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BASE REALIGNMENT AND CLOSURE
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Ser 09-170
June 10, 2009

Ms. Lorie Baker
U.S. Environmental Protection Agency Region III
Hazardous Site Cleanup Division (3HS12)
1650 Arch Street
Philadelphia, PA 19103

Ms. Sarah Pantelidou
Department of Environmental Protection (DEP)
Environmental Cleanup Program
2 East Main Street
Norristown, PA 19401

Dear Ms. Baker and Ms. Pantelidou:

Enclosed is the second Five Year Review for the Girard Point Management Area at the former Naval Station Philadelphia, now Philadelphia Naval Business Center. Environmental Protection Agency comments were received on May 28, 2009, and have been addressed in the document. No comments were received from the Pennsylvania Department of Environmental Protection by the end of the review period.

The Navy has determined that the remedy remains protective of human health and the environment. If you have any questions, please contact Mr. Brian Helland at (215) 897-4912.

Sincerely,

Paul F. Burgio
BRAC Environmental Coordinator
By direction of BRAC PMO

Enclosure:
Five Year Review for Girard Point Management Area at Philadelphia Naval Business
Center, Philadelphia, PA, Jun 09

Copy to:
PIDC (L. K. Knott)

FIVE YEAR REVIEW
for
Girard Point Management Area
at
Philadelphia Naval Business Center
Philadelphia, Pennsylvania



Contract No. N62470-08-D-1001
Contract Task Order WE07

Prepared for:
Naval Facilities Engineering Command Mid-Atlantic
9742 Maryland Avenue
Norfolk, Virginia 23511-3095

June 2009

Approved by:

A handwritten signature in black ink, appearing to read "Paul F. Burgio".

Paul F. Burgio
BRAC Environmental Coordinator
By Direction of BRAC PMO
SIGNED IN MY OFFICIAL CAPACITY ONLY

Date:

A handwritten date in black ink, "June 10, 2009", written over a horizontal line.

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Executive Summary

The Girard Point Management Area (GPMA) is located in the northwest area of the Philadelphia Naval Business Center (formerly the Philadelphia Naval Base) in Philadelphia, Pennsylvania. The 25-acre site was historically used for treatment, storage, and disposal of solid waste generated at the Naval Base. Portions of the property were used as landfills for disposal of incinerator ash (an incinerator was located on the property), construction debris, spent blasting grit, municipal waste, fill materials from dredging operations, and possibly foundry slag/sand. The site property has been transferred to the Philadelphia Industrial Development Corporation (PIDC) under the Base Realignment and Closure Act (BRAC); however, the Navy continues to perform O&M activities and Five-Year Reviews for the site. This is the second Five-Year Review for the site.

Remedial investigations completed in 1997 identified contaminants above human health or ecological risk-based concentrations. Contaminants were identified in surface and subsurface soils and groundwater throughout the GPMA site, and included semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and metals.

The remedy for the site as specified in the 1998 Record of Decision (ROD) included the following components:

- Base-wide land use controls prohibiting groundwater use for human consumption, restrictive future use (i.e., no residential use), and specific restrictions on construction of an outdoor playground
- Site-wide land controls prohibiting excavation without Pennsylvania Department of Environmental Protection (PADEP) approval
- Removal actions at designated areas
- Construction of a vegetative soil cover on 21 acres (Zone A)
- Construction of a bituminous asphalt cover on 4 acres (Zone B)
- Long-term shallow groundwater monitoring

The final remedial action construction was completed in 1998. PADEP approved the termination of the groundwater monitoring program in May 2008 and the monitoring wells were subsequently abandoned in accordance with PADEP requirements. This is the second Five-Year Review for the site. The Five-Year Review required a review of available documents, including the previous Five-Year Review, the Operations and Maintenance (O&M) Plan, cap inspection and maintenance reports, and monitoring well sampling and closure reports. In addition, a site walk was conducted to observe current conditions. Site conditions indicate the remedy is functioning as intended by the ROD and is protective of human health and the environment.

Issues:

A small burrow hole was noted in the Zone A cap area.

Nuisance dumping of small amounts of debris (e.g., pallets, empty drums) was observed, although the material dumped at the site does not appear to impact the remedy.

An excavation in Zone A in the right-of-way under the Girard Point Bridge was observed. This excavation was related to a water line capping project being conducted by PIDC. The excavation was backfilled, but not graded or seeded.

Soil excavated from storm sewer work along the roadway bordering the site was stockpiled on a portion of the asphalt cap in Zone B. The stockpile prevented a 100% inspection of the cap during the Five-Year Review. However, this area was inspected, and repairs made as needed, during O&M activities conducted in 2008.

Traffic from truck and heavy equipment performing the storm sewer work for the Philadelphia Industrial Development Corporation (PIDC) was observed on the cap during the Five-Year Review site inspection.

Several (approximately 5) gabion baskets have been dislodged at the toe of the gabion system, particularly in the area under the Girard Point Bridge. In addition, the wire mesh of one basket was torn. The overall integrity of the gabion system and shore stabilization component of the remedy is adequate.

Several monitoring wells have not been located and, therefore, have not been properly abandoned.

Recommendations:

The following actions are recommended:

- It is recommended that the burrow hole from small animals in the Zone A cap be repaired during the next round of O&M activities.
- The excavation Area in Zone A related to the water line capping conducted by PIDC should be re-graded and reseeded.
- The Zone B asphalt cap should be inspected after PIDC storm sewer construction activities on adjacent parcels is completed. The entire cap should undergo inspection due to the heavy equipment movement on portions of the cap. The area under the soil stockpiles that could not be observed during this Five-Year Review inspection should also be observed and any necessary repairs should be performed.
- It is recommended that the missing gabion baskets be replaced and that the basket with the torn mesh be repaired.

Protectiveness Statement:

The remedy is considered protective of human health and the environment, as the Zone A and Zone B caps prevent exposure to contaminated soils and groundwater performance criteria have been met.

Five-Year Review Summary Form

Site Identification		
Girard Point Management Area		
Region: 3	State: PA	City/County: Philadelphia
Site Status		
NPL Status: Final Deleted *Other (Specify)		
Remediation Status: Under Construction Operating * Complete		
Multiple OUs? *Yes No		Construction Completion Date: 1998
Has the site been put into reuse? Yes * No		
Review Status		
Lead Agency: EPA State Tribe * Other Federal Agency (NAVY)		
Author Name: Paul F. Burgio		
Author title: BRAC Environmental Coord.		Author affiliation: Dept. of Navy (BRAC)
Review Period: June 10, 2004 to June 10, 2009		
Date of Site Inspection: March 17, 2009		
Type of review: Post-SARA Pre-SARA NPL Removal only * Non-NPL Remedial Action Site NPL State/Tribe Lead Regional Discretion		
Review number: 1 (first) * 2 (second) 3 (third) Other (specify)		
Triggering action: Actual RA On-site Construction Actual RA Start at OU1 Construction Completion * Previous Five-Year Review Report Other (specify)		
Triggering action date: June 10, 2004		
Due date (five years after triggering action date): June 10, 2009		

**Naval Facilities Engineering Command
Second Five-Year Review (June 2004 to June 2009)
Girard Point Management Area
Philadelphia, Pennsylvania**

I. Introduction

The purpose of the Five-Year Review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of the review are documented in the Five-Year Review reports. In addition, Five-Year Review reports identify issues, if any, found during the review and identify recommendations to address them. This document will become a part of the Site file and the Administrative Record file for the site.

The Agency is preparing this Five-Year Review report pursuant to Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) §121 and the National Contingency Plan (NCP). CERCLA §121 states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of the facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

The Agency interpreted this requirement further in the NCP; 40 CFR §300.430(f)(4)(ii) states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

The United States Navy conducted this Five-Year Review of the remedy implemented at the Girard Point Management Area (GPMA) in Philadelphia, Pennsylvania. This review was conducted for the entire site between March 2009 and June 2009. This report documents the results of the review.

This is the second Five-Year Review conducted for this site. The triggering action for this review is the date of the previous Five-Year Review, dated June 10, 2004. The Five-Year Review is required due to the fact that hazardous substances, pollutants, or contaminants remain on site above levels that allow for unlimited use and unrestricted exposure.

II. Site Chronology

Table 1 provides a chronology of significant events associated with the site.

**TABLE 1
CHRONOLOGY OF SIGNIFICANT EVENTS
GIRARD POINT MANAGEMENT AREA
PHILADELPHIA, PENNSYLVANIA**

DATE	EVENT
1995	GPMA Site Management Plan providing presumptive remedy strategy identifying early removal actions including shoreline bank stabilization, storm water sewer engineering and line cleaning, and underground storage tank (UST) removal.
1996	Implementation of early removal actions for soil removal at Building 668; decontamination of Building 668 and demolition of the incinerator stack; and storm water sewer engineering survey and cleanout.
September 1996	Implementation of early removal action for removal of PCB-impacted soils (IR Site 3).
1997	Removal of 12,000 gallon UST at Building 688.
1997	Implementation of early removal action for shoreline stabilization.
May 1997	Remedial Investigation Reports for Sites 4 and 5 for GPMA.
May 1997	Engineering Evaluation/Cost Analysis for decontamination/demolition of the incinerator at GPMA.
September 1997	Site Characterization Report for GPMA.
October 1997	Feasibility Study for GPMA.
1998	Construction of landfill cover completed.
December 30, 1998	ROD prepared by US Navy selecting the remedy for the site including Base-wide land use controls prohibiting groundwater use for human consumption, restrictive future use (i.e., no residential use), and specific restrictions on construction of an outdoor playground; site-wide land use controls prohibiting excavation without PADEP approval; removal actions at designated areas; construction of a vegetative soil cover on 21 of 25 acres and a bituminous asphalt cover on the remaining 4 acres; and long-term shallow groundwater monitoring.
March 30, 2000	GPMA property transferred to City of Philadelphia.
June 10, 2004	First Five-Year Review completed.
May 14, 2008	PADEP concurrence to terminate long-term shallow groundwater monitoring program.
June 2008	Monitoring well abandonment conducted by Navy.

III. Background and Basis for Taking Action

The GPMA is located in the northwest area of the Philadelphia Naval Business Center (formerly the Philadelphia Naval Base) in Philadelphia, Pennsylvania. The site is located on a peninsula at the confluence of the Schuylkill and Delaware Rivers. Attachment 1 presents a site location map; Attachment 2 shows the site layout. The 25-acre site was historically used for treatment, storage, and disposal of solid waste generated at the Naval Base. Portions of the property were used as landfills for disposal of incinerator ash (an incinerator was located on the property), construction debris, spent blasting grit, municipal waste, fill materials from dredging operations, and possibly foundry slag/sand. The site property has been transferred to the PIDC under the BRAC; however, the Navy continues to perform O&M activities and Five-Year Reviews for the site. Planned future use of the site includes the installation of a solar energy field.

Remedial investigations completed in 1997 identified several source areas at the GPMA. These areas are:

- Installation Restoration (IR) Program Site 3: This area was a 1.25 acre out of service transformer storage area. Transformers formerly stored in this area contained polychlorinated biphenyls (PCBs).
- IR Program Site 4: This 6-acre landfill was used to dispose ash and debris generated at the Girard Point Incinerator (Building 688). Debris that was not suitable for incineration was also buried at this landfill.
- IR Program Site 5: This 5-acre landfill was used to disposal spent blasting grit, construction debris, incinerator ash, and debris which could not be burned.
- Industrial Wastewater Treatment Building (Building 993): This building was used to treat wastewater from the site and contained a 6,000 gallon UST used to store acid.
- Northwest Parking Lot (NWPL): This area was a 4-acre parking lot; however, in the 1980's, the Navy used this area to store hazardous and non-hazardous wastes, including waste paint, used oil, caustics, flammable wastes, PCBs, and acids. This area was closed under a Resource Conservation and Recovery Act (RCRA) Closure Plan in 1996. Blasting grit was stored in a 7-acre area west of the NWPL; these materials were removed for off-site disposal.

As detailed in the ROD, in order to further evaluate potential risks from the chemicals of potential concern (COPCs) at the GPMA, the site was divided into two operable units (Zone A and B). Zone A includes IR Program Sites 4 and 5. Zone A is approximately 11.2 acres and contains approximately 280,000 cubic yards of fill material. Zone B includes the former PCB transformer storage area (IR Program Site 3), the former RCRA storage area, the former incinerator (Building 688) and the former blasting grit storage area west of the NWPL. Zone B is approximately 13.2 acres and contains approximately 86,000 cubic yards of fill material.

Note that when remedial action is discussed in the ROD as well as subsequent documents, Zone A includes all areas covered by permeable cover and Zone B is the 4-acre area covered by bituminous asphalt.

Sample data from GPMA identified contaminants above human health or ecological risk-based concentrations. These COPCs were identified in surface and subsurface soils and groundwater throughout the GPMA site, and included SVOCs, PCBs, and metals. Asbestos and dioxins were also identified as COPCs in soils. Fate and transport analysis of contaminants at the site identified several potential migration pathways including transport of surface soil contaminants via erosion; transport of soil contaminants to groundwater via infiltration and leaching; discharge of groundwater to surface soil; and transport of soil contaminants to air via fugitive dust.

A quantitative human health risk assessment (HHRA) was conducted to evaluate risks based on the most likely future use of the property. Based on the presumptive remedy of a landfill cover, it was assumed that only construction workers would be exposed to site soils at Zone A. The HHRA assumed that maintenance workers, construction workers, and occasional visitors/trespassers could be exposed to contaminants at Zone B. It was also assumed, based on Base-wide institutional controls preventing groundwater use for potable supplies, that groundwater exposure would not occur. Results showed risks exceeding acceptable levels established in the National Oil and Hazardous Substances Contingency Plan (NCP) for both Zone A and Zone B soils. A qualitative ecological risk evaluation identified unacceptable risks for exposure of surface soil

contaminants to birds and small mammals via ingestion and dermal contact.

Based on the results of the HHRA and ecological risk assessment, remedial action objectives were developed and remedial alternatives were evaluated.

IV. Remedial Actions

A. Remedy Selection

The remedial action objectives (RAOs) for the site were developed based on the COPCs, environmental media, exposure routes, and potential risk to human and/or ecological receptors. RAOs for both Zones A and B were:

- Prevent direct contact and ingestion of soils.
- Prevent inhalation of airborne asbestos from soil.
- Prevent direct contact and ingestion of COPCs by ecological receptors.

The ROD was signed in December 1998. The selected remedy included Base-wide institutional controls prohibiting groundwater use for human consumption, restrictive future use (i.e., no residential use), and specific restrictions on construction of an outdoor playground; site-wide institutional controls prohibiting excavation without PADEP approval; removal actions at designated areas; construction of a vegetative soil cover on 21 acres and a bituminous asphalt cover on 4 acres; and long-term shallow groundwater monitoring.

B. Remedy Implementation

All remedial actions have been completed at the site. A summary of RA activities for each operable unit (Zone) follows. To accelerate cleanup at the site, a presumptive remedy approach was used at the site based on EPA's Presumptive Remedy for CERCLA Municipal Landfill Sites as guidance. Several early removal actions were performed at the site from 1996 to 1997 and a long-term groundwater monitoring program was established; these actions are also discussed below as applicable.

As discussed above, Zones A and B for risk assessment purposes are different in size and features than Zones A and B for remedy implementation. The remainder of this document refers to Zones A and B as applied to the remediation.

Zone A

Zone A includes IR Program Sites 4 and 5 and the former blasting grit storage area west of the NWPL. Zone A is approximately 21 acres. The selected remedy for Zone A was placement of a permeable cover over the entire landfill area.

The cover was constructed of a permeable geotextile fabric covered by a minimum of 24 inches soil suitable for supporting vegetation. The area was then graded, seeded, and trees and shrubs were planted along the bank near the shoreline of the Schuylkill River. Remedial action at Zone A was completed in 1998.

Zone B

Zone B consists of the NWPL. This area was a 4-acre asphalt parking lot; however, in the 1980's, the Navy used this area to store hazardous and non-hazardous wastes, including waste paint; used oil; caustics; flammable wastes; PCBs; and acids. This area was closed under a Resource Conservation and Recovery Act (RCRA) Closure Plan. The selected remedy was construction/maintenance of a 4-acre bituminous asphalt cover at the NWPL. Remedial action at Zone B was completed in 1998.

Early Removal Actions

Early removal actions were performed at Zone A prior to construction of the cover. These actions included shoreline bank stabilization to prevent erosion and potential migration of contaminants to the Schuylkill River. Gabion baskets filled with rock were placed from the ebb tide elevation to the top elevation of the bank from the area near the basin inlet bridge, along the inlet, and along the Schuylkill River to the end of the property. These activities were completed in 1997.

Early removal actions were conducted prior to the ROD and included removal and disposal of contaminated surface soil at the former incinerator (Building 688), decontamination of Building 688 and demolition of the incinerator stack, performance of a storm water sewer engineering survey and pipe cleaning, and removal of a 12,000 gallon fuel UST at the northeast corner of Building 688. In addition, PCB contaminated soils were removed from IR Program Site 3 in September 1996.

Long-Term Groundwater Monitoring Program

The remedy included implementation of a long-term shallow groundwater monitoring program at the site. Annual groundwater monitoring was conducted after four quarters of baseline sampling was conducted in 1996 to 1997. Sampling was to continue on an annual basis until the monitoring endpoint was met. This endpoint states "If the maximum Environmental Effect Quotients (EEQs) for nine metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, and zinc) remain below unity during a five-year period, then the GPMA groundwater monitoring program will be terminated". The maximum EEQ was calculated by dividing the maximum reported concentration by the associated Ambient Water Quality Criterion (AWQC). The 2004 Five-Year Review indicated these conditions were met in 2004 and concluded that the monitoring program could be terminated. PADEP provided concurrence and approval to abandon the monitoring wells in May 2008.

C. Institutional Controls

Base-wide institutional controls prohibiting groundwater use for human consumption, restrictive future use (i.e., no residential use), and specific restrictions on construction of an outdoor playground have been placed in effect. Site-wide institutional controls prohibiting excavation at the GPMA without PADEP approval have also been established.

D. Operation and Maintenance

Prior to February 2009, O&M activities were performed under an O&M User's Manual for the site prepared in March 1999. The O&M Plan was revised and updated in February 2009. O&M activities include annual inspection of the vegetative cover (Zone A) for erosion and settlement. Bare spots greater than one square foot are evaluated to determine if seeding is required. Repairs are made as needed. Mowing is conducted on a biannual basis. The Zone B asphalt cover is subject to annual inspections to evaluate if settlement and/or cracks have developed. Repairs are made as needed.

Storm water drainage system O&M requirements include annual inspection to observe sediment accumulation, subsidence, ponding, obstructions to flow, erosion, and vegetative growth that could impede flow. Accumulated sediment and excessive vegetation growth or other obstructions are to be removed, and re-grading performed if needed. Inspection of catch basins in the paved area are conducted to observe for sediment accumulation, obstructions to flow, ponding, and subsidence. Obstructions to flow are removed, and repairs, if needed, are performed.

The bank stabilization components, including the gabion rock baskets and rip rap are inspected annually. Inspections are conducted at ebb tide to aid in observation. The bank is inspected for movement, bulging of the gabion wall, and deterioration of the gabion mesh and gabion mat. Repairs are determined based on the type and degree of damage.

Inspection activities for calendar year 2008 were reported in May 2008. Results of the inspection included the following findings:

- The stabilized shoreline condition was fair to good; however, routine maintenance was required. Some areas of rip rap were eroded and the underlying geotextile was exposed. Small shrubs and trees were observed along the shoreline and the root systems could impact the integrity of the stabilization system. The gabion system was found to be in good condition, although a buildup of debris along the terraces of the gabion wall was noted.
- The soil cap in Zone A was in good condition with no evidence of erosion, burrowing animals, or settlement.
- There was significant buildup of vegetation in the drainage swales.
- The Zone B asphalt cap was in good condition with the exception of several cracks that were recommended for repair.
- Erosion around the downspouts from the Girard Point Bridge was observed.
- Several unlabeled drums and railroad ties were dumped at the perimeter of the GPMA.

The inspection provided recommendations for maintenance activities which were performed in July 2008. These activities included the following:

- Vegetation in the drainage swales was mowed.
- Cracks in the asphalt cap were sealed with hot tar to prevent infiltration.
- The railroad ties/debris dumped at the site were removed by others.
- The washouts by the Girard Point Bridge downspouts were filled with stone, capped with concrete and sealed with hot tar.
- All shrubs and trees growing in the rip rap and gabion baskets were removed.
- Debris accumulated in the gabion wall was removed.
- Additional rip rap was placed in areas where there was erosion and the where the geotextile was exposed.

V. Progress Since the Last Five-Year Review

The last Five-Year Review was completed on June 10, 2004. All RA activities were completed prior to the first Five-Year Review. Since the last Five-Year Review, routine O&M activities, as detailed in Section IV. D, have been conducted.

VI. Five-Year Review Process and Findings

A. Site Inspection

A site inspection for the Five-Year Review was conducted on March 17, 2009. The inspection included a site reconnaissance of the property to evaluate the condition of the remedial action. Photographs documenting site conditions during the inspection are included in Attachment 3.

Zone A – Permeable Cover

Inspection of Zone A showed the permeable cover to be in good condition. A hole from burrowing animals and small amounts of debris from nuisance dumping were observed. Disturbed ground associated with the cutting and capping of an old water line was observed, but was located in the right-of-way in an area outside the landfill cap. Other areas of excavation were observed near the former incinerator; however, this area was not within the capped portion of the site. Some vegetation growth was noted in the drainage swales, but was

not of sufficient density to prevent/obstruct flow. There were no observed conditions such as differential settling, erosion, or bare areas to indicate that the integrity of the cap had been compromised.

Zone B – Asphalt Cover

The parcel adjacent to the GPMA is being developed by the Tasty Baking Corporation. Storm sewer line improvements are ongoing as part of the development project and include excavation along the street adjacent to the asphalt parking area (cap) at the site. Excavated soil is being stockpiled on the asphalt cap; therefore, only about 90% of the cap was visible for inspection. Minor cracks in the asphalt have developed since the 2008 O&M activities; however, these did not appear to penetrate through the entire cap thickness. In addition, significant truck and heavy equipment traffic related to the ongoing sewer construction was observed on the cap. There were no indications of differential settlement or other structural issues that would impact the integrity and functionality of the asphalt cap.

Shoreline Stabilization

The gabion system was inspected at low tide to observe the baskets at the toe of bank. The gabion system was generally in good condition. No evidence of settling was observed, and the condition of most of the gabion baskets and rip rap was good. Several baskets have been dislodged from the toe of the bank in the area under the Girard Point Bridge. One additional basket was noted to have broken mesh. Limited amounts of debris have been deposited on the baskets and rip rap. Vegetation in the baskets and rip rap have re-established since the measures taken during the 2008 O&M inspection and repairs.

B. Document Review

This review consisted of relevant documents including the ROD, first Five-Year Review, O&M Plans, and O&M Inspection Reports. Attachment 4 provides a list of documents reviewed for this Five-Year Review.

C. ARARs Review

The chemical-specific Applicable or Relevant and Appropriate Requirements (ARARs) identified in the ROD were reviewed, as were new Federal and Pennsylvania regulations that have been promulgated. This section considers potential impacts of new or changed ARARs on potential risk posed to human health or the environment. This analysis determined that recalculation of risk or risk assessments to determine whether a remedy continues to protect human health and the environment as planned were not necessary for the GPMA Site. The remedial action at the site has been completed with the waste being capped with clean soil followed by revegetation (Zone A) or by asphalt (Zone B). Operation and maintenance activities are being conducted at the site.

Although toxicity values for some compounds may have changed since the HHRA was conducted, there have been no significant revisions in the methodology for HHRA's since the HHRA was prepared and therefore, overall conclusions of the risk assessment would not change. The benchmarks used to calculate cancer and noncancer risks include EPA's Integrated Risk Information System (IRIS) and EPA's Health Effects Assessment Summary Tables (HEAST). These benchmarks are continually updated as information becomes available. Some of the cancer slope factors (SFs) and noncancer reference doses (RfDs) may have been changed, withdrawn, or added in these benchmarks. Therefore, calculated risks might be slightly different if the HHRA were conducted at present. Although some exposure parameters may have been changed slightly with the issuance of these updates, the underlying methods for exposure assessment were not changed, and the overall results of the original risk assessment are applicable in evaluating the remedy and current site conditions.

In general, most of the changes in the updated documents are not expected to significantly change the overall conclusions of the HHRA. The contaminated materials have been stabilized and placed in an on-site landfill that has been capped. The cap on the landfill has eliminated the exposure pathway and there is no current exposure or risk at the site. However, exposure to the contaminated materials and vapors could occur if the cap at the site were to be uncovered in future construction or excavation activities.

There also have been no new promulgated regulations which would change the effectiveness, operation, or maintenance of the remedy.

D. Interviews

Information furnished by PIDC during this Five-Year Review indicates the asphalt cap at Zone B will be used for soil stockpiles from excavations from adjacent parcels and the sewer line construction through approximately August 2009. PIDC also indicated that the excavations on the GPMA property that were observed during the site inspection are points of access to an old water line that required cutting and capping. Excavations were approximately 3 feet deep, but were in areas outside the cap limits.

A public notice indicating the Five-Year Review process was underway was published in the *South Philly Review* newspaper on March 12, 2009. The public notice invited comments or questions from the community; however, no questions or comments were received.

VII. Technical Assessment

Question A: Is the remedy functioning as intended by the decision documents?

The RAOs for the site were to prevent direct contact and ingestion of soils, prevent inhalation of airborne contaminants from soil, and prevent direct contact and ingestion of COPCs by ecological receptors. The remedy for the site included Base-wide land use controls prohibiting groundwater use for human consumption, restrictive future use (i.e., no residential use), and specific restrictions on construction of an outdoor playground. Site-wide land use controls prohibiting excavation without PADEP approval, removal actions at designated areas, construction of a vegetative soil cover on .21 acres and a bituminous asphalt cover on 4 acres, and long-term shallow groundwater monitoring were also specified in the remedy.

This review of documents, ARARs, risk assumptions, and the results of the site inspection indicated that the remedy is functioning as intended. Long-term groundwater monitoring benchmarks have been attained and the groundwater monitoring program discontinued and wells abandoned. Remedial activities have met the RAOs by preventing exposure to contaminated materials by construction of the caps and implementation of shoreline stabilization measures. O&M activities have been occurring on a routine basis to ensure the integrity of the construction.

Institutional controls for the site involve prohibitions of well drilling to prevent exposures to contaminated groundwater and prohibition of disturbance of soils. Other Base-wide restrictions include prohibitions for construction of permanent housing and controls on development of a playground.

Although some moderate surface soil disturbance has been created by burrowing animals, there was no evidence of damage to the capped areas in Zone A. At the time of this Five-Year Review site inspection, a portion of the Zone B cap was being used to stockpile soils from excavations adjacent to the GPMA; however, no damage to the cap integrity was observed. The shore stabilization measures also were in good condition, although some minor maintenance is needed.

Based on the observations conducted during this Five-Year Review inspection and review of the O&M documentation, the remedy is functioning as intended by the ROD.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy selection still valid?

There have been no changes in site conditions, exposure assessments, or toxicity data, or newly promulgated standards that call into question the protectiveness of the remedy.

Changes in Exposure Pathways, Toxicity, and Other Contaminant Characteristics

There have been no changes to site conditions that would affect the protectiveness of the remedy. There have been no changes in exposure pathways and no significant changes in toxicity data that would affect the protectiveness of the remedy. Because new information with regard to vapor intrusion and asbestos is

available, EPA guidance includes evaluation of these contaminants and exposure pathways in the Five-Year Review. Volatile organic compounds (VOCs) are not COPCs at the site; therefore, vapor intrusion is not a significant concern at the site. Although asbestos is present at the site, the capping of these materials combined with the institutional controls in place are considered protective of human health and the environment.

Changes in Standards and To Be Considered (TBC) Criteria

There have been no changes in ARARs and no new standards or TBCs affecting the protectiveness of the remedy.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There has been no new information that calls into question the protectiveness of the remedy.

Issues

The following issues have been identified:

Soil excavated from storm sewer work along the roadway bordering the site was stockpiled on a portion of the asphalt cap in Zone B. The stockpile prevented a 100% inspection of the cap during the Five-Year Review. However, this area was inspected, and repairs made as needed, during O&M activities conducted in 2008.

Truck and heavy equipment traffic was observed on the cap.

Two burrow holes were noted in the Zone A cap area.

Nuisance dumping of small amounts of debris was observed, although the material dumped at the site does not appear to impact the remedy.

An excavation in Zone A in the right-of-way under the Girard Point Bridge was observed. This excavation was related to a water line capping project being conducted by PIDC. The excavation was backfilled, but not re-graded or seeded.

Several (approximately 5) gabion baskets have been dislodged at the toe of the gabion system, particularly in the area under the Girard Point Bridge. In addition, the wire mesh of one basket was torn. The overall integrity of the gabion system and shore stabilization component of the remedy is good.

Several monitoring wells have not been located and, therefore, have not been properly abandoned.

VIII. Recommendations and Follow-Up Actions

The following actions are recommended:

Zone A Cap

It is recommended that the burrow holes from small animals be repaired during the next O&M activities. The excavation from the water line capping project should be re-graded and reseeded.

Zone B Cap

It is recommended that the asphalt cap should be inspected after PIDC storm sewer construction activities on adjacent parcels is completed. The entire cap should undergo inspection due to the heavy equipment traffic. The area under the soil stockpiles that could not be observed during the Five-Year Review inspection should also be inspected and repaired as necessary.

Shoreline Stabilization

It is recommended that the missing gabion baskets be replaced and that the basket with the torn mesh be repaired.

IX. Protectiveness Statement

The remedy is considered protective of human health and the environment as the caps and land use controls prevent exposure to contaminated soils. Groundwater performance criteria have been met.

X. Next Review

The next five-year review for the GPMA is required by June 2014, five years from the date of this review.

**Attachment 1
Site Location Map**

**Attachment 2
Site Layout**

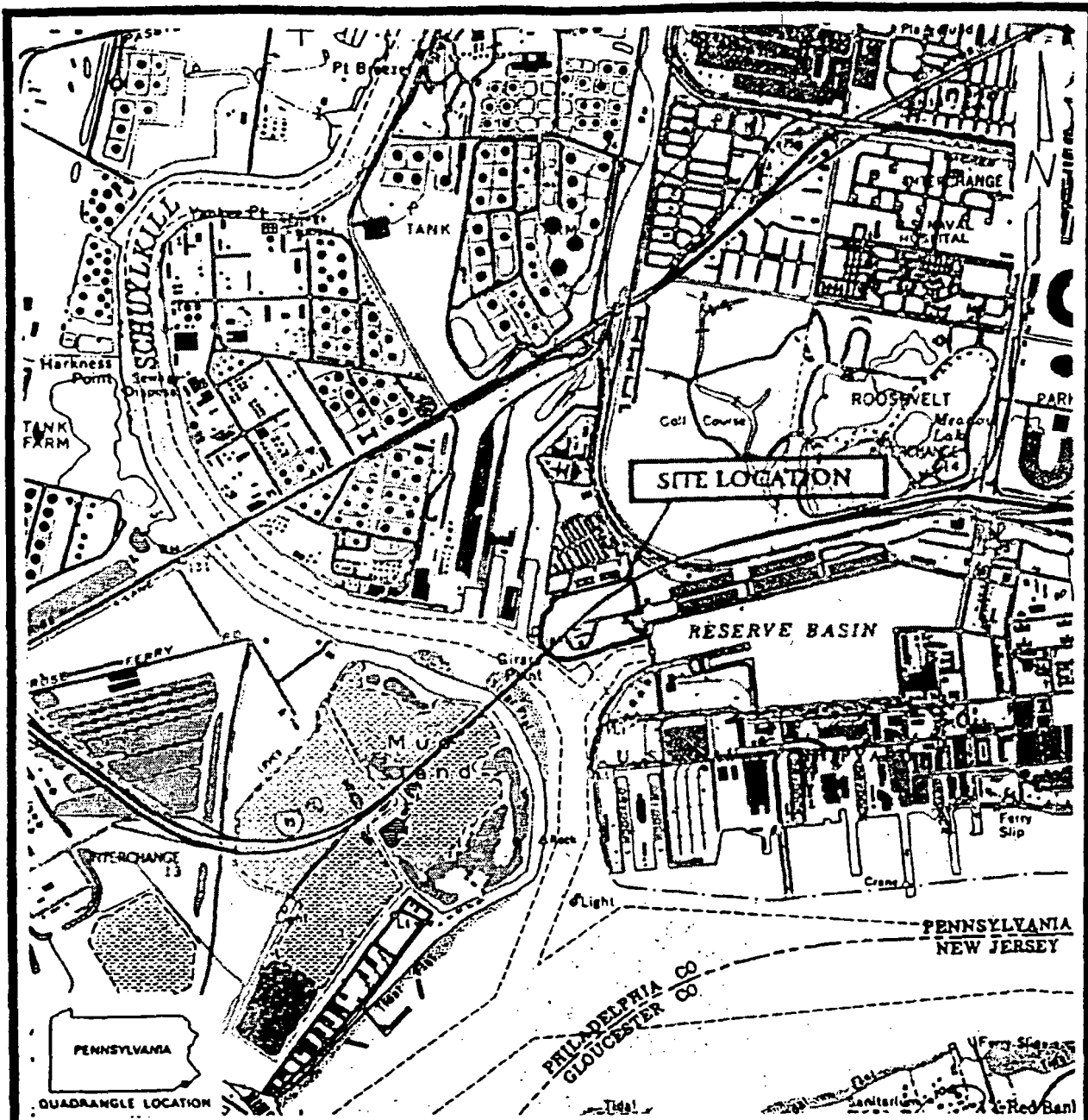


Figure 1-1

Site Locus Map
Philadelphia Naval Base
Girard Point Management Area

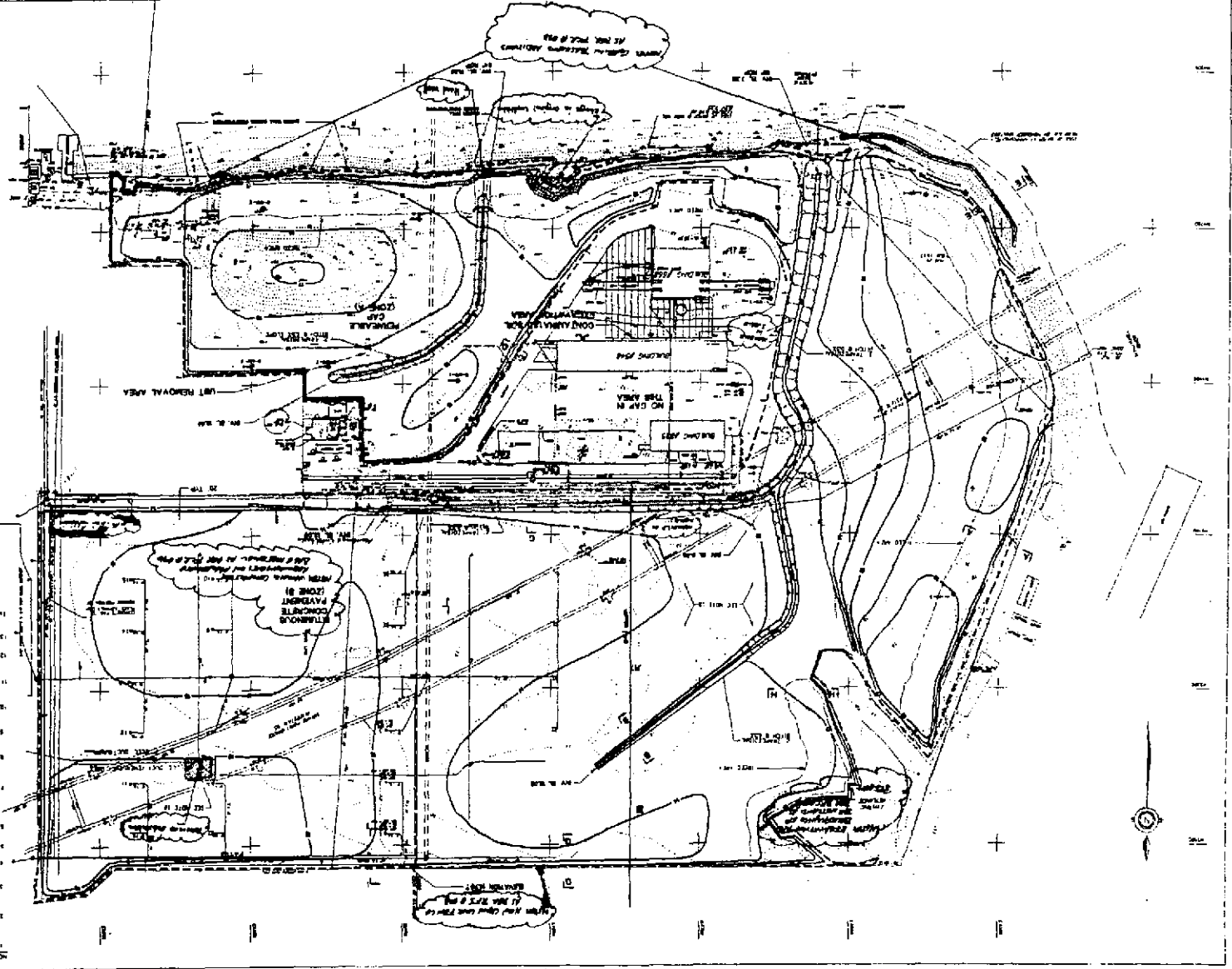
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Date: 1994
Source: USGS 7.5 Minute Philadelphia Quadrangle
I.O. 04291.01.40



Stone & Webster Engineering Corporation
Cherry Hill, NJ
for
Philadelphia Naval Base

NORTHWEST DIVISION
 GIRDARD POINT MANAGEMENT AREA
 FINAL GRADING PLAN
 PROJECT NO. 100-100-100-100
 DATE: 10/1/77
 DRAWN BY: [Signature]
 CHECKED BY: [Signature]
 SCALE: AS SHOWN
 SHEET NO. 100-100-100-100

LEGEND
 1. EXISTING GRADE
 2. PROPOSED GRADE
 3. PROPOSED EROSION CONTROL MEASURES
 4. PROPOSED DRAINAGE SYSTEM
 5. PROPOSED ROADWAY
 6. PROPOSED UTILITY LINES
 7. PROPOSED CONSTRUCTION ACCESS
 8. PROPOSED VEGETATION
 9. PROPOSED STRUCTURES
 10. PROPOSED LANDSCAPE PLANTINGS
 11. PROPOSED LIGHTING
 12. PROPOSED SIGNAGE
 13. PROPOSED FURNITURE
 14. PROPOSED UTILITIES
 15. PROPOSED CONSTRUCTION EQUIPMENT
 16. PROPOSED STORAGE AREAS
 17. PROPOSED OFFICE BUILDING
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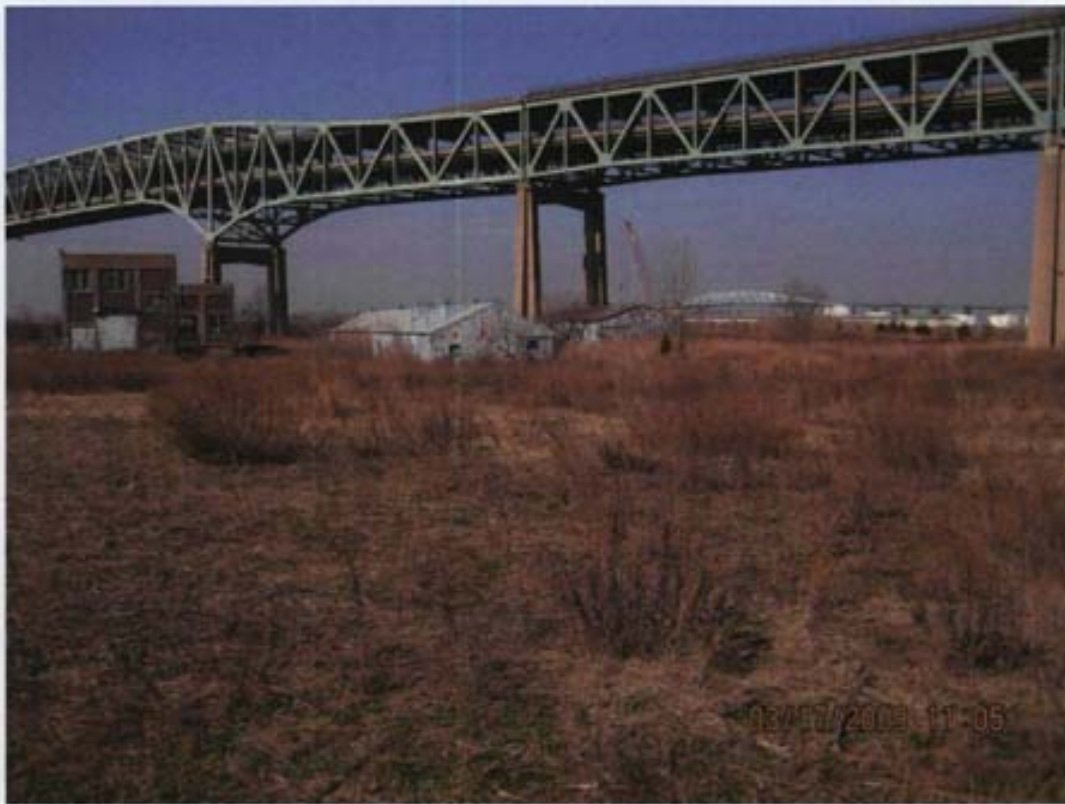


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 DATE: 10/1/77
 DRAWN BY: [Signature]
 CHECKED BY: [Signature]

**Attachment 3
Photograph Log**



AREA A CAP



AREA A CAP



BURROW HOLE IN AREA A CAP



EXCAVATION FROM WATER LINE CAPPING PROJECT



DRAINAGE SWALE IN AREA A



DEBRIS IN AREA A



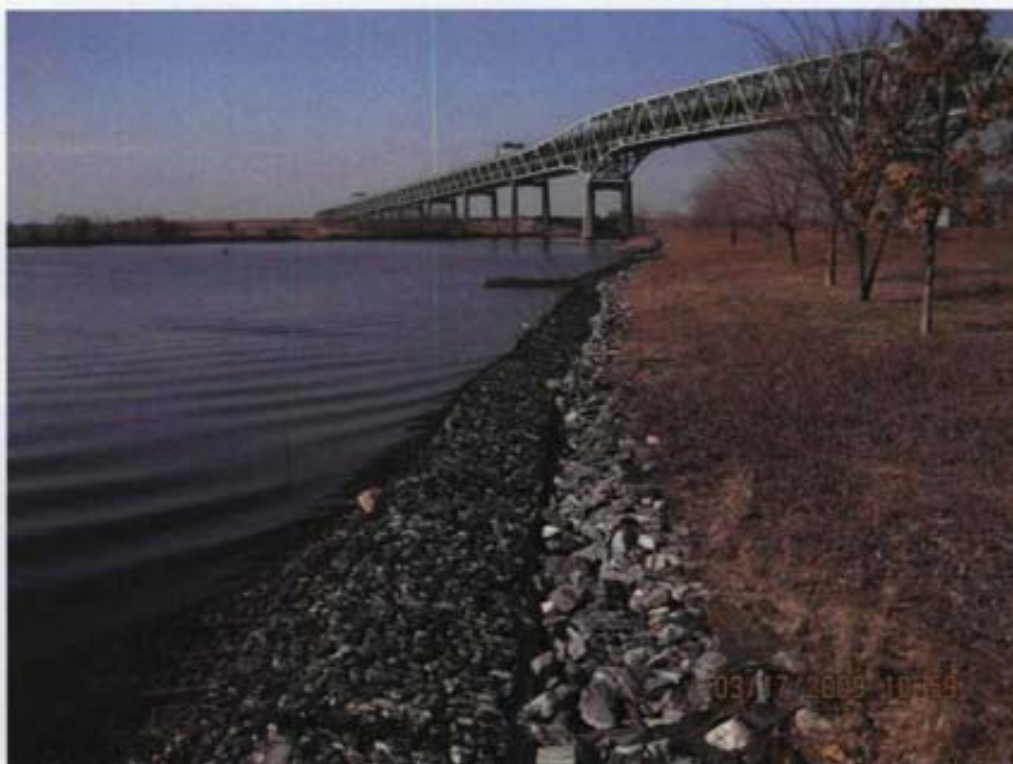
AREA B CAP



AREA B CAP WITH SOIL STOCKPILE



AREA B CAP SHOWING CRACK REPAIR



VIEW OF SHORELINE STABILIZATION FROM LIFT BRIDGE



VIEW OF GABION BASKETS TOWARD LIFT BRIDGE



DISPLACED GABION BASKET



DISLODGED GABION BASKET



HOLE IN GABION MESH

Attachment 4
List of Documents Reviewed

The following documents were reviewed for the Five-Year Review:

ECOR Solutions, Inc., Cap Maintenance Report for the Girard Point Management Area, September 26, 2008.

ECOR Solutions, Inc., Monitoring Well and Cap Inspection Report for the Girard Point Management Area, May 29, 2008.

ECOR Solutions, Inc., Monitoring Well Abandonment Report for the Girard Point Management Area, January 26, 2009.

ECOR Solutions, Inc., Operation and Maintenance User Manual for the Girard Point Management Area, January, 2009.

Foster Wheeler Environmental Corporation, Operation and Maintenance User Manual for the Girard Point Management Area, March 1999.

United States Navy, Zone A and Zone B Cap Design Drawings, January 1998

United States Navy, Record of Decision for the Girard Point Management Area, December 2008.

United States Navy, Five-Year Review for the Girard Point Management Area, June 10, 2004.