

**Classification Exception Area  
Documentation  
for  
Site 1  
Ordnance Demilitarization Site (OU 8)**

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



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

**Contract Number N62472-03-D-0057  
Contract Task Order 029**

September 2005



TETRA TECH.NUS, INC.

DRAFT

PHIL-19437

**CLASSIFICATION EXCEPTION AREA DOCUMENTATION  
FOR  
SITE 1**

**ORDNANCE DEMILITARIZATION SITE (OU 8)**

**NAVAL WEAPONS STATION EARLE  
COLTS NECK, NEW JERSEY**

**COMPREHENSIVE LONG-TERM  
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT**

**Submitted to:**

**Engineering Field Activity Northeast  
Environmental Branch, Code EV2  
Naval Facilities Engineering Command  
10 Industrial Highway, Mail Stop #82  
Lester, Pennsylvania 19113-2090**

**Prepared and submitted by:**

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**Contract No. N62472-03-D-0057  
Contract Task Order 029**

**SEPTEMBER 2005**

**PREPARED UNDER DIRECTION OF:**

**APPROVED FOR SUBMISSION BY:**

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September 26, 2005

Project Number 00012

Engineering Field Activity Northeast  
Naval Facilities Engineering Command  
10 Industrial Highway Mail Stop No. 82  
Lester, Pennsylvania 19113-2090

Attn: Mr. Robert Lewandowski, Code EV21/RFL

Reference: Contract No. N62472-30-D-0057  
Contract Task Order (CTO) No. 029

Subject: Submission of Draft Classification Exception Area Documentation - Site 1 (OU8)  
NWS Earle - Colts Neck, New Jersey

Dear Mr. Lewandowski:

Tetra Tech NUS, Incorporated (TtNUS) is pleased to provide copies of the subject draft documents. 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 Eric Helms at NWS Earle, and three copies are enclosed for your use.

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

Sincerely,

Russell E. Turner  
Project Manager

RET/vh

Enclosures

c: Jessica Mollin (EPA, Region 2)  
Bob Marcolina (NJDEP)  
Eric Helms (NWS Earle)  
Garth Glenn (TtNUS) (without enclosures)  
Mary Mang (TtNUS) (without enclosures)  
File

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## ACRONYMS

µg/L	microgram per liter
CEA	Classification Exception Area
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	Chemical of Concern
EFANE	Engineering Field Activity Northeast
FS	Feasibility Study
GWQS	Ground Water Quality Standards
LUC	Land Use Control
MCLs	Maximum Contaminant Levels
N.J.A.C.	New Jersey Administrative Code
NAVFAC	Naval Facilities Engineering Command
NJDEP	New Jersey Department of Environmental Protection
NPL	National Priorities List
NWS	Naval Weapons Station
OU	Operable Unit_____
PRGs	Preliminary Remediation Goals
RI	Remedial Investigation
ROD	Record of Decision
TtNUS	Tetra Tech NUS, Inc.
USEPA	United States Environmental Protection Agency

## 1.0 INTRODUCTION

Tetra Tech NUS, Inc. (TtNUS) was contracted by Engineering Field Activity Northeast (EFANE), Naval Facilities Engineering command (NAVFAC) to prepare this Classification Exception Area (CEA) Documentation package for Site 1, Ordnance Demilitarization Site, at Operable Unit (OU) 8 at Naval Weapons Station (NWS) Earle in Colts Neck, New Jersey. This CEA Report has been prepared to satisfy the requirements set forth in the OU 8 Record of Decision (ROD) dated September 2004 (TtNUS, 2004) and New Jersey Administrative Code (N.J.A.C.) Section 7:26E, Technical Requirements for Site Remediation. This document was prepared under contract Number N62472-03-D-0057, Contract Task Order 029.

OU 8 consists of Site 1 (an open field that was used for burning ordnance material) and Site 11 (an open area that was used for burning/detonation of obsolete ordnance material and subsequently for occasional firefighting training exercises) located in the Mainside area. Only Site 1 is the subject of this CEA.

The following remedy was selected for Site 1 in the ROD (TtNUS, 2004):

- Land Use Controls (LUCs) will be incorporated into the Base Master Plan to limit future uses of the site to prevent direct contact with contaminated groundwater. The Navy is responsible for maintaining the integrity of any current or future remedial or monitoring system such as monitoring wells. Use of the aquifer beneath the site for purposes other than environmental monitoring and testing without Navy approval, will be prohibited, until groundwater is found to meet Federal Maximum Contaminant Levels (MCLs) and New Jersey groundwater quality standards (GWQS). LUCs will be maintained until the concentration of hazardous substances in the soil and groundwater are at such levels to allow for unrestricted use and exposure. As part of LUC implementation, the Navy will establish a CEA pursuant to N.J.A.C. 7:9-6 to provide the state official notice that the constituent standards will not be met for a specified duration anticipated not to exceed 5 years and to ensure that use of groundwater in the affected area is prohibited.
- Conduct long-term periodic groundwater monitoring to assess contaminant status and potential threats to human health and the environment. Since contaminant levels will remain above human-health based standards, site conditions and risks will be reviewed every 5 years.
- A notification will be added to the Base Master Plan stating that arsenic has been detected at a concentration above the New Jersey Department of Environmental Protection (NJDEP) residential direct contact cleanup criteria in subsurface soil at the Site 1 property.

## 1.1 PURPOSE

The purpose of this report is to present the information required to establish a CEA for Site 1. The information presented in this report fulfills the requirements for establishing a CEA in accordance with N.J.A.C., Section 7:26E, Technical Requirements for Site Remediation.

## 1.2 SITE DESCRIPTION AND ENVIRONMENTAL HISTORY

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 (Figure 1-1). The two areas are connected by a Navy-controlled right-of-way. The facility was commissioned in 1943, and its primary mission is to supply ammunition to the Naval fleet. An estimated 1,500 people either work or live at NWS Earle.

Site 1 is situated within the Mainside area of NWS Earle, bordered by Macassar Road to the east and a railroad spur to the north. The site is a six acre open field that was used for burning ordnance material between 1943 and 1975. Eight to ten foot high berms form the western and southern borders of the site. During site abandonment, the area was plowed, and a layer of diesel-soaked hay was burned on site to remove any residuals from the burning/detonation of ordnance. This procedure was carried out three times. For several years during the 1990s, a United States Army communication station and tower were located near the center of the site. The site is currently cleared of all structures.

The Department of the Navy completed a Remedial Investigation (RI), Feasibility Study (FS), Proposed Plan, and ROD for OU 8 addressing contamination associated with Site 1 and Site 11 at NWS Earle. These studies showed that groundwater at Site 1 exhibits elevated metals concentrations. Groundwater in the Vincentown aquifer beneath Site 1 occurs under unconfined conditions. The direction of shallow groundwater flow in the aquifer is toward the east-northeast. As part of the RI, a human health risk assessment and an ecological risk assessment were performed. Based on these assessments, arsenic, chromium, and iron were identified as the principal chemicals of concern (COC) in groundwater at Site 1. Proposed preliminary remediation goals (PRGs) based on a review of MCLs and GWQSSs were identified during the FS process. Respective GWQSSs for each COC will be used in the evaluation of long term groundwater monitoring data.

## 2.0 CLASSIFICATION EXCEPTION AREA INFORMATION

### SITE INFORMATION

- 1) Site Name: Ordnance Demilitarization Site (Site 1), Operable Unit 8  
Naval Weapons Station Earle  
  
Site ID: Site 1  
Spill Case Number: SRP ID No. 9310121021
- 2) Address: 201 Highway 34 South, New Jersey Township, Monmouth County
- 3) Block and Lot: Block 56, Lot 01
- 4) Site Location Map: See Attachment 1.
- 5) Site Contact Person: Gus Hermann  
Naval Weapons Station Earle  
201 Highway 34 South  
Code 043 Building C-23  
Colts Neck, New Jersey 07722-5014  
(732) 866-2624
- 6) NJDEP Case Manager: Bob Marcolina, Case Manager  
New Jersey Department of Environmental Protection  
Division of Responsible Party Site Remediation  
P. O. Box 028  
Trenton, New Jersey 08625-0028  
(609) 633-7237
- Remedial Action Approval: Record of Decision Sites 1 and 11 Operable Unit 8, September 2004.

### SITE LOCATION AND CLASSIFICATION EXCEPTION AREA DESCRIPTION

1) Narrative/description of proposed CEA:

The area of concern is located within the Mainside area of the NWS Earle facility (see Attachments 1 and 2). The affected area can be described as a parcel containing approximately 5.2 acres. Historically, Site 1 was an open field used to burn ordnance material. During site abandonment, the area was plowed, and a layer of diesel-soaked hay was burned on site to remove residuals from historic burning/detonation of ordnance. The area is bounded to the northwest, west, and south by an earthen berm and tree line, to the east by a tree line, and to the north by a railroad and drainage swale. The proposed CEA boundary is presented in Attachment 3, which includes the coordinates for the eight points used to define the boundary of the proposed CEA.

2) Affected Aquifer:

Vincentown Aquifer

3) Aquifer Classification:

Class II-A: Groundwater Supporting Potable Water Supply area. Class II-A includes those areas where groundwater is an existing source of potable water with conventional water supply treatment or is a potential source of potable water.

4) Contaminants Exceeding Applicable GWQS:

- Arsenic (N.J.A.C. GWQS = 8 µg/L)
- Chromium (N.J.A.C. GWQS = 100 µg/L)
- Iron (N.J.A.C. GWQS = 300 µg/L)

5) Proposed CEA Boundaries:

See Attachment 3.

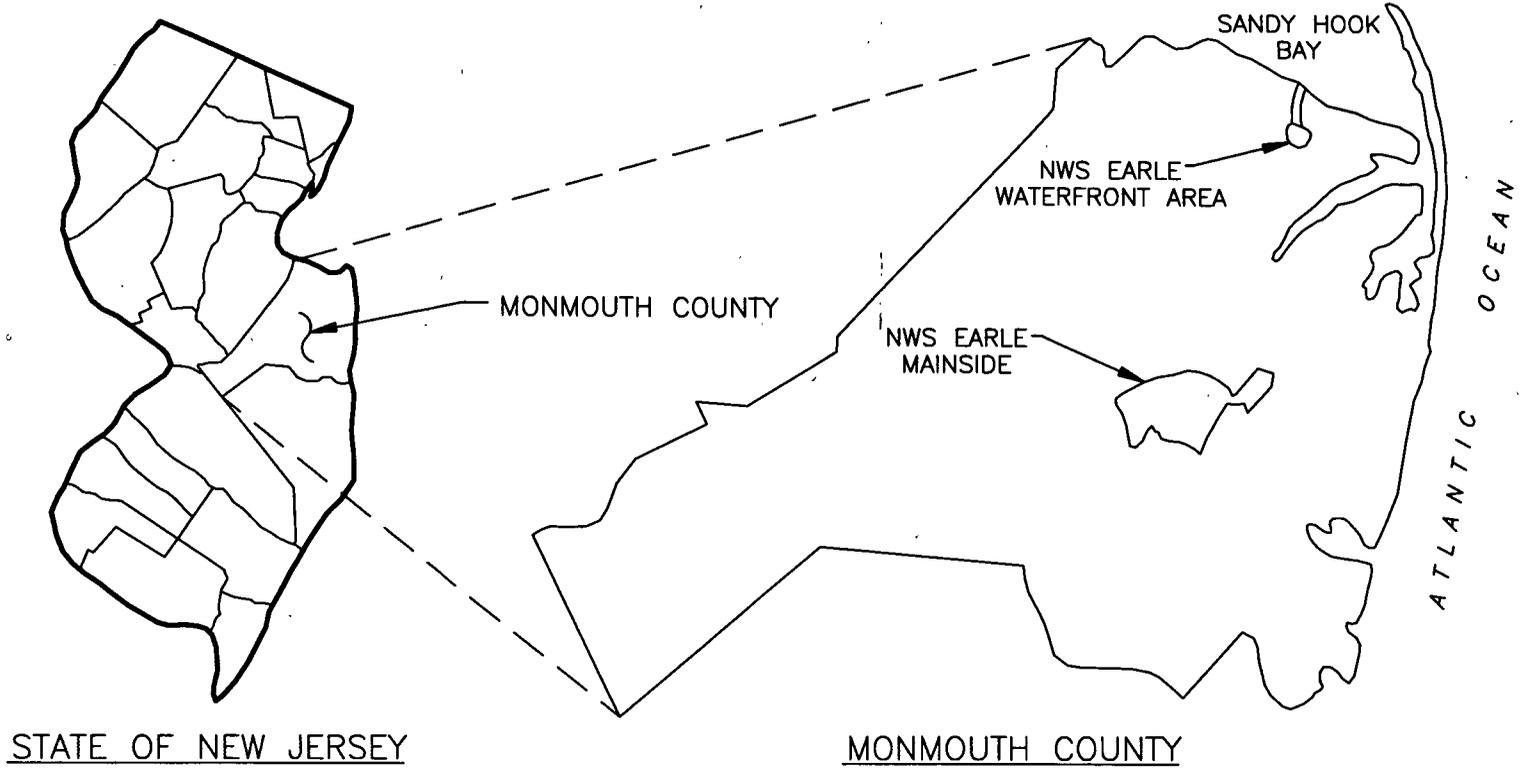
6) Estimated Size of the Proposed Ground Water CEA:

5.2 Acres.

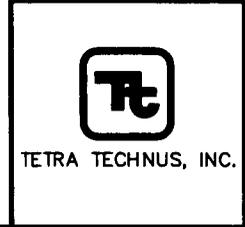
7) Projected Duration and Expiration Date of Proposed CEA:

Duration - 5 years

Expiration Date - September 2010

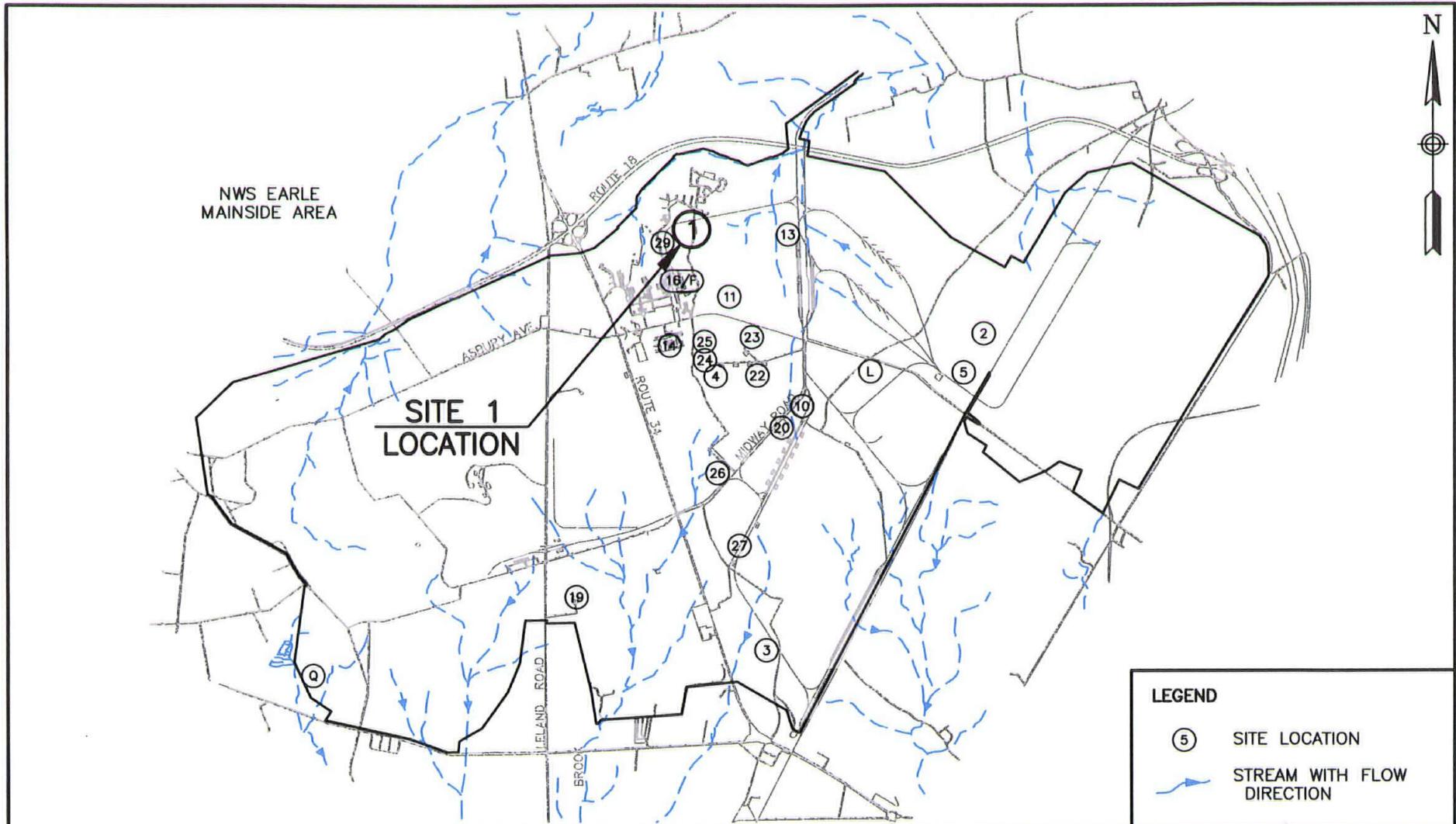


**NOTE:**  
SITE 1 IS LOCATED WITHIN NWS EARLE  
MAINSIDE (SEE ATTACHMENT 2).

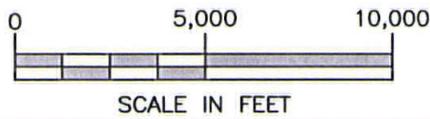


REGIONAL SITE MAP  
NAVAL WEAPONS STATION EARLE  
COLTS NECK, NEW JERSEY

SCALE NOT TO SCALE	
FILE 112G00012CM01.DWG	
REV 0	DATE 08/18/05
FIGURE NUMBER ATTACHMENT 1	



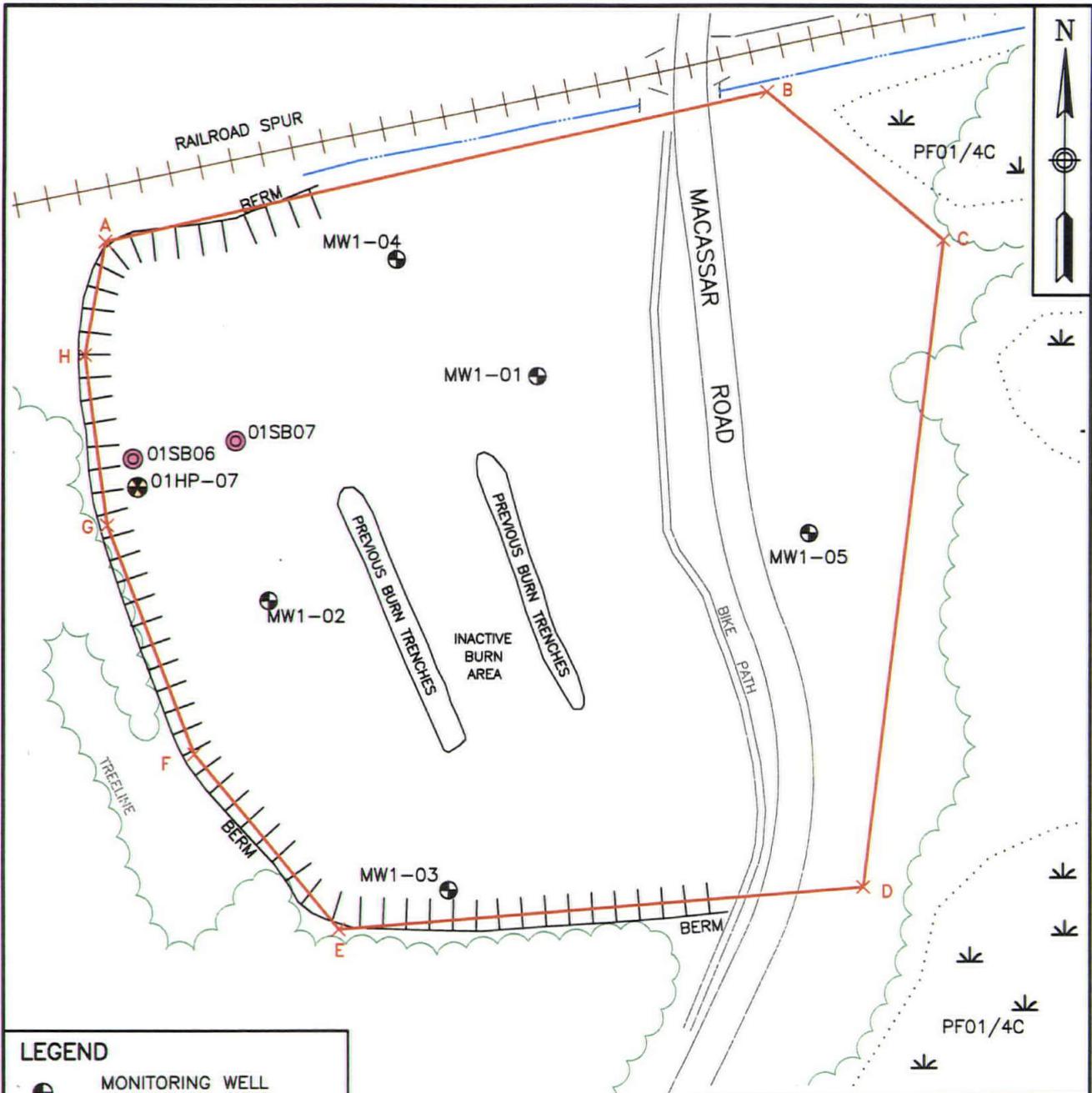
LEGEND	
	SITE LOCATION
	STREAM WITH FLOW DIRECTION



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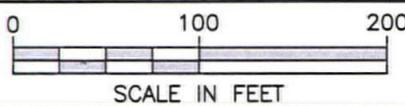
**SITE 1 LOCATION MAP**  
**NAVAL WEAPONS STATION EARLE**  
**COLTS NECK, NEW JERSEY**

SCALE AS NOTED	
FILE 112G00012CP02.DWG	
REV 0	DATE 08/18/05
FIGURE NUMBER ATTACHMENT 2	



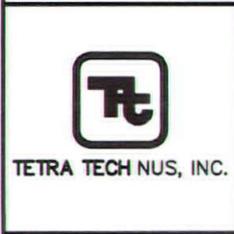
**LEGEND**

- MONITORING WELL LOCATION
- HYDROPUNCH SAMPLE LOCATION
- SOIL BORING LOCATION
- WETLANDS
- WETLANDS DELINEATION SOURCE NJDEP
- LIMIT OF CLASSIFICATION EXCEPTION AREA (CEA)



**NOTE: NORTHINGS AND EASTINGS ARE IN NEW JERSEY STATE PLANE COORDINATE SYSTEM.**

POINT	EASTING	NORTHING
A	588582.669	525402.021
B	589006.902	525497.819
C	589121.489	525402.900
D	589070.624	524985.164
E	588733.679	524957.832
F	588640.442	525071.378
G	588584.358	525219.725
H	588569.782	525329.329



**LIMIT OF CLASSIFICATION EXCEPTION AREA  
SITE 1 – ORDNANCE DEMILITARIZATION SITE  
NAVAL WEAPONS STATION EARLE  
COLTS NECK, NEW JERSEY**

SCALE AS NOTED

FILE	112G00012CP01.DWG
REV	0
DATE	08/18/05
FIGURE NUMBER	ATTACHMENT 3

### 3.0 CONTAMINANT FATE AND TRANSPORT ANALYSIS

As outlined in the FS for Sites 1 and 11 (OU 8) prepared by TtNUS and finalized by the Navy in March 2003, elevated levels of certain metals in groundwater at Site 1 may not indicate the potential for groundwater transport because suspended solids were found in the unfiltered groundwater samples. Metals in suspension are expected to have a greatly diminished potential for in-situ transport compared to metals in solution, given the geologic formation which does not include conditions conducive to solution channeling or fracture-based flow. Only two metals, cadmium and zinc, were detected at slightly elevated levels in filtered groundwater samples at Site 1 and these metals were not found at elevated levels in other media sampled at Site 1. Furthermore, historical groundwater data for this site show elevated aluminum levels that also suggests the presence of suspended solids. Overall, groundwater data do not indicate migration of dissolved inorganic contamination from the site. Additional information regarding contaminant fate and transport is found in the March 2003 FS Report.

## 4.0 GROUNDWATER MONITORING PROGRAM

### 4.1 OBJECTIVES

The following groundwater monitoring program will be implemented to document the concentrations and horizontal and vertical extent of those site-related contaminants currently exceeding applicable MCLs and/or GWQSSs. The data collected will be used to assess potential threats to human health and the environment in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and to fulfill CEA reporting requirements.

### 4.2 CEA MONITORING PROGRAM

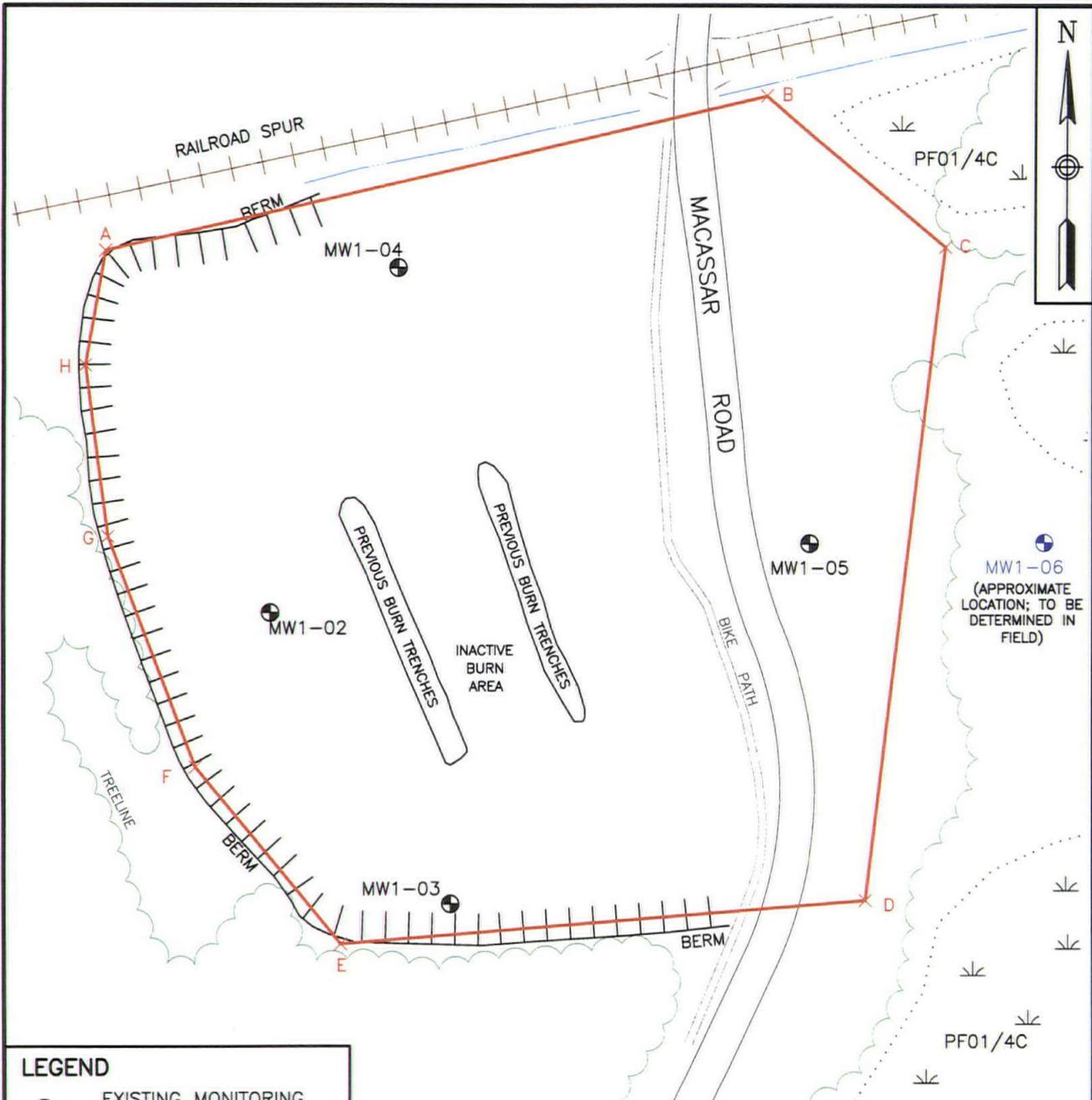
The CEA monitoring program consists of the following:

- Both filtered and unfiltered groundwater samples will be collected on an annual basis from each of the following wells (See Attachment 4):

Existing Wells: MW1-02, MW1-03, MW1-04, MW1-05

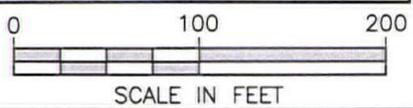
Proposed New Well: MW1-06 (To be located in a downgradient direction outside of the proposed CEA boundary. See Attachment 4).

- Each sample will be analyzed by a New Jersey certified laboratory for:  
  
Arsenic, Chromium and Iron using EPA Method SW846 6010B.
- Dissolved oxygen, pH, and temperature will be measured in the field using field instruments and recorded for all groundwater samples.
- Groundwater monitoring reports will be submitted to NJDEP on an annual basis. The report will include a tabulation of all sample results received during the reporting period pursuant to N.J.A.C. 7:26E-3.13(c)3 and will provide a brief narrative summarizing the data and presenting conclusions.



**LEGEND**

- EXISTING MONITORING WELL LOCATION
- PROPOSED MONITORING WELL LOCATION
- WETLANDS
- WETLANDS DELINEATION SOURCE NJDEP
- LIMIT OF CLASSIFICATION EXCEPTION AREA (CEA)



NOTE: NORTHINGS AND EASTINGS ARE IN NEW JERSEY STATE PLANE COORDINATE SYSTEM.

POINT	EASTING	NORTHING
A	588582.669	525402.021
B	589006.902	525497.819
C	589121.489	525402.900
D	589070.624	524985.164
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F	588640.442	525071.378
G	588584.358	525219.725
H	588569.782	525329.329



**CEA GROUNDWATER MONITORING LOCATIONS  
SITE 1 – ORDNANCE DEMILITARIZATION SITE  
NAVAL WEAPONS STATION EARLE  
COLTS NECK, NEW JERSEY**

SCALE AS NOTED	
FILE 112G00012CP01-2.DWG	
REV 0	DATE 09/02/05
FIGURE NUMBER ATTACHMENT 4	

## 5.0 PUBLIC NOTICE REQUIREMENTS

As outlined in NJDEP guidance for establishment of a CEA, the Navy is required to provide documentation to appropriate external agencies (local and county health departments, municipal governing bodies, municipal planning board) informing them of the CEA designation and groundwater use restrictions within the area. As noted in Section 1.0, LUCs incorporating the Site 1 CEA designation will be added to the NWS Earle Base Master Plan. Upon concurrence of the NJDEP regarding the CEA documentation, the Navy will forward to the NJDEP Case Manager copies of any local agency notification letters and certified mail receipts.

## REFERENCES

Brown and Root Environmental (B&R), 1996. Remedial Investigation Report for Naval Weapons Station Earle, Colts Neck, New Jersey. King of Prussia, Pennsylvania. July.

New Jersey Department of Environmental Protection (NJDEP), 1998. Final Guidance on Designation of Classification Exception Areas. November.

Tetra Tech NUS, Inc. (TtNUS), 2003. Feasibility Study for Sites 1 And 11 (OU 8). King of Prussia, Pennsylvania. March.

TtNUS, 2004. Record of Decision Sites 1 and 11 Operable Unit 8 (OU 8). King of Prussia, Pennsylvania. September.