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LETTER AND FINAL EXPLANATION OF SIGNIFICANT DIFFERENCES TO THE RECORD OF
DECISION AT SITE 12 BARRACKS ROAD LANDFILL NWS YORKTOWN VA

05/24/2011
CH2M HILL



CH2MHILL

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May 24, 2011

386475.PP.MG

Commander Atlantic Division
NAVFAC Mid-Atlantic
Attention: Mr. Thomas Kowalski
9742 Maryland Avenue
Norfolk, VA 23511-3095

Subject: Final Explanation of Significant Differences
Site 12 - Barracks Road Landfill (Operable Unit Nos. III, IV, and V)
Naval Weapons Station Yorktown (WPNSTA), Yorktown, Virginia
Navy Clean 1000 Program - Contract N62470-08-D-1000
Contract Task Order 0058

Dear Mr. Kowalski:

Enclosed please find two hard copies and two CDs of the referenced document for your records. Copies have been distributed as outlined below.

If you have any questions or comments regarding the enclosed document, please feel free to contact myself at 757-671-6223 or Adam Forshey at 757-671-6267.

Sincerely,

CH2M HILL

Stephanie Sawyer
Project Manager

cc: Mr. Moshood Oduwole/EPA - 3 hard copies/3 CDs
Mr. Wade Smith/VDEQ - 1 hard copy/1 CD
Mr. Bill Friedmann/CH2M HILL - 1 hard copy/1 CD
Mr. Adam Forshey/CH2M HILL - 1 hard copy/1 CD
Ms. Monica Morrow/Critigen - 1 hard copy (unbound)
Project File

Final
Explanation of Significant Differences
Naval Weapons Station, Yorktown
Site 12 – Barracks Road Landfill
(Operable Unit Nos. III, IV, and V)

1.0 INTRODUCTION

This Explanation of Significant Differences (ESD) to the Record of Decision (ROD) for Site 12 (“Site”), the Barracks Road Landfill, Naval Weapons Station (WPNSTA) Yorktown, Virginia, was prepared as per Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and Section 300.435(c)(2)(i) of Title 40 of the Code of Federal Regulations, as part of the National Contingency Plan (NCP). The ROD was signed by the Department of the Navy (Navy), as lead agency in March 1997, and by the United States Environmental Protection Agency (USEPA) Region 3, with the concurrence of the Virginia Department of Environmental Quality (VDEQ), in April 1997 (Baker, 1997).

1.1 Statement of Purpose

This ESD documents a significant difference to the long-term monitoring (LTM) requirement prescribed in the ROD, which requires that concentration levels of contaminants of concern (COCs) be monitored in groundwater, and in surface water and sediment in Ballard Creek; identifies the COCs to be monitored; and, defers promulgation of the details of LTM (e.g., media, analysis, locations, depth, frequency, and duration) to a LTM Work Plan. The Navy, USEPA Region 3, and VDEQ agree that LTM should remain part of the selected remedy because landfill waste remains in place (under a clay cover), and thus, site conditions do not allow for its unrestricted use. The Navy, USEPA Region 3, and VDEQ also agree that trichloroethene (TCE) has been determined not to be a COC at the Site, and therefore, should not remain part of the LTM program.

Accordingly, the purposes to be accomplished by this ESD are;

(1) to remove details of the LTM requirement from the ROD (e.g., monitoring TCE in groundwater and surface water, monitoring polyaromatic hydrocarbons [PAHs], polychlorinated biphenyls [PCBs], cadmium, manganese, silver, antimony, and beryllium in sediment, and implementing long-term monitoring of groundwater across the study area from shallow and deep monitoring wells and long-term monitoring of surface water and sediment from Ballard Creek and its tributaries) so that specific sampling requirements can be included in a LTM Work Plan and agreed to by the regulators; and

(2) to clarify that the objectives of LTM are: (a) to detect potential releases to groundwater, at the waste boundary, of COCs in landfill material; (b) to confirm that the clay cover remains protective of human health and the environment; and (c), to confirm effective containment of waste and soils beneath the cover.

1.2 Public Availability

This ESD and the documents forming the basis for it will become part of the Administrative Record File for WPNSTA Yorktown, as per the NCP (40 C.F.R. Section 300.825[a][2]). The Administrative

Record File may be viewed by contacting Ms. Bonnie Capito, Librarian and Records Manager, Naval Facilities Engineering Command, Atlantic, at 757-322-4785 or bonnie.capito@navy.mil. This document and the ROD will be available for 30 days from the date of delivery to the following Information Repository:

York County Public Library
8500 George Washington Memorial Highway
Yorktown, Virginia 23692
(757) 890-3376
<http://www.yorkcounty.gov/Default.aspx?alias=www.yorkcounty.gov/library>

2.0 SUMMARY OF SITE HISTORY, EXTENT OF CONTAMINATION, AND SELECTED REMEDY

WPNSTA Yorktown is a 10,624-acre installation located on the Virginia Peninsula in York and James City Counties and the City of Newport News (Figure 1). This installation is bounded on the northwest by the Navy's Cheatham Annex and King's Creek Commerce Park; on the northeast by the York River and the Colonial National Historic Parkway; on the southwest by Route 143 and Interstate 64; and on the southeast by Route 238 and the community of Lackey.

2.1 Site Description and History

Site 12 – Barracks Road Landfill, is located in the eastern portion of WPNSTA Yorktown and consists of three areas - Area A, Area B/C, and the Wood/Debris Disposal Area (Figure 1). Area A is partially wooded and covers approximately 4.4 acres. An incinerator building and smokestack were formerly located in Area A; ash from the incinerator was disposed of in the topographic low area immediately southwest of the building, adjacent to Ballard Creek. Area B/C is approximately 1.6 acres and consists mostly of an open field, but also has wooded areas with steep slopes and ravines; ash may have been disposed of in this area. The Wood/Debris Disposal Area consists of a ravine near Ballard Creek in which wood and construction debris were formerly disposed. The ROD and Administrative Record File demonstrate that only Area A (Operable Units [OU] III and V) requires a remedy.

2.2 Selected Remedy

The remedy described in the ROD for Area A soils (OU III) and for groundwater and Ballard Creek surface water and sediment (OU V), consists of a clay cover, land use restrictions, groundwater use restrictions, and LTM. The ROD documents that no action is necessary to achieve unrestricted use/unlimited exposure at Area B/C or the Wood/Debris Disposal Area soils (OU IV).

OU III – Selected Remedy for Area A Soil

- Excavating soil and removing debris located on steep slopes, spreading excavated soil over flat portions, and backfilling the excavated area with clean fill;
- Placing and compacting 12 inches of clay or a material with similar permeability over the resulting soil pile, and placing and compacting six inches of topsoil over the clay or clay-equivalent material
- Constructing erosion control along the steep slopes located along the stream channel;

- Implementing land use restrictions in the Station Master Plan;
- LTM of the soil cover and surface water; and
- Requiring five-year reviews because contaminated soils remaining on site do not allow for unrestricted use/unlimited exposure.

OU IV – Selected Remedy for Area B/C and Wood/Debris Disposal Area Soil

- No Action.

OU V – Selected Remedy for Groundwater and for Ballard Creek Surface Water and Sediments

- Implementing groundwater use restrictions throughout Area A, Area B/C, and the Wood Debris Disposal Area in the Station Master Plan to prevent potable use;
- Implementing LTM of groundwater from shallow and deep wells across the study area, and surface water and sediment from Ballard Creek and its tributaries; and
- Requiring five-year reviews to confirm LTM remains protective of human health and the environment.

The ROD prescribes that the LTM requirement for OU III and OU V (e.g., media, analysis, locations, depths, frequency, and duration) will be promulgated in a LTM Work Plan. Furthermore, the ROD identifies COCs (i.e., TCE in groundwater and surface water, and PAHs, PCBs, cadmium, manganese, silver, antimony, and beryllium in sediment) and identifies trigger values for TCE in groundwater and surface water, above which remedial action would be considered for protection of human health and the environment. Trigger values for PAHs, PCBs, cadmium, manganese, silver, antimony, and beryllium in sediment were not set in the ROD. Finally, the ROD requires implementation of long-term monitoring of groundwater from shallow and deep monitoring wells and of surface water and sediment from Ballard Creek and its tributaries.

2.3 Remedy Implementation

The Area A clay cover, installed in 1997, is described in *Final Report for Site 12 – Area A* (OHM, 1998). Monitoring and maintenance requirements, and land use and groundwater use restrictions have been implemented. LTM for groundwater and Ballard Creek surface water and sediment began in 1998 and continued annually until 2003, in accordance with approved work plans (Baker, 1998; Baker, 2000). LTM data is presented in *Site 12 Long-Term Monitoring Report – 1998 to 2003* (Baker, 2005). In June 2003 and again in September 2006, the Navy, USEPA Region 3, and VDEQ agreed to revise the LTM sampling work plan with Consensus Statements 6-18-03-30 and 9-1-06-45, respectively (Attachment 1). In September 2007, the sampling plan was again revised, as documented in *Final Long-Term Monitoring Work Plan – Site 12* (CH2M HILL, 2007), and further sampling was conducted in December 2007. In April 2008, the Navy, for purposes of review and comment, provided a draft LTM report to USEPA Region 3 and VDEQ; the report proposed additional revisions to the LTM program. USEPA Region 3 commented on the draft report on April 30, 2008, stating, “EPA cannot wholly concur with the April 2008 draft LTM Report for Site 12, until an ESD is finalized changing the LTM requirements at Site 12” (Attachment 2).

3.0 BASIS FOR THE ESD

This ESD documents a significant difference to the ROD LTM requirement;

(1) removing from the ROD details of the LTM requirement (e.g., monitoring TCE in groundwater and surface water, monitoring PAHs, PCBs, cadmium, manganese, silver, antimony, and beryllium in sediment, and implementing long-term monitoring of groundwater across the study area from shallow and deep monitoring wells and long-term monitoring of surface water and sediment from Ballard Creek and its tributaries); and

(2), clarifying that the objectives of LTM are: (a) to detect potential releases to groundwater, at the waste boundary, of COCs in landfill material; (b) to confirm that the clay cover remains protective of human health and the environment; and (c), to confirm effective containment of waste and soils beneath the cover that do not meet unlimited use/unrestricted exposure levels.

Groundwater investigations conducted in 2007 confirm that the source of TCE in groundwater at Site 12 is an upgradient industrial area (Figure 1). This area - Site 31 (former area of concern [AOC] 23), Barracks Road Industrial Area - is being investigated separately. TCE sampling required by the ROD at Site 12 is no longer necessary. The investigation of Site 31 will determine the extent of TCE contamination from that source.

Removing details of the LTM program from the ROD, to be addressed in a LTM Work Plan, will optimize the LTM program by eliminating the need for subsequent ESDs or ROD amendments. In addition, changes in specific LTM program sampling requirements will be documented in subsequent LTM Reports, which are commented on and accepted by the EPA and VDEQ.

4.0 DESCRIPTION OF SIGNIFICANT DIFFERENCES

Based on the foregoing, the following significant differences to the LTM component of the remedy are made by this ESD.

- LTM will be performed only to confirm that the clay cover in Area A remains protective of human health and the environment, and that downgradient areas are not adversely impacted by potential future releases from this area.
- All reference to specific LTM requirements (e.g., media, analysis, locations, depths, frequency, and duration) will be removed from the ROD since the ROD already states that these details will be deferred to a LTM Work Plan.
- All reference to monitoring of groundwater and Ballard Creek surface water for TCE will be removed from the LTM requirements of the ROD because the Navy, USEPA Region 3, and VDEQ have agreed that Site 12 is not a source of TCE; rather, the source of TCE has been determined to be Site 31. TCE contamination will be investigated as part of Site 31, as the Navy, USEPA Region 3, and VDEQ agreed, based on the September 2006 consensus statement (Attachment 1). Groundwater use restrictions at Site 12 will continue until a ROD is issued for Site 31 groundwater, at which time, by operation of this ESD, groundwater use restrictions may be discontinued at Site 12. Institutional controls on contaminated groundwater from Site 31 will be imposed and implemented if, and as provided in the Site 31 ROD.

- Conduct periodic maintenance activities of Area A, as outlined in the *Integrated Natural Resource Management Plan*. Maintenance activities include the following:
 - Exclusion of woody vegetation from the clay capped area;
 - Monitoring and correcting any erosion problems;
 - Maintaining access roads to site monitoring wells;
 - Monitoring soil fertility/turn; fertilize and seed plant;
 - Maintaining drainage areas; and
 - Eradicating invasive species if necessary and monitoring the native species;

For soils beneath the Area A clay cover that do not allow for unlimited use/unrestricted exposure, land use and groundwater use restrictions, groundwater monitoring, and 5-year reviews will continue. No other areas of Site 12 require such restrictions, monitoring, or 5-year reviews.

5.0 SUPPORT AGENCY COMMENTS

VDEQ, the support regulatory agency, has reviewed this ESD and supports the above changes to the remedy.

6.0 STATUTORY DETERMINATIONS

The Navy, USEPA Region 3, and VDEQ agree that the ROD, as modified by this ESD, remains protective, complies with Federal and State applicable or relevant and appropriate requirements identified in the ROD; and is cost-effective. Because the remedy is a clay cover over landfill waste left in place, neither the original remedy nor the revised remedy utilizes permanent solutions or alternative treatment technologies.

As per CERCLA Section 121(c) and the NCP (40 C.F.R. Section 300.430 [f][4][ii]), the effectiveness of the selected remedy must be reviewed every 5 years when, following completion of the remedial action, hazardous substances, pollutants, or contaminants remain at a site above levels that allow for unrestricted use/unlimited exposure. Based on the ROD, this ESD, and remedy implementation documentation (OHM, 1998), conditions at Site 12 do not allow for unrestricted use/unlimited exposure; therefore, 5-year reviews associated with the Area A soil cover are necessary.



 Lowell Crow
 Captain, U.S. Navy
 Commanding Officer
 Naval Weapons Station, Yorktown

14 APRIL 11

 Date



 Ronald J. Borsellino
 Director
 Hazardous Sites Cleanup Division
 U.S. Environmental Protection Agency, Region 3

May 16, 2011

 Date

7.0 PUBLIC PARTICIPATION ACTIVITIES

As per 40 C.F.R. Section 300.435(c)(2)(i), this ESD and documents relied upon to make the decisions in this ESD will be added to the Administrative Record, and a notice of availability and brief description of this ESD will be published in the *Daily Press* and *The Virginia Gazette* within 30 days of its effective date.

8.0 REFERENCES

Baker, 1997. *Record of Decision for Site 12, Barracks Road Landfill (Operable Unit Nos. III, IV, and V), Naval Weapons Station Yorktown, Yorktown, Virginia* (AR# 00871).

Baker, 1998. *Final Work Plan for Site 12 Long-Term Monitoring, Naval Weapons Station Yorktown, Yorktown, Virginia* (AR# 01168).

Baker, 2000. *Final Work Plan for Site 12 – Years Two and Three, Naval Weapons Station Yorktown, Yorktown, Virginia* (AR# 01165).

Baker Environmental, Inc. (Baker), 2005. *Site 12 Long-Term Monitoring Report – 1998 to 2003, Naval Weapons Station Yorktown, Virginia*. (AR# 02028).

CH2M HILL, 2007. *Final Long-Term Monitoring Work Plan, Site 12, Naval Weapons Station Yorktown, Yorktown, Virginia* (AR# 02157).

OHM Remediation Services Corporation, 1998. *Final Report for Site 12 – Area A, Naval Weapons Station Yorktown, Yorktown, Virginia* (AR# 01154).

9.0 FIGURES

Figure 1 – Site 12, Barracks Road Landfill

10.0 ATTACHMENTS

Attachment 1: Consensus Statements (6-18-03-30 and 9-1-06-45)

Attachment 2: USEPA Region 3 Letter (April 30, 2008)



- Legend**
- Monitoring Well
 - Approximate IR Site 12 Boundary
 - Industrial Area
 - NWS Yorktown Boundary



Figure 1
 Site 12 - Barracks Road Landfill
 Explanation of Significant Difference (ESD)
 Naval Weapon Station Yorktown
 Yorktown, Virginia

**PARTNERING MEETING
WPNSTA YORKTOWN/CHEATHAM ANNEX**

Date: June 19, 2003

Site Description:

WPNSTA Site 12. See Management Plan

Consensus Topic:

Long term monitoring program at WPNSTA Site 12

Consensus Statement:

Based upon the information presented on June 19, 2003 at the Partnering Meeting on the long term monitoring program at WPNSTA Site 12 (years one through five), the Partnering Team agreed to the following:

1. Eliminate LTM monitoring at wells 12GW13 and 12GW4 (located upgradient of site) and collect one round of samples during the next 5 year LTM period at wells 12GW8, 12GW19, 12GW18 and 12GW 18A and analyze for 8 RCRA metals (total metals only).
2. The team agreed to install a new monitoring well, 12GW20, down gradient of well 12GW07 at the site to identify the migration pathway for VOCs.
3. Eliminate sampling at wells 12GW01A, 12GW06 for VOCs because:
 - 12GW01A is screened in the deeper aquifer and has no history of detections
 - 12GW06 – concentrations have decreased over time and it is recommended that monitoring at 12GW01 will adequately monitor groundwater pathway.
4. Collect samples from 10 wells (12GW01, 12GW05, 12GW07, 12GW09, 12GW13, 12GW14, 12GW17, 12GW15, 12GW16, and 12GW20 (new well) every two years and analyze for all VOCs.
5. The team agreed to collect 4 or 5 sediment samples at locations 12SDCW, 12SD32, 12SD34, 12SD37, and RI sample location SD17 and analyze for the 8 RCRA metals once (in year 9 or 10) in the next 5-year review cycle.

Team Members:

NAME	ORGANIZATION	Signature & Date
CORE MEMBERS		
Greyson Franklin	USEPA Region III	<i>G. Franklin 8/12/03</i>
Steve Mihalko	VDEQ	<i>Steve Mihalko 6/19/03</i>

Consensus Statement No. 6-18-03-30 (revised 6-25-03)

Figure 9-11. Partnering Team Consensus Statement on Site 12 LTM Program

WPNSTA YORKTOWN/CHEATHAM ANNEX

Date: September 1, 2006

Site Description: The Site 12 Barracks Road Landfill, located in the eastern portion of Naval Weapons Station Yorktown (WPNSTA Yorktown) consists of three areas, designated as Area A, Area B/C, and the Wood/Debris Disposal Area. Area A is partially wooded and covers approximately 4.4 acres. An incinerator building and smokestack were formerly located within Area A and the ash from the incinerator was disposed in a topographic low area immediately southwest of the building and upgradient of Ballard Creek. Area B/C is approximately 1.6 acres and consists of an open field and wooded areas containing steep slopes and ravines. The Wood/Debris Disposal Area consists of a ravine near Ballard Creek in which wood and construction debris were formerly disposed.

Consensus Topic:

The intent of this consensus statement is to document team approval for elimination of volatile organic compounds (VOCs) sampling from the LTM sampling program at Site 12.

Background:

The Phase II Remedial Investigation for Site 12 (Baker, 1996) identified unacceptable risks to humans and ecological receptors in Area A due to concentrations of metals and trinitrobenzene in soils and sediment (ecological receptors only). Unacceptable risks to humans were identified in groundwater in the surficial (Cornwallis Cave) aquifer due to concentrations of volatile organic compounds (VOCs). These chemicals were determined to be unrelated to the site based on historical site use and spatial distribution (i.e., the highest concentrations were detected in samples collected upgradient of the site). In the Record of Decision (ROD) for Site 12 (Baker, 1997), the final remedy included demolition of the incinerator facility; installation of a clay cover over the metals contaminated soil; regrading and erosion control; long term monitoring (LTM) of sediment, surface water, and groundwater; and Land Use Controls (LUCs), including groundwater use restrictions prohibiting potable use of site groundwater. The demolition of the incinerator facility, installation of the clay cover, regrading, and erosion control were completed in 1997. LTM was conducted between 1998 and 2003 in accordance with the Long Term Monitoring Work Plans for Site 12 (Baker, 1998 and 2000). These work plans required the sampling of Site 12 wells for Resource Conservation and Recovery Act (RCRA) 8 metals and Target Compound List (TCL) VOCs. In June 2003, the WPNSTA Yorktown Project Management Team (PMT) signed a consensus statement to modify the sampling approach by eliminating sampling in some wells in which contamination had not been observed and adding sampling of one new well. This most recent sampling approach also required the sampling of site wells for RCRA 8 Metals and TCL VOCs.

Consensus Statement:

As stated in Phase II RI Report (Baker 1996), the VOCs in groundwater at Site 12 are not attributable to Site 12; existing data and historical site use indicate the source of the VOCs is upgradient of Site 12, potentially as a result of releases from former tanks located in the industrial area west/southwest of the site. For this reason, sampling for VOCs will no longer be included in the LTM Program for Site 12, but will be more appropriately addressed as part of an investigation of the area upgradient of the site. Any unacceptable risks associated with the VOCs in groundwater or any downgradient impacts to surface water and sediment will be considered to be related to the upgradient area to be evaluated. This

will permit the area of contamination to be assessed and, if necessary, remediated more appropriately than as part of the LTM at Site 12. LTM at Site 12 will continue for RCRA 8 Metals only.

Team Members:

NAME	ORGANIZATION	Signature & Date
CORE MEMBERS		
Greyson Franklin	USEPA Region III	<i>Greyson Franklin</i>
Debra Miller	VDEQ	<i>Debra A. Miller</i>
Linda Cole	NAVFAC Mid-Atlantic	<i>Linda Cole</i>
Don Joiner	Baker Environmental	<i>Don Joiner</i>
Marlene Ivester	CH2M HILL	<i>Marlene Ivester</i>
Laura Cook	CH2M HILL	<i>[Signature]</i> for Laura Cook

RECEIVED

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

MAY 06
APR 22 2008

DEQ
OFFICE OF REMEDIATION PROGRAM

Robert Thomson, P.E., R.E.M.
Office of Federal Facility Remediation

Direct Dial (215) 814-3357
Mail Code: 3HS11

Date: April 30, 2008

Ms. Linda L. Cole, P.E.
NAVFAC MIDLANT, Code EV3
9742 Maryland Avenue
Building N-26, Room 3208
Norfolk, VA 23511-3095

Re: Naval Weapons Station–Yorktown NPL site, Yorktown, Va.
Site 12 - Barracks Road Landfill
Review of draft *Long-Term Monitoring Report*

Dear Ms. Cole:

Enclosed, please find the U.S. Environmental Protection Agency's (EPA's) comments pertaining to the review of the U.S. Navy's (Navy's) April, 2008 draft *Long-Term Monitoring (LTM) Report* for Site 12, the Barracks Road Landfill, located the Naval Weapons Station-Yorktown (NWS-Yorktown) NPL site:

- 1) In October 2006, a Tier 1 consensus statement was developed that eliminated VOC sampling from the LTM sampling program at Site 12 because it appeared that a VOC/CVOC-plume was emanating from an up gradient source. It was decided that the VOC source area would be investigated separately from Site 12, and any risk in groundwater would be evaluated and addressed in a separate ROD. While this is understood and accepted by the EPA RPM, the requirements for LTM at Site 12, as defined in Section 10.2.2 of the final ROD for Site 12, need to be changed to reflect this agreement.
- 2) Specifically, the Long-Term Monitoring Trigger Values listed in Table 10-2 of the final ROD for Site 12 need to be modified, along with the language contained in Section 10.2.2 of the final ROD for Site 12. It is suggested that an ESD be developed to address these issues at Site 12. EPA cannot wholly concur with the April 2008 draft *LTM Report* for Site 12, until an ESD is finalized changing the LTM requirements at Site 12.

This concludes EPA's review of the Navy's April, 2008 draft *LTM Report* for Site 12, the Barracks Road Landfill, located the NWS-Yorktown NPL site. If you have any questions, please feel free to call me at (215) 814-3357,

Sincerely,



Robert Thomson, P.E., R.E.M.
Federal Facility Remediation (3HS11)

Cc: Wade Smith (VaDEQ, Richmond)