

**FINAL PROPOSED PLAN**  
**for**  
**SITE 26 PCE PLUME (OU 7)**

**NAVAL WEAPONS STATION EARLE**  
**Colts Neck, New Jersey**



**Engineering Field Activity Northeast**  
**Naval Facilities Engineering Command**

Contract No. N62467-94-D-0888

Contract Task Order 0843

September 2004



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September 21, 2004

Engineering Field Activity Northeast  
Naval Facilities Engineering Command  
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Attn: Ms. M. DiGeambeardino, Code EV21/MD

Reference: Contract No. N62467-94-D-0888  
Contract Task Order (CTO) No. 843

Subject: Submission of Final Proposed Plan for Site 26 PCE Plume (OU 7)  
NWS Earle - Colts Neck, New Jersey

Dear Ms. DiGeambeardino:

Tetra Tech NUS, Incorporated (TtNUS) is pleased to provide copies of the subject document. Three copies have been sent to Jessica Mollin at EPA, Region 2, three copies have been sent to Bob Marcolina at NJDEP, one copy has been sent to Alicia Hartmann at NWS Earle and three copies are enclosed for your use. One copy has been sent to Mary Jane Kehoe at the Monmouth County Library, Eastern Branch for the Administrative Record file.

Thank you for this opportunity to submit the documents. Do not hesitate to contact me if you have any questions or require revisions.

Sincerely,

Russell E. Turner  
Project Manager

RET/vh

Enclosures

c: Alicia Hartmann (NWS Earle)  
Jessica Mollin (EPA, Region II)  
Bob Marcolina (NJDEP)  
Mary Jane Kehoe (Monmouth County Library, Eastern Branch)  
Garth Glenn (TtNUS) (without enclosures)

File

Department of the Navy

## Proposed Remedial Action Plan for OU 7

Naval Weapons Station (NWS) Earle  
Colts Neck, New Jersey



SEPTEMBER 2004

### NAVY ANNOUNCES PROPOSED REMEDIAL ACTION PLAN

The Department of the Navy has completed a **feasibility study** (FS) for Operable Unit 7 (OU 7) to address contamination associated with Site 26 (groundwater solvent plume southwest of Building GB-1) at Naval Weapons Station (NWS) Earle in Colts Neck, New Jersey. The OU 7 site is located within the Mainside area of NWS Earle (Figures 1 and 2). OU 7 consists of the perchloroethylene (PCE) portion of the groundwater solvent plume southwest of Building GB-1.

The FS was completed as part of the Navy's Installation Restoration Program (IRP) and the Superfund Remedial Program required under the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

IRP sites at NWS Earle have been grouped into operable units comprising sites with similar site characteristics. The Navy is then able to save time and money by processing similar sites simultaneously. The purpose of the FS for OU 7 was to evaluate the clean up alternatives available for the Site 26 PCE plume component.

There are two operable units (OU's) defined within the solvent plume in Site 26 groundwater southwest of Building GB-1 (Figure 3). Operable Unit 3 (OU 3) consists of the portion of the solvent plume southwest of Building GB-1 composed

primarily of trichloroethene (TCE) and 1,2-dichloroethene (1,2-DCE). A feasibility study and a **Record of Decision (ROD)** have been completed for OU 3. Active remediation to remove the solvent components of the plume has been underway through air sparging/soil vapor extraction (AS/SVE) by the Navy since January 2001 in accordance with the ROD for OU 3.

The estimated OU 7 PCE component of the solvent plume at Site 26 overlaps and partially coincides with the estimated OU 3 solvent plume currently under active remediation. Figure 3 provides approximate boundaries for the TCE plume, PCE plume, the existing remediation system coverage area, and other site landmarks.

Before the OU 7 FS was completed, the Navy performed a **remedial investigation (RI)** and a human health and ecological risk assessment.

This Proposed Plan summarizes the findings of the OU 7 FS report, identifies the clean up alternative preferred by the Navy and EPA, and explains the reasons for this preference. In addition, this Proposed Plan explains how the public can participate in the decision-making process and provides addresses for the appropriate Navy contacts.

## PUBLIC PARTICIPATION IS ENCOURAGED

This Proposed Plan is issued by the Navy, the lead agency for the IRP and Superfund activities at the NWS Earle facility, and by EPA, the support agency for Superfund activities. The purpose of the Proposed Plan is to outline the alternatives detailed in the FS and state the rationale for the preferred alternative for remedial action at OU 7.

The public is encouraged to comment on this Proposed Plan. Procedures for public comment are discussed at the end of this Plan. After the public comment period has ended and after any comments have been reviewed and considered, the Navy and EPA will select the final remedy for the Site 26 PCE plume.

### PUBLIC MEETING

A public meeting to discuss this Proposed Plan will be held on Tuesday, October 5, 2004 at 7:00 PM at the Colts Neck Library Meeting Room, 1 Winthrop Drive (near Town Hall), Colts Neck, New Jersey. The meeting date will also be published in the *Asbury Park Press*.

NOTE: A glossary of relevant technical and regulatory terms is provided at the end of this Proposed Plan. Terms included in the Glossary are initially indicated in **boldface** within the Proposed Plan.

## NAVY'S RESPONSIBILITY

The Navy is issuing this Proposed Plan as part of its public participation responsibilities under the Superfund law and, in particular, Sections 113(k), 117(a), and 121(f) of the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)** and Section

300.430(f)(2) of Title 40 of the Code of Federal Regulations known as the **National Oil and Hazardous Substances Pollution Contingency Plan (NCP)**.

This document presents the preferred alternative for clean up of OU 7, based on the FS. The Proposed Plan also summarizes information that can be found in greater detail in the RI report for **Installation Restoration Program (IRP)** sites at NWS Earle and in other site documents contained in the **Administrative Record** file for this site. The Administrative Record file is available at the Monmouth County Library, Eastern Branch, Route 35, Shrewsbury, New Jersey. The Navy invites the public to review the available materials and to comment on this Proposed Plan during the public comment period.

The Navy, with EPA, may modify the selected remedy presented in this Proposed Plan for OU 7 based on new information or after consideration of public comments. **The public is encouraged to review and comment on the recommendations identified here.**

## SITE BACKGROUND

NWS Earle is located in Monmouth County, New Jersey, approximately 47 miles south of New York City. The station consists of two areas, the 10,248-acre Main Base (Mainside area), located inland, and the 706-acre Waterfront area. The two areas are connected by a Navy-controlled right-of-way. Figure 2 shows the Mainside Area and highlights where the OU 7 site is located.

Commissioned in 1943, the facility's primary mission is to supply ammunition to the naval fleet. An estimated 1,500 people either work or live at the NWS Earle station.

The Mainside area is located in Colts Neck Township, which has a population of approximately 12,300 people. The surrounding

area includes agricultural land, vacant land, and low-density housing. The Mainside area consists of a large, relatively undeveloped portion associated with ordnance operations, production, and storage; this portion is encumbered by **explosive safety quantity distance (ESQD) arcs**. The Naval Weapons Station Earle Master Plan contains maps showing the ESQD arcs around weapons handling, maintenance and storage facilities. Land use within the ESQD is typically limited to transient activities only (e.g., transit or entry for ordnance inspection and maintenance activities). The result of the ESQD policy implementation is that most of the approximately 10,000 acres at the Mainside area (with the exception of the more densely developed Administration area near the main gate) is open land in its natural wooded state. Other land use in the Mainside area consists of residences, offices, workshops, warehouses, recreational space, open space, and undeveloped land.

The Waterfront area, which is located approximately 10 miles north of the Mainside area, is located in Middletown Township. The Mainside and Waterfront areas are connected by a 10-mile railroad and road right-of-way. Munitions and other supplies destined for U.S. Navy ships, pass from the Mainside area along the railroad right-of-way to the Waterfront area and to waiting ships at piers located in the Lower Hudson River Bay near Sandy Hook, New Jersey.

#### **Site 26 – PCE Plume**

Site 26 is situated at the intersection of Macassar and Midway Roads (Figure 3). Two railway lines adjacent to the site run toward the northeast. The ground surface at the site is relatively flat, approximately 150 feet above MSL. Building GB-1 reportedly was used for the reconditioning of munitions casings/shells. Solvents were used in the reconditioning process. Spent solvents and wash waters were discarded into an unknown receptacle, possibly a collection tray at the

formerly used paint spray booth, which drained to the process leaching system. The GB-1 process leaching system appears to have been used for the disposal of trichloroethene (TCE), 1,2-dichloroethene (1,2-DCE), or related compounds.

PCE use at the former explosives washout facility is undocumented. However, PCE has been found to be associated with the OU 3 TCE plume currently under active remediation at Site 26.

#### **REGULATORY STATUS**

In 1990, NWS Earle was placed on the **National Priorities List (NPL)**, a list of sites where uncontrolled hazardous substance releases may potentially present serious threats to human health and the environment.

#### **STUDIES AND RESULTS**

##### **Historical Perspective of Site 26 Investigation**

The **Initial Assessment Study (IAS)** in 1983, consisting of a document search and employee interviews, concluded minimal probable impact at Site 26. The IAS did not recommend actual sampling and analysis of site-related media based on the assumption that any material lost from the process of concern (the explosive “D” washout percolation pit located west of the northern end of Building GB-1) would have long ago washed away with surface water. At the time of the IAS, the existence of groundwater contamination emanating from near the southern end of Building GB-1 was not identified.

Despite the recommendation of the 1983 IAS, a **Site Inspection Study (SI)** was performed in 1986 and a Phase I RI was performed in 1993. These were preliminary investigations that included records review as well as actual site-related groundwater and soil sampling and laboratory analysis to determine the number of sources, compile histories of waste-handling and disposal practices at the IRP site, and acquire

data on the types of contaminants present and potential human health and/or environmental receptors.

Site 26 was subsequently addressed during Phase II RI activities in 1995 to further define the nature and extent of contamination at the site. Phase II activities included a soil gas survey, installation and sampling of groundwater monitoring wells, and surface and subsurface soil sampling. The Phase II RI was initiated in 1995 and completed in July 1998, when the final RI Addendum report was released.

The Site 26 RI (RI Addendum Report, January 1998) delineated a groundwater plume of chlorinated hydrocarbons that emanated from the former process leach tank at Building GB-1 and extended approximately 350 feet southwest from this source. The major organic constituents were TCE and 1,2-DCE, which is a breakdown product of TCE. The TCE concentrations in the vicinity of the leach tank were as high as 9,000 ug/L in the groundwater (at monitoring well 26MW01) and 74.0 ug/kg in the soil. Groundwater samples obtained from permanent and temporary (direct push) monitoring wells exhibited a wide range of chlorinated compounds at concentrations above regulatory guidelines. In addition to the TCE and 1,2-DCE, organic compounds detected at concentrations exceeding regulatory levels included 1,1-DCE, methylene chloride, and PCE. Figure 4 (Figure 10-5 of the RI Addendum Report) illustrates the location and concentration of compounds in groundwater exceeding regulatory screening levels in 1997. Although PCE had not been detected at the leach tank, the presence of PCE within the groundwater in the general vicinity of Building GB-1 was known at the conclusion of the RI. No special note of the PCE was taken at that time, as it simply was interpreted to be one of the VOC components of the site's groundwater plume.

### Site 26, OU 7 Identification

Recent (post Site 26 (OU 3) FS, Proposed Plan and Record of Decision (ROD)) sampling and laboratory analysis results are summarized below.

The ROD for OU-3 was signed in September 1998. The selected remedial alternative included air sparging with soil vapor extraction (AS/SVE), source removal, institutional controls, and long-term monitoring. Foster Wheeler Environmental Corporation (FWENC) was selected by the Navy to perform pre-design studies and the design and construction of the selected remedy.

As part of their pre-design studies, FWENC was assigned to investigate the septic tank and leaching system of former Building GB-2 which was located to the southwest of Building GB-1 (Figure 3) and which had been demolished in 1998. The former septic system for GB-2 was similar to the process leaching system for GB-1. Unverified suspicions indicated that the GB-2 septic system may have been used for disposal in a manner similar to the GB-1 system. FWENC obtained the following environmental samples between August 1999 and March 2000:

- Five soil samples from six borings (SB01 - SB06) in close proximity to the septic tank at the former Building GB-2 and one soil sample from a soil boring (SB07) located beneath a nearby abandoned painting equipment area. The soil boring locations are illustrated in Figure 1-5. Samples were submitted for **Target Compound List (TCL) Volatile Organic Compounds (VOCs)**: analysis. All samples were non-detect for all VOCs except for 2-butanone, a common laboratory solvent that is not a compound of concern at this site (2-butanone was also found in the trip blank).

- One aqueous liquid sample from the septic tank at the former Building GB-2. There was no appreciable amount of sludge in the tank. The sample was submitted for TCL VOC analysis. No VOCs were detected.
- One surface water sample (26SW01) upstream and one surface water sample (26SW02) and sediment sample (26SD02) downstream from Site 26 in the Mingamahone Brook. Two surface water (26SW03 and 26SW04) and one sediment sample (26SD01) were collected in the Mingamahone Brook southwest of Site 26 and in the projected path of groundwater migrating from the Site 26 area. Samples were submitted for TCL VOC analysis. No VOCs were detected in any surface water or sediment samples.

Groundwater samples were collected from 4 monitoring wells and 72 direct-push (hydropunch) temporary well screening locations. The coverage area for the screening wells was far greater than that of the permanent wells, and eventually extended to the western banks of Mingamahone Brook. All samples were analyzed for VOCs and selected monitoring well samples were analyzed for metals for AS/SVE system design purposes. The analytical results from the monitoring wells were very similar to those from the RI, with the highest concentration of TCE detected at monitoring well 26MW01. The groundwater samples from the screening wells contained TCE at concentrations ranging up to 2,000 ug/L, 1,2-DCE at concentrations ranging up to 1,700 ug/L, and PCE at concentrations ranging up to 77 ug/L. The analytical results from this sampling effort are illustrated in Figure 3.

The analytical results from the screening wells indicated that the VOC plume extended farther downgradient from the source (to the vicinity of Mingamahone Brook) than was previously thought, and that PCE was a fairly consistent component of the plume, in addition to the primary components of TCE and 1,2-DCE. The screening results also indicated that the PCE component of the plume extended further to the south than the multi-component segment of the plume (also beyond the existing monitoring well network), resulting in the delineation of a plume segment containing only the PCE component. Similar to the mixed-component portion of the plume, the VOC plume segment containing only PCE extended downgradient to the vicinity of Mingamahone Brook. The historical VOC concentrations through time in the monitoring wells (consistent VOC concentrations) and the lateral distribution of VOCs as delineated in the screening wells (VOC concentrations are highest upgradient near the source and decrease in the downgradient direction to eventual non-detections) are consistent with the existence of a steady-state plume emanating from a residual source(s). It is impossible to prove this steady-state plume hypothesis because the screening well data represent a single "snapshot" in time that does not permit an evaluation of the temporal variability (or consistency) of the VOC plume.

OU 7 was established as a result of the FWENC investigations. OU 7 is defined as the PCE component of the VOC plume.

During the construction of the AS/SVE system, the Navy installed 7 additional monitoring wells (26MW07 through 26MW-13, see Figure 3) to aid in the evaluation of the progress of the groundwater remediation. As a result of the expanded VOC plume that was delineated through the temporary well program, the Navy installed an additional 5 monitoring wells (26MW14 through 26 MW18, see Figure 3) downgradient (or beyond) the delineated plume.

Because it was not known whether the plume was at a steady-state condition or was continuing to migrate, these wells were intentionally installed downgradient of the plume to serve as "sentry" wells that would indicate if the plume continued to migrate beyond its extent as delineated by the screening wells.

## **SUMMARY OF SITE RISKS**

As part of the Phase II RI, a human health risk assessment and an ecological risk assessment were performed for Site 26.

### **Human Health Risks**

The human health risk assessment estimated the potential risks to human health posed by exposure to contaminated groundwater, surface water, and sediment at the sites. To assess these risks, the exposure scenarios listed below were assumed:

- Ingestion of groundwater as a drinking water source.
- Inhalation of contaminants in groundwater (i.e., volatile compounds emitted during showering).
- Dermal exposure to contaminants in groundwater (i.e., showering, hand washing, bathing).
- Dermal contact from contaminated soils.
- Inhalation of contaminants in soil (i.e., fugitive dusts).
- Incidental ingestion of surface water and sediment.
- Dermal contact with contaminated surface water and sediment.

These scenarios were applied to various site use categories, including future industrial, residential, and recreational receptors.

Potential human health risks were categorized as **carcinogenic** or **noncarcinogenic**. A hypothetical carcinogenic risk increase from exposure should ideally fall below a risk range of  $1 \times 10^{-6}$  (an increase in one case of cancer for one million people exposed) to  $1 \times 10^{-4}$  (an increase of one case of cancer per 10,000 people exposed).

Noncarcinogenic risks were estimated using **Hazard Indices (HI)**, where an HI exceeding one is considered an unacceptable health risk.

In addition, results were compared to applicable federal and/or state standards such as federal **Maximum Contaminant Levels (MCLs)** for drinking water, NJDEP **Groundwater Quality Standards (GWQS)**, or other published lists of reference values.

A baseline human health risk assessment was conducted for the OU 3 site. Results of the assessment concluded that risks to human health were considered sufficient to require remedial action as documented in the FS, Proposed Plan and ROD for OU 3.

The ROD for OU 3 was signed in September 1998. The selected remedial alternative included AS/SVE, source removal, institutional controls, and long-term monitoring.

### **REMEDIAL ACTION OBJECTIVES (RAOs)**

The overall objective for the remedy at Site 26 is to protect human health and the environment. Based on the baseline human health risk assessment, the ecological risk assessment, and the RI results, RAOs were developed to address environmental media status at the Site 26 PCE plume (OU 7).

### **Protection of Human Health RAO**

Prevent potential human exposure to organic contaminants in groundwater.

### **Protection of the Environment RAOs**

Mitigate migration of organic contaminants in groundwater.

Restoration of groundwater aquifer quality.

### **ALTERNATIVES DEVELOPMENT AND SCREENING**

The purpose of the alternatives development and screening process is to assemble an appropriate range of possible remedial options to achieve the RAOs identified for Site 26 OU 7.

In this process, technically feasible technologies are combined to form remedial alternatives that provide varying levels of risk reduction that comply with federal (EPA) and state (NJDEP) guidelines for site remediation.

The following eight criteria, as established by the NCP, were used for the detailed analysis of alternatives:

- Overall protection of human health and the environment.
- Compliance with ARARs.
- Long-term effectiveness and permanence.
- Reduction of toxicity, mobility, and volume through treatment.
- Short-term effectiveness.
- Implementability.
- Cost.
- State concurrence.

The other evaluation criteria, community acceptance, will be addressed in the ROD that

will document the selection of remedial action for OU 7 following the receipt of public comments.

Based on the nature of contamination and site conditions at the Site 26 PCE groundwater plume, the standards that will be used to gauge the achievement of remedial action objectives will be the New Jersey GWQS.

Engineering technologies capable of eliminating the unacceptable risks associated with exposure to site-related soils or groundwater were identified, and those alternatives determined to best meet RAOs after screening were evaluated in detail. Table 1 presents the considered alternatives and the results of screening.

### **Detailed Summary of Alternatives**

Summaries of the remedial alternatives that passed the screening step for Site 26 OU 7 are presented in the following sections.

Each alternative includes the remediation underway within the OU 3 shared plume. Active remediation by the AS/SVE system employed at OU 3 appears to be reducing the concentration of solvents significantly (including OU 7 components). Because of uncertainty in the progress of the ongoing remediation of the OU 3 plume, the amount of time required to achieve clean up goals in the OU 7 plume could not be determined. However, the Navy has engaged the consulting engineering services firm Batelle to review OU 3 AS/SVE status and make recommendations. Options under consideration by the consulting engineers include continuing operations of the AS/SVE system as is, extension of the AS/SVE system, as well as retiring the AS/SVE system due to diminishing returns.

### **Alternative 1: No Action**

The no-action alternative was developed as a

baseline case, as required by the NCP. No activities (beyond the groundwater remediation underway for OU 3) are to be conducted under this alternative.

The no-action alternative would not provide additional protection of human health or the environment. Contaminants in site groundwater (including PCE-related compounds) would continue to be remediated under the groundwater remediation underway for OU 3 and the potential risk to humans would continue to diminish.

Alternative 1 does not include implementation of additional institutional controls to restrict use of contaminated groundwater in the event of future change in land or groundwater use.

#### Cost

There are no costs to implement the no-action alternative.

#### **Alternative 2: Limited Action (Long-Term Monitoring)**

Alternative 2 relies on long-term groundwater monitoring to achieve the RAOs. Over time, groundwater contamination is expected to decrease by the active remediation program currently in place for OU 3, and later by natural effects in the environment. Long-term annual monitoring and five-year reviews would assess contaminant status and potential threats to human health and the environment. Periodic monitoring and five-year reviews will be required until achievement of clean up goals is confirmed.

Alternative 2 would not prevent direct exposure to site groundwater or institute restrictions on use of site groundwater.

Alternative 2 would not reduce the risks posed by future use of site groundwater. Site groundwater would continue to be remediated

under the groundwater remediation underway for OU 3 and the potential risk to humans would continue to diminish.

The long-term annual monitoring program would allow the responsible agency to monitor the quality of groundwater leaving the site, assess potential impacts to downgradient receptors, and determine whether additional remedial actions are necessary. However, these efforts would be duplicative of activities currently underway for the coincident Site 26 OU 3 remediation program.

#### Cost

There is no capital cost to implement Alternative 2 for Site 26 OU 7. Marginal costs for additional (or exchange of) monitoring wells currently used to monitor the status of the OU 3 groundwater plume are minor and can be absorbed by the approved remediation project underway at Site 26 OU 3.

#### **Alternative 3: Limited Action (Long-Term Monitoring with NJDEP Classification Exception Area (CEA))**

Alternative 3 relies on long-term groundwater monitoring and institutional controls and establishment of a CEA with the NJDEP to achieve the RAOs. A CEA would prohibit the use of untreated groundwater as drinking water. Over time, groundwater contamination is expected to be reduced by the active groundwater remediation program underway for OU 3 and gradually decrease by natural chemical and physical mechanisms after the AS/SVE system is retired. Active remediation by AS/SVE appears to be reducing the concentration of solvents significantly. Maintenance of the proposed CEA, periodic monitoring and five-year reviews will be required until achievement of clean up goals is confirmed. Long-term annual monitoring and 5-year reviews would assess contaminant status and

potential threats to human health and the environment.

A set of institutional controls involving active monitoring and enforcement by the Navy will be documented in a Land Use Control (LUC) work plan or remedial design in agreement with the set of LUC principles and procedures agreed to between EPA and the Navy. Because site groundwater does not meet New Jersey groundwater quality standards, a CEA pursuant to N.J.A.C 7:9-6 would be established to provide the state official notice that the constituent standards will not be met for a specified duration and to ensure that use of groundwater in the affected area is suspended until standards are achieved.

#### Cost

There is no capital cost to implement Alternative 3 for Site 26 OU 7. Marginal costs for additional (or exchange of) monitoring wells currently used to monitor status of the OU 3 groundwater plume are minor and can be applied to the approved remediation project underway for Site 26 OU 3. Costs for the proposed CEA implementation are already budgeted under the remediation underway for Site 26 OU 3.

#### **EVALUATION OF ALTERNATIVES**

A groundwater remediation program consisting of source removal, AS/SVE, institutional controls, and long-term monitoring is underway as a result of the ROD for OU 3. The active remediation program is currently in effect at the adjacent OU 3 and OU 7 plume source areas, effectively remediating both plumes and ensuring protection of human health and the environment.

None of the three retained OU 7 alternatives contains any proposed action that would protect human health or the environment more actively than the program already underway. Therefore it

is concluded that each of the three retained remedial alternatives retained for OU 7 would be equally protective of human health and the environment. However, Alternative 3 includes implementation of a CEA and long-term monitoring, which can provide added assurance to address potential long-term future exposure scenarios.

#### **PREFERRED ALTERNATIVE SUMMARY**

The Navy, with EPA and NJDEP, has selected Alternative 3 - Limited Action, Institutional Controls and Long-Term Monitoring- as its preferred alternative. The range of technologies in Alternative 3 is appropriate for the protection of human health and the environment at this former munitions reconditioning and maintenance facility.

Alternative 3 relies on long-term monitoring and institutional controls to limit exposures to site risks.

Long-term periodic groundwater monitoring would be conducted to assess contaminant status and potential threats to human health and the environment. Since wastes would be left in place, site conditions and risks would be reviewed every 5 years.

Under Alternative 3, institutional controls would be enacted to preclude use of untreated groundwater for drinking water.

Because site groundwater does not meet New Jersey groundwater quality standards, a CEA pursuant to N.J.A.C 7:9-6 would be established to provide the state official notice that the constituent standards will not be met for a specified duration and to ensure that use of groundwater in the affected area is prohibited.

## **COSTS OF THE PREFERRED ALTERNATIVE**

There is no additional cost anticipated to implement Alternative 3 for OU 7. Estimated costs to establish the CEA, install monitoring wells, and perform long-term monitoring are included in the funded remediation project for OU 3.

### **State and Community Acceptance**

The state of New Jersey supports the preferred alternative for Sites 26. Community acceptance of the preferred alternatives will be evaluated at the conclusion of the public comment period and will be described in the Record of Decision. Public comments on this Proposed Plan will help address state acceptance and community acceptance.

## **THE COMMUNITY ROLE IN THE SELECTION PROCESS**

**The Navy solicits written comments from the community on the Proposed Plan for OU 7.** The Navy has set a public comment period from **October 1, 2004** through **October 30, 2004** to encourage public participation in the decision process for OU 7.

The Navy will hold a public meeting during the comment period. At the public meeting, the Navy, with input from EPA, will present the Proposed Plan; answer questions, and solicit both oral and written questions. **The public meeting is scheduled for 7:00 p.m. on Tuesday, October 5, 2004 and will be held at the Colts Neck Library Meeting Room, 1 Winthrop Drive (near Town Hall), Colts Neck, New Jersey.**

Comments received during the public comment period will be summarized and responses will be provided in the Responsiveness Summary section

of the ROD. The ROD is the document that will present the Navy's decision for OU 7.

To send written comments, or to obtain further information, contact:

Commanding Officer  
Naval Weapons Station Earle  
Environmental Department, Alicia Hartmann  
201 Highway 34 South  
Colts Neck, New Jersey 07722-5014

For further information, contact Michele DiGeambeardino, Remedial Project Manager  
Phone: (610) 595-0567 ext. 117

**Please note that all comments must be submitted and postmarked on or before October 30, 2004.**

## TERMS USED IN THE PROPOSED PLAN

### **Applicable or Relevant and Appropriate**

**Requirements (ARARs):** The federal and state requirements that a selected remedy must attain. These requirements may vary among sites and remedial activities.

**Administrative Record:** An official compilation of site-related documents, data, reports, and other information that are considered important to the status of and decisions made relative to a Superfund site. The public has access to this material.

**Chemical of Potential Concern (COPC):** A contaminant found in site-specific media, deemed by the human health assessment estimation calculation rules to be a compound potentially contributing to human health risk. Chemicals are selected to represent site contamination.

**Carcinogenic:** A type of risk resulting from exposure to chemicals that may cause cancer in one or more organs.

### **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 trust fund, known as Superfund, to investigate and clean up abandoned or uncontrolled hazardous substance facilities.

**Explosive safety quantity distance (ESQD):** A restrictive design and land use criterion in the Facility Master Plan for military explosives safe handling and operational controls. An ESQD arc is drawn around each facility storing or containing explosives to ensure personnel and facilities maintain sufficient separation from potential explosive hazards. Land use within the ESQD arc

is typically limited to transient activities only (e.g., transit or entry for ordnance inspection and maintenance activities).

**Feasibility Study (FS):** Report identifying and evaluating alternatives for addressing the contamination present at a site or group of sites.

### **Groundwater Quality Standards (GWQS):**

New Jersey promulgated groundwater quality requirements, N.J.A.C. 7:9-6.

**Hazard Index (HI):** The sum of chemical-specific Hazard Quotients. A Hazard Index of greater than 1 is associated with an increased level of concern about adverse non-cancer health effects.

**Hazard Quotient (HQ):** A comparison of the level of exposure to a substance in contact with the body per unit time to a chemical-specific **Reference Dose** to evaluate potential non-cancer health effects. Exceedence of a Hazard Quotient of 1 is associated with an increased level of concern about adverse non-cancer health effects.

**Initial Assessment Study (IAS):** Preliminary investigation usually consisting of review of available data and information of a site, interviews, and a non-sampling site visit to observe areas of potential waste disposal and migration pathways.

**Installation Restoration Program (IRP):** Navy program to restore old waste sites for reuse and to protect human health and the environment.

**Maximum Contaminant Level (MCL):** EPA-published (promulgated as law) maximum concentration level for compounds found in water in a public water supply system.

**Noncarcinogenic:** A type of risk resulting from the exposure to chemicals that may cause systemic human health effects.

**National Contingency Plan (NCP):** The National Oil and Hazardous Substances Pollution Contingency Plan is the basis for the nationwide environmental restoration program known as Superfund and is administered by EPA under the direction of the U.S. Congress.

**National Priorities List (NPL):** EPA's list of the nation's top priority hazardous substance disposal facilities that may be eligible to receive federal money for response under CERCLA.

**Polycyclic aromatic hydrocarbons (PAHs):** A class of semi volatile hydrocarbon compounds characterized by the presence of carbon ring structures in their construction.

**Record of Decision (ROD):** A legal document that describes the remedy selected for a Superfund facility, why the remedial actions were chosen and others not, how much they are expected to cost, and how the public responded.

**Reference Dose (RD):** An estimate with an uncertainty spanning an order of magnitude or greater of a daily exposure level for the human population, including sensitive subpopulations, that is likely to be without an appreciable risk of deleterious effects during a portion of a lifetime.

**Remedial Action Objective (RAO):** An objective selected in the FS, against which all potential remedial actions are judged.

**Remedial Investigation (RI):** Study that determines the nature and extent of contamination at a site.

**Site Inspection (SI):** Sampling investigation with the goal of identifying potential sources of contamination, types of contaminants, and

potential migration of contaminants. The SI is conducted prior to the RI.

**Semivolatile Organic Compounds (SVOCs):** Organic chemicals [e.g., phthalates or polycyclic aromatic hydrocarbons (PAHs)] that do not readily evaporate under atmospheric conditions.

**Target Compound List/Target Analyte List (TCL/TAL):** List of routine organic compounds (TCL) or metals (TAL) included in the EPA Contract Laboratory Program.

**Volatile Organic Compounds (VOCs):** Organic liquids [e.g., vinyl chloride or trichloroethylene (TCE)] that readily evaporate under atmospheric conditions.

**FOR FURTHER INFORMATION**

**MAILING LIST**

If you did not receive this Proposed Plan in the mail and wish to be placed on the mailing list for future information pertaining to this site, please fill out, detach, and mail this form to:

Commanding Officer  
Naval Weapons Station Earle  
Environmental Department, Alicia Hartmann  
201 Highway 34 South  
Colts Neck, New Jersey 07722-5014

Name: \_\_\_\_\_

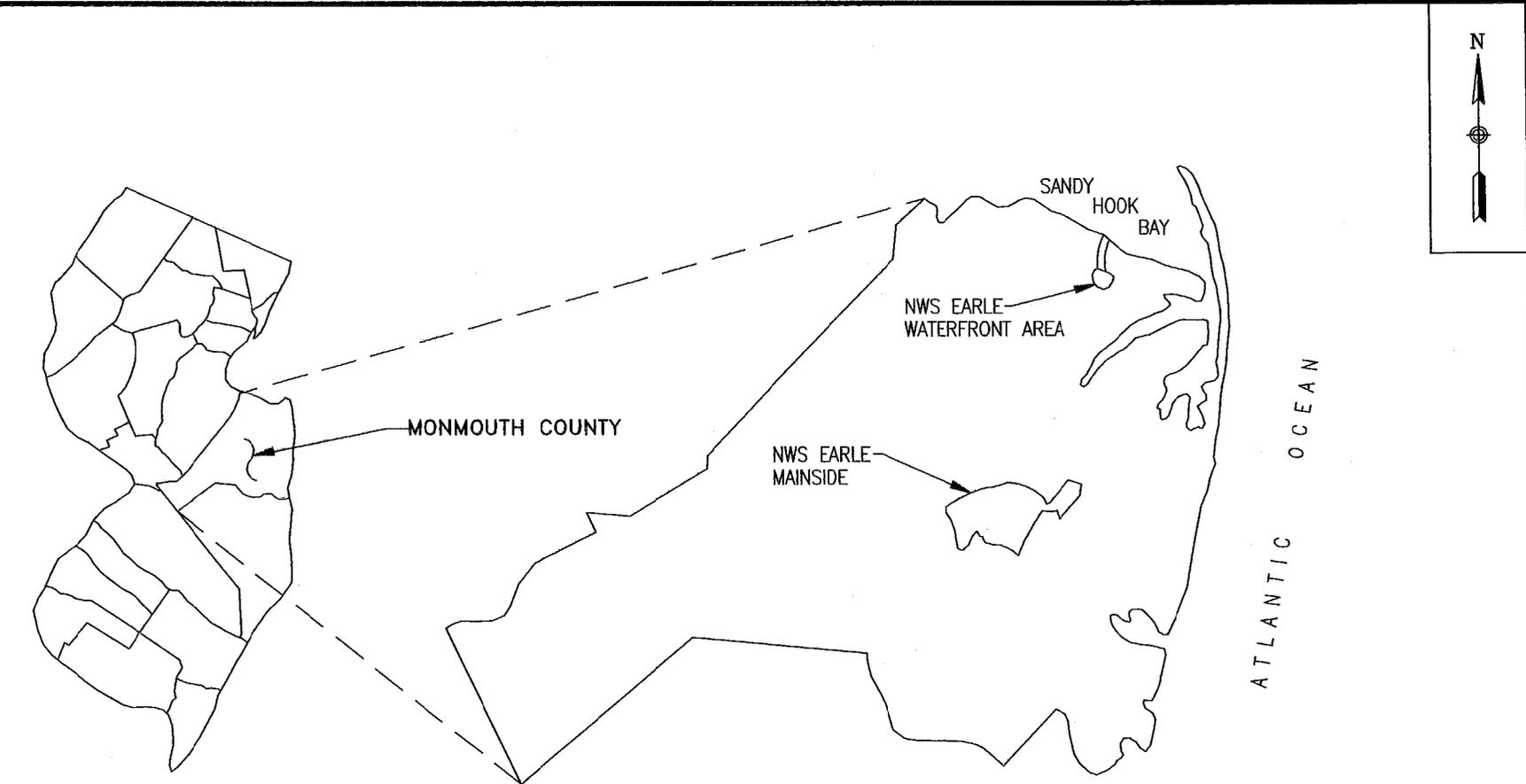
Affiliation: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: ( ) \_\_\_\_\_

\_\_\_\_\_

## FIGURES



STATE OF NEW JERSEY

MONMOUTH COUNTY

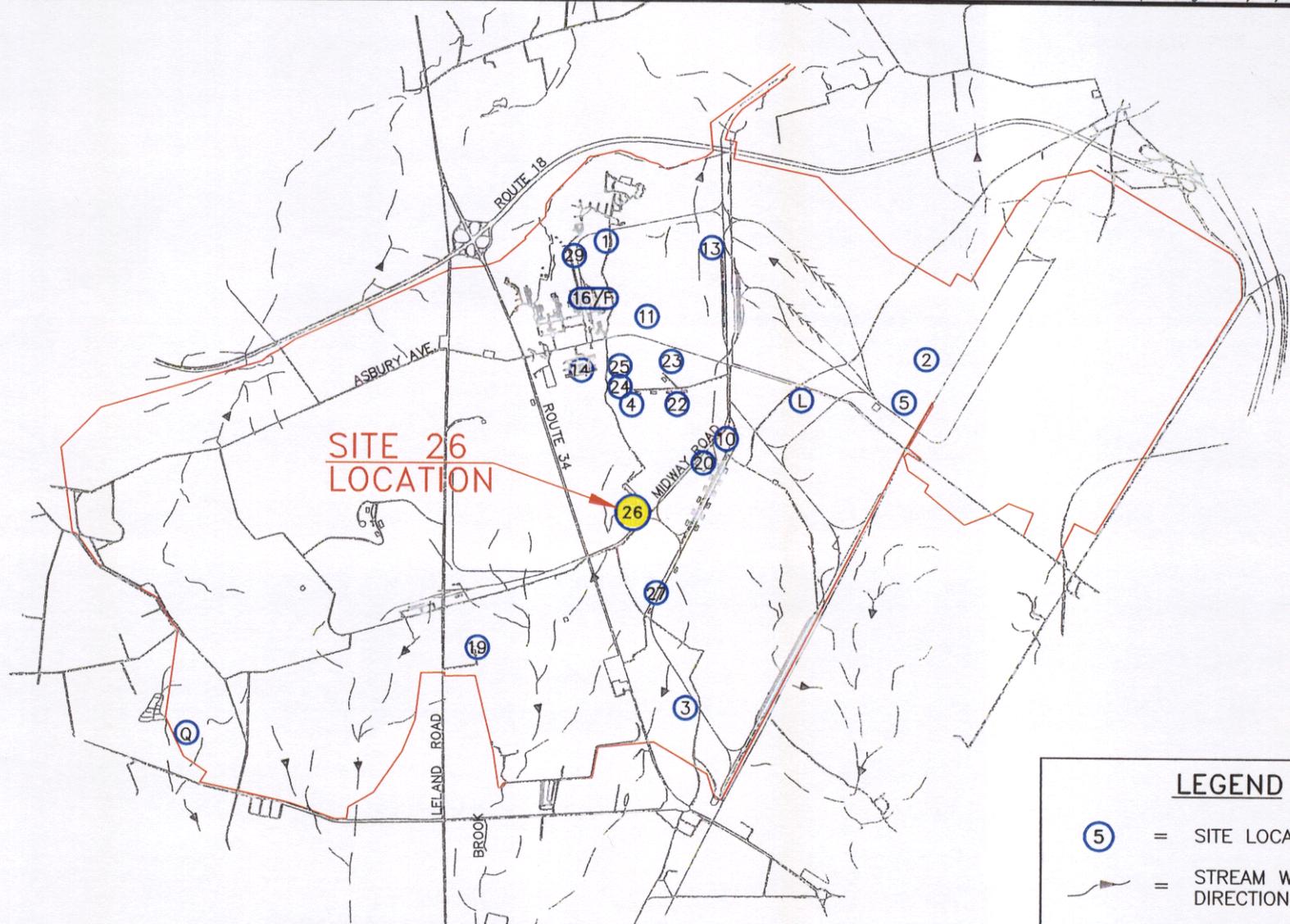
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CHECKED BY RET	DATE
REVISED BY	DATE
SCALE NOT TO SCALE	



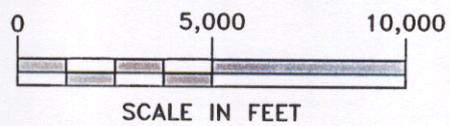
**Tetra Tech  
NUS, Inc.**

**REGIONAL SITE MAP  
NAVAL WEAPONS STATION EARLE  
COLTS NECK, NEW JERSEY**

CONTRACT # - CTO # 2128 - 1121		
FILE NUMBER: 2128cm12.dwg	LDL	PHL
APPROVED BY	DATE	
DRAWING NO. FIGURE 1	REV.	



<b>LEGEND</b>	
<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">5</span>	= SITE LOCATION
	= STREAM WITH FLOW DIRECTION



DRAWN BY LDL	DATE 7/16/03
CHECKED BY	DATE
REVISED BY	DATE
SCALE AS SHOWN	

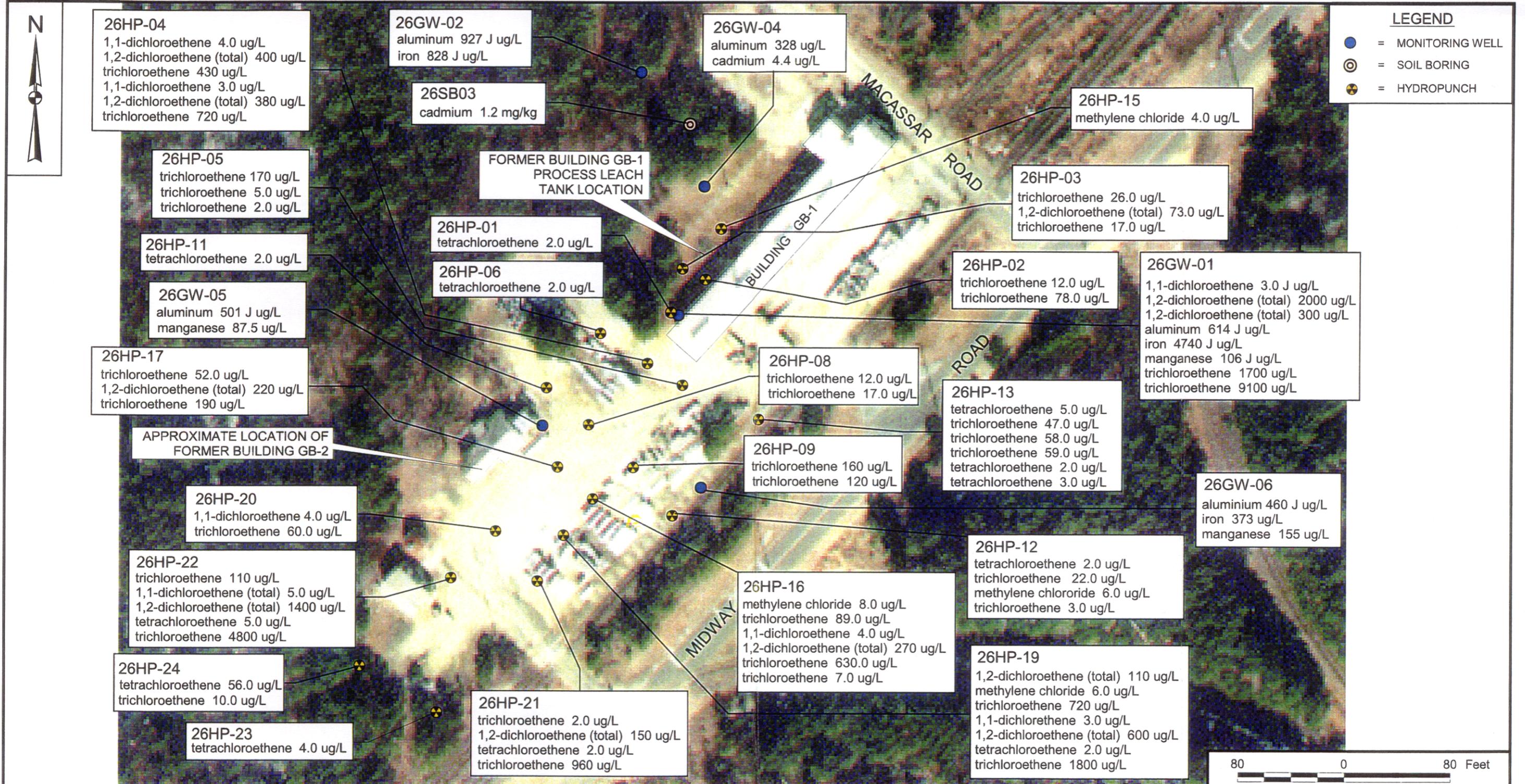


**MAINSIDE AREA  
SITE 26 LOCATION**

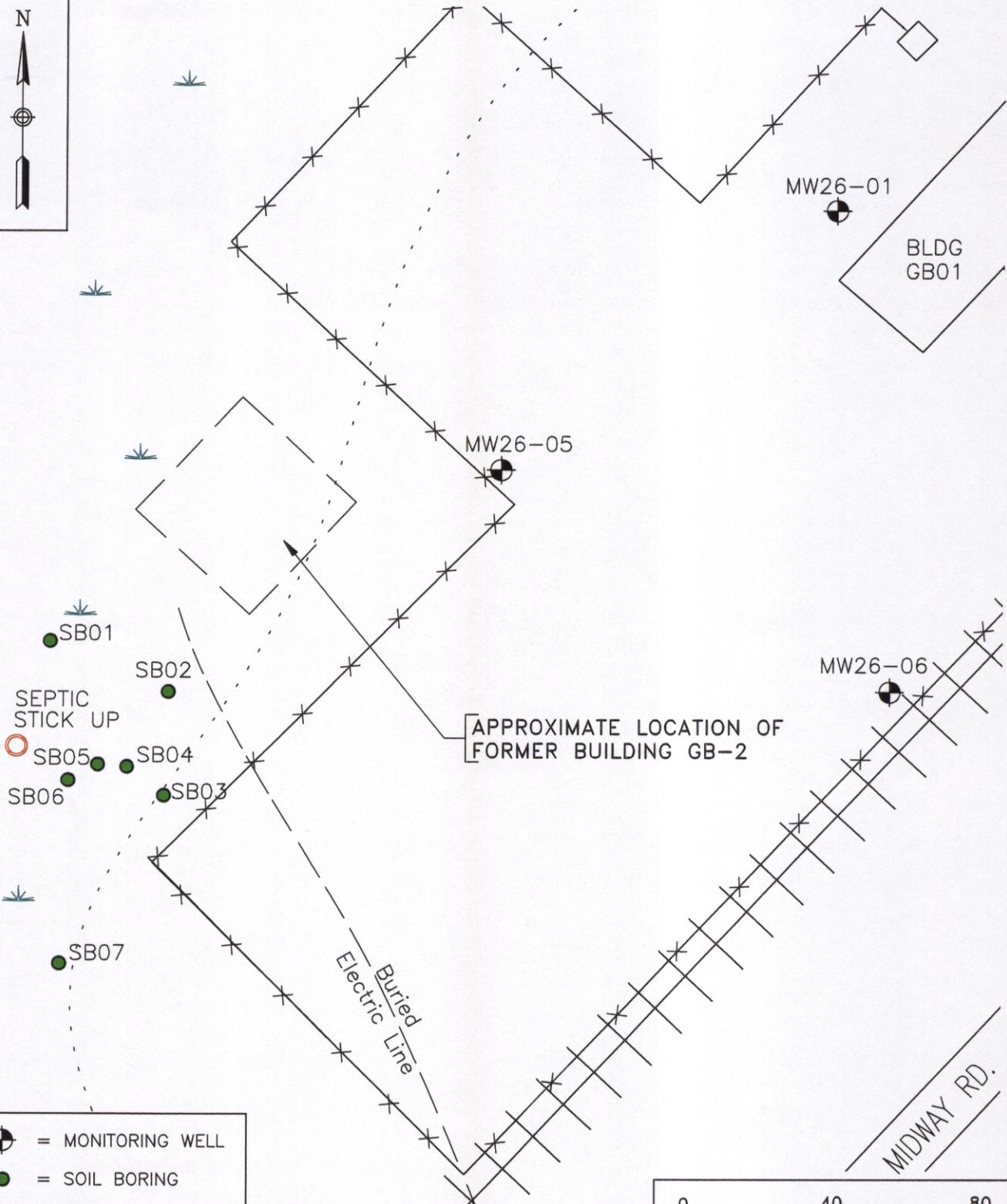
NAVAL WEAPONS STATION EARLE  
COLTS NECK, NEW JERSEY

CONTRACT # - CTO # <b>2128 - 1121</b>	
FILE NUMBER: 2128cp10.dwg	LDL PHL
APPROVED BY	DATE
DRAWING NO. <b>FIGURE 2</b>	REV.



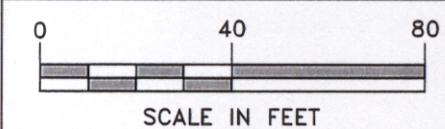


NO	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES	DRAWN BY	DATE	Tetra Tech NUS, Inc. <b>GROUNDWATER CONCENTRATIONS ABOVE SCREENING LEVELS SITE 26 - EXPLOSIVE WASHOUT AREA NAVAL WEAPONS STATION EARLE COLTS NECK, NEW JERSEY</b>	CONTRACT NUMBER	OWNER NUMBER
							LDL	7/14/03		2128	1121
							CHECKED BY	DATE		PROJECT FILE: NWS-Earle_5YearReview.apr	
							RET			LAYOUT: SITE 26 (FS)-Conc's Above Screening Levels	
							COST/SCHEDULE-AREA		APPROVED BY	DATE	
									RET	7/14/03	
							SCALE		DRAWING NO	REV	
							AS NOTED		FIGURE 4		



- = MONITORING WELL
- = SOIL BORING

**SOURCE:**  
 DRAWING BY: FOSTER WHEELER ENVIRONMENTAL CORPORATION,  
 NAVYRAC\EARLE\SITE26\SEPTANK.dwg



TETRA TECH NUS, INC.

**SITE 26**  
**SEPTIC TANK ORIENTATION AND SOIL BORINGS**  
 NAVAL WEAPONS STATION EARLE  
 COLTS NECK, NEW JERSEY

SCALE AS NOTED	
FILE 2128cm52.dwg	JLF PHL
REV	DATE
	7/11/03
FIGURE NUMBER	
FIGURE 5	

## TABLES

**TABLE 1**  
**SITE 26 - SCREENING OF REMEDIAL ALTERNATIVES**  
**OU 7 PROPOSED REMEDIAL ACTION PLAN**  
**NWS EARLE, COLTS NECK, NEW JERSEY**

	<b>ALTERNATIVE</b>	<b>EFFECTIVENESS</b>	<b>IMPLEMENTABILITY</b>	<b>COST</b>	<b>COMMENTS</b>
1	No Action	Provides no additional protection of human health or the environment.	Readily implementable. No technical or administrative difficulties.	Capital: none O&M: none	<u>Retained</u> as baseline alternative in accordance with NCP.
2	Limited Action (Long-Term Monitoring including 5-year reviews)	Provides some protection of human health through annual monitoring assessment of contaminant status.	Readily implementable. No technical or administrative difficulties.	Capital: low O&M: low	Relative to Alt. 1, provides additional human health protectiveness through ongoing site groundwater monitoring. <u>Retained.</u>
3	Limited Action (Long-Term Monitoring and Institutional Controls, including 5-year reviews)	Protects human health through annual monitoring assessment of contaminant status and establishment of CEA; groundwater use would be restricted. No reduction of toxicity or volume of contaminants.	Readily implementable. No technical or administrative difficulties. Personnel and materials necessary to implement alternative are widely available.	Capital: moderate O&M: moderate	Relative to Alt. 2, prevents exposure to groundwater contaminants. <u>Retained.</u>
4	Groundwater Treatment (In Situ) (Long-Term Monitoring and Institutional Controls)	Protects human health through active groundwater remediation Long-term annual groundwater monitoring, institutional controls (CEA) and five-year reviews would protect human health and the environment until GWQS are achieved.	Readily implementable through an extension of the existing AS/SVE system network. Technical difficulties and a low yield of extracted (PCE) product are anticipated due to the low concentrations of PCE and the wide-spread plume.	Capital: high O&M: high	Anticipated high cost for limited additional protection of human health and the environment. Lack of practicality and effectiveness due to low levels of PCE which are spread out over a large heavily wooded area. <u>Eliminated</u>