DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND, MID ATLANTIC
9324 VIRGINIA AVENUE
NORFOLK, VA23511-3095

18 Nov 15

MEMORANDUM FOR THE RECORD

Subj: NAVY INFORMATION OPERATIONS COMMAND (NIOC)
SUGAR GROVE, WV, PROPERTY ASSESSMENT

Ref: (a) Department of the Navy (DON) Environmental Policy Memorandum 06-06: Streamlined Environmental Procedures Applicable to Non-BRAC Real Estate Actions

Encl: (1) Final Environmental Condition of Property Report (ECP) for the Disposal of Navy Information Operations Command (NOIC) Sugar Grove, WV (Lower Base), dated June 2014
(2) EPA Region 3 (USEPA, A. Olhasso) Email to HR-IPT on NFRAP (Site 2 and Site 3) and following State of West Virginia Department of Environmental Protection (WVDEP, P. Hickman) Email to HR-IPT on NFRAP (Site 2 and Site 3) Agreement
(3) NRS Sugar Grove HRS Scoring Information
(4) Navy Letter dated June 27, 1991
(5) Site 2 and 3 Final Covenant (Rev 9-2015)

1. Enclosure (1) satisfies the requirements in reference (a). Enclosures (2) through (5) update the findings of enclosure (1) for the subject property and are summarized in this memorandum.

2. NAVFAC MIDLANT Environmental (EV3) reviewed enclosure (1,) Environmental Condition of Property Report (June 2014 ECP Report), information and recently again after the new information in Enclosures (2 through (5), that came to light during the discussions regarding the sale of the property through GSA with the coordination and concurrence of the State of West Virginia Department of Environmental Protection (WVDEP) and EPA Region 3 (USEPA). This memorandum findings summarize and are in concurrence with the new information presented in enclosures (2) through (5) where the HR-IPT coordinated with the WVDEP and the USEPA (the regulators).

3. The new information was presented by EPA Region 3 (enclosure (2)) as noted from their SEMS database where a NFRAP determination - No Further Remedial Action Planned for Site 2 and Site 3. These two installation restoration sites were found

under enclosure (1) to be Recognized Environmental Conditions (RECs) since there was no regulatory concurrence of the No Further Action (NFA) recommendation of the Navy Installation Restoration (IR) Program documentation (NEESA, 1988). Since the new information presented in enclosures (2) through (5) provides the regulatory concurrence for the NFA determination, these sites are now Controlled RECs (CREC's). A CREC is defined by ASTM E1527-13 as a REC that has been addressed to the satisfaction of the applicable regulatory authority, with implementation of restrictions or controls. Additionally now as CRECs, the LUC recommendations of enclosure (1) have been changed to reflect the new information and are outlined in this memo below in paragraph 4, and detailed in closure (5).

4. The recommended LUCs for Site 2 and Site 3 contained in enclosure (1) have been changed due to the NFRAP regulator concurrence documentation, eliminating the recommendations for groundwater and soil restrictions. The only remaining LUC recommendations for Site 2 and Site 3 are to address the potential concern for exposure to buried debris. Therefore the recommended LUC is limited to no excavation, digging, or intrusive activities in the site areas. Enclosure (5) details the environmental covenant including the LUC, site properties, and boundaries.

5. The other findings of the ECP Report for the Disposal of Navy Information Operations Command (NOIC) Sugar Grove, WV (enclosure (1)) were in concurrence with EV3 review and are summarized below:

a. **Historic Recognized Environmental Conditions (HRECs)** - Three underground storage tank (UST) sites were identified as HRECs at NIOC Sugar Grove.

(1) UST 200 was a 1,000-gallon, steel heating oil tank installed in 1975 located directly west of Building 20. In April 1995, during the tank removal a small volume of heating oil discharged into the tank excavation pit; approximately three cubic yards of contaminated soil was excavated during the tank removal.

(2) USTs 201/202 are fiberglass-reinforced plastic (FRP) tanks currently located southeast of Building 22. These USTs provide fuel storage for a privately owned vehicle (POV) fueling dispensing facility operated by the Navy Exchange (NEX). The

current FRP USTs were installed in 1986-1987 to replace two steel USTs that had reportedly leaked (Environmental Science & Engineering, Inc., 1996a). Conflicting records and field evidence cannot confirm whether the existing USTs are single-walled or double-walled, so the assumption is that they are single walled. When the current FRP USTs were installed in 1986-1987, they retained the same tank identification as the previous steel USTs. In 1993, during the replacement of the fuel dispensers and piping, hydrocarbon/ fuel odors were noted near the pump island. On 2 March 1993, WVDEP issued a Confirmed Release Notice to Comply. Groundwater monitoring wells were installed to monitor groundwater contamination and soil was excavated in 1995 in the vicinity of the former pump island (located south of Building 22). The monitoring wells have since been abandoned.

(3) USTs 205/206 were previously located near the southwest corner of Building 63. UST 205 was an unregulated 4,000-gallon heating oil tank and UST 206 was a regulated 550-gallon diesel tank. Both USTs were removed in 1995. During closure activities, soil samples indicated total petroleum hydrocarbon (TPH) impact in the tank basin and along the product supply line. Approximately 33 cubic yards of potentially TPH contaminated soil were excavated and backfilled with clean soil during the tank and piping removal. The WVDEP inspector onsite at the time indicated that a site assessment was required for both tanks. The resulting site assessment report recommended no further action at the UST 205/206 site (Environmental Science & Engineering, Inc., 1996b).

All three of these HRECs were addressed under WVDEP Leak Identification Number 93-048. A Review of Closure letter and Review of Confirmed Release Review, both dated 8 December 2004 were issued by WVDEP indicating that the no additional investigation or remedial action was warranted for the three UST sites. Full documentation pertaining to the investigation and closure of Leak Identification Number 93-048 is included with the ECP Report (enclosure (1), Appendix H).

b. **Asbestos Containing Material Survey**

An ACM survey of the facility buildings was conducted as part of the ECP survey and previous ACM reports for the buildings included in the Public Private Venture (PPV) housing lease were reviewed. Although the presence of ACM is not a REC, it is a

business environmental risk (BER) due to the capital costs and potential liability associated with the identification, abatement, encapsulation/removal, and disposal of ACM. The ACM survey conducted as part of the ECP investigation identified ACM within the PWD/ MWR Gym/ Bowling alley (Building 20), the Youth Center (Building 26), the Administration Building (Building 63), and the Racquetball Court (Building 70). Reviews of previous ACM reports for the buildings included in the PPV housing lease indicate that ACM is present in the Pitsenbarger (Buildings 101-110), Eckard (Buildings 111-118), and Redwood (Buildings 121-123) housing groups. All ACM identified by the ACM survey and identified in previous reports was reportedly in good condition, appears to present minimal potential hazard to building occupants and can be managed in place. If areas of damaged ACM are identified, they should be immediately repaired. If renovation or demolition activities are scheduled, any ACM that could potentially be disturbed should be properly abated and disposed of in accordance with local, state, and federal regulations.

6. The subject property was found to be in ECP Area Type 4 condition. The NIOC Sugar Grove property being classified as an ECP Area Type 4 condition indicates a release of hazardous substances has occurred, and all the remedial actions necessary to protect human health and the environment have been taken. The ECP Report (enclosure (1)) and the new information provided on the two IR sites (enclosures (2) through (5)) should be referred to for more detailed questions of environmental conditions.

7. In summary based on the detailed information stated in the 2014 ECP Report (enclosure (1), the new information provided on the NFRAP of the two IR sites (enclosures (2) through (5) describe the current environmental conditions, and the findings as stated support that the property is suitable for transfer.

Robert G Schirmer

ROBERT G. SCHIRMER, PE
Environmental Restoration
Product Line Coordinator

ENVIRONMENTAL COVENANT

This is an environmental covenant executed pursuant to the Uniform Environmental Covenants Act, West Virginia Code Chapter 22, Article 22B, to restrict the activities on, and uses of, the following described property:

(A legal description of the Naval Radio Station NRS Sugar Grove facility and Site 2 – Support Area Burn Pits and Site 3 – Support Area Landfill is attached as Exhibit A; the location of both sites is shown on Figure 5-1 Environmental Restoration site Location Map contained in the Environmental Conditions of Property Report for the Disposal of NIOC Sugar Grove, Sugar Grove, West VA dated June 2014). Both of these sites were recommended for No Further Action by the 1991 Preliminary Assessment and determined by EPA Region III to be NFRAP - No Further Remedial Action Planned.

Due to the fact that there was debris left in place at the site, to ensure that activities on and uses of the above described property do not result in unacceptable risk to personnel, the below use restriction shall be maintained:

- No Disturb the soil or any intrusive removal of vegetation within 10 feet of the boundaries of Site 2 or Site 3;
- No Construction or any intrusive work within 10 feet of the boundaries of Site 2or 3
- Note that a portion site 3 is covered by the outfield of a baseball field. The use of this are as a baseball field is acceptable in that there is sufficient cover. No intrusive activities are permissible in this area.

The current owners of record of the property, and their contact information, are:

[Insert identity and addresses of all owners of record.]

Any person, including a person that owns an interest in the real property, the state or federal agency determining or approving the environmental response project pursuant to which an environmental covenant is created, or a municipality or other unit of local government may be a holder of an environmental covenant. The following are all of the holders of this covenant:

[Insert identity and addresses of all holders.]

The facts regarding the remediation response project at this property are:

Brief narrative description of the contamination:

Site 2 – Support Area Burn Pits.

From about 1968 until 1970, three or four burn pits were used for the disposal of activity generated waste. Each pit was excavated to a depth of six feet, a width of eight feet and a length of ten feet. Waste was disposed of twice per week and burned in the pits. After a pit was filled with waste, two feet of soil was backfilled over the pit with a bulldozer. The types of waste reportedly disposed of at Site 2 include household trash, kitchen waste, wood and metal scraps, paper and cardboard.

COCs and pathways: None. The 1988 Preliminary Assessment Report concluded that no hazardous waste was disposed at the pits and the site was approved by EPA as No Further Remedial Action Planned.

Limits on exposure: The use restrictions described in this environmental covenant are established to protect the integrity of the landfill.

Location and extent of contamination: Site 2 – Support Area Burn Pits were located approximately 200 feet north of Building 62. The location and approximate boundary of Site 2 is shown on Figure 1. Each pit was excavated to a depth of six feet, a width of eight feet and a length of ten feet. There are currently no structures located within the suspected boundaries of Support Area Burn Pits (Site 2) as depicted on Figure 5-1.

Site 3 – Support Area Landfill.

In 1970, waste disposal stopped at Site 2 – Support Area Burn Pits and was moved to an area located about 400 feet northeast of the pits. Wastes were disposed of in two distinct areas at the site. The two sites are separated by an earthen drainage ditch. The ditch is about 300 feet long by eight feet wide by about four feet deep with intermittent flow.

Waste was disposed of in the trenches twice a week at the rate of two dump truck loads per week, but an inspection of the sanitary landfill operation at Sugar Grove in 1974 reported a garbage and trash loading rate of 60 cubic yards/month. After a trench was filled with waste, it was backfilled with about one foot of soil. Reportedly, no waste burning took place at either the eastern or the western areas of the site.

The types of waste reportedly disposed of include household trash, empty exterior and interior paint cans, empty drums of paint thinner, air conditioning filters, and various scrap wood and metal as shown in Table 1.

Table 1. Types of Waste and Estimated Quantities Disposed of at
Site 3 Support Area Landfill
NAVRADSTA Sugar Grove, West Virginia

Period of Disposal	Type of Waste	Estimated Total Quantity
1970 - 1978	Empty exterior and interior paint cans	960 1-gallon cans
1970 - 1978	Empty paint thinner (Varsol)	8 empty 55 gallon drums
1970 - 1978	Household trash	Unknown
1970 - 1978	Air conditioning filters	Unknown
1970 - 1978	Scrap wood and metal	Unknown

(Source: NEESA, 1985)

Site 3 is located on the fringe of the flood plain. The direction of ground water movement is to the north northeast, toward the South Branch of the South Fork of the Potomac River. The slope of the water table was reported to be 0.032. The ground water is located at about 5 feet below the ground surface. During the operation of Site 3, it was reported that the trenches that were excavated to a

depth of 8 feet contained standing water. Each trench was backfilled with about one foot of soil so the potential for direct human or wildlife contact is not considered likely.

Surface and shallow ground water will drain north to the South Fork of the South Branch of the Potomac River which is located approximately 100 yards away. The site is located in Tioga loam and Potomac fine sandy loams, with the soil to the north between the site and the river consisting also of Potomac fine sandy loam. The Potomac fine sandy loam is reported to have a permeability of between 0.6 to 6.0 inches per hour in the first 8 inch depth of soil, and a permeability of greater than 6.0 inches per hour per hour in the soil from 8 to 60 inches in depth.

COCs and pathways: None. The 1988 Preliminary Assessment Report concluded that no hazardous waste was disposed at the pits and the site was approved by EPA as No Further Remedial Action Planned.

Limits on exposure: The use restrictions described in this environmental covenant are established to protect the integrity of the landfill.

Location and extent of contamination: Site 3 – Support Area Landfill is located about 400 feet northeast of Site 2 – Support Area Burn Pits. The location and approximate boundary of the landfill is shown on Figure 3. The western side of the site, used for waste disposal from 1970 until about 1976, is about 400 feet by 300 feet. The eastern portion of the site, used for waste disposal from 1976 to 1978, is about 200 feet by 40 feet. Both areas used trenches about 30 feet long by 12 feet wide by about 8 feet deep. Reportedly, it was common practice to dig to the level of the first shale deposit encountered. There are currently no structures located within the suspected boundaries the Support Area Landfill (Site 3) as depicted in Figure 1. A small portion of the site is potentially located just within the right outfield area of the baseball field. The continued use of this area as a ball-field is acceptable as long as there is no intrusive work in the area

The owner(s) of the property shall provide written notice to all holders within ten (10) days following transfer of a specified interest in the property subject to this covenant, changes in use of the property, application for building permits regarding the property, or proposals for any site work affecting the contamination on the property.

The [Choose Applicant or Owner] shall conduct inspections of the property to monitor compliance with this environmental covenant at least one time per year and shall submit a signed copy to Naval Facilities Engineering Command Mid-Atlantic Environmental Director, at 9742 Maryland Avenue, Norfolk VA 23511-3095 within thirty (30) days of the inspection.

Effective from date of quitclaim deed transfer

Encl. 2

Susan Webb - 4PZN <susanb.webb@gsa.gov>

RE: [Non-DoD Source] Re: FW: MEMORANDUM FOR THE RECORD - NIOC SUGAR GROVE, WV - PROPERTY ASSESSMENT - 18 NOV 2015 & References on Share drive

Susan Webb - 4PZN <susanb.webb@gsa.gov> Mon, Jan 11, 2016 at 8:43 AM
Draft To: Susan Webb - 4PZN <susanb.webb@gsa.gov>

--------- Forwarded message ---------
From: "Hickman, Patricia A" <Patricia.A.Hickman@wv.gov>
To: "Laughmiller, Lance S CIV NAVFAC MIDLANT, EV" <lance.laughmiller@navy.mil>, "Armstead, Charles W" <Charles.W.Armstead@wv.gov>
Cc:
Date: Thu, 24 Sep 2015 08:49:30 -0500
Subject: RE: NRS Sugar Grove Proposed Way Ahead
Lance,
Charlie and I are in agreement that since EPA has confirmed the site is NFRAP under CERCLA, there are no outstanding issues. If EPA is able to provide the closure you need on the CERCLA issue, then the WV Voluntary Remediation Program may not have additional value in this situation.
If you wish to discuss further, let us know.
Thanks,
Patty

Patricia A. Hickman, Director
Division of Land Restoration
WV Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
304-926-0499 ext. 1263
patricia.a.hickman@wv.gov

-----Original Message-----
From: Laughmiller, Lance S CIV NAVFAC MIDLANT, EV [mailto:lance.laughmiller@navy.mil]
Sent: Wednesday, September 23, 2015 8:58 AM
To: Armstead, Charles W; Hickman, Patricia A
Subject: NRS Sugar Grove Proposed Way Ahead

Charlie/Patty,

As you are aware the transfer of the NRS Sugar Grove installation to WVA did not go through and GSA is now looking to find a private party byer for the facility. In the meantime the EPA has been able to dig up more information on the status of the site that may impact our way ahead. The EPA has confirmed that the site is NFRAP under the CERCLA program. With that understanding, I would propose that there is no need for further efforts to address Sites 2 & 3 at the facility.

- When I spoke last with you and Patty Hickman it was my understanding that since we did not know of any regulatory review of the Navy's NFA recommendation that we would need to address the sites under some type of regulation to move forward. The recommendation at the time was to address the site under the WVA VRP program, which I understand to be similar to the EPA's Brownfields program.

Based on this new information from EPA, I do not think it is necessary to go that path and would propose

including these sites in the final sale of the property with the standard CERCLA reopener language and a simple land use control to prevent intrusive activities in the boundaries of the site.

Can we set up a call to discuss this new twist, how it impacts WVA's initial concerns and where we can go from here.

V/R, Lance

Lance Laughmiller, PE
NAVFAC MIDLANT
Environmental Business Line Team Lead
Hampton Roads IPT
(757) 341-0470
Cell (757) 328-7193

-----Original Message-----
From: Olhasso, Alizabeth [mailto:Olhasso.alizabeth@epa.gov]
Sent: Friday, September 11, 2015 8:42 AM
To: Hoover, Gerald; Laughmiller, Lance S CIV NAVFAC MIDLANT, EV
Cc: Creamer, Charlene
Subject: RE: Research assistance - NRS Sugar Grove, WVA

Hi Mr. Laughmiller,
I looked the site up in our database system. It is noted in SEMS with a determination of NFRAP - No Further Remedial Action Planned. There are actually 2 sites I believe, both have the same status and both had a PA and SI completed for them. Unfortunately since the site is so old, there is not a lot of detailed information on how we arrived at that decision in the database which is very common for older sites. We would have to pull the files from storage and review to determine more.

Charlene Creamer is the Site Assessment Manager for West Virginia. Please feel free to contact her to get more information on the site and to discuss reviewing the files as needed. Her number is 215-814-2145.

Alizabeth Olhasso, Chief
Site Assessment and Non-NPL Federal Facilities Branch
215-814-2165
olhasso.alizabeth@epa.gov

U.S. EPA Region 3
1650 Arch Street, 3HS12
Philadelphia, PA 19103

<')))>< ~~~~Please consider the environment before printing this email.

-----Original Message-----
From: Hoover, Gerald
Sent: Thursday, September 10, 2015 4:37 PM
To: Laughmiller, Lance S CIV NAVFAC MIDLANT, EV
Cc: Olhasso, Alizabeth
Subject: RE: Research assistance - NRS Sugar Grove, WVA

From EPA's Naval Radio Station Sugar Grove Files, I have enclosed the following records in this email:

1) Navy Letter dated June 27, 1991 submitting HRS Deficiency Checklist Response.

2) EPA Letter dated December 4, 1991 submitting additional HRS Deficiency Checklist (note that the last page of the checklist provides an explanation of inadequacy).

3) Navy Letter, (no stamped date on letter, but looks like it was faxed to EPA on 1/21/92), this letter is a response to EPA letter date 12/4/91, and discusses a meeting to be held between EPA and the Navy to discuss

several sites.

4) Navy Letter dated Feb 28,1992 from the Assistant Secretary of the Navy, Installation and Environment to EPA Region III Regional Administrator

5) EPA FORM 8710-16 dated Feb 5, 1993

Lance,

This is as far as I can take your request regarding site closure for NRS Sugar Grove. I suggest you get in touch with Alizabeth Olhasso, Chief, Site Assessment/Non-NPL Federal Facilities Branch at (215) 814-2165, whom I've cc'd on this email, for any additional assistance with this matter. Sorry I couldn't be of more help.

Jerry

-----Original Message-----
From: Laughmiller, Lance S CIV NAVFAC MIDLANT, EV [mailto:lance.laughmiller@navy.mil]
Sent: Thursday, September 10, 2015 12:29 PM
To: Hoover, Gerald
Subject: RE: Research assistance - NRS Sugar Grove, WVA

Gerry,

First, can you send me a copy of the Navy's cover letter for the June 1991 report and a copy of the EPA form 8710-16.

Second, We need to determine if EPA concurs with the recommendations in the PA and if not get comments so that we can reopen the site and begin to address concerns. If on the other hand since it did not make the NPL list should this be run under the WVA program. Need a call on if EPA wants to address the site or not.

V/R, Lance

-----Original Message-----
From: Hoover, Gerald [mailto:Hoover.Gerald@epa.gov]
Sent: Monday, August 31, 2015 3:27 PM
To: Laughmiller, Lance S CIV NAVFAC MIDLANT, EV
Subject: RE: Research assistance - NRS Sugar Grove, WVA

Lance, I pulled the files for NRS Sugar Grove. We do have a copy of the Navy's June 1991 report. However, the files don't have an EPA response to that report, nor does it have an HRS package or anything else following up on that report. There is a file with an EPA Form 8710-16 dated February 5, 1993 entitled, 1992 Inventory of Federal Hazardous Waste Activities at Currently Owned or Operated Federal Facilities, Naval Radio Station, WV-170024805. I'm not familiar with this form, but it looks like something the Navy filled out and sent to us. Let me know if you want a copy of that form.

Let me know if there's anything else I can do for you. I have Cheatham Annex Partnering meetings tomorrow and Wednesday.

Jerry

-----Original Message-----
From: Laughmiller, Lance S CIV NAVFAC MIDLANT, EV [mailto:lance.laughmiller@navy.mil]
Sent: Wednesday, August 26, 2015 3:15 PM
To: Hoover, Gerald
Subject: Research assistance - NRS Sugar Grove, WVA

Gerry,

I need your assistance to try to find any EPA correspondence pertaining to NRS Sugar Grove. We are working a transfer of the property and there are two landfills that were recommended for closure in the PA but I am having trouble finding documents associated with the sites. We were able to find hard copies of the Preliminary Assessment and two letters from EPA requesting additional information in support of EPAs HRS score effort. Based on hand written note on this hard copy documents the attached document "New HRS Deficiency Information Collection Effort of Naval Radio Station Sugar Grove, June 1991" was sent to EPA as a response to the Jan-1991 and May 1991 letters but I could not find the transmittal letter or any response from EPA.

Does your office have a copy of the EPAs response to either the PA or the HRS Info letters. I am trying to determine if these sites were officially closed so that we can document it in the property transfer records. Any help you can provide would be greatly appreciated as this is a high profile transfer.

Note: The HRS Deficiency document is only the text of the report, I have the attachments which include large figures and back up data that I will work to get scanned and forward when complete.

V/R, Lance

Lance Laughmiller, PE
NAVFAC MIDLANT
Environmental Business Line Team Lead
Hampton Roads IPT
(757) 341-0470
Cell (757) 328-7193

Site 2 and 3 Final Covenant (rev 9-2015).docx
47K

Final

New HRS Deficiency Information Collection Efforts

Naval Radio Station Sugar Grove

Prepared For

Department of the Navy
Atlantic Division
Naval Facilities Engineering Command

Norfolk, Virginia

Under The

Navy CLEAN Program

Comprehensive Long-Term Environmental Action Navy

June 1991

Reference:
Contract
N62470-89-D-4814
CTO 0002

19002-SRN

Prepared By

Baker

Baker Environmental, Inc.

Coraopolis, Pennsylvania

FINAL REPORT
NEW HRS DEFICIENCY INFORMATION
COLLECTION EFFORTS
NAVAL RADIO STATION SUGAR GROVE

CONTRACT TASK ORDER 0002

Prepared For:

NAVAL FACILITIES ENGINEERING
COMMAND
ATLANTIC DIVISION
Norfolk, Virginia

Under:

Contract N62470-89-D-4814

Prepared By:

BAKER ENVIRONMENTAL, INC.
Coraopolis, Pennsylvania

JUNE 1991

EN 1243

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1 Four-Mile Radii Map - Groundwater Pathway and Public Water Distribution (Back Cover)
2 0 to 15 mile Surface Water Map (Back Cover)
3 Four-Mile Radii Map - Surface Water Pathway (Back Cover)

EXHIBITS

2-1 Hazardous Ranking System Deficiency Checklist

3-1 Information from Ruth Shrader, Secretary, Pendleton County PSD
Telephone Call Report/Ruth Shrader
Telephone Call Report/Johnnie Propst, Pendleton County PSD Operator
3-2 Telephone Call Report/Mr. Raymond Harr, Pendleton County Health Department
3-3 Telephone Call Report/Don Krueger, Rockingham Department of Utilities
3-4 Telephone Call Report/George Gross, Augusta County Service Authority
3-5 Telephone Call Report/U. S. Census Bureau
3-6 Preliminary Assessment - Sugar Grove/EPA
3-7 Ground Water Map/USGS
3-8 Sole-Source Aquifer Designations/EPA
3-9 Telephone Call Report/Gary Viola, West Virginia Department of Health

4-1 Surface Water Usage in Pendleton County
4-2 West Virginia Division on Natural Resources
4-3 Phone Call Report/West Virginia Department of Health and
Excerpts/West Virginia Water Quality Standards
4-4 Excerpts/Rare Species Survey of NRTS Sugar Grove
4-5 Phone Call Report/National Climatic Data Center
4-6 Excerpt/Low-Flow Characteristics of Streams in West Virginia
4-7 FEMA Flood Plain Maps
4-8 Phone Call Report/State Scenic Rivers
4-9 Phone Call Report/West Virginia Department of Natural Resources

1.0 INTRODUCTION

Baker Environmental, Inc. (Baker) has been contracted by the Atlantic Division, Naval Facilities Engineering Command (LANTDIV) to obtain information on the Naval Radio Station, Sugar Grove, West Virginia (NRS Sugar Grove) facility for purposes of scoring selected sites in accordance with the Revised Hazard Ranking System (December 14, 1990). This report presents the results of Baker's data collection efforts.

Specific data requirements for this facility have been identified by LANTDIV in their Scope of Work dated, March 12, 1991. The overall project assignment, which included the collection and evaluation of data and preparation of this report, is being performed by Baker under Contract Task Order (CTO) 0002.

This report is organized as follows. Section 1.0 (Introduction) identifies the purpose and administrative aspects of CTO-0002 and presents the organization of the report. Section 2.0 (Methodology) describes the scope of work and activities employed to obtain the information deficiencies. The information deficiencies identified by LANTDIV are addressed in Section 3.0 through Section 6.0. Each deficiency checklist item is identified along with the information requested immediately following. Data limitations, which are those checklist deficiency items that could not be resolved, are presented in Section 7.0. References are identified in the Reference section, which follows Section 7.0.

This report also contains three figures that identify various information requirements and complement the findings which are presented in the main body of this report. Figure 1 is a map of the NRS Sugar Grove facility presenting information relevant to Section 3.0. Figures 2 and 3 correspond to responses in Section 4.0.

2.0 METHODOLOGY

A project team consisting of a Project Manager, Chemical Engineer, Geologist, Civil Engineer, and Environmental Scientists were employed to obtain information to resolve data deficiencies identified by the EPA for the NRS Sugar Grove facility. The data deficiencies for the NRS Sugar Grove concern the information identified by LANTDIV in the March 12, 1991 Scope of Work.

Project files at the LANTDIV office in Norfolk, Virginia were reviewed and applicable reports were obtained by the project team. The project team subsequently reviewed the available information to respond to the information needs identified on the EPA deficiency checklist. Specific checklist items that were identified by LANTDIV in the March 12, 1991 Scope of Work were addressed except in those cases where the checklist indicated that the information has been provided and deemed acceptable. In some cases, the checklist indicated that the information is not applicable (NA). Baker addressed these items to assist in the scoring of the sites. The deficiency checklist for the NRS Sugar Grove facility is provided in Exhibit 2-1.

The information was reviewed and evaluated for specific sites identified by LANTDIV in the Scope of Work. For the NRS Sugar Grove, the following sites of concern were identified for further investigation:

TABLE 2-1

NAVAL RADIO STATION, SUGAR GROVE
SITES FOR FURTHER INVESTIGATION

Site No.	Description
1	Operations Area Waste Disposal Site
2	Support Area Burn Pits
3	Support Area Landfill

When the review of existing or available information was completed, the project team identified what information was still needed to respond to the deficiency checklist items. The project team then identified and contacted other potential sources of information including various Federal, State, and local agencies, public authorities, and private firms. In most cases, the agency or firm required substantial time to obtain the information and indicated that they

would forward the information to Baker. Due to the condensed schedule of this project, the project team attempted to obtain information "over the telephone." Telephone call reports were subsequently prepared and are included in the various exhibits to this report.

The information collected by the project team is discussed in Sections 3.0 through 6.0 of this report and illustrated on figures and exhibits (e.g., wetlands). Figures were prepared based on United States Geological Survey (USGS) quadrangle maps and topographic maps. The sites of concern are identified on each figure, along with radii depicting target distances from the sites. In some cases other maps and figures, which are more site-specific (and are of a smaller scale), are included in the exhibits.

Documentation to the responses given in Sections 3.0 through 6.0 of this report can be found in the exhibits. In most cases, the documentation consists of phone call reports and excerpts taken from various technical reports. References also were used to respond to the checklist items. Statements made in this report which support the responses to the checklist item are referenced. A listing of references can be found in the Reference section.

The following sections present the findings to those checklists items identified by LANTDIV for the surface water, soil, groundwater, and air pathways that pertain to selected sites at the NRS Sugar Grove. The findings are based on information obtained from the LANTDIV project files and information obtained from various agencies. The checklist item number and description is given first, followed by the finding(s) generated by the project team. The checklist number corresponds to the deficiency checklist given in Exhibit 2-1.

3.0 GROUNDWATER PATHWAY

3A. Determine if ground water within a four-mile radius of each source is used for any of the following purposes and locate the wells on a four-mile radius map. The center of the radii should begin at the center of each source if the source is small or at the outer edge of the source if it is large.

There are assumed to be 346 known wells within a four-mile radius of the sites at NRS Sugar Grove. These wells are shown on Figure 1. Their uses are uncertain because there is no well registration requirement in the State of West Virginia, resulting in wells used for unspecified purposes. This information has been compiled from a map received from the Pendleton County Public Service District (PSD) and a telephone conversation with Mr. Raymond Harr (Pendleton County Health Department Sanitarian). These items have been documented in Exhibits 3-1 and 3-2, respectively. For those wells identified, it was assumed that each structure shown on the topographic map that is not served by a public water distribution system is served by a private well or spring. This assumption was based on information discussed with Mr. Harr.

3A1. Private or public drinking water source

There is assumed to be a total of 346 private, public water supply, and public consumption wells within a four-mile radius of the sites at NRS Sugar Grove. For classification purposes, wells serving office buildings, subdevelopments, schools, hospitals, and churches have been considered to be public consumption wells (i.e., domestic wells).

Public water within a four-mile radius of the Sugar Grove sites is supplied by the Pendleton County Public Services District (Pendleton PSD). The four-mile radii of the sites intersects the boundary of the Pendleton PSD which serves the Brandywine community (see Exhibit 3-1). The system also extends south along Route 21 towards the town of Sugar Grove (see Section 3B for the boundaries of the system). According to Mr. John Propst, Pendleton PSD operator, this system is supplied by a spring located adjacent to the South Fork of the South Branch of the Potomac River, directly across from the operational area entrance at Sugar Grove (see Exhibit 3-1). The location of this spring is shown on Figure 1. Information concerning the Pendleton PSD is provided in Exhibit 3-1.

The four-mile radii from the sites also intersect the counties of Rockingham and Augusta in Virginia. However, conversations with representatives of the Rockingham Department of Utilities (Rockingham DU) and the Augusta County Service Authority (Augusta SA) indicated that there are no known public water distribution systems in either county which extend within the four-mile radii from the sites (see Exhibits 3-3 and 3-4, respectively).

3A2. Irrigation of commercial crops (include areas)

There are no known wells used for irrigation of commercial crops within a four-mile radius of the sites at NRS Sugar Grove.

Information received from Ms. Ruth Shrader, Secretary, Pendleton PSD, indicates that no public water within the four-mile radii from the sites is used for irrigation of commercial crops (see Exhibit 3-1).

Since Rockingham and Augusta counties have no public water distribution systems within the four-mile radii from the sites, these counties use no public water for irrigation of commercial crops (see Exhibits 3-3 and 3-4, respectively).

3A3. Commercial livestock

There are no known wells used for commercial livestock within a four-mile radius of the sites at NRS Sugar Grove.

Information received from Ms. Ruth Shrader, Secretary, Pendleton PSD, indicates that it uses no public water within the four-mile radii from the sites for watering of commercial livestock (see Exhibit 3-1).

Since Rockingham and Augusta counties have no public water distribution systems within the four-mile radii from the sites, these counties use no public water for watering of commercial livestock (see Exhibits 3-3 and 3-4, respectively).

3A4. Commercial aquiculture

There are no known wells used for commercial aquiculture within a four-mile radius of the sites at NRS Sugar Grove.

Information received from, and conversations with Ms. Ruth Shrader, Secretary, Pendleton PSD indicates that it uses no public water within the four-mile radii from the sites for commercial aquiculture (see Exhibit 3-1).

Since Rockingham and Augusta counties have no public water distribution systems within the four-mile radii from the sites, these counties use no public water for commercial aquiculture (see Exhibits 3-3 and 3-4, respectively).

3A5. Industrial

There are no known wells used for industrial purposes within a four-mile radius of the sites at NRS Sugar Grove.

Information received from, and conversations with Ms. Ruth Shrader, Secretary, Pendleton PSD indicates that it uses no public water within the four-mile radii from the sites for industrial purposes (see Exhibit 3-1).

Since Rockingham and Augusta counties have no public water distribution systems within the four-mile radii from the sites, these counties use no public water for industrial purposes (see Exhibits 3-3 and 3-4, respectively).

3A6. Not used, but usable

This item was identified as "acceptable" on the checklist.

3A7. Unusable

This item was identified as "acceptable" on the checklist.

3A8. Water for recreational use

There are no known private wells used for recreation within a four-mile radius of the sites at NRS Sugar Grove.

Information received from Ms. Ruth Shrader, Secretary, Pendleton PSD, indicates that no public water within the four-mile radii from the sites is used for recreational purposes (see Exhibit 3-1).

Since Rockingham and Augusta counties have no public water distribution systems within the four-mile radii from the sites, these counties use no public water for recreational purposes (see Exhibits 3-3 and 3-4, respectively).

3A9. Stand-by wells used for drinking water at least once a year.

This item was identified as "acceptable" on the checklist.

Information received from the Pendleton PSD, Rockingham DU, and Augusta SA indicates that they have no stand-by wells within the four-mile radii of the sites at Sugar Grove (see Exhibits 3-1, 3-3, and 3-4, respectively).

3B. Outline the public water distribution system within a four-mile radius of each source on a topographic map.

The current extent of the existing public water distribution system of the Pendleton PSD which is within the four-mile radii of the sites is outlined on Figure 1. This area represents a portion of the system which services the community of Brandywine. Details of the entire distribution area of the Pendleton PSD are provided in Exhibit 3-1.

The four-mile radii of the sites intersect the boundaries of Rockingham and Augusta Counties in Virginia. Conversations with representatives of the Rockingham DU and the Augusta SA indicated that neither county's public water distribution system extended into the area of interest (i.e., within the four-mile radii from the sites) (see Exhibits 3-3 and 3-4, respectively). Therefore, there are no boundary lines shown for either of these counties.

3C. Identify the nearest drinking water well.

The nearest drinking water well to the operational site is assumed to be the well shown northeast of Calvary Church adjacent to the 170-foot benchmark. The nearest drinking water well to the support site is assumed to be the well shown north/northeast of the support areas located between the two radio towers (see Figure 1).

3D. Determine the population (including workers, students, and residents) drawing from each drinking water well within the following radii. The center of the radii should start at the center of the source if it is small of at the outer edge if it is large. Count overlapping areas only once.

3D1. 0-1/4 mile

Site	Population
1	0
2	0
3	0

3D2. 1/4 - 1/2 mile

Site	Population
1	8
2	10
3	8

3D3. 1/2 - 1 mile

Site	Population
1	0
2	36
3	36

3D4. 1 - 2 mile

Site	Population
1	59
2	90
3	102

3D5. **2 - 3 mile**

Site	Population
1	163
2	152
3	128

3D6. **3 - 4 mile**

Site	Population
1	175
2	236
3	236

The above populations were determined by assuming that every building shown on the topographic map outside of the public water distribution systems was served by a well or a spring. This assumption was based on the telephone conversation with Mr. Raymond Harr, as documented in Exhibit 3-2. All wells were considered to be domestic wells (because no other uses could be documented) serving 2.36 residents because no other uses could be documented. This figure was obtained from a telephone call to a United States Census Bureau information specialist (see Exhibit 3-5).

3E. Describe known or probable ground-water flow direction from each source.

The probable groundwater flow direction from the sites at the operational area is toward the South Fork of the South Branch of the Potomac River. Groundwater from the support area likely flows toward Lick Run Creek, which forms a confluence with the South Fork. Groundwater flow is, to some extent, influenced by the extensively folded and faulted bedrock beneath the site. Although this is not specifically addressed in available literature, the Preliminary Assessment (PA) for Sugar Grove identifies the location of the support area as an alluvial valley with groundwater depths ranging from 5 to 40 feet beneath ground surface, generally indicating that the South Fork is recharged by shallow groundwater in the alluvial valley. Documentation has been provided in Exhibit 3-6.

3F. Describe as precisely as possible, the geology and hydrogeology of the site area (including geological formation name, thickness, types of material, hydraulic conductivities, and depth to aquifers).

Both the operational and support areas of NRS Sugar Grove are underlain by a thick sequence of steeply folded and highly faulted sedimentary rocks of Devonian age, according to the Sugar Grove PA (see Exhibit 3-6). They consist of interbedded shale, sandstone, and limestone. Shale is the dominant lithologic unit. The Harrell and Mahantango geologic formations occupy most of the NRS properties.

Groundwater is found primarily in shale fissures of the Harrell and Mahantango formations and, as discussed in Section 3E, surficial aquifers are encountered at depths ranging from 5 to 40 feet beneath the ground surface.

According to Ground-Water Hydrology of the Potomac River Basin, West Virginia (Exhibit 3-7), the thicknesses of the Brallier (which includes the Harrell Shale) and Mahantango formations shale range from 1500 feet to 2300 feet, and 300 feet to 1000 feet, respectively. These thicknesses, however, may not be the actual thicknesses of the units beneath the site, because of the deformed nature of the bedrock. There are no available site-specific data to verify this.

Although precise hydraulic conductivities are not available in the literature, Exhibit 3-7 contained the following well yields for the geologic units beneath the site.

TABLE 3-1

NAVAL RADIO STATION, SUGAR GROVE
RANGE OF WELL YIELDS

Geological Unit	Range of Well Yields (gallons per minute)
Brallier Formation (includes Harrell Shale)	0 - 75
Mahantango Formation	8

3G. Discuss any evidence of aquitards and discontinuities between aquifers within four miles of the sources.

Based on the available literature, it appears that there are no effective aquitards between the aquifers at the site. This condition is supported by statements in the Sugar Grove PA that identified the heavily fractured nature of the bedrock beneath the site. Specifically, structurally-controlled zones of relatively high permeability were identified. This information can be used to conclude that effective aquitards are not present. Documentation has been provided in Exhibit 3-6.

3H. Describe any evidence of interconnections between aquifers within 2 miles of each source.

As previously discussed, and as identified in Exhibit 3-6, interconnections between the aquifers may exist.

3I. Estimate annual net precipitation at the site.

This item was identified as "acceptable" on the checklist.

3J. Discuss soil or geologic conditions that might inhibit or facilitate groundwater migration.

Joints and fractures, as previously discussed and in Exhibit 3-6, are present between site geologic units, which could facilitate groundwater migration.

3K. Identify if any underlying aquifers are "sole source" as designated by Section 1424(e) of the Safe Drinking Water Act.

The site is not underlain by a sole-source aquifer (as designated by Section 1424(e) of the Safe Drinking Water Act), as confirmed by information received from the Environmental Protection Agency's Office of Drinking Water Protection, contained in Exhibit 3-8.

3N. Determine if any areas within a four-mile radius of each source is located in a Wellhead Protection area according to Section 1428 of the Safe Drinking Water Act.

The area within a four-mile radius from the site does not intercept a Wellhead Protection Area according to Section 1428 of the Safe Drinking Water Act. Mr. Gary Viola of the West Virginia Department of Health (Wellhead Protection Program) reported that West Virginia currently is in the process of surveying water supplies in the state, and is prioritizing the survey based on populations served by the supplies. Pendleton and Mineral Counties are scheduled for the next phase of the survey; therefore, NRS Sugar Grove currently is not within an established Wellhead Protection Area, but could be in the future. Documentation of the telephone call with Mr. Viola has been provided as Exhibit 3-9.

4.0 SURFACE WATER PATHWAY

4A. Describe surface-water bodies 0 to 15 miles downstream of the sources and provide a map of surface-water bodies receiving drainage from each source.

The deficiency checklist indicates that the surface water bodies have been adequately described, but a map depicting the various surface waters is required. A 15-mile target distance limit map is shown as Figure 2.

4B. Discuss probable surface runoff pattern from each source to surface waters, including the distance to the nearest surface water body and provide a map.

Site 1 (Operations Area Waste Disposal Site) - Runoff from Site 1 would flow into a tributary to Licks Run. The site is located about 200 feet from the stream (EPA, 1988).

Site 2 (Support Area Burn Pits) - Surface water runoff from Site 2 would flow into the South Fork South Branch Potomac River. The river is approximately 250 feet northwest of the site (USGS Sugar Grove quadrangle map).

Site 3 (Support Area Landfill) - Surface water runoff would flow to the South Fork South Branch Potomac River, which is located about 300 feet from the site.

4C. Describe the points at each site where hazardous substances begin to migrate and their probable point of entry into a surface-water body (including ponds, lakes, streams, etc.)

The probable migration path was assumed from topographic information on the Sugar Grove quadrangle map and the site maps obtained from the Preliminary Assessment Study (EPA, 1988).

Site 1 - Potential contaminants would migrate from the north and northeast of the site and enter a tributary to Licks Run. The flow would enter the tributary about 2000 feet from its confluence with Lick Run.

Site 2 - Migration of potentially hazardous substances would begin from the northwest side of the site, and the substances would flow via surface water runoff into the South Fork South Branch Potomac River.

Site 3 - Potential contaminants would migrate from the northeast and northwest sides of the site and flow into the South Fork South Branch Potomac River.

4D. Identify if surface water drawn from intakes within 15 miles downstream from the probable point of entry is used from any of the following purposes:

4D1. Irrigation (5-acre minimum) of commercial food crops or commercial forage crops

According to the Pendleton County Public Service District, no public water is being used for irrigation of commercial food crops, watering commercial livestock, as an ingredient in commercial food, or at a designated water recreation area (see Exhibit 4-1).

4D2. Watering commercial livestock

See response to 4D1.

4D3. Ingredient in commercial food

See response to 4D1.

4D4. Major or designated water recreation ares, excluding drinking water.

See response to 4D1.

4E. Identify the nature and size of any of the following targets associated with surface-water bodies within 15 miles downstream of the probable point of entry:

4E2. Sensitive environments (see Table 4-23, December 1990 Federal Register) and critical habitats of a federally endangered species.

This item was identified as "acceptable" on the checklist.

4E3. Economically Important Resources (e.g. shellfish)

There are many fish species which inhabit the waters of the South Fork. Exhibit 4-2 contains a list of the fish species that potentially may inhabit the waters of the South Fork.

4E4. Portions of the surface water designated by a state for drinking water use under Section 305(a) of the Clean Water Act and Portions of surface water usable for drinking water.

West Virginia designates its water bodies into different categories. Category A is used to describe waters which, after conventional treatment, are used for human consumption (see Exhibit 4-3). The South Fork of the South Branch of the Potomac River (South Fork) by U.S. Naval Radio Station is a Category A water (see Exhibit 4-3).

4F. Determine the miles of wetlands (wetland frontage) along surface-water bodies 0 to 15 miles downstream from the probable point of entry.

The National Wetland Inventory (NWI) Maps for the USGS 7 1/2 minute quadrangles comprising the 15 miles downstream were reviewed. Numerous small (< one acre) wetland areas were identified from the NWI maps, however, very few would meet the criteria defined in 40 CFR 230.3. In addition, a few small wetland areas have been identified during a survey of Sugar Grove conducted in 1989 by the West Virginia Natural Heritage Program (see Exhibit 4-4) (Harmon, 1989). The total length of wetlands meeting the criteria defined in 40 CFR 230.3 was estimated as one to two miles.

4K. Estimate the size of the upgradient drainage area from each source.

The drainage basins for the sites of concern at NRS Sugar Grove were estimated using surface elevations from the USGS Sugar Grove quadrangle map and an electronic planimeter. The following estimates may not be accurate due to development and man-made drainage systems.

Site 1 - The site is located at a point of high surface elevation, therefore the drainage area is negligible.

Site 2 - Site 2 is located adjacent to a roadway which may affect drainage over the site. The estimated drainage area is 30 acres.

Site 3 - The estimated drainage area is 35 acres.

4L. Determine the 2-year, 24- hour rainfall for the site.

The Rainfall Frequency Atlas of the United States indicates that the 2-year, 24-hour rainfall, for Pendleton County, West Virginia, is approximately 2.90 inches. According to the National Climatic Data Center, this is the most current information published and available (see Exhibit 4-5).

4M. Discuss the average annual stream-flow associated with each surface water body from 0-15 miles downstream of each source.

The average annual flow rate is estimated at two gauging stations near the NRS Sugar Grove facility. The average discharge for the South Fork South Branch Potomac River at Brandywine, West Virginia is 99 cubic feet per second. The average discharge for the South Branch Potomac River at Franklin, West Virginia is 165 cubic feet per second (USGS, 1989) (see Exhibit 4-6).

4O. Determine if sources are located in a 1-year, 10-year, 100-year, or 500-year flood plain.

The following information was obtained from the Federal Emergency Management Agency (FEMA) Flood Insurance Maps (see Exhibit 4-7).

Site 1 - The site is located outside of the 500-year flood plain boundary.

Site 2 - The portion of the site which lies along the South Branch Potomac River may be located within the 100-year flood plain. The rest of the site appears to be located outside of the 500-year flood plain.

Site 3 - The northwestern side of the site may lie within the 100-year flood plain. The majority of the site appears to lie outside of the boundary of the 500-year flood plain.

4P. Discuss if fisheries (recreational or commercial) exist in surface-water bodies 0 to 15 miles downstream of each source, and:

In West Virginia, valuable fisheries are classified as High Quality Streams (see Exhibit 4-2). The South Fork is designated as a high quality stream (see Exhibit 4-2).

4P1. Describe annual production (in pounds) of human food chain organisms (e.g. trout, shellfish, crabs) per acre of surface-water bodies 0 to 15 miles downstream of each source.

Annual production information was not available (see Exhibit 4-2).

4P2. Describe annual production (in pounds) of human food chain organisms (e.g., trout, shellfish, crabs) per acre of pond, lakes, or oceans that receive surface-water drainage from sources within 0 to 15 miles downstream of each source.

Annual production information was not available (see Exhibit 4-2).

4Q. Identify closed fisheries 0 to 15 miles downstream from sources.

There are no closed fisheries within 15 miles downstream of the sites (see Exhibit 4-2).

5.0 AIR PATHWAY

5D. Determine if sensitive environments are within a four-mile radius of each source.

- No Critical Habitats as defined in 50 CFR 424.02 have been identified either 15 miles downstream or upstream (tidal influenced) of the sites (see Exhibit 4-4) (50 CFR Sections 17.95, 17.96).

- The WVDNR Natural Heritage Program conducted a rare species survey of Naval Radio Station (R), Sugar Grove, West Virginia (Harmon, 1989). The survey consisted of a review of existing records of rare species, and an on-site walk-through. The only federally endangered (E) or threatened (T) species identified within the site boundaries was the Shale barren rockcress (E) (*Arabis serotina*) (see Exhibit 4-4) (Harmon, 1989). A review of federally threatened and endangered species within a four-mile radius of the sites was conducted by the WVDNR, Natural Heritage Program. They identified other sites where the Shale barren rockcress was found in addition to Category 2 Federal Species. The Category 2 species include: Cow knob salamander; Drawf trillion; and Headleared skullcape (see Exhibit 4-4). West Virginia does not have any laws governing state rare, threatened or endangered species. They do, however, still identify these species in the state.

- An eel species (*Anguilla rostrata*), a state rare species, has been identified in the South Fork South Branch Potomac River (see Exhibit 4-2). The eel was found in Pendelton County in several locations upstream and downstream of the sites. Unless there is a waterway blockage between where the eel was identified and Sugar Grove, it is probable that the eel may exist within a four-mile radius of the sites. During the above-mentioned survey conducted by the WVDNR Natural Heritage Program, several rare plant and animal species were identified in the existing records within an eight-mile radius of Sugar Grove (see Exhibit 4-4) while the walk-through identified several rare plant species within the facility site boundaries (Harmon, 1989). Exhibit 4-4 contains the relevant excerpts from their report detailing their findings on the status of rare, threatened or endangered species on and around the sites. A review of state rare, threatened and endangered species within a four-mile radius of the sites was conducted by the WVDNR, Natural Heritage Program. The results of this survey are included in Exhibit 4-4.

- No national parks have been identified within a four-mile radius of the sites (NPS, 1989a) (NPS, 1989b).

- No national monuments have been identified within a four-mile radius of the sites (NPS, 1989a) (NPS, 1989b).

- No federally designated scenic or wild rivers, or national river reaches designated as recreational have been identified within a four-mile radius of the sites (NPS, 1989a) (NPS, 1990).

- It was reported by the WVDNR that West Virginia does not have a State Scenic Rivers Program; they have a Natural Streams Preservation Act. No streams in that area are designated protected by the Natural Streams Preservation Act (see Exhibits 4-2 and 4-8).

- It was reported by the WVDNR that all streams should be considered as spawning areas (see Exhibit 4-2).

- No national preserves have been identified within a four-mile radius of the sites (NPS, 1989a) (NPS, 1989b),

- No wildlife refuges have been identified within a four-mile radius of the sites (see Exhibit 4-9) (USDI, 1986).

- It was reported by the WVDNR that West Virginia does not have state wildlife refuges. Instead, they have wildlife management areas (see Exhibit 4-9). No wildlife management areas have been identified in West Virginia within a four-mile radius of the sites (see Exhibit 4-9) (WVDNR, 1989).

- No designated federal wilderness areas have been identified within a four-mile radius of the sites (see Exhibit 4-9) (WS, 1989).

- It was reported by the WVDNR that West Virginia does not have state designated natural areas (see Exhibit 4-9).

5E. Determine the total area of wetlands within a four-mile radius of each source.

The National Wetland Inventory (NWI) Maps for the USGS 7 1/2 minute quadrangles comprising the four-mile radious were reviewed. Numerous small (< one acre) wetland areas were identified from the NWI maps, however, very few would meet the criteria defined in 40 CFR 230.3. A few small wetland areas have been identified during a survey of Sugar Grove conducted in 1989 by the West Virginia Natural Heritage Program (see Exhibit 4-4) (Harmon, 1989). The total area of wetlands meeting the criteria defined in 40 CFR 230.3 was estimated as between one and 50 acres.

6.0 SOIL EXPOSURE PATHWAY

6D. Determine if any of the following areas are located near of within an area of soil contamination within 2 feet of the surface and provide the number of individuals within each area:

The only areas that may have soil contamination within 2 feet of the surface would occur within the facility site boundaries. However, no data are available to confirm this.

6D4. Within boundaries of a terrestrial sensitive environments.

No terrestrial sensitive environments have been identified within a four-mile radius of the sites, therefore, they are not located or within an area of soil contamination within two feet of the surface (see section 5D). The only exception to this may be for endangered species. As mentioned in section 5D, there are some endangered plant species within the site boundaries. Information on soil contamination within two feet of the surface was not available, so this section could not be completed.

7.0 DATA LIMITATIONS

The following information has not yet been obtained or is not available from the sources contacted. If the information is obtained, it will be submitted to LANTDIV under separate cover.

- The Pendleton County PSD is to provide a clearer delineation of the Brandywine water distribution system.
- The one-year and 10-year flood plain maps were requested from FEMA, but they are not currently published or available.
- Annual fish or shellfish production information could not be obtained.
- Information of the location of soil contamination within 2 feet of the surface was not available, so it could not be determined whether endangered species are located within that area.

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Encl. 4

ORIGINAL (RED)

DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511-6287

TELEPHONE NO
(804) 445-2931

6280 IN REPLY REFER TO
1812:TRS:srw
JUN 27 1991

U.S. Environmental Protection Agency
Region III
Attn: Mr. Henry J. Sokolowski
Chief, Federal Facilities Section
841 Chestnut Building
Phildelphia, Pennsylvania 19107

Re: Hazardous Ranking System Deficiency Checklist Response

Dear Mr. Sokolowski:

In accordance with the schedule outlined in our letters of February 27, 1991, and April 12, 1991, the enclosed reports are forwarded for your use in completing the Hazardous Ranking System evaluation of hazardous waste sites at the following facilities:

a. Naval Base, Norfolk, Virginia (enclosure (1)).

b. Naval Air Station, Oceana, Virginia Beach, Virginia, and Naval Auxiliary Landing Field, Fentress, Chesapeake, Virginia [enclosure (2)).

c. Naval Amphibious Base, Little Creek, Virginia Beach, Virginia (enclosure (3)).

d. Naval Radio Transmitting Facility, Driver, Suffolk, Virginia (enclosure (4)).

e. Naval Supply Center, Craney Island Fuel Depot, Portsmouth, Virginia (enclosure (5)).

f. Allegany Ballistics Laboratory, Cumberland, Rocket Center, West Virginia (enclosure (6)).

g. Naval Radio Station, Sugar Grove, West Virginia (enclosure (7)).

h. Norfolk Naval Shipyard, Portsmouth, Virginia (enclosure (8)).

i. Naval Supply Center, Yorktown Fuels Division, Yorktown, Virginia (enclosure (9)).

Two copies of each report are enclosed for your use. The information was gathered by our contractor, Baker Environmental, Incorporated, specifically responding to the deficiencies noted on the HRS Deficiencies Checklists for each of these facilities.

ORIGINAL (RED)

Re: Hazardous Ranking System Deficiency Checklist Response

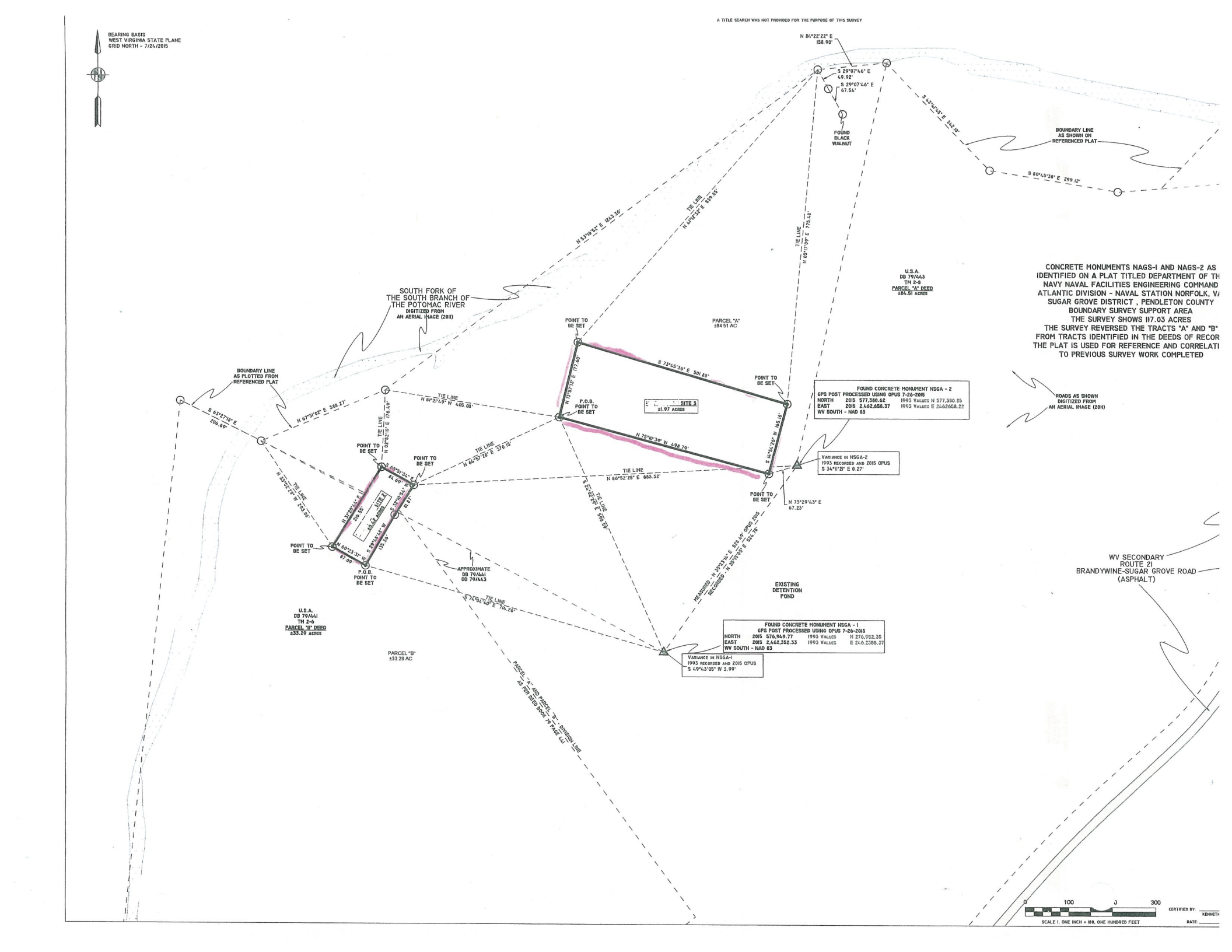
The information addressed in these reports includes groundwater pathway information, surface water pathway information, air pathway information, and soil exposure pathway information for each of the sites.

The responses to Items 1E1 through 1E3 were previously submitted as part of the information completed by the individual facilities as contained in our letter of April 12, 1991. The remainder of the population estimates in Items 1E4 through 1E6 are found in the front pocket of the reports currently being submitted.

The information enclosed represents the final submittal in our effort to complete the information required for eliminating deficiencies indicated on the checklists. If information becomes available in the future which will be instrumental in your scoring of the sites at these various facilities, it will be forwarded to you at the earliest possible date. If you have any questions, our point of contact is Mr. Andrew R. Kissell at (804) 445-2931.

Sincerely,

for P. A. RAKOWSKI, P. E.
Head
Environmental Programs Branch
Environmental Quality Division
By direction of the Commander

Enclosures

A TITLE SEARCH WAS NOT PROVIDED FOR THE PURPOSE OF THIS SURVEY