

**Action Memorandum  
For Staten Island Warehouse FUSRAP Site  
Port Richmond, Staten Island, New York**

**APPROVAL**

A Time-Critical Removal Action, under the authority of the authorizing FUSRAP legislation and CERCLA, is hereby approved to address the urgent environmental hazard at the Staten Island Warehouse FUSRAP Site, Port Richmond, Staten Island, New York. The US Army Corps of Engineers (USACE) will be the lead agent on this response action which should be performed in accordance with CERCLA and the National Contingency Plan (NCP). The primary contaminants of uranium (U-238) and specifically the daughter product radium (Ra-226) will be excavated and appropriately disposed at an estimated cost of \$1,816,250.

\_\_\_\_\_  
Reinhard W. Koenig, P.E., SES  
Programs Director  
North Atlantic Division

\_\_\_\_\_  
Date

ACTION MEMORANDUM  
TIME-CRITICAL REMOVAL ACTION  
Staten Island Warehouse FUSRAP Site  
Port Richmond, Staten Island, New York

## **I. Purpose**

The purpose of this Action Memorandum is to describe the selected Time Critical Removal Action (TCRA) for the U.S. Army Corps of Engineers (USACE) Formerly Utilized Sites Remedial Action Program (FUSRAP), Staten Island Warehouse FUSRAP site, Port Richmond, Staten Island, New York. There are no nationally significant or precedent-setting issues associated with this response.

## **II. Site Conditions and Background**

The location of the approximately 4.5-acre SIW FUSRAP site (hereafter referred to as the SIW site) is shown on Figure 1. The Property is privately owned and is zoned as a commercial use property.

### **A. Site Description**

#### **1. Removal Site Evaluation**

A portion of the surface and subsurface of the SIW site is radiologically contaminated above site background levels down to a depth of approximately four feet. Beach erosion has occurred along the northwestern and northern edge of the site, suggesting that some radionuclide-contaminated soil may be gradually transported from the SIW Site into the near-shore environment of the Kill Van Kull. The U.S. Department of Energy (USDOE) made a FUSRAP eligibility determination for the SIW Site, stating that the northwest quadrant of the property was eligible for the FUSRAP. Actions taken under the FUSRAP are performed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). USACE performed a Preliminary Assessment (PA) in 2011 and a Site Inspection (SI) in 2011. The SIW site was added to the FUSRAP in May of 2021. Given the time between the initial SI and FUSRAP authority to address the SIW site, USACE performed a Supplemental Site Inspection (SSI) in 2021.

Key problem areas at the SIW site include radiological soil contamination and erosion. Erosional impacts have occurred at the SIW Site since the removal of building structures prior to 1980. A significant increase in shoreline erosion was observed due to major storms in the SIW site area (e.g., Hurricane Irene and Hurricane Sandy). Soil boring cores, test pit excavation, drilling refusal, and drilling equipment damage at depths of approximately 3 to 4-feet below ground surface along the SIW site's northwestern shoreline indicate the presence of foundations or bulkhead remnants. While the former structures may be slowing the effects of erosion, observations indicate that erosion will continue along the shoreline of the surface characterization area (SCA) resulting in migration of soil contamination.

## 2. Physical Location

The SIW site is located at 2351 Richmond Terrace, Staten Island, Richmond County, New York, 10302 (approximate coordinates are 40°38'25" N and 74°08'31" W). The general area is mainly suburban residential with commercial and industrial areas. The SIW site is a manmade earthen pier extending into the Kill Van Kull. A significant portion of the SIW site is developed and there are no known threatened or endangered species on the site. The SIW site is bounded to north by the Kill Van Kull and the south by Richmond Terrace (Figure 1). The nearest property to the west is owned by the New York Port Authority as part of the Bayonne Bridge area and the commercial property to the east is privately owned.

An approximate 100-foot by 200-foot area in the northwest section of the SIW site (Figure 2), herein referred as the surface characterization area (SCA), is believed to have been used to stage drums of uranium ore for loading onto barges in the early 1940s. As of September 2021, an active concrete batch plant operated at the SIW site. The concrete batch plant is to the east and south of the SCA. A rocky beach on the Kill Van Kull waterway bounds the northern and western portions of the SCA. The nearest residential property is located approximately 250 meters south of the SCA, and south of Richmond Terrace.

## 3. Site Characteristics and History

The SIW site is privately owned and has not been owned by Federal or State governments. Historically it was owned by Archer-Daniels Midland (ADM) Company and was used to store high-grade Belgian Congo uranium ore from 1939 to 1942. During 1942 the U.S. Government purchased the uranium ore "free alongside ship" and removed the ore to a government owned storage location.

The elevation of the SIW Site ranges from 3 to 9-feet above mean sea level to sea level at the shore. The surface water runoff flows toward the northeast of the Site into the Kill Van Kull. The sloping beach was noted to be underwater during high tide. The SCA is a flat vegetated area estimated to be 3 to 4-feet above the beach area and was estimated to be close to that of the original pier. Soil borings indicate the SIW Site was underlain throughout with fill material comprised of a clay, sand, silt, gravel mix with scattered debris. The fill appeared to extend vertically in most borings and often contained debris such as brick, asphalt, and creosote-treated wood chunks. Surficial materials at the SIW Site consist of a combination of artificial fill and native glacial till. This artificial fill was encountered to a depth of at least 5-feet in most soil borings. Although either type of material could be coarse enough to make an aquifer, the total thickness is expected to be on the order of 10 to 20-feet, and the near-shore location of the SIW Site indicates that groundwater extracted from the surficial materials would be non-potable.

The concrete plant includes a concrete slab as well as developed but unpaved portions. The SCA beach area slopes into the Kill Van Kull and was noted to be underwater during high tide. There is no surface water on the SIW site itself.

Investigations by USACE, USDOE, NYSDEC, and USEPA have been performed at the SIW site to identify the extent and concentrations of radioactive substances in sediment, soil, and groundwater. From 1980 to 2011, gamma walkover surveys and samples confirmed elevated gamma levels in the northwest corner of the SIW property. The USACE conducted a PA and SI in 2011. Based on the information gathered, the USACE found insufficient evidence for federal responsibility for the contamination which led to a recommendation for no further action to be

taken at the SIW site under the FUSRAP. Additional information and analysis in 2016 and 2017 led the USACE to reasonably determine soil contamination at the SIW site meets the application eligibility criteria in Engineer Regulation (ER) 200-1-4 for eligibility in the FUSRAP. The SIW site was officially added to the FUSRAP in May 2021. Given the time since the initial SI, USACE performed the SSI in 2021 to determine current site conditions. Significant erosion of the NW corner of the SIW site was noted.

#### 4. Release or Threatened Release

The SSI results indicate the presence of elevated (above background levels) radionuclide activity in the SCA. Borehole logging, test pits, surface soil sampling, sediment sampling, and subsurface soil sampling confirm radiological contamination above site background within the SCA boundary down to approximately 4 feet below ground surface. Sediment samples collected during low tide were analyzed for the same radionuclides. Results indicate radionuclides above background levels at two sediment sample locations in the upper 0.5 feet of material.

Shallow groundwater samples are below the project screening levels for isotopic-specific activity with the exception of Ra-228 in GW-10-1220. The Ra-228 result of 5.83 picocuries per liter (pCi/L) from GW-10-1220 is slightly higher than the screening level of 5 pCi/L which is the National Primary Drinking Water Regulation Maximum Contaminant Level (MCL) for Ra-226 and Ra-228. It should be noted that Ra-228 is in the thorium decay chain and is typically found in uranium ore at concentrations significantly less than U-238 and Ra-226. The groundwater gross alpha and gross beta data also indicate levels exceeding the screening criteria. However, the SSI report indicates that analytical testing interference due to small sample volumes and the presence of solids in the samples could have impacted the gross alpha and beta results. The SIW site groundwater has no foreseeable use as drinking water and is likely significantly mixed with saline water from the Kill Van Kull. Groundwater remediation is not included in the TCRA because impacts from U ore were not indicated by the isotopic-specific data and groundwater is not currently used as a drinking water source. However, it is anticipated that removal of source materials in the SCA will reduce the groundwater radionuclide concentrations to background levels.

Hazardous wastes have not been identified at the SIW site, however, low levels of volatile organics (e.g. benzene, toluene); polycyclic aromatic hydrocarbons; and several metals, were reported in SSI samples. Therefore, the need for this TCRA is based on the radiological contamination.

In accordance with 40 CFR 300.415(b)(2) this TCRA is justified to address the actual and potential exposure of this radiologically contaminated soil to humans (trespassers, anglers, etc.) and the environment. Data demonstrates that contaminant migration due to environmental factors such as wave and potentially wind erosion is occurring. This TCRA will mitigate the exposures to humans and migration of contaminants into the Kill Van Kull.

Table 1. Summary of SSI Data for SIW site<sup>1</sup>

	U-238 (pCi/g)	Ra-226 (pCi/g)
Max in SCA	74	347
Remainder of Site	Background levels	Background levels

<sup>1</sup> SSI data demonstrates the U chain is in equilibrium although the maximum values presented in this table do not. It should also be noted that past investigations have presented higher results than those from the SSI and indicate the U chain is in equilibrium.

## 5. National Priority List (NPL) Status

The SIW site is not listed on the NPL and has not been proposed for listing.

## 6. Figures

See Figure 1 for the Property Location, Figure 2 for the Approximate Removal Action Area, and Figures 3-4 for the site photographs.

## B. Other Actions to Date

### 1. Previous Actions

There have not been any previous CERCLA actions at the SIW site. As stated in Section A.3, investigations have been made at the site to understand the extent and concentrations of radioactive substances in sediment, soil, and groundwater at the SIW site.

### 2. Current Actions

There are no current CERCLA or other environmental remedial actions on the Property.

## C. Regulatory Authorities' Role

### 1. Regulatory Framework

This Action Memorandum was developed in accordance with CERCLA, 42 U.S.C. §§ 9601 et seq., as amended; and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 Code of Federal Regulations (CFR) Part 300. The USACE is the lead agency for the SIW site in accordance with CERCLA. The USACE makes remedial decisions for the SIW site in coordination with the NYSDEC, the state support regulatory agency.

### 2. State and Local Actions to Date

No previous state or local environmental response actions have been taken at the SIW site.

### 3. Potential for Continued State/Local Response

No other state or local actions are anticipated.

## III. Threats to Public Health or Welfare or the Environment and Statutory and Regulatory Authorities

Radiological contamination at the SIW site exposes users to external radiation. Additionally, contamination on the Property has the potential to migrate via physical movement, erosion by water, and air. The basis for a removal action at the Property was evaluated using the 8 removal

action criteria (i to viii) from Section 300.415 (b)(2) of the NCP. This removal action is selected because the SIW contains hazardous substances in soils that pose a potential exposure to humans (criterion i), is largely at or near the surface that may migrate (criterion iv) and weather conditions such as storms or hurricanes (criterion v) that may cause the hazardous contaminants to migrate. The observed impacts to sediments indicate that erosion has caused migration of radiologically impacted material.

Pursuant to Section 104(a)(1) of CERCLA and Executive Order 12580, a removal action can be undertaken based upon a threat of a release of a hazardous substance.

#### **IV. Endangerment Determination**

Actual or threatened releases of hazardous substances (radiological contaminants) from this site may present an imminent and substantial endangerment to public health, or welfare, or the environment.

#### **V. Proposed Actions and Estimated Costs**

##### **A. Proposed Actions**

###### **1. Proposed Action Description**

Under this action, radiologically contaminated soil within the SCA of the SIW site would be excavated and transported to a commercial permitted and/or licensed disposal facility approved for the types of contamination found in the soil. The material would be excavated from an approximate 6,000 square foot area to depths ranging from 0.5 to approximately 4 feet. Accordingly, the excavation is expected to result in up to 700 cubic yards of material for disposal. This action is effective in removing the contaminant migration hazard posed by erosion of the soils, is protective of human health and the environment, and is cost effective.

###### **2. Contribution to Remedial Performance**

This action removes the source of the contamination and mitigates the potential for erosion of this material into Kill Van Kull. Post excavation sampling will be used to document conditions after the removal is completed and will aid in future decision making.

###### **3. Applicable or Relevant and Appropriate Requirements (ARARs)**

Pursuant to 40 CFR 300.415(j), removal actions shall, to the extent practicable considering the exigencies of the situation, attain ARARs. There are several potential ARARs that would be considered for future CERCLA actions on the SIW site. These include New York State Laws, US Nuclear Regulatory Commission (10 CFR 20 and part 40) and US Environmental Protection Agency (40 CFR 192) regulations. However, to address the immediate hazards at the SIW site, this removal action is expected to remove radiological contamination to levels indistinguishable from background levels. Therefore, it is expected that the implementation of this action (excavation for offsite disposal) will comply with all potential ARARs.

###### **4. Project Schedule**

It is expected that physical site preparation necessary to begin the soil removal would begin within 180 days of the signing of this Action Memorandum. It is estimated that approximately six months would be required to complete the removal once begun. Public involvement to include a

public press notice and publicly available administrative record file will be in place according to the timelines set forth in the NCP.

## B. Estimated Costs

It is estimated that implementation of this action (including contingencies) would cost \$1,816,250. Table 2 below presents a summary of the costs.

Estimated Costs for Staten Island Warehouse Removal Action

Phase Name	Year 1
Work Plans	\$75,000
Construction	\$705,000
Temporary Erosion & Sediment Controls <sup>1</sup>	\$100,000
Transportation & Disposal	\$420,000
Post Removal Action Report	\$75,000
USACE In-House	\$135,000
Contingency <sup>2</sup>	\$306,250
Present Worth Total Cost	\$1,816,250

1. Temporary Erosion & Sediment Controls to limit discharge to Kill Van Kull

2. Contingency of 25% applied to Construction, Erosion & Sediment Controls, and Transportation & Disposal

## VI. Expected Change in the Situation Should Action Be Delayed or Not Taken

Delayed action may increase public health risks through exposure to radiologically impacted soils. Further, a delay in action increases the potential for contaminated materials to migrate into the Kill Van Kull.

## VII. Outstanding Policy Issues

None.

## VIII. Enforcement

As stated in the NCP [40 CFR 300.415(a)(2)], USACE's policy concerning removal enforcement is that where Potentially Responsible Parties (PRPs) are known, an effort shall be made, to the extent practicable, to determine whether they can and will perform the necessary removal action promptly and properly.

USACE is addressing the SIW site under the FUSRAP. Therefore, PRPs for SIW may be identified at a later date. Since USACE determined that there is "a threat to public health or welfare of the United States or the environment" based upon factors in 40 CFR 300.415(b)(2), USACE is required by CERCLA to "take appropriate removal action to abate, prevent, minimize, stabilize, mitigate, or eliminate the release or threat of release (40 CFR 300.415(b)(1))."

## IX. Recommendation

This decision document represents the selected removal action for the SIW site, developed in accordance with CERCLA as amended, and is not inconsistent with the NCP. This decision is based on the administrative record for the SIW site.

Approved:

---

Reinhard W. Koenig, P.E., SES  
Programs Director  
North Atlantic Division

---

Date



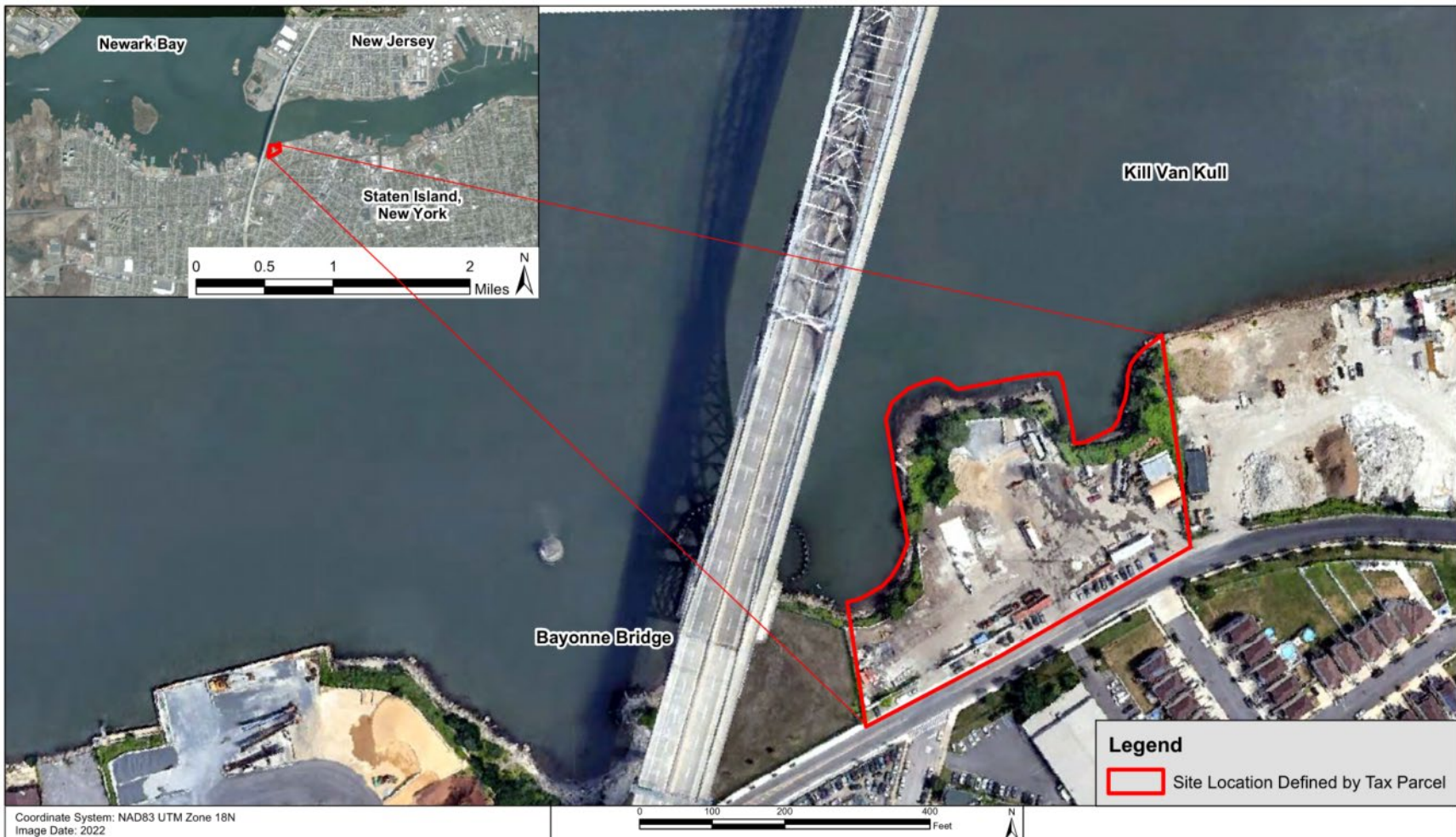


Figure 1 – Property Location  
Staten Island Warehouse FUSRAP Site  
Port Richmond, New York



Figure 2: Surface Characterization Area and Approximate Excavation Area.



Figure 3 – Site Photograph, Rocky Kill Van Kull Shoreline (facing north)



Figure 4 – Surface Characterization Area Facing South (concrete block wall in background)