STATE OF DELAWARE

DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL- SITE INVESTIGATION AND RESTORATION BRANCH

PROPOSED PLAN OF REMEDIAL ACTION (OU-85 to OU-98)

St. Georges Bridge
St. Georges, Delaware DNREC Project No. DE-1193

This proposed plan of remedial action (proposed plan) presents the Department of Natural Resources and Environmental Control's (DNREC) proposed cleanup alternative for the remediation at the St. Georges Bridge Site (Site) in St. Georges, DE. Due to the aerial extent and number of parcels involved, the proposed plan has been split into three separate proposed plans. In total, all three proposed plans cover 126 properties as defined by their tax parcel number. This proposed plan covers Operating Units (OU) OU-85 to OU-98, a total of 14 parcels[1] (Table 1).

For full access site-related reports and more information, please see the public participation section of this document.

1. Properties will be identified by tax parcel number. Subject parcels comprise portions of New Castle County as included in tax map numbers 27.4, 35.2 and 35.4. Those parcels located in the area described by New Castle County tax map 27.4 have been given the prefix "A". Similarly, those parcels located in the area described by New Castle County tax maps 35.2 and 35.4 have been given the prefix of "B" and "C", respectively. For example, parcel A41 refers to parcel 41 on tax map 27.4.

INTRODUCTION

The St. Georges Bridge comprises that part of U.S. Highway Route 13 that spans the Chesapeake and Delaware (C&D) Canal in New Castle County, Delaware (part of the Intracoastal Waterway) (Figure 1). The bridge is 4,209 feet long from the south abutment to the north abutment and contains a tied arch that is 450 feet long and 133 feet above the canal water level. The bridge is approximately 28 feet wide. Rainwater runoff from the bridge is transported via downspouts located on the bridge supports to the ground surface directly beneath the bridge. In the vicinity of the bridge there are a number of residential properties, land owned by the federal government, and a former elementary school, located adjacent to the northern support structures.

The town of St. Georges is located on both banks of the C&D Canal, adjacent to Delaware State Route 13 and the St. Georges Bridge (Figure 2). The town is separated into northern and southern St. Georges by the canal. The oldest structure in the town dates to the latter part of the 1700's and is currently a residential home on Main St. in northern St. Georges. Most of the buildings on Main St. and Delaware Ave. in northern St. Georges date to the late 1700's and early 1800's and have either brick or wood clapboard exteriors. Some buildings have been re-sided with aluminum, asphalt, and/or vinyl siding. Several of the homes have outbuildings that also appear to be of early construction. Homes in southern St. Georges are generally not as old as in northern St. Georges, but there are some homes that date to the early 1800's.

PURPOSE

The purpose of the proposed plan is to provide specific information about the soil contamination and the cleanup alternatives DNREC considered. In addition, as described in Section 12 of the Delaware Regulations Governing Hazardous Substance Cleanup (Regulations), DNREC will provide notice to the public and an opportunity for the public to comment on the proposed plan. At the comment period's conclusion, DNREC will review and consider all of the comments received and then will issue a final plan of remedial action (final plan). The final plan shall designate the selected remedy for the site. All investigations of the site, the proposed plan, comments received from the public, DNREC's responses to the comments, and the final plan constitute the Remedial Decision Record for this project.

This proposed plan summarizes the Report of Results for the Comprehensive Investigation, Final Interim Removal Action (IRA) Report, Final Removal Action Planned Excavation Areas by Parcel and the administrative record file upon which this proposed plan is based. Copies of these documents can be obtained or viewed at locations listed at the end of this document.

DNREC's proposed remedy is preliminary and a final decision will not be made until all of the comments are considered. The final remedy selected could differ from the proposed remedy based on DNREC's responses to comments.

SITE DESCRIPTION AND HISTORY

The U.S. Army Corps of Engineers (USACE)-Philadelphia District constructed the St. Georges Bridge in the early 1940s and currently maintains the Bridge. A new highway bridge, designated State Highway Route 1 (SR-1) Bridge, was designed and constructed by the Delaware Department of Transportation (DelDOT) with reimbursement by the USACE and was opened in December 1995. The new bridge is located approximately 2000 feet west of the old bridge. Based on the opening of the new SR-1 Bridge, the USACE curtailed painting maintenance on the St. Georges Bridge. Prior to the most recent repainting of the bridge, completed in June 2002, the last re-painting of the St. Georges Bridge occurred in 1985.

In February 2000, it was observed that paint was flaking off St. Georges Bridge and falling onto properties in the vicinity of the bridge. Due to the deteriorating condition of the paint on the bridge and DNREC's findings that the paint chips falling off of the bridge were considered hazardous waste under state rules and regulations, DNREC directed the Army Corps to undertake immediate corrective actions in March 2000 which included the requirement to submit a work plan to investigate and remediate any lead contaminated soils that could be attributed to peeling paint from the St. Georges Bridge. Additionally, visible paint chips on the ground were removed by the USACE beginning in March 2000.

INVESTIGATION RESULTS AND INTERIM ACTIONS

The Army Corps contracted three separate investigations to evaluate soils on residential properties located in the vicinity of the St. Georges Bridge: the June 2000 Investigation conducted by EA Engineering, the June 2001 Investigation performed by Black and Veatch, and the 2002 Comprehensive Investigation performed by EA Engineering (Figure 3). Including the results from each of the three investigations, a total of 126 parcels were evaluated for lead concentrations in soil (Table 1).

During the June 2000 Investigation, EA Engineering collected composite surface soil samples from the Commodore MacDonough Elementary School (School) as well as from 54 residential properties surrounding the bridge. The purpose of the investigation was to determine if lead contamination was present in surface soils above DNREC's unrestricted use uniform risk-based standard (URS) of 400 milligrams per kilogram (mg/kg) lead. One composite sample was collected from each parcel. If the property had a garden, play area, or an area of bare soil located on it, EA Engineering took an additional composite sample from these specific areas. Composite samples consisted of collecting 5 separate surface soil samples from different locations in a yard from a depth of 0-2 inches, blending them together, and then performing analysis.

A total of 71 composite samples were collected and analyzed for lead. Five samples from five different properties exhibited lead concentrations exceeding the Delaware HSCA unrestricted use URS for lead of 400 mg/kg (Figure 4).

The June 2001 Investigation conducted by Black and Veatch was performed to delineate the horizontal and vertical extent of lead contamination on 63 residential properties. The properties were selected based on their proximity to the St. Georges Bridge, previous sampling results from the composite sampling that exceeded 200 milligrams per kilogram (mg/kg) lead, and owners' willingness to grant USACE access to sample the property. Samples were collected from surface soils at depths of 0-2 inches, 4-6 inches and 10-12 inches below ground surface (bgs). A total of 509 discrete samples were collected and screened. Samples were screened with an X-ray fluorescence analyzer (XRF). Lead exceeded 400 mg/kg in 40 parcels and exceeded 1,000 mg/kg in 36 parcels.

The 2002 Comprehensive Investigation conducted by EA Engineering involved taking 365 discreet samples from 107 parcels. Five parcel owners refused entry to the USACE consultants. The majority of samples were taken from locations in yards using a grid pattern with 10-foot spacing between samples and surrounding a previous sampling location with elevated results. Additional samples were taken from gardens and play areas. Of the 107 parcels 42 had lead contamination that exceeded DNREC's remedial action objectives as describe below. Of the 42 parcels requiring remediation, DNREC and USACE determined that parcels OU85 to OU98 presented a greater health risk than the remaining 28 parcels based on the sample results. As an interim action DNREC and USACE remediated surface soils on parcels OU85 to OU98 using a cleanup standard of 400 mg/kg.

In addition to lead, zinc was detected in soil samples above the unrestricted URS. The maximum concentration of zinc was entered into the DNREC risk calculator spreadsheet. The Hazard Index risk level for zinc was less than 1 for unrestrictive use. As a result, only lead is considered as contaminants of concern.

Groundwater Investigation

As part of the investigations, DNREC collected groundwater samples from 21 residential properties. The samples were analyzed for the Total Analyte List (TAL) metals. None of the groundwater samples exceeded the maximum contaminant levels (MCL) standard for drinking water. Therefore, groundwater was not considered in any of the three proposed plans.

REMEDIAL ACTION OBJECTIVES

The following qualitative objectives have been determined to be appropriate for the OU-85 to OU-98 parcels:

- Protect human health from exposure to unacceptable lead contaminated soils.

- Remediate lead contamination on properties to meet unrestricted use cleanup standards.

These objectives are consistent with the current and proposed future use of the parcels as residential property, state regulations and worker health and safety.

Prior to the Comprehensive Investigation, USACE and DNREC agreed to the remediation quantitative objectives listed below:

1. Remediate lead contamination in surface soils on properties to a clean up standard of 400 mg/kg.
2. Remediate any hot spot soil areas to 400 mg/kg on any area of the property where the lead concentration exceeded 1000 mg/kg as an interim action.

The remediation goals are consistent with or exceed the requirements of the EPA Office of Solid Waste's directive on risk assessments and clean-up of residential soil (EPA 1994) and the DNREC *Remedial Standards Guidance Under the Delaware Hazardous Substance Clean-Up Act* (DNREC 1999). For the Site, USACE and DNREC agreed to a more conservative action level for hot spot remediation of 1,000 mg/kg.

PROPOSED PLAN OF REMEDIAL ACTION

Based on the results of the investigations and interim removal actions to date, three separate remedial action plans are proposed for the Site. This proposed plan covers OU-85 to OU-98 (Figure 5). OU-85 to OU-98 were identified as requiring remedial actions, and these remedial actions have already taken place as an interim action.

Based on DNREC's evaluation of the site information, which includes current and past environmental investigations, historical information and the above remedial action objectives, the following actions are required for OU-85 to OU-98:

- The interim action activities performed on parcels OU-85 to OU-98 meet the remediation quantitative objectives; DNREC proposes no further action for these parcels.

PUBLIC PARTICIPATION
The Department is actively soliciting written public comments and suggestions on the proposed plan of remedial action. The comment period begins May 18, 2005, and ends at the close of business (4:30 p.m.) June 6, 2005. A public meeting will take place May 17, 2005 at 7 pm. at the historic church in north St. Georges.
If you have any questions or concerns regarding the St. Georges Bridge OU-85 to OU-98, except OU-94, or if you would like to view reports or other information regarding this site, please contact the project manager, Kristen Thornton, 391 Lukens Drive, New Castle, Delaware 19720 or at 302.395.2600. Copies of the Comprehensive Investigation Report will be made available to the public at DNREC's Lukens Drive Office, as well as the historic church located on North Main Street, in St. Georges.

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James D. Werner Date of Review
Director, Division of Air and Waste

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