

N00102.AR.002518
NSY PORTSMOUTH
5090.3a

ACTION MEMORANDUM FOR NON TIME CRITICAL REMOVAL ACTION FOR SITE 30 NSY
PORTSMOUTH ME
12/1/2010
TETRA TECH NUS

**Action Memorandum
Non-Time-Critical Removal Action
for
Site 30**

**Portsmouth Naval Shipyard
Kittery, Maine**



**Naval Facilities Engineering Command
Mid-Atlantic**

Contract Number N62472-03-D-0057

Contract Task Order 55

December 2010

TABLE OF CONTENTS

<u>SECTION</u>		<u>PAGE NO.</u>
	ACRONYMS AND ABBREVIATIONS	iii
I	PURPOSE	I-1
II	SITE CONDITIONS AND BACKGROUND	II-1
A	SITE DESCRIPTION.....	II-2
1	Removal Site Evaluation.....	II-2
2	Physical Location.....	II-3
3	Site Characteristics.....	II-3
4	Release or Threatened Release into the Environment of a Hazardous Substance, Pollutant, or Contaminant.....	II-4
5	National Priorities List Status.....	II-5
B	OTHER ACTIONS TO DATE.....	II-5
C	STATE AND LOCAL AUTHORITIES' ROLES.....	II-6
1	State and Local Actions to Date.....	II-6
2	Potential for Continued State/Local Response.....	II-6
III	THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES	III-1
A	THREATS TO PUBLIC HEALTH OR WELFARE.....	III-1
B	THREATS TO THE ENVIRONMENT.....	III-2
IV	ENDANGERMENT DETERMINATION	IV-1
V	PROPOSED ACTIONS AND ESTIMATED COSTS	V-1
A	PROPOSED ACTION.....	V-1
1	Proposed Action Description.....	V-1
2	Contribution to Remedial Performance.....	V-1
3	Description of Alternative Technologies.....	V-1
4	Engineering Evaluation / Cost Analysis (EE/CA).....	V-3
5	Applicable or Relevant and Appropriate Requirements.....	V-3
6	Project Schedule.....	V-4
B	PROJECT COST.....	V-4
VI	EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN	VI-1
VII	OUTSTANDING POLICY ISSUES	VII-1
VIII	ENFORCEMENT	VIII-1
IX	RECOMMENDATION	IX-1
X	REFERENCES	X-1

TABLE OF CONTENTS (Continued)

ATTACHMENT

1 TABLES AND FIGURES

TABLES:

- 1 Chemical-Specific ARARs and TBCs**
- 2 Location-Specific ARARs and TBCs**
- 3 Alternative 2: Excavation and Off Yard Disposal, Alternative Specific ARARs and TBCs**

FIGURES

- 1 PNS and Site Location Map**
- 2 Building 184 Location Map**
- 3 1943 As-Built Building Conditions Plan and Sections**
- 4 General Building Layout and Test Pit Material Physical Characteristics**
- 5 Alternative 2 Conceptual Excavation and Grading Plan**

2 PUBLIC NOTICE

ACRONYMS AND ABBREVIATIONS

ARAR	Applicable or Relevant and Appropriate Requirement
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	CERCLA Information System
CFR	Code of Federal Regulations
CMR	Code of Maine Rules
COC	Contaminant of concern
CSF	Cancer Slope Factor
CWA	Clean Water Act
EE/CA	Engineering Evaluation/Cost Analysis
FFA	Federal Facility Agreement
FS	Feasibility Study
IRP	Installation Restoration Program
IRIS	Integrated Risk Information System
MEDEP	Maine Department of Environmental Protection
MSRA	Maine Revised Statutes Annotated
NAAQS	National Ambient Air Quality Standards
NCP	National Oil and Hazardous Substance Pollution Contingency Plan
NERP	Navy Environmental Restoration Program
NOAA	National Oceanic and Atmospheric Administration
NPL	National Priorities List
OSHA	Occupational Safety and Health Act
PNS	Portsmouth Naval Shipyard
POTW	Publicly owned treatment works
RAB	Restoration Advisory Board
RAO	Removal action objective
RBC	Risk-based concentration
RCRA	Resource Conservation and Recovery Act
RfD	Reference Dose
RI	Remedial Investigation
SSI	Site Screening Investigation
SSL	Soil Screening Level
TBC	To be considered
TSD	Treatment, Storage, and Disposal
TtNUS	Tetra Tech NUS, Inc.

USC United States Code
USEPA United States Environmental Protection Agency

I PURPOSE

The purpose of this Action Memorandum is to substantiate the need for a removal response, identify the proposed action, explain the rationale for the removal, and commit Navy resources to the proposed non-time-critical removal action described herein for Site 30 (Former Galvanizing Plant, Building 184) at Portsmouth Naval Shipyard (PNS), Kittery, Maine. This Action Memorandum has been completed in accordance with the removal program requirements defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), the United States Environmental Protection Agency (USEPA) Superfund Removal Procedures Action Memorandum Guidance (USEPA, December 1990), and the Navy Environmental Restoration Program (NERP) Manual, (Navy, August 2006). The Department of the Navy has broad authority under CERCLA Section 104 and Executive Order 12580 to carry out removal actions when the release is on, or the sole source of the release is from, the Navy installation. The Navy/Marine Corps Environmental Restoration Program was initiated to identify, assess, characterize, and clean up or control contamination from past hazardous waste disposal operations and hazardous material spills at Navy and Marine Corps installations. This document addresses a non-time-critical removal action for removing soil contaminated with elevated levels of copper and lead.

Building 184, located of Site 30, was constructed in 1943 as a galvanizing plant to accommodate the shipyard's increased production schedule in support of the World War II war effort. Activities at Site 30 are focused on contamination within a former Building 184 tank vault. The tank vault originally contained pickling tanks including a flux tank, a water tank, an acid tank, and a caustic tank. These tanks were used to remove oxide scale from metal surfaces by immersion in a diluted acid bath to obtain a chemically clean surface in preparation for plating and galvanizing.

II SITE CONDITIONS AND BACKGROUND

Site 30 is located in the central portion of PNS [CERCLA Information System (CERCLIS) ID number, ME7170022019]. PNS vicinity and location of Site 30 within PNS are shown on Figure 1. Figure 2 provides the site layout. The non-time-critical removal action for Site 30 focuses on the former tank vault located within Building 184. The following provides the history of uses of Building 184 and the former tank vault.

Building 184 was constructed in 1943 as a galvanizing plant to accommodate PNS increased production schedule in support of the World War II effort. However, by the end of the war, PNS production requirements were reduced dramatically, and galvanizing was performed off yard by a private contractor. In 1946, Building 184 was converted from a galvanizing plant to PNS electrical testing laboratory. Sometime between 1954 and 1956, the building was converted into a clean room facility and used for cleaning and assembling metal parts. In the early 1960s, the building was converted into a welding school, and a flame-spray galvanizing system was installed in the building (Dolph and Hall, September 1995). Until 2010, the building was used as a welding school. The welding school has been relocated and Building 184 is not currently in use.

As part of the original galvanizing operations, a tank vault was constructed in the floor of the central portion of Building 184, along the eastern wall. The tank vault originally contained pickling tanks used as part of the galvanizing operations. With the changes in usage of Building 184 after World War II, the use of the tank vault also changed. The tank vault was filled and covered for use as part of the electrical testing laboratory where large shock-testing and vibration-testing machines were used. Molds and dies were stored in the area. The conditions of the tank vault and tank at the time of covering are unknown. The tank vault was then uncovered when the building was converted to a clean room facility. The pickling tanks within the tank vault were used for metal parts assembly in the clean room. Use of the tank vault and tanks was again discontinued when the building was converted to a welding school. The tank vault was again covered to accommodate the installation of electric welding machines and booths. The conditions of the former tank vault and tank at the time of covering are unknown. An office was constructed over the former tank vault area in the early-to mid-1970s (Dolph and Hall, September 1995).

The specific types and quantities of chemicals used throughout the history of Building 184 are largely unknown. However, chemicals used in industrial cleaning operations similar to these performed at PNS include caustic solutions (sodium hydroxide, sodium carbonate, trisodium phosphate, and tetrasodium pyrophosphate), acid solutions (hydrochloric and sulfuric), and flux solutions (sodium silicate). These chemicals were most likely used when Building 184 was a galvanizing plant and when the tanks in the tank vault were used as industrial cleaning tanks. For the metal parts assembly operations, the tanks

were filled with various chemicals including large amounts of sulfuric acid, trisodium phosphate, alcohol, and acetone (Dolph and Hall, September 1995).

According to drawings contained within the industrial history report for Building 184 (Dolph and Hall, 1995), the plumbing for the building appears to exit along the western side and discharge into the sewer system. Detailed sewer drawings are not contained in the historical report.

The 1943 as-built information available at PNS has been compiled on Figure 3. It is assumed that the elevations shown on the 1943 as-built drawings are based on PNS Mean High Water Datum value of 100.32 feet. Figure 4 shows the location of the former tank vault within the building.

Additional detail on the background and description of Site 30 is provided in the Site Screening Report for Sites 30, 31, and 32 (TtNUS, May 2000), the Test Pitting Investigation Report for Site 30 (TtNUS, May 2002), and the Engineering Evaluation/Cost Analysis for Site 30, Revision 2 (TtNUS, October 2010).

A SITE DESCRIPTION

The former tank vault, measuring approximately 52 feet long, 35 feet wide, and a maximum of 4 feet deep, was constructed as a concrete vault lined with acid-proof bricks set in acid-proof cement. The bottom of the tank vault was sloped to a drain at the center of the western side of the tank vault. The original drain was connected to the ship-yard sanitary system on the western side of the building (Dolph and Hall, September 1995).

The tank vault originally contained pickling tanks used as part of the galvanizing operations. The tanks, including a flux tank, a water tank, an acid tank, and a caustic tank, were used to remove oxide scale from metal surfaces and to obtain a chemically clean surface in preparation for plating and galvanizing by immersion in a diluted acid bath. When the building use was converted to a clean room, the pickling tanks within the vault were used as part of the metal parts assembly (Dolph and Hall, September 1995).

Details regarding the location, size, and cross-sectional views of the vaults and floor can be found in the Industrial History of Building 184 (Dolph and Hall, September 1995). The 1943 as-built information is used throughout this report for the planning and implementation of the various removal action alternatives.

1 Removal Site Evaluation

The Navy as lead agency has determined that a non-time-critical removal action is necessary to abate potential exposure to nearby human populations and to mitigate the potential threat of a release to the

environment of hazardous substances associated with the former tank vault within Building 184, as described in this document. Environmental observations and investigations for Site 30 have been conducted since 1973 when a crystalline substance was first noticed along the edge of the former tank vault. The investigations at Site 30 were centered on the former tank vault that was active from the 1940s through the early 1960s. The data from these investigations were used to support the assessment of the nature and extent of contamination and risks associated with contamination at Site 30 as presented in the Engineering Evaluation/Cost Analysis (EE/CA) Revision 2. The EE/CA concluded that the presence of crystals within the building constitutes a potential for corrosive effects to the exposed skin of receptors. The results of the technical evaluation of groundwater concluded that contamination in the tank vault has not adversely impacted groundwater at or downgradient of Site 30 based on pH, water level elevations, and metals concentrations in groundwater. Information on the environmental investigations at Site 30 is provided in the Site 30 EE/CA (TtNUS, October 2010). Crystalline material identified in 1973 was reportedly removed during normal housekeeping activities. When crystalline material identified again in 1996, the crystals were reportedly tested, characterized as a RCRA hazardous waste based on pH readings below 2.0, and disposed off-site as hazardous waste.

2 Physical Location

PNS is located on an island in the Piscataqua River, referred to on National Oceanic and Atmospheric Administration (NOAA) nautical charts as Seavey Island. The Piscataqua River is a tidal estuary that forms the southern boundary between Maine and New Hampshire. PNS is located at the mouth of the Great Bay Estuary, commonly referred to as Portsmouth Harbor. The locations of Portsmouth Harbor and PNS are shown on Figure 1.

PNS is a federal facility engaged in the conversion, overhaul, and repair of submarines for the Navy. Land use at PNS includes industrial, commercial/occupational, recreational (ball fields and boat launches), and residential (military temporary housing and temporary lodging) uses. Building 184 is used for industrial purposes (formerly used as the welding school), and the surrounding buildings are commercial/occupational. The nearest military residences (Quarters O and P) are located approximately 500 feet northwest of the building. A day-care facility (in Building 342) is located approximately 1,500 feet southeast of the building. However, the former tank vault is located within the building, and access to the building is restricted. Another Installation Restoration Program (IRP) site at PNS (Site 32) is located approximately 200 feet north and northeast of Site 30.

3 Site Characteristics

The focus of this removal action is the former tank vault within Building 184. During industrial cleaning operations in the early to mid 1940s and in the mid 1950s to early 1960s, the tank vault housed chemical

tanks. When industrial cleaning operations ended in the early 1960s, the tank vault was filled and covered. The condition of the tank vault and tanks is unknown; however, test pitting activities conducted in 2001 indicated the presence of chemicals that are likely residuals from the cleaning operations. The chemicals within the former tank vault are believed to be the source of the crystalline substance observed along the base of the wall adjacent to the tank vault.

The former tank vault is currently covered by a concrete floor slab and the slab is covered by a herculite cover that was installed as part of the interim remedy. The boundaries are clearly delineated by a slightly raised floor slab and by the joints between the original adjacent floor and the slab placed over the former tank vault area. A wood-framed office structure, welding training booths, and various equipment are located on the former tank vault area floor slab. Additionally, two floor drains and a clean-out plug are present within the concrete slab in the area of the former tank vault. A utility trough transects the entire width of the northern end of the former tank vault (see Figure 4).

During a site visit to Building 184 in December 2001, it was noted that surface drainage around the exterior of the building was poor. The surfaces on both the eastern and western sides of the building were paved with asphalt. Standing water was observed against the exterior of the eastern wall of the building. Peeling paint and evidence of water damage were also observed on the interior and exterior of this wall. A small shed roof for the protection of welding generators was connected to the eastern wall. This roof appeared to allow water to drain directly to the pavement (TtNUS, December 2002).

In 2006 an interim removal action under CERCLA was conducted at this site (TtNUS, August 2005). The selected removal action included periodic removal and covering of any crystalline growth, repaving outside Building 184 to redirect storm water away from the former tank vault within the building, removing water accumulating within the tank vault, and identifying and implementing other measures to prevent water from entering the tank vault. During removal actions conducted for Site 34, remedial work was performed at Building 184. In order to prevent further crystalline growth a new drainage pattern was installed to keep stormwater runoff away from Building 184. This work included the removal of an existing concrete slab in the parking lot, installing an underground collection drain, and installing new asphalt pavement (Shaw, July 2008).

4 Release or Threatened Release into the Environment of a Hazardous Substance, Pollutant, or Contaminant

Test pitting results indicated the presence of hazardous substances and contaminants in the tank vault water at levels that could pose a potential threat of contamination to groundwater. Approximately 260 cubic yards of tank vault fill material consisting predominantly of sulfate salts of aluminum, calcium, iron, and magnesium exist beneath the concrete floor slab of the building. At the time of the investigation,

approximately 75 percent of the fill material was saturated with water. The tank vault water was predominantly contaminated with sulfate salts of aluminum, calcium, iron, magnesium, manganese, potassium, sodium, and zinc. Lesser levels of toxic metal contaminants such as cobalt, copper, and nickel were also detected. Barium, cadmium, mercury, silver, and vanadium were detected at levels close to detection limits. Among the toxic metal contaminants, nickel concentrations were significantly (two or more orders of magnitude) higher than the other metals. The pH of the tank vault fill material and water indicated acidity with a pH of approximately 4.0. The potential migration pathway of tank vault water contaminants into the groundwater is a future potential breach of the acid-proof brick lining and concrete containment of the tank vault.

Less than 1 cubic yard of crystals composed of approximately 75 percent by dry weight of sulfates of aluminum, calcium, iron, magnesium, manganese, potassium and sodium are present within the building. These crystals exhibit a corrosive pH of around 2.0 when brought into contact with water. The crystals also contain lesser levels of toxic metals such as chromium, cobalt, copper, silver, and zinc. Potential exposure to human receptors is via direct contact between the bare skin of a worker within the building and the crystals.

5 National Priorities List Status

Pursuant to CERCLA, PNS was added to the National Priorities List (NPL) by the USEPA on May 31, 1994. Site 30 (Former Galvanizing Plant Building 184) is listed in Appendix C of PNS Federal Facility Agreement (FFA) as a site screening area that requires further investigation to determine whether no further action or a Remedial Investigation (RI)/Feasibility Study (FS) is necessary. The FFA establishes the roles and responsibilities of the Navy and USEPA and serves as an Interagency Agreement for the completion of all necessary investigation and remedial actions at PNS. Based on conditions at Site 30, the Navy determined that a non-time-critical removal action is appropriate for Site 30 before determining whether an RI/FS is necessary.

B OTHER ACTIONS TO DATE

Actions at Site 30 included periodic removal of the crystal growth and covering of the crystal growth with a plastic-coated canvas called herculite.

The Navy solicits community involvement in PNS IRP throughout the investigation and remediation process through the Restoration Advisory Board (RAB) review and comment period of Navy documents; the Navy's responses to RAB comments, and through presentations, discussions, and status updates at the RAB meetings. In May 2001, the RAB was updated on the test pitting field work. In November 2002, Revision 0 of the EE/CA was discussed in a presentation to the RAB. A public comment period on this

EE/CA (TtNUS, December 2002) was held from January 21 to February 13, 2003, and public comments were received. The recommended alternative in the original EE/CA was excavation and off-site disposal of the former tank vault contents followed by site restoration. A draft Action Memorandum was prepared in March 2003 (Navy, March 2003) and regulatory and RAB comments on the document were received in May 2003. On July 25, 2003, the Navy issued a letter explaining the need to prepare a revised EE/CA to provide a removal action alternative that does not interrupt mission-critical activities within Building 184. Consequently, the EE/CA was revised to include an alternative that does not include relocation activities and excavation of tank vault materials within Building 184. Comments received during the public comment period and comments on the draft Action Memorandum (TtNUS, September 2003) were considered during the preparation of the revised EE/CA.

The Revision 1 EE/CA was finalized in August 2005, and it was discussed in a presentation to the RAB in September 2005. The notice of availability of the Revision 1 EE/CA for Site 30 (TtNUS, August 2005) and start of the public comment period was published in Foster's Daily Democrat and the Portsmouth Herald. No comments were received during the public comment period held from September 20 to October 18, 2005 for the revised EE/CA (TtNUS, August 2005, Revision 1); therefore, a Responsiveness Summary was not prepared.

The Revision 2 EE/CA was finalized in October 2010, and it was discussed in a presentation to the RAB in March 2010. The notice of availability of the Revision 2 EE/CA for Site 30 (TtNUS, October 2010) and start of the public comment period was published in Foster's Daily Democrat and the Portsmouth Herald. No comments were received during the public comment period held November 3 to December 2, 2010 for the Revision 2 EE/CA (TtNUS, October 2010); therefore, a Responsiveness Summary was not prepared.

C STATE AND LOCAL AUTHORITIES' ROLES

1 State and Local Actions to Date

Executive Order 12580 delegates to the Department of Defense the President's authority to undertake CERCLA response actions at military facilities. Congress further outlined this authority in the Defense Environmental Restoration Program Amendments under 10 United States Code, Sections 2701 through 2705. CERCLA Section 120 requires the Navy to apply state removal and remedial action law requirements at its facilities.

2 Potential for Continued State/Local Response

It is expected that the Navy will continue to be the lead agency and that the Navy's environmental restoration program will continue to be the exclusive source of funding for this removal action. The

USEPA and Maine Department of Environmental Protection (MEDEP) will continue to be consulted during and until actions addressing the contaminated soil are determined complete.

III THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES

A THREATS TO PUBLIC HEALTH OR WELFARE

The crystal samples collected from within Building 184 exhibited a pH in the range of 1.4 to 4.2. These low pH values indicate the potentially corrosive nature of the crystals in the event of exposure to the unprotected skin of a worker. The tank vault fill material samples and tank vault water sample exhibited a pH in the range of 3.4 to 4.4. The tank vault water exceeded risk-based screening levels for potential construction worker exposure. The concentrations of metals in the tank vault fill material did not exceed risk-based levels for potential construction worker exposure (TtNUS, May 2002). Residential receptor exposure to the tank vault fill material and tank vault water is not considered to be a reasonable future potential scenario because of the industrial nature of the location.

Regulatory concerns were raised regarding the understanding of groundwater flow and potential impact from Site 30 in comments on the Site Screening Investigation (SSI) Report, Site 30 EE/CA (Revisions 0 and 1), and draft Site 30 Action Memorandum Revision 0. The major concern was that groundwater flow direction for Site 30 had not been adequately characterized to know whether the monitoring wells at Site 30 were appropriately located to provide data to understand potential groundwater impacts from Site 30. A groundwater evaluation was conducted to provide the most current understanding of geology, hydrogeology, and groundwater quality at Site 30 and was provided as an appendix to the Site 30 EE/CA Revision 2 (TtNUS, October 2010).

Data provided in the SSI Report (TtNUS, May 2000), Test Pitting Investigation Report (TtNUS, May 2002), Site 30 EE/CA Revisions 0 and 1 (TtNUS, December 2002 and August 2005), and data packages for Phases I and II of the Site 32 RI (TtNUS, January 2004 and June 2009) were used for the evaluation. The groundwater evaluation concluded that:

- Groundwater flow direction has been adequately characterized at Site 30 with the addition of the downgradient monitoring wells within Site 32. Monitoring wells are sufficiently located upgradient of, at, and downgradient of Site 30.
- Groundwater in the area of Site 30 is not significantly tidally influenced.
- Contamination in the tank vault has not adversely impacted groundwater at, or downgradient of Site 30, based on pH, water level elevations, and metals concentrations in groundwater.

B THREATS TO THE ENVIRONMENT

There are no known immediate threats to the environment arising from the acidic pH crystal growth within the building or the presence of contaminants in the tank vault. No ecological habitats or endangered/sensitive plant or animal species exist at the site or within the immediate vicinity of the site.

IV ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health or welfare or the environment. The presence of acidic crystals within Building 184 (in the vicinity of the former tank vault) poses an imminent potential risk of corrosive action if the unprotected skin of workers within the building comes in contact with the crystals. The continued presence of contaminants in the tank vault water poses a potential risk to construction workers and a potential risk of groundwater contamination in the event of a release from the tank vault to the underlying aquifer.

V PROPOSED ACTIONS AND ESTIMATED COSTS

This section discusses the removal action alternatives evaluated in the EE/CA, the estimated costs of the removal action alternatives, and the details of the selected proposed action.

A PROPOSED ACTION

1 Proposed Action Description

The proposed removal action will include the removal and disposal of all tank vault contents, lining materials, drain materials within excavation limits, and associated contaminated soil as identified on Figure 5, transportation of the removed/contaminated media to an approved off-yard disposal facility, plugging and capping remaining drain, backfilling with common clean fill material and restoring the floor with concrete. It is estimated that approximately 350 cubic yards of hazardous material, 10,000 gallons of non-hazardous liquid, and 75 cubic yards of non-hazardous construction debris will be removed and disposed of within a permitted, Navy approved, off-yard waste disposal facility.

2 Contribution to Remedial Performance

The removal action will mitigate the potential risks associated with the tank vault. The action will immediately address contamination and the potential human health and ecological risks and will not impede any necessary future responses. The proposed remedial action is capable of remediating Site 30 so that unrestricted use can be established, consistent with accepted removal practices, and meet the NCP removal criteria.

The primary objective of the Site 30 remediation is:

- Mitigate human health and environmental risks associated with the tank vault in a manner such that the property can be used for unrestricted use/unlimited exposure.

3 Description of Alternative Technologies

As indicated above, the proposed action for Site 30 is excavation and removal of all tank vault contents, lining materials, underlying drain materials, and associated contaminated soil, disposal of excavated material in an approved off-yard permitted disposal facility, plugging and capping exposed drains/piping, backfilling of the excavation, and restoration of the disturbed areas. The technologies and activities included in the proposed action include the following:

- Removal of the concrete floor over the former tank vault with appropriate equipment capable of entering Building 184.
- Removal of water in the tank vault using a well point.
- Excavation to remove the sandy material reportedly used to fill in the former tank vault using a small excavator capable of entering Building 184.
- Removal of the tank vault acid proof brick lining on the tank vault walls and floor using appropriate equipment capable of entering Building 184. Based on construction drawings the tank vault walls and floors are concrete overlaid with one layer of acid proof bricks.
- Visual Inspection of the tank vault concrete liner to determine if any breaches in the acid proof brick have occurred. Removal of the concrete tank vault floor and the three walls in the interior of the building that do not act as part of the foundation using appropriate equipment capable of entering Building 184.
- Removal of any identified abandoned drains associated with the former tank vault drain to the limit of the excavation. Plug and cap remaining portions of the drain at limit of excavation.
- Inspection of the eastern tank vault concrete wall that is also a portion of the Building 184 foundation wall. Wall washing of the eastern tank vault concrete wall to remove contamination.
- Verification sampling to determine if additional action needs to be conducted. Sampling would include the collection of one composite soil sample from the three exposed soil walls, and two composite soil samples from the exposed soil floor. Three wipe/chip samples would be collected from the remaining concrete wall.
- Characterization sampling to determine the hazard type of the excavated soil (hazardous or non-hazardous) and to satisfy the waste stream characterization requirements established by the approved off-yard permitted disposal facility.
- Backfilling the excavation to re-establish pre-excavation grades and restoration of the concrete floor to pre-excavation conditions.

Following the completion of the proposed action, remediation within the limits of Site 30 will be complete and the area will be cleared for un-restricted use.

4 Engineering Evaluation / Cost Analysis (EE/CA)

An EE/CA (Revision 2) was developed to evaluate potential remedial actions for Site 30 (TtNUS, October 2010). The EE/CA evaluated two alternatives for Site 30. These alternatives include No Action and Excavation and Off-Yard Disposal. Because the removal action objective (RAO) was to remediate Site 30 for un-restricted use and because of the contaminants of concern (COCs), excavation and disposal was the only available technology.

5 Applicable or Relevant and Appropriate Requirements

The term Applicable or Relevant and Appropriate Requirements (ARARs) is defined in the NCP as follows:

- **Applicable** requirements mean those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable.
- **Relevant and appropriate** requirements mean those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not applicable to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at a CERCLA site that their use is well suited to the particular site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be relevant and appropriate.

ARARs are classified into three broad categories based on the manner in which they are applied during a removal action. These categories are as follows:

- **Chemical-Specific**. Chemical-specific ARARs were developed to provide health or risk-based concentration (RBC) limits for environmental media. These limits are specific for an individual chemical or group of chemicals. Often, these ARARs are used to determine the extent of site remediation. Chemical-specific ARARs may be concentration-based cleanup goals or may provide the basis for calculating such levels. In cases where no chemical-specific ARAR exists, chemical advisories may be used to develop removal objectives.

- **Location-Specific.** Location-specific ARARs are considered in view of natural or man-made site features. These ARARs are intended to limit activities within designated areas.
- **Action-Specific.** Action-specific ARARs pertain to the implementation of a given remedy. These ARARs control or restrict hazardous substance- or pollutant-related activities and are considered when specific removal activities are planned for a site.

Chemical-, location-, and alternative-specific ARARs and to be considered (TBC) criteria for the proposed action at Site 30 are presented in Tables 1, 2, and 3 respectively. No chemical-specific ARARs have been identified and therefore only TBCs are included in Table 1.

6 **Project Schedule**

The welding school has been relocated and Building 184 is vacant, aside from welding booths that will be removed, as necessary, as part of the removal action. It is anticipated that work plans for the removal action would be prepared and submitted in winter 2010/2011 and that construction would commence winter 2010/2011.

B **PROJECT COST**

The cost to implement the selected removal action is anticipated to be \$1,023,000. A detailed summary of remedial action cost is presented in the EE/CA.

VI EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

The site conditions are currently stable; however, the expected duration of such conditions cannot be estimated. Therefore, if the proposed action is not implemented, site controls and conditions may change. Previous efforts by the Navy to remove crystals and to keep them covered to minimize worker exposure within the building are not considered sound stand-alone engineering practices for a long-term solution. Moreover, the presence of contaminants within the tank vault would continue to pose a threat of release to the groundwater at the site over an indefinite period of time.

VII OUTSTANDING POLICY ISSUES

No outstanding policy issues have been identified.

VIII ENFORCEMENT

The Navy is the lead agency responsible for the investigation and cleanup of contaminated IRP sites at PNS, with USEPA oversight. The Navy will provide all funding for the removal action; therefore, enforcement actions do not apply to this removal action.

IX RECOMMENDATION

This decision document presents the selected removal action for Site 30 at PNS, Kittery, Maine, developed in accordance with CERCLA, as amended, and not inconsistent with the NCP. This decision is based on the Administrative Record for the site.

Conditions at the site continue to meet NCP Section 300.415(b)(2) criteria for a removal; therefore, a removal action is recommended for the site.

By:



L.B. Fuller
Captain, USN
Commander
Portsmouth Naval Shipyard
Kittery, Maine

Date:

12/7/10

X REFERENCES

Dolph, James E. (Shipyard Historian) and Heather W. Hall (Assistant), September 1995. Industrial History of Building 184, Portsmouth Naval Shipyard, Portsmouth, New Hampshire.

Navy, March 2003. Draft Action Memorandum for Non-Time-Critical Removal Action for Site 30, Portsmouth Naval Shipyard, Kittery, Maine.

Navy, July 2003. Correspondence from F. Evans (Navy) to M. Audet (USEPA) and I. McLeod (MEDEP), on the Site 30 Action Memorandum, Portsmouth NSY, Kittery, Maine, dated July 25, 2003.

Navy, August 2006. Navy Environmental Restoration Program (NERP) Manual.

Shaw, July 2008. Contractor Closeout Report for Site 34 Shoreline Stabilization and Removal Action. Shaw Environmental Inc., Norfolk, Virginia.

TtNUS (Tetra Tech NUS, Inc.), May 2000. Site Screening Report Site 30 (Building 184), Site 31 (West Timber Basin), and Site 32 (Topeka Pier) for Portsmouth Naval Shipyard, Kittery, Maine. Tetra Tech NUS, Inc., King of Prussia, Pennsylvania (see correspondence dated May 25, 2000 from M. Mengel, TtNUS to M. Cassidy [USEPA] and I. McLeod [MEDEP]).

TtNUS, May 2002. Test Pitting Investigation Report, Building 184, Site 30, March/April 2001 Activity, Portsmouth Naval Shipyard, Kittery, Maine. Tetra Tech NUS, Inc., King of Prussia, Pennsylvania.

TtNUS, December 2002. Engineering Evaluation/Cost Analysis (EE/CA), Site 30 (Building 184), Portsmouth Naval Shipyard, Kittery, Maine, Revision 0. Tetra Tech NUS, Inc., King of Prussia, Pennsylvania.

TtNUS September 2003. Responses to Comments on the draft Action Memorandum for Site 30 (March 2003), Portsmouth Naval Shipyard, Kittery, Maine. Correspondence dated September 26, 2003 from D. Cohen, TtNUS to M. Audet, USEPA and I. McLeod, MEDEP. Tetra Tech NUS, Inc., King of Prussia, Pennsylvania.

TtNUS, January 2004. Site 32 Phase I Remedial Investigation Data Package for Portsmouth Naval Shipyard, Kittery Maine.

TtNUS, August 2005. Engineering Evaluation/Cost Analysis (EE/CA), Site 30 (Building 184), Portsmouth Naval Shipyard, Kittery, Maine, Revision 1. Tetra Tech NUS, Inc., King of Prussia, Pennsylvania.

TtNUS, June 2009. Site 32 Phase II Remedial Investigation Data Package for Portsmouth Naval Shipyard, Kittery Maine.

TtNUS, October 2010. Engineering Evaluation/Cost Analysis (EE/CA), Site 30 (Building 184), Portsmouth Naval Shipyard, Kittery, Maine, Revision 2. Tetra Tech NUS, Inc., King of Prussia, Pennsylvania.

USEPA (United States Environmental Protection Agency), December 1990. Superfund Removal Procedures, Action Memorandum Guidance, United States Environmental Protection Agency, Office of Emergency and Remedial Response, Washington, D.C., EPA/540/P-90/004.

ATTACHMENT 1

TABLES AND FIGURES

TABLE 1
CHEMICAL-SPECIFIC ARARs AND TBCs⁽¹⁾
SITE 30 ACTION MEMORANDUM
PORTSMOUTH NAVAL SHIPYARD, KITTEERY, MAINE
PAGE 1 OF 2

Medium/Activity	Requirement/Citation	Status	Synopsis	Evaluation/Action To Be Taken
FEDERAL				
Acid Crystals	RCRA Subtitle C – Identification and Listing of Hazardous Wastes (40 CFR 261)	TBC	These requirements identify criteria (maximum concentrations, ignitability, corrosivity, etc.), which would render wastes hazardous because of RCRA characteristics.	This guidance was considered in the human health risk assessment for the acid crystals. These crystals are considered potentially corrosive to exposed human skin because of the pH is below the RCRA characteristic limit of 2.0.
Vault Water	USEPA Human Health Assessment Group CSFs from IRIS	TBC	CSFs present the most up-to-date information on cancer risk potency for known and suspected carcinogens.	CSFs were used to calculate PNS-specific construction worker risk screening levels for exposure to contaminants in groundwater. The screening levels were used to evaluate potential risks for exposure to water in the tank vault.
Valut Water	USEPA Risk RfDs from IRIS	TBC	RfDs are estimates of daily exposure for human populations (including sensitive subpopulations) considered unlikely to cause significant adverse health effects associated with a threshold mechanism of action in human exposure over a lifetime.	RfDs were used to calculate PNS-specific construction worker risk screening levels for exposure to contaminants in groundwater. The screening levels were used to evaluate potential risks for exposure to water in the tank vault.
STATE				
Vault Water	Revised Guidance for Human Health Risk Assessments for Hazardous Substance Sites in Maine (MEDEP and Center for Disease Control, July 2009)	TBC	This guidance manual provides acceptable carcinogenic and non-carcinogenic risk levels (1×10^{-5} and 1, respectively).	This guidance manual can be used for risk management decisions at Site 30.

¹ No chemical-specific ARARs were identified for Site 30.

TABLE 1

**CHEMICAL-SPECIFIC ARARs AND TBCs⁽¹⁾
SITE 30 ACTION MEMORANDUM
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE
PAGE 2 OF 2**

ARAR – Applicable or Relevant and Appropriate Requirement
CFR – Code of Federal Regulations
CSF – Cancer Slope Factor
IRIS - Integrated Risk Information System
MEDEP – Maine Department of Environmental Protection
RCRA – Resource Conservation and Recovery Act
RfD – Reference Dose
SSL – Soil Screening Level
TBC – To Be Considered
USEPA – United States Environmental Protection Agency

TABLE 2

**LOCATION-SPECIFIC ARARs AND TBCs
SITE 30 ACTION MEMORANDUM
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE**

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
FEDERAL				
Historic Preservation	National Historic Preservation Act (16 USC 470 et seq., 36 CFR 800)	Applicable	Provides requirements relating to potential loss or destruction of significant scientific, historical, or archaeological data due to remedial actions at a site.	Historical archeological resource sensitivity for Site 30 suggests the potential presence of items of historical value. If excavation activities are included in a remedial action at Site 30, measures would be needed to protect resources of historical value, if present.

ARAR – Applicable or Relevant and Appropriate Requirement
 CFR - Code of Federal Regulations
 TBC – To Be Considered
 USC - United States Code

TABLE 3

ALTERNATIVE 2: EXCAVATION AND OFF-YARD DISPOSAL
 ALTERNATIVE-SPECIFIC ARARs AND TBCs
 SITE 30 ACTION MEMORANDUM
 PORTSMOUTH NAVAL SHIPYARD, KITTEERY, MAINE
 PAGE 1 OF 5

Medium/Activity	Requirement/Citation	Status ⁽¹⁾	Synopsis	Evaluation/Action To Be Taken
FEDERAL ACTION-SPECIFIC ARARs and TBCs				
Hazardous Waste	RCRA Subtitle C – Standards for Hazardous Waste TSD Facilities (40 CFR 264)	Applicable	Establishes standards for acceptable management of hazardous waste.	These standards would pertain to off-site waste disposal facilities. Wastes generated during remedial actions would be disposed at appropriately licensed and permitted facilities.
	Land Disposal Restrictions (40 CFR 268)	Applicable	Applicable to alternatives involving land disposal of hazardous wastes and requires treatment to diminish a waste's toxicity and/or minimize contaminant migration. Treatment standards are provided.	Pertains to offsite waste disposal facilities. Wastes generated during remedial actions would be disposed at appropriately licensed and permitted facilities.
Solid Waste/Remediation Activities	RCRA Subtitle C – Identification and Listing of Hazardous Wastes (40 CFR 261)	Applicable	These requirements identify criteria (maximum concentrations, ignitability, corrosivity, etc.), that would render wastes hazardous because of RCRA characteristics.	Wastes generated during remedial actions, if any, would be analyzed to determine whether they are RCRA characteristic hazardous waste. If analytical results exceed the standards in 40 CFR 261, the waste would be managed in accordance with RCRA Subtitle C requirements.
	RCRA Standards (40 CFR 264, Subpart S)	Relevant and Appropriate	Provides special standards for cleanup at Corrective Action Management Units.	This requirement is potentially relevant and appropriate for management of remediation wastes (i.e., staging piles) if remedial action involves excavation and staging of hazardous wastes at Site 30.
	RCRA Subtitle C – Miscellaneous Unit Requirements/40 CFR 264, Subpart X	Applicable	These requirements apply to owners and operators of facilities that treat, store, or dispose of hazardous waste in miscellaneous units.	If miscellaneous units are used to treat or store materials that are hazardous wastes, the units will be managed according to these requirements.

TABLE 3

ALTERNATIVE 2: EXCAVATION AND OFF-YARD DISPOSAL
 ALTERNATIVE-SPECIFIC ARARs AND TBCs
 SITE 30 ACTION MEMORANDUM
 PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE
 PAGE 2 OF 5

Medium/Activity	Requirement/Citation	Status ⁽¹⁾	Synopsis	Evaluation/Action To Be Taken
Solid Waste	RCRA Subtitle D (40 CFR 258)	Applicable	Applicable to the management and disposal of non-hazardous wastes.	These regulations would be relevant and appropriate if soil disposed off-yard is non-hazardous.
Health and Safety	Occupational Safety and Health Act (OSHA) Regulations, General Industry Standards 29 USC Sections 651-678	Applicable	Requires establishment of programs to assure worker health and safety, including employee training requirements.	These regulations would apply to response activities.
Air Emissions	Air/Superfund National Technical Guidance EPA 450/1-89/001-EPA 450/1-89/004	Applicable	This guidance describes methodologies for predicting risks due to air releases at a Superfund site.	These guidance documents would be considered for air releases of fugitive dust during excavation.
	Clean Air Act (CAA) Regulations, National Ambient Air Quality Standards (NAAQSs) 40 CFR Part 50	Applicable	Establishes primary (health-based) and secondary (welfare-based) air quality standards for carbon monoxide, lead, nitrogen dioxide, particulate matter, ozone, and sulfure oxides emitted from a major source of air emissions. The NAAQSs form the basis for regulations promulgated under the CAA. However, the NAAQSs themselves are nonenforceable and are not ARARs.	Site remediation activities must comply with NAAQS. The principal application of these standards is during remedial activities resulting in exposures to dust or vapors. In general, emissions from CERCLA activities area not expected to qualify as a major source and are, therefore, not expected to be ARARs. However, the requirements may be determined to be relevant and appropriate for non-major sources with significantly similar emissions.

TABLE 3

ALTERNATIVE 2: EXCAVATION AND OFF-YARD DISPOSAL
 ALTERNATIVE-SPECIFIC ARARs AND TBCs
 SITE 30 ACTION MEMORANDUM
 PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE
 PAGE 3 OF 5

Medium/Activity	Requirement/Citation	Status ⁽¹⁾	Synopsis	Evaluation/Action To Be Taken
Surface Water	Clean Water Act (CWA) Regulations, National Pretreatment Standards (40 CFR Part 403)	Relevant and Appropriate	These regulations set pretreatment standards through the National Categorical Standards of the General Pretreatment Regulations for the introduction of pollutants from non-domestic sources into publicly owned treatment works (POTWs) in order to control pollutants that pass through, cause interference, or are otherwise incompatible with treatment processes at a POTW.	If any wastewater is discharged to a POTW, the discharge must meet local limits imposed by the POTW. A discharge from a CERCLA site must meet the POTW's pretreatment standards in the effluent of the POTW. Discharge to a POTW is considered an off-site activity and is, therefore, subject to the substantive requirements of this rule.

STATE ACTION SPECIFIC ARARs and TBCs

Hazardous Waste	Maine Hazardous Waste Management Rules [06-096 Code of Maine Regulations (CMR) 800-802, 850, 851, 853-857]	Relevant and Appropriate	These regulations provide standards for the generation, transportation, treatment, storage, and disposal of hazardous waste. They set forth the State definition and criteria for establishing whether waste materials are hazardous and subject to associated hazardous waste regulations. They also provide standards for the location of facilities in a floodplain or within 300 feet of the floodplain and detail groundwater monitoring requirements for hazardous waste facilities. The regulations outline general groundwater monitoring standards for detection monitoring, compliance monitoring, and corrective action monitoring.	State requirements more stringent than federal requirements would take precedence and may be relevant and appropriate if on-site treatment includes the use of hazardous chemicals or generation of hazardous wastes.
-----------------	--	--------------------------	--	---

TABLE 3

ALTERNATIVE 2: EXCAVATION AND OFF-YARD DISPOSAL
 ALTERNATIVE-SPECIFIC ARARs AND TBCs
 SITE 30 ACTION MEMORANDUM
 PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE
 PAGE 4 OF 5

Medium/Activity	Requirement/Citation	Status ⁽¹⁾	Synopsis	Evaluation/Action To Be Taken
Surface Water	Maine Water and Navigation Statutes [38 (MRSA) Chapters 3, 11, and 12] Maine Waste Discharge Permitting Program (06-096 CMR 520 through 529)	Applicable	These rules describe the requirements for industrial discharges to POTWs.	If wastewater is discharged to a POTW, the discharge must meet local limits imposed by the POTW. A discharge from a CERCLA site must meet the POTW's pretreatment standards in the effluent of the POTW. Discharge to a POTW is considered an off-site activity and is therefore subject to the substantive requirements of this rule.
Emissions	Maine Air Pollution Control Law – Classification of Air Quality Control Regions (38 MRSA 583; 06-096 CMR 114)	Relevant and Appropriate	Air quality regions and classification of each region and ambient air quality and emission standards are established.	These regulations would be followed for remedial alternatives that involve emissions of criteria air pollutants.
	Maine Ambient Air Quality Standards (38 MRSA 584; 06-096 CMR 110)	Relevant and Appropriate	Ambient air quality standards are established for particulate matter, sulfur dioxide, carbon monoxide, ozone, hydrocarbon, nitrogen dioxide, lead, and total chromium. Ambient increments are defined for the maximum ambient increase of a particular pollutant that can be permitted for a given area.	These standards would be used if any of the alternatives result in emission of unacceptable levels of airborne particulates, lead, or chromium to the atmosphere.
	Maine Air Pollution Control Laws – Maine Emission License Requirements (38 MRSA 585 and 590; 06-096 CMR 115)	Relevant and Appropriate	Requires new sources of air emissions to demonstrate that their emissions do not violate ambient air quality standards. New sources must meet pre-construction and post-construction monitoring requirements.	These regulations would be followed if any of the remedial alternatives involves emissions of criteria air pollutants.

TABLE 3

ALTERNATIVE 2: EXCAVATION AND OFF-YARD DISPOSAL
 ALTERNATIVE-SPECIFIC ARARs AND TBCs
 SITE 30 ACTION MEMORANDUM
 PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE
 PAGE 5 OF 5

Medium/Activity	Requirement/Citation	Status ⁽¹⁾	Synopsis	Evaluation/Action To Be Taken
Waste	Maine Solid Waste Management Regulations (06-096 CMR 400, 401, 405, 411)	Applicable	Provides standards for generation, transportation, treatment, storage, and disposal of solid and special wastes.	These regulations are applicable for the potential transport of solid waste.

ARAR – Applicable or Relevant and Appropriate Requirement

CAA – Clean Air Act

CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

CFR - Code of Federal Regulations.

CMR - Code of Maine Rules

CWA – Clean Water Act

EPA – Environmental Protection Agency

MEDEP - Maine Department of Environmental Protection

MRSA - Maine Revised Statutes Annotated

NAAQS – National Ambient Air Quality Standards

OSHA – Occupational Safety and Health Act

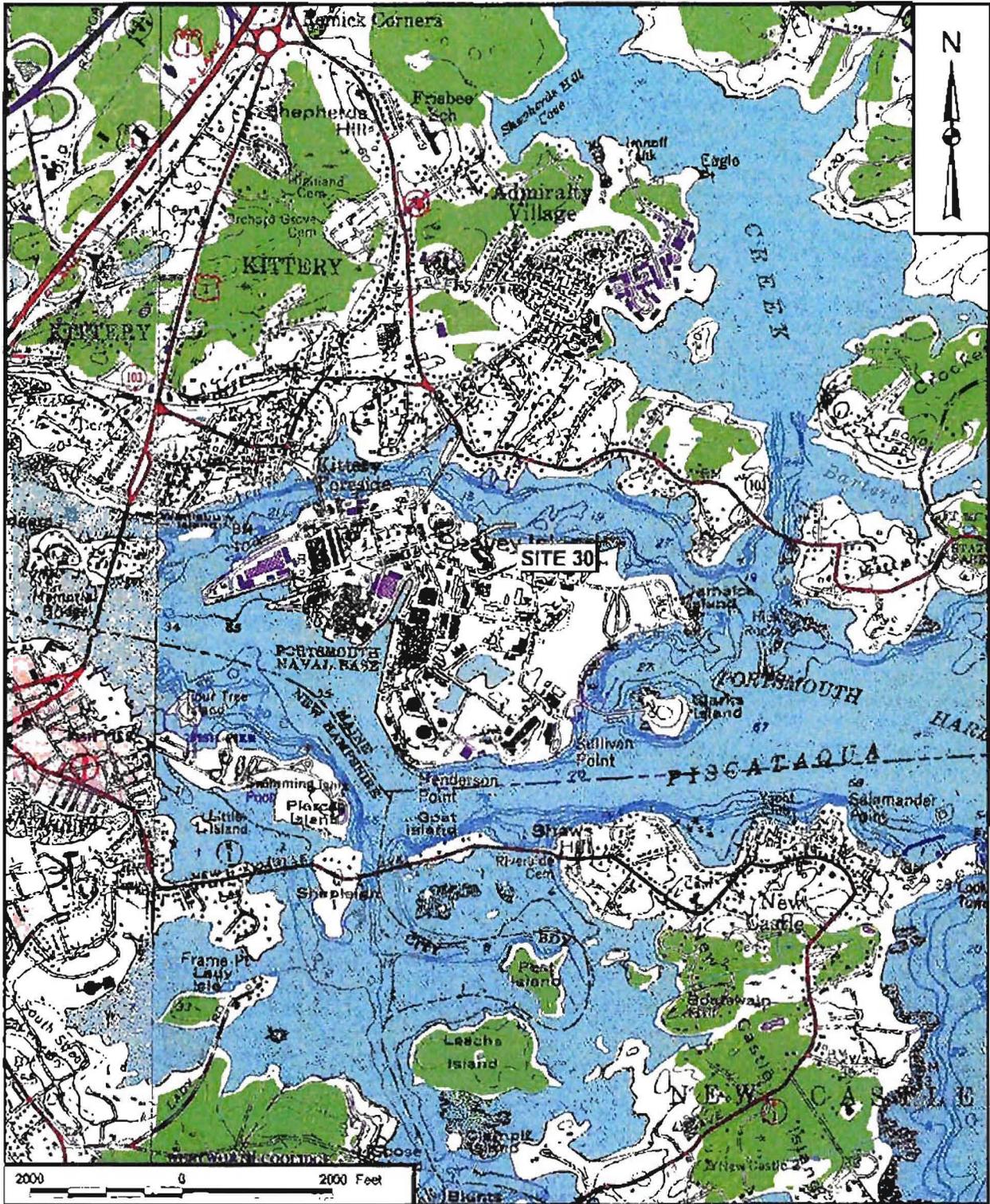
POTW - Publicly owned treatment works

RCRA - Resource Conservation and Recovery Act

TBC – To Be Considered

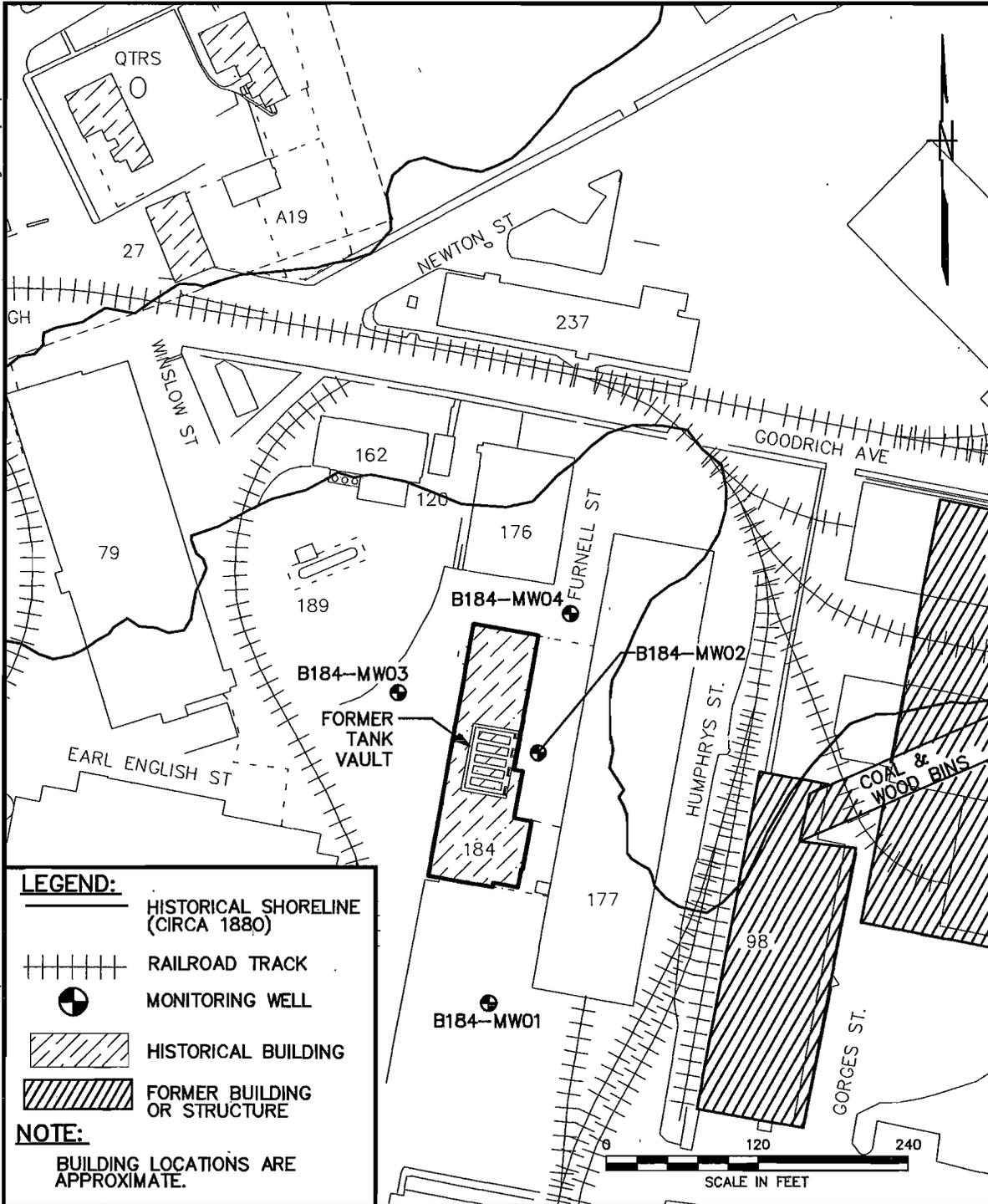
TSD – Treatment, storage, and disposal

USC – United States Code



DRAWN BY J. LAMBY CHECKED BY M. GRAY DOS/TSC SCHEDULE AREA SCALE AS NOTED	DATE 3/23/04 DATE 3/19/16 PNS AND SITE LOCATION MAP PORTSMOUTH NAVAL SHIPYARD KITTERY, MAINE	Tetra Tech NUS, Inc.	CONTRACT NUMBER 0383 APPROVED BY APPROVED BY DRAWING NO.	OWNER NO 0055 DATE DATE FIGURE 1	REV 0
---	--	----------------------	--	--	----------

ACAD: 4169CM10.dwg 03/22/10 ND PIT

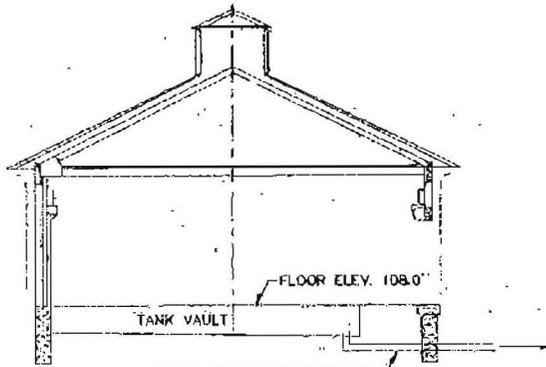


LEGEND:

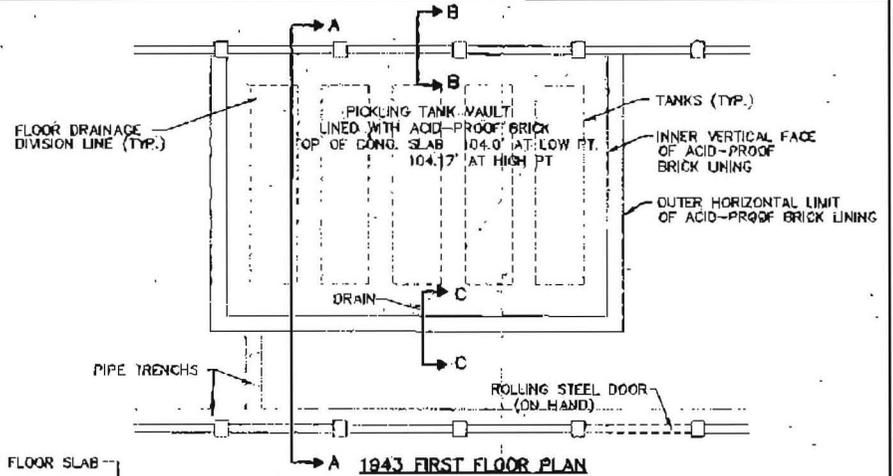
- HISTORICAL SHORELINE (CIRCA 1880)
- RAILROAD TRACK
- MONITORING WELL
- HISTORICAL BUILDING
- FORMER BUILDING OR STRUCTURE

NOTE:
BUILDING LOCATIONS ARE APPROXIMATE.

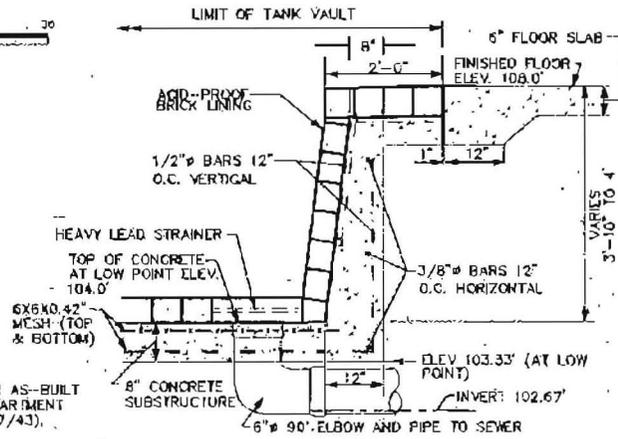
DRAWN BY ND DATE 3/22/10	Tetra Tech NUS, Inc.	CONTRACT NO. 0383	OWNER NO. 0055
CHECKED BY DATE	BUILDING 184 LOCATION MAP SITE 30 PORTSMOUTH NAVAL SHIPYARD KITTERY, MAINE	APPROVED BY DATE	APPROVED BY DATE
COST/SCHED-AREA		APPROVED BY DATE	APPROVED BY DATE
SCALE AS NOTED		DRAWING NO. FIGURE 2	REV. 0



SECTION A-A

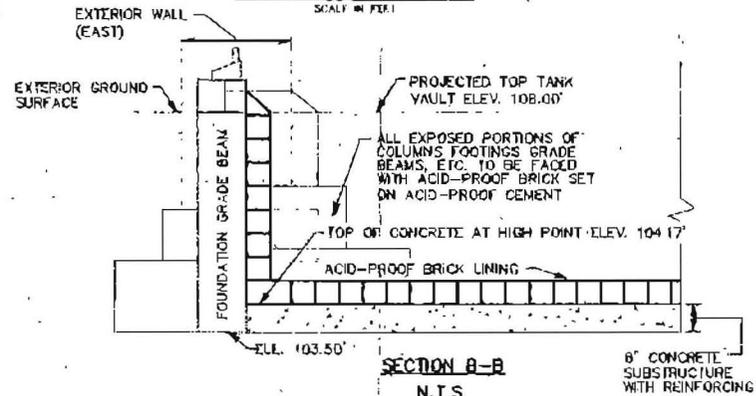


1943 FIRST FLOOR PLAN



SECTION C-C

N.T.S.



SECTION B-B

N.T.S.

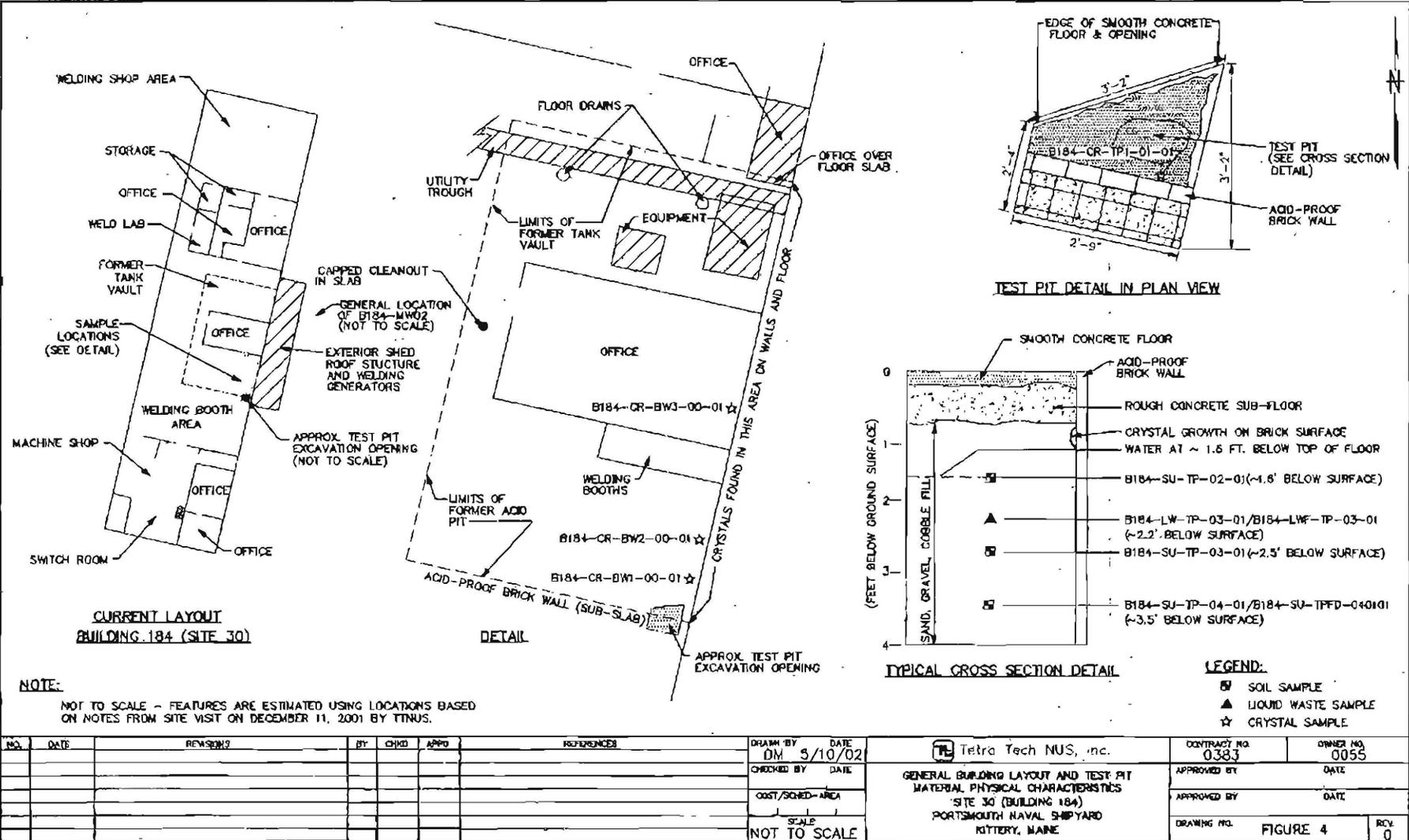
8" CONCRETE SUBSTRUCTURE WITH REINFORCING

NOTES:

INFORMATION ON THIS FIGURE IS COMPILED FROM AS-BUILT DRAWINGS REVIEWED AT THE PUBLIC WORKS DEPARTMENT AT PWS. DRAWINGS USED ARE: 184-43-11 (6/17/43), 184-43-18 (10/12/43), 184-43-10 (6/5/43), 184-43-3 (3/27/43), 184-43-13 (6/21/43), AND 184-43-2 (3/27/43)

NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES	DRAWN BY	DATE	CONTRACT NO.	OWNER NO.
							DM	5/16/02	0383	0055
							CHECKED BY	DATE	APPROVED BY	DATE
							COST/SCHED-AREA		APPROVED BY	DATE
							SCALE		DRAWING NO	REV.
							AS NOTED		FIGURE 3	0

Tetra Tech NUS, Inc.
 1943 AS-BUILT BUILDING CONDITIONS
 PLAN AND SECTIONS
 SITE 30 (BUILDING 184)
 PORTSMOUTH NAVAL SHIPYARD
 KITTERY, MAINE



**CURRENT LAYOUT
BUILDING 184 (SITE 30)**

DETAIL

TEST PIT DETAIL IN PLAN VIEW

TYPICAL CROSS SECTION DETAIL

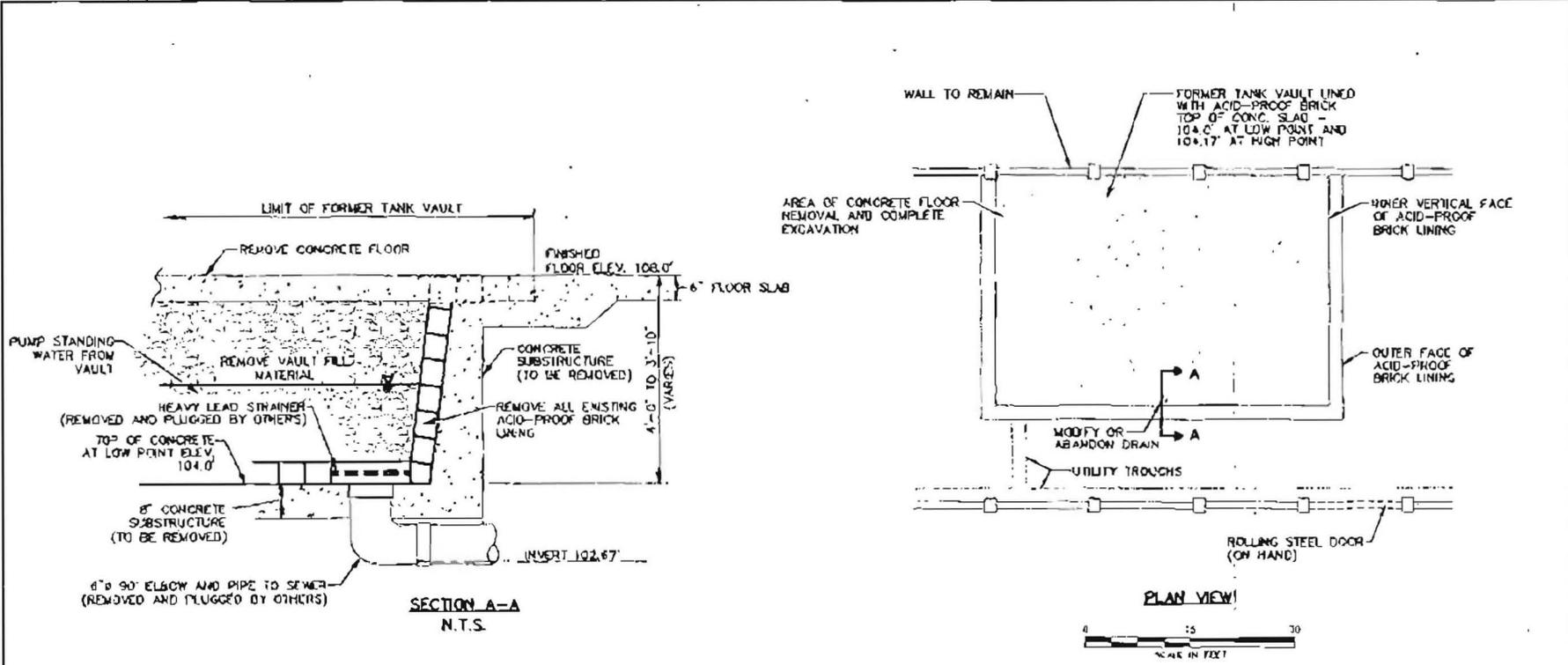
LEGEND:

- ☐ SOIL SAMPLE
- ▲ LIQUID WASTE SAMPLE
- ☆ CRYSTAL SAMPLE

NOTE:
NOT TO SCALE - FEATURES ARE ESTIMATED USING LOCATIONS BASED ON NOTES FROM SITE VISIT ON DECEMBER 11, 2001 BY TITUS.

NO.	DATE	REVISION?	BY	CHKD	APPD	REFERENCES	DRAWN BY	DATE	CONTRACT NO.	OWNER NO.
							DM	5/10/02	0383	0055
									APPROVED BY	DATE
									APPROVED BY	DATE
									DRAWING NO.	REV.
									FIGURE 4	0

Tetra Tech NUS, Inc.
GENERAL BUILDING LAYOUT AND TEST PIT
MATERIAL PHYSICAL CHARACTERISTICS
SITE 30 (BUILDING 184)
PORTSMOUTH NAVAL SHIPYARD
KITTEERY, MAINE



NOTE:
SEE FIGURE 2-4 FOR 1943 AS-BUILT DETAILS

NO.	DATE	REVISIONS	BY	COND.	APPRO.	REFERENCES	DRAWN BY	DATE	OWNER	CONTRACT NO.	OWNER NO.	
							DW	5/10/02	Tetra Tech NUS Inc.	0383	0055	
							CHECKED BY	DATE	APPROVED BY			DATE
							COST/SQYD - AREA		APPROVED BY			DATE
							SCALE		DRAWING NO			REV
							AS NOTED		FIGURE 5			0

ATTACHMENT 2

PUBLIC NOTICE

