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DEPARTMENT OF THE NAVY

COMMANDER
NAVY REGION, MID-ATLANTIC
6506 HAMPTON BLVD.
NORFOLK, VA 23508-1273

IN REPLY REFER TO:

5090
RE09CC/15/1627
DEC 13 2001

From: Commander, Navy Region, Mid-Atlantic (Regional Engineer)
To: Commander, Atlantic Division, Naval Facilities Engineering Command

Subj: INSTALLATION RESTORATION (IR); NAVAL WEAPONS STATION (WPNSTA) YORKTOWN; SITES 4, 21, AND 22; REMOVAL OF CONTAMINATED SOIL; PERMISSION TO CONDUCT

Ref: (a) LANTNAVFACENCOM (Mr. R. Schirmer) E-mail memo of 7 Dec 01
(b) 42 U.S.C. § 9620
(c) Federal Facility Agreement of 31 Aug 94
(d) PHONCON PWC Norfolk/Regional Engineer (Mr. R. Parsons)/OAGC (I&E) (Mr. B. Schafer) of 13 Dec 01
(e) PHONCON PWC Norfolk/Regional Engineer (Mr. R. Parsons)/LANTNAVFACENCOM (Mr. D. Shepherd) of 13 Dec 01

Encl: (1) Proposed Record of Decision, Site 21 (Excerpt)
(2) Proposed Record of Decision, Sites 4 and 22 (Excerpt)

1. Permission is granted to proceed with removal of contaminated soil at IR Sites 4, 21, and 22, WPNSTA Yorktown. In directing this action, I am mindful of subparagraph (e)(3) of reference (b), which states that "(r)emedial actions at facilities subject to interagency agreements under this section shall be completed as expeditiously as practicable." Based on information provided to me, I have determined that under the particular circumstances of this case, removal of contaminated soil, at this juncture, is a proper exercise of Navy authority as lead agency.

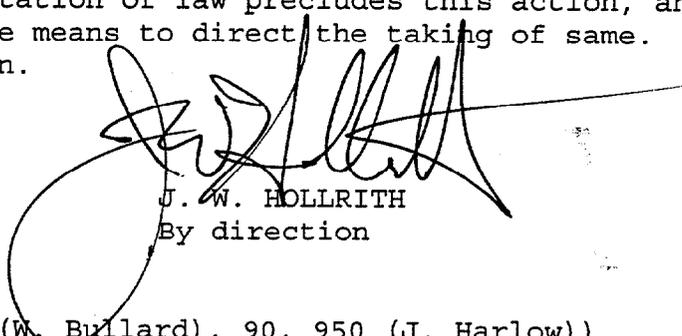
2. Per reference (a), it is understood that the Navy's remedial action contractor is ready this week to commence excavations at the sites, and if authorization to commence work is not granted forthwith, the Navy will incur de-mobilization costs. It is also understood that two proposed Records of Decision, one for Site 21 and one for Sites 4 and 22, excerpts from which are set forth in enclosures (1) and (2), respectively, have been forwarded to the U.S. Environmental Protection Agency, Region III for approval. Reference (b), subparagraph (e)(4), pertains. Additionally, it is understood that the Tier 1 partnering team for WPNSTA Yorktown, which includes Region III and the Virginia Department of Environmental Quality, has already expressed approval for these actions.

3. Pending Region III approval of the proposed Records of Decision, which in the case of Site 4 includes land use controls, only the action specifically authorized herein should be taken. In the

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event a dispute over either Record of Decision arises between the Navy and Region III, it will be resolved in accordance with the parties' inter-agency agreement for WPNSTA Yorktown. Reference (c) pertains. No action should be taken that may prejudice either party's rights or responsibilities under this agreement.

4. I am advised that no limitation of law precludes this action, and that this letter is a suitable means to direct the taking of same. References (d) and (e) pertain.



J. W. HOLLRITH
By direction

Copy to:

PWC Norfolk (Codes 09CC, 09G (W. Bullard), 90, 950 (J. Harlow))

1.4 Description of the Selected Remedies

The cleanup of OU XVIII is part of a comprehensive environmental remediation currently being performed at WPNSTA Yorktown under the Department of Defense (DoD) Installation Restoration (IR) Program.

The removal of soil from Site 21 addresses the risk to human health and the environment by eliminating source materials (aluminum, cadmium, manganese, mercury, and thallium) and eliminating the potential release of these contaminants to other environmental media (unaffected surface soil, subsurface soil, groundwater, surface water, and sediment). Major components of the selected remedy for OU XVIII include:

OU XVIII – Site 21 – Battery and Drum Disposal Area

- Excavating soil at Site 21 containing aluminum exceeding 24,100 mg/kg, cadmium exceeding 4 mg/kg, manganese exceeding 491 mg/kg, mercury exceeding 0.3 mg/kg, thallium exceeding 0.01 mg/kg, and zinc exceeding 410 mg/kg. Excavating soil from areas containing the aforementioned chemicals of concern will create the fewest short-term effects on the local ecology. The depth of excavation will be approximately 2 feet, resulting in the removal of approximately 250 cubic yards of soil. Confirmatory soil samples will be collected from the excavated areas to ensure that soil posing unacceptable risks has been remediated.
- Disposing of contaminated soil at an approved off-site disposal facility.
- Backfilling the excavation area with clean soil from the WPNSTA borrow pit.
- Restoring topsoil over excavated areas and revegetating with native plants.
- Because no unacceptable human health risks were identified and actions shall be taken to reduce the potential for adverse ecological effects; no land use controls are necessary for the site.

2.10 Selected Remedy

The selected remedy for the clean up of inorganic-contaminated soil at Site is RAA 4. This RAA is protective of the environment; will comply with all ARARs; and has the highest degree of short-term, long-term effectiveness, and permanence among the evaluated alternatives. Under this RAA, the soil contamination at Site 21 will be removed and disposed off-site. Confirmatory soil samples will be collected and analyzed. After an evaluation of the confirmation sample results, the excavation at Site 21 will be backfilled, covered with topsoil, and re-seeded. Figure 2-4 identifies the areas for remediation using the selected remedy.

The selected remedy will provide the best balance of tradeoffs among the alternatives with respect to the evaluation criteria. RAA 4 will be more cost-effective, will be less labor intensive, and take less time to implement than RAA 3, and will be less expensive than RAA 5. The selected remedy will not, however, meet the statutory preference for treatment as a principal element. Table 2-12 presents a summary of cost estimates for Site 21 RAA 4, respectively.

2.11 Description of Selected Remedy and Performance Standards *etc "2.10*

Description of Selected Remedy and Performance Standards " V 2}

The selected remedy (RAA 4) involves the excavation and off-site disposal of soil contaminated with aluminum, cadmium, manganese, mercury, thallium, and zinc at Site 21. RLs for Site 21 are presented in Table 2-9. The excavated soil will be tested to determine if it is hazardous by characteristic in accordance with the RCRA regulations at 40 C.F.R. Part 261, Subpart C. If the excavated soil is determined to be hazardous waste by characteristic, it will be stored on-site in accordance with 40 C.F.R. Part 264, Subpart I, prior to being transported to an off-site disposal facility permitted under RCRA, 42 U.S.C. § 6925, and in compliance with the RCRA regulations at 40 C.F.R. Part 264. If the soil is non-hazardous, it will be sent to an appropriate disposal facility. During excavation activities, a series of confirmatory soil samples will be collected and analyzed for inorganics. Site restoration activities will include backfilling, the addition of topsoil, and revegetation to restore the habitat at Site 21.

Land use restrictions will not be necessary for Site 21 because no unacceptable human health risks exist and inorganics in soil that could adversely affect terrestrial receptors will be removed.

2.8.3 RAA 3: On-Site Ex-Situ Phytoremediation

Soil at Site 21 will be excavated and treated by ex-situ phytoremediation. Organic and inorganic contaminants will be degraded or accumulated in plant tissue. Plant species will be selected that have been shown to be successful at remediating COCs at Site 21 in a pilot-scale treatability study. The selected plant species will be tolerant of the local climate and contaminant concentrations. Surface soil will be excavated and placed in a treatment cell and seeded with plant species that will accumulate contaminants. Plants will be harvested every six weeks and will take two to three growing seasons to remediate the soil. The perennial plants will be dormant in the winter and it could take two or three growing seasons to achieve RLs.

All excavated areas at Site 21 will be backfilled with soil obtained from the on-Station borrow pit. Topsoil will be applied to the filled areas and the areas will be revegetated with native plant species.

Because hazardous substances will not remain at Site 21 under this RAA, no five-year review is necessary to ensure the protection of human health and the environment.

- Estimated Capital Cost: \$ 178,000
- Estimated Annual O&M Costs: \$ 122,600
- Estimated NPW: \$ 220,000
- Estimated Implementation Time: One year
- Estimated Time to Reach RLs: Two to three years

2.8.4 RAA 4: Excavation with Off-Site Disposal

RAA 4 includes the excavation and off-site disposal of approximately 250 cubic yards of inorganic contaminated soil from Site 21.

Confirmatory sampling will be conducted to ensure the removal of inorganics that exceed final RLs. The excavated areas will be backfilled with clean fill obtained from an on-Station borrow pit. Six inches of topsoil will be placed over the fill to be fine graded and vegetated with native grasses.

Because hazardous substances will not remain at Site 21 under this RAA, no five-year review is necessary to ensure the protection of human health and the environment.

- Estimated Capital Cost: \$ 173,000
- Estimated Annual O&M Costs: \$0
- Estimated NPW: \$ 173,000
- Estimated Implementation Time: 3 to 6 months
- Estimated Time to Reach RLs: Immediate

2.8.5 RAA 5: Soil Washing

This RAA includes washing of inorganic contaminants from surface soil at Site 21. Contaminated soil would be excavated and treated with a washing process. The contaminated washing solution will be separated, concentrated, and disposed in an off-site disposal facility

A treatability study will be performed to determine the most appropriate solution to be used with the contaminants and type of soil at Site 21. Successful washing of soil to achieve RLs could take twelve to eighteen months depending on the efficiency of the washing solution/process. Confirmation sampling and analysis will be performed in the excavated areas to ensure that all soils with contaminant concentrations exceeding final RLs have been removed. After the soil has been treated, the excavated areas will be restored with backfill obtained from an on-Station borrow pit, covered with six inches of topsoil, and seeded with native plant species.

Because hazardous substances will not remain at Site 21 under this RAA, no five-year review is necessary to ensure the protection of human health and the environment.

- Estimated Capital Cost: \$318,000
- Estimated Annual O&M Costs: \$0
- Estimated NPW: \$318,000
- Estimated Implementation Time: Six months
- Estimated Time to Reach RLs: Twelve to eighteen months

3.0 RESPONSIVENESS SUMMARY

The final component of this Record of Decision is the Responsiveness Summary. The purpose of this section is to provide a summary of the public's comments, concerns, and questions about Site 21.

During the public comment period, written comments, concerns, and questions were solicited. A public meeting was held on February 21, 2001, at the Charles E. Brown Community Building to formally present the Draft Proposed Remedial Action Plan and to answer questions and receive comments. The transcript of this meeting is presented in Appendix A of this ROD. All comments concerning the remedy have been considered by the Navy and USEPA in the selection of the remedial alternative for Site 21.

The Responsiveness Summary is divided into the following sections:

- Overview
- Background on community involvement
- Summary of comments received during the public comment period

3.1 Overview

At the time of the public meeting on February 21, 2001, the Navy had endorsed a preferred alternative in the PRAP for the cleanup of aluminum, cadmium, manganese, mercury, thallium, and zinc-contaminated soil at Site 21 at WPNSTA Yorktown. The alternative required excavation of contaminated soil at concentrations above corresponding RL values (see Table 2-9) and the restoration of the excavated area. The excavated soil from the site will be transported off-site to an approved disposal facility. Members of the community asked questions about the preferred alternatives and appeared to be satisfied with the Navy's response. USEPA Region III and the Commonwealth of Virginia concurred with the preferred alternatives for Site 21. The community also agrees with the selection of the preferred alternative.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The information supporting the decisions on the selected remedy is contained in the administrative record. Section 2.2.2 lists major documents contained in the administrative record. The Commonwealth of Virginia concurs with the remedy selected in this ROD.

1.3 Assessment of the Sites

The response action selected in the ROD is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment and/or from actual or threatened releases of pollutants or contaminants which may present an imminent and substantial endangerment to public health or welfare.

1.4 Description of the Selected Remedies

The cleanup of OU XVI and OU XVII is part of a comprehensive environmental remediation currently being performed at WPNSTA Yorktown under the Department of Defense (DoD) Installation Restoration (IR) Program.

The removal of soil from Sites 4 and 22 addresses the risk to human health and the environment at OUs XVI and XVII by eliminating source materials (HMX, PAHs, TNT, aluminum, antimony, cadmium, chromium, copper, lead, manganese, mercury, and zinc) and eliminating the potential release of these contaminants to other environmental media (unaffected surface soil, subsurface soil, groundwater, surface water, and sediment). Major components of the selected remedies for OUs XVI and XVII include:

OU XVI – Site 4 – Burning Pad Residue Landfill

- Soil at Site 4 containing total PAHs exceeding 44mg/kg, potentially carcinogenic PAHs (cPAHs) exceeding 10 mg/kg, 2,4,6-TNT exceeding 14 mg/kg, aluminum exceeding 24,000 mg/kg, antimony exceeding 11 mg/kg, arsenic exceeding 63 mg/kg, chromium exceeding 33.5 mg/kg, copper exceeding 100 mg/kg lead exceeding 200 mg/kg, manganese exceeding 491 mg/kg, mercury exceeding 0.3 mg/kg, and zinc exceeding 410 mg/kg will be excavated. Excavating soil from areas containing the aforementioned chemicals of concern will create the fewest short-term effects on the local ecology. The depth of excavation will be

approximately 2 feet, resulting in the removal of approximately 500 cubic yards of soil. Confirmatory soil samples will be collected from the excavated areas to ensure that soil posing unacceptable risks has been remediated.

- Disposing of contaminated soil at an approved off-site disposal facility.
- Backfilling the excavation area with clean soil from the WPNSTA borrow pit.
- Restoring topsoil over excavated areas and revegetating with native plants.
- Land use controls will prohibit future residential property at Site 4 use because soil will be remediated to meet commercial/industrial levels, the reasonably anticipated future land use scenario. Contaminant concentrations exceeding residential remediation levels will remain in soil at Site 4.

OU XVII – Site 22 – Burn Pad

- The biocell will be dismantled, decontaminated, and disposed at an approval off-site disposal facility. Confirmatory samples will be taken from under the biocell to determine that soil beneath the cell is not contaminated. If soil beneath the biocell is contaminated it will be excavated. It is anticipated that approximately 300 cubic yards of soil will be excavated from beneath the biocell to ensure that soil posing unacceptable risks has been remediated.
- Soil from Site 22 containing HMX exceeding 5.7 mg/kg, cadmium exceeding 4 mg/kg, copper exceeding 100 mg/kg, lead containing 200 mg/kg, mercury exceeding 0.3 mg/kg, silver exceeding 50 mg/kg, and zinc exceeding 410 mg/kg will be excavated. Excavating soil with contaminant concentrations exceeding these levels will create the fewest short-term effects on the local ecology. The excavation will be approximately 2 feet deep, resulting in approximately 1,500 cubic yards of soil. Confirmatory soil samples will be collected from excavated areas to ensure that soil posing unacceptable risks has been remediated.
- Disposing of contaminated soil at an approved off-site disposal facility.

- Backfilling of excavated areas and the footprint of the biocell with clean soil from the WPNSTA borrow pit.
- Restoring topsoil over the excavated areas and the footprint of the biocell and revegetating with native plants.

1.5 Statutory Determination

The selected remedy is protective of human health and the environment, complies with Federal and Commonwealth of Virginia requirements that are legally applicable or relevant and appropriate requirements (ARARs) to the remedial action, and is cost-effective. The remedy uses permanent solutions and considers alternative treatment technologies to the maximum extent practicable. This remedy does not meet the statutory preference for treatment as a principal element because the hazardous substances in the soil at these sites occur at relatively low concentrations and pose a relatively low level, long-term threat to human health and the environment. In such cases, the Navy expects to use engineering controls (such as placing the soil in an approved off-site disposal facility) rather than treatment to reduce the threats. In addition, treatment of the low concentrations of hazardous substances in the soil at these sites is not practicable in a cost-effective manner. Therefore, the selected remedy, which includes excavation and off-site disposal of contaminated soil, represents a better balance of tradeoffs under the evaluation criteria than alternatives using treatment.

Because the remedy will result in hazardous substances, pollutants, or contaminants remaining onsite at Site 4 (OU XVI) above levels that would allow unlimited use and unrestricted exposure, a statutory review will be conducted within five years after the initiation of remedial action to ensure that the remedy is, or will be, adequately protective of human health and the environment.

1.6 ROD Data Certification Checklist

The following information is included in the Decision Summary section of this Record of Decision. Additional information for Sites 4 and 22 can be found in the Administrative Record file.

- Chemicals of concern and their respective concentrations.

February 21, 2001. Community members in attendance during the public meeting asked some questions about the alternatives including the preferred alternatives and appeared to be satisfied with the Navy's response. No additional information on the Proposed Plan has been requested and the 45-day public comment period closed on March 6, 2001, with no additional comments being received on the selection of a remedy.

2.10 Selected Remedy

The selected remedy for the clean-up of PAH/2,4,6-TNT/inorganic-contaminated soil at Site 4 and HMX/inorganic-contaminated soil at Site 22 is RAA 4. This RAA is protective of human health and the environment; will comply with all ARARs; and has the highest degree of short-term, long-term effectiveness, and permanence among the evaluated alternatives. Under this RAA, the soil contamination at both sites will be removed and disposed off-site. Confirmatory soil samples will be collected and analyzed. After an evaluation of the confirmation sample results, excavation at Site 4 and Site 22 will be backfilled, covered with topsoil, and re-seeded. Figures 2-6 and 2-7 areas identify the major areas of the selected remedy for Site 4 and Site 22, respectively.

The selected remedy will provide the best balance of tradeoffs among the alternatives with respect to the evaluation criteria. RAA 4 will be more cost-effective, will be less labor intensive and take less time to implement than RAA 3, and will be less expensive than RAA 5. The selected remedy will not, however, meet the statutory preference for treatment as a principal element. Table 2-23 presents a summary of cost estimates for Sites 4 and 22 RAA 4, respectively.

2.11 Description of Selected Remedy and Performance Standards {tc "2.10

Description of Selected Remedy and Performance Standards " \ 2}

The selected remedy (RAA 4) involves the excavation and off-site disposal of soil contaminated with PAHs, 2,4,6-TNT, inorganics at Site 4 and soil contaminated with HMX and inorganics at Site 22. Soil at Site 4 containing PAH concentrations, TNT concentrations, and inorganic concentrations will be excavated and disposed off-site. Soils containing HMX and inorganics at Site 22 will be excavated and disposed off-site. RLs for both sites are presented in Table 2-12. The excavated soil will be tested to determine if it is hazardous by characteristic in accordance with the RCRA regulations at 40 C.F.R. Part 261, Subpart C. If the excavated soil is determined to be hazardous waste by characteristic, it will be stored on-site in accordance with 40 C.F.R. Part

is non-hazardous, it will be sent to an appropriate disposal facility. During excavation activities, a series of confirmatory soil samples will be collected and analyzed for PAHs, 2,4,6-TNT, and inorganics at Site 4 and HMX and inorganics at Site 22 to determine the extent of excavation. The biocell at Site 22 will be closed according to RCRA 40 CFR 265, Subparts G and K.

Site restoration activities will include backfilling, the addition of topsoil, and revegetation to restore the habitat at Sites 4 and 22.

WPNSTA Yorktown shall prohibit the future residential use of Site 4. This is the "land use control objective" for the site. The precise boundaries of the area in which residential use will be prohibited shall be fixed during the development a Land Use Control Implementation (LUCIP) for Site 4 described in the next paragraph.

Within 90 days following the execution of this ROD, WPNSTA Yorktown shall develop a LUCIP with the concurrence of USEPA Region III and in consultation with the Commonwealth of Virginia. The LUCIP shall include:

- (1) a description and the location of Site 4, including a map, a description of its approximate size, and a description of the contaminants of concern;
- (2) the land use control (LUC) objectives selected above;
- (3) the particular controls and mechanisms to achieve these objectives;
- (4) a reference to this ROD; and
- (5) any other pertinent information.

The DoN, with the concurrence of USEPA Region III and in consultation with the Commonwealth of Virginia, is developing a Land Use Memorandum of Agreement (MOA) for WPNSTA Yorktown. The completed MOA will contain Station-wide periodic inspection, condition certification, and agency notification procedures designed to ensure the maintenance by Navy personnel of any site-specific LUCs deemed necessary for future protection of human health and the environment, including LUCs selected in this ROD. A fundamental premise underlying execution of the MOA is that through the DoN's substantial good-faith compliance

with procedures called for therein, reasonable assurances will be provided to USEPA and the Commonwealth of Virginia as to the permanency of those remedies which include the use of specific LUCs.

Although the terms and conditions of the MOA will not be specifically incorporated in or made enforceable as to this or any other ROD, it is understood and agreed by the DoN, USEPA, and the Commonwealth of Virginia that the contemplated permanence of the remedy reflected herein shall be dependent upon the Station's good-faith compliance with specific LUC maintenance commitments reflected therein. Should such compliance not occur or should the MOA be terminated, it is understood that the protectiveness of the remedy concurred in May be reconsidered and that additional measures may need to be taken to adequately ensure necessary future protection of human health and the environment.

2.12 Statutory Determinations {tc "2.11 Statutory Determinations " \ 2}

The following sections discuss how the selected remedy (RAA 4) for Sites 4 and 22 satisfies the requirements under Section 121 of CERCLA to:

- Protect human health and the environment
- Comply with ARARs
- Use permanent solutions and treatment technologies/resource recovery technologies to the maximum extent practicable
- Satisfy the preference for treatment as a principle element to the extent practicable.

2.12.1 Overall Protection of Human Health and the Environment {tc "2.11.1 Overall Protection of Human Health and the Environment " \ 3}

RAA 4 will provide a significant reduction in risks to human health and the environment at Sites 4 and 22 through the removal of the soil contaminants (inorganics, 2,4,6-TNT, HMX and PAHs). As such, this alternative will provide protectiveness to human health and the environment. The potential source of contamination to other environmental media will be removed under this alternative.

3.1 Overview

At the time of the public meeting on February 21, 2001, the DoN had endorsed a preferred alternative in the PRAP for the cleanup of PAH, 2,4,6-TNT and inorganic soil at Site 4 and for the cleanup of HMX and inorganic-contaminated soil at Site 22 at WPNSTA Yorktown. The alternative requires excavation of contaminated soil at concentrations above corresponding RL values (see Table 2-20) and the restoration of the excavated area. The excavated soil from both sites will be transported off-site to an approved disposal facility. Members of the community asked questions about the preferred alternatives and appeared to be satisfied with the Navy's response. USEPA Region III and the Commonwealth of Virginia concurred with the preferred alternatives for both sites. The community also agrees with the selection of the preferred alternative.

3.2 Background on Community Involvement

Nearby communities have a good working relationship with WPNSTA Yorktown because the Station maintains a good neighbor policy through the Public Affairs Office. WPNSTA Yorktown participates in community events and celebrations to foster close ties with the community. As part of the ongoing Community Relations Program (CRP), community interviews were conducted in 1991 to inform the community of the IR Program and solicit feedback on the listing of WPNSTA Yorktown as an NPL site. The community expressed concerns about three issues: water resources, cleanup funding, and information availability/validity. This public openness has been maintained by the Public Affairs Office and the Environmental Directorate at WPNSTA Yorktown through the CRP and resulted in the formation of the Restoration Advisory Board. The WPNSTA RAB is comprised of agency representatives, technical and business persons, and members of the community at large. The RAB meets regularly, and progress at sites such as Sites 4 and 22 is discussed from the work plan stage to selection of the remedial alternative (if necessary). Preliminary RI results for Sites 4 and 22 were discussed at past and the most recent RAB meetings.