02, 2009, from Lucy DeCarlo, Public Commenter
EPA-HQ-SFUND-2009-0063-0632	Comment, dated July 08, 2009, from Anna Ellis & Aaron Nester, Public Commenter
EPA-HQ-SFUND-2009-0063-0633	Comment, dated July 06, 2009, from Mark Shames, Public Commenter
EPA-HQ-SFUND-2009-0063-0634	Comment, dated July 02, 2009, from Michael Salvatore, Public Commenter
EPA-HQ-SFUND-2009-0063-0635	Comment, dated July 06, 2009, from Peter McGuire, Public Commenter
EPA-HQ-SFUND-2009-0063-0636	Comment, dated July 06, 2009, from Ashley Murray, President, Liberty Industrial Gas and Welding Supply, Inc.
EPA-HQ-SFUND-2009-0063-0637	Comment, dated July 06, 2009, from Amy Sirot, Public Commenter
EPA-HQ-SFUND-2009-0063-0638	Comment, dated July 06, 2009, from Jeff Miles, Public Commenter
EPA-HQ-SFUND-2009-0063-0639	Comment, dated July 06, 2009, from David E. Sharps, President, The Waterfront Museum

EPA-HQ-SFUND-2009-0063-0640	Comment, dated July 06, 2009, from Malia Murray, Public Commenter
EPA-HQ-SFUND-2009-0063-0641	Comment, dated July 07, 2009, from Joel Levenson, Public Commenter
EPA-HQ-SFUND-2009-0063-0642	Comment, dated July 06, 2009, from Judith A. Francis, Public Commenter
EPA-HQ-SFUND-2009-0063-0643	Comment, dated July 07, 2009, from Lauren Young, Public Commenter
EPA-HQ-SFUND-2009-0063-0644	Comment, dated July 07, 2009, from Jeffrey Schwartz, Chief Financial Officer, Liberty Industrial Gas & Welding Supply, Inc.
EPA-HQ-SFUND-2009-0063-0645	Comment, dated July 07, 2009, from Job Mashariki, Executive Director, Black Veterans for Social Justice, Inc.
EPA-HQ-SFUND-2009-0063-0646	Comment, dated July 07, 2009, from Amy Rogoway, Public Commenter
EPA-HQ-SFUND-2009-0063-0647	Comment, dated July 07, 2009, from Roy W. Sloane, The Cobble Hill Association, Inc.
EPA-HQ-SFUND-2009-0063-0648	Comment, dated July 07, 2009, from Gennaro Brooks-Church, Public Commenter
EPA-HQ-SFUND-2009-0063-0649	Comment, dated July 07, 2009, from John Hatheway, Public Commenter
EPA-HQ-SFUND-2009-0063-0650	Comment, dated July 07, 2009, from Devorah Greenspan, Public Commenter
EPA-HQ-SFUND-2009-0063-0651	Comment, dated July 07, 2009, from Elizabeth Lind, The South Brooklyn Neighborhood Alliance
EPA-HQ-SFUND-2009-0063-0652	Comment, dated July 08, 2009, from E. Spicer & A. Pugliese, Public Commenters
EPA-HQ-SFUND-2009-0063-0652.1	Comment attachment, dated July 08, 2009, from E. Spicer & A. Pugliese, Public Commenters
EPA-HQ-SFUND-2009-0063-0653	Comment, dated July 08, 2009, from Jo Anne Simon, Public Commenter
EPA-HQ-SFUND-2009-0063-0653.1	Comment attachment, dated July 08, 2009, from Jo Anne Simon, Public Commenter

EPA-HQ-SFUND-2009-0063-0654	Comment, dated July 08, 2009, from C.H. Mackellar, Public Commenter
EPA-HQ-SFUND-2009-0063-0654.1	Comment attachment, dated July 08, 2009, from C.H. Mackellar, Public Commenter
EPA-HQ-SFUND-2009-0063-0655	Comment, dated July 08, 2009, from Michael Slattery, Senior Vice President, Real Estate Board of New York
EPA-HQ-SFUND-2009-0063-0655.1	Comment attachment, dated July 08, 2009, from Michael Slattery, Senior Vice President, Real Estate Board of New York
EPA-HQ-SFUND-2009-0063-0656	Comment, dated July 08, 2009, from Elizabeth Stein, Environmental Defense Fund (EDF)
EPA-HQ-SFUND-2009-0063-0656.1	Comment attachment, dated July 08, 2009, from Elizabeth Stein, Environmental Defense Fund (EDF)
EPA-HQ-SFUND-2009-0063-0657	Comment, dated June 01, 2009, from Jocelyn Wills, Associate Professor, History Department & Center for Worker Education, Brooklyn College, City University of New York
EPA-HQ-SFUND-2009-0063-0657.1	Comment attachment, dated June 01, 2009, from Jocelyn Wills, Associate Professor, History Department & Center for Worker Education, Brooklyn College, City University of New York
EPA-HQ-SFUND-2009-0063-0658	Comment, dated June 24, 2009, from D. Pearlman, C. Lyon, & R. Lyon, Public Commenters
EPA-HQ-SFUND-2009-0063-0658.1	Comment attachment, dated June 24, 2009, from D. Pearlman, C. Lyon, & R. Lyon, Public Commenters
EPA-HQ-SFUND-2009-0063-0659	Comment, dated June 01, 2009, from Sharon Lamazor, Public Commenter
EPA-HQ-SFUND-2009-0063-0659.1	Comment attachment, dated June 01, 2009, from Sharon Lamazor, Public Commenter
EPA-HQ-SFUND-2009-0063-0660	Comment, dated June 17, 2009, from Robert Durante, Public Commenter
EPA-HQ-SFUND-2009-0063-0660.1	Comment attachment, dated June 17, 2009, from Robert Durante, Public Commenter
EPA-HQ-SFUND-2009-0063-0661	Comment, dated June 17, 2009, from George Magnifico, Public Commenter

EPA-HQ-SFUND-2009-0063-0661.1	Comment attachment, dated June 17, 2009, from George Magnifico, Public Commenter
EPA-HQ-SFUND-2009-0063-0662	Comment, dated June 21, 2009, from Beth O'Neill, Public Commenter
EPA-HQ-SFUND-2009-0063-0662.1	Comment attachment, dated June 21, 2009, from Beth O'Neill, Public Commenter
EPA-HQ-SFUND-2009-0063-0663	Comment, dated June 23, 2009, from Ken Lindley and Clay Schudel, Public Commenters
EPA-HQ-SFUND-2009-0063-0663.1	Comment attachment, dated June 23, 2009, from Ken Lindley and Clay Schudel, Public Commenters
EPA-HQ-SFUND-2009-0063-0664	Comment, dated June 23, 2009, from Sheila Glenn, Public Commenter
EPA-HQ-SFUND-2009-0063-0664.1	Comment attachment, dated June 23, 2009, from Sheila Glenn, Public Commenter
EPA-HQ-SFUND-2009-0063-0665	Comment, dated May 19, 2009, from David DesRoches, Senior Survey Researcher, Mathematica Policy Research, Inc.
EPA-HQ-SFUND-2009-0063-0665.1	Comment attachment, dated May 19, 2009, from David DesRoches, Senior Survey Researcher, Mathematica Policy Research, Inc.
EPA-HQ-SFUND-2009-0063-0666	Comment, dated June 24, 2009, from Julia Duvall, Public Commenter
EPA-HQ-SFUND-2009-0063-0666.1	Comment attachment, dated June 24, 2009, from Julia Duvall, Public Commenter
EPA-HQ-SFUND-2009-0063-0667	Comment, dated June 11, 2009, from George H. Zachos, Public Commenter
EPA-HQ-SFUND-2009-0063-0667.1	Comment attachment, dated June 11, 2009, from George H. Zachos, Public Commenter
EPA-HQ-SFUND-2009-0063-0668	Comment, dated June 26, 2009, from Eymund Diegel, Public Commenter
EPA-HQ-SFUND-2009-0063-0668.1	Comment attachment, dated June 26, 2009, from Eymund Diegel, Public Commenter
EPA-HQ-SFUND-2009-0063-0669	Comment, dated April 30, 2009, from George H. Zachos, Public Commenter

EPA-HQ-SFUND-2009-0063-0669.1	Comment attachment, dated April 30, 2009, from George H. Zachos, Public Commenter
EPA-HQ-SFUND-2009-0063-0670	Comment, dated May 03, 2009, from Velmanette Montgomery, New York Senator
EPA-HQ-SFUND-2009-0063-0670.1	Comment attachment, dated May 03, 2009, from Velmanette Montgomery, New York Senator
EPA-HQ-SFUND-2009-0063-0671	Comment, dated June 30, 2009, Daniel Squadron, 25th District, New York State Senate
EPA-HQ-SFUND-2009-0063-0671.1	Comment attachment, dated June 30, 2009, Daniel Squadron, 25th District, New York State Senate
EPA-HQ-SFUND-2009-0063-0672	Comment, dated June 30, 2009, from Tom Angotti, Director, Center for Community Planning & Development, Hunter College
EPA-HQ-SFUND-2009-0063-0672.1	Comment attachment, dated June 30, 2009, from Tom Angotti, Director, Center for Community Planning & Development, Hunter College
EPA-HQ-SFUND-2009-0063-0673	Comment, dated June 30, 2009, from Lucy DeCarlo, Rita Miller, & Triada Samaras, Public Commenters
EPA-HQ-SFUND-2009-0063-0673.1	Comment attachment, dated June 30, 2009, from Lucy DeCarlo, Rita Miller, & Triada Samaras, Public Commenters
EPA-HQ-SFUND-2009-0063-0674	Comment, dated June 15, 2009, from Deborah Buscarello, Public Commenter
EPA-HQ-SFUND-2009-0063-0675	Comment, dated July 07, 2009, from N. Hendricks, Public Commenters
EPA-HQ-SFUND-2009-0063-0676	Comment, dated July 07, 2009, from Judith A. Francis, Public Commenter
EPA-HQ-SFUND-2009-0063-0677	Comment, dated July 08, 2009, from Christopher Len, Staff Attorney, New York/New Jersey Baykeeper
EPA-HQ-SFUND-2009-0063-0678	Comment, dated July 08, 2009, from Eric A. Goldstein, Senior Attorney and Carolyn Kelly, Legal Intern, Natural Resources Defense Council, Inc. (NRDC)
EPA-HQ-SFUND-2009-0063-0679	Comment, dated July 07, 2009, from Steel Neal, Public Commenter
EPA-HQ-SFUND-2009-0063-0680	Comment, dated July 06, 2009, from Marcelo Frydman, Public Commenter

EPA-HQ-SFUND-2009-0063-0681	Comment, dated July 06, 2009, from Nancy A. Mintz, Public Commenter
EPA-HQ-SFUND-2009-0063-0682	Comment, dated July 06, 2009, from R. Okon, Public Commenter
EPA-HQ-SFUND-2009-0063-0683	Comment, dated July 06, 2009, from Gabriel Hunter, Public Commenter
EPA-HQ-SFUND-2009-0063-0684	Comment, dated July 08, 2009, from B. Cosgrhue, Public Commenter
EPA-HQ-SFUND-2009-0063-0685	Comment, dated July 08, 2009, from Ken Baer, Public Commenter
EPA-HQ-SFUND-2009-0063-0686	Comment, dated July 08, 2009, from Gary LaBarbera, President, Building and Construction Trades Council of Greater New York
EPA-HQ-SFUND-2009-0063-0687	Comment, dated July 08, 2009, from T. Urban, Public Commenter
EPA-HQ-SFUND-2009-0063-0688	Comment, dated July 07, 2009, from Warren Cohen, Public Commenter
EPA-HQ-SFUND-2009-0063-0689	Comment, dated July 08, 2009, from Keren Ludwig, Public Commenter
EPA-HQ-SFUND-2009-0063-0690	Comment, dated July 08, 2009, from Jill Berman, Ed. D., Public Commenter
EPA-HQ-SFUND-2009-0063-0691	Comment, dated July 08, 2009, from Henry C. Kita, Senior Vice President, Building Trades Employers' Association
EPA-HQ-SFUND-2009-0063-0692	Comment, dated July 06, 2009, from Ellen Rios, Public Commenter
EPA-HQ-SFUND-2009-0063-0693	Comment, dated July 06, 2009, from A. Wheeler, Public Commenter
EPA-HQ-SFUND-2009-0063-0694	Comment, dated July 08, 2009, from S. Steplas, Public Commenter
EPA-HQ-SFUND-2009-0063-0695	Comment, dated July 06, 2009, from Janet E. Hassett, Public Commenter
EPA-HQ-SFUND-2009-0063-0696	Comment, dated July 08, 2009, from Felicity Erwin, Public Commenter

EPA-HQ-SFUND-2009-0063-0697	Comment, dated July 08, 2009, from R. Tolentino, Public Commenter
EPA-HQ-SFUND-2009-0063-0698	Comment, dated July 08, 2009, from Eleanor O. Preiss, Public Commenter
EPA-HQ-SFUND-2009-0063-0699	Comment, dated July 07, 2009, from Nancy Stehle, Public Commenter
EPA-HQ-SFUND-2009-0063-0700	Comment, dated July 08, 2009, from Sonia Barlow, Public Commenter
EPA-HQ-SFUND-2009-0063-0701	Comment, dated July 05, 2009, from Annie Leist, Public Commenter
EPA-HQ-SFUND-2009-0063-0702	Comment, dated July 08, 2009, from Thomas Alberty, Public Commenter
EPA-HQ-SFUND-2009-0063-0703	Comment, dated July 02, 2009, from Michael Salvatore, Public Commenter
EPA-HQ-SFUND-2009-0063-0703.1	Comment attachment, dated July 02, 2009, from Michael Salvatore, Public Commenter
EPA-HQ-SFUND-2009-0063-0704	Comment, dated July 08, 2009, from Jamie Mirabella, Public Commenter
EPA-HQ-SFUND-2009-0063-0705	Comment, dated May 08, 2009, from Robin L. Simmen, Public Commenter
EPA-HQ-SFUND-2009-0063-0705.1	Comment attachment, dated May 08, 2009, from Robin L. Simmen, Public Commenter
EPA-HQ-SFUND-2009-0063-0706	Comment, dated May 08, 2009, from Joseph Szladek, Public Commenter
EPA-HQ-SFUND-2009-0063-0706.1	Comment attachment, dated May 08, 2009, from Joseph Szladek, Public Commenter
EPA-HQ-SFUND-2009-0063-0707	Comment, dated July 08, 2009, from Joshua S. Verleun, Esq., Riverkeeper, Inc.
EPA-HQ-SFUND-2009-0063-0707.1	Comment attachment, dated July 08, 2009, from Joshua S. Verleun, Esq., Riverkeeper, Inc.
EPA-HQ-SFUND-2009-0063-0707.2	Comment attachment, dated July 08, 2009, from Joshua S. Verleun, Esq., Riverkeeper, Inc.
EPA-HQ-SFUND-2009-0063-0707.3	Comment attachment, dated July 08, 2009, from Joshua S. Verleun, Esq., Riverkeeper, Inc.

EPA-HQ-SFUND-2009-0063-0708	Comment, dated July 07, 2009, from Raul Rothblatt, Executive Director, Four Borough Neighborhood Preservation Alliance
EPA-HQ-SFUND-2009-0063-0708.1	Comment attachment, dated July 07, 2009, from Raul Rothblatt, Executive Director, Four Borough Neighborhood Preservation Alliance
EPA-HQ-SFUND-2009-0063-0709	Comment, dated July 07, 2009, from Devorah Greenspan, Public Commenter
EPA-HQ-SFUND-2009-0063-0709.1	Comment attachment, dated July 07, 2009, from Devorah Greenspan, Public Commenter
EPA-HQ-SFUND-2009-0063-0710	Comment, dated July 10, 2009, from Gregory Bezkorovainy, Public Commenter
EPA-HQ-SFUND-2009-0063-0711	Comment, dated July 06, 2009, from Linda Mariano, Archivist, Friends and Residents of Greater Gowanus (FROGG)
EPA-HQ-SFUND-2009-0063-0711.1	Comment attachment, dated July 06, 2009, from Linda Mariano, Archivist, Friends and Residents of Greater Gowanus (FROGG)
EPA-HQ-SFUND-2009-0063-0712	Comment, dated July 15, 2009, from Alejandro Santo Domingo, Managing Director, Quadrant Capital Advisors
EPA-HQ-SFUND-2009-0063-0713	Comment, dated July 08, 2009, from Norman Siegel, Civil Rights Lawyer and Candidate for New York City Public Advocate
EPA-HQ-SFUND-2009-0063-0713.1	Comment attachment, dated July 08, 2009, from Norman Siegel, Civil Rights Lawyer and Candidate for New York City Public Advocate
EPA-HQ-SFUND-2009-0063-0714	Comment, dated July 10, 2009, from David Prestigiacomo, Public Commenter
EPA-HQ-SFUND-2009-0063-0715	Comment, dated July 09, 2009, from Jacqueline Lew, Public Commenter
EPA-HQ-SFUND-2009-0063-0716	Comment, dated June 23, 2009, from Mark Kolman, Public Commenter
EPA-HQ-SFUND-2009-0063-0716.1	Comment attachment, dated June 23, 2009, from Mark Kolman, Public Commenter
EPA-HQ-SFUND-2009-0063-0717	Comment, dated July 08, 2009, from Liz Conley, Public Commenter

EPA-HQ-SFUND-2009-0063-0717.1	Comment attachment, dated July 08, 2009, from Liz Conley, Public Commenter
EPA-HQ-SFUND-2009-0063-0718	Comment, dated July 01, 2009, from Jay C. Shames, Public Commenter
EPA-HQ-SFUND-2009-0063-0718.1	Comment attachment, dated July 01, 2009, from Jay C. Shames, Public Commenter
EPA-HQ-SFUND-2009-0063-0719	Comment, dated June 28, 2009, from Mark Shames, Public Commenter
EPA-HQ-SFUND-2009-0063-0719.1	Comment attachment, dated June 28, 2009, from Mark Shames, Public Commenter
EPA-HQ-SFUND-2009-0063-0720	Comment, dated June 22, 2009, from Mark Fridman, Public Commenter
EPA-HQ-SFUND-2009-0063-0720.1	Comment attachment, dated June 22, 2009, from Mark Fridman, Public Commenter
EPA-HQ-SFUND-2009-0063-0721	Comment, dated June 29, 2009, from Anthony Gozzo, Public Commenter
EPA-HQ-SFUND-2009-0063-0721.1	Comment attachment, dated June 29, 2009, from Anthony Gozzo, Public Commenter
EPA-HQ-SFUND-2009-0063-0722	Comment, dated June 30, 2009, from Maria Reca, Public Commenter
EPA-HQ-SFUND-2009-0063-0722.1	Comment attachment, dated June 30, 2009, from Maria Reca, Public Commenter
EPA-HQ-SFUND-2009-0063-0723	Comment, dated June 30, 2009, from Debra Scotto, Public Commenter
EPA-HQ-SFUND-2009-0063-0723.1	Comment attachment, dated June 30, 2009, from Debra Scotto, Public Commenter
EPA-HQ-SFUND-2009-0063-0724	Comment, dated June 30, 2009, from Theresa Spinelli, Public Commenter
EPA-HQ-SFUND-2009-0063-0724.1	Comment attachment, dated June 30, 2009, from Theresa Spinelli, Public Commenter

2. Site Description

The Gowanus Canal site is located in Brooklyn (Kings County), New York, and consists of the contaminated sediments in the Canal. The Gowanus Canal is a brackish, tidal arm of the New York-New Jersey Harbor Estuary extending for approximately 1.5 miles through Brooklyn, New York. The 100-foot-wide canal runs southwest from Butler Street to Gowanus Bay and Upper New York Bay. The adjacent waterfront is primarily commercial and industrial, currently consisting of concrete plants, warehouses, and parking lots. Surrounding land use also includes residential neighborhoods. The Gowanus Canal is the receiving water body for storm water from approximately 6 square miles of urban land and combined sewer overflow (CSO) discharges during storm events. Figure 1 of the HRS documentation record at proposal shows the site location.

The Gowanus Canal was built in the 19th century to allow access for industrial needs by bulkheading and dredging a tidal creek and wetland that had previously been fished for large oysters. After its completion in the 1860s, the Canal quickly became one of the nation's busiest industrial waterways, home to heavy industry including manufactured gas plants (MGP), coal yards, cement makers, soap makers, tanneries, paint and ink factories, machine shops, chemical plants, and oil refineries. The Canal was also the repository of untreated industrial wastes, raw sewage, and runoff for decades, resulting in it becoming one of New York's most polluted waterways.

Upon construction, the Gowanus Canal was a semi-stagnant body of water due to its narrow width and long reach from the Bay, which limited tidal movement. In 1911, the Gowanus Flushing Tunnel was constructed to bring water into the head of the Canal from the Buttermilk Channel in New York Harbor and increase the movement of water within the Canal. In the 1950s and 1960s, the city's economy moved away from manufacturing, and the Gowanus Canal went from being a busy commercial canal to a heavily polluted waterway surrounded by a dilapidated waterfront. The Gowanus Flushing Tunnel stopped operating in approximately 1960 when the propeller drive shaft was disabled. The Gowanus Flushing Tunnel was repaired and reactivated in April 1999. The City of New York is planning to reduce the combined sewer overflow into the Canal; and the U.S. Army Corp of Engineers (USACE) has investigated the site and has developed possible approaches for remediating the Canal sediments.

Numerous past investigations of varying scope have been conducted within and around the Gowanus Canal. Some of the studies focused on contamination on specific properties, while others focused on the contaminated sediments within the Canal. Analytical results for the April-May 2003 USACE sampling event show that contaminated sediments are located throughout the Gowanus Canal, from location GC-03-30 at the head of the Canal to location GC-03-07 (shown on Figure 1 of the HRS documentation record at proposal) approximately 1.5 miles downstream.

The HRS site evaluation at proposal was based on the identification of the contaminated sediments in the Canal as a source. There are several hazardous substances affecting the Canal sediments, including polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), pesticides, metals, and volatile organic compounds (VOCs). The origin of these hazardous substances in the contaminated sediments has not been identified due to the presence of too many past and present possible sources. As a result, the source(s) of all the contamination in any particular location in the Canal cannot be determined.

The waste quantity for the site was based on the estimated volume of contaminated sediments in the Canal, and was estimated using the results of a sampling event by KeySpan in 2005 and 2006 during which the Canal was sampled at various depths. Only samples that met observed release criteria were used to delineate the volume of contaminated sediments.

Despite pollution problems, some city dwellers use the Gowanus Canal for recreational purposes such as canoeing, diving, and swimming. People also use the Canal for fishing and crabbing for human consumption. The Canal itself and the downstream waters are part of the New York-New Jersey Estuary, designated by EPA as an "Estuary of National Significance" under the National Estuary Program. Downstream of the Canal are the Gateway National Recreation Area—Jamaica Bay Unit, habitat areas for multiple federal and state endangered species, and a unique biotic community, the Lower Hudson River Estuary.

3. Summary of Comments

More than 1,300 commenters submitted comments on the proposed listing of the Gowanus Canal site. Some of the submittals were petitions; others were post cards, emails, and short letters. Only a small number contained multiple policy and technical comments.

More than 1,000 commenters expressed support of the listing, including Valmanette Montgomery, New York Senator; Daniel Squadron, 25th District, New York State Senate; Brad Lander, candidate for New York City Council from the 39th District in Brooklyn; Central Brooklyn Independent Democrats (CBID); Friends and Residents of Greater Gowanus (FROGG); The Urban Divers Estuary Conservancy; Carroll Gardens Neighborhood Association (CGNA); Center for Public Environmental Oversight; New York/New Jersey Baykeeper; and Riverkeeper, Inc. Many commenters indicated support for the listing contingent on the commitment to other activities. A few commenters indicated that they supported listing if necessary but not until all other options had been exhausted or until ongoing studies had been completed.

Fewer than 200 commenters submitted comments opposed to the proposed listing. These commenters included the City of New York and Toll Brothers City Living (Toll Brothers). Other commenters, including Bill de Blasio, Assistant Majority Leader; The Council of the City of New York; and the USACE indicated general support for cleanup activities at the site regardless of the method. Mr. de Blasio questioned Superfund's effectiveness. The Army Corps of Engineers (USACE) expressed willingness to work with EPA on EPA's continuing response efforts associated with the Canal.

Both the City of New York's and Toll Brothers' comments were extensive and dealt with the need for NPL status for the Gowanus Canal and the accuracy of the HRS score for the site. The City of New York's comments included a critique of the HRS score performed by HydroQual Environmental Engineers & Scientists (HydroQual). Toll Brothers also submitted a critique of the HRS evaluation, which had been performed by The ELM Group.

The City of New York stated that it shared the same goal with EPA, "a comprehensive cleanup of the Gowanus Canal, including the cessation of any ongoing discharges of hazardous materials from upland properties." But the City opposed adding the site to the NPL because doing so "would be inconsistent with the Superfund listing criteria, and unwarranted at this time because EPA has not considered viable alternatives to a Superfund listing that would achieve the same result—protection of public health and the environment—sooner and more efficiently than Superfund." The City proposed "an Alternative Cleanup Plan, using EPA's Superfund Alternative ('SA') approach that would cooperatively engage Potentially Responsible Parties ('PRPs'), and continue the already established partnership in the Canal between the City and the U.S. Army Corps of Engineers ('Army Corps')." The City claimed that "its alternative plan will get the Canal clean sooner and more efficiently than Superfund, and avoid the well-known stigma that may come from a Superfund designation in a dense, vital and developing New York City neighborhood."

The City of New York also asserted that a "Superfund listing is unwarranted because EPA has not adequately considered alternatives that would achieve the same result." The City claimed that proposing the site for the NPL runs contrary to EPA's often-stated policy to use Superfund only as a last resort." It commented that EPA never consulted with the City prior to the proposed rulemaking, and that "it appears that EPA did not consider the potential of the City's and the Army Corps' ongoing cleanup efforts…as an alternative to Superfund," and gave several rationales why it considered its alternative more appropriate than placing the site on the NPL.

The City of New York also submitted a set of questions to which the City requested responses prior to the rulemaking and as part of the designation in the event EPA adds the Gowanus Canal site to the NPL. The City requested that the questions be addressed in "EPA's responsiveness Summary for the Public Comments on the NPL." These questions concerned mainly how EPA would work cooperatively with the City, State, and private groups in the Superfund process.

HydroQual submitted a technical review of the HRS evaluation (included as Appendix A of the City's comments) and concluded that "a technically defensible calculation result for an HRS score for the Gowanus Canal site below 28.5, the National Priority List (NPL) threshold was identified" and that there "are also valid reasons other than HRS score alone to delay or defer adding the Gowanus Canal to the NPL." HydroQual commented:

- The identification of the Canal sediments as an HRS source resulted in a "much higher hazardous waste quantity factor as a component of the Canal's HRS score," and instead it should have been identified as an unallocated source; the estimate of waste quantity was based on an assumption that because hazardous substances were found in sediments that this qualified all the sediments as hazardous material; and using an alternative waste quantity factor developed considering the sediment as an unallocated source would result in an HRS site score of 15.
- The identification of contaminated sediments as a source negated the proposed listing because sources of the contamination are known.
- The threat posed by the contamination in the Canal to fisheries has already been addressed by New York State.
- Use of downstream sediment samples as background samples for the Canal shows that the contamination does not pose a threat to downstream water bodies.
- "Alternatives to listing on the NPL may lead to a faster cleanup" and a "review of the NPL finds many sites with long delays of implementation of remedial action."

Toll Brothers commented that a critical component for it and "other reasonable people is that the cleanup be done in a timely fashion." It stated that "[w]e have looked into EPA's record with Superfund sites and have concluded that a Superfund designation of the Canal will not result in a timely cleanup." It stated "[t]he EPA has stated that collecting money from PRPs is something that can be accomplished after the cleanup commences, but because the EPA has no money to begin the cleanup, this is a false premise and the EPA's public statement regarding this point has been disingenuous." Toll Brothers presented a rationale for why it felt that it would take an extremely long time to obtain the money necessary to remediate the site through the Superfund process and, "in the mean time PRPs will be doing everything they can to avoid getting stuck with the bill, delaying cleanup interminably."

Toll Brothers claimed that "EPA's stated goal is simply to dredge the sediment at the bottom of the Canal," and that EPA does not plan to address the raw sewage that runs into the Canal during combined sewer overflow (CSO) events. Toll Brothers argued that CSO discharges should be a focus of the cleanup.

Toll Brothers argued that the City was addressing the CSO issue and that placing the site on the NPL would only delay the City of New York's plans and those of the private sector. It noted that banks and insurance companies had indicated that the prospects of getting loans and insurance policies that would enable development along the Canal would be very difficult to impossible to obtain if the Canal were placed on the NPL.

Toll Brothers commented that it would be a real tragedy to destroy the revitalization of the Canal by the City and private companies that was about to occur. It concluded that it urged EPA to not list the site and to allow the City to proceed with its alternative plan, and if the City is not be able to reach the EPA's goals the EPA reserves the right to list the Canal at any time. Toll brothers asserted that the City should be given the chance to succeed.

The ELM Group submitted comments on the HRS score for the site on behalf of Toll Brooklyn, LP. It commented that the HRS score was based on the assumption that benzo(a)pyrene and polychlorinated biphenyls (PCBs) in the Canal sediments are taken up by fish and invertebrates, which are subsequently eaten by humans, posing an unacceptable health risk. The ELM Group identified "significant shortcomings related to the HRS scoring and supporting documentation utilized by USEPA, which ultimately resulted in an overly conservative risk assessment for the Gowanus Canal." The Elm Group identified these shortcomings as:

- Use of an analytical data set riddled with data quality issues.
- Disregard of available reports that clearly conclude that the fish population in the Gowanus Canal is not distinct from the fish population in the Upper New York Bay, that these fish are exposed to contaminants throughout their home range, that EPA also disregarded available fish tissue data that refutes the level of risk implied by the HRS bioaccumulation factor value, that other reports not reviewed by EPA indicate that contaminant concentrations in fish tissue are lower than many other locations in the Estuary, and that designation of the Canal is unlikely to address concerns regarding contaminant concentrations in fish and invertebrates since organisms found in the Canal will also be exposed to contaminated sediments elsewhere in their home range.
- Recent fish surveys conducted in the Canal by the USACE yielded low catch rates, indicating a general lack of a productive fishery, and that additionally EPA provided no compelling evidence of actual fish consumption from the Canal. Therefore the risk posed by fish from the Canal is limited in nature.
- The inclusion of sediments at depth in the canal in the waste quantity estimate for the site is without scientific basis. Fish and invertebrates are only exposed to surface sediments, so no risk is posed by deep sediments and these sediments should be excluded from the HRS calculation. This would reduce the volume of contaminated sediments "more than 7-fold."
- The PCB concentrations for the site, when properly compared to New York State sediment cleanup criteria, do not exceed the criteria and therefore PCBs should not be considered in the HRS calculation.
- That benzo(a)pyrene is derived primarily from CSOs and former manufactured gas plants (MGPs). Since CSOs are generally not addressed by the CERCLA process, but more properly addressed through existing City plans and clean up of the MGPs is already being conducted under the New York State Cleanup Program, Superfund listing will not provide any additional benefit or result in faster cleanup of the benzo(a)pyrene impacts.
- Classifying the source as type other instead of "unallocated source" would significantly change the hazardous waste quantity and HRS score calculation, and could result in a score lower than the minimum qualifying score of 28.50.

The ELM Group stated that, in summary, the "HRS score significantly overestimates risk to the environment and human population in the vicinity of the Gowanus Canal."

The USACE stated that it "strongly advocates the cleanup of the Gowanus by any available statutory means and stands ready to provide technical assistance." It pointed out that the "Corps has a historic role in the Gowanus through its navigation and channel maintenance authorities, and more recent ecosystem restoration." USACE initiated a cost-shared feasibility study in 2002 with the City of New York under the Water Resource Development Act of 2000 (WRDA). It also signed with EPA a Memorandum of Understanding to facilitate cooperation between the two agencies in addressing activities pursuant to the CWA, RCRA, CERCLA and the WRDA. It also noted that the Gowanus Canal is designated as one of eight pilot projects for the purpose of coordinating urban river cleanup and restoration in the Urban Rivers Restoration Initiative (URRI).

The USACE also stated that "[s]hould the Gowanus not be designated a Federal Superfund site, the Corps (with non-Federal sponsor support) will continue to pursue a project using 312B environmental dredging authority."

Riverkeeper, Inc. submitted comments in favor of listing stating "Superfund designation is the only way to achieve an efficient and manageable cleanup of the canal and the city's alternative is not feasible. Without Superfund, the tools and funding would be lost, and few advantages (if any) gained." In support of their statements, Riverkeeper, Inc., cited Congresswoman Nydia Velazquez (whose district contains Gowanus Canal) who questioned the likelihood of funding for the City's alternative plan.

A number of parties suggested in their comments that the City's alternative approach to cleanup be used at the Gowanus Canal site. The Agency had numerous discussions with the City of New York and other stakeholders regarding the City's proposal for an alternative cleanup approach at this site. The Agency has considered this proposal carefully, as discussed in detail in later sections of this support document, but has determined that neither the City's proposed alternative approach or a Superfund Alternative (SA) approach are appropriate at the Gowanus Canal site. A list of these meetings is appended as Attachment 1.

In this support document, EPA provides additional detail on and responses to all public comments received in response to the Gowanus Canal site listing proposal.

3.1 Support for Listing and General Opposition Comments

Comments: EPA received correspondence from more than 1,300 commenters on the proposed listing. More than 1,000 commenters expressed support of the listing, fewer than 200 commenters expressed opposition to the listing, and other commenters expressed support for cleanup of the site regardless of the method.

Support of Listing
Those commenters in support of listing included Valmanette Montgomery, New York Senator; Daniel Squadron, 25th District, New York State Senator; Brad Lander, candidate for New York City Council from the 39th District in Brooklyn; Central Brooklyn Independent Democrats (CBID); Friends and Residents of Greater Gowanus (FROGG); The Urban Divers Estuary Conservancy; the Carroll Gardens Neighborhood Association (CGNA); the Center for Public Environmental Oversight; the New York/New Jersey Baykeeper; and Riverkeeper, Inc.

Commenters who supported the listing cited various reasons for their support as summarized below.

- FROGG; Riverkeeper, Inc.; and other commenters cited the polluted nature of the site. Several commenters stated that they had viewed chemical sheens on the surface of the water in the Canal and/or had seen other visible evidence of pollution in the area. Several commenters discussed the malodorous conditions associated with the site.
- Valmanette Montgomery, New York Senator; FROGG; The Urban Divers Estuary Conservancy; Riverkeeper, Inc.; CBID; and other commenters indicated support for listing due to the public health concerns associated with the site. Several commenters indicated concerns relating to water, soil, air, and food contamination and the health effects from short-term or long-term exposure to the site. Several commenters discussed concerns over the health and well-being of the children near the Canal. Several commenters expressed concern over the well-being of the ecology and animals in contact with the Canal. Some commenters indicated that they have knowledge of illnesses that resulted from exposure to the site or the pollution associated with it. M. Lindley indicated that the numerous low-income neighborhoods that border the site are the least financially able to protect themselves from the contamination.
- Commenters cited concern over weather and climate phenomena, and their potential effect on the site. Commenters were concerned with the effects of future rainfall and sea-level rise and the possibility of flooding on the banks of the Canal, as well as the likelihood of a hurricane impacting the site and spreading pollution.
- The Center for Public Environmental Oversight; Riverkeeper, Inc.; and other commenters indicated support for listing due to the sewer and infrastructure problems associated with the Canal. Several commenters discussed the problem of combined sewer overflow (CSO) events, and the issue of sewage discharge and the condition of the bulk-heads.
- CGNA and other commenters cited the history of environmental neglect of the site. Commenters were concerned over the neglect of the Canal from various entities including the city, state, Federal government, and polluters.
- FROGG, New York/New Jersey Baykeeper, CBID, and other commenters cited concerns over development on polluted land or partially remediated land. Certain commenters had specific concerns over the rezoning of the area and the resulting residential development.
- FROGG, The Urban Divers Estuary Conservancy, CBID, and other commenters cited the nature and complexity of the problems associated with the site, and the previously failed efforts to mitigate the problems.
- Riverkeeper, Inc., and other commenters asserted that only Superfund and/or EPA will be able to address remediation of such a complex site. Commenters stated that Superfund can ensure thorough cleanup and accountability, and that EPA can maintain continuous cleanup operations at the site. Commenters indicated that Superfund has the legal means to enforce proper cleanup of the site.
- Daniel Squadron, 25th District, New York State Senator; New York/New Jersey Baykeeper; Riverkeeper, Inc.; and other commenters cited concern over the City and/or developers' involvement and their alternative approach to cleanup. Commenters expressed concern over the City's environmental management of other projects or problems. Commenters expressed concern over the City and/or developers' motives in cleanup involvement, the adequacy of the City's proposed cleanup plan, and its effectiveness at comprehensive remediation. Several commenters indicated that the City and/or developers were weighing development profits over public health concerns.
- FROGG and other commenters cited concern over future development of the area. Commenters expressed concern over new development straining the infrastructure and ecosystem of the area.
- The Urban Divers Estuary Conservancy, FROGG, and other commenters cited the benefits of cleanup. Commenters discussed the positive impact that a thorough cleanup would have on property values. Commenters indicated that long-term benefits outweigh the short-term issues related to designation as a Superfund site. Commenters indicated that cleanup would have a positive impact on

water quality, ecological quality, and recreational opportunities. Commenters discussed the historical significance of the Gowanus Canal and the benefits of preserving the Canal and surrounding area.

Support of Cleanup by Any Method
Bill de Blasio, Assistant Majority Leader, The Council of the City of New York; the United States Army Corps of Engineers (USACE); and other commenters indicated general support for cleanup activities at the site regardless of the method. Bill de Blasio questioned Superfund's effectiveness in cleaning urban waterways.

General Opposition to Listing
Commenters, including Salvatore Scotto, a resident of the Caroll Gardens community and local business owner, expressed general opposition to the listing, citing various concerns as summarized below:

- Mark Shames, member of the Environmental Protection Committee and Land Use Committee of Brooklyn Community Board 6, commented on EPA's lack of attendance at public meetings, except for one meeting which he charges was held at a location set up to promote the most radical fringe of the community.
- Commenters questioned the availability of funding for Superfund.
- Commenters expressed concern over the loss of jobs that they felt would be associated with NPL listing of the site.
- Commenters cited concern over lengthy litigation as a result of placing the site on the NPL.
- Commenters cited concern over EPA's failure to consult with local elected officials prior to Superfund proposal.

Response: EPA has added the Gowanus Canal site to the NPL. Listing makes a site eligible for remedial action funding under CERCLA, and EPA will examine the site to determine what response, if any, is appropriate. Actual funding may not necessarily be undertaken in the precise order of HRS scores, however, and upon more detailed investigation, may not be necessary at all in some cases. The need for using Superfund monies for remedial activities will be determined on a site-by-site basis, taking into account the NPL ranking, State priorities, further site investigation, other response alternatives, and other factors as appropriate. EPA will not stop work at some sites to begin work at other higher-scoring sites added to the NPL more recently.

The comments in general opposition to listing are addressed in EPA's responses to the detailed comments opposing the listing which are contained in this support document.

3.2 Evaluation of Other Pathways

Comment: Eric A. Goldstein, Senior Attorney, and Carolyn Kelly, Legal Intern, Natural Resources Defense Council, Inc. (NRDC) commented that EPA did not take into account other pathways in completing the HRS scoring for the site.

Response: The HRS does not require scoring all four pathways if scoring those pathways does not change the listing decision. For some sites, data for scoring a pathway are unavailable, and obtaining these data would be time-consuming or costly. In other cases, data for scoring a pathway are available, but scoring the pathway would only have a minimal effect on the site score and would not affect the listing decision. In still other cases, data on another pathway could substantially add to a site score, but would not affect the listing decision. The HRS is a screening model that uses limited resources to determine whether a site should be placed on the NPL for possible Superfund response. A subsequent stage of the Superfund

process, the remedial investigation (RI), characterizes conditions and hazards at the site more comprehensively.

To the extent practicable, EPA attempts to score all pathways that pose a significant threat. If the contribution of a pathway is minimal to the overall score, in general, that pathway will not be scored. In these cases, the HRS documentation record may include a brief qualitative discussion to present a more complete picture of the conditions and hazards at the site. As a matter of policy, EPA does not delay listing a site to incorporate new data or to score new pathways, if the listing decision is not affected.

EPA must balance the need to fully characterize a site with the limited resources available to collect and analyze site data. For this reason, EPA generally will not score additional pathways upon receiving new data as long as the site still meets the HRS cutoff score. However, any additional data characterizing site conditions could provide useful information during the RI.

The HRS is intended to be a "rough list" of prioritized hazardous sites; a "first step in a process--nothing more, nothing less" *Eagle Picher Indus. v. EPA*, 759 F.2d 922, 932 (D.C. Cir. 1985) (Eagle Picher II). EPA would like to investigate each possible site completely and thoroughly prior to evaluating a site for proposal to the NPL, but EPA must reconcile the need for certainty before action with the need for inexpensive, expeditious procedures to identify potentially hazardous sites. The courts have found EPA's approach to solving this conundrum to be "reasonable and fully in accord with Congressional intent."

3.3 Request for Extension

Comment: Bill de Blasio, Assistant Majority Leader and Council Member of the Council of the City of New York, commented, "[m]any civic associations, government agencies and community groups are expected to submit comments to the EPA." He requested, "Since there was no prior notice to the listing will the EPA extend the comment period an additional 30 days? This will allow for more time for interested parties to conduct research and provide well-informed comments."

Response: EPA granted a 30-day extension to the comment period. The extension was documented in a memorandum to the docket from Terry Jeng, Site Assessment & Remedy Decisions Branch, dated May 4, 2009 [EPA-HQ-SFUND-2009-0063-0041]. The extension was also documented in a letter to Councilman Bill de Blasio, the Council of the City of New York, from George Pavlou, EPA Region 2 – Acting Regional Administrator, dated May 22, 2009.

3.4 Extent of Site

Comment: Commenters questioned or commented on the physical extent of the proposed site. HydroQual, Inc., stated that "while upland sources, such as soils, may have contributed to contamination in the Canal sediments, such upland areas are not part and parcel of an NPL designation for the Canal. If upland areas are to be considered, they should be viewed in the context of separate upland sites."

The City of New York (referred to herein as the City) inquired whether EPA will send CERCLA 104(e) notice letters to local homeowners and businesses to determine if their properties are sources of ongoing discharge into the Canal; if so, the City requested that EPA explain how these properties will be identified and indicate when the notices will be sent.

The City asserted that only the Canal is currently proposed for the NPL, and inquired whether listing of the Canal would affect "remediation of any contaminated upland sites (*e.g.*, those sites currently in State cleanup programs)."

The City asked whether EPA will perform remedial investigations of upland properties along the Canal and, if so:

- How far inland from the Canal does EPA plan to extend its upland investigation?
- What criteria will EPA use to select upland properties for investigation?
- What would these investigations consist of and how long does EPA anticipate they would take?

The City further inquired whether contaminated upland sites might be added to the NPL as a result of listing the Canal and, if so:

- If upland contaminated sites are found to be discharging contamination to the Canal, will such properties be added to Gowanus NPL listing or added to the NPL as new sites?
- Will such upland sites become New York State Superfund sites?

Response: Placing a site on the NPL is based on an evaluation, in accordance with the HRS, of a release or threatened release of hazardous substances, pollutants, or contaminants. However, the fact that EPA initially identifies and lists the release based on a review of contamination at a certain parcel of property does not necessarily mean that the site boundaries are limited to that parcel.

> CERCLA Section 105(a)(8)(A) requires EPA to list national priorities among the known "releases or threatened releases" of hazardous substances; thus, the focus is on the release, not precisely delineated boundaries. Further, CERCLA Section 101(a) defines a "facility" as the "site" where a hazardous substance has been "deposited, stored, placed, or otherwise come to be located." The "come to be located" language gives EPA broad authority to clean up contamination when it has spread from the original source.

The revised HRS (55 FR 51587, December 14, 1990) elaborates on the "come to be located" language, defining "site" as "area(s) where a hazardous substance has been deposited, stored, disposed, or placed, or has otherwise come to be located. Such areas may include multiple sources, and may include the area between the sources."

On April 9, 2009 (74 FR 16165), EPA stated:

> The NPL does not describe releases in precise geographical terms; it would be neither feasible nor consistent with the limited purpose of the NPL (to identify releases that are priorities for further evaluation), for it to do so. . . . [T]he HRS inquiry focuses on an evaluation of the threat posed and therefore the boundaries of the release need not be exactly defined. Moreover, it generally is impossible to discover the full extent of where the contamination 'has come to located' before all necessary studies and remedial work are completed at a site. . . .During the RI/FS [remedial investigation/feasibility study] process, the release may be found to be larger or smaller than was originally thought, as more is learned about the source(s) and the migration of the contamination. . . . [T]he known boundaries of the contamination can be expected to change over time.

Until the site investigation process has been completed and a remedial action (if any) selected, EPA can neither estimate the extent of contamination at the site, nor describe the ultimate dimensions of the NPL site. Even during a remedial action (e.g., the removal of buried waste), EPA may find that the contamination has spread further than previously estimated. In addition, if another, unrelated area of

contamination is discovered elsewhere on the property, EPA may decide to evaluate that release for the NPL.

The questions of how far inland from the Canal EPA will extend its upland investigation, the criteria EPA will use to select upland properties for investigation, what these investigations will consist of, and how long these investigations will take would be addressed in planning RI/FS activities; these questions are not a factor in listing. Later investigative activities may prove that the releases extend to upland areas.

3.5 Non-listing Activities

Comments: Multiple commenters, including Valmanette Montgomery, New York Senator; Daniel Squadron, 25th District, New York State Senate; Bill de Blasio, Assistant Majority Leader, The Council of the City of New York; Brad Lander, candidate for New York City Council from the 39th District in Brooklyn; FROGG; CGNA; Center for Public Environmental Oversight; New York/New Jersey Baykeeper; and Riverkeeper, Inc., requested information on activities that typically are associated with or follow placing a site on the NPL, but are not part of the listing process. These requests covered a variety of topics, including determining the breadth of the investigation, determining site-specific risk, selection of remedial actions, identification of potentially responsible parties (PRPs), financing the cleanup, public participation, coordination with local and State governments, protection of innocent landowners, effects on prospective purchasers, estimate of timelines for project activities, use of local contractors in further efforts, and coordination with preexisting city, state, and other federal agency projects. Specific non-listing topics raised by the commenters are listed below.

- The need for proper cleanup to be completed before further development takes place at the site.
- The need for EPA to work with other agencies during cleanup activities.
- That cleanup activities should address the problem with CSOs, and the infrastructure problems associated with them.
- Concern over the lengthy/difficult litigation associated with pursuing PRPs.
- Concerns over the source and/or availability of funding for a Superfund cleanup of the site.
- That plans be comprehensive, and/or should address the methodology for preventing future contamination of the site.
- That improvements in the environment be implemented as a part of the cleanup.
- That cleanup of the site address local brownfields.
- That current and future rainfall data be used when addressing storm water planning or contaminant concentrations in runoff.
- That cleanup activities begin as soon as possible.
- That current businesses and/or landowners utilize existing structures.
- That cleanup activities be minimally invasive to residents of the area.
- That remediation activities not interfere with cleanup and/or infrastructure projects already underway at the site.
- That local contractors be utilized in cleanup or remediation efforts.
- That EPA determine the breadth of the investigation, including upland areas.
- That transparency and public participation be a part of cleanup activities and investigations.
- That EPA explain the process for selecting potentially responsible parties.

The City asked several questions in Appendix B to its comments, and requested that all of these questions be answered prior to listing.

Resources
The City asked what resources and staff EPA plans to allocate to the Gowanus Canal project and whether funding is available for additional resources.

Performance of Risk Assessment
The City asked several questions regarding site-specific risk assessment at the site:

- Will EPA promptly assist the City in scoping and completing a baseline human health risk assessment of the Canal?
- Will EPA provide written assurances to the City, based on the baseline human health risk assessment, that will be designed in collaboration with the EPA, that such analysis is sufficient to address public concerns about the safety of residential development and public open space prior to construction of the remedy for the Canal?
- Will EPA issue a certification to the City, as required by HUD for federal funding, that Public Place is safe for human occupancy?

Selection of Remedial Actions
The City asked several questions regarding remedial action selection:

- If the Canal is listed on the NPL, will EPA request that the Army Corps participate in the remedial investigation, feasibility study, and remediation of Canal sediments? . . . Will EPA agree to a joint plan with the Army Corps under WRDA [Water Resources Development Act]? . . . Will EPA urge NYS DEC [New York State Department of Environmental Conservation] to agree to such a joint plan?
- Since a listing will focus on Canal sediments and dredging the sediments is likely the remedial action, how will remediation of sediments under a traditional Superfund approach be different than the remediation that the City proposes under the Alternative Cleanup Plan?
- Once cleanup is complete, does EPA contemplate that engineering and/or institutional controls will be placed on the Canal or upland sites?
- What are the likely long term costs of implementing, maintaining, monitoring and enforcing such controls?
- Will EPA fund the long term costs of maintaining and monitoring these controls? If so, for how long?
- If not, will the State pay for these controls or will the funds come from PRPs?

Mr. Bob Zuckerman asked "[h]ave specific goals and tasks for cleanup of the Canal been set by the EPA? If so, what are they, and if not, when can we expect to have them?" and "[w]hat role will the Army Corps of Engineers play in the cleanup under Superfund?"

ELM stated that "[t]he Gowanus Canal environmental issues must be managed in a manner that encourages ongoing commercial and residential revitalization efforts already underway along its shores."

Coordination with City and State
The City asked several questions regarding EPA's role and its coordination with the City and state in further site activities:

- If the Canal is listed on the NPL, what role does EPA anticipate the City will play in its decision making process?
- Will EPA allow the City to participate in scoping the RI/FS and conducting the RI/FS?
- Will EPA allow the City to review all draft documents before they are finalized?
- Will the City have input into EPA's remedial decision?
- If a removal action is considered a non-time critical removal, necessitating an Engineering Evaluation/Cost Analysis, will EPA commit to including the City and other PRPs in this process?

Mr. Bob Zuckerman asked whether being designated a Superfund site would lead to greater coordination between local, state and federal agencies involved in the cleanup than currently exists, and, if so, how?

Financing Cleanup
The City asked several questions regarding financing of cleanup actions:

- Will EPA spend money immediately on a Canal investigation and selection of a remedy or will it wait for PRP funding?
- Is EPA willing to contribute funding to the investigation and selection of a remedy under the Alternative Cleanup Plan?
- If there is an "orphan" share for the Canal or upland sites, how does EPA plan on funding this portion of the cleanup?
- If orphan share appropriations are required by EPA, will the Canal be a top EPA Region 2 priority?
- If PRPs cannot decide on how to allocate remediation costs among themselves, what actions will EPA take to resolve this roadblock?
- Would EPA litigate to force PRPs to allocate remedial costs?
- Would EPA urge parties to engage in Alternate Dispute Resolution?
- How long could this process delay Canal cleanup?

Mr. Bob Zuckerman asked, "[w]hat will happen to the 175 million dollars the City has set aside for upgrades to the flushing tunnel and pumping station if the Canal is designated a Superfund site?" Mr. Zuckerman stated that "[c]leanup of the Gowanus Canal will be extraordinarily expensive. Estimates are in the several hundreds of million dollars. Given the lack of funding for Superfund, how can we be assured that proper funding will be in place for the cleanup if the Canal is designated as a Superfund site?"

One commenter, Brad Lander, candidate for New York City Council from the 39th District in Brooklyn, indicated that listing the site should provide a framework where PRPs and landowners can enter into consent decrees that allow them to satisfy liability requirements.

Public Participation
The City asked several questions regarding public participation in the process:

- How long will it take for community groups on the Canal to obtain a Technical Assistance Grant?
- How large are Technical Assistance Grants?
- Can EPA award multiple TAG grants to different recipients at the same NPL site?

- What criteria does the federal government use to decide which groups are eligible to obtain TAG grants?

Coordination with Preexisting Remediation Projects
The ELM Group stated that:

> The Superfund process is not intended to address CSO-related impacts, and in fact, the City of New York has a detailed proposal in place to upgrade sewer systems by 2012 (NYCDEP [New York City Department of Environmental Protection], 2007). The City's proposal includes increasing the capacity of the Flushing Tunnel from 154 mgd to 215 mgd, installing 4 new pumps at the Gowanus Pump Station, replacing the force main inside the Flushing Tunnel, and diverting flow from the Bond-Lorraine Sewer to the Columbia Street Interceptor. These measures are projected to reduce the annual volume of CSO discharges to the Canal by 34% (NYCDEP, 2007). In addition, the MGP sites are already subject to a consent agreement between Keyspan / National Grid and the New York State Department of Environmental Conservation, which requires that MGP-derived waste be thoroughly characterized and remediated consistent with State standards.

The City commented that "a combined CERCLA/WRDA approach is particularly appropriate, and could encourage voluntary participation of responsible parties to address contaminants that are attributable to a specific source."

ELM stated that "[e]levated PAH concentrations in shallow sediments are derived largely from CSO discharges, and these types of impacts are more appropriately addressed through the City CSO upgrade plan."

Protection of Innocent Landowners
The City asked whether EPA will "move promptly to exempt potential responsible parties who have not contributed in any significant way to the cost of response action or natural resource restoration, including homeowners, residential tenants, and businesses connected to city sewers for treatment of sanitary waste only, from CERCLA liability? If so, what is the process and schedule for EPA to work with these parties to shield them from CERCLA liability upon the addition of the Canal to the NPL?"

Prospective Purchasers
The City asked several questions regarding land purchase:

- Will EPA commit to assisting in the advancement of land transactions, and to meet with prospective buyers and prospective tenants to instruct them in their efforts to obtain bona fide prospective purchaser status?
- Will EPA provide written advice to prospective buyers and tenants around the Canal on specific All Appropriate Inquiries they should follow prior to taking title to real property?
- Will EPA issue written assurances to prospective buyers and tenants that EPA will not pursue future enforcement action under CERCLA against such parties if those parties comply with specific All Appropriate Inquiries before taking title to real property around the Canal?
- Will EPA review All Appropriate Inquiry documents and provide letters to prospective buyers and tenants stating that EPA will not take enforcement action against individual buyers and tenants?

- Will EPA issue written assurances to Bona Fide Prospective Purchasers that EPA will not place a Cercla § 107(r) "windfall lien" for unrecovered response costs on the property?

Timelines
Mr. Bob Zuckerman asked whether a timeline has been established for goals and tasks of the cleanup, and if not, when it will be established.

Response: Considerations regarding remedy selection, implementation, and funding are not factors in the decision to list a site on the NPL and these decisions are not made at the listing stage. Therefore, the commenters' questions on these topics would be addressed during later stages of the Superfund process as these activities typically occur after listing. Listing of a site simply informs the public that EPA has determined that the site poses sufficient threat to human health and the environment to warrant further investigation. It does not predetermine the response actions. The Superfund process offers numerous opportunities for public participation at NPL sites, in addition to commenting on site listing proposals, which are available to the commenters and all of the public.

To the extent practicable, the EPA Regional Office develops a Community Relations Plan (CRP) before RI/FS field work begins. The CRP is the "work plan" for community relations activities that EPA will conduct during the entire cleanup process. In developing a CRP, Regional staff interview State and local officials and interested citizens to learn about citizen concerns, site conditions, and local history. This information is used to formulate a schedule of activities designed to keep citizens apprised and to keep EPA aware of community concerns. Typical community relations activities may include:

- Public meetings at which EPA presents a summary of technical information regarding the site and citizens can ask questions or comment.
- Small, informal public sessions at which EPA representatives are available to citizens.
- Development and distribution of fact sheets to keep citizens up-to-date on site activities.

For each site, an "information repository" is established, usually in a library or town hall, containing reports, studies, fact sheets, and other documents containing information about the site. The EPA Regional Office continually updates the repository and ensures that the facility housing the repository has copying capabilities.

After the RI/FS is completed and EPA has recommended a preferred cleanup alternative, the EPA Regional Office sends to all interested parties a Proposed Plan outlining the cleanup alternatives studied and explaining the process for selection of the preferred alternative. At this time, EPA also begins a public comment period during which citizens are encouraged to submit comments regarding all alternatives. After the public comment period ends, EPA develops a Responsiveness Summary, which contains EPA responses to public comments. The Responsiveness Summary becomes part of the Record of Decision (ROD), which provides official documentation of the remedy chosen for the site.

EPA makes every attempt to ensure that community relations is a continuing activity designed to meet the specific needs of the community. Anyone wanting information on a specific site should contact the Community Relations staff in the appropriate EPA Regional Office.

Regarding comments on the protection of innocent landowners, as explained in the proposed rule in Section I. F, Does the NPL Define the Boundaries of Sites? (74 FR 16165):

> NPL listing does not assign liability to any party or to the owner of any specific property. Thus, if a party does not believe it is liable for releases on discrete parcels of property, it can submit supporting information to the Agency at any time after it receives notice it is a potentially responsible party.

PRPs include current owners or operators of a facility, former owners or operators of the facility if they owned it at the time of waste disposal activities, those who arranged for the treatment or disposal of hazardous substances at the facility, and transporters of hazardous substances to the facility. While sources of contamination located adjacent to the Canal will likely need to be addressed to prevent re-contamination of the Canal, at this time, EPA has no reason to believe that there are any sources present in residential areas in the vicinity of the Canal. Furthermore, residential property owners and residential tenants with no relation to the facility are not generally considered PRPs. See CERCLA Section 107(q) and EPA's July 3, 1991, "Policy Towards Owners of Residential Property at Superfund Sites," available on EPA's website, www.epa.gov. Hence, EPA does not intend to pursue residential property owners or tenants at the Canal for the cost of investigating or cleaning up the contamination at the site. EPA's policies regarding the non-liability of residential property are available on EPA's website.

While it is unlikely that businesses connected to the sanitary sewer will have CERCLA liability attributable to this discharge, depending on the nature of a company's operations, it is possible that some businesses may have CERCLA liability attributable to discharges that predate treatment. It is EPA's policy to settle with smaller parties, known as *de minimis* and *de micromis* parties, in an expeditious manner. EPA's policies regarding *de minimis* and *de micromis* party settlements are also available on EPA's website.

Regarding prospective purchaser comments, the 2002 amendments to CERCLA regarding bona fide prospective purchasers, in combination with EPA's regulations and guidance on "All Appropriate Inquiries," provide property buyers with detailed information on how to qualify for this exemption. Property buyers can refer to EPA's website for this information. In addition, Gowanus Canal area prospective property purchasers and tenants can contact EPA for further guidance related to their specific situations. EPA does offer non-binding comfort letters, where appropriate, to provide additional information to property owners regarding known conditions. EPA does not issue letters stating that it will not seek to recover unreimbursed response costs by use of a windfall lien under Section 107(r) of CERCLA. Whether EPA will seek to recover unreimbursed response costs will depend on the circumstances of a particular property. EPA's recovery is, however, limited by law to the lesser of the increase in fair market value attributable to EPA's response actions at the property or EPA's outstanding costs.

3.6 Site-specific Risk

Both The Elm Group and HydroQual questioned the unacceptability of the risk posed by contamination in the Gowanus Canal. Both insisted that the HRS score exaggerated the risk and that the State of New York has already addressed the risk posed via the surface water migration pathway human food chain threat.

The ELM Group stated:

> ELM recognizes that the determination of an HRS score is a simplified conservative process for screening potentially eligible sites for inclusion on the NPL. However, the Gowanus Canal has unique physical, chemical, and biological attributes that must be evaluated on an integrated, site-specific basis to obtain a true understanding of potential

> risk, a process that is discouraged by the highly generic and formulaic calculations employed in the preparation of an HRS score.

The ELM Group more specifically stated that:

> USEPA evaluated only the Surface Water Pathway, specifically the Human Food Chain Threat. The final score calculated by USEPA is founded on the assumption that benzo(a)pyrene and polychlorinated biphenyls (PCBs) in the Canal sediments are taken up by fish and invertebrates, which are subsequently eaten by humans, posing an unacceptable health risk. ELM has identified the following significant shortcomings related to the HRS score and supporting documentation utilized by USEPA, which ultimately resulted in an overly conservative risk assessment for the Gowanus Canal.

The ELM Group claimed that:

> [t]he USEPA disregarded available reports that clearly conclude that the fish population in the Gowanus Canal is ***not*** distinct from the fish population in the Upper New York Bay. These migratory fish are exposed to contaminants throughout their home range, as sediment contamination is widespread in the greater Hudson-Raritan Estuary. USEPA also disregarded available fish tissue contaminant data that refutes the level of risk implied by the Bioaccumulation Potential Factor Value. Data for the Upper New York Bay from other available reports not reviewed by USEPA indicate that contaminant concentrations in fish tissue are lower than many other locations within the Hudson-Raritan Estuary. Superfund designation of the Gowanus Canal is unlikely to address concerns regarding contaminant concentrations in fish and invertebrates, since organisms found in the Canal will also be exposed to contaminated sediment elsewhere in their home range.

The ELM Group asserted that:

> [r]ecent fish surveys conducted in the Canal for the US Army Corps of Engineers (USACE) yielded low catch rates, indicating a general lack of a productive fishery. Additionally, USEPA provides no compelling evidence of actual fish consumption from the Canal. The actual risk posed by fish from the Gowanus Canal is therefore limited in nature.

The ELM Group added that:

> [a]nalytical results for deep sediment (up to 40 feet below the Canal bottom in some instances) were included in the determination of "hazardous waste quantity" – another value factored into the HRS Score. There is no scientific basis for inclusion of sampling results from such depths; fish and invertebrates are only exposed to the surficial sediments in the Canal, so no risk is posed by the deep sediments and they should be excluded from the HRS calculation.

The ELM Group asserted that:

> compliance with NY State Department of Health fish advisories by fishermen should mitigate risk associated with limited consumption of contaminated fish.

The Elm Group continued, commenting that:

> the single exposure pathway considered in the HRS calculation for the Gowanus Canal, i.e., fish and crab consumption, was assumed to be a complete pathway that generates unacceptable risk. This assumption is not supported by existing scientific information regarding consumption rates. Furthermore, consideration of actual fish contaminant data from the Upper New York Bay, to which the Gowanus Canal is a tributary, rather than reliance on conservative bioaccumulation factors that were not scientifically based, indicates that the potential risk associated with fish consumption in the Canal is no greater than consumption of fish caught anywhere else in the Upper New York Bay. . . . The generalized and formulaic approach allowed by the HRS process significantly overestimates risk to human and ecological populations in and around the Gowanus Canal. This may be appropriate where there is no access to actual data or no alternative mitigation measures to protect human health or prevent wildlife exposure exist, but is inappropriate here where site-specific data is readily available from numerous sources, several pathways to address contamination in the Canal are already in place, and existing State fishing advisories are in place to protect human health.

The ELM Group added:

> USEPA fails to consider site-specific sediment characteristics (TOC [total organic carbon], sulfides) and fish tissue and population data that indicate that sediments in the Canal pose limited risk to the fish population.

The ELM Group concluded that "a detailed analysis of available data and consideration of site-specific conditions indicates that the HRS score calculated by USEPA significantly overestimates risk to the environment and human population in the vicinity of the Gowanus Canal."

The ELM Group "developed a conceptual site model (CSM) for the Gowanus Canal based on existing data, and urges the USEPA to consider the CSM and the resulting risk evaluation in its determination for NPL listing."

HydroQual stated that:

> The Gowanus Canal is a portion of the Upper New York Bay. The New York State Department of Health, Chemicals in Sport Fish and Game Fish 2008-2009 Health Advisory for Upper New York Bay for PCB protection suggests human fish consumption is safe at 32 pounds per year, roughly the same consumption levels scored in the Gowanus Canal HRS (i.e., 0 to 100 pounds). The HRS does not reflect that the threat from this pathway has already been addressed by New York State.

HydroQual continued:

> The New York State advisory is based upon more criteria than the HRS, including testing of fish. There appears to be a contradiction between the safety the State Health Advisory implies and the risk scored in the HRS.

Response: The HRS is not a site-specific risk assessment; rather, it is a screening tool for identifying sites that pose sufficient actual or potential risk to warrant further investigation. In the preamble to the HRS, EPA stated:

> The Agency stresses that the limited data generated at the SI stage are designed to support site screening, and are not intended to provide support for a quantitative risk assessment. (55 FR 51541, December 14, 1990)

A site-specific risk assessment will be performed as part of the Superfund response process that occurs after the listing process is completed. At that time, EPA will consider the information provided by the commenters regarding actual, site-specific risk. The results of the risk assessment will be considered when remedial options at the site are selected.

The commenters' concern that the HRS score has inflated the risk of the site is addressed in later sections of this support document, which address technical scoring issues.

3.7 Alternatives to Listing

Comment: The City asserted that listing is unwarranted because "EPA has not considered viable alternatives to a Superfund listing that would achieve the same result." The City claimed that "EPA's apparent rush to list the Canal runs contrary to its often-stated policy to use Superfund only as a last resort for the remediation of hazardous sites." The City continued, "EPA's Narrative Summary for the proposed listing asserts that '[n]o options for cleanup other than [an NPL] listing are viable,' but no support is provided for this conclusion, such as evidence of what, if any alternatives the Agency considered."

The City asserted "it appears that EPA did not consider the potential of the City's and the Army Corps' ongoing cleanup efforts pursuant to the joint EPA/Army Corps Urban Rivers Restoration Initiative ('URRI') to restore and remediate the Canal, as an alternative to Superfund." The City suggested this approach would be appropriate for the Gowanus Canal, and noted the City's cooperation with the Army Corps of Engineers has continued from the beginning of its Ecosystem Restoration Reconnaissance Study in 2000. The City stated that "the Feasibility Study ('FS') sponsored jointly with the NYC DEP that had been underway since 2002 has been suspended as a result of EPA's proposed listing." The City claimed that listing the site on the NPL may risk the City's partnership with the Army Corps (current and planned work), and federal funding that may be associated with that partnership.

The City proposed an alternative approach cleanup plan that it claims would achieve a "Superfund-caliber remediation sooner and more efficiently." This plan would include participation of New York City, the U.S. Army Corps of Engineers, and EPA, and would be subject to EPA oversight. In this plan, the City would "seek cooperative participation of PRPs" and "pursue Federal funding under the Water Resources Development Act ('WRDA') to supplement responsible-party contributions." The City noted that "[t]he Army Corps has expressed a strong interest in continuing its partnership with NYC DEP in the Canal," and that "the City and National Grid, as PRPs, will work together to reach an agreement to fund and complete the Remedial Investigation ('RI') and FS necessary for the Canal." The City stated that "the City's proposal meets all of the SA eligibility criteria and, by taking advantage of the City's ongoing partnership with the Army Corps, will eliminate public health and environmental exposures to contaminants sooner and more efficiently than a Superfund listing."

The City asserted:

> The City's substantial remedial capacity, and willingness to enter into binding agreements with EPA to ensure cleanup of the Canal, are additional reasons for the EPA to consider the SA approach in this case—and avoid the potential stigma and protracted battle over liability that could frustrate or delay Superfund cleanup of a complicated site like Gowanus Canal.

The City stated:

> WRDA offers a powerful alternative to Superfund for restoration and remediation of complex urban waterways like the Gowanus Canal. The Canal has multiple contaminants and multiple contaminant pathways, and there is a strong possibility that a significant portion of those contaminants will be unallocable to responsible parties (i.e., that there will be an orphan share(s)). These facts, and the identification of the Canal as a pilot site under the EPA/Army Corps Urban Rivers Restoration Initiative, make the Canal particularly well suited for the combined WRDA/CERCLA approach that is the core of the City's Alternative Cleanup Plan.

The City claimed that adoption of the alternative cleanup plan would avoid jeopardizing Gowanus Canal's status as a URRI pilot program, the possibility of WRDA funding, and the City's partnership with the Army Corps of Engineers.

The City noted that EPA's *Results of the Superfund Alternative Approach Evaluation* (Sept. 2007) states:

> EPA Regional attorneys and Regional project managers expressed strong interest in the SA because of the benefits associated with avoiding an NPL listing . . . Project Managers in regions with existing SA sites have expressed strongly favorable opinions of its usage. Quotes include:
> - 'The alternative approach gets the project started faster since time is not wasted on the listing process.' (Region 5)
> - 'The SA helped break a log jam.' (Region 3)
> - 'SA approach should allow you to proceed to the investigation and cleanup phases much faster than if the site is being proposed to the list.' (Region 4)
> - 'SA approach is very similar to Superfund. We still follow CERCLA legislation, and cleanup standards are identical.' (Region 5)

The City claimed that:

> Under the Alternative Cleanup Plan, we anticipate substantial incentives for PRPs to voluntarily join the PRP group. The principal incentives for PRP engagement include:
> - Financial discount enabled by avoidance of costly litigation under Superfund;
> - Financial discount enabled by accelerated cleanup;
> - Accelerated elimination of financial liability enabled by Alternative Cleanup Plan;
> - Avoidance of corporate stigma associated with a superfund listing; and
> - Avoidance of corporate stigma associated with evasion of collaborative engagement.
> - Potential availability of funding under WRDA §312(b) in connection with the designation of the Gowanus Canal as a pilot under URRI; and the Army Corps' longstanding strategic interest and partnership with NYC DEP to clean the Canal.

The City asserted:

> EPA has itself recognized that a final listing on the NPL is not always the most effective ways to accomplish Superfund's cleanup goals in some cases. This reality is exemplified by the 67 sites on the NPL that have been proposed to the list but not fina1ized.

The City noted as further support for this argument:

> In a progressive approach recently displayed by the EPA concerning the Dow Chemical Company Tittabawassee River Dioxin Spill Site in Midland, Michigan, the EPA, led by Administrator Lisa Jackson, determined that not listing the site and allowing for the continued collaboration between the EPA and the State of Michigan 'provides the best foundation for further progress' with regard to achieving a cleanup that is protective of human health and the environment.

The City stated that NPL listing could significantly delay comprehensive cleanup. The City claimed that "uncompleted sites that linger on the NPL constitute the most complex projects," and that "[l]ike other contaminated urban waterways, the Gowanus Canal has features that render it very complex, and suggests that it would be difficult to manage as a Superfund site." The City stated that, based on Army Corps projections for Phase 1 and Phase 2 of the environmental dredging program under WRDA, the "[t]he estimated time to complete the remedial action for the Canal under the Alternative Cleanup Plan is approximately 9.5 years;" the City further noted "[a] 2008 MIT study concluded that once a site has been listed, it takes 12 to 13 years to attain cleanup goals, and to be deleted from the NPL." The City asserted that "the critical advantage of the shorter cleanup provided by the Alternative Cleanup Plan will be sooner elimination of potential human health and environmental exposures."

The City concluded that, because it provides stronger incentives than Superfund alone, the alternative plan is "the fastest and most efficient way to achieve a Superfund level cleanup—with the added benefit of getting that result sooner than it could be achieved under Superfund." The City requested that EPA "consider withholding finalization to the NPL of the Gowanus Canal so as to give the Alternative Cleanup Plan and its Federal, State and City governmental collaboration the opportunity to succeed."

HydroQual asserted that NPL listing of the site would have negative implications and that the listing may prevent the City's plans from proceeding. HydroQual noted that if the City's plans do proceed, actions involved in the plan may reduce the HRS score for the site. Therefore, HydroQual concluded that:

> [t]here is sufficient reason to avoid, or at least delay, the addition of the Gowanus Canal to the NPL in light of assessing City plans, both in terms of the complications an NPL designation imposes and in terms of how conditions in Gowanus Canal might be favorably altered from an HRS perspective.

ELM argued that other timely means of remediation for Gowanus Canal exist, stating:

> In addition, the MGP sites are already subject to a consent agreement between Keyspan/National Grid and the New York State Department of Environmental Conservation, which requires that MGP-derived waste be thoroughly characterized and remediated consistent with State standards. ***As the PAH impacts from both CSOs and MGP sites are being addressed through other programs, Superfund listing is not required to achieve cleanup of these aspects of contamination within the Canal.*** [Emphasis in original comment.]

ELM also asserted that "[e]levated PAH concentrations as a result of historic MGP-impacts are already being addressed by State Cleanup Programs."

HydroQual also claimed "[a]lternatives to listing on the NPL may lead to a faster cleanup of the Gowanus Canal. A review of the NPL finds many sites with long delays of implementation of remedial action." HydroQual asserted that "[t]iming and costs of risk reductions should be considered. Experience with

existing NPL sites shows that a considerable amount of time will certainly elapse before the USEPA is able to address contamination in the Gowanus Canal." HydroQual concluded "[i]t is likely that a decision not to add the Gowanus Canal to the NPL and to proceed with the USACE plan would result in a remedy for the Gowanus Canal in less time than if it were placed on the NPL."

In its comments, Riverkeeper, Inc., quoted Congresswoman Nydia Velazquez, New York State 12th Congressional District, on the issue of the City's SA approach, stating that

> [i]n addition, while the city has appeared optimistic about their chances of securing funding at public meetings, Congresswoman Nydia Velazquez, whose district includes the canal, has stated that '[t]he Gowanus Canal has never been included in WRDA . . . [f]or the city to say that their plan relies on money that the federal government won't be able to provide is a disservice to the community.'

Bill de Blasio, Assistant Majority Leader, The Council of the City of New York; Salvadore Scotto, resident of the Carol Gardens community; Riverkeeper, Inc.; and other commenters stated that listing will cause delays to development or planned projects for the site. Commenters cited concerns over the potentially lengthy PRP litigation process associated with listing, and the concern that Superfund remediation efforts will take a long period of time to commence.

Several commenters, including Bill de Blasio, Assistant Majority Leader, The Council of the City of New York; Salvatore Scotto, a resident of the Caroll Gardens community; and others discussed both opposition to and support of the option of deferral to the City as summarized below:

- Commenters indicated that the listing should be delayed until other proposed cleanup plans have chance to work.
- Commenters stated that listing should be deferred unless the City Plan fails.
- Commenters cited concern over the City's relationships with developers.
- The Urban Divers Estuary Conservancy; New York/New Jersey Baykeeper; Riverkeeper, Inc.; and other commenters indicated opposition to and/or cited problems with the City's alternative plan.
- Commenters indicated that the cleanup efforts should be deferred to PRPs and/or the State or others.
- In referring to evaluations the City of New York has required in relation to development projects along the Gowanus Canal in the past, Dr. Tom Angotti, Director, Center for Community Planning and Development, stated that Environmental Impact Statements completed for these individual sites (i.e., projects) do not address comprehensive remediation of the Gowanus Canal area.

Some commenters indicated that any other viable cleanup programs should be utilized for the site, as follows:

- Marlene Donnelly and Benjamin Ellis, Carroll Gardens community residents and members of FROGG, indicated that cleanup methods will need to use the Clean Water Act regulatory process in the Superfund effort.
- Commenters indicated that Superfund should be used as a last resort after pursuing other available cleanup methods.
- Commenters discussed using the Army Corps of Engineers URRI model for addressing contaminated sediments.

Response: Despite the City's argument that Superfund should only be used as a "last resort for the remediation of hazardous sites," nothing in CERCLA or any other environmental laws limits EPA's authority to place eligible sites on the NPL where appropriate. In particular, because placing a site on the

NPL is only an identification that a site warrants further investigation and not an identification of what remedial actions will be taken, it is not relevant at this stage to address which statutory authorities will be used to conduct remedial activities. Nevertheless, the Agency has recognized a Superfund alternative (SA) approach as an alternative to placing sites on the NPL. Taking an SA approach is an option, not a required action, that EPA may take, and in this case it will not do so. The SA approach is used, at the Agency's discretion, to address sites that could be listed on the NPL, but are investigated and cleaned up without listing while following the same CERCLA criteria as a listed site. A number of parties suggested in their comments that this approach be used at the Gowanus Canal site. The Agency has considered this suggestion carefully, but believes that the SA approach is not appropriate at the Gowanus Canal site.

There are several threshold eligibility criteria EPA considers for using the SA approach:

1. The site would score 28.50 or above: The Gowanus Canal site score exceeds 28.50. However, it should be noted that the City, the party requesting to enter into an agreement to conduct an SA approach cleanup, disagrees with this score, stating in its comments that the site should be scored at 15. Under the score envisioned by the City, the site would not be eligible for the SA approach.
2. A long-term response (i.e., a remedial action) is anticipated at the site: This is true at the Gowanus Canal site.
3. There is a willing, capable PRP who will negotiate and sign an agreement with EPA to perform the investigation or cleanup. As addressed in this response, EPA has substantial concerns with this criterion at the Gowanus Canal site.

The SA approach has typically been applied to sites with one PRP that are addressing a single facility which the PRP controls. Since such a PRP is the owner/operator of the facility, the source of the contamination is known and there are no access issues or issues with other PRPs requiring EPA's intervention. Less frequently, SA approach sites involve a limited number of PRPs. At the Gowanus Canal Site, however, there are likely dozens of PRPs, as well as multiple facilities where access may be necessary. Since the City lacks EPA's enforcement authorities, the City's proposal contemplates that EPA will take enforcement actions to obtain such access and cleanup participation from non-consenting parties.

Under the SA approach, the PRPs typically undertake investigation and cleanup activities using their own funds. The City's suggested SA approach is therefore not a typical SA approach. It is a private party cleanup using WRDA and PRP funding.

At the typical SA approach site, the PRP further agrees from the outset to perform all of the necessary work and to fund all of the cleanup costs, including EPA's oversight costs. In this instance, the City is initially proposing to commit only to completing the RI/FS. That RI/FS would be funded, in part, by federal money available to the USACE. However, unlike typical government Superfund costs, those government funds would not be recoverable. National Grid, which has said that it is willing to participate in the City's SA approach, is another source of funding for the RI/FS and future cleanup work. However, National Grid has stated that it is restricted as a public utility from funding work to address contamination other than its own. Despite having contemplated that EPA will need to take enforcement action on its behalf, the City's proposal is silent as to paying EPA's oversight and enforcement costs, as SA-approach PRPs normally do. Rather, the City's SA approach considers EPA's enforcement capacity and funding as an additional means to spread and reduce PRP costs.

With respect to the funding of the actual cleanup, the City has not committed to fund the entire cleanup, as SA approach PRPs typically do. Rather, the City's proposal is contingent upon obtaining federal funding for 65% of the cleanup through WRDA. By law, WRDA funding is capped at $50 million per

year for projects nationwide. WRDA funding for Canal work is highly unlikely, especially since there are viable PRPs.

The USACE's preliminary estimate of the cost of dredging and disposal of Canal sediments is $350 million. Therefore, a 65% WRDA federal cost share would be $227.5 million. Even if the nation's entire $50 million WRDA annual funding pool were allocated to the Gowanus Canal site, an unlikely event, the cleanup would still be spread over an extended period of time.

Under a scenario which assumes that WRDA funding could be obtained, the City's proposal does not provide clear assurance that the City and National Grid will be able to fund the 35% share required by WRDA. The City believes that it will be able to attract the participation of additional PRPs by offering its WRDA-based approach as a 65% reduction in a party's typical Superfund liability. However, parties may still decline to voluntarily participate if they believe they have legitimate legal arguments to avoid paying both a WRDA cost share and a Superfund cost share. Because the City's SA approach proposal contemplates that EPA will take enforcement action against recalcitrant parties, EPA would be incurring the same enforcement costs as under the standard Superfund approach.

The USACE's process is likely to take significantly longer than EPA's for several reasons: (1) the USACE is required to prepare an Environmental Impact Statement, which would likely add 1-2 years to the process; (2) the USACE's final decision document would require review and approval by USACE-Headquarters and Congress (the USACE estimates that this review and approval step would add 6-12 months); (3) the USACE does not have the benefit of permit exemption under Superfund (securing the necessary permits would likely cause delay in implementing the work, and obtaining permits would be subject to legal challenges which are likely, given the controversy, adding additional delay); and (4) the City has indicated that it will take 3-9 months to obtain a contractor to perform upland investigations and the USACE may also require time to get contractors on board. EPA, however, has already commenced investigatory work at the site.

The City suggests that if it is not successful in obtaining federal WRDA funding and PRP funding for the local share, EPA can list the site and proceed with the cleanup. There are, however, no efficiencies realized by this approach, since EPA and the State would need to concur with the RI/FS and since sufficient WRDA funding for remedy implementation is not likely to be available, EPA would likely need to oversee the cleanup. Therefore, it would make more sense for EPA to carry out or oversee a PRP-performed RI/FS.

If EPA were to switch enforcement approaches mid-cleanup, significant delay would likely result. As with the government RI/FS funding, the federal government's WRDA funding would not be recoverable as Superfund costs typically are. Thus, under the City's proposal, the net cleanup cost to the government would be significantly higher than a traditional Superfund approach. This result is strongly inconsistent with the typical SA approach scenario.

Additionally, although state approval is not a condition for an SA approach, it is envisioned in the guidance that the State is comfortable with the concept. As OSWER's June 17, 2004, guidance provides (OSWER 9208.0-18):

> There is a general expectation that the Region and State will agree on the SA site designation. If the Region believes an SA designation is appropriate but the State's Governor has requested NPL listing, the Region should reach an agreement with the State on pursuing an SA approach.

The State of New York has been supportive of listing. Like EPA, the State has expressed concerns regarding the assumptions inherent in the City's SA proposal. The State has not provided EPA with any indication that it is supportive of using SA at this site.

In summary, a comprehensive cleanup can only be achieved through the Superfund process since Superfund's process is anticipated to be more efficient than the complex SA approach proposed by the City. The City's SA approach depends heavily on long-term Congressional funding to the USACE under WRDA, which is unlikely, and assumes local sponsor share would be paid voluntarily by the PRPs. Therefore, listing the Gowanus Canal site on the NPL is more appropriate than use of an SA approach.

Listing does not, however, prohibit the City from participating in the Superfund process, and any actions the City takes will be considered in determining what future remedial actions, if any, will be necessary. EPA makes final decisions during all stages of the Superfund process. The City may affect remedy selection, as can any other member of the public, through the public comment process. The City may undertake the RI/FS and/or remedial design/remedial action stages under EPA supervision and pursuant to appropriate agreements with governmental authorities (under enforcement authorities of CERCLA or those of other statutes). The listing process does not encumber or preclude the City from entering into these agreements.

3.8 Superfund and Combined Sewer Overflow

Comment: The ELM Group stated that CSO impacts are "common in older urban areas, and are generally not addressed by the CERCLA process. Rather, they would be more appropriately addressed through the existing City facilities upgrade plan which is expected to significantly improve Canal sediment and water quality by 2013."

The ELM Group also asserted that "PAHs are derived from multiple sources, including former MGP sites, road runoff, and input from combined sewer discharges. The latter is often evaluated separately from the CERCLA process." The ELM Group continued to claim that:

> [t]he shallow PAH contamination, which is more relevant to risk assessment considerations, is primarily petroleum-derived and therefore indicative of runoff and CSO discharges rather than MGP tar . . . The Superfund process is not intended to address CSO-related impacts, and in fact, the City of New York has a detailed proposal in place to upgrade sewer systems by 2012.

The City raised "significant concerns regarding compatibility of the planned work with a potential remedy that EPA could mandate under Superfund, as well as the potential for additional CERCLA liability that the City could incur by undertaking the [CSO upgrade] work before a remedy had been determined." The City asserted that because CERCLA controls in cases of conflict between obligations under CWA and CERCLA, it "creates potential uncertainty about the City's current obligations under CWA." The City claimed that "[t]this uncertainty can be entirely avoided, and the City's CSO work can move forward without potentially competing obligations, by adopting the City's proposed alternative plan to cleanup the Canal, rather than pursuing remediation under Superfund."

Between 15-20 commenters, including Valmanette Montgomery, New York Senator, indicated that Superfund does not address the CSO problems at the site.

Response: There are no exemptions in CERCLA for releases of hazardous substances from CSOs. CERCLA Section 101(14) defines a "hazardous substance" broadly by authorizing a list of hazardous substances under CERCLA Section 102 and by referencing several environmental statutes, such as the

Clean Water Act, the Clean Air Act, the Solid Waste Disposal Act (known as RCRA), and the Toxic Substances Control Act. Substances from CSOs that fall within this definition, such as PAHs, are appropriate for regulation under CERCLA.

Regarding the City's uncertainty over its Clean Water Act obligations, neither CERCLA nor other environmental statutes limit CERCLA's jurisdiction in situations where other statutes may also apply. Because placing a site on the NPL is simply an identification that a site warrants further investigation and not an identification that remedial actions are necessary, it is not relevant at this stage to address concerns regarding what statutory authority (if any) will be used to perform remedial activities. At a separate part of the Superfund process, EPA can consider under what authorities the CSOs should be addressed, as well as any investigations or remedial activities the City has performed to date.

The City's liability concerns are premature at this stage of the Superfund process. As stated in the proposed rule, liability is not considered in evaluating a site under the HRS, nor does listing a site establish liability. The NPL serves primarily informational purposes, identifying for the States and the public those facilities and sites or other releases which appear to warrant remedial actions. Inclusion of a facility or site on the list does not in itself reflect a judgment of the activities of any owners or operators, it does not require those persons to undertake any action, nor does it assign liability to any person. Further, the City's general comments on its potential liability are speculative and the City does not explain how listing would increase its CERCLA liability.

3.9 Executive Order 12866

Comment: The City commented that placing the Gowanus Canal site on the NPL would be inconsistent with Executive Order 12866. The City stated that:

> Adding the Canal to the NPL is inconsistent with the Superfund listing criteria because it would violate the terms of Presidential Executive Order 12866 of 1993. Specifically, a listing would result in a rule that (i) creates 'a serious inconsistency or otherwise interfere[s]' with actions taken and planned by the Army Corps; and (ii) 'raise[s] novel legal or policy issues arising out of legal mandates,' including a 2005 Consent Order between the City's Department of Environmental Protection ("NYC DEP") and the New York State Department of Environmental Conservation ("NYS DEC") pursuant to the Federal Clean Water Act ("CWA"). Both of these conflicts can be avoided, and the Canal can be cleaned-up to a Superfund standard, through the City's Alternative Plan.

The City referred to 58 FR 51735, 51739 (Oct. 4, 1993) in support of its assertion. It argued that this citation defines "significant regulatory action" to include:

> Actions that result in a rule that may, *inter alia*, "[c]reate a serious inconsistency or otherwise interfere with an action taken or planned by another agency" or "[r]aise novel legal or policy issues arising out of legal mandates." Under Executive Order 12866, agencies must submit such significant regulatory actions to the Office of Information and Regulatory Affairs ("OIRA") at the Federal Office of Management at [sic] Budget ("OMB"), together with an assessment of the costs and benefits of the rule. *Id.* at 51740-41. Between January 1, 1994 and January 1, 2009, OIRA reviewed 995 EPA rules at various stages, with an average review time of 59 days. (*See* query run on Reginfo.gov, *available at* http://www.reginfo.gov/public/do/eoCountsSearchInit?action=init).

The City also questioned EPA's finding that proposing the site to the NPL was not a significant regulatory action. It stated:

> In concluding that the proposed listing of the Gowanus Canal and other sites on the NPL was not a "significant regulatory action" requiring review under Executive Order 12866, the EPA found that the proposed listing does not impose obligations on any entities, does not set standards or a regulatory regime, and imposes no liability or costs, adding that any CERCLA liability exists irrespective of a site's listing. 74 Fed. Reg. 16162, 16167 (Apr. 9, 2009). However, this reasoning ignores Executive Order 12866's inclusion of regulatory actions that "interfere with an action taken or planned by another agency." *See* 58 Fed. Reg. 51735, 51739. The NPL listing would interfere with ongoing efforts under the URRI initiative taken by the Army Corps, and thus clearly falls within the definition of "significant regulatory action[s]" subject to OMB Review under Executive Order 12866.

Inconsistency in Planned Actions by other Agencies

The City stated that "[t]he [p]roposed [l]isting [j]eopardizes [o]ngoing and [p]lanned [w]ork by the Army Corps of Engineers and the City." The City pointed to the actions planned or underway by the Army Corps and NYC DEP and two separate rezonings of areas adjacent to the Canal. It stated that "[i]n the City's view, a Superfund Listing could significantly delay these projects, and area development generally."

Regarding actions with the USACE and the City, the City stated that:

> In January 2000, the Army Corps undertook a Federally-funded Reconnaissance Study pursuant to WRDA [Water Resources Development Act] to determine if there was Federal interest in proceeding with an FS for Ecosystem Restoration of the Gowanus Canal. Approval for the Study required a 50% funding match from a local sponsor, and NYC DEP and the Army Corps entered into a $5 million Feasibility Cost Share Agreement in February 2002. The goal of this study was to "[a]ssess the environmental problems and recommend solutions in the Gowanus Canal," including "environmental dredging and capping of channel sediments, contamination reduction measures, wetland creation, and water quality improvements."
>
> The Study anticipated that removal and remediation work would be conducted by the Army Corps pursuant to WRDA §312(b), and that this collaborative effort between the Army Corps and NYC DEP would ultimately result in a joint plan to undertake restoration work in the Canal. The Army Corps submitted a draft joint plan to EPA, NYS DEC and NYC DEP in August 2008 that identified partners, scope, and roles and responsibilities for each agency . . . EPA and NYS DEC did not respond to the draft plan (which the Army Corps sent to EPA again in October and December 2008) and in December of last year, the Army Corps learned that NYS DEC had recommended to EPA that the Canal be added to the Superfund list.
>
> As a result of the proposed Superfund listing, the Army Corps has suspended work on the FS—which had been scheduled to be complete by the end of 2009—and the Army Corps has advised the City that if the Canal is added to the NPL, it will likely discontinue its work at the site.

Regarding the Urban Rivers Restoration Initiative, the City pointed out that in July 2003, Gowanus Canal was listed as a URRI pilot project. The City continued stating that:

> EPA's proposed Superfund listing makes no reference to the ongoing work of the Army Corps and NYC DEP in the Canal, nor does it account for the Canal's designation as a URRI pilot project pursuant to an EPA/Army Corps partnership that was designed for the express purpose of dealing with the complexities of urban waterway remediation and restoration.

The City added that "[i]ndeed, the EPA Inspector General recently recommended—with EPA's concurrence—that the Agency use the URRI model more frequently to tackle contaminated sediment sites." The City continued to state that "[t]he URRI model is particularly appropriate here (a conclusion that EPA and the Army Corps reached in 2003)." The City asserted that NPL listing would weaken URRI prospects.

The City stated that:

> [a]dding the Canal to the NPL at this time risks the likely termination of the ongoing partnership between the City and the Army Corps for restoration and remediation of the Canal, and would eviscerate a program specifically designed by EPA and the Army Corps to address the most complicated urban waterway sites. Moreover, listing the Canal now would cutoff the possibility of getting WRDA funding to support environmental dredging and restoration of the Canal. . . . EPA's apparent decision not to consider the Canal's status as a URRI pilot program, and the future value of the ongoing Army Corps/NYC DEP FS, appear to run afoul of Executive Order 12866.

Regarding Gowanus corridor zoning and development activities, the City stated:

> In addition to jeopardizing the long-standing involvement of the Army Corps in the Canal, the proposed Superfund listing could have a significant negative impact on the Gowanus neighborhood rezoning and related projects that the Department of City Planning ("DCP") has been working with the local community to achieve since 2005. . . . The 25-block Gowanus rezoning action was scheduled to be certified into the Uniform Land Use Review Procedure ("ULURP") on June 1, 2009; that has been put on hold following EPA's announcement of the proposed NPL listing to assess the potential public health and other impacts a listing could have on the neighborhood revitalization that the rezoning is designed to accelerate.
>
> The proposed listing will also likely impact the development of affordable and other residential housing at the Public Place site, and by Toll Brothers. As with the neighborhood rezoning, the ULURP action for Public Place is currently on hold, and Toll Brothers has indicated publicly that its project will not move forward if the Canal is designated as a Superfund site.

Novel Legal and Policy Issues

The City identified what it considered to be a novel issue. It stated that:

> A Superfund listing also raises novel legal and policy issues with respect to the City's obligations under the CWA, particularly in connection with CSO work NYC DEP is undertaking pursuant to a 2005 Consent Order with NYS DEC. Under the Consent Order, NYC DEP will soon undertake approximately $175 million of capital work, designed to improve water quality by reducing the impact of CSO discharges to the Canal. This project is construction ready.

> During the public comment period for the proposed Superfund listing, NYC DEP met with EPA and NYS DEC to explain the scope and projected timeline for the CSO work. As part of those discussions, the City raised significant concerns regarding the compatibility of the planned work with a potential remedy that EPA could mandate under Superfund, as well as the potential for additional CERCLA liability that the City could incur by undertaking the work before a remedy had been determined. EPA and NYS DEC have repeatedly expressed the view that the CSO work will not be inconsistent with any proposed Superfund remedy, and provided written assurances to that effect . . . Notwithstanding these assurances, conflicts between a party's obligations under CWA and CERCLA (as well as a number of other Federal environmental statutes) are not uncommon, and the law so far appears clear that in the case of conflict, CERCLA controls. This creates potential uncertainty about the City's current obligations under CWA, and a remedy that could eventually be mandated under Superfund.

Response: Executive Order 12866 (58 FR 51735, October 4, 1993) generally subjects a "significant regulatory action" to a review by the Office of Management and Budget (OMB). Executive Order 12866 defines a "significant regulatory action" as one that is likely to result in a rule that may:

(1) [h]ave an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;
(2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
(3) materially alter the budget impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof;
(4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order. [58 FR 51735, October 4, 1993]

EPA has determined that the act of placing a site on the NPL does not require OMB review under Executive Order 12866. The rationale for this determination was explicitly stated in the April 9, 2009, Federal Register notice that proposed the Gowanus Canal site for placement on the NPL. Part IV, Section A.2., Is This Proposed Rule Subject to Executive Order 12866 Review?, of the proposed rule states:

> The listing of sites on the NPL does not impose any obligations on any entities. The listing does not set standards or a regulatory regime and imposes no liability or costs. Any liability under CERCLA exists irrespective of whether a site is listed. It has been determined that this action is not a "significant regulatory action" under the terms of Executive Order 12866 and is therefore not subject to OMB review.

Further, placing a site on the NPL is simply an identification that a site warrants further investigation and not an identification that remedial actions are necessary, nor is it a determination of what statutory authority will be used to perform remedial activities (if any). EPA does not consider the placing of a site on the NPL as "novel" within the meaning of Executive Order 12866. Contrary to the City's assertions, the listing does not conflict with any ongoing or planned work by the Army Corps of Engineers. In a letter received to the docket for this listing, the Army Corps expressly states it is available to provide technical assistance and advocates cleanup by any available statutory means:

> The Corps strongly advocates the cleanup of the Gowanus by any available statutory means and stands ready to provide technical assistance. Timely action would support the numerous multi-agency sediment and water quality improvements that currently benefit the estuary. Should the Gowanus not be designated a Federal Superfund site, the Corps

> (with non-Federal sponsor support) will continue to pursue a project using 312B environmental dredging authority. See EPA-HQ-SFUND-2009-0063-289.

EPA also disagrees that listing will interfere with the City's asserted obligations under the 2005 Consent Order with NYS DEC. After the site has been listed, EPA can consider under what authorities the Gowanus Canal site should be addressed, as well as any investigations or remedial activities the City and the Army Corps have performed to date.

3.10 Regulatory Flexibility Act

One commenter indicated that a cost benefit analysis should be completed in order to determine the effects of listing.

Response: No cost benefit analysis is required for the act of listing. As discussed in Section IV.C.1, What is the Regulatory Flexibility Act?, of the proposed rule for the Gowanus Canal site (74 FR 16167, 16168):

> Pursuant to the Regulatory Flexibility Act (5 U.S.C. 601 et seq., as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996) whenever an agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rule on small entities. . . . However, no regulatory flexibility analysis is required if the head of an agency certifies the rule will not have a significant economic impact on a substantial number of small entities.

This certification was provided in Section IV.C.2, How has EPA Complied with the Regulatory Flexibility Act?, of the proposed rule for the Gowanus Canal site (74 FR 16168), which explains:

> This proposed rule listing sites on the NPL, if promulgated, would not impose any obligations on any group, including small entities. This proposed rule, if promulgated, also would establish no standards or requirements that any small entity must meet, and would impose no direct costs on any small entity. Whether an entity, small or otherwise, is liable for response costs for a release of hazardous substances depends on whether that entity is liable under CERCLA 107(a). Any such liability exists regardless of whether the site is listed on the NPL through this rulemaking. Thus, this proposed rule, if promulgated, would not impose any requirements on any small entities.

Therefore, because listing does not require that any action be taken, as explained in the discussion of the Regulatory Flexibility act requirements above, this comment is not relevant to the listing decision.

3.11 Economic Impacts of Listing

The City stated that the potential economic impacts of a Superfund listing are apparent even from conservative projections, and continued by stating:

> New York City's Economic Development Corporation ('EDC') conducted an analysis of the tax impact of a Superfund designation on the Gowanus Canal corridor. Assuming that the Canal is not designated, the planned projects in the Gowanus Canal Corridor alone (Gowanus rezoning, Public Place, and the Toll Brothers) will generate over $500 million in tax revenue. Assuming that a Superfund designation moves forward, EDC estimates that it will cost the City between $120 million and $189 million in lost tax

> revenue, depending on the length of the cleanup. These figures show that even if property values were to rebound over the long term, there are real negative economic impacts for New York City even under the most conservative analysis.

The City further asserted that "[t]o the businesses and residents on the Canal, the risks [of listing] include, among other things, negative impacts to property values and the potential for long-term disinvestment." The City added that "[b]ecause a Superfund listing could decrease appraisal values, financing will be more difficult, and the uncertainty inherent in the Superfund process—particularly for complex urban waterways—reduces the likelihood of investment in the area," and that Superfund designation of the Canal "could negatively impact all adjacent property and prospects for its development."

The City claimed that listing would jeopardize planned development in the Gowanus neighborhood, including rezonings which would allow reuse of vacant and underutilized property for a mix of uses including housing; the City noted that these projects would generate approximately 300 new jobs and 500 affordable housing units. According to the City, the 25-block rezoning action has been put on hold to determine what health and other impacts listing could have on neighborhood revitalization. The City warned that NPL listing could significantly delay these projects, including the "much-needed" affordable housing.

The City stated that "[i]t is well established that a Superfund designation has the potential to stigmatize nearby properties." The City asserted that studies have shown that "the presence of a Superfund site decreases the value of nearby properties," and that a January 2009 EPA study recognized this, "while suggesting that existing studies do not sufficiently distinguish between the effects of public awareness of contamination and effects specifically attributable to Superfund listing or remedial actions." The City stated that "EPA's study acknowledges, however, that while property values may recover as remediation occurs, 'if the cleanup of a site is delayed for a long period, a more permanent decrease in value may occur.'" The City continued to claim that:

> The potential stigma of a Superfund listing in a densely populated New York City neighborhood could depress property values and deter investment for years to come—particularly if a Superfund cleanup becomes mired in extended legal wrangling by PRPs over the allocation of financial responsibility . . . Listing the Gowanus Canal as a Superfund site will likely have several negative impacts on the potential for upland remediation, investment, and redevelopment.

The City asserted that its Alternative Cleanup Plan would avoid the "well-known stigma that may come with a Superfund designation."

The ELM Group claimed that "[a] Superfund designation of such a large geographic area, in a heavily developed and redeveloping urban setting, will have serious consequences for all stakeholders and, therefore, warrants a more site-specific evaluation."

HydroQual asserted that the "costs of risk reductions should be considered."

Several commenters, including CBID, Carroll Gardens Association, Inc., Salvatore Scotto, a resident of the Caroll Gardens community, Valmanette Montgomery, New York Senator, and others discussed various economic impact issues associated with listing the site:

- The potential stigma that would result from listing the site.
- The impacts of job loss as a result of listing the site.
- The impacts on property values as a result of listing the site.

- The cancellation of redevelopment plans as a result of listing the site.
- The ability to obtain financing after designation.

Response: Stigma associated with environmental contamination may be unavoidable, but any such stigma should not be blamed on the process of NPL listing. Inclusion of a site or facility on the list does not in itself reflect a judgment on the activities of the owner(s) or operator(s), but rather reflects the Agency's judgment that a significant release or threat of release has occurred and that the site is a priority for further investigation under CERCLA. The Agency notes that there are both costs and benefits that can be associated with listing a site. Among the benefits associated with listing a site on the NPL are increased health and environmental protection as a result of increased public awareness of potential hazards. In addition to the potential for federally financed remedial actions, the addition of a site to the NPL could accelerate privately financed, voluntary cleanup efforts. Listing sites as national priority targets also may give States increased support for funding responses at particular sites. As a result of the additional CERCLA remedies, there will be lower human exposure to high-risk chemicals, and higher quality surface water, ground water, soil, and air. Therefore, it is possible that any perceived or actual negative fluctuations in property values or development opportunities that may result from contamination may be countered by positive fluctuations when a CERCLA investigation and any necessary cleanup are completed.

Regarding the commenters' concerns for the impact of site listing on remedial activities and the attendant costs, the discussion of costs in the *Federal Register* is by necessity only of a general nature. The proposed rule clearly states that including a site on the NPL does not cause EPA necessarily to take remedial action, or that any action is required by, nor liability for site response costs assigned to, any party or the owner of any specific party (74 FR 16164, Section I.C). Any Agency actions that may impose costs on firms are based on discretionary decisions and are made on a case-by-case basis. Also, responsible parties may bear some or all the costs of the RI/FS and subsequent work, or the costs may be shared by EPA and the States. Therefore, expenditures cited by the commenter are associated with events that generally follow listing the site, not with the listing itself.

3.12 Proper Notice

Comment: The City stated that it "was not consulted by EPA or NYS DEC prior to the proposed rulemaking on April 8, 2009."

One commenter indicated that local officials were not properly notified before proposal to designate the site.

Response: In developing the NPL regulation the Agency uses a notice and comment process that is consistent with the Administrative Procedure Act (5 USC Section 551 et seq.). According to this procedure, the Agency solicits comments on proposed listings, reviews and considers all comments received, and addresses those comments in the final rule. Through this process, commenters can provide any information they believe is relevant to the scoring and listing of proposed sites.

A 60-day comment period followed publication in the Federal Register of the proposed NPL rule of which this site is a part. This comment period was extended by 30 days (see section 3.3, Request for Extension, of this support document). The Agency is responding to all site-specific comments in this support document, which is available in the EPA Headquarters Superfund docket in Washington, D.C., and in the appropriate Regional Superfund Docket, when the final rule is published in the *Federal Register*. The Agency does not announce NPL decisions before the final rule is announced.

3.13 USACE Activities

Comment: In referring to the impact of the proposal of the Gowanus Canal site to the NPL in the Federal Register, HydroQual stated that "[t]he USACE work has been stopped because of the Federal Register notice."

The City stated that:

> As a result of the proposed Superfund listing, the Army Corps has suspended work on the FS—which had been scheduled to be complete by the end of 2009—and the Army Corps has advised the City that if the Canal is added to the NPL, it will likely discontinue its work at the site.

In its comment letter on the proposed listing of this site, the USACE stated:

> The Corps strongly advocates the cleanup of the Gowanus by any available statutory means and stands ready to provide technical assistance. Timely action would support the numerous multi-agency sediment and water quality improvements that currently benefit the estuary. Should the Gowanus not be designated a Federal Superfund site, the Corps (with non-Federal sponsor support) will continue to pursue a project using 312B environmental dredging authority.

Response: The USACE stated in its comments in response to this proposed listing that "[t]he Corps strongly advocates the cleanup of the Gowanus by any available statutory means and stands ready to provide technical assistance."

Further, as noted earlier in this support document, listing of a site simply informs the public that EPA has determined the site poses sufficient threat to human health and the environment to warrant further investigation; it does not predetermine the response actions. Consideration regarding the scope of and how the response actions for the site will be undertaken, determination and selection of who will be involved in these response actions, what the response actions may be, and how the response actions will ultimately be funded are not factors in the decision to list the site on the NPL. The appropriate actions necessary to mitigate those threats identified during a site-specific risk assessment, including coordination with current remedial actions at the site, are typically determined after the listing process is completed.

3.14 Possible Impacts of Delaying Listing

Mr. Bob Zuckerman noted that if the Canal is not designated a Superfund site at this time, it supposedly remains on the list for future designation. Mr. Zuckerman asked, "What are the ramifications of remaining on the Superfund nomination list, and what would the process look like for eventually becoming a Superfund site?"

Response: As stated in Section I.E, What Happens to Sites on the NPL?, of the proposed rule (74 FR 16164, 16165):

> A site may undergo remedial action financed by the Trust Fund established under CERCLA (commonly referred to as the "Superfund") only after it is placed on the NPL, as provided in the NCP [National Contingency Plan] at 40 CFR 300.425(b)(1).

As the Gowanus Canal site has been designated a Superfund site in today's action, the commenter's question is not relevant to this listing.

3.15 HRS Concept

Comment: The ELM Group challenged the adequacy of the HRS to estimate the site-specific risk at the Gowanus Canal site. It stated that:

> For the Gowanus Canal, USEPA evaluated only the Surface Water Pathway, specifically the Human Food Chain Threat. The final score calculated by USEPA is founded on the assumption that benzo(a)pyrene and polychlorinated biphenyls (PCBs) in the Canal sediments are taken up by fish and invertebrates, which are subsequently eaten by humans, posing an unacceptable health risk.

The ELM Group continued:

> ELM recognizes that the determination of an HRS score is a simplified conservative process for screening potentially eligible sites for inclusion on the NPL. However, the Gowanus Canal has unique physical, chemical, and biological attributes that must be evaluated on an integrated, site-specific basis to obtain a true understanding of potential risk, a process that is discouraged by the highly generic and formulaic calculations employed in the preparation of an HRS score.

The ELM Group further commented that:

> The generalized and formulaic approach allowed by the HRS process significantly overestimates risk to human and ecological populations in and around the Gowanus Canal. This may be appropriate where there is no access to actual data or no alternative mitigation measures to protect human health or prevent wildlife exposure exist, but is inappropriate here where site-specific data is readily available from numerous sources, several pathways to address contamination in the Canal are already in place.

Response: The HRS does not assume any causal relationship between the various factor values considered in assigning an HRS score. Specifically, in this case, the HRS does not assume that benzo(a)pyrene or PCBs are taken up by fish and invertebrates or that humans are exposed to these substances by consumption of the aquatic organisms.

The HRS assigns factor values and then combines the factor values into a pathway score and site score. For example, HRS Section 4.1.3.2.1.4, *Calculation of toxicity/persistence/ bioaccumulation factor value*, states:

> Use the hazardous substance with the highest toxicity/persistence/ bioaccumulation factor value for the watershed to assign the value to this factor.

Page 28 of the HRS documentation record at proposal lists the values assigned to all substances documented as associated with the combined sediment source and specifically states that:

> Benzo(a)pyrene and PCBs are the hazardous substances associated with the highest toxicity/persistence/bioaccumulation factor value with a quantity of 5×10^8.

Thus there is no required evidence or assumption that these substances are being taken up by human food chain organisms in the assigning of this factor value.

Similarly, the HRS evaluation at this site does not make the assumption that these substances are in aquatic human food chain organisms that are caught from the Canal and consumed. HRS Section 4.1.3.3, *Human food chain threat-targets*, directs the evaluation of fisheries as eligible targets. The applicable portion of this section used in the scoring of this site states:

> Evaluate two target factors for each watershed: food chain individual and population. For both factors, determine whether the target fisheries are subject to actual or potential human food chain contamination.
>
> Consider a fishery (or portion of a fishery) with the target distance limit of the watershed to be subject to actual human food chain contamination if any of the following apply:
>
> - A hazardous substance having a bioaccumulation factor value of 500 or greater is present either in an observed release by direct observation for the watershed or in a surface water or sediment sample from the watershed at a level that meets the criteria for an observed release to the watershed for the site, and at least a portion of the fishery is within the boundaries of the observed release (that is, it is located either at the point of direct observation or at or between the probable point of entry and the most distant sampling point establishing the observed release).
> - . . .

Pages 30 and 31 of the HRS documentation record at proposal under the title, Human Food Chain Threat – Targets, document that this requirement was met, stating:

> People use the Gowanus Canal for fishing and crabbing, and several sources have reported fishing for human consumption [Ref. 13, p. 1; 14, p. 1; 15, pp. 1-2; 39, p. 3; 40, p. 2; 43, pp. 1-3; 45, pp. 1-2; 46, p. 3; 47, p. 1]. It is reported that people catch fish for consumption at the 3rd Street Bridge, which crosses the Gowanus Canal within the zone of sediment contamination, and at other bridges along the Canal [Figure 2 of this HRS documentation record; Ref. 13, p. 1; 14, p. 1; 15, p. 1]. In addition, many of the released hazardous substances have a bioaccumulation potential factor value of 500 or greater. Therefore, Actual Human Food Chain Contamination is documented, and the target fishery is evaluated for Actual Human Food Chain Contamination. The target fishery is subject to Level II concentrations [Ref. 1, pp. 51592, 51593, 51620, 51621].

These pages of the HRS documentation record at proposal go on to list 26 hazardous substances, not just benzo(a)pyrene and PCBs, that meet the observed release criteria and have a bioaccumulation potential factor value at 500 or above, any of which would have been sufficient in itself to meet the HRS requirements. Thus again there is no causal link between benzo(a)pyrene and PCBs to the targets factor values for this site.

HRS Section 4.1.3.4, *Calculation of human food chain threat score for a watershed*, directs the combining of the factor values to produce a Human food chain threat score, which is then the basis for the surface water pathway score and subsequently a site score. It states:

> Multiply the human food chain threat factor category values for likelihood of release, waste characteristics, and targets for the watershed, and round the product to the nearest

> integer. Then divide by 82,500. Assign the resulting value, subject to a maximum of 100, as the human food chain threat score for the watershed. Enter this score into Table 4-1.

Table 4-1 is the surface water pathway score sheet for the site and is presented on pages 3 and 4 of the HRS documentation record at proposal.

Again, the HRS does not require any causal link between the individual factor values to use them in determining the HRS score for the site.

Regarding the ELM Group's comments on the lack of site-specific considerations in an HRS evaluation even when site conditions are unique, this is a comment on the HRS itself, not on its use in the evaluation of this site. Such a comment is outside the scope of this rulemaking, which is limited to the placement of this site on the NPL. However, the level of site-specificity of the HRS was raised in comments on the proposed revised HRS. As explained in section K, Use of Available Data, of the preamble to the final rule (55 FR 51550, 51551, December 14, 1990), consideration was given to adding multiple tiers to the HRS that could be used to account for site-specific conditions. It states:

> EPA considered modifying the HRS to allow the use of additional data, but determined that further expanding the HRS to account for varying levels of data availability is inconsistent with the HRS's role as an initial screening tool. Adding tiers to various factors to accommodate the use of all available data would make the HRS considerably more difficult to apply and could lead to substantial inconsistencies in how sites are investigated and evaluated. EPA Regions and States would have to determine, for each set of data presented, whether the data quality was good enough for the data to be considered. Debates over decisions on data quality could delay scoring and, ultimately, delay cleanup at sites. Therefore, the Agency believes that the limited use of tiers in the final HRS represents a reasonable tradeoff between the need to limit the complexity of the system and the desire to accommodate risk-related information that is generally outside the scope of a site inspection.

This comment has no effect on the HRS score or the decision to place this site on the NPL.

3.16 Consideration of Fish Advisory

Comment: Both the ELM Group and HydroQual asserted that the HRS score did not reflect a New York State fish advisory for the Upper New York Bay Area.

The ELM Group asserted that compliance with the NY State Department of Health fish advisories by fisherman should mitigate risk associated with limited consumption of contaminated fish. The ELM Group specifically stated that:

> The Human Food Chain Threat is the primary basis for the NPL eligibility determination for the Gowanus Canal. Consumption advisories are already in place from the state Department of Health (2009), warning citizens to avoid or limit intake of striped bass, blue crab, and several other species, throughout the Upper New York Bay Area (which includes the Canal).

The ELM Group continued:

> Furthermore, as long as consumption is limited in accordance with the State fishing advisory, consumption of fish caught in the Gowanus Canal should not pose any

> additional public health threat than fishing in Upper New York Bay. As discussed previously, the fish population in the Canal is not significantly different than that in the Bay. The State fishing advisory indicates a "safe" consumption level for the Upper New York Bay, and there is no evidence to indicate that the existing advisory does not provide adequate protection against detrimental health effects in the Canal as well.

HydroQual stated:

> The Gowanus Canal is a portion of the Upper New York Bay. The New York State Department of Health, Chemicals in Sport Fish and Game Fish 2008-2009 Health Advisory for Upper New York Bay for PCB protection suggests human fish consumption is safe at 32 pounds per year, roughly the same consumption levels scored in the Gowanus Canal HRS (i.e., 0 to 100 pounds)[12]. The HRS does not reflect that the threat from this pathway has already been addressed by New York State.

HydroQual continued:

> The HRS does not reflect the risk from this [surface water] pathway has been evaluated and addressed by New York State. The New York State advisory is based upon more criteria than the HRS, including testing of fish. There appears to be a contradiction between the safety the State Health Advisory implies and the risk scored in the HRS.

Response: The site-specific information used in obtaining the HRS score for the human food chain threat of the surface water migration pathway, and for the overall site score, is consistent with the requirements of the HRS. There is no provision in the HRS to consider the possible reduction in risk that might be caused by a fish advisory in an HRS evaluation.

HRS Section 4.1.3, *Human food chain threat*, states, "[e]valuate the human food chain threat for each watershed based on three factor categories: likelihood of release, waste characteristics, and targets."

> Each of these three factor categories is evaluated in the HRS documentation record at proposal using site-specific attributes of the Gowanus Canal.

Within the HRS sections directing the scoring of the human food chain threat (Sections 4.1.3.1, 4.1.3.2, and 4.1.3.3), there is only one provision for considering any kind of fish advisory, and it is for a closure of a fishery (i.e., ban on any consumption), not simply an advisory to limit consumption. This is in HRS Section 4.1.3.3, which states, in part:

> Consider a fishery (or portion of a fishery) within the target distance limit of the watershed to be subject to actual human food chain contamination if any of the following apply:
>
> . . .
>
> The fishery is closed, and a hazardous substance for which the fishery has been closed has been documented in an observed release to the watershed from the site, and at least a portion of the fishery is within the boundaries of the observed release.

Under this provision, if a fish closure advisory has been issued which states that a specified area is closed to fishing, i.e., that no fishing for consumption is to take place there, and the other conditions stated above apply, the fishery is scored for purposes of the HRS as if it were an active fishery that was contaminated

due to the site (subject to actual contamination). Thus, the fish closure advisory acts to *include* the fishery in the HRS score, not to *exclude* it.

Regarding HydroQual's comments that "[t]he New York State advisory is based upon more criteria than the HRS, including testing of fish," and "[t]here appears to be a contradiction between the safety the State Health Advisory implies and the risk scored in the HRS," EPA may consider more information in evaluating potential remedial actions for the site.

Thus, based on the amount of existing site-specific data and the fact that this data reveals significant contamination with numerous hazardous substances, the Gowanus Canal site merits evaluation under the HRS using the human food chain threat of the surface water pathway.

This comment has no effect on the HRS score or the decision to place this site on the NPL.

3.17 Use of Surface Water or Fish Tissue Samples

Comment: HydroQual questioned the adequacy of the HRS score for the site because it was not based on surface water or fish tissue samples. HydroQual stated:

> The HRS scoring considers only contaminant levels in the sediment bed and does not present any direct measurements of contaminants in the surface water or in fish. In particular, given the above analysis of the sediments, it would seem inappropriate to consider the Gowanus Canal for addition to the NPL without consideration of actual data on surface water and/or fish tissue.

HydroQual pointed to a surface water sample data set collected by the NYDEC. However, it noted the data could not be compared to NYDEC and EPA's water quality standards:

> Although the NYSDEC collected measurement of the surface water concentrations of many contaminants, including individual PCB congeners and twenty-two PAH chemicals, in the Gowanus Canal at the Carroll Street Bridge on four occasions in 1999 and 2000 as part of the Contamination Assessment and Reduction Project (CARP)[1], these data are inadequate for comparing to NYSDEC's and EPA's water quality standards and criteria for the protection of Human Health which are applied to mean or log mean concentrations.

Response: Fish tissue and surface water contaminant data are not required to determine either a surface water migration pathway HRS score or an overall HRS score for a site.

While surface water and fish tissue data, if available, can be used to assign a likelihood of release factor value, to identify actually contaminated fisheries and to assign the level of actual contamination of the fisheries, in none of these cases are surface water or fish tissue samples required to complete an HRS evaluation.

[1] The Contamination Assessment and Reduction Project (CARP) is an effort between the states of New York and New Jersey aimed at reducing toxic chemicals within the New York Harbor through a variety of projects including studies of the water, sediments, and biota in the Harbor, and tracking down contaminant sources in the surface water, ground water, and wastewater of the Harbor. Participation stems from the Governors of NY and NJ signing the *Joint Plan for Dredging the Port of NY-NJ* in the Fall of 1997. The plan was recommended by the Hudson Estuary Program (HEP) and implemented through the *Comprehensive Conservation and Management Plan* (CCMP).

Likelihood of Release
HRS Section 4.1.2.1, *Drinking water threat—likelihood of release*, states "[e]valuate the likelihood of release factor category for each watershed in terms of an observed release factor or a potential to release factor."

HRS Section 4.1.2.1.1, *Observed release,* discusses that an observed release to surface water is established by means of chemical analysis if:

> Analysis of surface water, benthic, or sediment samples indicates that the concentration of hazardous substance(s) has increased significantly above the background concentration for the site for that type of sample. . . .

The HRS evaluation used sediment samples to establish an observed release, and thus did not need surface water or fish tissue samples. Page 24 of the HRS documentation record at proposal, under the heading Chemical Analysis states:

> An observed release by chemical analysis is documented in the Gowanus Canal between sample location GC-03-30, at the head of the Canal, and sample location GC-03-07, approximately 1.5 miles downstream (see Section 2.2).

Section 2.2 of the HRS documentation record at proposal (pages 13-21) discusses the identification of a contaminated sediment source based on sediment samples that meet the observed release criteria. Subsection 2.4.1, Hazardous substances, of the HRS documentation record at proposal (pages 14-21) presents the analytical results for 21 sediment, 5 background, and 16 release samples that meet the observed release criteria. Table 1 on page 16 of the HRS documentation record at proposal presents the basic physical and sampling information on the sediment samples. Table 2 on pages 17-20 of the HRS documentation record at proposal presents the analytical results that document that the release sediment samples meet the significant increase criteria of the HRS to establish an observed release (see HRS Section 2.3, *Observed release*).

As described above, observed release criteria were met through chemical analysis of sediment samples in the Gowanus Canal. Since the analysis of surface water, benthic, *or* sediment samples can be used to establish an observed release to surface water through chemical analysis, only the sediment sample contaminant data was necessary to establish an observed release.

Actually Contaminated Fisheries
HRS Section 4.1.3.3, *Human food chain threat—targets*, provides for establishing actual contamination of a fishery using surface water, sediment or fish tissue samples from essentially sessile, benthic food chain organisms. It states:

> Consider a fishery (or portion of a fishery) within the target distance limit of the watershed to be subject to actual human food chain contamination if **any** [emphasis added] of the following apply:
>
> - A hazardous substance having a bioaccumulation potential factor value of 500 or greater is present in an observed release by direct observation to the watershed or in a surface water **or** (emphasis added) sediment sample from the watershed at a level that meets the criteria for an observed release to the watershed from the site, . . .
> - The fishery is closed, . . .

- A hazardous substance is present in a tissue sample from an essentially sessile, benthic human food chain organism from the watershed at a level that meets the criteria for an observed release from the site, . . .

Pages 30 and 31 of the HRS documentation record at proposal document the identification of an actually contaminated fishery by demonstrating that sediment samples from a human food chain fishery that meet the observed release criteria contain one or more hazardous substances that have a bioaccumulation potential factor value of 500 or greater. Page 31, under section 4.1.3.3, Human Food Chain Threat—Targets, states:

> People use the Gowanus Canal for fishing and crabbing, and several sources have reported fishing for human consumption [Ref. 13, p. 1; 14, p. 1; 15, pp. 1-2; 39, p. 3; 40, p. 2; 43, pp. 1-3; 45, pp. 1-2; 46, p. 3; 47, p. 1]. It is reported that people catch fish for consumption at the 3rd Street Bridge, which crosses the Gowanus Canal within the zone of sediment contamination, and at other bridges along the Canal [Figure 2 of this HRS documentation record; Ref. 13, p. 1; 14, p. 1; 15, p. 1]. In addition, many of the released hazardous substances have a bioaccumulation potential factor value of 500 or greater. Therefore, Actual Human Food Chain Contamination is documented, and the target fishery is evaluated for Actual Human Food Chain Contamination. The target fishery is subject to Level II concentrations [Ref. 1, pp. 51592, 51593, 51620, 51621].

The HRS documentation record at proposal then lists the sediment samples and the 26 hazardous substances associated with them that have a bioaccumulation potential factor value of 500 or greater. As stated above, since either surface water, sediment, or fish tissue samples can be used for this purpose, and sediment samples were sufficient, no surface water or fish tissue samples were required for this purpose.

Level of Contamination
Fish tissue samples can also be used to identify Level I fishery targets. HRS Section 4.1.3.3, *Human food chain threat—targets*, explains:

> When a fishery (or portion of a fishery) is subject to actual food chain contamination, determine the part of the fishery subject to Level I concentrations and the part subject to Level II concentrations. If the actual food chain contamination is based on direct observation, evaluate it using Level II concentrations. However, if the actual food chain contamination is based on samples from the watershed, use these samples and **if available, additional tissue samples** from aquatic human food chain organisms as specified below, to determine the part subject to Level I concentrations and the part subject to Level II concentrations. [Emphasis added.]

HRS Section 4.1.3.3.1, *Food chain individual*, and HRS Section 4.1.3.3.2 and its subsections explain when to assign a fishery as Level I, Level II, or potential. If a fishery does not meet Level I criteria but is identified as actually contaminated according to the above-cited requirements, it is considered Level II.

Page 31 of the HRS documentation record at proposal in section 4.1.3.3.1, Food Chain Individual, explains that the fishery in the Canal was categorized as a Level II fishery based on sediment samples:

> There is an observed release of hazardous substances, including benzo(a)pyrene, with Bioaccumulation Potential Factor Values of 500 or greater, and Level II Actual Contamination of the Gowanus Canal fishery is documented between samples GC-03-07 and GC-03-30 [Table 2 and Figure 2 of this HRS documentation record; Ref. 1, pp. 51592, 51593, 51620; 2, pp. BI-1-BI-10, BI-12; 13, p. 1; 14, p. 1; 15, pp. 1-2; 39, p. 3; 40, p. 2; 43, pp. 1-3; 45, pp. 1-2; 46, p. 3; 47, p. 1; 16, pp. 476-487] .

As discussed above, an HRS evaluation to determine level of contamination only uses fish tissue samples if available. The use of the tissue samples is optional. No fish tissue samples were used to assign the level of contamination. The level of actual contamination was instead based on the bioaccumulation potential factor value of the observed release hazardous substances in the sediment samples.

Thus, while surface water and fish tissue samples can be used in an HRS evaluation, their use is not required to determine an HRS score. However, fish tissue samples can be used during the site-specific risk assessment phase of the Superfund process when site-specific risk is evaluated.

This comment has no effect on the HRS site score or on the decision to place this site on the NPL.

3.18 Likelihood of Release

Comment: The ELM Group questioned the establishment of an observed release. It raised issues regarding the quality of the analytical data used to document the release and the identification of an observed release although the contaminant concentrations may have been below regulatory criteria, and claimed sample moisture content may have led to high bias in analytical results.

Response: The ELM Group comments regarding the likelihood of release component of the HRS score are addressed in the following sections:

- 3.18.1 QA/QC Protocols
- 3.18.2 Screening Benchmarks
- 3.18.3 Sample Moisture Content

3.18.1 QA/QC Protocols

Comment: The ELM Group challenged the adequacy of the analytical data used to score the site. It stated that quality assurance/quality control (QA/QC) samples were absent, that there were missing or improperly completed chain-of-custody forms, and that there were sample integrity issues.

The detailed issues raised by The ELM Group are addressed in the following subsections:

- 3.18.1.1 Use of QA/QC Samples
- 3.18.1.2 Chain-of-Custody
- 3.18.1.3 Sample Integrity

As demonstrated in these subsections, the data collected were reasonable and credible, and adequate for purposes of this HRS listing.

3.18.1.1 Use of QA/QC Samples

Comment: The ELM Group claimed there was an absence of QA/QC samples in the USACE field study used to establish an observed release. It specifically stated that

> No field duplicates, field blanks, or trip blanks were collected in the USACE 2003 Study (USACE, 2003), preventing analysis of sample collection and decontamination procedures for quality assurance, specifically whether cross-contamination could have occurred between samples or during sample transportation.

Response: Although no field QA/QC samples were collected, the USACE did follow the Sampling and Analysis Plan (Attachment 2 to this support document) and therefore, there is no reason to question the field protocols. The USACE Sampling and Analysis Plan states the appropriate procedures to be followed, including decontamination. The lack of these samples does not demonstrate that appropriate Sampling and Analysis Plan sampling, decontamination, and transportation procedures were not followed.

The HRS does not specify any field QA/QC field protocol requirements. However, the Agency may consider third party information so long as it bears satisfactory indications of reliability. See, e.g., *Honeywell Int'l v. EPA*, 372 F.3d 441, 447 (D.C. Cir. 2004). If such information is relevant and material, the Agency is entitled to weigh it according to its truthfulness, reasonableness, and credibility. See, e.g., *Veg-Mix, Inc. v. U.S. Dept. of Ag.*, 832 F.2d 601, 606 (D.C. Cir. 1987). In this case, the Agency's review of the USACE Sampling and Analysis Plan indicates that its protocols are reasonable and credible, and therefore, the data used to evaluate an observed release from the site is of known and documented quality.

A Sampling and Analysis Plan is intended to document the procedural and analytical requirements for sampling events. The USACE Sampling and Analysis Plan states on page 3 that the decontamination procedure is:

> Non-dedicated sampling equipment, such as the mixing bowl and split spoon samplers, must be cleaned between sampling episodes. Decontamination shall consist of washing the equipment with potable water to remove loose materials such as mud and dust, scrubbing the equipment with brushes and a phosphate-free detergent, and rinsing again with potable water. If possible, the final rinse will be performed with a steam-cleaner using potable water.

Therefore since appropriate decontamination procedures were followed, cross contamination did not occur between samples or during sample transportation (sample transportation is discussed in section 3.18.1.2, Chain of Custody, of this support document.)

Also, even though there were no field QA/QC samples collected during the USACE sampling event, the USACE followed the field sampling protocol in the Sampling and Analysis Plan. Since the USACE followed protocol, there is no reason to question the field sampling procedures or the usability of the resulting analytical data in the HRS evaluation.

This comment has no effect on the HRS score for the site.

3.18.1.2 Chain-of-Custody

Comment: The ELM Group pointed to "violations" of chain-of-custody requirements. The ELM Group also questioned the use of three of the five samples used to establish background contamination levels for the site. It commented that the lack of chain-of-custody documentation for three of the five background sediment samples calls into question the integrity of those samples, which provide the basis for an "observed release." It stated:

> . . . samples collected by the USACE on May 15, 2003 arrived at the laboratory without a Chain of Custody documenting sample identification numbers, analyses, and accountability for sample security and integrity (Appendix F, USACE, 2003). This is in opposition to USEPA's data quality guidance, and industry standard practices for maintaining data quality (e.g. ASTM, 2004; USEPA, 2002). As discussed earlier, a

> corrective action (canceling some of the laboratory analyses) was taken by the USACE in extreme cases. Nonetheless, this oversight is particularly disconcerting given that three of the five background samples used to justify a release in the HRS calculation were collected on May 15, 2003.

Response: The chain-of-custody for the three background samples in question was adequately maintained and was established in the HRS documentation record at proposal and its cited references. While there was a minor problem in transfer of the form[2] documenting the chain-of-custody for the three samples in question during shipment of the samples from the field to the lab, the problem was immediately corrected and the correction verified.

The HRS does not specify any chain-of-custody requirements or any data quality documentation requirements. However, chain-of-custody is important in documenting that the sample analysis results are of known and documented quality. The purpose of maintaining chain-of-custody is to provide proof that the samples are not tampered with during transport, and each sample is appropriately identified. A chain-of-custody-form, also referred to as a Traffic Report, is used to ensure that the samples code is assigned in the field to identify the sample, the sample location, the analysis to be run on that sample, and that the sample results are not confused with those of other sample codes.

As referred to by The ELM Group, the 2004 ASTM Standard Guide for Sample Chain-of-Custody Procedures, states on page 529, that:

> Any discrepancies between the information on the sample label and seal and the information on the chain-of-custody record should be resolved before the sample is assigned for analysis. This effort might require communication with the sample collector.

No chain-of-custody forms for 12 samples (including the three background samples in question) from three locations, GC-03-3, GC-03-4, and GC-03-5, were found in the sample shipment container when it was received by the analytical laboratory, Fort Monmouth Environmental Laboratory in Fort Monmouth, NJ, from the field. As documented on pages 282-284 of Reference 16 and pages 30-31 of Reference 52 (both references to the HRS documentation record at proposal), lack of chain-of-custody forms was addressed and corrected by the laboratory personnel immediately through communicating with the USACE field staff and filling out a chain-of-custody form at the laboratory based on the information written on the sample bottles received (see pages 282, 284, and 288 of Reference 16 of the HRS documentation record at proposal). On this form (see page 282 of Reference 16 of the HRS documentation record at proposal), samples from the three locations (GC-03-3, GC-03-4, and GC-03-5) were identified under the column heading Sample Location. The laboratory faxed the form to the USACE for review, approval, and signature (see pages 282 and 288 of Reference 16 of the HRS documentation record at proposal). On May 20, 2003, the USACE faxed the signed chain-of-custody form (see page 283 of Reference 16 of the HRS documentation record at proposal) back to the laboratory, thereby correcting the original omission of the chain-of-custody form in the sample shipment.

The faxed chain-of-custody form was later reviewed for accuracy by USACE. During this process an error was identified in the jar numbers. To correct this error, USACE made changes to the chain-of-custody form under the Sample Location column to two sample jars from sample location GC-03-5. The

[2] A chain-of-custody form (as described by CLP Statement of Work for Multi-Media, Multi-Concentration Organics Analysis, version 1.2, Exhibit G) , is a "sample identification form completed by the sampler, which accompanies the sample during shipment to the laboratory and is used to document sample identity, sample chain-of-custody, sample condition, and sample receipt by the laboratory."

changes to the copy of the chain-of-custody form were made to reflect the field log book (see page 21 of Reference 52 of the HRS documentation record at proposal). GC-03-5/Jar 5 was corrected to GC-03-5/Jar 3, and GC-03-5/Jar 6 was corrected to GC-03-5/ Jar 4. On May 21, 2003, USACE faxed to the laboratory the corrected chain-of-custody form (see page 31 of Reference 52 of the HRS documentation record at proposal) accompanied by a Fax Transmittal page (see page 30 of Reference 52 of the HRS documentation record at proposal) stating it was the final, approved chain-of-custody form for samples GC-03-3, GC-03-4, and GC-03-5 (note that in this case, the three sample numbers in question are the same as the three sample location numbers).

In conclusion, chain-of-custody was established and documented for the three background samples in question. Therefore, it was appropriate to use these samples in establishing background contaminant levels for the site in the HRS evaluation.

Furthermore, these three samples were only three of five samples used in the HRS evaluation to establish background levels. If the three samples in question were dropped from consideration, the remaining two samples could be used to establish background levels. As can be observed on page 16 of the HRS documentation record at proposal, using the highest contaminant concentrations in the two remaining background samples (sample numbers GC-03-01 and GC-03-2) to establish background levels, the resulting background levels would only decrease or remain the same. Therefore, any release sample that met the observed release criteria based on all five background samples would also meet the observed release criteria using only sample numbers GC-03-01 and GC-03-2 as background samples.

Thus, even if samples GC-03-3, GC-03-4, and GC-03-5 were not used for background, there would be no change in the number of samples documenting observed release and hence no change in the HRS score for the site.

3.18.1.3 Sample Integrity

Comment: The ELM Group asserted that "[r]eview of the laboratory's case narrative also suggests pervasive careless sample handling, with sample coolers frequently arriving with broken sample jars and melted ice (Appendix F, USACE, 2003)." It stated that "the remaining samples were analyzed, however several of these also were submitted with melted cooler ice, but the cooler temperatures were below ambient temperature and, thus, the samples were processed."

Response: The possible sample integrity problems identified by The ELM Group - the broken sample jars, the cracked sample jar, and the melted cooler ice - were appropriately addressed by the USACE at the time of the analysis, and were considered when the resulting analytical data were used in the HRS evaluation. As discussed in greater detail below:

- The analysis of the samples that arrived with completely broken sample jars were cancelled at the USACE's request, and, thus, no data from the samples were used in the HRS evaluation.
- While the sample in a cracked jar was analyzed, simply that the jar was cracked does not necessarily mean that the sample was compromised, and thus the decision was made to use the analytical results in the HRS evaluation. However, elimination of the analytical data for this sample data would not result in a change in the HRS score for the site.
- Regarding the samples in the coolers in which the ice had melted, this does not automatically mean the samples had warmed to unacceptable levels. In addition, only a few samples contained in these coolers were used in the HRS evaluation, and, in fact, the temperature of these samples were measured to be 5 ºC, within the acceptable range of 4 ºC plus or minus 2ºC (±2ºC). There is no reason to question the analytical results for these samples based solely on melted ice.

The HRS does not specify any sample preservation techniques or any data quality documentation requirements. However, the documentation of sample integrity is certainly part of documenting that analytical data is of known and documented quality and suitable for use in an HRS evaluation.

Broken Sample Jars

Two sample coolers were received on May 12, 2003, by the Fort Monmouth Environmental Testing Laboratory that contained broken sample bottles. The first sample cooler contained 21 samples, which corresponded to the laboratory work order 30218 (see pages 272-274 of Reference 16 to the HRS documentation record at proposal). The first sample cooler, received by the laboratory on May 12, 2003, contained broken bottles and melted ice, and had an elevated cooler temperature (see page 288 of Reference 16 to the HRS documentation record at proposal). The USACE cancelled the analysis of the samples due to the condition of the samples (see pages 26, 272, 274, and 288 of Reference 16 to the HRS documentation record at proposal).

The second sample cooler received by the laboratory on May 12, 2003, contained broken bottles and the samples were at room temperature. In addition, no chain-of-custody form was found in the cooler. Due to the poor sample integrity and no chain-of-custody documentation, these samples were also not logged in and the analyses were cancelled by the USACE (see pages 26 and 288 of Reference 16 to the HRS documentation record at proposal).

Cracked Sample Jars

Regarding the use of sample coolers arriving with cracked and broken sample jars, the cooler containing 6 sample jars arrived at the Fort Monmouth Environmental Testing Laboratory, in Fort Monmouth, NJ, on April 30, 2003. One 4-oz sample jar was cracked and one 2-oz sample jar was broken from the field location GC-03-25. The laboratory transferred the sample in the cracked 4-oz sample jar, which was to be analyzed for SVOCs, pesticides and PCBs, to a new sample jar and completed the sample analysis. The 2-oz sample jar was completely broken and was not analyzed by the laboratory (see page 267 of Reference 16 to the HRS documentation record at proposal). The remaining four jars in the sample cooler were not damaged and their analyses continued accordingly.

Even if the sample analysis from the 4-oz cracked sample jar were dropped from consideration, the remaining samples identified in the HRS documentation record at proposal would still meet HRS observed release criteria (see pages 18 – 20 of the HRS documentation record at proposal). This sample, taken from location GC-03-25, was used as one of many release samples to establish an observed release in the Canal sediments and the extent of the zone of contamination in the Canal. The zone of contamination is defined for a contaminated sediment site as extending from the most upgradient observed release sample to the most downgradient observed release sample (i.e., the extent of the sediment plume). Since the remaining observed release sample locations are either upgradient (sample locations: GC-03-26, GC-03-27, GC-03-28, GC-03-29 and GC-03-30) or downgradient (sample locations: GC-03-24, GC-03-23, GC-03-21, GC-03-18, GC-03-14, GC-03-13, GC-03-12, GC-03-11, GC-03-09, and GC-03-07) of the location of the sample in question, GC-03-25, the zone of contamination would not change (see Figure 2 of the HRS documentation record at proposal) Thus removing the sample from the cracked jar would also have no effect on the HRS site score.

Melted Cooler Ice

Regarding the use of samples that arrived at the Fort Monmouth Environmental Testing Laboratory, in Fort Monmouth, NJ throughout the USACE 2003 sampling event with melted cooler ice, only four sample shipping coolers contained melted cooler ice and temperatures above 4ºC. Samples contained in three of the four sample coolers with temperatures above 4ºC were not used in the HRS evaluation

(Reference 16, pages 279-280, 286 of the HRS documentation record at proposal).[3] One sample cooler, Laboratory work order number 30225, which contained four samples from field locations, GC-03-07, GC-03-12, GC-03-13, and GC-03-14, were used in the HRS scoring, and the laboratory recorded a temperature of 5ºC (Reference 16, page 276-277 of the HRS documentation record at proposal) for that cooler.

However, the recorded temperature of that shipping cooler does not affect the analytical data associated with samples from locations GC-03-07, GC-03-12, GC-03-13, and GC-03-14, the samples from that cooler used in the HRS evaluation, nor does it change the HRS score for the site.

Even though the USACE data was non-CLP analytical data, since the CLP program was established specifically to provide data of known and documented quality, sufficient for HRS (and other Superfund program) purposes, EPA has considered the criteria within the CLP program regarding sample temperatures in reviewing the use of this sample in the HRS evaluation. Based on the CLP sample collection and preservation for soil samples requirements, samples collected with the appropriate preservatives stored at 4ºC (±2ºC) until the time of analysis are considered acceptable. Therefore, EPA considers the 5ºC, the measured temperature of the sample cooler in question, to be within the appropriate temperature range for sample preservation.

Furthermore, according to the USACE Sampling and Analysis Plan (see Attachment 2 to this support document) for the USACE, the sample containers were being provided by the laboratory with the required preservatives already in the containers. Thus, the samples had been chemically preserved in addition to shipment in ice.

In addition, a one-degree temperature increase in the samples would if anything, most likely only result in degradation of the contaminants in each sample. This degradation would in turn, only result in the contaminant concentrations reported by the laboratory being lower than if the samples had been maintained at 4 ºC and thus would be underestimates of the contaminant concentrations. Since these samples were used as release samples in the HRS evaluation, and the concentrations of contaminants in the samples in question met the observed release criteria even with a possible lower concentration than if maintained at 4 ºC, the samples would still have met the HRS observed release criteria if the problem had not occurred. Thus, the raise in sample temperature during shipping for a few of the samples used in the HRS evaluation would not have any effect on the HRS site score.

This comment has no effect on the HRS score for the site.

3.18.2 Screening Benchmarks

Comment: The ELM Group questioned the comparison of the contaminant levels in the USACE's 2003 samples to the NYSDEC sediment criteria that the USACE presented in the USACE report titled, "Final Report, Site Investigation, Gowanus Bay and Gowanus Canal." The ELM Group commented that the screening benchmarks that were used by the USACE should have accounted for the TOC content of the collected samples. It explained that:

> The screening benchmarks that were used were on a dry weight basis, and many of these presume a TOC content of 1% (Buchman, 2008). For the organics, it is recognized that

[3] It can be verified that the samples in the three coolers were not used in the HRS analysis by examining Table 1, page 16, in the HRS documentation record at proposal. It does not include any of the samples listed on the sample receipts for the coolers above 4ºC (Reference 16, page 279-280, 286 of the documentation record at proposal).

> the TOC content of the sediments can impact the potential bioavailability (and therefore, toxicity) of the sediments. This is one of the reasons why the NYSDEC sediment criteria (NYSDEC, 1999) for organics are TOC-normalized. As shown in the table below, the TOC range of the surface sediment samples (0-3 ft) included in the USACE study used as the basis for the HRS (USACE, 2003), as well as another more extensive dataset for the Canal (GEI Consultants, 2007) is well above the 1% value presumed by some of the screening benchmarks.
>
> **Table 3:** TOC Summary of Surface (0-3 ft) Sediment Results from the Gowanus Canal

STUDY	COUNT	AVG	RANGE	25TH%	50TH%	75TH%
USACE Study (2006)	10	10.0%	2.7 – 16%	7.4%	8.9%	13.5%
GEI Consultants (2007)	52	10.6%	1.1 – 44%	6.1%	8.7%	13.3%

> Analytical results from samples with high TOC content would be more appropriately compared to sediment criteria that account for the effect of TOC on bioavailability.

The ELM Group also questioned whether the high moisture content of some samples may have complicated their comparison to sediment screening benchmarks and caused artificially high results and normalized concentrations.

Response: The HRS evaluation of this site is not based in any way on whether the sediment samples used in the HRS evaluation exceeded the NYSDEC sediment criteria. Therefore, whether or not the USACE in its 2003 report correctly considered the TOC levels and the moisture content in the sediment samples when it compared the contaminant levels to the sediment criteria has no impact on the HRS evaluation. The 2003 USACE sampling data was used to establish observed releases in the Canal and to estimate the extent of the contaminated sediment source.

Furthermore, as explained, on July 16, 1982, when responding to public comments on the proposed (original) HRS (47 FR 31188), and again on September 8, 1983 (48 FR 40665), the Agency explained that even releases within regulatory limits are "observed releases" under the HRS. As the Agency noted in 1982:

> Emission or effluent limits do not necessarily represent levels which cause no harm to public health or the environment. These limitations are frequently established on the basis of economic impacts or achievability.

By contrast, an observed release represents a 100 percent likelihood that substances can migrate from the site (47 FR 31188, July 16, 1982).

Section 2.3 of the revised HRS (55 FR 51589, December 14, 1990) states that an observed release can be established either by direct observation or by chemical analysis. An observed release by chemical analysis has occurred when a contaminant is measured significantly above background level if some portion of the release is attributable to the site. Even though levels may be lower than regulatory limits, an observed release has nevertheless occurred if the measured levels are significantly higher than background levels. The HRS does, however, consider whether releases are above regulatory limits in evaluating target populations, increasing by a factor of 10 the weight assigned populations exposed to contaminants above the limits.

Of course, the observed release factor alone is not intended to reflect the hazard presented by the particular release. Instead, the hazard of the site is approximated by the total HRS score, which

incorporates the observed release factors with other factors such as waste characteristics (including waste quantity, toxicity, and persistence) and targets. This total HRS score reflects the hazard of the site relative only to the other sites that have been scored. The actual degree of contamination and its effects are more fully determined during the RI that typically follows listing.

While the TOC in a sediment sample can provide useful information for sediment characterization and assessing risk associated with hazardous substances on a site-specific basis, the HRS as a screening tool does not consider TOC in documenting observed release concentrations or level of contamination (see HRS Sections 4.1.2.1.1, 2.5 and 4.1.3.3). This level of risk characterization, if necessary, is performed at a later stage of the Superfund process when a site-specific risk assessment is performed.

This comment has no effect on the HRS score or the decision to place this site on the NPL.

3.18.3 Sample Moisture Content

Comment: The ELM Group declared that the "elevated moisture content (low percent solids) in many of the surface samples resulted in a potentially high bias in the reported dry weight normalized concentrations." It explained that:

> [i]t is acknowledged that, due to the hydrology and sedimentation of the Gowanus Canal, high moisture content surface sediments are not unexpected. The percent solids of the 52 surface samples (i.e., those collected between 0 and 3 ft) as reported in the USACE dataset are summarized in the table below. Equivalent information from the Keyspan dataset is also provided as supplemental information corroborating the high percent moisture observed in Canal sediments (GEI Consultants, 2007).
>
> **Table 2:** Percent Solids Summary of Surface (0-3 ft) Sediment Results from the Gowanus Canal

STUDY	COUNT	AVG	RANGE	25TH%	50TH%	75TH%
USACE Study (2003)	10	38.6%	30 – 55%	34.5%	39%	40.75%
GEI Consultants (2007)	52	48.9%	27.1 – 98.9%	34.6%	38.9%	63.50%

> Since the sediment analytical results are converted to a dry weight basis (by dividing by the percent solids), a multiplication factor is applied to wet samples compared to samples that may have a lower moisture content (e.g., sample SED-41 (depth interval 0-4.5 ft) that contained ~1% moisture). The actual solid phases of these samples may have comparable chemical residues, but due to the differences in the moisture contents different dry weight normalized concentrations would be reported which could result in artificially high results.

Response: The commenter has only hypothesized the possibility of high bias in the reported contaminant concentrations; there is no evidence there was actually any bias in the analytical results. In addition, even if the contamination levels in the sediment samples were all potentially biased high, this would have no effect on the HRS score for the site. These sediment samples were used to identify observed release by chemical analysis, which is based on the relative difference in contaminant levels between background and release samples. In as much as both the background and release samples had the same range of moisture contents, any possible bias would have the same effect on both the background and release samples and would not impact the relative difference between the concentrations.

For the documentation of an observed release by chemical analysis in the surface water migration pathway, the HRS requires that:

> Analysis of surface water, benthic, or sediment samples indicates that the concentration of hazardous substance(s) has increased significantly above the *background* concentration for the site for *that type of sample* . . . [and] [s]ome portion of the significant increase must be attributable to the site to establish the observed release. . . ." [Emphasis added]. (See HRS Section 4.1.2.1, *Observed release*.)

HRS Section 4.1.2.1.1, *Observed release*, also directs the scorer to "[l]imit comparisons to similar types of samples and background concentrations."

For the samples used to document an observed release, both background and release samples were sediment samples, both background and release samples were analyzed using same analytical methods, background and release samples were found to have similar sample characteristics, and a significant increase attributable to the site was documented (see pages 14-20 and 24-27 of the HRS documentation record at proposal). The HRS documentation record at proposal reported a similar range of percent moisture for background and release samples: 16% to 63% in background samples, and 11% to 68% in the release samples (see page 14 of the HRS documentation record at proposal); thus, bias introduced by conversion of results from wet-weight to dry-weight (if any) would have affected background and observed release samples similarly. Also, it is also expected that the depth of the sample and other sample characteristics (such as % gravel; % sand, % silt, % clay, TOC) can be used to characterize or provide data on the contaminated sediment. For these reasons, background and release samples should have similar characteristics so that a valid comparison can be made when attributing some portion of the significant increase in the release to the site.

See also sections 3.25, Background Location, and 3.18.2, Screening Benchmarks, of this support document regarding the relationship of moisture content of sediment samples to background samples and to comparison to benchmarks.

This comment has no effect on the HRS score or the decision to place this site on the NPL.

3.19 Contaminated Sediment Source

Comment: HydroQual claimed that it was contrary to the HRS definition of a source to identify a contaminated sediment source when there were multiple known sources of the contamination in the Canal sediments. HydroQual asserted that:

> The distinction of whether or not the contamination in Gowanus Canal sediments is from known/identified or unknown/unidentified sources is fundamentally important to the proposed NPL listing and HRS scoring process. The USEPA HRS Training Manual10 indicates that "Areas of contaminated surface water sediments arising from discharges from known sources are NOT sources for purposes of HRS scoring." The HRS Final rule indicates that "Sources do not include those volumes of surface water sediments that have become contaminated by migration, except in the case of contaminated surface water sediments with no identified source, the contaminated sediments may be considered a source." While all sources of contamination for Gowanus Canal sediments may not be known, at least several chief sources are known and publicly acknowledged by USEPA. The existence of known sources may negate the proposed listing which relies on the sediments as a source.

HydroQual also stated that:

> The USEPA's scoring identifies the sediments as a source, and therefore, one can only assume that the Agency believed there was no identified source for the sediment contamination. However, the Gowanus Canal HRS scoring documentation indicates:
>
> "The origin of these hazardous substances in the contaminated sediments has not been identified due to the presence of too many past and present possible sources. As a result, the source(s) of all the contamination in any particular location in the Canal cannot be determined." While this statement is undoubtedly true, it avoids recognition that numerous sources may be identified with a high degree of certainty from spill report data and remedial investigations. Clearly, upland sources exist and the USEPA indicates it has identified "dozens of possible sources", although it would not be possible to attribute or allocate the contamination to a particular source. It is suggested that information may be available to identify many sources. Not pursuing this research, USEPA considered the sediments the source, and calculated the hazardous waste quantity factor based on the estimated volume of contaminated sediments. However, the HRS scoring process specifically states "Do not evaluate the volume and areas measures…if the source is the unallocated source…."
>
> The USEPA HRS guidance manual indicates that for scoring contaminated sediments when the original source of the contamination is unidentified: "before scoring such sites efforts should be undertaken to identify the original source(s) of contamination. These efforts should be equivalent to those of an expanded SI [Site Inspection]." It is not clear that the level of detail outlined in the USEPA HRS guidance manual for an expanded Sight Investigation was undertaken before developing the Gowanus Canal HRS score. The Gowanus Canal HRS scoring document does indicate that research on site history and consideration of hazardous substances affiliated with industries of potential concern at the Gowanus Canal Site were considered. It is not however indicated that expanded SI efforts to eliminate or confirm other possible sources were completed for Gowanus Canal.
>
> The distinction of whether or not the contamination in Gowanus Canal sediments is from known/identified or unknown/unidentified sources is fundamentally important to the HRS scoring process and whether or not the Gowanus Canal sediments can be scored as the source. The USEPA HRS Training Manual indicates that "Areas of contaminated surface water sediments arising from discharges from known sources are **NOT** sources for purposes of HRS scoring".

Response: The contaminated sediments in the Gowanus Canal were identified as a contaminated sediment source consistent with the HRS. Furthermore, as explained below, the performance of an ESI to identify specific sources of contamination to the Canal was considered; however, it was determined that available data from prior investigations already surpassed the equivalent content of an ESI. Therefore no separate ESI was performed.

HRS Section 1.1, *Definitions*, defines "Source" as:

> Any area where a hazardous substance has been deposited, stored, disposed or placed, plus those soils that have become contaminated by migration of a hazardous substance. Sources do not include those volumes of air, ground water, surface water, or surface water sediments that have become contaminated by migration, except: in the case of

> either a ground water plume with no identified source or contaminated surface water sediments with no identified source, the plume or contaminated sediments may be considered a source.

Page 13 of the HRS documentation record at proposal describes this source:

> Source 1 consists of contaminated sediments in the Gowanus Canal. There are several hazardous substances affecting the Canal sediments, including PAHs, PCBs, pesticides, metals, and VOCs [Ref. 16, pp. 24-28; 17, pp. 15-30; 26, pp. 21-46; 27, pp. 5-25; 35, pp. 134-320]. The origin of these hazardous substances in the contaminated sediments has not been identified due to the presence of too many past and present possible sources. As a result, the source(s) of all the contamination in any particular location in the Canal cannot be determined. The upland areas adjacent to this source have been heavily industrialized since construction of the Gowanus Canal was completed in the 1860s. Historical or current industrial activity along and within the Canal has included MGPs, coal yards, cement makers, soap makers, tanneries, paint and ink factories, machine shops, chemical plants, and oil refineries. In addition, the Gowanus Canal is the receiving water body for storm water from the surrounding neighborhoods and combined sewer overflow (CSO) discharges [Ref. 6, pp. 54-57, 62-63; 7, pp. 1-2; 8, pp. 1, 2; 10, p. 1; 12, p. 2; 25, p. 6; 27, p. 3; 34, pp. 1-3].
>
> Numerous past investigations with varying scopes have been conducted within and around the Gowanus Canal. Some of the studies focused on specific properties, while others focused on the contaminated sediments within the Canal [Ref. 16, pp. 8-9; 23, p. 2; 24, p. 2; 26, pp. 4-5; 28, pp. 7-35; 30, pp. 3-5; 31, p. 11; 32, p. 1; 33, pp. 4-5; 34, pp. 2-4; 35, pp. 10-14, 27-38]. Some of these studies have indicated that PAHs, PCBs, pesticides, metals, and VOCs are present in the Canal sediments [Ref. 16, pp. 23-28; 25, pp. 11-20; 26, pp. 8-16, 21-46; 35, pp. 134-320]. Sediment sampling by USACE documents the presence of contaminated sediments at concentrations that meet the criteria for observed release (see Hazardous Substances section below). These contaminants may have entered the Canal via several transport pathways or mechanisms, including spillage, direct disposal or discharge, contaminated ground water discharge, surface water runoff, storm water discharge, contaminated soil erosion, or fires at industrial facilities [Ref. 6, pp. 3, 62-63; 25, pp. 4-7; 27, pp. 23, 25; 28, pp. 18-19, 30; 30, pp. 5-7; 31, pp. 84-91; 34, pp. 2-4, 45; 35, pp. 10-11, 19-20, 34]. Analytical results for the April-May 2003 USACE sampling event show that the contaminated sediments are located throughout the Gowanus Canal, from location GC-03-30 at the head of the Canal to location GC-03-07 approximately 1.5 miles downstream [Ref. 16, pp. 37-38, 46-62, 86; 17, pp. 11, 48]. USACE has also collected biological data for finfish, crabs, and benthic invertebrates, and has determined that the sediments are polluted to a degree that limits species abundance and diversity throughout the Gowanus Canal [Ref. 23, pp. 2-16; 24, p. 2].

Page 24 of the HRS documentation record at proposal provides a rationale for attributing the contamination in the contaminated sediment to the site. In doing so, it further discusses the possible origins of the contamination. It states:

> Sediments in the Gowanus Canal are contaminated with PAHs, PCBs, pesticides, metals, and the VOC styrene for a length of approximately 1.5 miles (see Section 2.2). The origin of these hazardous substances in the contaminated sediments has not been identified due to the presence of too many past and present possible sources. As a result,

the source(s) of all the contamination in any particular location in the Canal cannot be determined.

The contaminants detected in the Canal sediments can come from a wide variety of industrial and other anthropogenic activities [Ref. 37, pp. 1-2, 5-6, 9-10, 13-14, 17-18, 21-22, 25-26]. For instance, the PAHs detected in Gowanus Canal sediments might have derived from a multitude of petroleum and coal-tar sources, including MGPs, oil storage depots, asphalt manufacturers, coal yards, and historical fires [Ref. 29, p. 3; 34, pp. 3, 23-45; 35, pp. 19, 85-86]. EPA identified dozens of possible contamination sources of VOCs, SVOCs, PCBs, or metals in the Gowanus Canal and Bay watershed, but did not specifically identify any potential sources of pesticides [Ref. 34, pp. 13-14, 23-45]. In addition, contaminants discharged into the Canal are likely to have been redistributed due to flushing and dredging over the years [Ref. 34, p. 45]. As discussed below, there are numerous possible contributors to the sediment contamination that affects the Gowanus Canal.

The 100-foot-wide Gowanus Canal runs southwest from Butler Street to Gowanus Bay and Upper New York Bay [Ref. 6, pp. 10, 12; 7, p. 1; 8, p. 3; 16, p. 9]. The adjacent waterfront is primarily commercial and industrial, currently consisting of concrete plants, warehouses, and parking lots; surrounding land use also includes residential neighborhoods [Ref. 7, pp. 1, 2; 8, pp. 1, 2]. The waterfront and surrounding properties have been heavily industrialized since construction of the Gowanus Canal was completed in the 1860s. Historical or current industrial activity along and within the Canal has included MGPs, coal yards, cement makers, soap makers, tanneries, paint and ink factories, machine shops, chemical plants, and oil refineries. In addition, the Gowanus Canal is the receiving water body for storm water from approximately 6 square miles of urban land and CSO discharges during storm events [Ref. 6, pp. 3; 7, pp. 1, 2; 8, pp. 1, 2; 10, p. 1; 11, p. 1; 12, p. 2; 17, pp. 10, 11; 26, p. 6; 27, p. 3; 34, pp. 3]. The land elevation around the Canal ranges from 0 to 30 feet above Mean Sea Level (MSL), and a watershed of approximately 6 square miles feeds storm water into the Canal from the surrounding neighborhoods [Ref. 6, p. 10; 7, p. 1; 16, p. 9; 17, p. 10].

Numerous past investigations with varying scopes have been conducted within and around the Gowanus Canal. Some of the studies focused on specific properties, while others focused on the contaminated sediments within the Canal [Ref. 16, pp. 8-9; 23, p. 2; 24, p. 2; 26, pp. 4-5; 28, pp. 7-35; 30, p. 4; 31, p. 11; 32, p. 1; 33, pp. 4-5; 34, pp. 2-4; 35, pp. 10-12]. Some of these studies have indicated that PAHs, PCBs, pesticides, metals, and VOCs are present in the Canal sediments [Ref. 16, pp. 23-28; 26, pp. 8-16, 21-46; 35, pp. 134-320]. These contaminants may have entered the Canal via several transport pathways or mechanisms, including spillage, direct disposal or discharge, contaminated ground water discharge, surface water runoff, storm water discharge contaminated soil erosion, or fires at industrial facilities [Ref. 6, pp. 3, 62-63; 25, pp. 4-7; 27, pp. 23, 25; 28, pp. 18-19, 30; 30, pp. 5-7; 31, pp. 84-91; 34, pp. 2-4, 45; 35, pp. 10-11, 19-20, 34, 85-86]. Analytical results for the April-May 2003 USACE sampling event show that the contaminants are located throughout the Gowanus Canal, from location GC-03-30 at the head of the Canal to location GC-03-07 approximately 1.5 miles downstream [Ref. 16, pp. 37, 38, 46-62, 86; 17, pp. 11 and 48].

EPA completed an extensive study of possible contamination sources in July 2004. In addition to standard environmental record sources search performed as specified by American Society for Testing and Materials (ASTM), EPA also conducted a proprietary

database search of former MGPs, a manual review of publicly accessible files maintained by NYSDEC, a review of historic maps, an electronic search of New York Times archives dating back to 1857, a 3-day site reconnaissance of major areas of interest, and interviews with local government officials [Ref. 34, pp. 13-22]. Searches of Federal and state environmental databases indicate that there are hundreds of possible contamination sources in the vicinity of Gowanus Canal. Listed are incinerators, former MGPs, chemical plants, asphalt plants, manufacturing facilities, shipyards, dry cleaners, oil depots, auto repair shops including body shops, salvage yards, tank cleaning companies, recycling and waste disposal facilities, and numerous facilities operated by the Department of Transportation and other State and City agencies [Ref. 34, pp. 13-17, 65-99].

Three of the many possible sources of sediment contamination are the former MGPs located along the Gowanus Canal [Ref. 34, pp. 65-99, 289, 493, 503, 788, 1366]. MGPs used tar and petroleum to produce combustible gas which was used for lighting, heating, and cooking in the surrounding community [Ref. 30, p. 4]. A typical byproduct associated with the manufactured gas process is coal tar, which was likely released at MGPs due to spills and leaks; coal tar is known to be contaminated with PAHs [29, pp. 1, 3]. **While these MGPs are thought to be contributing to the contamination in the Canal, they are not thought to be the only sources of PAHs, nor are they normally associated with several of the individual hazardous substances in the Canal, including PCBs.** Brief descriptions of the former MGPs and associated investigations are provided below:

Former Fulton MGP

The former Fulton Manufactured Gas Plant (Fulton) is located near the northern terminus of the Gowanus Canal. The former MGP extended from the eastern shoreline of the Gowanus Canal approximately three city blocks on either side of Degraw Street east to Third Avenue [Ref. 30, pp. 21, 27, 29; 35, p. 541]. Historical maps indicate that the Fulton facility consisted of two MGPs that operated at this location from approximately 1886 to 1933 [Ref. 30, pp. 4, 21, 27-29].

From April to June 2007, NYSDEC conducted a Site Characterization Investigation of the former Fulton facility to determine if coal tar and associated PAHs are present in the subsurface soil and ground water at the site [Ref. 30, p. 4]. During the investigation, NYSDEC observed subsurface soil saturated with coal tar throughout the former Fulton facility [Ref. 30, pp. 5, 6, 24, 31, 32, 34-39, 41-49, 52, 54, 56-58, 60-62, 65]. At one soil boring, NYSDEC observed coal tar flowing out of the drilling equipment prior to collecting the sample [Ref. 30, p. 5]. During monitoring well development, NYSDEC encountered non-aqueous phase liquid (NAPL) exhibiting a strong coal tar odor in the central portion of the study area, in the immediate vicinity of former MGP structures and visible coal tar soil contamination [Ref. 30, pp. 6, 7, 21, 23, 24]. NYSDEC collected subsurface soil and ground water samples from the former Fulton facility [Ref. 30, pp. 4, 5, 10-18]. NYSDEC laboratory analysis of the subsurface soil samples indicated elevated PAH concentrations in samples collected from western and central portions of the study area, at locations in close proximity to former MGP facility structures of the former Fulton facility [Ref. 30, pp. 14, 15, 21, 22]. Maximum PAH concentrations range from 1,200,000 µg/kg to 2,900,000 µg/kg in a soil boring (KSF-SB-01) completed in the immediate vicinity of a former MGP facility structure [Ref. 30, pp. 14, 15, 21, 22]. Analysis of subsurface soil samples KSF-SB-11 (22'-24') and KSF-SB-12 (16'-18'), collected from eastern portions of the study area, indicated either non-detect values or

estimated concentrations below the SQL, for the same PAH parameters [Ref. 30, pp. 14, 21, 22]. NYSDEC laboratory analysis of the ground water samples indicated significantly higher PAH concentrations in monitoring wells MW-2, MW-6, and MW-7, which are located in the immediate vicinity of former MGP structures, as compared to concentrations detected in upgradient monitoring well MW-5 [Ref. 30, pp. 7, 17, 18, 21, 23]. NYSDEC concluded that lateral movement of coal tar at depths observed during the SCI could intersect the Gowanus Canal [Ref. 30, p. 7].

Former Citizens Gas Works MGP

The Former Citizens Gas Works MGP site (a.k.a. Carroll Gardens/Public Place) property is located at the intersection of Smith and Fifth Streets in the Carroll Gardens neighborhood of Brooklyn [Ref. 31, p. 11]. The Gowanus Canal abuts the property to the east and the southeast [Ref. 35, p. 541]. The former MGP facility began operations in the late 1860s; by 1939 the plant had reached the maximum extent of its construction, encompassing 11.5 acres [Ref. 31, p. 11, 21]. The facility was decommissioned and demolished in the early 1960s [Ref. 31, p. 21]. The property is currently divided into four parcels, including a vacant lot owned by the City of New York [Ref. 31, pp. 11, 12].

Environmental investigations have been conducted in the area of the Former Citizens Gas Works MGP from 1984 to 2005 [Ref. 31, pp. 26-29]. These investigations focused on assessing the environmental impacts resulting from the former operations of the MGP as well as the assessment of an illegal dumping area located on the vacant lot [Ref. 31, pp. 26-28]. The City of New York conducted an investigation within the area of the illegal dump and concluded that there are no environmental conditions associated with drums encountered during the excavation [Ref. 31, p. 12].

Conclusions drawn from previous investigations indicate that the property is impacted by the former operations of the MGP [Ref. 31, pp. 27, 28, 113- 116]. The principal byproduct resulting from the manufactured gas process, coal tar, is present at the property [Ref. 29, p. 1; 31, pp. 27, 28, 113-116]. The most recent RI conducted on the property included the collection of surface and subsurface soil, ground water, and soil vapor samples. Analytical results of soil and ground water samples collected from the property indicated elevated PAH concentrations in two areas of the property where tar was most intensively handled [Ref. 31, pp. 30, 73-82, 113, 114]. These areas are defined by significant zones of coal tar saturation and the presence of coal tar in the subsurface and ground water [Ref. 31, pp. 60, 61, 82].

Former Metropolitan Gas Light Company MGP

The former Metropolitan Gas Light Company (Metropolitan) MGP (a.k.a. former 2nd Avenue MGP; a.k.a. Brooklyn Union Gas Co.) was located at what is now 124-136 Second Avenue, Brooklyn, New York [Ref. 33, pp. 4, 6; 34, pp. 65, 99, 493, 503]. The Gowanus Canal abuts the property to the west-northwest [Ref. 33, p. 6; 35, p. 541]. The southeast portion of the subject property, along with adjacent properties to the south and west, were occupied by a MGP from prior to 1880 until approximately 1938 [Ref. 33, p. 6]. The facility was also the location of an asphalt plant, a paint factory, and a United States Postal Service (USPS) vehicle maintenance facility. The USPS vacated the site in 1992 [Ref. 33, p. 6].

A Final Completion Report for remedial activities conducted at the former Metropolitan facility, prepared for the NYSDEC and USPS in May 2003, concludes that coal tar-impacted soils observed within three former gasholder structures, as well as hotspot areas

> (defined as soil with total PAH concentrations greater than 1,000 milligrams per kilogram [mg/kg]), subsurface soils, and in ground water, are a result of former MGP operations [Ref. 32, p. 1; 33, pp. 6, 7]. Contaminant characterization was conducted from January to March 2002 under a Voluntary Cleanup Agreement (VCA) between the USPS and NYSDEC [Ref. 32, p. 1]. Soil borings were installed and sampled at four suspected hot spot areas and adjacent to the exterior walls of former gasholders [Ref. 32, pp. 1, 2]. PAHs were detected in three of the four areas at concentrations exceeding the hot spot criteria [Ref. 32, pp. 7, 14-16, 18, 22, 23, 26, 28]. Sample CN-2 showed the maximum Total PAH concentration of 226,100,000 µg/kg, with individual PAH concentrations as high as 87,000,000 µg/kg (naphthalene) [Ref. 32, p. 13-32]. The maximum Total PAH concentration from subsurface samples collected beneath the gasholders was 3,360,000 µg/kg in Sample GH-31 (SB7) [Ref. 32, p. 20].

Thus there are multiple possible sources of the contamination in the Canal, some that have clearly contributed to the general contamination in the Canal; others are lost in history given the more than 150 years of Canal use. Some of the contaminants, including the general class of substances known as PAHs, certainly were released by coal gasification plants but were also likely released by CSOs, urban storm water runoff, and spills from barge traffic. Other contaminants, including PCBs and pesticides, cannot be linked with a certain type or class of source. It is impossible to say that the contamination in any particular location in the Canal can be attributed specifically to releases from any particular facility.

Therefore no source can be identified to have caused the significant increase in the contamination in the Canal. In this situation, the identification of a contaminated sediment source with no identified source is consistent with the HRS definition of source.

3.20 Unallocated Sources

Comment: The ELM Group and HydroQual questioned why an unallocated source was not identified instead of a contaminated sediment source and noted that if an unallocated source had been identified the waste quantity would be less and the site score may result in an HRS score for the site lower than 28.50.

Response: The contaminated sediment source was correctly identified and used in the site scoring. Specific responses to these issues are presented in the following sections of this support document:

- 3.20.1 Identification of an Unallocated Source
- 3.20.2 Waste Quantity Based on an Unallocated Source

3.20.1 Identification of an Unallocated Source

Comment: The ELM Group and HydroQual contested the identification of a contaminated sediment source instead of an unallocated source.

The ELM Group stated:

> The HRS documentation identifies Gowanus Canal sediments as a source of contaminants, classified as type "Other," which can be applied to sediments with no identified source. However, the Canal sediments could potentially be classified as an "Unallocated Source," which also applies to hazardous substances that cannot be allocated to any specific source (USEPA, 1992).

HydroQual continued:

> Based on the definitions of source types in the USEPA HRS guidance (USEPA, 1992), Canal sediments could potentially be considered an "unallocated source" rather than an "Other" source type. Both source types are reserved for locations where the presence of hazardous substances cannot be attributed to a particular source.

The ELM Group also stated that the identification of an unallocated source would be consistent with the HRS guidance manual.

HydroQual stated:

> The Gowanus Canal was not properly characterized by USEPA in the HRS scoring process based on HRS definitions and guidance. The USEPA HRS calculation considers the Gowanus Canal a "source" rather than the more appropriate "unallocated source." This treatment results in a much higher hazardous waste quantity factor as a component of the Canal's HRS score. Under the relevant HRS guidance, it would have been appropriate (and more than defensible) to treat the Canal as an unallocated source, which is defined in the Hazard Ranking System as "…hazardous substances and hazardous wastestreams that cannot be allocated to any specific source…"

HydroQual continued:

> The HRS documentation record 4.1.2.1.1, "Attribution" indicates that the origin of the hazardous substances in the sediments have not been identified because of too many possible sources, and one can then presume that the USEPA used the sediments as the source per the above definition. However, Section 4.1.2.1.1 goes on to indicate that "EPA ***identified*** [emphasis added] dozens of possible contamination sources…", and that "EPA completed an extensive study of possible contamination sources in July 2004." Section 4.1.2.1.1 then provides details on three of the identified sources; the Former Fulton MGP, the Former Citizens Gas Works MGP, and the Former Metropolitan Gas Light Company MGP. Thus, USEPA has identified sources, but was not able to allocate hazardous substances present in the sediments to a particular source. As such, the provisions for an unallocated source are considered appropriate.

Response: The characterization of the sources of the contamination in the Gowanus Canal sediments as an unallocated source is consistent with the HRS.

The phrase "unallocated source" is not a defined term in HRS Section 1.1, *Definitions*. However, "source" is defined in that section:

> Any area where a hazardous substance has been deposited, stored, disposed, or placed, plus those soils that have become contaminated from migration of a hazardous substance. Sources do not include those volumes of air, ground water, surface water, or surface water sediments that have become contaminated by migration, except: in the case of either a ground water plume with no identified source or contaminated surface water sediments with no identified source, the plume or contaminated sediments may be considered a source.

HRS Section 2.4.2, *Hazardous waste quantity*, however, uses the phrase "unallocated source." It states in relevant part:

> In evaluating the hazardous waste quantity factor for the three migration pathways, allocate hazardous substances and hazardous wastestreams to specific sources in the manner specified in section 2.2.2, except: consider hazardous substances and hazardous wastestreams that cannot be allocated to any specific source to constitute a separate "unallocated source" for purposes of evaluating only this factor for the three migration pathways. Do not, however, include a hazardous substance or hazardous wastestream in the unallocated source for a migration pathway if there is definitive information indicating that the substance or wastestream could only have been placed in sources with a containment factor value of 0 for that migration pathway.

HRS Section 2.2.2, *Identify hazardous substances associated with a source*, identified in the quote from HRS Section 2.4.2 (above) does not use the phrase "unallocated source," but uses similar wording. This section states:

> In some instances, a hazardous substance can be documented as being present at a site (for example, by labels, manifests, oral or written statements), but the specific source(s) containing that hazardous substance cannot be documented. For the three migration pathways, in those instances when the specific source(s) cannot be documented for a hazardous substance, consider the hazardous substance to be present in each source at the site, except sources for which definitive information indicates that the hazardous substance was not or could not be present.

As explained above, an unallocated source is identified when specific hazardous substances and waste streams cannot be allocated to an existing source at the site. An unallocated source is not an actual HRS source, but rather a means of considering the hazardous waste quantity of hazardous substances that are known to be present at a site, but that cannot be linked to a specific, known source at the site. At the Gowanus Canal site, as discussed in section 3.19, Contaminated Sediment Source, of this support document, the origin or original source of the contamination at any given location within the Canal cannot be identified (i.e., the contamination could not be attributed to a specific source), and so the contaminated sediments themselves were identified as the source. Hence, the hazardous substances in the Canal can be allocated to the contaminated sediments source, an existing source, and it would be incorrect to allocate them to an unallocated source at this site.

3.20.2 Waste Quantity based on Unallocated Source

Comment: Both the ELM Group and HydroQual asserted that the hazardous waste quantity factor value for the site, based on identifying an unallocated source instead of a contaminated sediment source would be significantly lower than that considering the contaminated sediments as a source.

The ELM Group asserted:

> The HRS documentation identifies Gowanus Canal sediments as a source of contaminants, classified as type "Other," which can be applied to sediments with no identified source. However, the Canal sediments could potentially be classified as an "Unallocated Source," which also applies to hazardous substances that cannot be allocated to any specific source (USEPA, 1992). If the sediments are classified as an unallocated source this would significantly change both the hazardous waste quantity and HRS score calculation, and may result in a score lower than the minimum qualifying score of 28.5.

The ELM Group stated further:

> Based on the definitions of source types in the USEPA HRS guidance (USEPA, 1992), Canal sediments could potentially be considered an "unallocated source" rather than an "Other" source type. Both source types are reserved for locations where the presence of hazardous substances cannot be attributed to a particular source. This reclassification would change the method by which the hazardous waste quantity is calculated such that the HRS score may be less than 28.5, the minimum required for NPL listing eligibility.

HydroQual similarly asserted that:

> An alternative hazardous waste quantity factor was developed considering the Gowanus Canal sediment as an "unallocated source" and considering contaminant concentration measured data. The Gowanus Canal HRS score, if calculated using all of the other factors assigned by USEPA with a hazardous waste quantity factor based on an "unallocated source" designation and contaminant concentration data, would be 15.

Response: As discussed in section 3.19, Contaminated Sediment Source, of this support document, the contaminated sediments were correctly identified in the HRS evaluation as a source, and therefore the waste quantity estimate is not based on an unallocated source.

However, both the ELM Group's and HydroQual's assertion that if the site score were recalculated accounting for the contaminated sediments as an unallocated source, a site score of less than 28.50 would result, is incorrect.

HRS Section 2.4.2, *Hazardous waste quantity*, states:

> Evaluate the hazardous waste quantity factor by first assigning each source (or area of observed contamination) a source hazardous waste quantity value as specified below. Sum these values to obtain the hazardous waste quantity factor value for the pathway being evaluated.
>
> In evaluating the hazardous waste quantity factor for the three migration pathways, allocate hazardous substances and hazardous wastestreams to specific sources in the manner specified in section 2.2.2, except: consider hazardous substances and hazardous wastestreams that cannot be allocated to any specific source to constitute a separate "unallocated source" for purposes of evaluating only this factor for the three migration pathways. Do not, however, include a hazardous substance or hazardous wastestream in the unallocated source for a migration pathway if there is definitive information indicating that the substance or wastestream could only have been placed in sources with a containment factor value of 0 for that migration pathway.

HRS Section 2.4.2.1, *Source hazardous waste quantity*, states:

> For each of the three migration pathways, assign a source hazardous waste quantity value to each source (including the unallocated source) having a containment factor value greater than 0 for the pathway being evaluated. Consider the unallocated source to have a containment factor value greater than 0 for each migration pathway.
>
> For the soil exposure pathway, assign a source hazardous waste quantity value to each area of observed contamination, as applicable to the threat being evaluated.

> For all pathways, evaluate source hazardous waste quantity using the following four measures in the following hierarchy:
>
> - Hazardous constituent quantity
> - Hazardous wastestream quantity
> - Volume
> - Area

As the hazardous constituent quantity for the unallocated source would not documentable, Tier A would not be used for determination of the hazardous waste quantity. Tier B, hazardous wastestream quantity, would most likely be used to determine hazardous waste quantity for the unallocated source.

HRS Section 2.4.2.1.2, *Hazardous wastestream quantity*, states:

> Evaluate hazardous wastestream quantity for the source (or area of observed contamination) based on the mass of hazardous wastestreams plus the mass of any additional CERCLA pollutants and contaminants (as defined in CERCLA section 101(33), as amended) that are allocated to the source (or area of observed contamination). For a wastestream that consists solely of a hazardous waste listed pursuant to section 3001 or RCRA, as amended or that consists solely of a RCRA hazardous waste that exhibits the characteristics identified under section 3001 of RCRA, as amended, include the mass of that entire hazardous waste in the evaluation of this measure.
>
> Based on this mass, designated as W, assign a value for hazardous wastestream quantity as follows:
>
> - For the migration pathways, assign the source a value for hazardous wastestream quantity using the Tier B equation of Table 2-5.
> - For the soil exposure pathway, assign the area of observed contamination a value using the Tier B equation of Table 5-2 (section 5.1.2.2).

Considering the multitude of industries established along the Canal since the late 19th century, the mass of hazardous wastestreams that entered the Canal is unknown. Thus, the source waste quantity would be greater than 0, but the exact amount unknown for the source waste quantity.

According to Table 2-6 of the HRS, a value of greater than 0 corresponds to an assigned value of 1 for the hazardous waste quantity factor value. However, footnote "b" of Table 2-6 states:

> For the pathway, if hazardous constituent quantity is not adequately determined, assign a value as specified in the text; do not assign the value of 1.

Thus, as the hazardous constituent quantity is not adequately determined, HRS Section 2.4.2.2, *Calculation of hazardous waste quantity factor value*, states:

> If the hazardous constituent quantity is not adequately determined for one or more sources (or one or more portions of sources or releases remaining after a removal action) assign a factor value as follows:
>
> - [I]f any target for that migration pathway is subject to Level I or Level II concentrations (see section 2.5), assign either the value from Table 2-6 or a value

> of 100, whichever is greater, as the hazardous waste quantity factor value for that pathway.

Pages 30 and 31 of the HRS documentation record at proposal document the identification of an actually contaminated fishery by demonstrating that sediment samples containing hazardous substance that meet the observed release criteria and that have a bioaccumulation potential factor value of 500 or greater.

Since a target is subject to Level II concentrations, a value of 100 would be assigned to the hazardous waste quantity factor value, assuming that the contaminated sediments are an unallocated source.

As a value of 100 would be assigned to the hazardous waste quantity factor value, assuming that the contaminated sediments are an unallocated source, a reevaluation of the waste characteristics factor category value would follow the methodology described by HRS Section 2.4.3.2, *Factor category value, considering bioaccumulation potential*. It states:

> For the surface water-human food chain threat, multiply the toxicity or combined factor value, as appropriate, from section 2.4.1.2 and the hazardous waste quantity factor value from section 2.4.2.2, subject to:
>
> - A maximum product of $1X10^{12}$, *and*
> - A maximum product exclusive of the bioaccumulation (or ecosystem bioaccumulation) potential factor of $1x10^{8}$.
>
> Based on the total waste characteristics product, assign a waste characteristics factor category value to these threats from Table 2-7.

Page 29 of the HRS documentation record at proposal discusses the toxicity/persistence factor value and bioaccumulation potential factor value of the hazardous substances associated with the source under the heading, Waste Characteristics Factor Category Value. It states:

> Two hazardous substances [benzo(a)pyrene and PCBs] associated with the waste source, which has a surface water pathway containment factor greater than 0 for the watershed, corresponds to a Toxicity/Persistence Factor Value of 10,000 and Bioaccumulation Potential Factor Value of 50,000, as shown previously [Ref. 1, pp. 51618, 51620; 2, pp. BI-2, BI-10].

Thus, the waste characteristics factor category value for the surface water pathway could be reevaluated as outlined above. The toxicity/persistence potential factor value of 10,000 would be multiplied by the hazardous waste quantity factor value of 100 (assuming unallocated source), generating a value of $1X10^{6}$. This value would then be multiplied by the bioaccumulation potential factor value of 50,000, generating a value of $5X10^{10}$. According to Table 2-7 of the HRS, this value corresponds to a waste characteristics factor category value of 320.

The human food chain threat score could now be recalculated to accommodate the changes to the waste characteristics factor value. HRS Section 4.1.3.4, *Calculation of human food chain threat score for a watershed*, states:

> Multiply the human food chain threat factor category values for likelihood of release, waste characteristics, and targets for the watershed, and round the product to the nearest integer. Then divide by 82,500. Assign the resulting value, subject to a maximum of 100, as the human food chain threat score for the watershed.

According to page 4 of the HRS documentation record at proposal, the likelihood of release assigned value for the human food chain threat is 550, and the targets assigned value for the human food chain threat is 45.0300003. Applying the above method, the value for the likelihood of release assigned value for the human food chain threat (550) is multiplied by the waste characteristics factor value for the human food chain threat assuming an unallocated source (320), multiplied by the targets assigned value (45.0300003) to obtain a value of 7,925,280.053. This value would then be rounded to the nearest integer and divided by 82,500, to obtain a value of 96.06 for the human food chain threat score of the surface water migration pathway.

The site score would then be calculated according to the formula presented in HRS Section 2.1.1, *Calculation of site score*. The value obtained for the surface water migration pathway score (96.06) would be squared to obtain a value of 9,227.5236. This value would then be divided by 4 to obtain a value of 2,306.8809. Then the square root would be taken of 2,306.8809, which would yield a site score of 48.03. Thus, the recalculation of the site score, assuming the contaminated sediments as an unallocated source, would still result in a value above 28.50, making the site still eligible for listing.

Even though a recalculation of the site score treating the contaminated sediments as an unallocated source would still allow for the site to be eligible for listing, the contaminated sediments were correctly identified as a source.

This comment has no effect on the site score.

3.21 Volume Estimate Reflecting Bioavailability

Comment: The ELM Group questioned the lack of consideration of the bioavailability of the contaminations in the contaminated sediments with a depth over 1 foot in the HRS evaluation and in particular, in the estimate of the source hazardous waste quantity

The Elm Group argued that:

> The vast majority of the impacted sediment in the Gowanus Canal is not likely to pose a risk to aquatic organisms.

The ELM Group continued to state that:

> [a]nalytical results for deep sediment (up to 40 feet below the Canal bottom in some instances) were included in the determination of "hazardous waste quantity". . . There is no scientific basis for inclusion of sampling results from such depths: fish and invertebrates are only exposed to the surficial sediments in the Canal so no risk is posed by the deep sediments and they should be excluded from the HRS Calculation.

The Elm Group argued that not all the contamination in the sediments was bioavailable, and by not considering this, the HRS overestimates the risk posed by the contaminated sediments. It stated:

> The Canal is a net depositional environment, and impacted materials derived from historic industrial activities will continue to be buried by newer, cleaner sediments as solids deposition continues. As the biologically active zone (BAZ) in estuarine sediments is typically limited to the upper 6 to 12 inches of sediment, contaminants below that depth are not relevant for risk determination due to limited exposure potential. However, depths below 12 inches were included in HRS calculations for the Canal and

> comprised the bulk of the volume calculations used for the HRS score. In fact, only one of the samples used by USEPA to document a release and to calculate hazardous waste volume was collected in the surface sediment (0-3 feet). The other samples used in the HRS Score calculation were collected more than 3 feet below the sediment surface, and in some cases more than 40 feet below the Canal bottom. This dataset is completely inappropriate for evaluating risk to aquatic organisms and human populations, as the deep sediment samples are not biologically relevant, and the shallow dataset is too small (1 sample).

The ELM group also claimed that:

> The HRS calculation further ignores abundant concentrations of organic matter and sulfides in the sediment that will limit bioavailability of contaminants to aquatic biota (Section 2.4).

The ELM Group asserted that:

> [T]he physical processes acting in the Canal (i.e., low flow conditions) have created a depositional environment in which historically impacted sediments are continually being buried by new (cleaner) materials. Chemically, the long history of sewage discharges to the Canal has delivered high concentrations of organic matter to the sediment, increasing the ability of the sediment to strongly bind both organic and inorganic contaminants. The low dissolved oxygen concentrations resulting from the CSO discharges also created suitable conditions for the formation of sulfides and other minerals that can also bind contaminants. Under these conditions, the contaminants associated with the sediment are less bioavailable and pose lower risk to ecological receptors. Finally, review of existing data for the Gowanus Canal indicates that the fish population consists primarily of migratory species and is not distinct from the larger Upper New York Bay population.

The ELM Group repeatedly argued in several places in its comment letter that the bioavailability of the contaminants in the Canal sediments should have been considered in the determination of the volume estimate of the contaminated sediments. The ELM Group stated that the estimate of the volume of the contaminated sediments was too high because it included non-bioavailable sediments, and that "the vast majority of impacted sediment in the Gowanus Canal is not likely to pose a risk to aquatic organisms," and that "some of the depths of contaminants used in the HRS calculation were more than 40 feet below the top of the sediment—a depth far below the biologically available contaminant zone (the surface sediments)."

The ELM Group declared that:

> Analytical results for deep sediment (up to 40 feet below the Canal bottom in some instances) were included in the determination of "hazardous waste quantity" – another value factored into the HRS Score. There is no scientific basis for inclusion of sampling results from such depths; fish and invertebrates are only exposed to the surficial sediments in the Canal, so no risk is posed by the deep sediments and they should be excluded from the HRS calculation. If only surficial sediments (less than 12 inches below the Canal bottom) are considered in the volume calculation, the volume of contaminated sediment is decreased more than seven-fold.

In support of these statements, the ELM Group explained that:

> The source of contamination was calculated as 330,000 cubic yards, without regard to the depth (i.e., bioaccessibility) of contaminants.

The ELM Group continued that:

> If the sediment volume calculations are adjusted to account only for the top 12 inches of sediment throughout the entire length and width of the Canal, the hazardous waste quantity is substantially decreased from approximately 330,000 cubic yards to less than 50,000 cubic yards of sediment.

However, the ELM Group acknowledged that:

> The hazardous waste quantity factor value would be the same if the source volume was 25,000 cubic yards or 2,500,000 cubic yards – based on the arbitrary values range allowed by the HRS preparation guidance promulgated by USEPA.

But the ELM Group noted that:

> However, remedial activities associated with cleanup of the MGP sites or other upland sources, as well as dredging associated with future Flushing Tunnel upgrades or navigational requirements (WRDA), will remove additional contaminants and decrease the volume even further.

The ELM Group asserted further that:

> The dataset used to calculate the hazardous waste volume for the HRS Score is inappropriate for this purpose because it includes only 1 shallow sediment sample and the volume of sediment that poses a true exposure risk to humans and wildlife is therefore significantly less than the volume utilized in the HRS calculations.

Response: The HRS does not consider the bioavailability of hazardous substances in an HRS evaluation and specifically does not consider bioavailability as a factor in estimating the hazardous waste quantity at a site.

These comments have no effect on the HRS site score nor on the decision to place this site on the NPL.

3.22 HRS Source Characterization (Hazardous Substances/Hazardous Waste)

Both the ELM Group and HydroQual questioned the characterization of the contaminated sediments as hazardous waste or hazardous materials, respectively. The ELM Group asserted that not all of the contaminated sediments meet the definition of a hazardous waste. HydroQual detailed why it considered that the sediments should not be considered hazardous materials:

> In the HRS score, USEPA defined 40% of the total volume of contaminated sediment found in the Gowanus Canal as hazardous material. While it is acknowledged that the Gowanus Canal sediments are contaminated by constituents defined as hazardous substances under Comprehensive Environment Response, Compensation and Liability

> Act ("CERCLA"), the mere presence of such substances does not necessarily qualify the Gowanus Canal sediments as hazardous material. Use of known and available site-specific data provides a more accurate estimate of the quantity of hazardous material present in Gowanus Canal.

HydroQual claimed:

> Per EPA regulations at 40 CFR 261, a waste is hazardous if it is listed or has the characteristics of a hazardous waste. The sediments are not a listed waste as defined at 40 CFR 261.31-33. The sediments would not be ignitable (40 CFR 261.21), corrosive (40 CFR 261.22), or reactive (40 CFR 261.23). Sediments could be classified as a hazardous waste, therefore, by toxicity (40 CFR 261.24). However, Toxicity Characterisitc Leaching Procedure (TCLP) data on the sediments, the means by which a waste exhibits the characteristic of toxicity, do not indicate that the sediments are hazardous by characteristic (USACE, New York District. Gowanus Study Area Data Assessment Report, Gowanus Bay and Gowanus Canal, King's County, New York. October 2003.)

HydroQual also asserted that:

> Recognizing that the only likely means by which the sediments would be classified as hazardous is through Toxicity Characteristic Leaching Procedure (TCLP) testing, the concentrations of contaminants were evaluated in the context of the TCLP testing. Given the TCLP method, which uses a 20x dilution, a sample could not fail TCLP analysis if the concentration of a particular constituent is not at least 20 times greater than the TCLP criterion for that parameter. For the contaminants found in the Gowanus Canal sediments, either TCLP criteria do not exist (many PAHs, PCBs), or the concentrations were below 20 times the criteria with limited exception (e.g., lead, chromium). However, during a previous investigation, TCLP samples were collected from the area around the Gowanus Canal Flushing Tunnel. The Gowanus Canal Flushing Tunnel is located at the upstream section of the Canal, which is characterized by high levels of metals contamination. Results from these TCLP analyses were near or below detection limits.
>
> Although PCBs are considered a hazardous substance in New York, PCBs do not have a federal or state TCLP regulatory limit. PCBs are regulated under the Toxic Substances Control Act, 40 CFR 761.43 40. CFR 761 provides several thresholds for assessing PCBs. Per 761.61(a)(4)(i)(A), bulk PCB remediation waste (e.g., sediments) may remain in place below a cap if the concentration of PCBs is between 25 and 100 ppm. Per 761.61(a)(5)(v)(A), disposal of PCB remediation waste may be at a municipal/non-hazardous waste disposal facility if the concentration is below 50 ppm. The measured concentrations of PCBs found in the Gowanus Canal sediments are below these thresholds, further supporting the characterization of the Gowanus Canal sediments as non-hazardous.
>
> Overall, the above data indicate that the Canal Sediments would not be considered hazardous waste, thereby indicating that the method of deriving the hazardous waste quantity factor is not realistic in this case.

HydroQual then stated:

> The Gowanus Canal sediments do contain constituents defined as hazardous substances under CERCLA. However, the mere presence of such substances does not mean that the site should be placed on the NPL and be subject to the Superfund program. Rather, the presence of these substances could be evaluated by the HRS system, which the USEPA did, but should be viewed in the context of hazardous waste and the associated HRS scoring factor of hazardous waste quantity. If one were to assess hazardous waste quantity on the basis of the data described above, rather than the mere volume of contaminated sediments, then the hazardous waste quantity factor should correspond with little to no hazardous waste.
>
> If this were the case, then the HRS score, using all of the other factors assigned by EPA with the exception of the hazardous waste quantity factor, would be 15. This calculation, shown in Table 1, results from assigning a hazardous waste quantity factor of 1, assuming, based on the above analysis, that the Gowanus Canal sediments would contain little or no material categorized as hazardous waste.

Response: Whether the Canal sediments qualify as a RCRA hazardous waste or as a hazardous material is not a factor considered in the HRS evaluation of this site both in general and in calculating a source hazardous waste quantity. First, a material need not be a "hazardous waste" under RCRA to be addressed under CERCLA. Second, the HRS factor values using the term "hazardous waste quantity: (e.g., source hazardous waste quantity)" is a title used in the HRS, and the HRS requirements for assigning this factor value do not in any way require the value assigned to reflect only waste that meets the RCRA criteria. Thus, the hazardous waste quantity factor value for the contaminated sediment source was correctly calculated on the volume of the contaminated sediments that compose the contaminated sediment source. Both HydroQual and the ELM Group are mistaken that only materials that meet RCRA hazardous waste quantity criteria are eligible to be considered in determining the source (or pathway) hazardous waste quantity factor value.

RCRA "Hazardous Waste" vs CERCLA "Hazardous Waste"

A material need not be a "hazardous waste" under RCRA to be addressed under CERCLA. Hazardous substances are defined for HRS purposes as "CERCLA hazardous substances, pollutants, and contaminants as defined in CERCLA Sections 101(14) and 101(33), except where otherwise specifically noted in the HRS" (55 FR 51586, December 14, 1990; and 40 CFR Part 300 Appendix A, Section 1.1). Additionally:

- CERCLA Section 101(14) defines "hazardous substance" in the context of other Federal legislation, including substances listed pursuant to Sections 307(a) and 311(b)(2)(A) of the Federal Water Pollution Control Act, Section 3001 of the Solid Waste Disposal Act (known as RCRA), Section 112 of the Clean Air Act, and substances that are the subject of an action under Section 7 of the Toxic Substances Control Act. Thus, hazardous wastes as defined under RCRA are only a subset of the broader list of CERCLA hazardous substances.
- CERCLA Section 102(a) empowers the Administrator to promulgate regulations designating other substances as hazardous if when released into the environment they may present substantial danger to the public health or welfare or the environment.
- CERCLA Section 101(33) defines "pollutant or contaminant" as including but not limited to "any element, substance, compound, or mixture, including disease-causing agents, which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation,

physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring." Substances meeting that definition may also be addressed under CERCLA.

Hazardous Waste Quantity
HRS Section 2.3.2.1, *Source hazardous waste quantity*, states:

> For each of the three migration pathways, assign a source hazardous waste quantity value to each source [including the unallocated source] having a containment factor value greater than 0 for the pathway being evaluated. . .
> For all pathways, evaluate source hazardous waste quantity using the following four measures in the following hierarchy:
> - Hazardous constituent quantity.
> - Hazardous wastestream quantity.
> - Volume.
> - Area. . . .

As noted by HydroQual, the volume tier was used to estimate the source waste quantity. The instructions for determining the volume estimate are in HRS Section 2.4.2.1.3, *Volume:*

> Evaluate the volume measure using the volume of the source (or the volume of the area of observed contamination).

Hence, for this site the volume of the source is the volume being estimated. The HRS does not restrict this volume to only hazardous waste or hazardous materials as defined by RCRA. HRS Section 1.1, *Definitions*, defines "source" as:

> Any area where a hazardous substance has been deposited, stored, disposed or placed, plus those soils that have become contaminated from migration of a hazardous substance. Sources do not include those volumes of air, ground water, surface water, or surface water sediments that have become contaminated by migration, except: in the case of either a ground water plume or contaminated surface water sediments with no identified source, the plume or contaminated sediments may be considered a source.

Therefore a source only needs to contain a hazardous substance to be considered a source, and the volume is of the contaminated sediments.

Page 13 of the HRS documentation record at proposal, under the heading, Location, describes the extent of the contaminated sediment source:

> The contaminated sediments extend for approximately 1.5 miles, from sample location GC-03-30 at the head of the Canal to sample location GC-03-07, as shown in Figure 2 of this HRS documentation record.

The volume estimate for this source used in the HRS scoring is presented on page 21 of the HRS documentation record at proposal in section 2.4.2.1.3, Volume:

> Analytical results for the April-May 2003 USACE sampling event show that the contaminated sediments are located throughout the Gowanus Canal, a length of approximately 1.5 miles (see Sections 2.2.1 and 2.4.1). An extensive sampling event by

> KeySpan from December 2005 to January 2006 confirms the USACE data and shows PAHs at total concentrations as high as 45,000 parts per million (4.5%) [Ref. 35, pp. 40, 134-320]. Based on a review of the KeySpan data and conservative (i.e., low bias) assumptions, a conservative estimate of the volume of contaminated sediments in Gowanus Canal is 330,000 cubic yards [Ref. 51, p. 1]. . . .

Therefore, the source hazardous waste quantity value is correctly based on the volume of the materials containing hazardous substances, and is not based only on the volume of RCRA hazardous waste or hazardous materials.

This comment has no effect on the HRS site score or the decision to place this site on the NPL.

3.23 Inclusion of PCBs in the HRS Evaluation

Comment: The ELM Group commented that PCBs should not be included in the HRS evaluation of the site because after consideration of organic matter concentration in the sediment, nearly all PCB concentrations are below the New York State Sediment cleanup criteria. Specifically the ELM Group stated:

> Sediment PCB concentrations throughout the Canal are generally above the Effects Range-Median (ERM) sediment criteria for potential ecological effects (Long et al, 1995) (Figure 3), but the highest PCB concentrations are found in sediments deeper than 3 feet below the channel bottom, thereby limiting exposure to aquatic organisms. However, the high organic content in Gowanus Canal sediments (average TOC ~19%) is also expected to mitigate potential deleterious effects of PCB contamination by reducing their bioavailability (USEPA, 1991). If average sediment organic carbon (TOC) concentrations are considered in accordance with the NYSDEC Technical Guidance for Screening Contaminated Sediments (1999) using the equilibrium partitioning (EP) method, few samples exceed EP criteria at any depth and in fact are more than an order of magnitude lower than the EP criteria (Figure 3). The PCB concentrations in sediment are below the New York State cleanup criteria, and therefore should not be used as a basis for Superfund designation. The use of PCBs in the HRS calculation for the Gowanus Canal should thus be deleted.

Response: PCBs were correctly considered in the HRS evaluation of the Gowanus site. PCBs were associated with Source 1, the contaminated sediment source, and identified as a hazardous substance released to surface water at observed release levels. Whether or not the hazardous substance (in this case PCBs) levels are at, below, or above a state cleanup criterion is not a factor identified in the HRS as relevant to the HRS evaluation.

PCBs meet the HRS and CERCLA criteria to be identified as an eligible hazardous substance. Section 1.1 of the HRS defines "hazardous substance" as:

> CERCLA hazardous substances, pollutants, and contaminants as defined in CERCLA sections 101(14) and 101(33), except where otherwise specifically noted in the HRS.

CERCLA Section 101(14), defines a "hazardous substance" as:

> (A) any substance designated pursuant to section 311(b)(2)(A) of the Federal Water Pollution Control Act [33 U.S.C. 1321 (b)(2)(A)], (B) any element, compound, mixture, solution, or substance designated pursuant to section 9602 of this title, (C) any hazardous

> waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act [42 U.S.C. 6921] (but not including any waste the regulation of which under the Solid Waste Disposal Act [42 U.S.C. 6901 et seq.] has been suspended by Act of Congress), (D) any toxic pollutant listed under section 307(a) of the Federal Water Pollution Control Act [33 U.S.C. 1317(a)], (E) any air pollutant listed under section 112 of the Clean Air Act [42 U.S.C. 7412], and (F) any imminently hazardous chemical substance or mixture with respect to which the Administrator has taken action pursuant to section 7 of the Toxic Substances Control Act [15 U.S.C. 2606]. The term does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of this paragraph, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

Additionally, as stated in CERCLA Section 101(33), *Pollutants and contaminants*:

> The term "pollutant or contaminant" shall include, but not be limited to, any element, substance, compound, or mixture, including disease-causing agents, which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring; except that the term "pollutant or contaminant" shall not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of paragraph (14) and shall not include natural gas, liquefied natural gas, or synthetic gas of pipeline quality (or mixtures of natural gas and such synthetic gas).

The *Code of Federal Regulations* contains a list of hazardous substances in table 302.4 of 40 CFR part 302.4. According to table 302.4 of 40 CFR part 302.4 (7-1-09 Edition), PCBs are listed as being a CERCLA hazardous substance under section 311(b)(2) of the Clean Water Act, section 307(a) of the Clean Water Act, and section 112 of the Clean Air Act.

The criteria for establishing an observed release for HRS purposes are in HRS Section 4.1.2.1.1, *Observed release:*

> Establish an observed release to surface water for a watershed by demonstrating that the site has released a hazardous substance to the surface water in the watershed.

The requirements for associating a hazardous substance with a source are presented in HRS Section 2.2.3, *Identify hazardous substances available to a pathway,* which states:

> In evaluating each migration pathway, consider the following hazardous substances available to migrate from the sources at the site to the pathway:
>
> - Hazardous substances that meet the criteria for an observed release to surface water in the watershed being evaluated.
>
> - All hazardous substances associated with a source with a surface water containment factor value greater than 0 for the watershed.

A containment factor value of greater than 0 was assigned for the contaminated sediment source as discussed on pages 13 and 14 of the HRS documentation at proposal under the heading, Containment:

> The presence of contaminated sediments provides evidence that a variety of hazardous substances (PAHs, PCBs, pesticides, metals, and VOCs) have migrated into the surface water body (i.e., the Gowanus Canal) from numerous sources. Drilling logs indicate that neither of the following is present: (1) maintained engineered cover, or (2) functioning and maintained run-on control system and runoff management system [Ref. 16, pp. 98-157]. Therefore, a surface water containment factor value of 10 is assigned for this source [Ref. 1, p. 51609, Table 4-2].

As shown above, the HRS contains no directions to consider if a hazardous substance concentration exceeds a cleanup criterion in either establishing an observed release or when associating a substance with a source.

An observed release by chemical analysis was documented at the Gowanus Canal site, as presented on page 24 of the HRS documentation record at proposal:

> An observed release by chemical analysis is documented in the Gowanus Canal between sample location GC-03-30 at the head of the Canal, and sample location GC-03-07, approximately 1.5 miles downstream (see Section 2.2).

Those hazardous substances identified with the observed release are listed on pages 26 and 27 of the HRS documentation record at proposal. PCBs are included within the list of hazardous substances released, as cited on page 27 of the HRS documentation record at proposal.

That PCBs are associated with the contaminated sediment source is documented in Section 2.4.1 of the HRS documentation record at proposal on pages 14 to 20. This section identifies the hazardous substances in sediment samples from the Canal that were used to establish the extent of the contaminated sediment source. In the case of the Gowanus Canal, since the source is a contaminated sediment source, the source was delineated using only those samples in which hazardous substances concentrations also meet the HRS criteria for an observed release by chemical analysis. PCBs were found at observed release levels in 4 of these 16 samples, and are identified, along with the HRS documentation record page number at proposal, in the following table.

PCB Observed Release Samples	
Sample ID	HRS Documentation Record at Proposal Page No.
GC-03-07	18
GC-07-28	20
GC-03-29	20
GC-03-30	20

Therefore, the inclusion of PCBs in the evaluation of observed release and the waste characteristics factor category value is consistent with the HRS, as the hazardous substance both meets the criteria for an observed release to surface water and is associated with a source with a surface water containment factor value greater than 0 for the watershed.

Furthermore, the ELM Group did not correctly interpret the NYSDEC Technical Guidance for Screening Contaminated Sediments equilibrium partitioning (EP) method. The EP method mentioned by the ELM Group, and as described on page 8 of the NYSDEC Technical Guidance for Screening Contaminated Sediments states:

> EP-based criteria should only be derived for sediments with organic carbon fractions between approximately 0.2 - 12% (EPA SAB, 1992). Outside of this range, other factors that the EP methodology does not account for may influence contaminant partitioning.

Reference 35 of the HRS documentation record at proposal describes TOC content analyzed within samples throughout the Gowanus Canal. Samples from within the top three feet of sediment were determined to have a TOC range of 1.1% to 44%. Samples from within accumulated sediment (sediment below three feet to the native material interface) were determined to have a TOC range of 0.73% to 49%. Samples from within the native materials were determined to have a TOC range of 0.037% to 55%. As the Gowanus Canal is documented to have organic carbon concentrations exceeding 12%, the equilibrium partitioning method applied to the sediments within the Gowanus Canal is not applicable. Additionally, even if a New York State criterion for PCBs were not exceeded, it does not eliminate those hazardous substances or their release from consideration when evaluating a site using the HRS. On July 16, 1982, when responding to public comments on the proposed (original) HRS (47 FR 31188), and again on September 8, 1983 (48 FR 40665), the Agency explained why releases within regulatory limits were not "observed releases" under the HRS. As the Agency noted in 1982:

> [e]mission or effluent limits do not necessarily represent levels which cause no harm to public health or the environment. These limitations are frequently established on the basis of economic impacts or achievability.

By contrast, an observed release of PCBs represents a 100 percent likelihood that PCBs can migrate from the site (47 FR 31188, July 16, 1982).

Section 2.3 of the HRS (55 FR 51589, December 14, 1990) states that an observed release can be established either by direct observation or by chemical analysis. An observed release by chemical analysis has occurred when a contaminant is measured significantly above background level if some portion of the release is attributable to the site. Even though levels may be lower than regulatory limits, an observed release has nevertheless occurred if the measured levels are significantly higher than background levels. The HRS does, however, consider whether releases are above regulatory limits in evaluating target populations, increasing by a factor of 10 the weight assigned populations exposed to contaminants above the limits.

Of course, the observed release factor alone is not intended to reflect the hazard presented by the particular release. Instead, the hazard of the site is approximated by the total HRS score, which incorporates the observed release factors with other factors such as waste characteristics (including waste quantity, toxicity, and persistence) and targets. This total HRS score reflects the hazard of the site relative only to the other sites that have been scored. The actual degree of contamination and its effects are more fully determined during the RI after listing.

This comment has no effect on the site score.

3.24 Waste Characteristics: Inclusion of Benzo(a)pyrene and PAHs in HRS Evaluation

Comment: The ELM Group questioned the use of benzo(a)pyrene and PAHs in the evaluation of the HRS for the Gowanus site, and asserted that Superfund listing would not provide any additional benefit or results in faster clean-up of benzo(a)pyrene impacts. Similarly, it argued regarding PAHs, including benzo(a)pyrene, that Superfund listing is not required to achieve clean up of these aspects of contamination within the Canal.

The ELM Group asserted that:

> Benzo(a)pyrene is derived primarily from combined sewer overflow (CSO) discharges and former manufactured gas plants (MGPs). CSO impacts are common in older urban areas, and are generally not addressed by the CERCLA process. Rather, they would be more appropriately addressed through the existing City facilities upgrade plan which is expected to significantly improve Canal sediment and water quality by 2013. Furthermore, cleanup of MGP-related contamination is already being conducted under the New York State cleanup program. Therefore, Superfund listing will not provide any additional benefit or result in faster cleanup of benzo(a)pyrene impacts.

It continued that:

> Additionally, polycyclic aromatic hydrocarbon (PAH) concentrations [including benzo(a)pyrene] in surface sediments are generally lower than concentrations at depth. PAHs are derived from multiple sources, including former MGP sites, road runoff, and input from combined sewer discharges. The latter is often evaluated separately from the CERCLA process.

It asserted further that:

> PAH concentrations are generally highest in the middle to upper reaches of the Canal, with the highest concentrations (up to 4.5%) at depth and in the vicinity of the former MGP sites. PAH concentrations in most samples exceed the ERM, regardless of sample depth in the sediment profile. However, surficial sediments are generally within one order of magnitude of the ERM in the lower and upper reaches of the Canal, with more significant exceedences in the vicinity of the MGP sites (Figure 4). Forensic analysis of PAHs in sediment, conducted by NewFields as part of the GEI Consultants investigation (2007), showed that most MGP-derived waste is located in deeper sediments (greater than 3 feet), with the exception of areas subject to scouring. The shallow PAH contamination, which is more relevant to risk assessment considerations, is primarily petroleum-derived and therefore indicative of runoff and CSO discharges rather than MGP tar (NewFields, 2007, cited in GEI Consultants, 2007). The Superfund process is not intended to address CSO-related impacts, and in fact, the City of New York has a detailed proposal in place to upgrade sewer systems by 2012 (NYCDEP, 2007). The City's proposal includes increasing the capacity of the Flushing Tunnel from 154 mgd to 215 mgd, installing 4 new pumps at the Gowanus Pump Station, replacing the force main inside the Flushing Tunnel, and diverting flow from the Bond-Lorraine Sewer to the Columbia Street Interceptor. These measures are projected to reduce the annual volume of CSO discharges to the Canal by 34% (NYCDEP, 2007).

> In addition, the MGP sites are already subject to a consent agreement between Keyspan / National Grid and the New York State Department of Environmental Conservation, which requires that MGP-derived waste be thoroughly characterized and remediated consistent with State standards. As the PAH impacts from both CSOs and MGP sites are being addressed through other programs, Superfund listing is not required to achieve cleanup of these aspects of contamination within the Canal.

Response: Benzo(a)pyrene and other PAHs were properly evaluated according to HRS scoring methodology, as they were correctly associated with Source 1, the contaminated sediment source, and identified as a hazardous substance released to surface water. That benzo(a)pyrene and PAHs may be addressed through other programs designed to deal with CSOs and MGP facilities has no effect on the HRS site score.

Section 1.1 of the HRS defines "hazardous substance" as:

> CERCLA hazardous substances, pollutants, and contaminants as defined in CERCLA Sections 101(14) and 101(33), except where otherwise specifically noted in the HRS.

Benzo(a)pyrene and other PAHs are considered hazardous substances according to the same methodology used for determining hazardous substance eligibility discussed in section 3.23, Inclusion of PCBs in the HRS Evaluation, of this support document.

CERCLA contains a list of hazardous substances in table 302.4 of 40 CFR part 302.4. According to table 302.4 of 40 CFR part 302.4 (7-1-09 Edition), benzo(a)pyrene is listed and meets the statutory criteria for designation as hazardous substances from Section 307(a) of the Clean Water Act and Section 3001 of the Resource Conservation and Recovery Act (RCRA). While the ELM Group did not name other PAHs specifically, those used listed within the HRS documentation record at proposal are also found in table 302.4 of 40 CRF part 302.4, and meet various statutory criteria for designation as hazardous substances (except for 2-methylnaphthalene, which meets the definition of a pollutant or contaminant under CERCLA Section 101(33)).

The criteria for establishing an observed release were evaluated according to the following HRS methodology. HRS Section 4.1.2.1.1, *Observed release*, states:

> Establish an observed release to surface water for a watershed by demonstrating that the site has released a hazardous substance to the surface water in the watershed.

The requirements for associating a hazardous substance with a source are presented in HRS Section 2.2.3, *Identify hazardous substances available to a pathway*, which states:

> In evaluating each migration pathway, consider the following hazardous substances available to migrate from the sources at the site to the pathway:
>
> - Hazardous substances that meet the criteria for an observed release to surface water in the watershed being evaluated.
>
> - All hazardous substances associated with a source with a surface water containment factor value greater than 0 for the watershed.

A containment factor value of "greater than 0" was assigned for the contaminated sediment source as discussed on pages 13 and 14 of the HRS documentation record at proposal under the heading, Containment:

> The presence of contaminated sediments provides evidence that a variety of hazardous substances (PAHs, PCBs, pesticides, metals, and VOCs) have migrated into the surface water body (i.e., the Gowanus Canal) from numerous sources. Drilling logs indicate that neither of the following is present: (1) maintained engineered cover, or (2) functioning and maintained run-on control system and runoff management system [Ref. 16, pp. 98-157]. Therefore, a surface water containment factor value of 10 is assigned for this source [Ref. 1, p. 51609, Table 4-2].

As shown above, the HRS does not provide for a method of consideration of the origin of the hazardous substances, or the consideration of alternative cleanup measures associated with the hazardous substances.

An observed release of benzo(a)pyrene and other PAHs by chemical analysis was documented at the site, as presented on page 24 of the HRS documentation record at proposal under the heading, Chemical Analysis:

> An observed release by chemical analysis is documented in the Gowanus Canal between sample location GC-03-30 at the head of the Canal, and sample location GC-03-07, approximately 1.5 miles downstream (see Section 2.2).

Those hazardous substances identified with the observed release are listed on pages 26 and 27 of the HRS documentation record at proposal. Benzo(a)pyrene and other PAHs are included within the list of hazardous substances released, as cited on page 27 of the HRS documentation at proposal.

That benzo(a)pyrene and other PAHs are associated with the contaminated sediment source is documented in section 2.4.1 of the HRS documentation record at proposal on pages 14 to 20. This section identifies the hazardous substances in sediment samples from the Canal that were used to establish the extent of the contaminated sediment source. In the case of the Gowanus Canal, since the source is a contaminated sediment source, the source was delineated using only those samples in which hazardous substances concentrations also meet the HRS criteria for an observed release by chemical analysis. Specifically, benzo(a)pyrene was found at observed release levels in 6 of these 16 samples, and is identified, along with the HRS documentation record page number at proposal, in the following table.

Benzo(a)pyrene Observed Release Samples	
PAH Substance	HRS Documentation Record at Proposal Page No.
GC-03-14	18
GC-03-21	19
GC-03-23	19
GC-03-25	19
GC-03-26	19
GC-03-28	20

ELM Group's assertion that benzo(a)pyrene or other PAHs are not required to be addressed through Superfund because of their association with CSOs and MGP facilities and because those substances are

being assessed through other cleanup programs, is irrelevant to HRS scoring methodology. As discussed above, the origin of the hazardous substances is not an evaluation criterion established in the HRS. Similarly, the existing or planned cleanup programs designed to address specific contaminants is not an evaluation criterion established in the HRS.

Therefore, the inclusion of benzo(a)pyrene in the evaluation of observed release and the waste characteristics factor category value is consistent with the HRS, as the hazardous substance meets both the criteria for an observed release to surface water and was properly associated with Source 1, the contaminated sediment source.

This comment does not have an effect on the site score.

3.25 Background Location

Comment: HydroQual asserted that the selection of background sample locations from the Gowanus Bay indicate that the contamination in the bay did not come from the Canal.

HydroQual stated:

> USEPA's use of immediately downstream samples from Gowanus Bay as background for comparison to sediment quality in the Gowanus Canal indicates that sediment transport is not significant out of the Canal. The use of Gowanus Bay sediments as a reference location and the naturally stagnant conditions in the Gowanus Canal indicate that, apart from the fact that sediments within the Gowanus Canal are contaminated, these sediments are contained and have not posed a threat to downstream water bodies.

It further stated that:

> As noted previously in Section 2.1, the reference location used in the HRS scoring is the Gowanus Bay, which is the approximately half mile area directly downstream of the Gowanus Canal. Reference locations are typically selected either upstream of a site or very distant from a site in an un-impacted or pristine location. The location of the reference area, Gowanus Bay, directly downstream of the Canal indicates that constituents found in the Canal are likely to remain in the Canal, supporting that the Canal is not a source of pollution to the Gowanus Bay or Upper New York Bay, and providing yet another qualifying factor for not placing the Canal on the NPL.

Response: The use of the background samples from Gowanus Bay to establish background levels for contaminants in the Gowanus Canal cannot be construed to indicate that contamination from the Canal cannot and has not migrated from the Canal into the Bay. Background levels are used in the identification of a significant increase in contaminant concentrations due to the release from the site, therefore they should reflect the concentrations of the released substances prior to the release. Although background locations are ideally chosen upgradient of the releases samples, this was not possible at the Gowanus Canal site because the entire Canal is contaminated. Other nearby water bodies with similar physical and socioeconomic conditions in the watersheds were also considered, but none could be identified that were similar in use to the Canal, or that were also not considered significantly contaminated. However, the background samples selected downstream from the source in the Gowanus Bay provide adequate evidence that the contaminated sediments of Source 1 exhibit a significant increase in hazardous substances.

The HRS does not identify requirements or define conditions for establishing background. The HRS addresses background only in the context of identifying an observed release of substance to the environment by chemical analysis. HRS Section 2.3, *Likelihood of release*, states:

> The minimum standard to establish an observed release by chemical analysis is analytical evidence of a hazardous substance in the media significantly above the background level.

This HRS section also refers to HRS Table 2-3 which identifies the observed release criteria for chemical analysis. This table requires that when the sample measurement (i.e., the chemical concentration of a hazardous substance in a candidate release sample) is greater than or equal to the sample quantitation limit, an observed release can be established:

> If the background concentration is not detected (or is less than the detection limit), an observed release is established when the sample measurement equals or exceeds the sample quantitation limit.

Or:

> If the background concentration equals or exceeds the detection limit, an observed release is established when the sample measurement is 3 times or more above the background concentration.

The location of the background sample is not used to establish the part of a surface water body evaluated as actually or potentially impacted by a release from a site which, in HRS terminology, is referred to as "identifying the in-water segment and the target distance limit of the surface water pathway." This identification is addressed in HRS Section 4.1.1.2, *Target distance limit*. Basically the in-water segment starts at the most upstream probable point of entry (PPE) of contamination from a source at the site and extends 15 miles downstream from the most downstream PPE (or further if an observed release from the site is established further downstream).

Figure 2 on page 12 of the HRS documentation record at proposal identifies the location of the 5 background samples used to establish the background levels of various substances in releases attributable to the site. As Figure 2 shows, the samples are all located downstream of the Canal. Page 14 of the HRS documentation record at proposal describes why these samples were considered sufficiently similar to the Canal sediment samples that any significant increase in contaminant concentrations was considered due to the release and not variation in the physical conditions at the site. Under the heading, Notes on Sample Similarity, the HRS documentation record at proposal states:

> Since the contamination begins at the head of the Canal, it was not possible to obtain upstream samples to document background level concentrations. Therefore, downstream samples collected from Gowanus Bay beyond the documented area of sediment contamination were used to establish background concentrations. The background samples from Gowanus Bay and contaminated samples from Gowanus Canal were handled the same procedurally and were similar physically, as follows:
>
> - The background and release sediment samples were all collected by USACE, using Standard Penetration Test (SPT) sampling methodology, during the sampling event in April and May 2003 [Ref. 16, pp. 14, 24, 261-286; 52, pp. 1-23].

- A single laboratory (Fort Monmouth Environmental Testing Laboratory) analyzed the samples for VOCs according to EPA Method 8260, SVOCs according to EPA Method 8270, pesticides according to EPA Method 8081, PCBs according to EPA Method 8082, and metals according to EPA Method 6010B, as well as other parameters [Ref.16, pp. 290, 291]. References 18 through 22 present the applicable analytical methods.

- The Gowanus Canal and Gowanus Bay are both part of the same estuary (i.e., the New York-New Jersey Harbor Estuary) and are classified under the HRS as "Coastal tidal waters," in which flow and depth characteristics are not considered to be applicable for the evaluation [Ref. 1, pp. 51605, 51613; 4; 9, pp. 1, 6].

- Although the height of the water column varied (15.5 to 30 feet for background; 1 to 21 feet for release), the geologic cross-sections within the Bay and Canal are similar: clay above sand, with variable thickness of the clay layer including gaps [Ref. 16, pp. 88-91, 98-107, 110-111, 114-115, 118-125, 132-133, 138-139, 142-157].

- The percent moisture in the background samples ranged from approximately 16% to 63%, while the percent moisture in the release samples ranged from approximately 11% to 68% [Ref. 16, pp. 405-414, 427-444, 454-495, 502-518, 525-545, 563-565, 573, 581, 583-586, 599-601, 617-622; 52, pp. 1, 32-36].

- The grain-size descriptions for the background samples ranged from "clay, trace of sand" to "silty, fine to medium sand, trace of gravel"; the grain-size descriptions for the release samples ranged from "clay, trace of sand" to "silty, fine to coarse sand with gravel" [Ref. 16, pp. 197-200, 202-204, 208, 211, 213-220].

Due to these similarities (i.e., same time frame, same sampling and analytical methods, same laboratory, similar ranges of percent moisture values, and similar sediment descriptions) among all the background samples from Gowanus Bay and release samples from Gowanus Canal, the background and release analytical results are considered to be comparable. EPA compared observed release concentrations to the maximum background concentration for each analyte.

As explained above, for HRS evaluation purposes, the background sample locations are only used as a reference point to establish that a significant increase in contaminant levels in the release samples has occurred. Ideally, background samples are collected from an area outside of the influence of the release being evaluated, but with similar physical and socioeconomic conditions. While this would most clearly be shown using samples from background locations upgradient of the releases samples, this was not possible at the Gowanus Canal site because the entire Canal is contaminated. Other nearby water bodies with similar physical and socioeconomic conditions in the watersheds were also considered, but none could be identified that were similar in use to the Canal, or which were also not considered significantly contaminated.

EPA therefore used background samples from immediately downstream of the Canal, but with as similar as possible physical conditions. While the samples chosen certainly contained contamination that could have migrated from the Canal, as shown in Tables 1 and 2 on pages 16 and 17 of the HRS documentation record at proposal, the levels in the background samples are sufficiently lower than in the release samples

to meet the HRS Table 2-3 criteria to show a significant increase due to releases from the site (see Table 2 pages 17-20 of the HRS documentation record at proposal).

It is possible that using these background sample locations may result in an underestimate of the extent of the contamination migrating from the Canal into Gowanus Bay. However, given that the HRS evaluation is only a preliminary evaluation of the site and the actual extent of the site is determined after further investigation is undertaken, and that the site score is more than sufficient to qualify the site for the NPL even with this possible underestimate, such a possible underestimate is acceptable.

Furthermore, while the Gowanus Canal may presently have insufficient natural current and discharge to keep in suspension and flush all contamination in the Canal from it, this does not document that there is no contaminant transport from the Canal. The Canal is tidal, there are urban stormwater runoff and CSO influents into the Canal and, as discussed in its comments, the City flushes an average of 154 million gallons a day through the Canal. (See page 23 of the HRS documentation record at proposal and page 7 of the City's comments submitted July 8, 2009.) The amount of contaminant transport from the Canal and the risk posed by it will be considered during later stages of the Superfund process for the site.

3.26 Likelihood of Release: Other Data Sets

Comment: The ELM Group, after questioning the adequacy of the analytical data used in the identification of observed releases and for other HRS purposes, stated:

> More extensive datasets, with thorough QA/QC protocols in place exist for the Canal and Upper New York Bay (e.g., Adams and Benyi, 1998; GEI Consultants, 2007), and would have been more appropriate as a foundation for HRS scoring.

Response: The analytical data used in the identification of an observed release in the HRS documentation record at proposal has been shown to be adequate to establish an observed release at this site (see section 3.18, Likelihood of Release, of this support document). The data set from the study performed by Adams and Benyi, *Sediment Quality of the NY/NJ Harbor System: A 5-year Revisit*, one of the data sets suggested for use by the ELM Group, was examined and determined insufficient to construct an HRS site score for the Gowanus Canal site because of its lack of a comprehensive data set specifically from the Gowanus Canal. However, even if the suggested data set were used in the HRS evaluation instead of the USACE data set, the HRS score would be the same as the score at proposal.

HRS Section 4.1.2.1.1, *Observed release*, contains the directions used to establish observed releases:

> Establish an observed release to surface water for a watershed by demonstrating that the site has released a hazardous substance to the surface water in the watershed. Base this demonstration on either:
>
> - Direct observation:
>
> ….
>
> - Chemical analysis:
>
> o Analysis of surface water, benthic, or sediment samples indicates that the concentration of hazardous substance(s) has increased significantly above the background concentration for the site for that type of sample (see section 2.3).
>
> ✓ Limit comparisons to similar types of samples and background concentrations – for example, compare surface water samples to surface water background concentrations.

- ✓For benthic samples, limit comparisons to essentially sessile organisms.
- o Some portion of the significant increase must be attributable to the site to establish the observed release, except: when the site itself consists of contaminated sediments with no identified source, no separate attribution is required.

If an observed release can be established for a watershed, assign an observed release factor value of 550 to that watershed, enter this value in Table 4-1, and proceed to section 4.1.2.1.3.

On page 24 of the HRS documentation record at proposal, in section 4.1.2.1.1, Observed Release, under the heading, Chemical Analysis, the following statement is made:

> An observed release by chemical analysis is documented in the Gowanus Canal between sample location GC-03-30, at the head of the Canal, and sample location GC-03-07, approximately 1.5 miles downstream (see Section 2.2).

Section 2.2 of the HRS documentation record at proposal (pages 14 to 20) contains Table 2 which includes the analytical results of the two samples referred to above, along with the analytical results of the 14 samples which were collected between them, collectively spanning the 1.5-mile length of the Canal. Together, these 16 samples illustrate the observed release to the Gowanus Canal, contrasted with the 5 background samples collected from Gowanus Bay. All 21 of the sample locations are illustrated on Figure 2 of the HRS documentation record at proposal.

Site Score Based on GEI Data Set

Regarding the ELM Group's comment that more extensive data sets exist, and "would have been more appropriate as a foundation for HRS scoring," the following report, cited by the ELM Group and provided as Reference 35 of the HRS documentation record at proposal, has been evaluated as a possible alternative "foundation for HRS scoring": GEI Consultants, Inc. *Draft Remedial Investigation Technical Report, Gowanus Canal, Brooklyn, New York, ACO Index No. A2-0523-0705*. Prepared for KeySpan Corporation. April 2007 (hereinafter referred to as the GEI report). As presented below, the results of the evaluation of this analytical data set demonstrate that while the zone of contamination in the Canal would be slightly less extensive, no change to any HRS scoring factor or to the overall site score would result from using the GEI report in the HRS evaluation.

Background Information

GEI established 27 transects across the Canal, beginning at the head of the Canal and proceeding downward to the mouth of the Canal at Gowanus Bay. At each transect, samples were collected across the width of the Canal. GEI collected samples at each transect from three depth zones: surface sediment samples, subsurface sediment samples, and native material samples. The sample results for all samples and all contaminants are shown in Reference 35, Tables 4, 5, and 6 of the HRS documentation record at proposal. Figures in Reference 35, pages 541-544, illustrate the sample locations.

Using this GEI data set alone to establish an observed release meant first establishing new background levels for the contaminants being considered, then identifying the release samples that contained hazardous substances whose concentrations meet the HRS criteria for establishing an observed release by chemical analysis.

The hazardous substances selected to be considered in this analysis were those substances associated with the greatest toxicity/persistence/bioaccumulation factor. In evaluating the Human Food Chain Threat, HRS Section 4.1.3.2.1.4, *Calculation of toxicity/persistence/bioaccumulation factor value*, specifies,

"[u]se the hazardous substance with the highest toxicity/persistence/bioaccumulation factor value for the watershed to assign the value to this factor." Other hazardous substances could have been included in the rescoring but their inclusion would not have changed this alternative site score. These substances include:

- PCBs (Aroclor-1242, -1248, -1254, and -1268)
- Benzo(a)pyrene
- Benzo(a)anthracene
- Indeno(123-cd)pyrene
- DDT
- Dieldrin
- Lead

As shown on page 28 of the HRS documentation record at proposal, these substances are associated with a toxicity/persistence/bioaccumulation factor value of either 5×10^7 or 5×10^8.

Background Levels
For the purpose of this alternative evaluation, because there were no Gowanus Bay samples from the GEI data set in the area where the background samples were collected in the USACE study, samples that were located at the most upstream end of the Canal were selected to represent background levels. This was done because in spite of the contamination in these samples, the samples could be used to demonstrate a significant increase of hazardous substances in the observed release samples described below. (However this does not mean that this area of the Canal was not contaminated, only that the contamination in the rest of the Canal was significantly greater.) Different background levels were established for the three different depth zones: surface sediment samples, subsurface sediment samples, and native material samples (these samples were collected across the width of the Canal at Transect A). For each contaminant, the maximum background concentration in any of the three samples (or the maximum background sample quantitation limit [SQL] if no detections above the SQL were found) was selected to represent the background level for comparison to the release samples. It is also significant to note that the use of samples from this location to establish background levels resulted in generally higher background levels than those used in the HRS documentation record at proposal. This should not be interpreted as indicating that the background levels in the HRS documentation record at proposal are incorrect, rather, only that these "contaminated background" samples are the most appropriate and best available samples from the GEI data set to establish background levels for this alternative evaluation. Attachment 3 to this support document presents the background samples and background levels for each evaluated substance in each depth range for the GEI data set.

Release Samples
As can be seen in the Reference 35 figures on pages 541-544, the remaining 26 transect locations are spaced along the length of the Canal all the way down to the mouth of the Canal at Gowanus Bay. Attachment 3 to this support document presents the release samples that had contaminant concentrations significantly higher than the background levels: these samples thus could be used to establish an observed release by chemical analysis, using only analytical results that were not qualified as having possible analysis issues during the data validation review.

The results of this alternative evaluation using only the GEI data set revealed that observed release criteria are consistently met in the surface sediment samples and in many of the subsurface sediment and native material samples throughout the length of the Canal for a number of hazardous substances, notably PCBs, benzo(a)anthracene, and benzo(a)pyrene. As such, in accordance with HRS Section 4.1.2.1.1 cited above, a Likelihood of Release value of 550 would still be assigned.

Other Considerations
The following methodology utilized the data from the GEI report to obtain a new hazardous waste quantity estimate. While the surface sediment samples consistently met observed release criteria with multiple hazardous substances throughout the length of the Canal, subsurface sediment samples and native material samples at a number of transect locations also met observed release criteria. The sample depths at these locations were used to represent the lower extent of contamination, whereas at transect locations where only the surface sediment sample(s) met observed release criteria, the depth of this sample was used to represent the lower extent of contamination. At each location, the appropriate sample depth was input into a Geographic Information System (GIS) program to represent the depth component of a volume computation. The extent of surface sediment contamination meeting observed release criteria (all transects except the background location) represented the area component. Based on this information, using the GIS software, the volume of contaminated sediment was calculated to be 237,385.3 cubic yards. The source type is "Other," so using the divisor of 2.5 from HRS Table 2-5 results in a hazardous waste quantity (HWQ) value of 94,954.12. Applying this value to HRS Table 2-6, as instructed by HRS Section 2.4.2.2, yields a HWQ assigned factor value of 10,000, which is the same as the HWQ assigned factor value in the HRS documentation record at proposal.

In addition, the zone of actual contamination (Level II fishery) would be very nearly the same as in the HRS documentation record at proposal, with the only difference being that in this case the zone would begin a short distance downstream of the head of the Canal at the location of Transect B (samples GC-SED04 and GC-SED05). The zone of actual contamination would then continue throughout the remainder of the length of the Canal to its mouth.

Further, the use of the GEI report in support of the scoring would result in the same value for toxicity/persistence/bioaccumulation. A number of the same contaminants are present in the observed release in the GEI data as are evaluated in the HRS documentation record at proposal, most notably the two highest scoring contaminants, benzo(a)pyrene and PCBs. As shown in section 4.1.3.2.1 of the HRS documentation record at proposal, both benzo(a)pyrene and PCBs are assigned the maximum toxicity (10,000), the maximum persistence (1), and the maximum bioaccumulation potential factor value (50,000), resulting in the maximum matrix value from HRS Table 4-16 (5×10^8).

Based on the results of this evaluation, the analytical results within the GEI report also support an observed release to the Gowanus Canal. If this data were used to support the HRS score, the zone of actual contamination would remain largely the same, the Likelihood of Release value would remain 550, the HWQ assigned factor value would still be 10,000, and the toxicity/persistence/bioaccumulation factor value would remain 5×10^8.

This comment has no effect on the HRS score or the decision to place this site on the NPL.

3.27 Waste Characteristics: Bioaccumulation

Comment: The ELM Group asserted that the EPA had "disregarded available fish tissue contamination data that refutes the level of risk implied by the Bioaccumulation Potential Factor Value. It stated that:

> The Human Food Chain Threat calculated for the Canal was based on the assumption that benzo(a)pyrene and PCBs in the Canal sediments are taken up by fish and invertebrates, which are subsequently eaten by humans, posing an unacceptable health risk. However, the USEPA disregarded the findings of fish population studies in the Canal and Upper New York Bay that clearly conclude that the fish population is composed primarily of migratory fish consistent with the fish populations in the Upper New York Bay. USEPA further disregarded available fish tissue contaminant data that refutes the level of risk

> implied by the Bioaccumulation Potential Factor Value. Existing fish and invertebrate contaminant data for the Upper New York Bay that indicates that contaminant concentrations in fish are lower than many other locations within the greater Hudson-Raritan Estuary. These data support the prediction that much of the sediment contamination in the Canal is not bioavailable, and / or that fish spend such a small proportion of their lifecycle in the Canal as to significantly minimize exposure and bioaccumulation.

The ELM Group also argued that:

> Based on studies conducted for the Army Corps of Engineers (LMSE, 2004), the fish population identified in the Gowanus Canal and Bay consists primarily of migratory species that are common in Upper New York Bay and the larger Hudson-Raritan estuary. Striped bass was the dominant species captured during the survey, and is also abundant in Upper New York Bay. Very few resident fish species were identified during the adult fish survey, and little evidence of fish spawning in the Canal was apparent based upon the results of the ichthyoplankton survey (LMSE, 2004). Due to the migratory nature of the fish population in the Gowanus Canal, individuals likely spend a very small proportion of their lifecycle within the confines of the Canal. If bioavailability of sediment contaminants is limited by high organic matter or sulfide concentrations, as is likely the case in the Canal, this further reduces exposure risk and potential bioaccumulation.

It continued:

> The determination of actual fishery contamination in the HRS Score calculation was based on the theoretical Bioaccumulation Potential Factor Value, which considers potential toxicity and persistence of PCBs and benzo(a)pyrene without consideration of the mitigating factors described above. Review of actual data for the Upper New York Bay reveals that mean PCB concentrations in striped bass muscle tissue and all edible blue crab tissues are below the US Food and Drug Administration (USFDA) consumption tolerance of 2,000 ng/g (NYSDEC, 2004; NYSDEC, 2005). Furthermore, concentrations of benzo(a)pyrene in fish tissue accounted for less than 1% of total PAH concentrations detected in fish tissues in the Upper Bay, with the exception of winter flounder where benzo(a)pyrene accounted for less than 4% of total PAH (NYSDEC, 2006). ***Thus, USEPA disregarded available fish tissue contaminant data that refutes the level of risk implied by the Bioaccumulation Potential Factor Value.***

The ELM Group asserted that "[t]he generic approach utilized in the HRS Score calculation to determine the Bioaccumulation Potential Factor Value for the Gowanus Canal significantly overestimates the real risk posed by PCBs and benzo(a)pyrene."

The ELM Group explained that:

> The simple fact that tissue concentrations of the contaminants of concern cited in USEPA's HRS Score are low to intermediate in comparison to other locations in the Hudson-Raritan estuary (NYSDEC 2004, 2005, 2006) supports the prediction that much of the sediment contamination in the Canal is not bioavailable, and / or that fish spend such a small proportion of their lifecycle in the Canal as to significantly minimize exposure and bioaccumulation. As a result, risks due to consumption of fish caught in the Gowanus Canal are unlikely to be greater than at any other location in the Upper New York Bay, and may be lower than some other locations within the

> Hudson-Raritan estuary. None of this data was considered by USEPA in the course of their HRS calculation, even though it provides a stronger technical basis for evaluating risk than the theoretical toxicity/ persistence/ bioaccumulation factors employed in the HRS process.

It continued:

> USEPA fails to consider site-specific sediment characteristics (TOC, sulfides) and fish tissue and population data that indicate that sediments in the Canal pose limited risk to the fish population. Superfund designation of the Gowanus Canal is unlikely to address concerns regarding bioaccumulation and contaminant concentrations in fish, since exposure to individuals found in the Canal will also occur elsewhere in their home range.

Response: The bioaccumulation potential factor value has been appropriately assigned in accordance with the provisions of the HRS. HRS Section 4.1.3.2.1.3 instructs the scorer to:

> Use the following data hierarchy to assign a bioaccumulation potential factor value to each hazardous substance:
> - Bioconcentration factor (BCF) data.
> - Logarithm of the n-octanol-water partition coefficient (log K_{ow}) data.
> - Water solubility data.
>
> Assign a bioaccumulation potential factor value to each hazardous substance from Table 4-15.
>
> If BCF data are available for any aquatic human food chain organism for the substance being evaluated, assign the bioaccumulation potential factor value to the hazardous substance as follows:
>
> - If BCF data are available for both fresh water and salt water for the hazardous substance, use the BCF data that correspond to the type of water body (that is, fresh water or salt water) in which the fisheries are located to assign the bioaccumulation potential factor value to the hazardous substance.
> - If, however, some of the fisheries being evaluated are in fresh water and some are in salt water, or if any are in brackish water, use the BCF data that yield the higher factor value to assign the bioaccumulation potential factor value to the hazardous substance.
> - If BCF data are available for either fresh water or salt water, but not for both, use the available BCF data to assign the bioaccumulation potential factor value to the hazardous substance.
>
> If BCF data are not available for the hazardous substance, use log K_{ow} data to assign a bioaccumulation potential factor value to organic substances, but not to inorganic substances. If BCF data are not available, and if either log K_{ow} data are not available, the log K_{ow} is available but exceeds 6.0, or the substance is an inorganic substance, use water solubility data to assign a bioaccumulation potential factor value.
>
> Do not distinguish between fresh water and salt water in assigning the bioaccumulation potential factor value based on log K_{ow} or water solubility data.
> If none of these data are available, assign the hazardous substance a bioaccumulation potential factor value of 0.5.

The HRS does not call for or require site-specific bioaccumulation factor values to be developed or that evidence of bioaccumulation be provided to assign this factor value (Section 3.15, HRS Concept, of this support document addresses bioaccumulation potential as a factor value.)

Page 28 of the HRS documentation record at proposal, section 4.1.3.2.1, presents the bioaccumulation factor values for each of the hazardous substances found in the observed release in the Canal sediments, including benzo(a)pyrene and PCBs and provides the citation to the source of the assigned values. The following footnote from the table explains why the salt water BCF and bioaccumulation potential factor values are used:

> The Gowanus Canal is a tidal arm of the New York-New Jersey Harbor Estuary and is classified as a Class SD saline surface water. The only fresh water that enters the Canal is stormwater runoff and CSO discharges during storm events [Figure 1 of this HRS documentation record; Ref. 7, pp. 1, 2]. The Food Chain Bioaccumulation Potential Factor Value that corresponds to the type of water body in which the fishery is located (i.e., salt water) is assigned to each hazardous substance [Ref. 1, p. 51617].

The bioaccumulation potential factor values for salt water for benzo(a)pyrene and PCBs were obtained based on information contained in published and peer reviewed references. For benzo(a)pyrene, the bioconcentration factor was obtained from the study:

> Murray, A.P., B.J. Richardson, and C.F. Gibbs, 1991. Bioconcentration Factors for Petroleum Hydrocarbons, PAHs, LABs and Biogenic Hydrocarbons in the Blue Mussel. Marine Pollution Bulletin, 22(12):595-603

For PCBs the bioconcentration factor was obtained from the study:

> Vreeland, V., 1974, Uptake of Chlorobiphenyls by Oysters. Environmental Pollution, 6(2):135-140

The Bioaccumulation Potential Factor Value for each contaminant was assigned from HRS Table 4-15 based on its BCF. Thus, the requirements of the HRS for assigning the bioaccumulation potential factor values were satisfied.

Regarding the ELM Group's argument that EPA did not consider fish tissue contaminant data or the possibility of high organic matter or sulfide concentrations in sediment in assigning the HRS site score, this level of detail is not required under the HRS. It is, however, the level of information used during a different stage of the Superfund remediation process, when a site-specific risk assessment is performed and used to determine the appropriate remedial actions (if any) for the site (see section 3.6, Site-Specific Risk, of this support document).

This comment has no effect on the HRS score or the decision to place the site on the NPL.

3.28 Human Food Chain Fishery: Evidence of Consumption

Comment: The ELM Group questioned the adequacy of documentation used to identify the presence of consumption of human food chain organisms from the actually contaminated portion of the Gowanus Canal. It stated that "limited evidence of actual consumption is provided in the HRS Documentation," that "USEPA provided no compelling evidence of actual fish consumption from the Canal," and that "the little documentation of fish consumption from the Canal that is provided in the HRS was not from scientific sources."

The ELM Group specifically argued that:

> The HRS documentation cites nine sources that indicate recreational fishing and crabbing, in some cases for consumption, in the Gowanus Canal. Three of these sources (identified in the HRS documentation as reference numbers 13-15) provide anecdotal evidence of consumption. The first reference (#13, New Yorkology) mentions fishermen near the Gowanus basin and indicates that people do take fish home, but no specifics are provided regarding frequency of use or species caught. The second (#14, The Gowanus Lounge blog) cites a "reliable source" and discusses fishermen consuming bluefish caught from the Third Street Bridge. Although this species is included in the fish consumption advisory for the Upper New York Bay by the NYSDOH (2009), no bluefish were collected during the Gowanus Canal fish survey (LMSE, 2004). Finally, reference #15 (Error Ink blog) also mentions fishing from the Third Street bridge, and quotes one individual stating that she would not recommend eating the catch, but does not actually indicate consumption. While these references provide limited evidence of fishing activity, crabbing for consumption is never discussed. None of these resources was scientific in nature and none relied upon quantitative surveys to determine actual fishing usage and fish consumption.

Response: The Gowanus Canal site meets the HRS requirement for the consumption of human food chain organisms from the area of actual contamination.

The HRS does not define a human food chain fishery, nor does it specify requirements for documenting the presence of fishing for human consumption. However, this issue was discussed by the Court in Honeywell International, Inc. and Edgewater Working Group (Honeywell) v. U.S. Environmental Protection Agency (EPA), U.S. Court of Appeals, District of Columbia Circuit, June 29, 2004. In this case, Honeywell challenged the EPA's decision to include an industrial site (Quanta Resources, Quanta) bordering the Hudson River on the NPL. As a primary part of its listing, EPA determined that the portion of the Hudson River adjacent to Quanta contained a fishery, the contamination of which posed a threat to the human food chain.

One of Honeywell's challenges was that EPA's fishery determination was unsupported by substantial evidence. The Court upheld EPA's fishery determination, stating that "the agency made the specific findings required by its rules and regulations, and it offered a 'satisfactory explanation for its inference' that the site contains a fishery within the contaminated waters."

The Court stated:

> Although the HRS regulations explain how contamination will be assessed, they neither define "fishery" nor specify what evidence is needed to determine whether a fishery actually exists. EPA's HRS Guidance Manual answers both questions. The Manual defines fishery as "[a]ny area of a surface water body from which human food chain

> organisms are taken or could be taken for human consumption." Hazardous Ranking System Guidance Manual 294 (Nov. 1992).. . . A fishery exists if "[h]uman food chain organisms are present in the surface water body; and [s]ome attempt has been made to catch those human food chain organisms." *Id*. To make these determinations, "[u]seful sources of information include state and local fish and wildlife agencies, local bait and tackle shops, visual observations made during the [site investigation] of individuals fishing or of past fishing activities (e.g., fishing lines and hooks left behind near the surface water body)." *Id.* at 295. If such evidence demonstrates the existence of a fishery, then EPA determines whether the fishery is subject to "actual or potential" contamination.

The Court also addressed the use of hearsay evidence to establish the presence of a fishery. In responding to Honeywell's claim that the evidence EPA had cited was hearsay and therefore insufficient to demonstrate the presence of a fishery, the Court stated:

> Circuit law, however, makes abundantly clear that "administrative agencies may consider hearsay evidence as long as it 'bear[s] satisfactory indicia of reliability.'" *Echostar Communications Corp. v. FCC*, 292 F 3d. 749, 753 (D.C. Cir. 2002) (alteration in original) (quoting *Crawford v. U.S. Dep't of Agric*., 50 F 3d 46,49 (D.C. Cir. 1995). Furthermore, "hearsay can constitute substantial evidence if it is reliable and trustworthy." *Id.*

The Court pointed out that nothing in the Honeywell comments suggested that the information in the questioned information was unreliable (and given the positions of the authors of the statements, EPA's reliance on their statements was neither arbitrary nor capricious). The Court further stated that it had said in an earlier case regarding a different agency, that:

> EPA was "entitled to rely on . . . representations by parties who were uniquely in a position to know the [relevant information]." *Nat'l Ass'n of Regulatory Util. Comm'rs v. FCC*, 737 F.2d 1095, 1125 (D.C. Cir. 1984); see also *EchoStar*, 292 F.3d at 752-53 (rejecting petitioner's claim that an uncorroborated and untested statement upon which the agency relied cannot constitute substantial evidence where the statement was given under oath, the affiant had personal knowledge of the facts, and the petitioner submitted no contradictory evidence).

The HRS documentation record at proposal provides the Agency's rationale for identifying a human food chain fishery in the Gowanus Canal. Section 4.1.3.3, Human Food Chain Threat – Targets, of the HRS documentation record at proposal states:

> People use the Gowanus Canal for fishing and crabbing, and several sources have reported fishing for human consumption [Ref. 13, p. 1; 14, p. 1; 15, pp. 1-2; 39, p. 3; 40, p. 2; 43, pp. 1-3; 45, pp. 1-2; 46, p. 3; 47, p. 1]. It is reported that people catch fish for consumption at the 3rd Street Bridge, which crosses the Gowanus Canal within the zone of sediment contamination, and at other bridges along the Canal [Figure 2 of this HRS documentation record; Ref. 13, p. 1; 14, p. 1; 15, p. 1].

Reference 13, an article from an online blog titled "New Yorkology," states that "fisherman often line up at the Gowanus basin…[a]nd yes, they do catch fish to take home for dinner." Reference 14, an article from another blog, titled "The Gowanus Lounge," states that people "are fishing in the Gowanus Canal, catching fish and taking them home and eating them." And Reference 15, a third blog, quotes a representative of a local industrial development corporation as saying, "People do use the bridges for

fishing. I don't think it is a good idea to be eating the fish, but I'm not going to stop them." Reference 39 is an article from the New York Times dated June 8, 2001, in which the author describes "on different visits" seeing "fishing boats" on the Canal. Reference 40 details "existing waterbody uses of the Canal" and lists "fishing/crabbing (mostly south of 9th Street)." As an additional entry from the blog "The Gowanus Lounge," Reference 43 provides "evidence that someone caught a striped bass in the… Gowanus Canal," including a photograph. Reference 45 comprises documentation from U.S. Coast Guard Petty Officer Stephen Lucarino who, while in his official capacity aboard the Coast Guard small boat Station New York, observed people fishing in a number of specific locations on Gowanus Canal. Reference 46 is a New York Times article whose author was "a scientist for more than a dozen years with the Hudson River Foundation for Science and Environmental Research." The portion of his article that focuses on Gowanus Canal describes the author fishing at a spot on the Canal which local residents report is frequented by fishermen. And finally, Reference 47 is an article in a blog titled, "Found in Brooklyn," which describes an individual fishing for Atlantic Silversides in the Gowanus Canal.

Regarding the ELM Group's comments that "limited evidence of actual consumption" and "no compelling evidence of actual fish consumption from the Canal" is provided, the following information is noted. Two independent references described above, References 13 and 14, actually provide direct statements that people consume fish caught in Gowanus Canal. A third, Reference 15, indicates personal knowledge of people eating fish from the Canal (see notes regarding Reference 15 below).

Six other references clearly document that fishing occurs on the Canal. Only one of the references (45) was generated via a personal request for information by a person (contractor) associated with the listing; all other references were from publicly available sources unrelated to the listing. None of the sources of information has anything to gain by making the statements found in the references. And the Court has stated that Circuit law makes it clear that "administrative agencies may consider hearsay evidence as long as it 'bear[s] satisfactory indicia of reliability.'" The ELM Group has pointed to nothing indicating that the documentation of consumption is incorrect.

Regarding the ELM Group's statement that Reference 13 does not provide specifics regarding frequency of use, nothing in the HRS requires a frequency of fishing for a fishery to exist.

Regarding the statements that Reference 13 does not cite what species are caught, Reference 23, the Gowanus Canal fish survey, provides substantial detail on the species available to be caught in the Canal. As discussed in Reference 23, there are 9 species of human food chain organisms present.

Regarding that bluefish were caught in the Canal in Reference 14, but not mentioned in the species list in Reference 23, while the survey does not indicate bluefish being caught as part of the survey project, as mentioned in the next of the ELM Group's comments, Reference 46 contains a firsthand account of a fisherman catching bluefish in the Canal. It is not surprising that the bluefish, a migratory species, was caught at a different time period than the survey events occurred.

Regarding the ELM Group's comment that Reference 15 does not indicate consumption, this statement is in error. The quote in the reference is, "I don't think it is a good idea to be eating the fish, but I'm not going to stop them." Being reluctant to stop someone indicates they are already engaged in the subject activity, hence, the speaker must be aware of persons eating the fish caught from the bridges of the Gowanus Canal.

Regarding the assertion that "none of these resources (presumably the nine references of the HRS documentation record at proposal that indicate recreational fishing and crabbing, in some cases for consumption, in the Gowanus Canal) was scientific in nature," as explained above, the Court has made it clear that non-scientific evidence can be used in an HRS evaluation as long as it is reliable. The

commenter has presented no contradictory information and there is no reason to question the accuracy of the statements in the above-described references.

Based on the above discussion, the evidence presented in the HRS documentation package supports that the Gowanus Canal is fished for human consumption. Therefore, these comments have no effect on the HRS site score or on the decision to place the site on the NPL.

Note that, even if the fishery were not scored as part of the human food chain threat score, the site would still score above the threshold for listing on the NPL by evaluating the environmental threat score, as explained in section 3.32, Surface Water Overland/Flood Migration Component – Environmental Threat Scoring Methodology, of this support document.

3.29 Targets: Fishery Production

Comment: The ELM Group commented on the productivity of the fishery in the Gowanus Canal. It stated that recent fish surveys conducted in the Canal for the USACE "yielded low catch rates, indicating a general lack of a productive fishery," and that finding was also reported by the NYDC surveys as well, that none of the fish consumption documentation "relied upon quantitative surveys to determine actual angler behavior and fish consumption."

The ELM Group stated:

> It should also be noted that the fish survey conducted for the Army Corps by LMSE (2004) captured only 160 fish over 4 attempts using professional equipment throughout the Gowanus Canal. A total of 3 fish were captured in Reach 2, of which the Third Street Bridge is a part (LMSE, 2004). The Army Corps study identified limited abundance of fish in the Canal, supporting the notion that until significant habitat and water quality improvements are made, the Canal will not be a highly productive fishery.

Response: EPA estimated the productivity of the fishery in the Gowanus Canal consistent with the instructions in the HRS. HRS Section 4.1.3.3.2.1, *Level I concentrations*, contains the instructions for estimating the fishery production. It states:

> Estimate the human food chain population value for each fishery (or portion of a fishery) as follows:
>
> - Estimate human food chain production for the fishery based on the estimated annual production (in pounds) of human food chain organisms (for example, fish, shellfish) for that fishery, except: if the fishery is closed and a hazardous substance for which the fishery has been closed has been documented in an observed release to the fishery from a source at the site, used the estimated annual production for the period prior to the closure of the fishery or use the estimated annual production from comparable fisheries that are not closed.
>
> - Assign a fishery a value for human food chain population from Table 4-18, based on the estimated human food chain production for the fishery.
>
> - Set boundaries between fisheries at those points where human food chain production changes or where the surface water dilution weight changes.

This HRS section and HRS Sections 4.1.3.3.2.2 and 4.1.3.3.2.3, explain then how to assign the factor value for Level I, Level II, and potential fishery populations.

The HRS documentation record at proposal, section 4.1.3.3.2.2, Level II Concentrations, page 32, states:

> People use the Gowanus Canal for fishing and crabbing, and several sources have reported fishing for human consumption [Ref. 13, p. 1; 14, p. 1; 15, pp. 1-2; 39, p. 3; 40, p. 2; 43, pp. 1-3; 45, pp. 1-2; 46, p. 3; 47, p. 1]. It is reported that people catch fish for consumption at the 3rd Street Bridge, which crosses the Gowanus Canal within the zone of sediment contamination, and at other bridges along the Canal [Figure 2 of this HRS documentation record; Ref. 13, p. 1; 14, p. 1; 15, p. 1]. The fish consumption rate for the Gowanus Canal fishery is not documented, so the fishery is assigned to the category "Greater than 0 to 100 pounds per year" [Ref. 1, p. 51621; 13, p. 1; 14, p. 1; 15, pp. 1-2; 39, p. 3; 40, p. 2; 43, pp. 1-3; 45, pp. 1-2; 46, p. 3; 47, p. 1]. The category corresponds to the assigned Human Food Chain Population Value of 0.03 in Table 4-18 of the HRS, which is assigned as the Level II Concentrations Factor Value [Ref. 1, p. 51621].

Since an exact poundage of fishery production could not be determined but some fish are caught, a catch of greater than 0 pounds a year was estimated. According to HRS Table 4-18—Human Food Chain Population Values, a catch of greater than 0 to 100 pounds corresponds to the assigned human food chain population value of 0.03. This value was correctly assigned.

Regarding the ELM Group's comments that "significant habitat and water quality improvements" are needed in Gowanus Canal, this view is entirely consistent with the HRS evaluation. The observed release to surface water and the documentation of Level II contamination of the fishery clearly indicate impact of hazardous substances on the fishery in the Canal.

Regarding the limited abundance of fish in the Canal, and the comment that the Canal is not a highly productive fishery, the assigned HRS population value for the fishery reflects the lowest possible value that can be assigned.

Based on the above explanation, no change has been made to the human food chain threat score. This comment has no effect on the HRS site score or on the decision to place this site on the NPL.

Note that, even if the fishery were not scored as part of the human food chain threat score, the site would still score above the threshold for listing on the NPL by evaluating the environmental threat score, as explained in section 3.32, Surface Water Overland/Flood Migration Component – Environmental Threat Scoring Methodology, of this support document.

3.30 Targets: Fishery in Upper New York Bay

Comment: Both the ELM Group and HydroQual commented on the presence of a fishery downstream of the Gowanus Canal.

The ELM Group comments identified that there was a fishery in the Upper New York Bay that was not distinct from the Gowanus Canal fishery. It stated that:

> . . . the USEPA disregarded the findings of fish population studies in the Canal and Upper New York Bay that clearly conclude that the fish population [in the Canal] is composed

> primarily of migratory fish consistent with the fish populations in the Upper New York Bay.

It added that:

> Based on studies conducted for the USACE (LMSE, 2004), the fish population identified in the Gowanus Canal and Bay consists primarily of migratory species that are common in Upper New York Bay and the larger Hudson-Raritan estuary. Striped bass was the dominant species captured during the survey, and is also abundant in Upper New York Bay. Very few resident fish species were identified during the adult fish survey, and little evidence of fish spawning in the Canal was apparent based upon the results of the ichthyoplankton survey (LMSE, 2004). Due to the migratory nature of the fish population in the Gowanus Canal, individuals likely spend a very small proportion of their lifecycle within the confines of the Canal.

HydroQual questioned the relevance of the inclusion of a human food chain fishery in the Upper New York Bay. It stated:

> The statement is made in the HRS Document that
>
> "Residents also catch fish for consumption from the Gowanus Bay, just downstream of the site, and the rest of the New York-New Jersey Harbor Estuary."
>
> This statement is irrelevant in the Gowanus Canal HRS Document and should be removed since it relates to fishing done in the Gowanus Bay (which was deemed clean enough to serve as a reference location) and other Harbor areas.

Response: The Gowanus Canal/Gowanus Bay/New York Harbor area was appropriately evaluated as a fishery (or portion of a fishery) and correctly assigned as a Level II fishery and as a potential fishery.

HRS Section 4.1.3.3, *Human food chain threat – targets*, states:

> For a fishery that meets any of these three criteria [for actual contamination], but that is not wholly within the boundaries of the observed release, consider only the portion of the fishery that is within the boundaries of the observed release to be subject to actual human food chain contamination. Consider the remainder of the fishery within the target distance limit to be subject to potential food chain contamination.

And HRS Section 4.1.3.3.2.3, *Potential human food chain contamination*, states:

> Determine those fisheries (or portions of fisheries) within the watershed that are subject to potential human food chain contamination. Do not include those fisheries (or portion of fisheries) already counted under the Level I or Level II concentrations factors.

In the HRS documentation record at proposal, section 4.1.3.3.2.3, Potential Human Food Chain Contamination, includes the following:

> People catch fish for consumption from the Gowanus Bay, just downstream of the site, and the rest of the New York-New Jersey Harbor Estuary. The fish consumption rate for the downstream fishery is not documented, so the fishery is assigned to the category "Greater than 0 to 100 pounds per year" [Ref. 1, p. 51621; 9, p. 2; 14, p. 1; 46, pp. 1-2;

> 48, pp. 8-12; 49, p. 1; 50, p. 1], which corresponds to the assigned Human Food Chain Population Value of 0.03 in Table 4-18 of the HRS [Ref. 1, p. 51621].

Regarding the ELM Group's comment that the "fish population studies in the Canal and Upper New York Bay…clearly conclude that the fish population [in the Canal] is composed primarily of migratory fish consistent with the fish populations in the Upper New York Bay," indicating that the fishery in the Upper New York Bay is not distinct from the Gowanus Canal fishery, it is not disputed that this can be so. However, the HRS clearly states in numerous places that *portions* of fisheries are to be scored differently when appropriate, such as when actual versus potential contamination is documented, as in HRS Section 4.1.3.3, cited above. And HRS Section 4.1.3.3.2.1, *Level I concentrations*, states the following: "Set boundaries between fisheries at those points where human food chain production changes or where the surface water dilution weight changes." In the case of the Gowanus Canal/Gowanus Bay/Upper New York Bay (continuous) fishery, according to the HRS, the Gowanus Canal *portion* of the fishery is to be scored differently based on the fact that it is documented to be subject to actual contamination (Level II).

Regarding the ELM Group's comments that "little evidence of fish spawning in the Canal was apparent," and "individuals likely spend a very small proportion of their lifecycle within the confines of the Canal," this information is not relevant to the HRS scoring of the human food chain threat. Throughout all of the sections of the HRS comprising the evaluation of the human food chain threat (HRS Sections 4.1.3.1, 4.1.3.2, and 4.1.3.3 and subsections), there is no mention of any requirement for fish to spend any specified portion of their time in the subject fishery.

Regarding the ELM Group's comment that the fishing done in "the Gowanus Bay, just downstream of the site, and the rest of the New York-New Jersey Harbor Estuary" "is irrelevant in the Gowanus Canal HRS Document," the relevance of fishing in these water bodies is provided by HRS Section 4.1.3.3, *Human food chain threat – targets*. As cited above, a portion of this section states:

> For a fishery that meets any of these three criteria [for actual contamination], but that is not wholly within the boundaries of the observed release, consider only the portion of the fishery that is within the boundaries of the observed release to be subject to actual human food chain contamination. Consider *the remainder of the fishery within the target distance limit* to be subject to potential food chain contamination. [Emphasis added.]

The italicized portion of the quote above applies to the Gowanus Bay/New York-New Jersey Harbor portion of the fishery. The target distance limit is defined in HRS Section 4.1.1.2, *Target distance limit*:

> The target distance limit defines the maximum distance over which targets are considered in evaluating the site. Determine a separate target distance limit for each watershed as follows:
>
> ….
>
> For sites consisting solely of contaminated sediments with no identified source, determine the target distance limit as follows:
>
> - If there is a clearly defined direction of flow for the surface water body (or bodies) containing the contaminated sediments, begin measuring the target distance limit at the point of observed sediment contamination that is farthest upstream (that is, at the location of the farthest available upstream sediment sample that meets the criteria for an observed release); extend the target distance limit either for 15 miles along the surface water or to the most distant

downstream sample point that meets the criteria for an observed release to that watershed, whichever is greater.

- If there is no clearly defined direction of flow, begin measuring the target distance limit at the center of the area of observed sediment contamination. Extend the target distance limit as an arc either for 15 miles along the surface water or to the most distant sample point that meets the criteria for an observed release to that watershed, whichever is greater. Determine the area of observed sediment contamination based on available samples that meet the criteria for an observed release.

Since the water bodies within the target distance limit are all considered coastal tidal waters (as shown on pages 23, 31, and 32 of the HRS documentation record at proposal), there is considered to be no clearly defined direction of flow. The water bodies within the target distance limit are shown on Reference 4 of the HRS documentation package at proposal. Even though, as HydroQual pointed out, the samples from Gowanus Bay do not show site-related contamination, because the Bay/Harbor are located within the 15-mile target distance limit, they are considered by the HRS to be relevant to the HRS evaluation and they are subject to potential contamination.

Based on the discussions presented above, the Gowanus Canal/Gowanus Bay/New York Harbor area was appropriately evaluated in accordance with the requirements of the HRS. This comment has no effect on the HRS score or on the decision to place the site on the NPL.

Note that, even if the fishery were not scored as part of the human food chain threat score, the site would still score above the threshold for listing on the NPL by evaluating the environmental threat score, as explained in section 3.32, Surface Water Overland/Flood Migration Component – Environmental Threat Scoring Methodology, of this support document.

3.31 Resources

Comment: The ELM Group stated that at the Gowanus site "human contact with sediment through recreational use is unlikely," and that "[t]his assertion is supported by the Army Corps' and NYCDEP's own findings, which indicate that the human population is not at risk from sediment pollutants (USACE/NYCDEP, 2004)."

Response: The HRS score for the Gowanus Canal site did not reflect any value for recreational use of the Canal.

In an HRS evaluation, recreation use of a surface water body is evaluated as part of the resources component of the drinking water threat of the surface water migration pathway. HRS Section 4.1.2.3.3, *Resources*, explains the process for assigning a resources factor value for the watershed:

> Assign a value of 5 if, within the in-water segment of the hazardous substance migration path for the watershed, the surface water is used for one or more of the following purposes:
>
> - Irrigation (5 acre minimum) of commercial food crops or commercial forage crops.
> - Watering of commercial livestock
> - Ingredient in commercial food preparation
> - Major or designated water recreation area, excluding drinking water use.

That no value was assigned to the resource factor is documented in the Surface Water Overland/Flood Migration Component Scoresheet on page 3 of the HRS documentation record at proposal. This scoresheet identified that the Resource factor was "not scored."

However, evidence of recreational use of the Canal is documented in the HRS documentation record at proposal on page 23 which states that "[s]ome city dwellers have begun to use the Gowanus Canal for recreational purposes such as canoeing, diving, and swimming." This information is supported by several references cited in the HRS documentation record at proposal (see Reference 7 of the HRS documentation record at proposal). While this recreational use of the Canal is not included in the HRS scoring, it will be considered during the risk assessment stage of the Superfund process.

This comment has no effect on the HRS score for the site or on the listing decision.

3.32 Surface Water Overland/Flood Migration Component – Environmental Threat Scoring Methodology

Comment: HydroQual commented that the environmental "threat" was not scored because EPA indicated that the human intake evaluation qualified the site for listing. It continued stating that it is not clear if there were other reasons why the environmental "threat" was not scored. HydroQual asserted that if the environmental "threat" were scored, it would have produced a very low score and would not have materially increased the overall HRS score, stating that "[c]alculations performed during review indicate the environmental "threat" score would be at most 3.3."

Response: While the environmental threat was not scored at the time of proposal, had it been scored the environmental threat score would not have been 3.3 but 60.00. Furthermore, evaluating only this threat would result in an HRS site score of 30.00, which is above the threshold for listing on the NPL. However, the site score would not change if the environmental threat were scored, as the surface water pathway and site score as proposed are already at a maximum score of 50.00 for a site score under a single pathway. The rationale for an environmental threat score of 60.00 is described below.

Likelihood of Release
Likelihood of release for the environmental threat of the surface water/overland flood migration component was scored using the applicable standards in the HRS. Data used to document observed release by chemical analysis was obtained from Reference 16 of the HRS documentation record at proposal, and is presented in Tables 1 and 2 of the HRS documentation record at proposal.

HRS Section 4.1.2.1.1, *Observed Release,* explains:

> If an observed release can be established for a watershed, assign an observed release factor value of 550 to that watershed, enter this value in Table 4-1, and proceed to section 4.1.2.1.3

As the observed release criteria were established for the watershed as explained on page 24 of the HRS documentation record at proposal, a release factor value of 550 was assigned to the watershed.

Waste Characteristics

The scoring of the waste characteristics for the environmental threat of the surface water/overland flood migration component was calculated as specified in HRS Section 4.1.4.2, *Environmental threat – waste characteristics:*

> Evaluate the waste characteristics factor category for each watershed based on two factors: ecosystem toxicity/persistence/bioaccumulation and hazardous waste quantity.

Additionally HRS Section 4.1.4.2.1.4, *Calculation of ecosystem toxicity/persistence/bioaccumulation factor value*, states:

> Assign each hazardous substance an ecosystem toxicity/persistence factor value from Table 4-20, based on the values assigned to the hazardous substance for the ecosystem toxicity and persistence factors. Then assign each hazardous substance an ecosystem toxicity/persistence/bioaccumulation factor value from Table 4-21, based on the values assigned for the ecosystem toxicity/persistence and ecosystem bioaccumulation factor value for the watershed and use it to assign the value to this factor. Enter this value in Table 4-1.

Polychlorinated biphenols (Arochlor-1260) was the hazardous substance evaluated for toxicity/ persistence/bioaccumulation. As described in the Superfund Chemical Data Matrix, Appendix B-I, page BI – 10, polychlorinated biphenols have an ecosystem toxicity value of $1X10^4$ and a bioaccumulation factor value of $5X10^4$. This results in an ecosystem toxicity/persistence/bioaccumulation factor value of $5X10^8$.

The hazardous waste quantity was calculated as outlined in page 21 of the HRS documentation record at proposal. A volume calculation was completed from data compiled from a December 2005 to January 2006 sampling event by KeySpan (see Reference 35 of the HRS documentation record at proposal). Reference 51 of the HRS documentation record at proposal outlines specific details of the volume calculation method. The dimension of the source was calculated at 330,000 cubic yards, which was then divided by 2.5, according to Table 2-5 of the HRS, as the source type is "Other". This results in a Volume Assigned Value of 132,000, which according to Table 2-6 of the HRS, results in a hazardous waste quantity factor value of 10,000.

The environmental threat-waste characteristics factor category value was calculated as per HRS Section 4.1.4.2.3, *Calculation of environmental threat-waste characteristics factor category value*:

> [m]ultiply the ecosystem toxicity/persistence factor value and the hazardous waste quantity factor value for the watershed, subject to a maximum product of $1X10^8$. Then multiply this product by the ecosystem bioaccumulation potential factor value for this hazardous substance, subject to a maximum product of $1X10^{12}$. Based on this second product, assign a value from Table 2-7 (section 2.4.3.1) to the environmental threat-waste characteristics factor category for the watershed.

Applying the above method, the waste characteristics product is obtained by multiplying $1 \bullet 10^4$ (hazardous waste quantity factor value) X $5 \bullet 10^8$ (ecosystem toxicity/persistence/bioaccumulation value), which equates to a value of $5 \bullet 10^{12}$.

According to Table 2-7 of the HRS, the waste characteristics product equates to an assigned value of 1,000.

Targets / Sensitive Environments

According to HRS Section 4.1.4.3.1, *Sensitive environments*, the sensitive environments along the hazardous substance migration path for the watershed are evaluated based on three factors: Level I concentrations, Level II concentrations, and potential contamination.

Level I concentration for the target/sensitive environments was not evaluated, as sediment samples were used to meet observed release criteria.

Level II concentrations are associated with sediment samples within the Gowanus Canal. The Gowanus Canal is part of the NY-NJ Harbor Estuary, designated by EPA as an "Estuary of National Significance" (i.e., a sensitive area) under the National Estuary Program (see Reference 9 of the HRS documentation record at proposal). According to HRS Table 4-23, sensitive areas identified under the National Estuary Program are assigned a value of 100 for the sensitive environment rating value.

Those sensitive environments subject to potential contamination were evaluated using the methods outlined in HRS Section 4.1.4.3.1.3, *Potential contamination*, and Table 4-23 of the HRS.

The Gateway National Recreation Area – Jamaica Bay Unit was evaluated as a sensitive environment subject to potential contamination, and was assigned a value of 100 points.

Three Federally listed, three New Jersey State-listed, and two New York State-listed threatened/ endangered species habitats were identified as sensitive environments, and assigned a total value of 475 points.

One unique biotic community, the Lower Hudson River Estuary, was identified and assigned a value of 5 points.

Using the point scores assigned to each of the identified sensitive environments, a potential contamination factor value was calculated. As identified on page 51625 of the HRS, the formula for calculating the potential contamination factor value for the watershed was applied to the sensitive environments subject to potential contamination.

The above sensitive environments subject to potential contamination were added to each other to obtain a value of 580. This value was then multiplied by the dilution factor of 0.0001, the dilution factor for a 'Large river' as found on HRS Table 4-13 as applicable to the site. This equates to a value of 0.0058. This value was then multiplied by 0.1 as directed by the formula, resulting in a potential contamination factor value of $5.8X10^{-3}$.

As per HRS Section 4.1.4.3.1.4, *Calculation of environmental threat-targets factor category value*, the values for Level I concentrations, Level II concentrations, and potential contamination were added to each other to obtain the environmental threat-targets factor category value for the watershed. Thus the value for Level II concentrations (100) was added to the value for potential contamination ($5.8X10^{-3}$) for an environmental threat-targets factor category value of 100.0058.

Environmental Threat Score

As per HRS Section 4.1.4.4, *Calculation of environmental threat score for a watershed*, the environmental threat factor category values for likelihood of release, waste characteristics, and targets for the watershed were multiplied together and then divided by 82,500. Therefore, 550 (Likelihood of Release value) multiplied by 1,000 (Waste Characteristics value) multiplied by 100.0058 (Targets value) = 666.67.

The environmental threat score for the watershed is subject to a maximum value of 60, therefore the environmental threat score for the watershed would be 60.

4. Conclusion

The original HRS score of this site was 50.00. Based on the above response to comments, the score remains unchanged. The final scores for the Gowanus Canal site are:

Ground Water	Not Scored
Surface Water	100.00
Soil Exposure	Not Scored
Air	Not Scored
HRS Site Score	50.00

Attachment 1:

Record of Meetings Regarding Proposed NPL Listing of Gowanus Canal

Record of Meetings Regarding Proposed NPL Listing of Gowanus Canal – Last Updated 1/27/2010

Following is a list of meetings and conference calls held by representatives of the U.S. Environmental Protection Agency (EPA) with various outside parties regarding EPA's proposal to place the Gowanus Canal on the Superfund National Priorities List ("NPL"). For meetings held prior to the close of the public comment period (July 8, 2009) EPA advised those with whom we met that comments on the proposed NPL listing should be in writing, submitted as a comment to the proposed rulemaking. For meetings held after the close of the public comment period on July 8, 2009, these meetings were informational in nature.

Public Meetings:

April 14 , 2009(arranged by Congresswoman Velasquez)
May 26, 2009 (arranged by Community Board 6)
June 23, 2009 (arranged by New York City, Office of the Mayor)
June 24, 2009 (arranged by New York City, Office of the Mayor)
December 3, 2009 (arranged by US EPA)
January 21, 2010 (arranged by US EPA)

Other Meetings:

Date	**Attendees and Affiliation**	**Subject**
4/15/09	NYS Dep't. of Environmental Conservation (NYSDEC): James Tierney, Sal Ervolino US EPA Region 2: Walter Mugdan, Angela Carpenter, Douglas Garbarini.	Impact of NPL listing on planned water quality improvement projects
4/20/09	New York City: Caswell Holloway, Dan Walsh, Angela Licata, Susan Kath, Mark McIntyre NYSDEC: Stuart Gruskin, Val Washington, Robert Shick U.S. EPA Region 2: George Pavlou, Walter Mugdan, John La Padula, Angela Carpenter, Douglas Garbarini, Joel Singerman, Christos Tsiamis, Brian Carr	Impact of NPL listing on various projects of interest to the City, including redevelopment projects and water quality improvement projects.
4/28/09	New York City: Dan Walsh, Mark McIntyre, Eugene Berardi, Angela Licata US EPA Region 2: Walter Mugdan, Douglas Garbarini, Eric Stern, Eric Schaaf, Virginia Capon, Brian Carr,	NPL Listing process, Superfund process, and NYC proposed alternate approach
4/30/09	Office of Congresswoman Yvette Clarke: Algene Sajery US EPA Region 2: Walter Mugdan, Berry Shore	NPL Listing process, Superfund process, and NYC proposed alternate approach
5/1/09	New York City: Anne Canty, Angela Licata, Roy Tysvaer, Keith Mahoney, Cavy Chu, Josslyn Shapiro, Shaminder Chawla, Kevin Clarke, Daniel Walsh, James Mueller, Michael Borsykowsky NYSDEC: Robert Schick, Gardiner Cross, Gary Kline US EPA Region 2: Douglas Garbarini, Jeff Gratz, Joel Singerman, Christos Tsiamis, Henry Mazzucca, Eric Stern, James Olander, Dennis Munhall	Impact of NPL listing on NYC CSO projects
5/6/09	Gowanus Canal Conservancy: Andrew Simons, Brett Wallace, Lauren Elvers Collins, Ted Wolff, John Muir US EPA Region 2: Walter Mugdan, Angela Carpenter, Douglas Garbarini, Christos Tsiamis, Natalie Loney, Michael McGowan, Brian Carr	NPL Listing process, Superfund process, and NYC proposed alternate approach

Date	Attendees and Affiliation	Subject
5/7/09	NYC: Caswell Holloway, Dan Walsh, Angela Licata, Susan Kath, Mark McIntyre, Holly Hester-Reilly, Josslyn Shapiro, Cavy Chu, Shaminder Chawla, Eugene Berardi NYSDEC: Robert Schick US Army Corps of Engineers: Joe Seebode, Tom Hodson, Karen Ashten, Mark Lulka US EPA Region 2: Walter Mugdan, John La Padula, Angela Carpenter, Douglas Garbarini, Joel Singerman, Christos Tsiamis, Virginia Capon, Brian Carr	Water Resources Development Act (WRDA) process, Superfund process, and NYC proposed alternate approach
5/7/09	NYS Senator Daniel Squadron US EPA Region 2: John La Padula, Berry Shore	NPL Listing process, Superfund process, and NYC proposed alternate approach
5/7/09	NYC: Caswell Holloway, Dan Walsh US EPA Region 2: Walter Mugdan, John La Padula	NYC proposed alternative approach.
5/12/09	Center for Public Environmental Oversight: Lenny Siegel. PM Strauss & Associates: Peter Strauss US EPA Region 2: Dennis Munhall, Natalie Loney, Mel Hauptman, Joel Singerman, Christos Tsiamis	Superfund process; NYC proposed alternate approach
5/18/09	NYSDEC: James Tierney US EPA Region 2: Walter Mugdan, Christos Tsiamis, Kevin Bricke, Jeff Gratz	Impact of NPL listing on planned water quality improvement projects
5/20/09	National Grid: Tracey Bell, Charles Willard GEI Consultants: David Terry US EPA Region 2: Joel Singerman, Christos Tsiamis, Douglas Garbarini	Superfund process; NYC proposed alternate approach; National Grid's role
5/20/09	Friends & Residents of Greater Gowanus: Marlene Donnelly, Lizzie Olesker, Mike Salvatore, Lisanne McTernan Urban Divers: Ludger Balan Carroll Gardens Neighborhood Association: Gary Reilly US EPA Region 2: Joel Singerman, Christos Tsiamis, Natalie Loney	Superfund process; NYC proposed alternate approach
5/21/09	NYC: Dan Walsh, Keith Mahoney, Michael Mandac, Josslyn Shapiro, Cavy Chu, Holly Hester-Reilly, Shaminder Chawla, Angela Licata USACE: Karen Ashton, Mark Lulka, Roy Messaros NYSDEC: Robert Schick US EPA Region 2: Joel Singerman, Christos Tsiamis, Douglas Garbarini, Eric Stern	NYC proposed alternate approach, technical issues
5/21/09	Sive, Paget & Riesel: Jeffrey Gracer, David Yudelson US EPA Region 2: Walter Mugdan, Brian Carr	Superfund process, NYC proposed alternate approach, impact of NPL listing on redevelopment
5/22/09	NYC: Susan Kath, Mark McIntyre, Johanna Greenbaum, Robin Levine NYSDEC: Robyn Adair, Robert Schick, Gary Klein, Mike Lesser (all by phone) US EPA Region 2: Brian Carr	Impact of NPL listing on NYC CSO work

Date	Attendees and Affiliation	Subject
6/16/09 (By Phone)	NYC: Josslyn Shapiro, Chung Chan, John Gearrity, Johanna Greenbaum, Nnenna Lynch, Mark McIntyre US EPA Region 2: Joel Singerman, Christos Tsiamis, Brian Carr	Impact of NPL listing on the Gowanus Green Project and other zoning issues
6/19/09	NYC: Caswell Holloway (by phone), Dan Walsh, Johanna Greenbaum, William Daly, Angela Licata, Jessica Girioux, Steven Luftig (consultant), John Deeson (consultant) US EPA (HQ): Barry Breen, Elizabeth Southerland, Douglas Ammon, Terri Jenk, Ann Pontius, Helena Healy US EPA Region 2: Walter Mugdan, John La Padula	NYC proposed alternative approach.
7/7/09	NYS Assemblywoman Joan Millman US EPA Region 2: Walter Mugdan, Berry Shore	NPL Listing process, Superfund process, and NYC proposed alternate approach
7/15/09	Natural Resources Defense Council: Eric Goldstein Environmental Defense Fund: James Tripp US EPA Region 2: Walter Mugdan, John La Padula	NPL Listing process, Superfund process, and NYC proposed alternate approach
7/21/09	NYC: Caswell Holloway, Dan Walsh, Susan kath, Mark McIntyre, Johanna Greenbaum, Josslyn Shapiro, Anne Canty, Robin Levine US EPA Region 2: Walter Mugdan, John La Padula, Christos Tsiamis, Brian Carr	NYC proposed alternate approach
7/22/09	National Grid: Tracey Bell, Charles Willard, Donna Riccobono GEI Consultants: David Terry Foley (outside counsel for NG): Russ Selman US EPA Region 2: Joel Singerman, Christos Tsiamis, Brian Carr, Colin Maromber (intern)	Superfund process; NYC proposed alternate approach; National Grid's role
7/28/09 (By phone)	NYC: Howard Slatkin, John Gearrity, Josslyn Shapiro, Mark McIntyre, Nicole Rodriguez, David Karnovsky, Johanna Greenbaum US EPA Region 2: John LaPadula, Chloe Metz	Risk assessment to support Public Place and Gowanus area re-zoning
7/29/09	Congresswoman Nydia Velasquez US EPA (HQs): Administrator Lisa Jackson, James Woolford, Arvin Ganesan	Superfund process; NYC proposed alternate approach.
8/12/09	Brooklyn Real Estate Roundtable NYC: Caswell Holloway US EPA Region 2: Brian Carr, Berry Shore, Natalie Loney	NPL Listing process, Superfund process, and NYC proposed alternate approach
9/16/09	Gowanus Green/Public Place: Alan Bell, Andrew Jackson, Adrienne Teleki, Mark Chertok, Kevin McCarty NYC: ___ US EPA Region 2: Walter Mugdan, John La Padula, Douglas Garbarini, Joel Silverman, Christos Tsiamis, Chloe Metz, Brian Carr, Natalie Loney	Impact of NPL listing on redevelopment; and risk assessment process
9/16/09	Gowanus Canal Conservancy: Lauren Elvers Collins National Grid: Tracey Bell GEI Consultants: David Terry NYSDEC: Hank Willelm US EPA Region 2: Christos Tsiamis	On-site meeting to discuss Sponge Park and the impact of the NPL listing

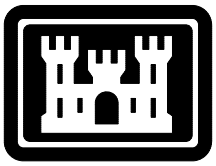
Date	Attendees and Affiliation	Subject
9/16/09 (By Phone)	NYC: Mayor Michael Bloomberg US EPA (HQs): Administrator Lisa Jackson, Sarah Pallone	NYC proposed alternative approach.
9/18/09 (By Phone)	NYC: Caswell Holloway, Dan Walsh US EPA (HQs): Robert Sussman, Charles Imohiosen,	NYC proposed alternative approach
9/23/09	Friends & Residents of Greater Gowanus: Marlene Donnelly, Linda Mariano Carroll Gardens Neighborhood Association: Katia Kelly, Glenn Kelly, CORD: Rita Miller CH2MHILL: Juliana Hess, Andy Judd, Patti White HDR: Michael Musso US EPA Region 2: John La Padula, Christos Tsiamis, Brian Carr, Nick Magriples	On-site meeting to discuss planned work prior to NPL listing
9/23/09 (By phone)	NYC: Mayor Michael Bloomberg US EPA: Administrator Lisa Jackson	NYC proposed alternative approach
9/30/09	NYC: Dan Walsh, Josslyn Shapiro, Cavy Chu, Shaminder Chawla, Andrew D'Amico US EPA Region 2: Joel Singerman, Christos Tsiamis	NYC's introduction of OER team and update on team's work prior to NPL listing
10/1/09	NYC: Caswell Holloway, Dan Walsh, Susan Kath, Angela Licata, Josslyn Shapiro, US EPA (HQs): Robert Sussman, Charles Imohiosen, Sarah Pallone, Stephanie Owens US EPA Region 2: George Pavlou, Walter Mugdan	NYC proposed alternative approach
10/2/09	National Grid: Tracey Bell, Charles Willard (via phone), Donna Riccobono, Donald Campbell, Andrew Prophete GEI Consultants: David Terry, Dennis Unites, Mike Zukauskas, Melissa Felter, Lawrence Liebs Foley (outside counsel for NG): Russ Selman, Bradley Rochlen Ostrow & Partners: Sam Ostrow Drinker Biddle & Reath LLP: Bonnie Barnett US EPA Region 2: Christos Tsiamis, Brian Carr	Superfund process; NYC proposed alternate approach; National Grid's role and technical issues
10/8/09 (By Phone)	Gowanus Area Residents: Kevin Duffie, Kat1a Kelly, Marlene Donnelly, Rita Miller, Steven Miller US EPA (HQs): Barnes Johnson, Stephanie Owens US EPA Region 2: Natalie Loney, Walter Mugdan	Superfund process; NYC proposed alternate approach; residents' concerns.
10/14/09 (By Phone)	NYC: Caswell Holloway US EPA (HQs): Robert Sussman	Superfund process; NYC proposed alternate approach
10/15/09 (By Phone)	NYC: Caswell Holloway US EPA Region 2: George Pavlou	Superfund process; NYC proposed alternate approach

Date	Attendees and Affiliation	Subject
10/16/09 (By Phone)	Office of NYS Senator Velmanette Montgomery: Susan Leung, James Vogel US EPA (HQs): Charles Imohiosen	Superfund process; NYC proposed alternate approach
10/16/09	Con Edison: Eric Dessen, Mitch Bernstein US EPA Region 2: Brian Carr, Matthew Stuart	Con Edison production of documents for Information request response; project status
10/19/09 (By Phone)	NYC: Caswell Holloway EPA Region 2: Walter Mugdan	Superfund process; NYC proposed alternate approach
10/21/09	NYS Senator Velmanette Montgomery, James Vogel Office of Congresswoman Nydia Velasquez: Dan Wiley Office of NYS Assemblywoman Joan Millman: Paul Nelson US EPA Region 2: George Pavlou, Walter Mugdan, John La Padula, Natalie Loney, Berry Shore	Superfund process; NYC proposed alternate approach
10/22/09 (By Phone)	Katia Kelley (Gowanus area resident) US EPA Region 2: Walter Mugdan	Superfund process; NYC proposed alternate approach
10/26/09 (By Video-conf.)	FROGG: Marlene Donnelly CORD: Steven Miller, Rita Miller Carroll Gardens Neighborhood Ass'n.: Katia Kelly Gowanus Houses: Betty Lester Community Board 6: Roy W. Sloane Gowanus Area Residents: Cynthia Simmons, Bette Stoltz, Kevin Duffy-Acevedo RiverKeeper: Josh Verleun, Mike Pesa-Fallon US EPA (HQ): Robert Sussman, Charles Imohiosen, Sarah Pallone, Beth Zelenski US EPA Region 2: Walter Mugdan, Doug Garbarini, Christos Tsiamis, Dennis Munhall, Natalie Loney	Superfund process; NYC proposed alternate approach
10/26/09	NationalGrid: Brad Rochlen, Ann Land US EPA Region 2: Brian Carr, Elizabeth Cohen	Review of EPA permitting files; project status.
10/28/09	NYC: Caswell Holloway, Dan Walsh, Johanna Greenbaum, Josslyn Shapiro, Susan Kath, Angela Licata US EPA Region 2: Walter Mugdan, John La Padula, Doug Garbarini, Joes Singerman, Christos Tsiamis, Dennis Munhall, Brian Carr, Elizabeth Cohen	Project status.
11/18/09 (By Phone)	NYC: Caswell Holloway US EPA (HQs): Robert Sussman	Proposed alternate approach.
12/4/09 (By Phone)	US Army Corps of Engineers: Joseph Seebode US EPA Region 2: Walter Mugdan	Project status, proposed alternate approach
12/29/09	Gowanus Canal Community Development Corporation: William Appel, Gary Pollard, Jerome Krase, Buddy Scotto, Jeff Wyner, Tom McMahon US EPA Region 2: Walter Mugdan, Christos Tsiamis, Joel Singerman, Brian Carr, Natalie Loney	Project status, Superfund process, proposed alternate approach

Date	Attendees and Affiliation	Subject
1/14/10	NYC: Caswell Holloway, Robin Levine, Angela Licata, Carter Strickland, Paul Rush, Chris Boyd US EPA Region 2: Judith Enck, George Pavlou, Walter Mugdan, Dore LaPosta	Superfund process, proposed alternate approach.
1/20/10	CORD: Lucy DeCarlo, Rita Mallone Carroll Gardens Neighborhood Association: Glenn Kelly Pardonmeforasking.blogspot.com: Katia Kelly Gowanus Neighborhood Association: Betty Lester FROGG: Marlene Donnelly Cobble Hill Association: Roy Sloane Mill Condos: Cynthia Simmons Sierra Club: Diane Buxbaum Riverkeeper: Josh Verleun Gowanus Area Resident: Steven Miller US EPA Region 2: Judith Enck, George Pavlou, Walter Mugdan, Christos Tsiamis, Natalie Loney. Beth Totman	Superfund process, proposed alternate approach.
1/20/10	NYC Councilman Brad Lander, and staff members Matt Kissler, Michael Curtin, Michael Freedman-Schnapp US EPA Region 2: Walter Mugdan, Christos Tsiamis, Natalie Loney, Berry Shore	Project status, Superfund process, proposed alternate approach.
1/21/10	Toll Brothers: David Von Spreckelsen, Nimita Shah US EPA Region 2: Judith Enck, George Pavlou, Walter Mugdan, Christos Tsiamis, Natalie Loney	Project status, Superfund process, proposed alternate approach.
1/26/10	Brooklyn Preservation Council Foundation: Robert Furman, Buddy Scotto, Eileen McGivney US EPA Region 2: Walter Mugdan, Christos Tsiamis, Beth Totman	Project status, Superfund process, proposed alternate approach.

Attachment 2:

USACE Sampling and Analysis Plan



US Army Corps
of Engineers
New York District/Baltimore District **April 2003**

DRAFT
SAMPLING AND ANALYSIS PLAN

GOWANUS CANAL
PRELIMINARY HAZARDOUS, TOXIC,
AND RADIOACTIVE WASTE INVESTIGATION
KINGS COUNTY, NY

Prepared by:

Engineering Division
U.S. Army Corps of Engineers
10 SOUTH HOWARD STREET
Baltimore, MD 21201

Sampling and Analysis Plan
Gowanus Canal - Preliminary Hazardous, Toxic,
and Radioactive Waste Investigation
Kings County, NY

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Purpose

The U.S. Army Corps of Engineers, New York District is evaluating the feasibility of ecological restoration of the Gowanus Canal, Kings County, New York. The restoration may include dredging, stream bank stabilization, and shoreline softening. A geotechnical investigation is being performed to determine the soil properties of possible dredge material. Samples for chemical/Hazardous, Toxic, and Radioactive Waste (HTRW) will be collected in conjunction with the geotechnical samples to evaluate the sediments for their suitability for disposal.

This work is being performed in accordance with Engineering Regulation ER 1165-2-132, "*Water Resource Policies and Authorities, Hazardous Toxic, and Radioactive Waste (HTRW) Guidance for Civil Works Projects*".

1.2 Objectives

The objective of this investigation is to conduct an initial evaluation of the sediments to assess their contamination potential.

2.0 CONTACT INFORMATION

Points of Contact		
Richard Dabal	212-264-5746	HTRW Specialist, NY District
Jackie Hamer	732-532-4359	Fort Monmouth Env. Lab QA/QC Chemist

Analytical Laboratory Shipping Information

Fort Monmouth Environmental Laboratory
Bldg. 173
Fort Monmouth, NJ 07703

Note: If samples are to be delivered to the laboratory on a weekend, the laboratory must be notified ahead of time in order to ensure that someone is present to take receipt of the shipment.

3.0 SAMPLING METHODOLOGY

Dredged material and sediments beneath navigable waters proposed for dredging qualify as HTRW only if they are within the boundaries of a site designated by the EPA or a state for a response action under CERCLA. Although the material in Gowanus Canal does not

qualify as HTRW, the material must still be tested and evaluated for its suitability for disposal in accordance with the following:

- Appropriate guidelines and criteria adopted pursuant to Section 404 of the Clean Water Act;
- Section 103 of the Marine Protection Research and Sanctuaries Act (MPRSA); and
- The Corps of Engineers Management Strategy for Disposal of Dredge Material: Containment Testing and Controls.

The first step in the evaluation process is to conduct an initial evaluation of the sediments to assess their contamination potential. This investigation is designed to address that requirement. A total of thirty (30) samples will be collected and analyzed for volatile organics (VOA) + 15 (method 624/8260), acid-base-neutral (ABN) + 25 (method 625/8270), pesticide/PCB (method 8081/808), priority pollutant metals (method 200.7/60), and total coliform (method 9222B).

One sample will be collected at each boring GC 03-1 through GC 03-30. The locations of the borings are as shown in the geotechnical subsurface investigation plan. Specific sampling depths will be selected in the field based on grain size results and other visual indicators. A sampling chart is provided in Table 1.

4.0 SEDIMENT/SOIL SAMPLING

Collection of soil samples at boring locations shall be conducted as follows:

a) Soil samples for VOA analysis will be collected immediately upon opening the split-spoon. After the split spoon is opened and a fresh surface is exposed to the atmosphere, the sample collection process should be completed in a minimal amount of time. Visual inspection and an appropriate screening method may be selected to determine the interval of the soil core to be sampled. Removing a sample from a material should be done with the least amount of disruption (disaggregation) as possible. Following collection of the sample for VOA analysis, the remaining soil will be homogenized and the remaining samples collected.

b) Soil shall be scooped from the center of both halves of the soil core, and placed in a stainless steel mixing bowl. The portion of the soil in the split-spoon which represents slough shall not be included as part of the sample, and no soil in contact with the split-spoon shall be included as part of the sample. The soil in the stainless steel mixing bowl will be homogenized by thoroughly mixing the soil until the sample is adequately mixed (i.e. a consistent physical appearance is obtained). Once mixing is complete, the sample should be divided in half and the sample containers filled by scooping sample material alternately from each half. Sample containers are being provided by the laboratory with pre-labeled for analytical method and with the required preservatives already in the container.

c) Each sample jar will be labeled in waterproof ink to indicate the sample number, analytical parameters/method, preservation (if any), location, date and time of collection, and sampler. Each sample number and associated information will be entered on the lab provided chain of custody form.

d) The sample containers should be tightly sealed, clearly labeled and placed on ice immediately. Package for shipment as described in Section 6.0.

5.0 EQUIPMENT DECONTAMINATION

Non-dedicated sampling equipment, such as the mixing bowl and split spoon samplers, must be cleaned between sampling episodes. Decontamination shall consist of washing the equipment with potable water to remove loose materials such as mud and dust, scrubbing the equipment with brushes and a phosphate-free detergent, and rinsing again with potable water. If possible, the final rinse will be performed with a steam-cleaner using potable water.

6.0 SAMPLE PACKAGING AND SHIPPING

Samples must be packaged carefully to avoid breakage or contamination and must be shipped to the laboratory at the proper temperature and within 48 hours.

6.1 Sample Packing Instructions

In order to maintain chain of custody protocol and to prevent breakage of the sample containers, the samples shall be packaged as follows:

a. After sample collection, make sure the lids are securely affixed to the properly labeled sample containers, to prevent loosening and possible leakage of contents.
b. Place approximately a 3-inch layer of inert cushioning material in the bottom of a waterproof metal or equivalent strength plastic ice chest or cooler.
c. Enclose the bottles in clear plastic ZipLoc-type bags, through which labels are visible, and seal the bag. Place the bottles so that they will remain upright, cushioned and separated in the cooler during shipment.
d. Put in additional packing material to partially cover sample bottles (more than halfway), to ensure that they do not shift during transport.
e. Place sealed plastic bags of ice (**double bagged** in "ZipLoc" bags) around and on top of the samples bottles. If chemical ice is used (i.e. blue ice), bag it similarly. **NOTE: Use enough ice in order to maintain samples at a temperature of 4°C during shipment.**
f. Seal the appropriate chain of custody form(s) in a ZipLoc-type plastic bag, and tape it securely to the inside lid of the cooler.
g. Tape the cooler/ice chest drain shut.

h. Close and lock/latch the cooler. Secure the lid by taping. Wrap the cooler completely with strapping tape at a minimum of two locations. Do not cover any labels.
i. Attach a completed shipping label to the top of the cooler.
j. Put "This Side Up" labels on top of cooler and on all 4 sides. Put "Fragile" labels on at least two sides.
k. Affix numbered and signed custody seals on front right and back left of cooler. Cover seals with wide, clear tape.
l. While packing each cooler for shipment, remember not to exceed the weight limit set by the shipper.

6.2 Sample Shipping

Sample labels, field notebook information, and chain of custody forms are checked to be sure there are no errors in sample identification and to verify that all the required information has been supplied.

As soon as the samples are ready for transport from the field to the Contract Laboratory, the laboratory point of contact (POC) shall be notified by telephone of the shipment along with the estimated time of arrival. Samples will be shipped to the laboratory via overnight carrier. The shipping address is provided in Section 2.0.

7.0 DOCUMENTATION

7.1 Field Log Book

A logbook will be maintained to document all field activities. The logbook will be a bound notebook with water-resistant pages. The following guidelines will be followed when entering information into the logbook:

a. All entries will be made legibly with indelible, dark blue or black ink.
b. All time will be reported as military time.
c. All pages in the log will be numbered consecutively, signed and dated.
d. No blank pages or sections of pages will be allowed. If a page is not completely filled in, a line will be drawn through the blank portion and initialed by the person keeping the log.
e. Errors will be corrected by drawing a single line through the error and initialing the change.
f. At the end of each day, the logbook will be signed and dated.

The field logbook will contain the following:

a. Record at the start of each day, the date, time and weather.
b. Note the people present throughout the day.
c. Record PPE levels and any changes made during the day.

d. Also note field instrument measurements and calibration.
e. Record action taken, project progress and observations.
f. Documentation of sample collection to include sample identification number, description of the sampling method, sampling matrix, sample location, time of collection, sampling depth, results of field screening, sample description, and type of analysis requested.
g. Any deviation from the sampling plan shall be noted and explained.
h. Record any unusual incidents, problems and accidents.

The Field Notebook serves as a permanent and traceable record of all field activities related to a project and it will become a part of the project files.

7.2 Sample Chain of Custody

Evidence of the sample traceability from collection to shipment, laboratory receipt, and laboratory custody until proper disposal must be documented. Documentation will be accomplished through a Chain of Custody form that records each sample and the individuals responsible for sample collection, transfer, shipment, and receipt by the laboratory. This form must also contain pertinent information about sampling location, date, and times; signature of sampling technician, types and numbers of samples collected and shipped for analysis in each lot; parameters to be analyzed per sample; unique sample identification numbers assigned to the sample(s); and the project name and number.

Samples shall be accompanied by an approved and completed chain of custody form during each step of custody, transfer, and shipment. When physical possession of samples is transferred, both the individual relinquishing the samples and the individual receiving them shall sign, date, and record the time on the Chain of Custody form.

A sample is considered to be in a person's custody if the sample is:

a. In a person's actual possession.
b. In view after being in a person's possession.
c. Locked up so that no one can tamper with it after having been in physical custody.
d. In a secured area, restricted to authorized personnel.

7.3 Sample Documentation

The chain of custody procedures are initiated in the field following sample collection. The procedures consist of:

(1) Preparing and attaching a unique sample label to each sample collected;

(2) Completing the chain of custody form; and

(3) Preparing and packaging the samples for shipment.

7.4 Sample Labels

Field personnel are responsible for uniquely identifying and labeling all samples collected during a field investigation. All labeling will be completed in indelible ink and be securely affixed to the sample container. All sample bottles shall be labeled containing the following information:

- Project number and site name,
- Unique sample identification number,
- Sample description,
- Parameters to be analyzed for/method numbers,
- Sampling date and time,
- Initials of sampling technician, and
- Method of sample preservation/conditioning used.

7.5 Boring Logs

Sampling depths and other pertinent information (such as staining or odor) regarding the sample will be recorded on the geotechnical boring log prepared for the boring.

8.0 REFERENCES

U.S. Army Corps of Engineers, EM 200-1-3, *Requirements for the Preparation of Sampling and Analysis Plans*, September 1994.

U.S. Army Corps of Engineers ER 1165-2-132, *Hazardous, Toxic, and Radioactive Waste (HTRW) Guidance for Civil Works Projects*, June 1992.

TABLE 1: SAMPLING CHART

Sample Location	Sample Number	Sample Depth (ft)		Matrix	Sample Type	Laboratory Analysis	Remarks
		start	stop				
GC03-1	GC03-1-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	
GC03-2	GC03-2-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	
GC03-3	GC03-3-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	
GC03-4	GC03-4-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	
GC03-5	GC03-5-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	
GC03-6	GC03-6-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	
GC03-7	GC03-7-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	
GC03-8	GC03-8-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	

TABLE 1: SAMPLING CHART *continued*

Sample Location	Sample Number	Sample Depth (ft)		Matrix	Sample Type	Laboratory Analysis	Remarks
GC03-9	GC03-9-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	
GC03-10	GC03-10-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	
GC03-11	GC03-11-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	
GC03-12	GC03-12-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	
GC03-13	GC03-13-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	
GC03-14	GC03-14-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	
GC03-15	GC03-15-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	
GC03-16	GC03-16-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	

TABLE 1: SAMPLING CHART *continued*

Sample Location	Sample Number	Sample Depth (ft)		Matrix	Sample Type	Laboratory Analysis	Remarks
GC03-17	GC03-17-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	
GC03-18	GC03-18-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	
GC03-19	GC03-19-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	
GC03-20	GC03-20-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	
GC03-21	GC03-21-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	
GC03-22	GC03-22-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	
GC03-23	GC03-23-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	
GC03-24	GC03-24-S1			Soil	Primary	VOA + 15, ABN + 25,), Pest/PCB, PP Metals, and Total Coliform	

TABLE 1: SAMPLING CHART *continued*

Sample Location	Sample Number	Sample Depth (ft)		Matrix	Sample Type	Laboratory Analysis	Remarks
GC03-25	GC03-25-S1			Soil	Primary	VOA + 15, ABN + 25, Pest/PCB, PP Metals, and Total Coliform	
GC03-26	GC03-26-S1			Soil	Primary	VOA + 15, ABN + 25, Pest/PCB, PP Metals, and Total Coliform	
GC03-27	GC03-27-S1			Soil	Primary	VOA + 15, ABN + 25, Pest/PCB, PP Metals, and Total Coliform	
GC03-28	GC03-28-S1			Soil	Primary	VOA + 15, ABN + 25, Pest/PCB, PP Metals, and Total Coliform	
GC03-29	GC03-29-S1			Soil	Primary	VOA + 15, ABN + 25, Pest/PCB, PP Metals, and Total Coliform	
GC03-30	GC03-30-S1			Soil	Primary	VOA + 15, ABN + 25, Pest/PCB, PP Metals, and Total Coliform	

Attachment 3:

Background Samples and Release Samples from the GEI Analysis

BACKGROUND SAMPLES AND RELEASE SAMPLES
FROM THE GEI ANALYSIS
SURFICIAL SEDIMENT

Attachment 3: Background Samples and Release Samples from the GEI Analysis

	BACKGROUND CONCENTRATIONS									
Transect	TRANSECT A									3x MAX BG
Field Sample No.	*GC-SED01*			*GC-SED02*			*GC-SED03*			or MAX BG
Depth in feet	*1-2.5*			*1-2*			*0-1.5*			SQL
	Result	Q	SQL	Result	Q	SQL	Result	Q	SQL	
Aroclor-1242	0.031	U	*0.031*	0.025	U	0.025	0.027	U	0.027	0.031
Aroclor-1248	0.065	J	0.031	0.037		0.025	*0.13*		0.027	0.39
Aroclor-1254	*0.11*		0.031	0.051	J	0.025	0.082		0.027	0.33
Aroclor-1260	*0.072*		0.031	0.039		0.025	0.041		0.027	0.216
Benzo(a)anthracene	*1.9*		1.2	2.4	J	3.7	1.4		0.52	5.7
Benzo(a)pyrene	*1.5*		1.2	1.7	J	3.7	1.1		0.52	4.5
Indeno(123-cd)pyrene	1.1	J	1.2	1.3	J	*3.7*	0.43	J	0.52	3.7
4,4'-DDT	0.023	J	*0.031*	0.024	UJ	0.024	0.012	J	0.011	0.031
Dieldrin	0.031	U	*0.031*	0.024	U	0.024	0.011	U	0.011	0.031
Lead	232		13.5	*450*		12.2	375			1350

Underlined italics indicates maximum background (or max. background SQL if not detected above SQL)
Bold/highlight = observed release
Blank spaces indicate U or UJ (data removed for ease of use)

All results in milligrams per kilogram (mg/kg)
J - Estimated concentration
NJ - The analyte is presumptively present at an approximate concentration
R - The reported results or detection limits are estimated or rejected based upon the recovery
NS - Not sampled or analyzed for specific analyte

Note: Data was tabulated from Reference 35, Table 4. Sample and transect locations presented on pages 542-544 of Reference 35

	CONTAMINATED CONCENTRATIONS																					
Transect	**TRANSECT B**				**TRANSECT C**						**TRANSECT D**						**TRANSECT E**					
Field Sample No.	**GC-SED04**		**GC-SED05**		**GC-SED07**		**GC-SED08**		GC-SED09B		**GC-SED10**		**GC-SED11**		**GC-SED12**		**GC-SED13B**		**GC-SED14**		**GC-SED15**	
Depth in feet	**0-2**		**0-2**		**0-2.5**		**1-2**				**0-1.5**		**1-3**		**0-2**		**0-2**		**0-1.5**		**0-0.75**	
Aroclor-1242					0.68	J		NS		NS		NS		NS		NS		NS		NS	0.12	J
Aroclor-1248	0.24	J	0.18					NS		NS		NS		NS		NS		NS		NS		
Aroclor-1254	0.85	J	0.27	J	**1.7**			NS		NS		NS		NS		NS		NS		NS	0.17	J
Aroclor-1260	**0.21**	J	0.087	J	**0.64**			NS		NS		NS		NS		NS		NS		NS	0.14	
Benzo(a)anthracene	**20**		**14**		**81**		**51**				**18**		**43**		**16**		5.4		**23**		**6**	
Benzo(a)pyrene	**17**		**11**		**74**		**45**				**12**		**36**		**13**		**4.7**		**18**		**5.2**	
Indeno(123-cd)pyrene	6.5	J	5.3	J	23	J	17	J			**6.6**		**11**		**7**		1.9	J	4.8	J	2.5	J
4,4'-DDT					0.065	NJ	0.07	NJ						R		R		R	0.068	J		
Dieldrin																					0.02	J
Lead	249		193		**1690**		**1520**				278		507	J	528		357	J	703	J	812	J

Bold/highlight = observed release
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	CONTAMINATED CONCENTRATIONS																	
Transect	**TRANSECT F**						**TRANSECT G**						**TRANSECT H**					
Field Sample No.	**GC-SED16**		GC-SED17		**GC-SED18**		GC-SED19C		GC-SED20		**GC-SED21B**		**GC-SED22B**		**GC-SED23**		GC-SED24B	
Depth in feet	**0-2**		0-2		**0-1**		1.5-2		0-1.5		**1.5-3**		**0-1**		**0-2**			
Aroclor-1242	0.08	J	0.089	J	0.076	J	0.9	J		NS		NS		NS		NS		NS
Aroclor-1248										NS		NS		NS		NS		NS
Aroclor-1254	0.17	J	0.13		0.051	J	1	J		NS		NS		NS		NS		NS
Aroclor-1260	0.14	J	0.11		0.04	J	1.4	J		NS		NS		NS		NS		NS
Benzo(a)anthracene	**10**		13	J	**6.3**		22	J	5.1		**43**		**7.2**		5.3			
Benzo(a)pyrene	**8.4**		11	J	**5.1**		18	J	4.4		**35**		**6.2**		**4.6**			
Indeno(123-cd)pyrene	3.3	J	3.6	J	2.1	J	5.8	J	1.5	J	13	J	2.6	J	1.5	J		
4,4'-DDT		R				R	0.052	NJ		R	0.11	NJ				R		
Dieldrin										R								
Lead	927	J	215	J	339	J	690	J	268		1180		325	J	307			

Bold/highlight = observed release
Blank spaces indicate U or UJ (data removed for ease of use)

All results in milligrams per kilogram (mg/kg)
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BACKGROUND SAMPLES AND RELEASE SAMPLES
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SURFICIAL SEDIMENT

NS - Not sampled or analyzed for specific analyte

Note: Data was tabulated from Reference 35, Table 4. Sample and transect locations presented on pages 542-544 of Reference 35

	CONTAMINATED CONCENTRATIONS																	
Transect	TRANSECT I					TRANSECT J						TRANSECT K						
Field Sample No.	GC-SED25B		GC-SED26		GC-SED27		GC-SED28		GC-SED29		GC-SED31		GC-SED32		GC-SED33			
Depth in feet	1-4		1-2		0.5-1		1.5-2.5		2.3-4.6		2.5-4.5		0.5-1.5		1.5-3			
Aroclor-1242		NS	0.36	J	0.29	J	0.4	J	0.31	J	0.47	J	0.037	J	0.4			
Aroclor-1248		NS																
Aroclor-1254		NS	0.6	J	0.2	J	0.82	J	0.64	J	0.53	J	0.038	J	0.49	J		
Aroclor-1260		NS	0.53		0.26		0.8		0.49		0.65		0.059	J	1.1			
Benzo(a)anthracene	13		14		3.3		9.4		6		25		3.4		18			
Benzo(a)pyrene	11		12		2.9	J	8.4		5.6		20		3.4		15			
Indeno(123-cd)pyrene	6		3.4	J	1.7	J	5.5		2.8		9.9	J	2.1	J	8.7	J		
4,4'-DDT		R													0.2	NJ		
Dieldrin											0.2							
Lead	352		560		339		552		924		1190	J	430	J	706	J		

Bold/highlight = observed release
Blank spaces indicate U or UJ (data removed for ease of use)

All results in milligrams per kilogram (mg/kg)
J - Estimated concentration
NJ - The analyte is presumptively present at an approximate concentration
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NS - Not sampled or analyzed for specific analyte

Note: Data was tabulated from Reference 35, Table 4. Sample and transect locations presented on pages 542-544 of Reference 35

	CONTAMINATED CONCENTRATIONS																	
Transect	TRANSECT L					TRANSECT M		TRANSECT N				TRANSECT O						
Field Sample No.	GC-SED34B		GC-SED35		GC-SED36		GC-SED39		GC-SED40		GC-SED41		GC-SED43		GC-SED44		GC-SED45C	
Depth in feet	2-3		0-4.5		2.5-4.5		1-2		2.5-3.5		0-4.5		2-3		0.5-2.5		1-1.5	
Aroclor-1242			0.57	J	0.69		6.2		0.011	J	0.036		0.013	J	0.95	J		
Aroclor-1248	2.6													R				
Aroclor-1254	5.7	J	0.7	J	0.94		0.94	J			0.0059	J	0.02	J	1.3			
Aroclor-1260	17		0.66	J	1.1		2.1		0.043		0.017	J	0.026	J	2.2		0.44	J
Benzo(a)anthracene	46		26	J	33		54		9.2		0.91		400		220	J	690	J
Benzo(a)pyrene	39		20	J	30		43		6.9		0.68		260	J	130	J	460	J
Indeno(123-cd)pyrene	17		8.4	J	14	J	25		3	J	0.23	J	100	J	47	J	100	J
4,4'-DDT	2.4	J					0.2	NJ				R	0.66	J	0.56	NJ		
Dieldrin	0.48	NJ			0.13		0.093	J							0.16	J		
Lead	1130		352		334	J	404	J	25.4	J	5.2	J	587	J	133	J	581	J

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	CONTAMINATED CONCENTRATIONS																	
Transect	TRANSECT P					TRANSECT Q						TRANSECT R				TRANSECT S		
Field Sample No.	GC-SED46C		GC-SED47		GC-SED48		GC-SED49		GC-SED50B		GC-SED51		GC-SED53		GC-SED54B		GC-SED55	
Depth in feet	1.5-2.5		1.5-2.5		0.5-1.5		2.5-3.5		2-5		0-1.5		0.5-1.5		0-2		1.5-2.5	
Aroclor-1242	3	J	2.4		1.2						0.39		0.65		0.23		0.19	J
Aroclor-1248																		
Aroclor-1254	5.1		4.6		3.8	J					1.2		2.2	J	0.93		0.47	J
Aroclor-1260	6.3		6.5		4.7				0.2		0.87		1.3	J	0.65	J	0.39	
Benzo(a)anthracene	210		170	J	230		670		630	J	190		160		52	J	88	
Benzo(a)pyrene	130		110	J	140	J	370	J	480	J	130	J	110		38	J	66	
Indeno(123-cd)pyrene	41	J	37	J	49	J	110	J	170	J	51	J	30	J	13	J	33	
4,4'-DDT	0.95	NJ	0.65	NJ	0.74	J			0.39	NJ		R	0.32	J				
Dieldrin	0.45		0.29		0.26	J					0.27	J			0.16			
Lead	1100	J	961	J	557	J	848	J	1360		666		182		553		536	J

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All results in milligrams per kilogram (mg/kg)
J - Estimated concentration
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BACKGROUND SAMPLES AND RELEASE SAMPLES
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SURFICIAL SEDIMENT

R - The reported results or detection limits are estimated or rejected based upon the recovery
NS - Not sampled or analyzed for specific analyte

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	CONTAMINATED CONCENTRATIONS																					
Transect	TRANSECT T				TRANSECT U				TRANSECT V				TRANSECT W									
Field Sample No.	GC-SED58C		GC-SED59		GC-SED60B		GC-SED62C		GC-SED64D		GC-SED65		GC-SED67B		GC-SED68		GC-SED69C					
Depth in feet	0-5		0.5-1		0-2.5		0-2		2-4		0-1.25		0-1		0-1		0-1					
Aroclor-1242			1.9		1.5		0.26						0.2	J								
Aroclor-1248															2.7	J	0.61	J				
Aroclor-1254			1.5		2		0.76	J	0.38	J			0.47		2.9							
Aroclor-1260			1.4		0.79	J	0.57	J	0.26	J			0.11		1		2.3					
Benzo(a)anthracene	200	J	450		200		52	J	260	J	200	J	8.7		19		18					
Benzo(a)pyrene	120	J	340	J	140		38	J	190	J	140	J	8		16		17					
Indeno(123-cd)pyrene	34	J	90	J	48	J	13	J	47	J	45	J	3.3		6.1		9.9					
4,4'-DDT	1.1	J			0.43	J	0.11	NJ		R				R		R		R				
Dieldrin			0.0099	J	0.38	J																
Lead	231		323	J	465		405		542		6.5	J	700		414		318					

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	CONTAMINATED CONCENTRATIONS																					
Transect	TRANSECT X				TRANSECT Y						TRANSECT Z											
Field Sample No.	GC-SED71C		GC-SED72B		GC-SED73E		GC-SED74E		GC-SED75C		GC-SED76C		GC-SED77		GC-SED78B		GC-SED78B (dupes)					
Depth in feet	2.5-4		0-2		1-2.5		0-0.7		0.7-1.5		2.5-3.4		0-3		0-1		2.5-5					
Aroclor-1242	0.076	J			0.049	J	0.25	J			0.34		0.23	J								
Aroclor-1248															0.19	J	0.34	J	0.47	J		
Aroclor-1254					0.084	J	0.37	J			0.69		0.47	J	0.25	J	0.34	J	0.63			
Aroclor-1260					0.089	J	0.36				0.44		0.32	J	0.16		0.2		0.48			
Benzo(a)anthracene	23		0.34	J	17		5.1		0.28	J	11		5.6		7		22		25			
Benzo(a)pyrene	38	J	60	J	14		0.5		0.5		9.8		6.3		5.3		14	J	15			
Indeno(123-cd)pyrene	19	J	37	J	5.9		2.2	J	0.19	J	4.7		2.7		2.6	J	5.7	J	6.9	J		
4,4'-DDT					0.016	J						R				R		R				R
Dieldrin					0.01	J							0.012	J								
Lead	274	J	10.7		335	J	226	J	5.6	J	314		258	J	221		372		511			

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	CONTAMINANTED CONCENTRATIONS																					
Transect	TRANSECT AA								4TH ST. BASIN (BET. I-J)						6TH ST. BASIN (BET. N-O)							
Field Sample No.	GC-SED79		GC-SED80		GC-SED82		GC-SED83		GC-SED84		GC-SED85B		GC-SED86		GC-SED88		GC-SED89B		GC-SED90B			
Depth in feet	2.5-3.5		0-2		0-2		0-2		1-2		0-1		0-1		0.5-1		1.8-2.3		0-1			
Aroclor-1242	0.32		12		0.13	J	1		0.38		0.64											
Aroclor-1248													1.7		3.3	J	2.7	J	2.4	J		
Aroclor-1254	0.48		9.2		0.28	J	1.2	J	0.33	J	0.83	J										
Aroclor-1260	0.22		2.7		0.13	J	0.62		0.33	J	0.81		2.1		5.3		3.7		7.5			
Benzo(a)anthracene	34		12		96		9.8		15		15		61		50		54		170			
Benzo(a)pyrene	26		8.7	J	65		7.9		13		12		53		34		40		140			
Indeno(123-cd)pyrene	8.5	J	4	J	31	J	5	J	4.8	J	3.4	J	28		14		16	J	55	J		
4,4'-DDT	0.041	J			0.013	J				R		R										
Dieldrin							0.013	J														
Lead	393		754		316	J	513	J	787		898		1340		570		1510		683			

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BACKGROUND SAMPLES AND RELEASE SAMPLES
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NS - Not sampled or analyzed for specific analyte

Note: Data was tabulated from Reference 35, Table 4. Sample and transect locations presented on pages 542-544 of Reference 35

	CONTAMINATED CONCENTRATIONS																			
Transect	7TH ST. BASIN (BET. Q-R)				**11TH ST. (U-V)**		**BET. J-K**		**BET. K-L**		**BET. L-M**		BET. O-R		**BET. R-S**		**TRANSECT BB**	
Field Sample No.	GC-SED92		GC-SED93		**GC-SED94**		**GC-SED96**		**GC-SED97**		**GC-SED98**		GC-SED102		**GC-SED103**		**GC-SED105**	
Depth in feet	0-2		0-1		**0.5-1.25**		**0-1**		**0.5-2**		**1-2**		2-4		**1-2**		**2.5-4**	
Aroclor-1242	0.91	J	3.9	J	**1.6**		**0.23**											
Aroclor-1248									0.94	J	**0.53**				0.21			
Aroclor-1254	0.89	J	1.5	J	1.5	J	0.27	J	1.4	J	0.24	J	0.58	J	0.19	J	**0.87**	
Aroclor-1260	1.1	J	1.2	J	**0.89**		**0.27**		**1.3**		**0.69**		0.7	J	**0.39**		0.19	J
Benzo(a)anthracene	46	J	68	J	**88**		5.5		**36**		**29**		630	J	**59**		**270**	
Benzo(a)pyrene	32	J			**55**		4.5		**29**		**25**		440	J	**50**		180	J
Indeno(123-cd)pyrene	13	J			**28**		2.1	J	**11**		**9.8**		240	J	9.2	J	71	J
4,4'-DDT		R		R		R	0.042	J	0.99	J		R	1.5	J	0.16	J	0.49	J
Dieldrin					0.14	J			0.4	J	0.067	NJ			0.054	NJ		
Lead	673	J	1650	J	978		315		1120		442		829	J	359		308	

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BACKGROUND AND RELEASE SAMPLES
FROM THE GEI ANALYSIS
SUBSURFACE SEDIMENT

	BACKGROUND CONCENTRATIONS									
Transect	TRANSECT A									3x MAX
Field Sample No.	*GC-SED01*			*GC-SED02*			*GC-SED03*			BG or
Depth in feet	*16-17*			*9.6-10.6*			*7.5-9.3*			MAX BG
	Result	Q	SQL	Result	Q	SQL	Result	Q	SQL	
Aroclor-1242	0.32	U	*0.32*	0.15	U	0.15	0.18	U	0.18	0.32
Aroclor-1248	0.68			0.2			*0.74*	*J*		22.2
Aroclor-1254	0.69	J		0.45			*0.77*	*J*		23.1
Aroclor-1260	0.42			0.19			*0.43*			1.29
Benzo(a)anthracene	*47*			24			8.3			141
Benzo(a)pyrene	*39*			14			7.1	J		117
Indeno(123-cd)pyrene	18	J		6.1	J		4.6	J		?
4,4'-DDT	0.079	J		0.069	NJ		0.071	UJ	0.071	?
Dieldrin	0.062	U	0.062	0.059	U	0.059	0.071	U	*0.071*	0.071
Lead	1620			*1840*			1560			5520

Underlined italics indicates maximum background (or max. background SQL if not detected above SQL)
Blank spaces indicate U or UJ (data removed for ease of use)

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	CONTAMINATED CONCENTRATIONS																	
Transect	**TRANSECT B**		**TRANSECT C**				**TRANSECT D**				TRANSECT E		TRANSECT G					
Field Sample No.	**GC-SED04**		GC-SED07		**GC-SED09B**		**GC-SED11**		GC-SED12		GC-SED14		GC-SED19C		GC-SED20		GC-SED21B	
Depth in feet	**10.3-11.3**		7.5-8.5		**6-7**		**11-13**				5.5-6.5		5.8-6.8		4-5		7-8	
Aroclor-1242							**0.45**						2.2	J			0.92	J
Aroclor-1248	0.56	J	0.28		1.6										5	J		
Aroclor-1254	0.46	J	0.3	J	2.5	J	0.61	J	0.056	J					3.8	J		
Aroclor-1260	0.17	J	0.56		**1.6**		0.72		0.03	J			2.9	J	5.7	J	1.1	J
Benzo(a)anthracene	**150**		35		390	J	43		58		530	J	55		21	J	15	
Benzo(a)pyrene	110	J	24		360	J	32	J	43		380	J	42		19	J	12	
Indeno(123-cd)pyrene	39	J	8.8	J	180	J	8.9	J	18	J	96	J	19	J	5.4	J	3.5	
4,4'-DDT	0.092	NJ	0.096	NJ	0.18	NJ		R					0.72	NJ		R		
Dieldrin					0.085	J							0.028	NJ				
Lead	1400		1720		1420		1290	J	1200		1350	J	1230	J	1640	J	844	J

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	CONTAMINATED CONCENTRATIONS													
Transect	**TRANSECT H**				TRANSECT I		**TRANSECT J**				**TRANSECT K**			
Field Sample No.	**GC-SED22B**		GC-SED24B		GC-SED27		GC-SED28		**GC-SED30**		GC-SED31		**GC-SED32**	
Depth in feet	**7-8**		3-5		4.9-5.4		4.9-5.8		**3.5-5.5**		11.5-12.5		**5.9-6.9**	
Aroclor-1242	**2**				0.76	J			**0.81**				0.13	J
Aroclor-1248			1.1											
Aroclor-1254	2.7	J	1.1	J	1.4		0.079	J	0.6	J				
Aroclor-1260	3.1		1.6		0.38	J	0.064	J	0.76	J			0.46	
Benzo(a)anthracene	50		7.6		100	J	8.9		12		550	J	54	
Benzo(a)pyrene	40		7.1		67	J	6.8		11		380	J	43	
Indeno(123-cd)pyrene	12	J	1.9	J			2.6	J	6.9				20	J
4,4'-DDT	0.13	NJ		R			0.034	J						
Dieldrin													**0.83**	
Lead	964	J	495		1090		86.4		666		1260	J	1770	J

Bold/highlight = observed release
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	CONTAMINATED CONCENTRATIONS																			
Transect	TRANSECT L						TRANSECT M						TRANSECT O				TRANSECT P			
Field Sample No.	GC-SED34B		GC-SED35		GC-SED36		GC-SED37B		GC-SED38		GC-SED39		GC-SED43		GC-SED44		GC-SED46C		GC-SED48	
Depth in feet	5.8-6.8		8.8-10.8		8-9		7-8		5.1-6.1		4.5-5.5		7.3-8.3		5.6-6.1		5-5.5		5-5.8	
Aroclor-1242											14									
Aroclor-1248	6.5								4.6	J										
Aroclor-1254	8.3	J					4.5		5.3	J										
Aroclor-1260	28		0.15				3.6		24		1.4		0.65							
Benzo(a)anthracene	56		220	J	520	J	650		130		410	J	470	J	460	J	590	J	410	J
Benzo(a)pyrene	46		150	J	320	J	510		100		230	J	370	J	320	J	400	J	250	J
Indeno(123-cd)pyrene	20		64	J	100	J	280	J	47		84	J	99	J	82	J	110	J	610	U
4,4'-DDT	1.6	J	0.4	NJ	0.69	J	0.42	NJ	1.8	NJ	0.24	NJ	0.16	NJ	0.18	NJ	0.31	NJ		
Dieldrin							0.063	J	0.79		0.061	J	0.089	U						
Lead	1550		207		1160	J	1250		901		316	J	564	J	784	J	960	J	894	J

Bold/highlight = observed release
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	CONTAMINATED CONCENTRATIONS																			
Transect	TRANSECT Q				TRANSECT R				TRANSECT S				TRANSECT U				TRANSECT W			
Field Sample No.	GC-SED49		GC-SED51		GC-SED52		GC-SED54B		GC-SED55		GC-SED57		GC-SED62C		GC-SED63		GC-SED67B		GC-SED69C	
Depth in feet	5.4-5.9		6.7-7.2		3-6		4.5-5.7		10-11		7-9		3-4		3-3.5		7-8		6-7	
Aroclor-1242							0.32	J	0.36	J			0.14	J	1.7					
Aroclor-1248											0.65									
Aroclor-1254							1.4		0.99	J	0.27	J	0.93	J	2.7		0.5	J		
Aroclor-1260							0.67	J	0.59	J	0.51		0.29	J	1.1		0.4			
Benzo(a)anthracene	140	J	880	J	480		560	J	38		77		270	J	56		350	J	13	
Benzo(a)pyrene	110	J	630	J	320	J	390	J	28		59		190	J	40	J	240	J	10	
Indeno(123-cd)pyrene	32	J	180	J	95	J	130	J	12		21				14	J	69	J	4.6	J
4,4'-DDT			0.38	NJ	1.7		1.1	J				R	0.28	NJ	0.24	NJ				
Dieldrin											0.087				0.099	J				
Lead	323	J	1270		147		364		490	J	42.1		655		317		995		28.9	

Bold/highlight = observed release
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	CONTAMINATED CONCENTRATIONS															
Transect	TRANSECT X		TRANSECT Y		TRANSECT Z								4TH ST. BASIN (BET. I-J)			
Field Sample No.	GC-SED72B		GC-SED74E		GC-SED77		GC-SED81		GC-SED81		GC-SED82		GC-SED83		GC-SED85B		GC-SED87	
Depth in feet	5.5-7		5.3-6.3		14.5-15.4		8-11		13-13.5		12-12.8		11-11.9		8.5-9.3		4.4-6.2	
Aroclor-1242			5.4		0.064	J							3.5		3.6			
Aroclor-1248	4.9						0.1	J									2.9	
Aroclor-1254	2.7	J	2.3	J	0.23	J							3	J	7.7	J		
Aroclor-1260	1.7		0.45		0.11	J	0.11	J					0.8		5.3		2.5	
Benzo(a)anthracene	33	J	47	J	97		43	J			83		14		100		67	
Benzo(a)pyrene	26	J	40	J	75		32	J			65		9.7		71		40	J
Indeno(123-cd)pyrene	11	J	17	J	27	J	11	J			21	J	4.7	J	27	J	17	J
4,4'-DDT		R	0.6	J	0.019	J					0.021	J	0.053	J				
Dieldrin			0.28	J									0.027	J	0.4	J		
Lead	986		1070	J	173	J	292				114	J	438	J	1580		1820	

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BACKGROUND AND RELEASE SAMPLES
FROM THE GEI ANALYSIS
SUBSURFACE SEDIMENT

	CONTAMINATED CONCENTRATIONS																	
Transect	7TH ST. (O-R)		BET. I-J		BET. K-L		BET. L-M		**BET. M-N**		BET. N-O		**BET. P-Q**		BET. Q-R		**BET. R-S**	
Field Sample No.	GC-SED91		GC-SED95		GC-SED97		GC-SED98		**GC-SED99B**		GC-SED100		**GC-SED101**		GC-SED102		**GC-SED103**	
Depth in feet	4.7-6.2		3.5-4.5		8.5-9		8.5-9.5		**7.2-8.7**		5-6		**4-7**		6.5-8.8		**8.1-9.1**	
Aroclor-1242	0.39	J																
Aroclor-1248			0.4	J					1.8				2.1	J			0.5	
Aroclor-1254	0.54	J			0.24	J			7.2		1.1	J	2.2	J			0.91	J
Aroclor-1260	0.57	J	0.51	J	0.28	J	1.1	J	**2.6**		0.93		**3.5**				**1.7**	
Benzo(a)anthracene	47		26		200	J	520	J	**200**		150	J	210	J	510	J	190	J
Benzo(a)pyrene	29		18		110	J	310	J	**160**		130	J	150	J	390	J	140	J
Indeno(123-cd)pyrene	9.9	J	7	J					77	J	31	J	56	J	220	J		
4,4'-DDT	0.17	NJ							0.3	NJ			1.1	J	1.7	J	0.49	NJ
Dieldrin	0.076	J									0.14	J	**0.52**				0.19	J
Lead	834	J	809		2030		1090		809		701		847		559	J	19.7	

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BACKGROUND SAMPLES AND RELEASE SAMPLES
FROM THE GEI ANALYSIS
NATIVE MATERIALS

	BACKGROUND CONCENTRATIONS						
Transect	TRANSECT A						3x MAX BG
Field Sample No.	GC-SED01			GC-SED02			or MAX BG
Depth in feet	19-20			17.1-18.1			SQL
	Result	Q	SQL	Result	Q	SQL	
Aroclor-1242	0.096	U	0.096	0.1	U	*0.1*	0.1
Aroclor-1248	0.096	U	0.096	*0.28*			0.84
Aroclor-1254	0.096	U	0.096	0.1	U	*0.1*	0.1
Aroclor-1260	0.096	U	0.096	*0.14*			0.42
Benzo(a)anthracene	110	J		*120*			360
Benzo(a)pyrene	87	J		82	J		?
Indeno(123-cd)pyrene	370	U	*370*	25	J		370
4,4'-DDT	0.077	NJ		0.036	J		?
Dieldrin	0.0096	J		0.08	U	*0.08*	0.08
Lead	11.6	U		*827*			2481

Underlined italics indicates maximum background (or max. background SQL if not detected above SQL)
Blank spaces indicate U or UJ (data removed for ease of use)

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	CONTAMINATED CONCENTRATIONS																					
Transect	**TRANSECT B**						**TRANSECT C**								TRANSECT D							
Field Sample No.	GC-SED04		**GC-SED05**		GC-SED07		**GC-SED08**		GC-SED08		GC-SED09B		GC-SED09B		GC-SED10		GC-SED10		GC-SED11			
Depth in feet	18.5-19.5		**11.5-12.5**		14.25-14.75		**10.5-11.5**		19-20		12-13		18.5-19.5		12.5-13		15.75-16.25		19-20			
Aroclor-1242																						
Aroclor-1248			**1.2**				0.85	J														
Aroclor-1254			**2.1**				3.3	J														
Aroclor-1260			**1.4**				**3.4**		0.65	J												
Benzo(a)anthracene	15	J	580	J	110	J	360	J	240	J	520	J	0.74		85		0.49		24			
Benzo(a)pyrene	11	J	450	J	87	J	320	J	210	J	440	J	0.64		65		0.33	J	20			
Indeno(123-cd)pyrene	4	J	140	J	30	J	87	J	67	J	130	J	0.14	J	27	J	0.082	J	7.2			
4,4'-DDT			0.3	J	0.046	NJ	0.55	NJ	0.11	J	0.46					R						
Dieldrin					0.0082	J																
Lead	1.4	J	1090		9		999		2.4	J	1120		5.4		4.5		5.7		1.6	J		

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	CONTAMINATED CONCENTRATIONS																					
Transect	TRANSECT E										TRANSECT F											
Field Sample No.	GC-SED13B		GC-SED13B		GC-SED14		GC-SED15		GC-SED15		GC-SED16		GC-SED16		GC-SED17		GC-SED17		GC-SED18		GC-SED18	
Depth in feet	9.6-10.6		14.6-15.6		11.2-11.9		8.8-9.8		13.2-13.8		7-7.5		14.5-15.5		8.3-8.7		19.5-20		7-8		15-16	
Aroclor-1242																						
Aroclor-1248																						
Aroclor-1254																						
Aroclor-1260																						
Benzo(a)anthracene	44		190	J	28	J	120	J	9	J	57	J	140	J	110	J	2.5		88	J	45	J
Benzo(a)pyrene	32	J	140	J	20	J	93	J	7.4	J	41	J	90	J	86	J	2.2		61	J	35	J
Indeno(123-cd)pyrene	10	J	45	J	36	U	26	J	3.4	J	13	J	32	J	22	J	0.83	J	20	J	9.7	J
4,4'-DDT			0.087	NJ						R			0.071	NJ	0.083	NJ						
Dieldrin					0.03	NJ	0.045	NJ														
Lead	23	J	4.4	J	3.1	J	2.8	J														

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BACKGROUND SAMPLES AND RELEASE SAMPLES
FROM THE GEI ANALYSIS
NATIVE MATERIALS

	CONTAMINATED CONCENTRATIONS																					
Transect	TRANSECT G		TRANSECT H												**TRANSECT I**							
Field Sample No.	GC-SED20		GC-SED22B		GC-SED23		GC-SED23		GC-SED24B		GC-SED24B		GC-SED25B		GC-SED26		**GC-SED26**		GC-SED27	
Depth in feet	15.8-16.8		19.3-20		5.5-6.2		17.5-19		12.6-13.4		15.3-16.3		9-10		5.3-8		**14.3-14.8**		12.5-12.9	
Aroclor-1242																				
Aroclor-1248					0.18	J														
Aroclor-1254					0.28	J														
Aroclor-1260					0.31	J														
Benzo(a)anthracene	0.096	J	7.7		20		25		18				980	J	44		**420**		82	J
Benzo(a)pyrene	0.055	J	5.8		17		18		11	J			730	J	31	J	290	J	53	J
Indeno(123-cd)pyrene			1.6	J	5.8	J	6.3	J	2.2	J					9.4	J	350	U		
4,4'-DDT						R							0.82	J	0.069	NJ		R	0.031	J
Dieldrin			0.0012	J											0.007	J	0.18	U		
Lead					215								825		4.4		2.4	J	4.4	

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	CONTAMINATED CONCENTRATIONS																					
Transect	TRANSECT J						TRANSECT K												TRANSECT L			
Field Sample No.	GC-SED28		GC-SED29		GC-SED29		GC-SED30		GC-SED30		GC-SED31		GC-SED32		GC-SED33		GC-SED33		GC-SED35		GC-SED36	
Depth in feet	19-19.3		7.4-8.4		13.9-14.9		10.8-11.3		15.3-16.3		16.5-18		13-14		10.2-11		17.4-18.2		15.3-17.3		19-20	
Aroclor-1242																						
Aroclor-1248																						
Aroclor-1254																						
Aroclor-1260																						
Benzo(a)anthracene	0.16	J	45	J	0.37	J	48	J	4.4		48	J	240	J	100	J	510	J	160	J	110	J
Benzo(a)pyrene	0.12	J	34	J	0.27	J	36	J	3.3	J	38	J	180	J	69	J	370	J	120	J	79	J
Indeno(123-cd)pyrene			11	J	0.07	J	11	J	1.1	J	15	J	60	J	26	J	160	J	53	J	30	J
4,4'-DDT			0.085	NJ			0.098	J	0.012	J	0.089	NJ	0.38	NJ	0.35				0.16	NJ	0.49	J
Dieldrin			0.0086	J			0.027	J	0.003	J							0.19	J	0.021	J		
Lead			3.9		6.5		3.6		6.3		2.6	J	3.3	J	5.8	J	2.5	J	3.1		3	J

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	CONTAMINATED CONCENTRATIONS															
Transect	TRANSECT M		**TRANSECT N**				TRANSECT O				TRANSECT P					
Field Sample No.	GC-SED39		**GC-SED40**		GC-SED41		GC-SED43		GC-SED44		GC-SED46C		GC-SED47		GC-SED47		GC-SED48	
Depth in feet	10-10.5		**5-6**		7.3-8.3		9.9-10.4		13.3-13.9		9-10		4.5-5.5		11.8-12.2		10-11	
Aroclor-1242			1.4	J														
Aroclor-1248																		
Aroclor-1254																		
Aroclor-1260			**5.7**				0.044	J										
Benzo(a)anthracene	210	J	140	J	180	J	180	J	720	J	76	J	270	J	150		150	J
Benzo(a)pyrene	120	J	98	J	140	J	120	J	450	J	50	J	170	J	110	J	92	J
Indeno(123-cd)pyrene			37	J	41	J									35	J	30	J
4,4'-DDT					0.015	NJ	0.15	NJ	0.73	J	0.045	NJ	0.11	NJ	0.036	U	0.048	NJ
Dieldrin			0.7	NJ							0.013	J	0.015	J	0.008	J		
Lead			1320	J	5.2	J	8.9	J	2.9	J	1.9	J	5	J	5.7	J	1.6	J

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BACKGROUND SAMPLES AND RELEASE SAMPLES
FROM THE GEI ANALYSIS
NATIVE MATERIALS

	CONTAMINATED CONCENTRATIONS															
Transect	TRANSECT Q								TRANSECT R							
Field Sample No.	GC-SED49		GC-SED50B		GC-SED50B		GC-SED51		GC-SED52		GC-SED53		GC-SED54B			
Depth in feet	10-11		6-7		15-16		12.5-13.2		15-16.7		7.4-8.7		12.7-13.7			
Aroclor-1242																
Aroclor-1248																
Aroclor-1254																
Aroclor-1260																
Benzo(a)anthracene	130	J	150	J	95	J	64	J	31	J	100	J	120	J		
Benzo(a)pyrene	92	J	110	J	70	J	45	J	17	J	75	J	77	J		
Indeno(123-cd)pyrene	25	J	35	J			16	J			23	J				
4,4'-DDT	0.079	U	0.24	NJ	0.13	NJ	0.097	NJ	0.1	NJ	0.094	J	0.2	NJ		
Dieldrin	0.018	J														
Lead	3.7	J	10						5.2		2.8		1.8	J		

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	CONTAMINATED CONCENTRATIONS																					
Transect	TRANSECT S										TRANSECT T											
Field Sample No.	GC-SED55		GC-SED56		GC-SED56		GC-SED57		GC-SED57		GC-SED58C		GC-SED58C		GC-SED59		GC-SED59		GC-SED60B		GC-SED60B	
Depth in feet	12-13		5.8-6.2		6.7-7.2		13.5-14		15-15.8		8-10		13.25-15		6-7.25		16.5-17.5		6.8-8		13-14.4	
Aroclor-1242																						
Aroclor-1248																						
Aroclor-1254																						
Aroclor-1260							0.049	J														
Benzo(a)anthracene	190		190	J	110		320	J	71	J	210	J	0.075	J	260	J	0.38	J	230	J		
Benzo(a)pyrene	120	J	130	J	76	J	200	J	46	J	160	J			170	J	0.26	J	160	J		
Indeno(123-cd)pyrene	41	J	48	J	29	J					69	J			54	J			57	J		
4,4'-DDT					0.056	NJ	0.52		0.22	NJ	0.2	NJ			0.2	NJ			0.22	NJ		
Dieldrin																						
Lead	4.3	J	154				117								2.5		6.6	J	4.7		2.2	J

Bold/highlight = observed release
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	CONTAMINATED CONCENTRATIONS																	
Transect	TRANSECT U						**TRANSECT V**											
Field Sample No.	GC-SED62C		GC-SED63		GC-SED63		GC-SED64D		GC-SED64D		GC-SED65		GC-SED65		**GC-SED66C**		GC-SED66C		GC-SED66C	
Depth in feet	18.4-19.4		9-10		14.5-15		5.6-6.6		15-15.5		3-4		10.8-11.8		**3-5**		11.5-12.5		19-20	
Aroclor-1242																				
Aroclor-1248																				
Aroclor-1254																				
Aroclor-1260															0.2	J				
Benzo(a)anthracene	0.11	J	150	J	0.44		200		400	J					**370**		650	J	0.21	J
Benzo(a)pyrene	0.089	J	100	J	0.34	J	130	J	250	J					230	J	450	J	0.15	J
Indeno(123-cd)pyrene					0.094	J	53	J	98	J					73	J	160	J	0.05	J
4,4'-DDT			0.13	NJ	0.0027	J		R	0.066								0.59	NJ		
Dieldrin			0.014	J											0.031	J	0.076	J		
Lead	3.4										6	J	7.2	J	97.3					

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BACKGROUND SAMPLES AND RELEASE SAMPLES
FROM THE GEI ANALYSIS
NATIVE MATERIALS

	CONTAMINATED CONCENTRATIONS																			
Transect	TRANSECT W						TRANSECT X													
Field Sample No.	GC-SED67B		GC-SED68		GC-SED69C		GC-SED70B		GC-SED70B		GC-SED70B		GC-SED71C		GC-SED72B					
Depth in feet	17.4-18.4		7-8		9.5-10.2		4-5		6-6.5		8.5-9.5		13.5-15		13.5-14.5					
Aroclor-1242																				
Aroclor-1248																				
Aroclor-1254																				
Aroclor-1260																				
Benzo(a)anthracene	0.07	J	160	J	130	J	67		88						220	J				
Benzo(a)pyrene			110	J	91	J	46		69						170	J				
Indeno(123-cd)pyrene					34	J	16	J	24	J					59	J				
4,4'-DDT							0.022	J	0.095	J										
Dieldrin							0.0036	J												
Lead					540		318	J	258	J	15.1	J	8.3	J						

Bold/highlight = observed release
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	CONTAMINATED CONCENTRATIONS																							
Transect	**TRANSECT Y**								TRANSECT Z		TRANSECT AA													
Field Sample No.	GC-SED73E		**GC-SED74E**		GC-SED74E		GC-SED75C		GC-SED77		GC-SED79		GC-SED80		GC-SED80		GC-SED81		GC-SED82		GC-SED83	
Depth in feet	3.8-4.8		**8.3-9.3**		14.3-15.3		9.5-11.5		17.6-18.6		7.5-8.2		12-13		19-20		18-20		19-20		17.9-18.9	
Aroclor-1242	0.094	J	**0.68**																					
Aroclor-1248																								
Aroclor-1254	0.14	J	1.1	J																				
Aroclor-1260	0.092	J	0.28	J																				
Benzo(a)anthracene	20		71	J									0.067	J										
Benzo(a)pyrene	18		56	J									0.05	J										
Indeno(123-cd)pyrene	9.2	J	22	J																				
4,4'-DDT	0.046	J	0.24	J																				
Dieldrin	0.048	J																						
Lead	170	J	351	J	4.2	J	8.5	J	4	J	4.2								4	J	8.3	J		

Bold/highlight = observed release
Blank spaces indicate U or UJ (data removed for ease of use)

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	CONTAMINATED CONCENTRATIONS																							
Transect	4TH ST. BASIN (BET. I-J)												6TH ST. BASIN (BET. N-O)											
Field Sample No.	GC-SED84		GC-SED84		GC-SED86		GC-SED86		GC-SED87		GC-SED87		GC-SED88		GC-SED88		GC-SED89B		GC-SED89B		GC-SED90B		GC-SED90B	
Depth in feet	6-7		18-19		10.5-11.5		18.5-19.5		12.7-13.3		19-20		9.9-10.4		15.9-16.9		8-8.5		12.8-13.8		6.5-7		15.5-16	
Aroclor-1242																								
Aroclor-1248																								
Aroclor-1254																								
Aroclor-1260																								
Benzo(a)anthracene	85		99		6.1				29		0.095	J	67	J	34	J	9.1		220		190			
Benzo(a)pyrene	65	J	69	J	4.1	J			21		0.078	J	47	J	25	J	7.9		150	J	130			
Indeno(123-cd)pyrene	25	J	22	J	1.4	J			7.7	J	0.088	J			10	J	2.6	J	51	J	43	J		
4,4'-DDT																								
Dieldrin																								
Lead	5.3		2.2	J	10.2		9		7		2.4		9.1		2.5		30		4.5		2.7		2.3	J

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BACKGROUND SAMPLES AND RELEASE SAMPLES
FROM THE GEI ANALYSIS
NATIVE MATERIALS

	CONTAMINATED CONCENTRATIONS																	
Transect	7TH ST. BASIN (BET. Q-R)														11TH ST. BASIN (U-V)			
Field Sample No.	GC-SED91		GC-SED91		GC-SED92		GC-SED92		GC-SED93		GC-SED93		GC-SED94		GC-SED94			
Depth in feet	10.2-11.2		16.5-17.2		7.1-8.1		18.5-20		11-12		18.5-19.5		10.75-11.25		19-20			
Aroclor-1242																		
Aroclor-1248	0.42	J																
Aroclor-1254	0.38	J											0.61	J				
Aroclor-1260	0.34	J											0.29					
Benzo(a)anthracene	640	J	140	J	120								140		79	J		
Benzo(a)pyrene	400	J	87	J	67	J							95	J	51	J		
Indeno(123-cd)pyrene	120	J			23	J							29	J				
4,4'-DDT			0.41											R	0.099	J		
Dieldrin			0.031	J											0.009	J		
Lead	690	J	1.9	J	3.7		9.5		2.9		3.6		535		39.7			

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	CONTAMINATED CONCENTRATIONS															
Transect	BET. I-J				BET. J-K				BET. K-L		BET. L-M		BET. M-N		BET. N-O	
Field Sample No.	GC-SED95		GC-SED95		GC-SED96		GC-SED96		GC-SED97		GC-SED98		GC-SED99B		GC-SED100	
Depth in feet	12-13		18.5-19.5		14-15		16.5-17		15.5-17		16-16.8		9.5-11		10-10.6	
Aroclor-1242																
Aroclor-1248													0.02	J		
Aroclor-1254															0.05	J
Aroclor-1260															0.19	
Benzo(a)anthracene	240	J			46	J	13	J	20	J	11	J	96	J	73	J
Benzo(a)pyrene	170	J			34	J	8.1	J	14	J	6	J	66	J	50	J
Indeno(123-cd)pyrene	59	J			13	J							25	J	18	J
4,4'-DDT											0.031	J	0.049	NJ	0.084	NJ
Dieldrin													0.0083	J		
Lead	3.8		3.6		3		10.4		4.8		6.6		11.3	J	33.8	

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	CONTAMINATED CONCENTRATIONS													
Transect	BET. P-Q				BET. Q-R		BET. R-S		**TRANSECT BB**					
Field Sample No.	GC-SED101		GC-SED101		GC-SED102		GC-SED103		**GC-SED104**		GC-SED104		GC-SED105	
Depth in feet	7.9-9.1		13.6-14.1		14-15.7		11.1-12.1		**3.7-5.1**		7-7.5		9-10	
Aroclor-1242														
Aroclor-1248	0.34								0.4	J				
Aroclor-1254	0.17	J							**0.23**					
Aroclor-1260	0.39								0.21					
Benzo(a)anthracene	200	J	260	J	81	J	260	J	7.3		17	J	18	J
Benzo(a)pyrene	140	J	200	J	48	J	170	J	5.3		13	J	12	J
Indeno(123-cd)pyrene			44	J	21	J	34	J	3					
4,4'-DDT	0.16	NJ	0.36		0.3	J	0.49	J		R				
Dieldrin														
Lead	49.3		3.5		2.4	J	2.2	J	298		7		7.3	

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