

FINAL PROPOSED PLAN

**Site 12 - Building 316,
DPDO Transformer Oil Spill Area**

**Site 14 - Building 38,
Transformer Oil Leak**

May 1993

**U.S. Department of the Navy
Installation Restoration Program**

**Naval Construction Battalion Center
Davisville, Rhode Island**

TABLE OF CONTENTS

1.0	U.S. NAVY PROPOSES CLEANUP PLAN FOR SITES 12 AND 14, NCBC-DAVISVILLE	1
2.0	THE PUBLIC'S ROLE IN EVALUATING REMEDIAL ALTERNATIVES	2
2.1	Public Informational Meeting and Formal Public Hearing	2
2.2	Public Comment Period	2
2.3	Written Comments	3
2.4	The Navy's Review of Public Comment	3
2.5	Additional Public Information	3
3.0	SITE HISTORY	4
3.1	Site Identification and Previous Studies	5
3.2	Cleanup Activities to Date	6
3.3	Results of the Post-removal Verification Sampling	6
4.0	SUMMARY OF SITE RISKS	7
5.0	PROPOSED CLEANUP OBJECTIVES AND LEVELS	8
6.0	THE NAVY'S PREFERRED ALTERNATIVE	8
7.0	OTHER ALTERNATIVES EVALUATED IN THE INITIAL SCREENING OF THE ALTERNATIVES	9
8.0	SUMMARY OF THE COMPARATIVE ANALYSIS OF THE ALTERNATIVES	10
8.1	Overall Protection of Human Health and the Environment	10
8.2	Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)	11
8.3	Long-term Effectiveness and Permanence	11
8.4	Reduction of Toxicity, Mobility, or Volume through Treatment	12
8.5	Short-term Effectiveness	12
8.6	Implementability	12
8.7	Cost	13
8.8	State Acceptance	13
8.9	Community Acceptance	13
9.0	THE NAVY'S RATIONALE FOR PROPOSING THE PREFERRED ALTERNATIVE	13
10.0	FOR MORE INFORMATION	14
	GLOSSARY	15

LIST OF FIGURES

<u>Figure</u>		<u>Page No.</u>
1	FS Sites and NCBC Facility Plan	18
2	Site 12: Building 316 DPDO Transformer Oil Spill Area	19
3	Site 14: Building 38 Transformer Oil Leak	20
4	Site 12: Building 316 Sample Locations (TRC) and PCB Concentrations .	21
5	Site 12: Building 316 Chip Sample Locations (USEPA) and PCB Concentrations	22
6	Site 14: Building 38 Sample Locations (TRC) and PCB Concentrations . .	23
7	Site 14: Building 38 Wipe Sample Locations (USEPA) & PCB Concentrations	24
8	Site 14: Building 38 Asphalt Chip Sample Locations (USEPA) & PCB Concentrations	25

Northern Division
Naval Facilities Engineering Command
Department of the Navy
Naval Construction Battalion Center
Davisville, Rhode Island

Proposed Plan

May 1993

1.0 U.S. Navy Proposes Cleanup Plan for Sites 12 and 14, NCBC-Davisville

The U.S. Navy (Navy) is responsible for addressing environmental contamination at the Naval Construction Battalion Center (NCBC), located in Davisville, Rhode Island, pursuant to Section 120 of the **Comprehensive Environmental Response, Liability, and Compensation Act (CERCLA)**¹ and a Federal Facility Agreement (FFA) entered into by the U.S. Navy, the U.S. Environmental Protection Agency (USEPA) and the Rhode Island Department of Environmental Management (RIDEM). In March 1992, the Navy entered into an FFA with USEPA and RIDEM which sets forth the roles and responsibilities of each agency, contains deadlines for investigation and cleanup of the hazardous waste sites, and establishes a mechanism to resolve disputes between the agencies. NCBC Davisville was placed on the USEPA's **National Priorities List (NPL)** on November 21, 1989. Investigation and cleanup of Department of Defense (DOD) sites, such as NCBC Davisville, are funded through the **Defense Environmental Restoration Account (DERA)** or the **Base Realignment and Closure Account (BRAC)**.

As per the FFA, the Navy is currently investigating a number of sites at NCBC Davisville (see Figure 1). The Navy is proposing a cleanup plan, referred to as a preferred alternative, to address contamination at two of the sites under investigation, namely Sites 12 and 14. The Proposed Plan presents a preferred alternative based on the identification and evaluation of alternatives which was conducted during the **Initial Screening of Alternatives (ISA)** performed for the sites. In accordance with Section 117(a) of CERCLA, the Navy is publishing this Proposed Plan to give the public an opportunity to review and comment on the cleanup alternatives, known as **remedial alternatives**, under consideration for the sites. The Navy will consider public comments as part of the final decision-making process for selecting the cleanup remedy for the sites.

The preferred alternative to address the contamination at Sites 12 and 14 is removal of flooring material and subgrade soils contaminated with **polychlorinated biphenyls (PCBs)** followed by off-site disposal or incineration. An off-site incineration component is included in the preferred alternative in order to provide treatment of PCB-contaminated wastes in accordance with the Superfund preference for alternatives which employ treatment to permanently reduce the mobility, toxicity or volume of **hazardous substances** as a principal

¹Note: Technical terms that appear in bold print in this document are defined in the glossary located at the end of this Proposed Plan.

element. The preferred alternative is described in greater detail on pages 8 and 9 of this document.

This Proposed Plan:

1. explains the opportunities for the public to comment on the remedial alternatives;
2. includes a brief history of the sites and the principal findings of site investigations;
3. includes a description of previous removal actions conducted at the sites and the results of sampling conducted after the removal actions were completed;
4. provides a brief description of the preferred alternative and other alternatives evaluated in the ISA;
5. outlines the criteria used by the Navy to propose an alternative for use at the sites, and briefly analyzes whether the alternatives meet each criterion; and
6. presents the Navy's rationale for its preliminary selection of the preferred alternative.

To help the public participate in reviewing the cleanup options for the sites, this document also includes information about where interested citizens can find more detailed descriptions of the remedy process and the alternatives under consideration for Sites 12 and 14.

2.0 The Public's Role in Evaluating Remedial Alternatives

2.1 Public Informational Meeting and Formal Public Hearing

The Navy will hold a public informational meeting on Thursday, June 17, 1993 at 7:30 p.m. at the Administrative Building (Building 404), located at the Naval Construction Battalion Center in Davisville, Rhode Island, to describe the proposed remedial action and other alternatives evaluated in the Initial Screening of Alternatives. The public is encouraged to attend the meeting to hear the presentations and to ask questions. The Navy will also hold a formal public hearing immediately following the informational meeting to accept verbal comments on the cleanup alternatives under consideration for the sites. This hearing will provide the opportunity for people to formally comment on the cleanup plan after they have heard the presentations made at the informational meeting. Comments made at the hearing will be transcribed, and a copy of the transcript will be added to the site **Administrative Record** available at the Administrative Building (Building 404), located at the Naval Construction Battalion Center in Davisville, Rhode Island, and at the **Information Repository** location listed on page 4.

2.2 Public Comment Period

The Navy is conducting a 30-day public comment period from May 28 to June 28, 1993, to provide an opportunity for public involvement in the final cleanup decision. During the comment period, the public is invited to review this Proposed Plan, the ISA report, and other sources of site information (e.g., the Confirmation Study, post-removal verification sampling reports, the Risk Assessment Technical Memo), and is encouraged to offer comments to the Navy.

2.3 Written Comments

If, after reviewing the information on the sites, you would like to comment in writing on the Navy's preferred alternative, any of the other cleanup alternatives under consideration, or other issues relevant to the site cleanup, please deliver your comments to the Navy at the public hearing or mail your written comments (postmarked no later than June 29, 1993) to:

U.S. Department of the Navy
Naval Facilities Engineering Command
Northern Division
10 Industrial Highway, Mail Stop #82
Lester, PA 19113-2090
Attn: Ms. Marilyn Powers, Code 1823
Remedial Project Manager

2.4 The Navy's Review of Public Comment

The Navy will review comments received from the public as part of the process of reaching a final decision on the most appropriate remedial alternative, or combinations of alternatives, for cleanup of Sites 12 and 14. The Navy's final choice of a remedy will be issued in a **Record of Decision (ROD)** for the site late this summer. A document, called a **Responsiveness Summary**, that summarizes the Navy's responses to comments received during the public comment period will be issued with the ROD. Once the ROD is signed by the Navy and the USEPA Regional Administrator, it will become part of the Administrative Record, which contains documents used by the Navy to choose a remedy for the site.

2.5 Additional Public Information

Because this Proposed Plan provides only a summary description of the investigations and previous removal actions conducted at Sites 12 and 14 and the cleanup alternatives considered, the public is encouraged to consult the Administrative Record, which contains the **Confirmation Study (CS)** and Initial Screening of Alternatives reports and other site documents, for a more detailed explanation of the sites and all of the remedial alternatives under consideration.

The Administrative Record is available for review at the following location:

Administrative Building (Building 404)
Naval Construction Battalion Center
Davisville, Rhode Island 02854-1161
Contact Person: Mr. Lou Fayan
(401)267-2245
Hours:
Monday-Friday: 7:30 a.m. to 4:00 p.m.

An Information Repository is maintained at:

Reference Desk
North Kingstown Free Library
100 Boone Street
North Kingstown, Rhode Island 02852
(401) 294-3306

Hours:

Monday-Thursday: 9:00 a.m. - 8:30 p.m.

Friday-Saturday: 9:00 a.m. - 5:00 p.m.

3.0 Site History

NCBC Davisville is located in the town of North Kingstown, Rhode Island, approximately 18 miles south of Providence. A significant portion of the NCBC Davisville facility is located adjacent to Narragansett Bay. NCBC Davisville is composed of three areas including the Main Center, the West Davisville storage area, and Camp Fogarty, located approximately 4 miles west of NCBC Davisville. These areas are noted in Figure 1. Adjoining NCBC Davisville's boundary on the south is the decommissioned Naval Air Station Quonset Point that was declared excess to the Navy in April 1973.

The history of NCBC Davisville is related to the history of Quonset Point. Quonset Point was the location of the first annual encampment of the Brigade Rhode Island Militia in 1893. During World War I, it was a campground for the mobilization and training of troops and later was the home of the Rhode Island National Guard. In the 1920s and 1930s it was a summer resort.

In 1939, Quonset Point was acquired by the Navy to establish a Naval Air Station (NAS), with construction beginning in 1940. By 1942, the operations at NAS Quonset Point had expanded into what is now called NCBC-Davisville. Land at Davisville adjacent to NAS Quonset Point was designated the Advanced Base Depot. Also in 1942, the Naval Construction Training Center (NCTC), known as Camp Endicott, was established to train the newly established construction battalions.

While NAS Quonset Point remained a site of Naval activity, Davisville was inactive between World War II and the Korean Conflict. In 1951 it became the Headquarters Construction Battalion Center (CBC). The CBC loaded ships and trained men for both the Korean and Vietnam Conflicts. In 1974, operations at Davisville were greatly reduced. In 1991, closure of NCBC Davisville was announced, and all operations at Davisville were phased down to the present staffing levels for Public Works, Maintenance, Security, and Navy Personnel. It is anticipated that closure will be completed by summer of 1994.

In response to environmental contamination which has occurred as a result of the use, handling, storage, or disposal of hazardous materials at many military installations across the United States, the Department of Defense (DOD) initiated investigation and cleanup activities

under the Installation Restoration (IR) Program. The IR Program parallels the Superfund program and is conducted in several stages, including:

1. identification of potential hazardous waste sites;
2. confirmation of the presence of hazardous materials at the site;
3. determination of the type and extent of contamination;
4. evaluation of alternatives for cleanup of the site;
5. proposal of a cleanup remedy;
6. selection of a remedy; and
7. implementation of the remedy for cleanup of the site.

For NCBC Davisville, an Initial Assessment Study was completed in September 1984, detailing historical hazardous material usage and waste disposal practices at the facility. Included in the various areas identified in this study as being potentially contaminated were Sites 12 and 14. The Initial Assessment Study was followed by the Confirmation Study, which included environmental sampling and analysis to verify the presence of contamination at the sites. Specific details of site history and the results of removal actions conducted at the two sites are provided in the sections below.

3.1 Site Identification and Previous Studies

Site 12, DPDO Transformer Oil Spill Area

Site 12, located within Building 316, contained the Defense Property Disposal Office and was used to store electrical transformer units (see Figure 2 on page 19). Site 12 is located in a region known as West Davisville, west of the NCBC Davisville Main Center. Site 12 is bordered to the west by Conrail tracks, to the east by Mike Road, and to the south by a gravel road.

In 1977, a transformer containing PCB oil was accidentally punctured with a forklift in Building 316. The spill area on the concrete floor was contained and cordoned off, and the spill was cleaned up by NCBC-Davisville personnel. A composite concrete sample collected in October 1984 indicated the presence of PCB contamination in the concrete (Aroclor 1260 at 91 parts per million or ppm). In March 1986, fifteen wipe samples were collected from the spill area as part of the Confirmation Study. The laboratory analysis detected concentrations of Aroclor 1254 in the wipe samples ranging from 0.4 to 3.0 micrograms per square inch ($\mu\text{g}/\text{in}^2$).

Site 14, Transformer Oil Leak Area

Site 14, located within Building 38, represents an area where electrical transformers were stored (see Figure 3 on page 20). Prominent features near Site 14 include railroad tracks (federally owned) and Davisville Road to the north and Davol Pond to the east.

In 1981, oil spillage was noted in warehouse Building 38 where electrical transformers were stored. The events surrounding the spill are unknown. The spill on the asphalt floor of the building is believed to have been cleaned up by NCBC-Davisville personnel as directed by the Northern Division Naval Facilities Engineering Command. In October 1984, NCBC personnel collected a composite asphalt sample from the oil spill area in the building for PCB

analysis. The sample analysis results indicated the presence of PCB contamination in the asphalt spill area (Aroclor 1260 at 6,690 ppm). In March 1986, fifteen wipe samples were collected from the spill area for PCB analysis as a part of the Confirmation Study. The wipe analysis results indicated the presence of Aroclor 1260 at concentrations ranging from 0.7 to 17,000 $\mu\text{g}/\text{in}^2$.

3.2 Cleanup Activities to Date

Site 12, DPDO Transformer Oil Spill Area

An interim remedial action was conducted at Site 12 in early 1991 which involved the removal and disposal of PCB-contaminated concrete and subgrade soil from the floor in Building 316. The removal area consisted of a concrete pavement area approximately 20 feet by 20 feet in area, and a contiguous area approximately 4 feet by 5 feet in size. The pavement, consisting of a six-inch concrete slab, and six inches of subgrade were removed.

Site 14, Transformer Oil Leak Area

A similar remedial action was conducted at Site 14 in early 1991. PCB-contaminated asphalt materials and subgrade soils were removed from the floor of Building 38. The removal consisted of an asphalt pavement area approximately 40 feet by 17 feet in area, and a contiguous area approximately 5 feet by 5 feet in area. The pavement, consisting of three inches of asphalt, and six inches of subgrade were removed.

3.3 Results of the Post-removal Verification Sampling

Site 12, DPDO Transformer Oil Spill Area

TRC Environmental Corporation (TRC), a contractor to the Navy, conducted post-removal verification sampling in April 1991 to confirm and document the removal of PCB-contaminated materials at Site 12. The sampling included the collection of concrete chip samples, wipe samples, soil samples, and associated quality control (QC) samples. Four concrete chip samples and two wipe samples were collected around the perimeter of the excavation, and four soil samples were collected within the excavation area (see Figure 4 on page 21). Analysis of the chip, wipe and soil samples indicated residual PCB contamination was present in the flooring surrounding the removal area and in the subgrade soils.

In September 1991, the USEPA conducted additional sampling at Building 316 to further define the horizontal extent of PCB-contaminated flooring. Chip samples were collected from the area surrounding the removal area, with the objective being to collect samples at locations successively further from the removal area perimeter in each direction until two consecutive chip sample results contained less than 1 $\mu\text{g}/\text{g}$ (ppm) PCBs. PCB levels as great as 1200 $\mu\text{g}/\text{g}$ were measured in chip samples collected from the remaining concrete materials. In general, the majority of the remaining contamination was detected in samples collected south of the removal area. Sample locations and PCB concentrations are provided in Figure 5 on page 22.

Site 14, Transformer Oil Leak Area

Post-removal verification sampling was also conducted by TRC Environmental Corporation in April 1991 to confirm and document the removal of PCB-contaminated materials at Site 14. The sampling included the collection of asphalt chip samples, wipe samples, soil samples, and associated quality control (QC) samples. Three asphalt chip samples and two wipe samples were collected around the perimeter of the excavation, and five soil samples were collected within the excavation area (see Figure 6 on page 23). Analysis of the chip, wipe and soil samples indicated residual PCB contamination was present in the flooring surrounding the removal area and in the subgrade soils.

In September 1991, the USEPA conducted additional sampling at Building 38 to further define the horizontal extent of PCB-contaminated flooring. Initially asphalt surface wipe samples were collected at 5-foot intervals around the perimeter of the removal area, with additional wipe samples to be collected further from the removal area in each direction until the wipe sample results were less than $10 \mu\text{g}/100 \text{ cm}^2$. Where wipe samples were less than $10 \mu\text{g}/100 \text{ cm}^2$, a surface chip sample would be collected. Chip samples were then collected at locations successively further from the removal area perimeter in each direction until two consecutive chip sample results contained less than $1 \mu\text{g}/\text{g}$ (ppm) PCBs. When preliminary screening results from the chip samples indicated that there was poor correlation between the wipe sample results and the chip sample results, the wipe sampling was discontinued. Wipe and chip sample locations are provided in Figures 7 and 8 on pages 24 and 25, respectively. PCB levels as great as $82 \mu\text{g}/100 \text{ cm}^2$ were measured in wipe samples while the maximum concentration detected in asphalt chip samples was $150 \mu\text{g}/\text{g}$ (ppm).

4.0 Summary of Site Risks

A Risk Assessment Technical Memo was prepared in March 1993 for Sites 12 and 14. In the Risk Assessment Technical Memo, the risks to human health and the environment posed by existing conditions, as determined by field investigations, are evaluated. No risks to the environment are anticipated under current site conditions because of the location of the contamination within the confines of the physical structures of Buildings 316 and 38. Access to the contaminated areas is provided by entrance doors which are currently locked. Because both buildings are locked and not in use, current human health risks are minimal.

Under potential future use conditions, the anticipated use of these buildings is industrial or commercial. A potential occupational exposure exists under the future site use scenario due to the potential for direct dermal contact with the contaminated surfaces. Adverse human health effects associated with direct dermal contact with the PCB-contaminated materials are a potential risk if the sites are used for industrial or commercial use in the future.

Actual or threatened releases of hazardous substances from these sites, if not addressed by the preferred alternative or one of the other active measures considered, may present a potential threat to public health, welfare, or the environment.

For a complete explanation of risks posed by contamination at Sites 12 and 14, please refer to the Risk Assessment Technical Memo that is available as part of the Administrative Record at NCBC Davisville and at the information repository at the North Kingstown Free Library.

5.0 Proposed Cleanup Objectives and Levels

Using the information gathered during the Confirmation Study, post-removal verification sampling, the Initial Screening of Alternatives, and preparation of the Risk Assessment Technical Memo, the Navy identified remedial response objectives for cleanup of Sites 12 and 14. The cleanup objectives are listed below.

Prevent exposures to PCB-contaminated surfaces and soils at Buildings 316 and 38;

Reduce the risks associated with dermal contact with the PCB-contaminated materials if the sites are used for future commercial or industrial purposes.

To meet these objectives, the Navy has established site-specific cleanup levels that will be protective of public health and the environment. These include a PCB level of 10 ppm for soil, debris, and other materials or a PCB level of $2 \mu\text{g}/100\text{cm}^2$, as measured by a **standard wipe test**. The remedial alternative selected for the sites must achieve these cleanup levels for reducing contamination at the sites. Since the only contaminants of concern at Sites 12 and 14 are PCBs, cleanup goals have been established only for this group of compounds. The PCB cleanup goals have been established based on PCB levels specified under Rhode Island Department of Environmental Management (RIDEM) Proposed Amendments to the Rules and Regulations for Solid Waste Management Facilities and Proposed Amendments to the Rules and Regulations for Hazardous Waste Management. Cleanup levels specified under the **Toxic Substances Control Act (TSCA)** were also considered in the establishment of cleanup levels; however, since the proposed State standards are more stringent, they are used as the basis for the cleanup goals. In accordance with TSCA, the cleanup goals were selected based on proposed industrial/commercial use of the site.

6.0 The Navy's Preferred Alternative

The Navy's selection of the preferred cleanup alternative for Sites 12 and 14, as described in this Proposed Plan, is the result of a comprehensive evaluation and screening process. An Initial Screening of Alternatives was conducted for the two sites to identify and analyze alternatives for addressing contamination at the site. The Initial Screening of Alternatives Report (ISA) describes the alternatives considered, as well as the process and criteria the Navy used to narrow the list of available remedial technologies to five potential remedial alternatives which address the PCB-contaminated building surfaces and soils at the two sites (for details on the Navy's screening methodology, see Section 5.6 of the ISA). To quickly address site-related risks and expedite the decision making process, thereby reducing the time frame required to meet remedial action objectives, it was determined to be appropriate to move directly from the ISA stage of the Feasibility Study process to the recommendation of a preferred cleanup alternative within this Proposed Plan.

The following sections describe the preferred alternative and the other alternatives the Navy developed for detailed analysis. Because the ISA report evaluates remedial alternatives for four separate groups of sites at NCBC-Davisville, the designation "III" in the descriptions below refers to the numbering system used in the ISA report to distinguish between the various groups of sites (i.e., Sites 12 and 14 constitute the "Group III" sites).

Preferred Source Control Alternative (III-4)

The Navy's preferred alternative for remediation of PCB-contaminated building surfaces and soils consists of removal with off-site disposal or off-site incineration, depending on the concentration of PCB contamination, as described below. This alternative includes:

- Removal of PCB-contaminated flooring materials (concrete or asphalt), 6-inches of subgrade soils and PCB-contaminated dust on other building surfaces.
- Off-site land disposal of material containing PCBs at concentrations of less than 500 ppm at a federally permitted TSCA landfill.
- Off-site incineration of material containing PCBs at concentrations of 500 ppm or greater at a federally permitted TSCA incinerator.

All removal areas and adjacent non-removal areas would be sampled subsequent to the removal activities to ensure that cleanup levels are met. Because cleanup goals are based on industrial use of the sites, institutional controls would be implemented to ensure the sites are not used in the future for residential use.

Estimated Time for Design and Construction: 12 months

Estimated Time of Operation: 1 to 2 months

Estimated Capital Cost: \$295,000

Estimated Operations and Maintenance Costs (net present worth): None

Estimated Total Cost (net present worth): \$295,000

7.0 Other Alternatives Evaluated in the Initial Screening of Alternatives

The public is invited to comment not only on the preferred cleanup alternative, but also on the other four alternatives that were identified and evaluated in the ISA. Each of these alternatives is described briefly below. A more detailed description of each alternative can be found in the Initial Screening of Alternatives report.

Alternative III-1: No Action: This alternative was evaluated in the ISA to serve as a baseline for comparison with the other remedial alternatives under consideration. Under this alternative, no treatment or containment of the PCB-contaminated materials would occur and no effort would be made to restrict potential exposure to site contaminants.

Alternative III-2: Deed and Access Restrictions: This alternative would involve no remedial response activities for the PCB-contaminated materials at Sites 12 and 14, although

it would include the implementation of deed restrictions and maintenance of site access restrictions to limit potential exposures to site contaminants.

Estimated Time for Design and Construction: 3 months
Estimated Period for Operation: 30 years
Estimated Capital Cost: none
Estimated Operation and Maintenance Cost (net present worth): \$540,000
Estimated Total Cost (net present worth): \$540,000

Alternative III-3 Sealing: In this alternative, all PCB-contaminated surfaces would be sealed with a layer of epoxy grout and concrete. The flooring in previous removal areas would also be reconstructed.

Estimated Time for Design and Construction: 6 months
Estimated Period for Operation: not applicable
Estimated Capital Cost: \$70,000
Estimated Operation and Maintenance Cost (net present worth): None
Estimated Total Cost (net present worth): \$70,000

Alternative III-5: Decontamination (Solvent Washing): Use of Alternative III-5 would provide for the decontamination of building surfaces through the washing of the surfaces with a solvent. The contaminants would dissolve within the solvent. The contaminated solvent would subsequently be treated. This alternative would be applicable to the concrete flooring at Site 12 but would not be appropriate for the asphalt materials at Site 14; therefore, this alternative would have to be combined with another alternative to address PCB contamination at both sites.

Estimated Time for Design and Construction: 1 month
Estimated Period for Operation: 1 to 2 months
Estimated Capital Cost: \$21,000
Estimated Operation and Maintenance Cost (net present worth): None
Estimated Total Cost (net present worth): \$21,000

8.0 Summary of the Comparative Analysis of Alternatives

In the detailed evaluation of alternatives for remediating hazardous waste sites under CERCLA, the USEPA requires that remedial alternatives be evaluated using nine criteria. The nine criteria are used to select a remedy that meets the national Superfund program goals of protecting human health and the environment, maintaining protection over time, and minimizing untreated waste. Definitions of the nine criteria and a summary of the Navy's evaluation of the alternatives using the nine criteria are provided below:

8.1 Overall Protection of Human Health and the Environment addresses how an alternative as a whole will protect human health and the environment. This includes an assessment of how public health and environmental risks are properly eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

The preferred alternative (III-4) for addressing the PCB-contaminated building surfaces and subgrade soils would provide overall protection by preventing direct contact with site contaminants. Protection is provided by removal of contaminants with off-site disposal or incineration of the waste material. Alternative III-5 would also provide a degree of overall protection, although solvent washing might not be effective in removing the PCBs from deeper portions of the floor material and could cause the PCBs to migrate deeper within the flooring. Alternative III-3, sealing of the floor surfaces, would provide protection, although its long-term effectiveness is not guaranteed. Alternative III-2 utilizes only institutional controls to provide protection of human health, using protective measures to secure the site from unauthorized entry which, if maintained, would prevent direct contact with contaminated materials at the site. Only III-1, the no action alternative, would not meet this criterion.

8.2 Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) addresses whether or not a remedy complies with all State and Federal environmental and public health laws and requirements that apply or are relevant and appropriate to the conditions and cleanup options at a specific site. If an Applicable or Relevant and Appropriate Requirement (ARAR) cannot be met, the analysis of the alternative must provide the grounds for invoking a statutory waiver.

The proposed remedial action would meet all ARARs. Specifically, the proposed remedial action would meet chemical-specific ARARs regarding cleanup of PCB contamination specified under the Toxic Substances Control Act (TSCA) as well as PCB levels defined in RIDEM Proposed Amendments to the Rules and Regulations for Solid Waste Management Facilities and Proposed Amendments to the Rules and Regulations for Hazardous Waste Management. It would also utilize a federally permitted TSCA secure landfill for material disposal or a federally permitted TSCA incinerator for material treatment. Because PCBs are not managed under Resource Conservation and Recovery Act (RCRA) requirements unless they are combined with **halogenated organic compounds** such that the resultant waste meets the definition of a hazardous waste, RCRA requirements are not applicable or relevant and appropriate to remedial activities conducted at Sites 12 and 14.

Alternative III-5, decontamination using solvent washing, could possibly attain chemical-specific ARARs but is not well proven. Waste solvent residuals would require handling in accordance with RCRA requirements. Alternative III-3, sealing, would not attain chemical-specific ARARs since PCB contamination would remain at the site at levels of greater than 10 ppm. The no action and the deed and access restriction alternatives (III-1 and III-2) would not meet ARARs because they would allow the contaminated material to remain in-place with no treatment or containment.

8.3 Long-term Effectiveness and Permanence refers to the ability of an alternative to maintain reliable protection of human health and the environment over time once the cleanup goals have been met.

Alternative III-4, the preferred alternative, provides the greatest degree of long-term effectiveness and permanence since all hazardous materials are removed for off-site

treatment or disposal. Alternatives III-3 and III-5, are not considered as permanent or effective in the long-term, due to uncertainties associated with the effectiveness of the treatment (III-5) or the permanence of the containment features (III-3). Alternative III-2, deed and access restrictions, requires long-term monitoring to ensure the restrictions are enforced. The no action alternative, III-1, is not considered permanent or effective in the long term.

8.4 *Reduction of Toxicity, Mobility, or Volume through Treatment* are three principal measures of the overall performance of an alternative. The 1986 amendments to the Superfund statute emphasize that, whenever possible, a remedy should be selected that uses a treatment process to permanently reduce the level of toxicity of contaminants at the site, the spread of contaminants away from the source of contamination, and the volume or amount of contamination at the site.

Alternative III-4 would provide the greatest reduction in the toxicity, mobility and volume of contamination at Sites 12 and 14. This alternative includes the destruction of contaminants in all materials and soils containing 500 ppm or more of PCBs through off-site incineration, in accordance with USEPA Guidance on Remedial Actions for Superfund Sites with PCB Contamination (OSWER Directive EPA/540/G-90/007), while less contaminated material would be disposed of off-site. This alternative would meet the expectations of the Superfund program, including the expectation that the principal threats posed by a site be treated, when practicable. Alternative III-5 provides a reduction in toxicity through the removal of contaminants but the treatment system produces a solvent waste which requires subsequent off-site treatment. Also, the use of the solvent may actually increase the solubility of the contaminants and allow them to migrate further into the contaminated flooring materials. Alternatives III-2 and III-3 reduce the potential for exposure to the contaminated material but do not reduce the toxicity or volume of contaminated material. Alternative III-1 provides no reduction in the toxicity, mobility or volume of contaminated material.

8.5 *Short-term Effectiveness* refers to the likelihood of adverse impacts on human health or the environment that may be posed during the construction and implementation of an alternative until cleanup goals are achieved.

All of the alternatives would be effective in the short term. Because of the potential for release of airborne contaminants during the flooring removal and excavation activities, however, special engineering precautions would be taken to minimize the potential for contaminant emissions, thereby ensuring the short-term protection of workers during cleanup-related construction activities.

8.6 *Implementability* refers to the technical and administrative feasibility of an alternative, including the availability of materials and services needed to implement the alternative.

The preferred alternative (III-4) is implementable and utilizes well proven and readily available waste management techniques. It is the most implementable alternative of those which provide removal or remediation of the on-site contaminants. Alternative III-3 is also readily implementable, using common surface sealing techniques, but requires

long-term monitoring to ensure its effectiveness. Implementation of Alternative III-5, solvent washing, is limited by the lack of vendors offering the technology and by the potential requirement of multiple applications to meet cleanup standards. The administrative implementability of enforcing deed and site access restrictions under Alternative III-2 is limited by the fact that NCBC Davisville is undergoing base closure, thereby suspending any long-term Navy presence which could ensure that the stated restrictions are enforced. Alternative III-1, no action, is technically implementable due to the lack of implementation activities associated with it but would be administratively difficult to implement due to its lack of remedial action.

8.7 *Cost* includes the capital (up-front) cost of implementing an alternative as well as the cost of operating and maintaining the alternative over the long term, and net present worth of both capital and operation and maintenance costs.

The capital, operation and maintenance, and total cost for each alternative is provided as part of the site description in the preceding sections on "The Navy's Preferred Alternative" and "Other Alternatives Evaluated in the ISA."

8.8 *State Acceptance* addresses whether, based on its review of the Confirmation Study, ISA, and Proposed Plan, the State concurs with, opposes, or has no comment on the alternative the Navy is proposing as the remedy for the site. The State has reviewed and commented on this Proposed Plan and the Navy has taken the State's comments into account.

8.9 *Community Acceptance* addresses whether the public concurs with the Navy's Proposed Plan. Community acceptance of this Proposed Plan will be evaluated based on comments received at the upcoming public meeting/public hearing and during the public comment period.

Of the nine criteria, protection of public health and compliance with all applicable and relevant and appropriate requirements are considered threshold requirements that must be met by all remedies. The Navy balances its consideration of alternatives with respect to long-term effectiveness and permanence; reductions of toxicity, mobility, or volume through treatment; short-term effectiveness; implementability; and cost. State and community concerns are considered as modifying criteria factored into a final balancing of all criteria to select a remedy. Consideration of State and community comments may prompt the Navy to modify aspects of the preferred alternative or decide that another alternative considered provides a more appropriate balance.

9.0 The Navy's Rationale for Proposing the Preferred Alternative

Based on current information and analysis of the Confirmation Study and ISA reports, the Navy believes that the preferred alternative for Sites 12 and 14 is consistent with the requirements of the Superfund law and its amendments, specifically Section 121 of CERCLA, and to the extent practicable, the **National Oil and Hazardous Substances Contingency Plan (NCP)**. Except for the No Action alternatives, all of the alternatives presented in this Proposed Plan would provide overall protection of human health and the environment. In the

Navy's analysis, however, the preferred alternative identified in this Plan is more readily implementable than and comparable in cost to the other alternatives considered. In addition, in the Navy's estimation, the preferred alternative would achieve the best balance among the criteria used by the Navy to evaluate the alternatives. The preferred alternative would provide short- and long-term protection of human health and the environment, would attain all Federal and state applicable or relevant and appropriate public health and environmental requirements (ARARs), would provide the greatest long-term effectiveness, due to the removal and treatment or disposal of contaminated building surfaces and soils, and would utilize permanent solutions to the maximum extent practicable.

10.0 For More Information

If you have any questions about the site or would like more information, you may call or write to:

Marilyn Powers, Code 1823
Remedial Project Manager
Department of the Navy
Naval Facilities Engineering Command
Northern Division
10 Industrial Highway, Mail Stop #82
Lester, PA 19113-2090
(215) 595-0567

Glossary

Administrative Record: A file which is maintained and contains all information considered and relied upon by the Navy to make its decision on the selection of a response action under CERCLA. The file is available for public review.

Applicable or Relevant and Appropriate Requirements (ARARs): ARARs include any State or Federal statute or regulation that pertains to protection of public health and the environment in addressing certain site conditions or using a particular cleanup technology at a Superfund site. A State law to preserve wetland areas is an example of an ARAR. The Navy must consider whether a remedial alternative meets ARARs as part of the process for selecting a cleanup alternative for a Superfund site.

Baseline: With respect to the alternatives evaluated, a statement of existing conditions and their relative consequences should no further action be taken.

Base Realignment and Closure Account (BRAC): An account containing funds appropriated by Congress to be used to fund the realignment or closure of Department of Defense (DOD) sites.

Chip Sample: A sample of a porous surface such as cement or brick which is collected by defining a sampling area, breaking the surface of the medium within the defined area using a decontaminated chisel and hammer, and transferring the chipped pieces into a sample bottle.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A Federal law passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act (SARA). The act created a special tax that goes into a Trust Fund, commonly known as Superfund, to investigate and clean up abandoned or uncontrolled hazardous waste sites. Under the program, the USEPA can either: 1) pay for site cleanup when parties responsible for the contamination cannot be located or are unwilling or unable to perform the work or 2) take legal action to force parties responsible for site contamination to clean up the site or pay back the Federal government for the cost of the cleanup.

Confirmation Study (CS): An integral step of the Navy's Assessment and Control of Installation Pollutants (NACIP) Program. It consists of an on-site investigation which includes physical and analytical monitoring to confirm or deny the existence of contamination.

Defense Environmental Restoration Account (DERA): An account containing funds appropriated by Congress to be used to fund the investigation and cleanup of past hazardous chemical releases at Department of Defense (DOD) sites.

Halogenated Organic Compounds: Organic compounds having a carbon-halogen bond which are listed in Appendix III of the Code of Federal Regulations (CFR) Title 40, Part 268. Examples include chlorobenzene and polychlorinated biphenyls (PCBs).

Hazardous Substances: Any material that poses a threat to public health and/or the environment. Typical hazardous substances are materials that are toxic, corrosive, ignitable, explosive or chemically reactive.

Information Repository: A file, available for public review at a public building convenient to local residents, containing current information, technical reports, and reference documents regarding the NCBC-Davisville sites.

Initial Screening of Alternatives (ISA) Report: Initial phase of the Feasibility Study process; summarizes the development and analysis of remedial alternatives that the Navy considers for the cleanup of Superfund sites.

Institutional Controls: Legal restrictions established to prevent specified activities from occurring in a designated area. Examples include deed restrictions and easement zoning.

Micrograms per Square Inch ($\mu\text{g}/\text{in}^2$) or Micrograms per 100 Square Centimeters ($\mu\text{g}/100\text{cm}^2$): Units of measurement used to describe the level of contamination on a surface, as measured by a standard wipe test.

National Oil and Hazardous Substances Contingency Plan (NCP): The federal regulation that guides determination of the sites to be corrected under the Superfund program and the program to prevent or control spills into surface waters or other portions of the environment.

National Priorities List (NPL): EPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under Superfund.

Net Present Worth: The amount of money necessary to secure the promise of future payment, or series of payments, at an assumed interest rate.

Parts per Billion (ppb) or Parts per Million (ppm): Units of measurement used to describe levels of contamination. For example, one gallon of a solvent in one billion gallons water is equal to one part per billion. One part per million is equal to 1,000 parts per billion.

Polychlorinated Biphenyls (PCBs): Organic compounds in which two or more chlorine atoms have been substituted for hydrogen atoms on a biphenol molecule. PCBs are very stable (and, therefore persistent) and are characterized by a low vapor pressure, low flammability, high heat capacity and low electrical conductivity. PCBs were used in hydraulic, lubricating, and heat transfer liquids. The USEPA classifies PCBs as Group B2 - probable human carcinogens.

Record of Decision (ROD): A public document which presents the selected remedial alternative to be used at a National Priorities List (NPL) site. The Decision Summary portion of the ROD provides an overview of the information and technical analysis generated during the site investigation and remedial analysis process. It identifies the selected remedy and explains how the remedy fulfills statutory requirements. The Responsiveness Summary portion of the ROD addresses public comments and community concerns received during the public comment period.

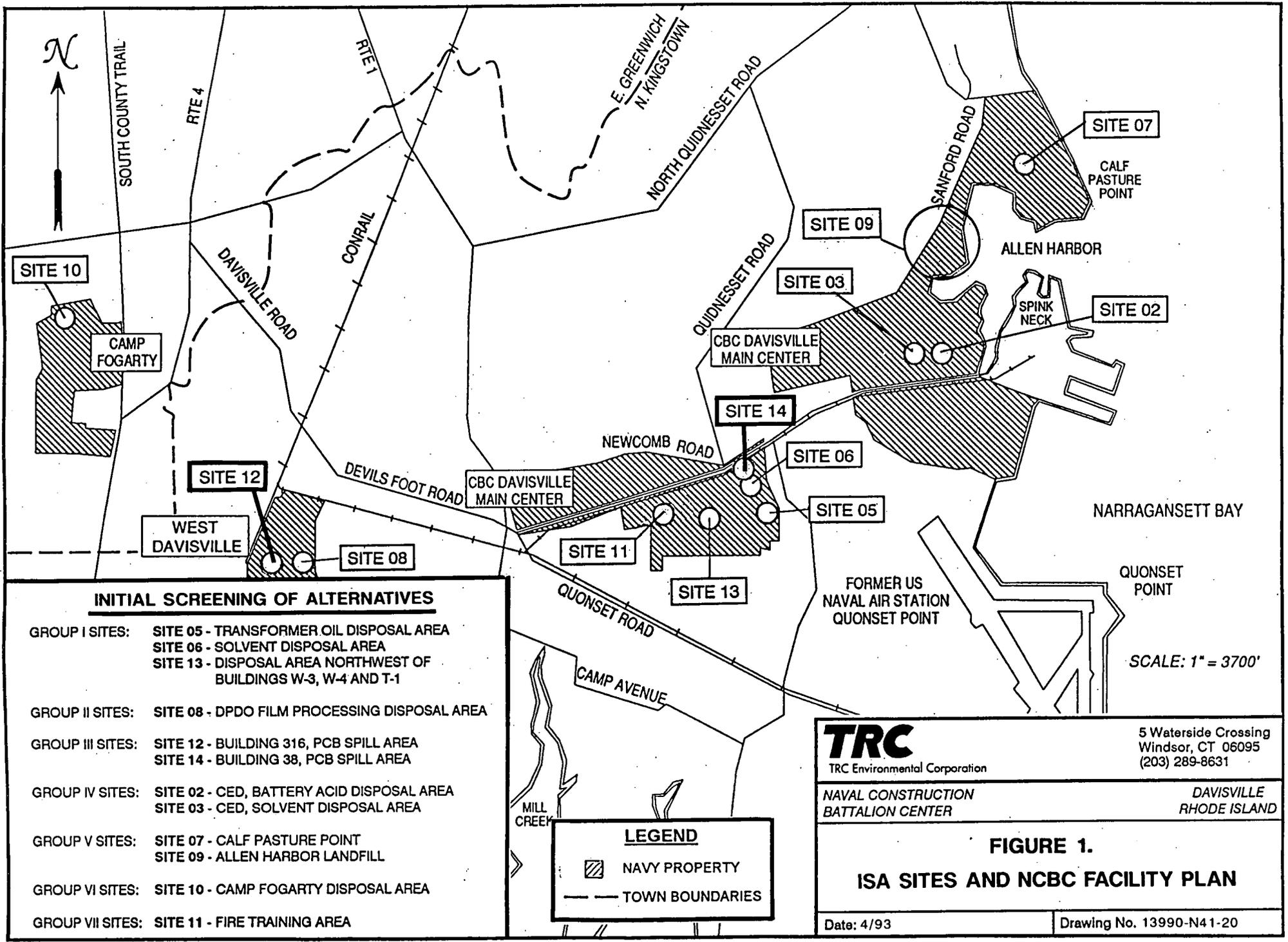
Remedial Alternative: Option evaluated by the Navy to address the source and/or migration of contaminants at a Superfund site to meet health-based cleanup levels.

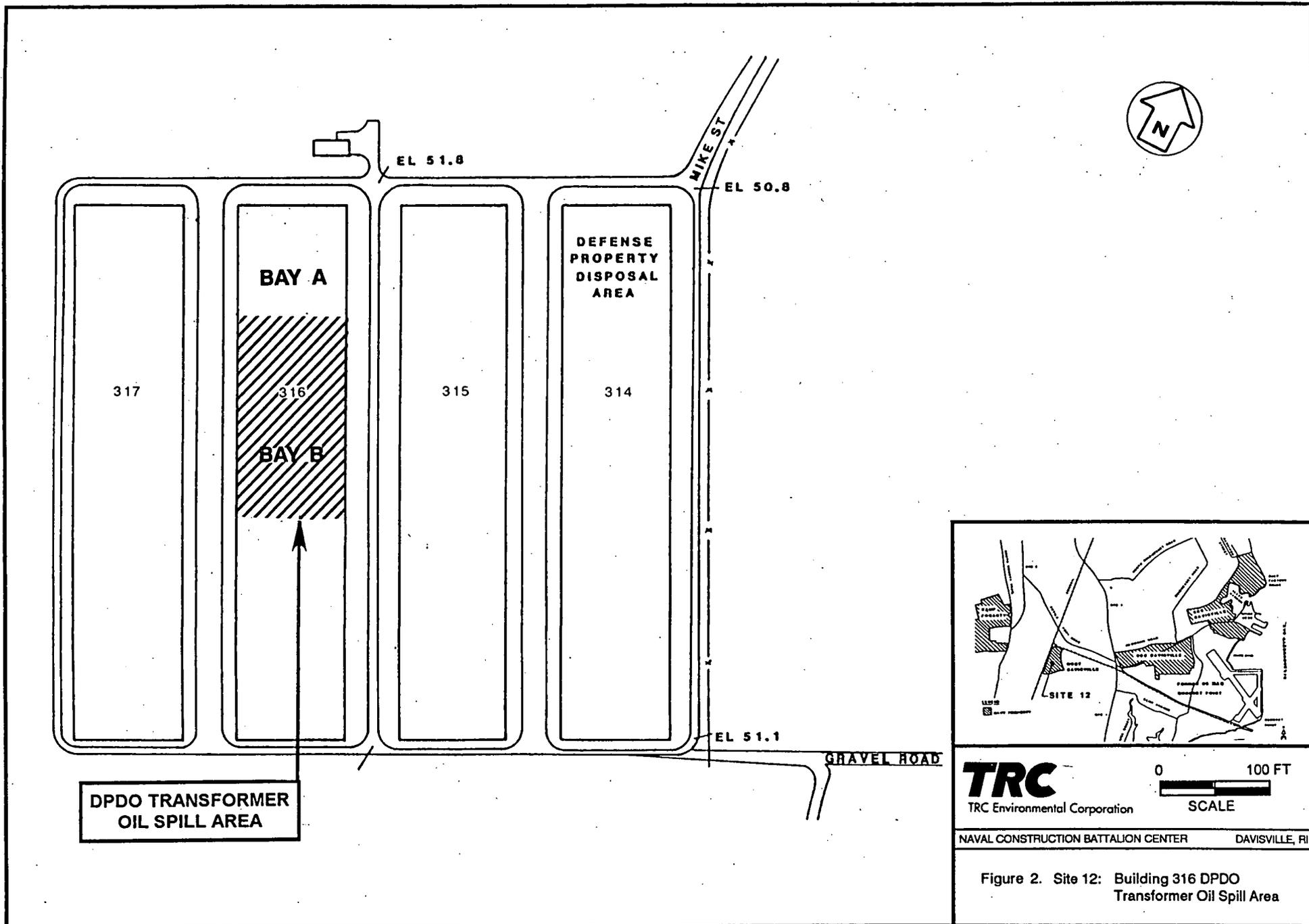
Standard Wipe Test: Collection of a sample through the use of a wiping medium (gauze pad or glass wool) of known size which has been saturated with hexane to wipe over a

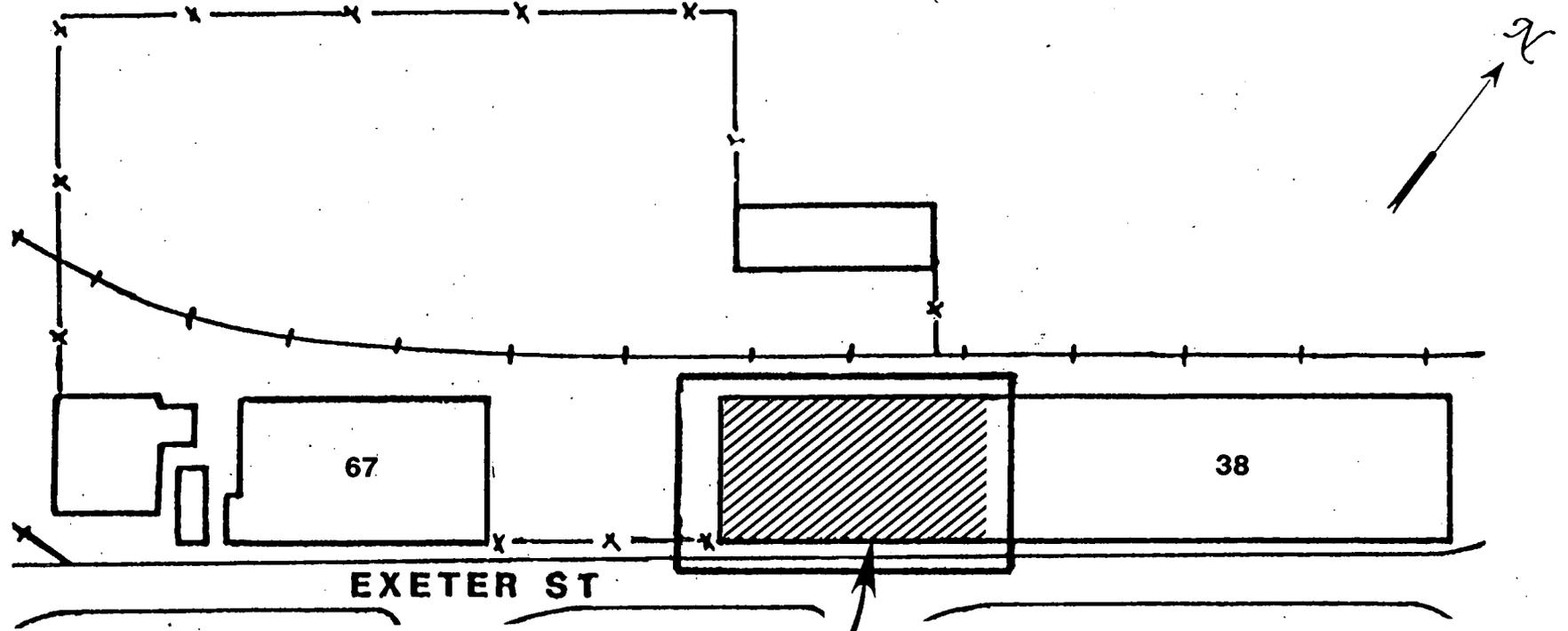
potentially contaminated area delineated by a standard-size template (e.g. 10 centimeters (10 cm) x 10 cm).

Toxic Substances Control Act (TSCA): The Toxic Substances and Control Act of 1976 provides for the evaluation for health and environmental effects of all new chemical substances entering the U.S. market, regulation of raw materials, and the control or banning of existing chemicals which pose a risk to health or the environment. Since enactment, PCBs have come under TSCA regulation (40 CFR Part 761).

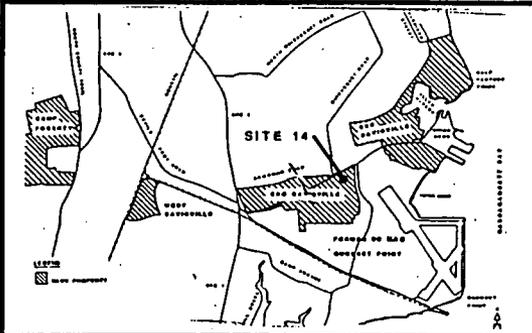
Wipe Sample: A sample collected to monitor surface contamination by wiping a solvent-soaked medium over the sample collection area. Also see **Standard Wipe Test**.







TRANSFORMER
OIL LEAK AREA

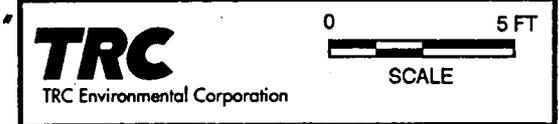
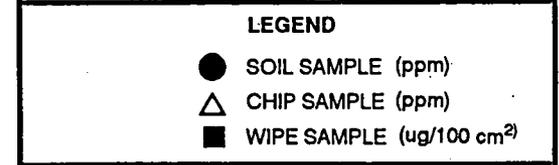
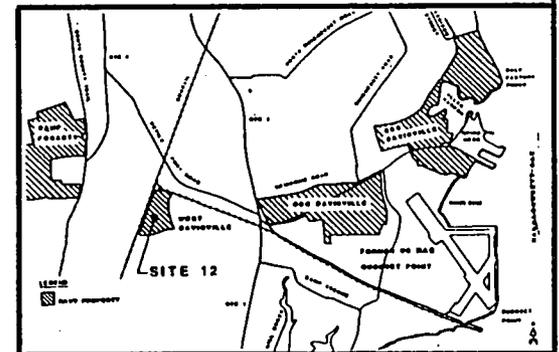
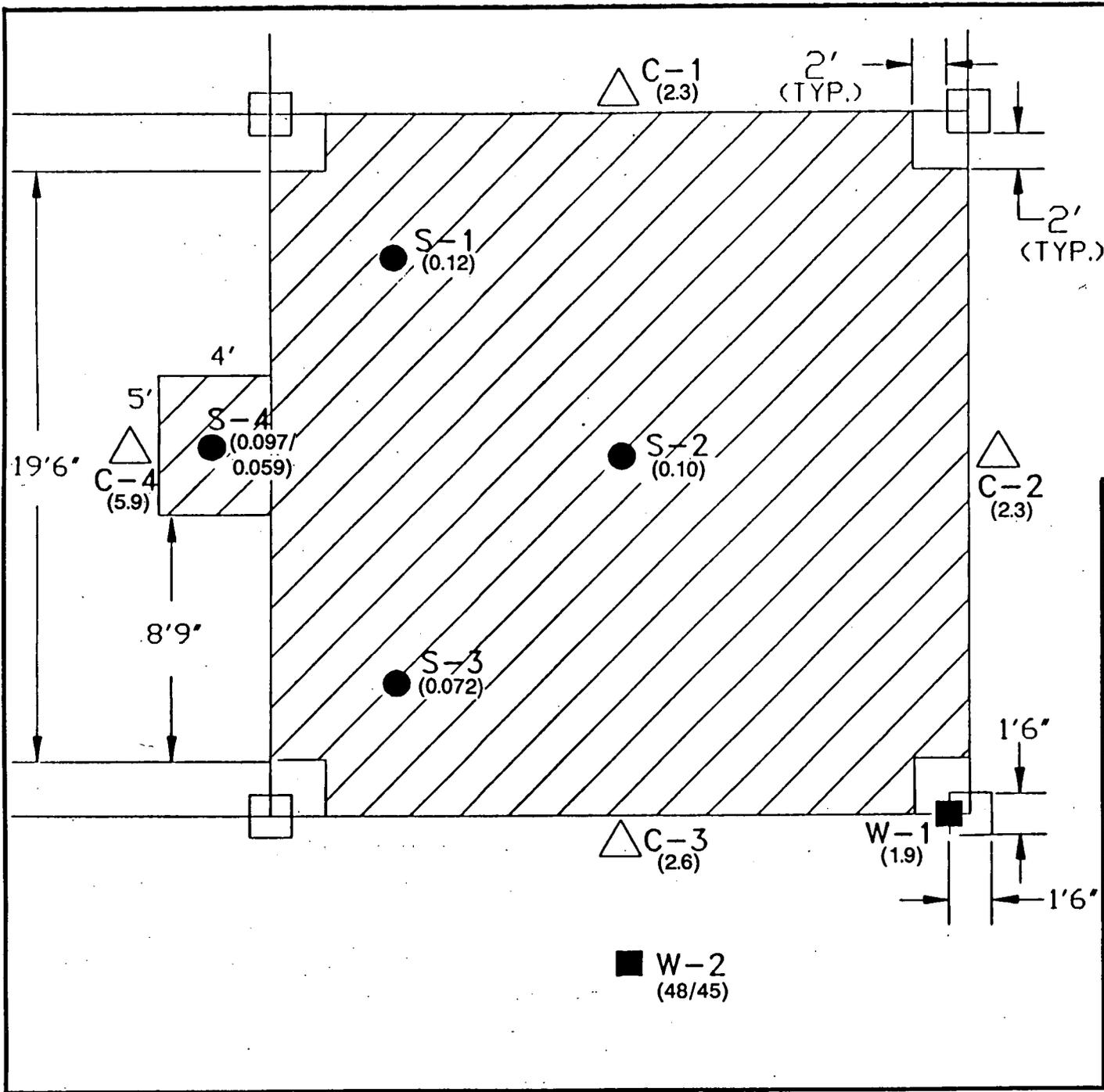


TRC
TRC Environmental Corporation

0 100 FT
SCALE

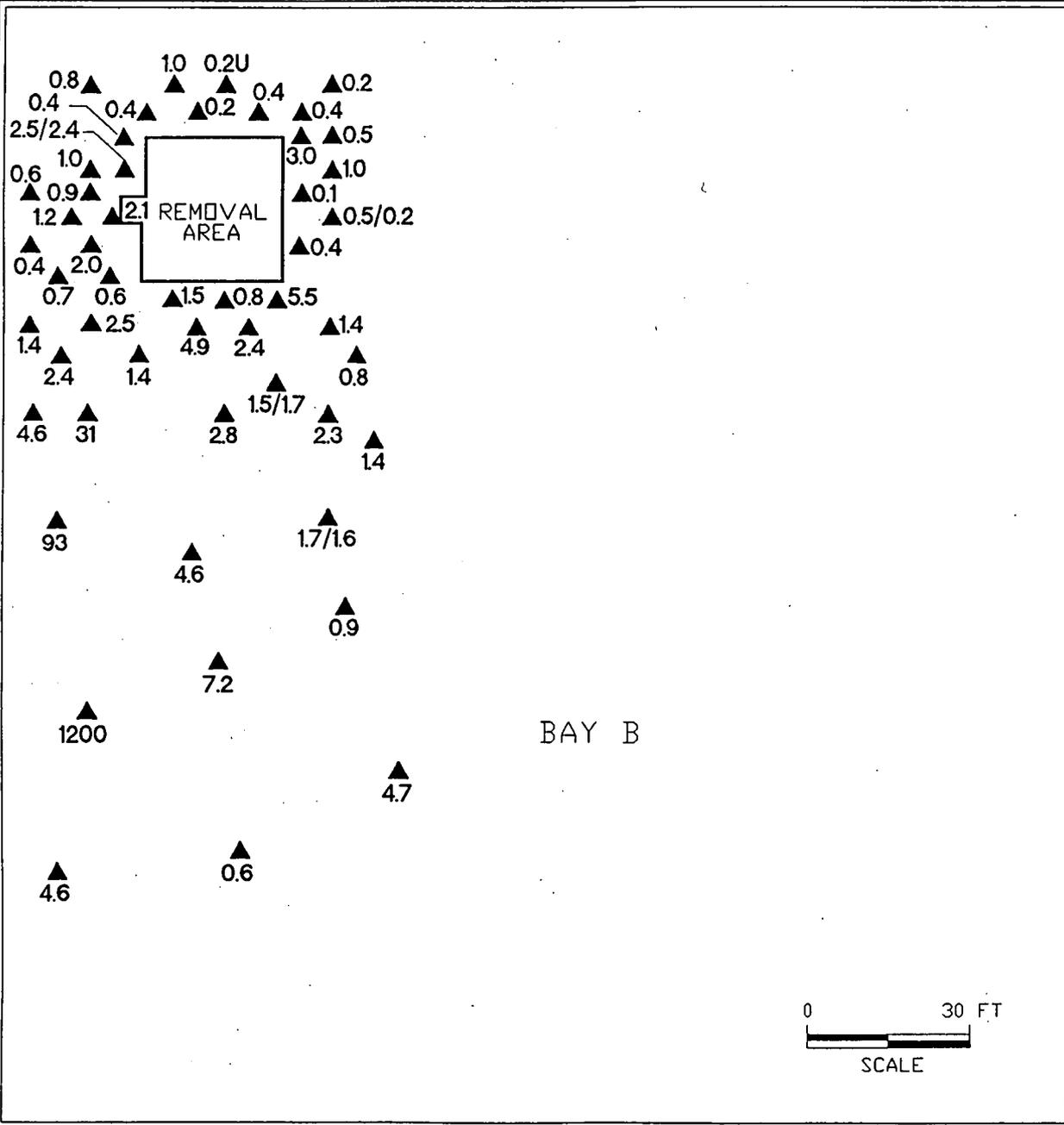
NAVAL CONSTRUCTION BATTALION CENTER DAVISVILLE, RI

Figure 3. Site 14: Building 38 Transformer Oil Leak Area



NAVAL CONSTRUCTION BATTALION CENTER DAVISVILLE, RI

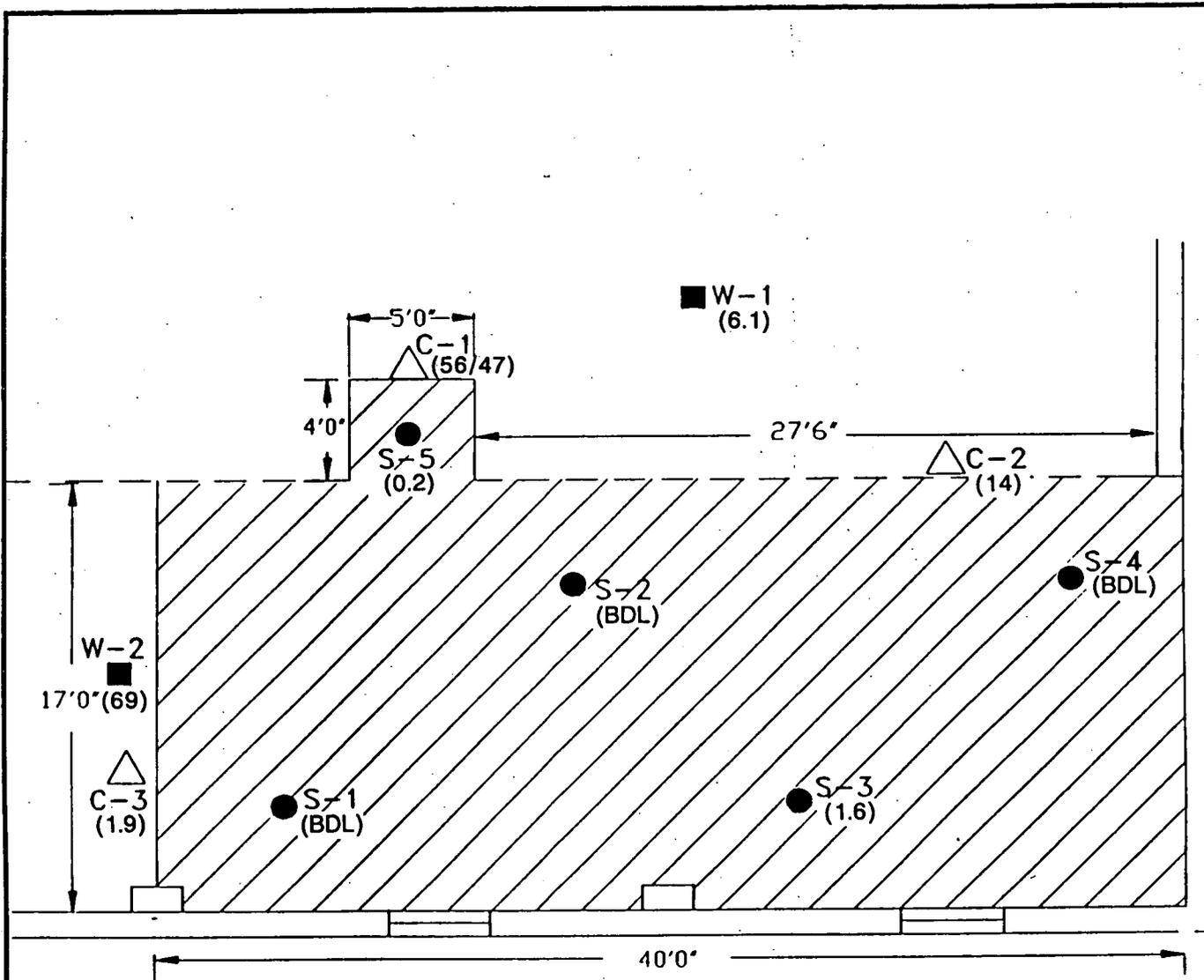
Figure 4. Site 12: Building 316 Sample Locations (TRC) and PCB Concentrations



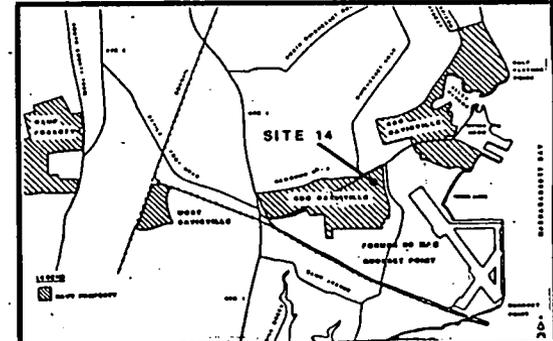
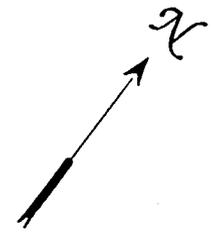
LEGEND

4.7 SAMPLE CONCENTRATION ug/gm (wetwt)
 0.2U ANALYZED FOR BUT NOT DETECTED
 0.5/0.2 SAMPLE/SAMPLE DUPLICATE RESULT
 ▲ CHIP SAMPLE LOCATION

TRC		5 Waterside Crossing Windsor, CT 06095 (203) 289-8651
TRC Environmental Corporation		DAVISVILLE RHODE ISLAND
NAVAL CONSTRUCTION BATTALION CENTER		
<p>Figure 5. SITE 12: Building 316 Chip Sampling Locations (USEPA) & PCB Concentrations</p>		
Date: 12/92	Drawing No. 13249-N41-10	



BDL = Below Detection Limit



LEGEND

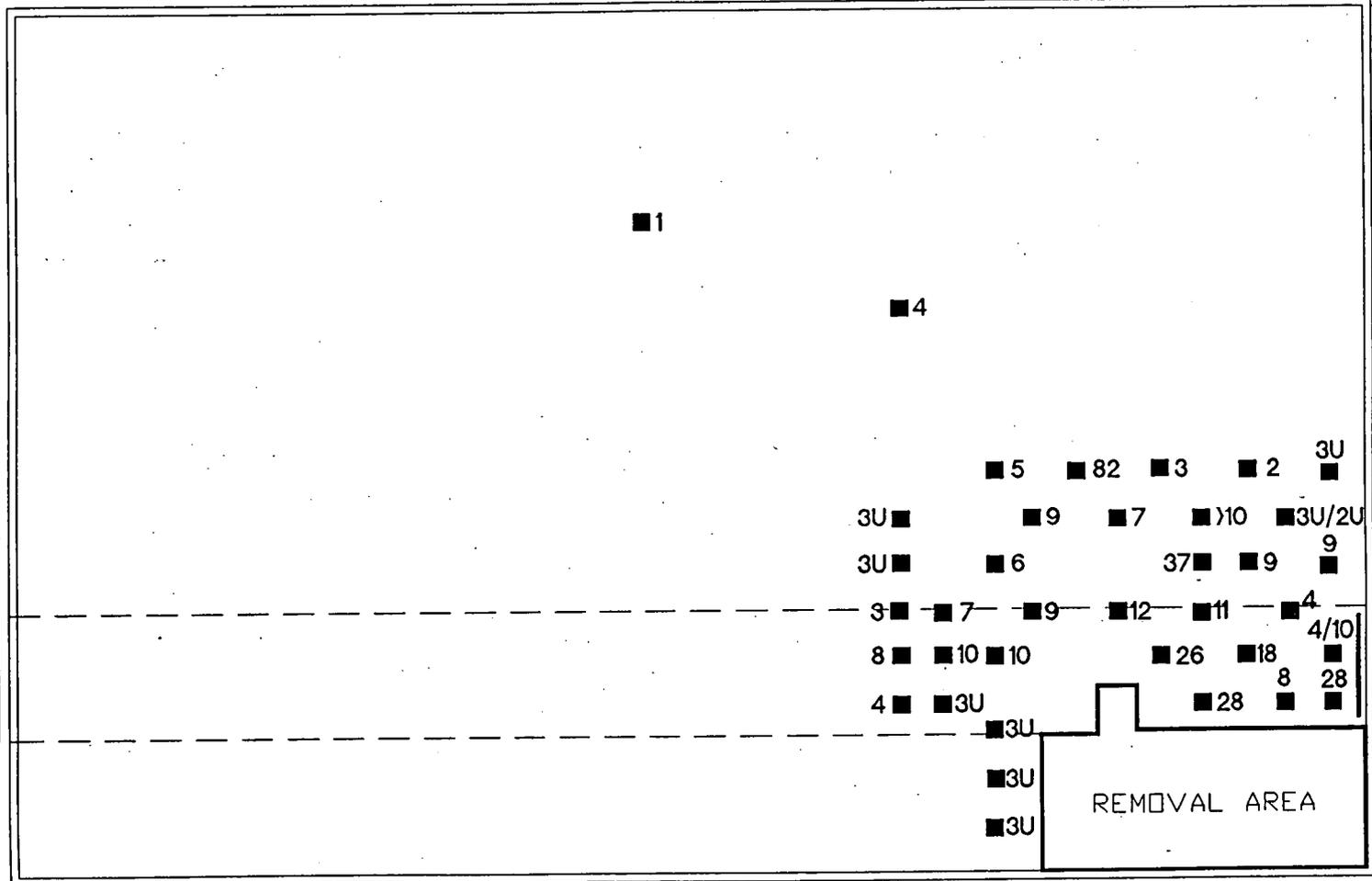
- SOIL SAMPLE (ppm)
- △ CHIP SAMPLE (ppm)
- WIPE SAMPLE (ug/100 cm²)

TRC
TRC Environmental Corporation

0 5 FT
SCALE

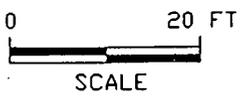
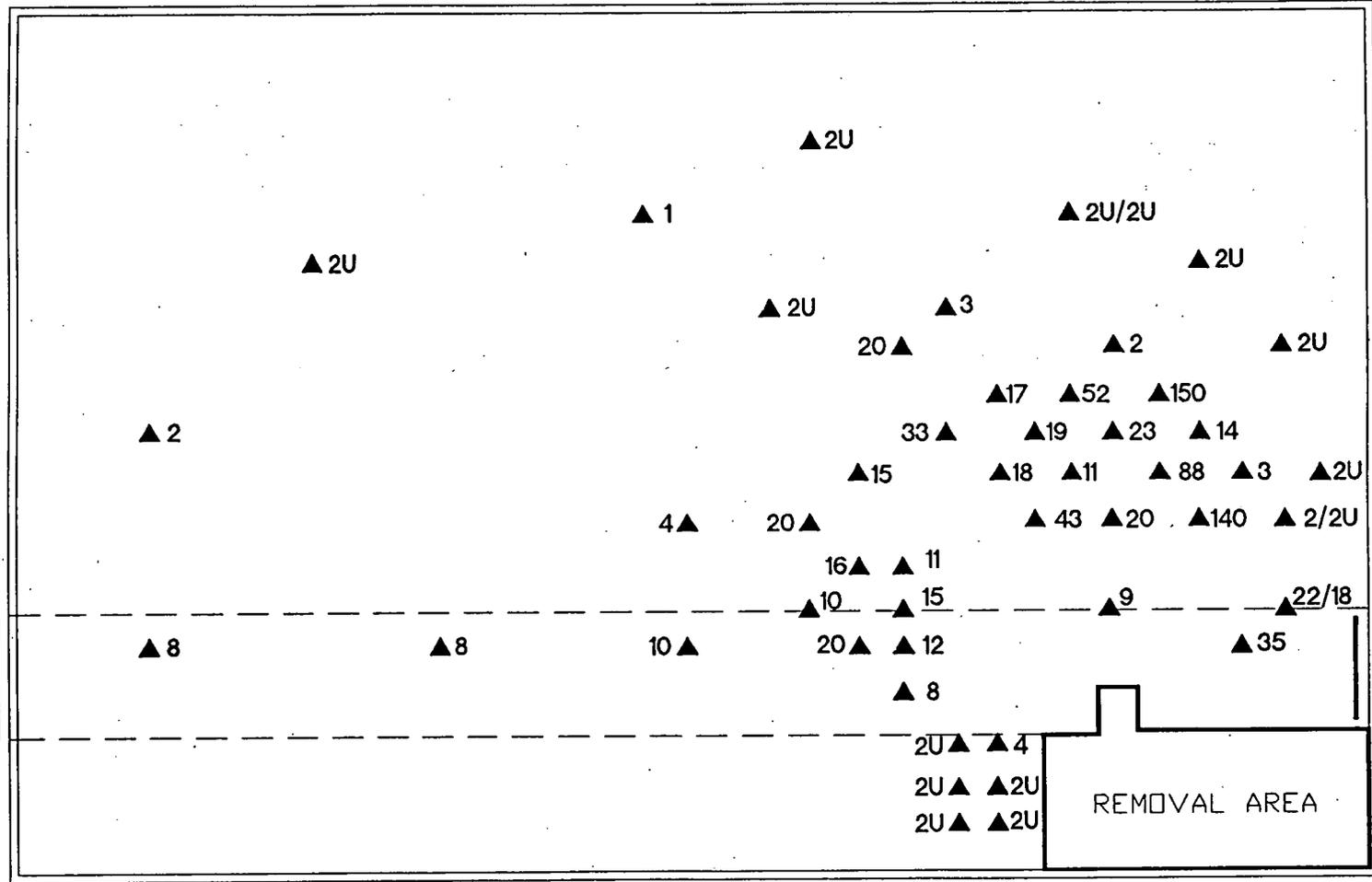
NAVAL CONSTRUCTION BATTALION CENTER DAVISVILLE, RI

Figure 6. Site 14: Building 38 Sample Locations (TRC) and PCB Concentrations



LEGEND	
10	SAMPLE CONCENTRATION (ug/100 cm ²)
3U	ANALYZED FOR BUT NOT DETECTED
4/10	SAMPLE/SAMPLE DUPLICATE RESULT
■	WIPE SAMPLE LOCATION

TRC TRC Environmental Corporation 5 Waterside Crossing Windsor, CT 06095 (203) 289-8651	DAVISVILLE RHODE ISLAND
	Figure 7. SITE 14: Building 38 Wipe Sample Locations (USEPA) & PCB Concentrations
Date: 12/92	Drawing No. 13249-N41-10



LEGEND	
11	SAMPLE CONCENTRATION ug/gm (wetwt)
2U	ANALYZED FOR BUT NOT DETECTED
22/18	SAMPLE/SAMPLE DUPLICATE RESULT
▲	CHIP SAMPLE LOCATION

TRC TRC Environmental Corporation	5 Waterside Crossing Windsor, CT 06095 (203) 289-8651
	NAVAL CONSTRUCTION - BATTALION CENTER
DAVISVILLE RHODE ISLAND	
Figure 8. SITE 14: Building 38 Asphalt Chip Sampling Locations (USEPA) & PCB Concentrations	
Date: 12/92	Drawing No. 13249-N41-10

Mailing List Additions

If you or someone you know would like to be placed on the NCBC-Davisville mailing list, please fill out and mail this form to:

Marilyn Powers, Code 1823
Remedial Project Manager
Department of the Navy
Naval Facilities Engineering Command
Northern Division
10 Industrial Highway, Mail Stop #82
Lester, PA 19113-2090

Name: _____

Address: _____

Affiliation (if any): _____

Phone: _____