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NWS EARLE
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CLASSIFICATION EXCEPTION AREA DOCUMENTATION FOR BUILDING 566 NWS EARLE NJ

5/1/1998

BROWN AND ROOT ENVIRONMENTAL

A

Classification Exception Area Documentation for Building 566 Site

Naval Weapons Station Earle
Colts Neck, New Jersey

Northern Division
Naval Facilities Engineering Command

Contract No. N62472-90-D-1298
Contract Task Order 0206

May 1998

Brown & Root Environmental

A Division of Halliburton NUS Corporation

C-51-4-8-16

CLASSIFICATION EXCEPTION AREA DOCUMENTATION
for
BUILDING 566 SITE
NAVAL WEAPONS STATION EARLE,
COLTS NECK, NEW JERSEY

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

Submitted to:
Northern Division
Environmental Branch, Code 18
Naval Facilities Engineering Command
10 Industrial Highway, Mail Stop No. 82
Lester, Pennsylvania 19113

Prepared and Submitted by:
Brown & Root Environmental
600 Clark Avenue, Suite 3
King of Prussia, Pennsylvania 19406-1433

Contract No. N62472-90-D1298
Contract Task Order 0206

May 1998

PREPARED BY:

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1.0 INTRODUCTION

1.1 INTRODUCTION

Brown and Root (B&R) Environmental prepared this classification exception area (CEA) documentation package for Northern Division (NORTHDIV) Naval Facilities Engineering Command (NAVFAC) under the Comprehensive Long-Term Environmental Action - Navy (CLEAN) Contract Number N62472-90-D-1298, Contract Task Order (CTO) No. 0206. The purpose is to present the information required to establish a CEA based on a natural attenuation remediation alternative for dissolved-phase groundwater contamination from a fuel oil discharge that occurred in the vicinity of Building 566 of the Naval Weapons Station (NWS) Earle. This CEA documentation was prepared in response to the New Jersey Department of Environmental Protection's (NJDEP's) January 22, 1998 comments on the Focused Investigation and Remedial Action Work Plan, prepared by B&R Environmental and submitted to the Navy in August 1997. B&R Environmental initially responded to the NJDEP's comments in correspondence to the Navy dated February 13, 1998. Refer to Appendix A for a copy of NJDEP's comment letter and B&R Environmental's correspondence to the Navy.

2.0 CLASSIFICATION EXCEPTION AREA INFORMATION

2.1 ADMINISTRATIVE INFORMATION

Site Name/Location: Building 566, Naval Weapons Station Earle; Colts Neck, New Jersey.

Site Identification Number: Spill Case Number 93-2-12-0939-57

NJDEP Case Manager: Bob Marcolina

Site Contact Person: Lawrence Burg

Lead Program: NJDEP-Bureau of Federal Case Management

2.2 SITE LOCATION AND CEA DESCRIPTION

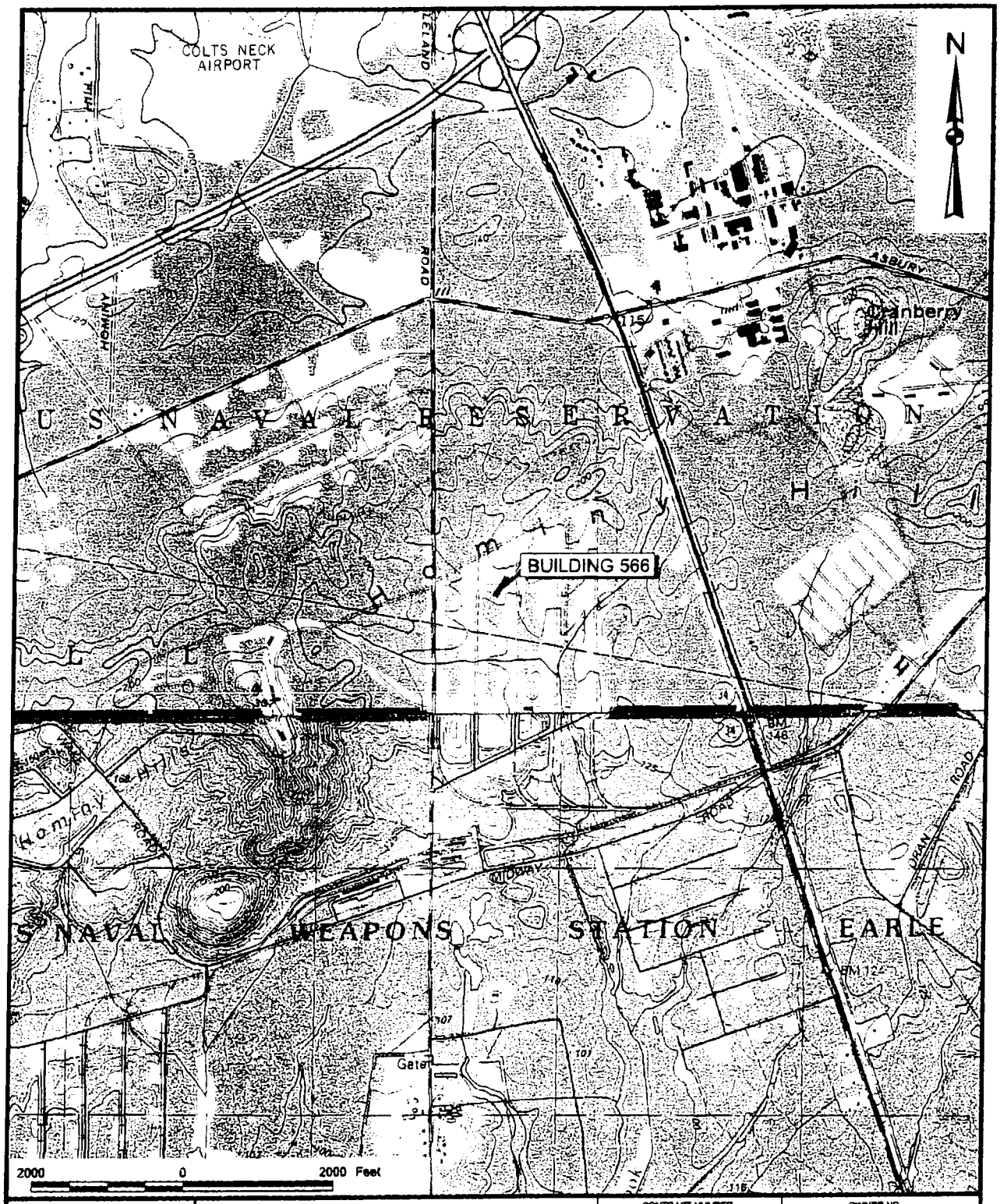
The area of concern is located at the mainside area of the NWS Earle facility (Figure 2-1). According to the Colts Neck Township Tax Office, the entire mainside area is designated as Block 56, Lot 1. The affected area may be described as a circular area approximately 250 feet in diameter situated directly south of the southern corner of Building 566. The area is the site of two previously removed fuel oil storage tanks and a wastewater drainage field. The proposed CEA boundaries and surface features are presented on Figure 2-2. The approximate center of the proposed CEA may be found at the intersection of latitude 40° 15' 15.3" and longitude 74°10' 04.3".

Aquifer/formation impacted: Kirkwood-Cohansey/Kirkwood

Aquifer Classification: Groundwater for the Mainside area of the NWS Earle facility is classified as Class II-A.

Contaminants exceeding applicable Groundwater Quality Standards (GQS): Benzene

Projected longevity of the CEA: 16 years.



DRAWN BY: S. TABLER — DATE: 4/28/99	Brown & Root Environmental	CONTRACT NUMBER: N62472-90-D-1298	OWNER NO.: —
CHECKED BY: M E S — DATE: 4/30/99	SITE LOCATION MAP - BUILDING 566 CTO 206 - CEA DOCUMENTATION NWS EARLE COLTS NECK, NEW JERSEY	APPROVED BY: — DATE: —	
COST/SCHEDULE-AREA		APPROVED BY: — DATE: —	
SCALE: AS NOTED		DRAWING NO.: FIGURE 2-1	REV: 0

P:\018\NWS_EARLE\60623002.APR 4/28/99 SMT BUILDING 566 LAYOUT

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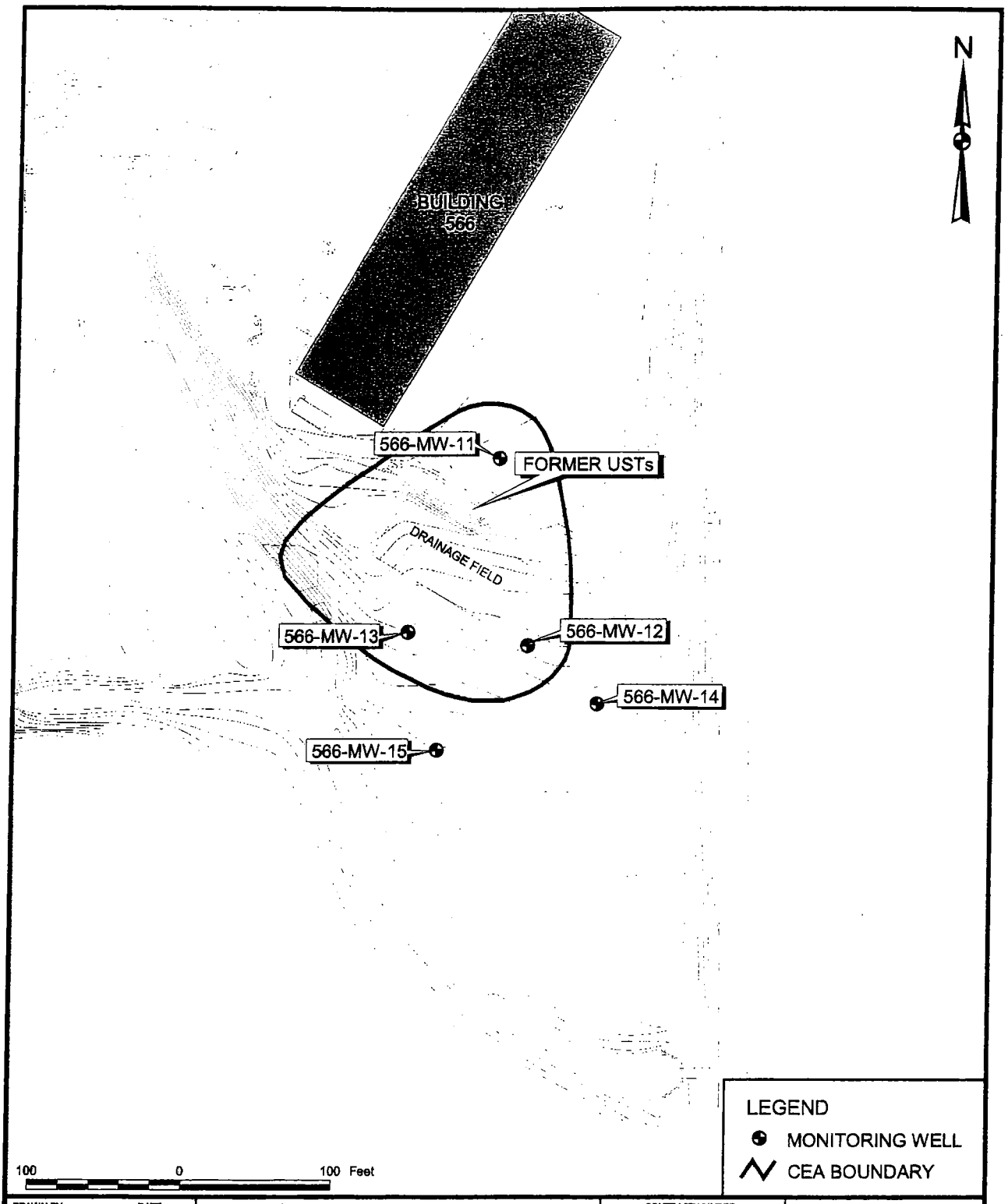

DRAWN BY: S. TABLER — DATE: 4/28/98	Brown & Root Environmental	CONTRACT NUMBER: N62472-90-D-1298	OWNER NO.: —
CHECKED BY: MBS — DATE: 4/30/98	PROPOSED CEA BOUNDARY BUILDING 566 NWS EARLE COLTS NECK, NEW JERSEY	APPROVED BY: — — DATE: —	
COST/SCHEDULE-AREA		APPROVED BY: — — DATE: —	
SCALE: AS NOTED		DRAWING NO.: FIGURE 2-2	REV: 0

P:\GIS\NWS_EARLE\50823002.APR 4/28/98 SMT BUILDINGS 566 LAYOUT

3.0 CONTAMINANT FATE AND TRANSPORT ANALYSIS

Details related to the contaminant fate and transport analysis are presented in the Focused Investigation and Remedial Action Work Plan (RAWP) for Building 566 Site prepared by B&R Environmental and submitted to the Navy August 1997.

The fate and transport model used for the prediction of plume migration of dissolved BTEX compounds for the site was the Bioscreen Natural Attenuation Decision Support System, published by the Technology Transfer Division of the Air Force Center For Environmental Excellence, June 1996. The Bioscreen software is based on the Domenico (1987) three-dimensional analytical solute transport model and has been adapted to provide three model types representing transport with no decay, transport with first-order decay, and transport with "instantaneous" biodegradation reaction.

Review of the groundwater analytical results and modeling results presented in the RAWP indicates that currently, without source removal, the plume appears to have reached, at least, a steady state condition. Additionally, modeling results indicate that, with source removal, concentrations of contaminants should decrease over time. At present, only benzene occurs in the groundwater at levels exceeding the NJDEP GQS. Concentrations of all other petroleum hydrocarbon compounds are currently below NJDEP GQS.

For the future model scenario, the conservative, first-order decay model indicates that with source removal, benzene concentrations in groundwater will meet the NJDEP GQS of 0.001 mg/l by year 16. Source removal is anticipated to be completed in 1998.

4.0 GROUNDWATER MONITORING PROGRAM

4.1 OBJECTIVES

The following groundwater monitoring program is proposed to document the migration, degradation, and attenuation of target constituents at the site. The proposed program contains a short-term monitoring effort to document decreasing contaminant trends, and long-term monitoring to provide data on the effectiveness of the natural attenuation program and to provide assurance that non-compliances will be identified and reported in a timely manner.

4.2 PROPOSED MONITORING PROGRAM

The proposed monitoring program consists of

- Short-term monitoring - Institute sampling of groundwater from all existing monitoring wells (MWs 11 through 15) on a quarterly basis. This effort will be conducted for a minimum of four and a maximum of eight consecutive quarters to establish historical flow and contaminant concentration data to document decreasing contaminant trends.

- Long-term monitoring - The Navy proposes long-term monitoring only in the event that the applicable groundwater standards are exceeded during implementation of the short-term monitoring. The number and location of monitoring wells, and the sampling duration and frequency will be determined based on the short-term monitoring results.

For example, if the groundwater standards are exceeded in the plume and plume fringe monitoring wells, but not in the sentinal wells during the short-term monitoring, an annual monitoring program will be initiated. The annual program will be continued at the plume and plume fringe wells, until the contaminant levels are similar to the levels predicted by the modeling, or if a decreasing trend of contaminant levels is shown. At that point, the Navy would request NJDEP approval for a decreased monitoring frequency.

At a minimum, the Navy will perform two consecutive rounds of samples, immediately following the short-term program, or within 120 calendar days after the established expiration of the CEA, to confirm the effectiveness of the remediation.

APPENDIX A

CORRESPONDENCE, NJDEP TO NORTHDIV, JANUARY 22, 1998, COMMENTS ON THE FOCUSED INVESTIGATION AND REMEDIAL ACTION WORK PLAN FOR BUILDING 566

Christine Todd Whitman
Governor

State of New Jersey

Department of Environmental Protection

Robert C. Shinn, Jr.
Commissioner

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
NO: Z 161 586 242

JAN 22 1998

Brian Helland
Northern Division
Naval Facilities Engineering Command
10 Industrial Highway, Mail Stop 82
Lester, PA 19113

Dear Mr. Helland:

Re: Focused Investigation and
Remedial Action Work Plan for
Building 566
Naval Weapons Station Earle
Colts Neck Twp., Monmouth Co.

The New Jersey Department of Environmental Protection (Department) has reviewed the above referenced report, prepared by Brown & Root Environmental on behalf of the Naval Weapons Station Earle, dated August 1997. The report is approved provided the following comments are addressed:

1) Section 2.1, Results of Phase I RI, page 2-3: In the first paragraph on this page the contractor states, "The extent of the shallow ground water contamination is limited both horizontally and vertically by the silt-clay." This statement is incorrect. The silt-clay unit only prevents the contamination from migrating vertically, there is no horizontal component to prevent contaminant migration.

2) Section 2.3.2.1.5, Water-Level Measurements, page 2-13: This section of the document discusses the water level measurement events conducted at the site. The contractor does not mention nor discuss if any of the wells were checked for the presence or free phase product.

3) Section 3.0: The downgradient line of compliance wells is not complete, as the horizontal extent of the plume has not been fully delineated. Additional monitoring wells should be located adjacent to the wetlands.

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C-51-2-8-33

February 13, 1998

Project Number 5333

Mr. Brian Helland, Senior Project Manager
Northern Division Code 1812/BH
Naval Facilities Engineering Command
10 Industrial Highway, Mail Stop 82
Lester, Pennsylvania 19113

Reference: CLEAN Contract No. N62472-90-D-1298
Contract Task Order No. 226

Subject: Response to NJDEP Comments
Focused Investigation and Remedial Action Work Plan for Building 566
Naval Weapons Station Earl, Colts Neck, New Jersey

Dear Mr. Helland:

The following information is being submitted in response to the State of New Jersey Department of Environmental Protection's (NJDEP's) 1/22/98 letter related to the subject underground storage tank (UST) site at the Naval Weapons Station (NWS) Earle.

Comment 1: *Section 2.1, Results of Phase I RI, page 2-3: In the first paragraph on this page the contractor states, "The extent of the shallow ground water contamination is limited both horizontally and vertically by the silt-clay." This statement is incorrect. The silt-clay unit only prevents the contamination from migrating vertically, there is no horizontal component to prevent contaminant migration.*

It is correct that the silt-clay lithologic unit can only directly limit the vertical extent of shallow groundwater contamination. However, the presence of the silt-clay lithologic unit indirectly helps to limit the horizontal extent of shallow groundwater contamination by limiting the downgradient extent of the shallow aquifer.

The silt-clay lithologic unit acts as the confining layer for the bottom of the shallow aquifer. The land surface and the silt-clay lithologic unit both generally slope in a radial direction away from the site, in the same general direction of inferred groundwater flow. The top of the silt-clay lithologic unit slopes at a lesser gradient than the ground surface. The net effect of this is a gradual thinning of the shallow aquifer to the point where it is of negligible thickness. The groundwater either intersects the ground surface where it is discharged through seep areas, or is lost through the soil layer by evapotranspiration. These are the circumstances by which the horizontal extent of shallow groundwater contamination is limited. This hydrogeologic model is most clearly demonstrated by the geologic maps and cross-sections of the Phase I Remedial Investigation (RI) Report for Building 566 (Brown & Root Environmental, October, 1996). Copies of these figures are included with this letter in Attachment A. Refer also to the response to NJDEP's Comment 3 below.

Comment 2: *Section 2.3.2.1.5, Water-Level Measurements, page 2-13: This section of the document discusses the water level measurement events conducted at the site. The contractor does not mention nor discuss if any of the wells were checked for the presence or free phase product.*

APPENDIX B

ELECTRONIC DELIVERABLES