

**Final Five-Year Review
For
Bay Head Road Annex
IR Program Site 1**

**Former Naval Surface Warfare Center
Carderock Division
Annapolis Detachment
Annapolis, Maryland**



Naval Facilities Engineering Command - Washington
Contract Number N62477-03-D-0163
Contract Task Order 0002

JM Waller Associates
December 2004

FINAL FIVE-YEAR REVIEW
FOR
BAY HEAD ROAD ANNEX
FORMER NAVAL SURFACE WARFARE CENTER
CARDEROCK DIVISION
ANNAPOLIS DETACHMENT
ANNAPOLIS, MARYLAND

Submitted to:
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CONTRACT NUMBER N62477-03-D-0163
CONTRACT DELIVERY ORDER 0002

December 2004

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LIST OF ACRONYMS

AOC	Area of Concern
ARAR	Applicable or Relevant and Appropriate Requirements
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COPC	Contaminants of Primary Concern
CSF	Cancer Slope Factor
EBS	Environmental Baseline Survey
ERC	Ecological Risk Characterization
HI	Hazard Index
IR	Installation Restoration
JMWA	JM Waller Associates
MDE	Maryland Department of the Environment
msl	mean sea level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
PA	Preliminary Assessment
PAH	Polynuclear Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyl
RBC	Risk-Based Concentration
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
ROD	Record of Decision
RPM	Remedial Project Manager
SI	Site Inspection
TtNUS	Tetra Tech NUS, Inc.
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
VOC	Volatile Organic Compound

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Navy Five-Year Review Signature Cover Key Review Information

Site Identification		
Site Name: Bay Head Road Annex, IR Program Site 1, Former Naval Surface Warfare Center – Carderock Division, Annapolis Detachment		EPA ID: MD 3170000167
Region: 3	State: MD	City/County: Anne Arundel County
Site Status		
NPL Status: Not on the NPL		
Remediation Status (under construction, operating, complete): Complete (institutional controls), only institutional controls.		
Multiple Operable Units (highlight): Y ☒ N Number of Sites/OUs: 1/NA		
Construction Completion Date: Not Applicable		
Fund/PRP/Federal Facility Lead: Federal Facility	Lead Agency: Department of the Navy Naval Facilities Engineering Command Washington	
Has site been put into reuse? (highlight): Y ☒ N		
Review Status		
Who conducted the review (EPA Region, State, Federal Agency): Naval Facilities Engineering Command Washington		
Author Name: Jeffrey Morris	Author Title: Remedial Project Manager	
Author Affiliation: Department of the Navy, Naval Facilities Engineering Command Washington		
Review Period: March 2001 – December 2004	Date(s) of Site Inspection: March 22, 2004	
Highlight: ☒ Statutory Policy	Policy Type (name): 1. Pre-SARA 2. ☒ Ongoing 3. Removal Only 4. Regional Discretion	Review Number (1, 2, etc) 1
Triggering Action Event: The CERCLA ROD was signed for the Former Naval Surface Warfare Center Detachment, Annapolis		
Trigger Action Date: March 6, 2001		

Due Date: March 6, 2006

This Five-Year Review only applies to the action implemented at the Bay Head Road Annex.

Issues:

None.

Recommendations and Required Actions:

None.

Protectiveness Statement(s):

The remedial action for the Bay Head Road Annex involved a deed restriction, which restricted future land use to non-residential development to protect human health. The remedy is functioning as intended.

Other Comments:

None.

Next Review:

The next Five-Year Review will be completed within five years of the signature date of this report.

Signature of U.S. Department of the Navy and Date

CAPT C. J. Mossey _____ Date
Commanding Officer
Naval Facilities Engineering Command Washington

EXECUTIVE SUMMARY

The final remedy for the Bay Head Road Annex Installation Restoration (IR) Site 1 of the former Naval Surface Warfare Center (NSWC) – Carderock Division, Annapolis Detachment included an institutional control in the form of a deed restriction, which prohibited use of the property for permanent residential purposes in order to protect human health. In March 2001, the U. S. Navy and U. S. Environmental Protection Agency, with the concurrence of the Maryland Department of the Environment, signed a Record of Decision (ROD). The trigger for this Five-Year Review was the signing of the ROD.

This Five-Year Review included a site inspection, document review and site interviews. The results of the review indicate that the remedy is protective of human health and is operating in accordance with the requirements of the ROD. Further, as long as the institutional controls remain in place, the remedy will remain protective into the future.

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1.0 INTRODUCTION

This document presents the results of the Five-Year Review, undertaken to determine whether or not the final remedy at the Bay Head Road Annex, Installation Restoration (IR) Site 1, Former Naval Surface Warfare Center – Carderock Division, Annapolis Detachment is protective of human health and the environment.

The Navy has prepared this Five-Year Review report pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) §121 and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA §121 states the following:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section 104 or 106, the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

The United States Environmental Protection Agency (USEPA) clarified this requirement further in the NCP; 40 Code of Federal Regulations (CFR) §300.430(f)(4)(ii) states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such actions no less often than every five years after the initiation of the selected remedial action.

J.M. Waller Associates, Inc. conducted an analysis of the available information in support of this Five-Year Review in response to Delivery Order 0002 under Contract Number N62477-03-D-163. Representatives of J.M. Waller Associates Inc. conducted a facility inspection on March 22, 2004. This report documents the results of the Five-Year Review.

This is the first Five-Year Review for the Bay Head Road Annex. The triggering action for this statutory review was the signing of the Record of Decision (ROD) in March 2001. The Five-Year Review is required because hazardous substances, pollutants, or contaminants remain at the Facility above levels that allow for unlimited use and unrestricted exposure.

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2.0 SITE CHRONOLOGY

After World War II, the Army recognized the need for an air defense system capable of engaging high-speed, maneuverable targets. In 1945, the Army initiated a research and development program for the Nike I defensive missile system to protect major metropolitan areas and strategic military installations from aerial attack. During the mid-1950s, the Department of the Army purchased the parcel of land to be used as a Launch Area in the Nike Missile Defense System for the cities of Annapolis and Washington, D.C.

The Bay Head Road Annex Launch Area, designated W-26 Nike Battery, was used by the Army for Nike missile defense operations from 1954 until 1969. Maintenance activities by the Army during that sixteen-year period required the storage, handling, and disposal of missile components and propellants as well as solvents, fluids, fuels, and other materials necessary for operations and maintenance. Hazardous materials and waste were commonly generated at Nike missile sites and often disposed of onsite.

Several former Nike missile site structural features remain onsite, including three former missile launching pads, and separate fueling, generator, assembly, storage, and wastewater disposal areas. The missile launching pads consist of three concrete structures, approximately seventeen feet deep, which were used to store the missiles.

After Nike Battery deactivation, the Facility was used by the Navy to conduct burn tests to determine heat resistant properties of materials for use onboard Navy ships. Materials were burned in a concrete pit and analyzed for off-gas production and fire hazard potential. The Navy's operations at the Facility ended in the late 1990s.

At the present time, nearly 100 percent of the Facility has been developed, cleared of trees, and only a small portion remains covered in natural vegetation. Facility access is currently restricted by fences, but once onsite there is access to areas formerly used by the Army and the Navy. Separate areas exist for recreational activities with two baseball fields, a picnic pavilion, and a restroom/locker room located in the southern portion of the Facility. A septic system is located between the ball fields. This septic system, which includes drain and leaching fields, serves the pavilion between the two baseball fields. Table 2-1 identifies the chronology of events for the Bay Head Road Annex.

TABLE 2-1
CHRONOLOGY OF SITE EVENTS
BAY HEAD ROAD ANNEX
ANNAPOLIS, MARYLAND

Event	Date
Bay Head Road Annex Launch Area, designated W-26 Nike Battery, was used by the Army for Nike missile defense operations	1954 - 1969
Property transferred from Army to Navy	1971
Navy conducted research related to burn testing	1972 – 1981
Property used as equipment/supply storage facility	1981 – 1985
Two Preliminary Assessment (PA) Reports were prepared for the Navy.	1985 and 1990
The Navy conducted a Site Inspection (SI) in accordance with the recommendations identified in the 1990 PA.	1991
An Environmental Baseline Survey (EBS) was performed.	1995
The Remedial Investigation (RI) was performed.	2000
The Record of Decision (ROD) was finalized.	2001
The Facility is to be conveyed to Anne Arundel County through the Department of the Interior. As of December 2004, the Facility is still with the Department of the Interior.	Present
The Facility is currently inactive, except for the use of building 212 by the Children's Theater.	Present

3.0 BACKGROUND

3.1 PHYSICAL CHARACTERISTICS

The Facility consists of a tract of land approximately twenty-four acres in size, located on the peninsula between the Magothy and Severn Rivers, less than two miles from the Chesapeake Bay. Figure 3-1 shows the location of the Bay Head Road Annex in relation to the surrounding area. The topographic relief across the Facility is approximately fifteen feet, ranging from thirteen to twenty-eight feet above mean sea level (msl). The lowest elevations are in the northeast portion of the Facility, which borders an unnamed tributary to the Little Magothy River. The highest elevations are found in the eastern portion of the Facility centered on the three former missile magazines. The Facility is relatively flat but has a gradual decrease in grade to the northeast, coinciding with the unnamed tributary noted above. Two north-trending, shallow, grass-lined swales provide surface water drainage. The western swale encircles the former onsite septic system and drains to the north where it intersects with an east-trending swale that discharges to the sodded area along the northern property boundary. The eastern swale is less pronounced and discharges both along the eastern and northeastern property boundaries.

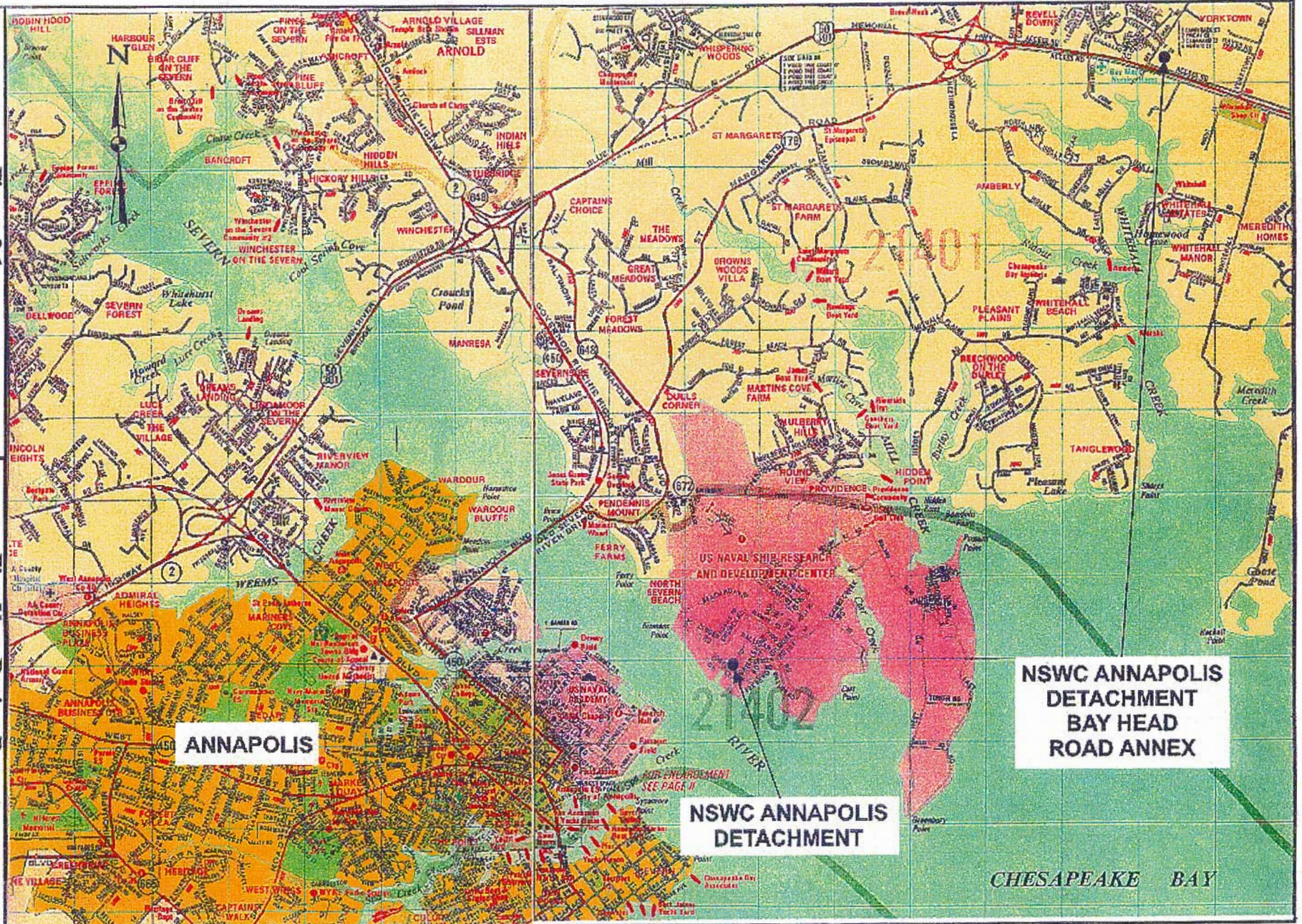
The Facility is underlain by interbedded clay, silt, and sand, identified as the Talbot Formation (U.S. Navy, 2001b). Depth to groundwater varies from 16 feet in the southeast portion of the Facility to 9 feet in the northwest. Flow is toward the unnamed stream at an estimated velocity of 0.48 feet per day (U.S. Navy, 2001b).

3.2 LAND AND RESOURCE USE

Residential areas to the north and west surround the Bay Head Road Annex. US Routes 50 and 301 are located south of the Facility, and east of the Facility is undeveloped land, residential areas, and Sandy Point State Park. Current land use at the Facility is solely for the limited part-time use of the Children's Theatre housed in Building 212. The two baseball fields and picnic area are no longer in use. There are no residences on the Facility, nor are there plans for future residential use. Figure 3-2 shows the layout of the property, including the buildings, baseball fields, as well as the various sampling locations and monitoring wells.

There are no permanent water bodies at the Facility. Surface water runoff from the Facility is directed to the stormwater drainage system with discharge to the drainage basin of the Little Magothy River and ultimately to the Chesapeake Bay.

Figure 3-1



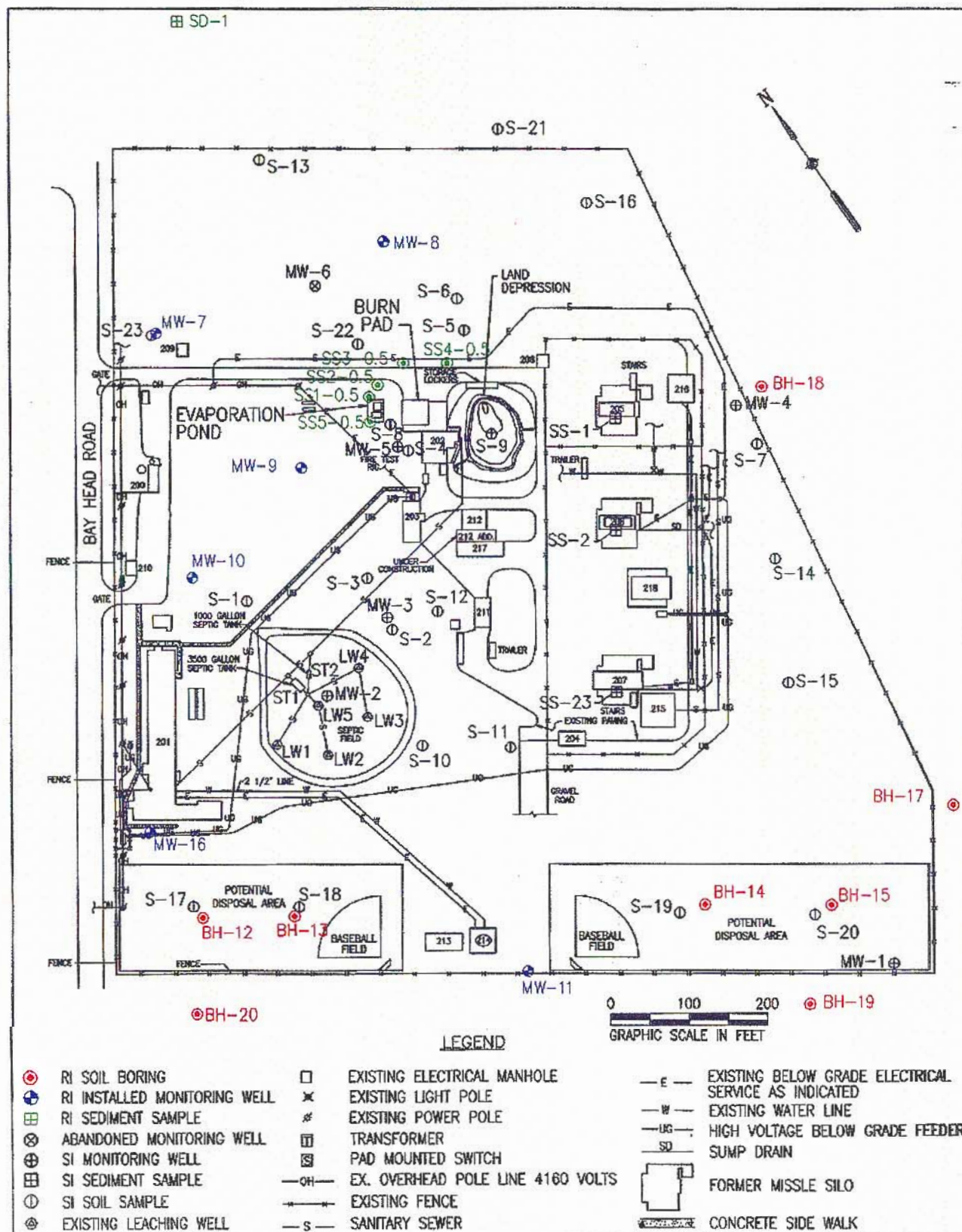


Figure 3-2
Sampling and Monitoring
Well Locations

Five-Year Review Report
Bay Head Road Annex

3.3 BASIS FOR REMEDIAL ACTION

The need for remedial action at IR Site 1 was based on site history, the nature and extent of contamination and the results of human and ecological risk assessments. Each of these is discussed below.

3.3.1 History of Contamination

Two Preliminary Assessment (PA) Reports were prepared for the Facility, in 1985 and 1990 by the Navy. The PAs identified potential locations of contamination (e.g., missile assembly building, missile fueling and warheading area, transformer locations, magazine drainage area, septic system, and possible disposal areas, etc.). The results of soil and sediment sampling revealed low levels of toluene, a common degreasing solvent, and the pesticide DDT and its breakdown products DDD and DDE in several of the samples collected. The results of groundwater sampling revealed low concentrations of oil and grease in one of the two samples collected. The 1990 PA concluded with recommendations for further evaluation in accordance with the Superfund Site Assessment process. Therefore, the Bay Head Road Annex was officially established as IR Site 1, and a Site Inspection (SI) was scheduled under the Navy's IR program.

In 1991, the Navy conducted an SI in accordance with the recommendations identified in the 1990 PA to evaluate potential groundwater, surface water, sediment, and soil contamination. The SI concluded that low levels of organic contaminants were present in soil, sediment, surface water and groundwater at the Facility. The analytical results for metals in surface soil samples were compared with published background concentrations, and were reported in concentrations that did not exceed background ranges established by the U.S. Geological Survey (USGS). The organics, specifically the polynuclear aromatic hydrocarbons (PAHs), were within ranges representative of urban areas; therefore, an RI was not recommended due to the low concentrations reported, and the lack of an active source of contamination.

A Phase I Environmental Baseline Survey (EBS) was conducted in 1995, as the Facility was scheduled for closure under the Base Realignment and Closure (BRAC) IV program. The septic system located near the center of the Facility was identified in the EBS as an Area of Concern (AOC) due to the potential introduction of metals from the possible overflow of a thermal metal coating process used by the Navy.

A Remedial Investigation (RI) was recommended at that time to further assess the septic system and the surrounding environment. The RI consisted of sampling surface and subsurface soil, sediment, and groundwater. An assessment of the inactive septic system was also conducted, including collection of sludge and leaching well soil and water samples. Analytical sample results were compared to U.S. EPA Region III Risk-Based Concentrations (RBCs) and ecologically-based screening values.

Description of Contamination

A number of preliminary human and ecological chemicals of potential concern (COPC) were identified in the RI after screening the analytical results against the identified human and ecological risk screening criteria. Organic and inorganic compounds with concentrations that exceeded the human and ecological risk screening criteria were identified as COPC and the corresponding sample locations were plotted on a Facility drawing. Since the highest chemical concentrations are typically found closest to the source, sample concentrations were evaluated with respect to location to identify potential source areas.

Consequently, two potential source areas with elevated human and ecological contaminants were identified: the bermed evaporation pad southwest of the former burn pad (with PAHs as a concern for humans), and the surface area in the vicinity of soil sample S-5 (with pesticides as an ecological concern). Although elevated levels of some metals and PAHs in individual surface soil samples appeared to be greater than background concentrations (indicating they occurred as a result of Facility-related activities), no additional source areas were identified.

An evaluation of the potential fate and transport of contaminants was conducted by EA Engineering, Science, and Technology, Inc (EA, 2000). Each contaminant was assessed for its potential for future migration by sediment and soil erosion and leaching from soil by precipitation. Contaminant movement was assessed for groundwater, surface water, and air. In summary, it was determined that contaminants could leach from soil and sediment, and surface water and groundwater could transport contaminants away from the Facility. However, potential down gradient groundwater exposures were deemed low due to the low-level concentrations of the contaminants and the relative immobility of metals and pesticides in groundwater. Contaminant transport in air was not considered a significant pathway due to soil cover, soil type, and general high moisture content.

3.3.2 Summary of Site Risks

Human Health Risks

The site was evaluated for potential risks to humans using the site at the time of the assessment as well as potential future users. Potentially exposed populations included recreational users, community gardeners, maintenance workers, construction workers, and residents. The results of the assessment indicated that there were no unacceptable risks to any of these populations. It should be noted, however, that the residential scenario did not include exposure to soil and sediment. For this reason, a prohibition against the use of the site for residents was required.

Exposure Assessment

Onsite and offsite recreational users (ages one to five, and six to fifteen), community gardeners (children and adults), maintenance workers, construction workers, and adult and child residents (groundwater only) were the potential receptors evaluated in the quantitative risk assessment. No unacceptable cancer or non-cancer risks were calculated for the identified receptor populations based on reasonable maximum exposures.

Toxicity Assessment

Carcinogenic risk was calculated based on cancer slope factors (CSFs) developed by USEPA's Carcinogenic Assessment Group for estimating excess lifetime cancer risks associated with exposure to potentially carcinogenic chemicals. CSFs are multiplied by the estimated intake of a potential carcinogen, in mg/kg-day, to provide an upper-bound estimate lifetime cancer risk associated with exposure that intake level. The term "upper bound" reflects the conservative estimate of the risks calculated from the CSFs. Use of this approach makes under estimates of the actual cancer risk highly unlikely. Cancer potency factors are derived from the results of human epidemiological studies of chronic animal bioassays to which animal-to-human extrapolation and uncertainly factors have been applied.

No cancer risks in excess of the EPA identified acceptable range of 10^{-6} through 10^{-4} were identified for any receptor population evaluated. In summary, no unacceptable cancer or non-cancer risks were calculated for the identified receptor populations based on reasonable maximum exposures.

Ecological Risk Characterization Results

An ecological risk assessment (ERA) conforming to Steps 1 and 2 of the eight-step ERA process for Superfund was completed to assess potential risks to ecological receptors. The results indicated that, although some ecological screening criteria were exceeded, overall ecological risks were minimal

4.0 REMEDIAL ACTIONS

4.1 REMEDY SELECTION

The results of the human and ecological risk assessments completed for the Bay Head Road Annex revealed no unacceptable levels of risk based on the identified levels of exposure. Given the exposure assumptions developed for the human health risk assessment, the primary remedial action objective was to prevent land use (i.e., residential) that may permit human exposures greater than those associated with recreational reuse. Under this remedy, an institutional control in the form of a deed restriction, which restricted future land use from residential development, was implemented at the time of property transfer.

The covenant and restriction regarding permanent residential uses that are incorporated into the transfer deed states:

“Grantee is prohibited from using premises for permanent residential purposes. Grantee hereby covenants, on behalf of itself, its successors, and its assigns, that no permanent residence shall be constructed or otherwise developed on the premises and that no portion of the premises shall be used as a permanent residence.” (US Navy, 2001b.)

The selected remedy protects human health by prohibiting future residential use, thereby limiting human exposure to contaminants present at the site.

The selected remedy is in full compliance with Applicable or Relevant and Appropriate Requirements (ARARs) and provides long-term effectiveness and permanence. The selected remedy poses no risk to the community during its implementation.

4.2 REMEDY IMPLEMENTATION

In accordance with Section 121 of CERCLA, a ROD was issued for the Bay Head Road Annex in March 2001, which called for the deed restriction listed in section 4.1. This restriction was recorded into the deed and became effective on April 2002. The remedial action is to be reviewed at least once every five years to re-evaluate facility conditions, confirm the presence of institutional controls, and determine the need for further remedial action to protect human health.

4.3 COSTS

The selected remedy affords overall effectiveness proportional to its costs. The initial cost to implement this alternative by adding a residential use restriction to the deed was estimated to be \$2,500. The cost of conducting this Five-Year Review was approximately \$15,000.

5.0 PROGRESS SINCE THE LAST REVIEW

This is the first Five-year Review for the Bay Head Road Annex.

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6.0 FIVE YEAR REVIEW PROCESS

6.1 ADMINISTRATIVE COMPONENTS

The USEPA and Maryland Department of the Environment (MDE) were notified of the initiation of the Five-Year Review in 2004. Jeffrey Morris, the Remedial Project Manager (RPM) for the Navy, led the Bay Head Road Annex Five-Year Review team. JMWA prepared the review document under contract to the Navy. The components of the review process included the following:

- Community involvement
- Document review
- Data review
- Site inspection
- Five-Year Review report development and review

6.2 COMMUNITY INVOLVEMENT

A public notice was sent to *The Baltimore Sun* and *The Capital* that a Five Year Review was being conducted at the Bay Head Road Annex. Upon completion of the Five-Year Review, notices will be sent to the same local newspapers indicating that the results of the review are available to the public at the Andrew G. Truxal Library; Anne Arundel Community College; 101 College Parkway; Arnold, MD 21012-1895 and the Naval Facilities Engineering Command Washington, Washington Navy Yard, DC.

6.3 DOCUMENT REVIEW

The Five-Year Review included a review of relevant investigation and decision documents. The documents reviewed include the following:

- EA Engineering, Science, and Technology, Inc. 2000a. Remedial Investigation, Naval Surface Warfare Center, Carderock Division-Annapolis Detachment, Bay Head Road Annex, IR Program Site 1, Annapolis, Maryland. Final prepared for Department of the Navy Engineering Field Activity Chesapeake. January.
- EA Engineering, Science, and Technology, Inc., 2001. Site Inspection Study, David Taylor Research Center, Bay Head Road Annex, Annapolis, Maryland. October.
- U.S. Navy, 2001a. Finding of Suitability to Transfer (FOST), Naval Surface Warfare Center, Carderock Division, Annapolis Detachment, Annapolis, Maryland. May.
- U.S. Navy, 2001b. Record of Decision Bay Head Road Annex, IR Program Site 1, Former Naval Surface Warfare Center-Carderock Division, Annapolis Detachment, Annapolis, Maryland. March.

6.4 DATA REVIEW

The remedy for the Bay Head Road Annex involved a deed restriction to prohibit land from residential use. No sampling or monitoring has occurred at the property as part of the remedy. Therefore, there is no monitoring or sampling data to review for this Five-Year Review. No documentation was found to indicate that there are any plans for future construction of residential or any other facilities.

6.5 SITE INSPECTION

Representatives of JMWA performed an inspection of the Bay Head Road Annex on March 22, 2004. The purpose of the inspection was to assess the protectiveness of the remedy of institutional controls. The site-specific institutional control that was put into place is a deed restriction which prohibits residential use of the property. During the Facility visit, no activities were observed that would have violated the institutional controls. There was no evidence of the Facility being used for residential purposes (no homes, or shelters and the gates were locked to control access). There were three safety/access control issues that were identified during the site inspection. There is an opening in the southern fence line that appears to have been used for human entrance and exit onto the property. Secondly, one of the entry/manhole hatches into one of the Nike missile underground storage areas was open and was not secured behind a fence on the property. Also, a portion of the fence surrounding the former launch area is missing thereby allowing easy access by those who use the children's theater on the property. The last two are physical hazards to anyone who uses the property, including those who use the children's theater. These safety/access issues have been reported by the Navy to Anne Arundel County with a recommendation that the issues be corrected. In summary, no significant Facility issues were identified. Appendix A contains the site inspection checklist. Photographs taken during the site inspection are included in Appendix B.

6.6 INTERVIEWS

The following persons were contacted and asked to participate in the interview process: Jeffrey Morris, Naval Facilities Engineering Command Washington Remedial Project Manager; Robert Stroud, USEPA Remedial Project Manager; Curtis DeTore, MDE Remedial Project Manager; Jack Keene, Anne Arundel County Department of Recreation and Parks; and Jeff Touney, Anne Arundel County Office of Planning. Of these people, Jeffrey Morris, Curtis DeTore, and Robert Stroud responded. The interview sheets are contained in Appendix C.

It should be noted that the parties most familiar with the Facility are the Navy, the USEPA and the MDE. Their input regarding the protectiveness of the remedy has been incorporated into this Five-Year Review report.

JMWA visited the Anne Arundel County Courthouse in an attempt to obtain a copy of the deed restrictions, but was not able to locate the deed. After further discussions with the Navy it was determined that the deed is currently with the Department of the Interior and is still in transition

of being turned over to Anne Arundel County. At the time of this report, it had not been determined when Anne Arundel County would obtain the deed.

7.0 TECHNICAL ASSESSMENT

7.1 QUESTION A: IS THE REMEDY FUNCTIONING AS INTENDED BY THE DECISION DOCUMENTS?

The review of documents, site interviews, and the results of the site inspection indicate that the final remedy is functioning as intended by the ROD. The intent of the institutional control implemented is to limit use and development of the property with a deed restriction. There are no signs of development or other non-identified uses of the property and the Anne Arundel County Office of Planning and Zoning has designated this property as recreational. In summary, the institutional controls are successful in preventing human exposure to any potential site-related contaminants.

7.2 QUESTION B: ARE THE EXPOSURE ASSUMPTIONS, TOXICITY DATA, CLEAN-UP LEVELS, AND RAOs USED AT THE TIME OF REMEDY SELECTION STILL VALID?

Changes in Exposure Pathways, Toxicity, and Other Contaminant Characteristics

The Site was evaluated for potential risks to people who currently use the Facility and for people who may use the Facility in the future, who could be exposed to contaminants in surface soil. Carcinogenic and non-cancer risks were calculated on the basis of the current and future proposed land uses. The future proposed land-use is recreational. Although a public water supply is available, the human health risk assessment included potential risk from exposure to groundwater by hypothetical residents. Site-specific uses and exposure groups were selected for the human health risk assessment and included the following: onsite and offsite recreational users (ages one to five, and six to fifteen), community gardeners (children and adults), maintenance workers, construction workers, and adult and child residents (groundwater only).

Current toxicity factors were compared to those used in the risk assessment conducted for the RI in the year 2000. Specifically, residential Risk-Based Concentrations (RBCs), Cancer Slope Factors (CSFs), and Reference Dose Factors (RfDs) were used in the comparison. The April 2004 USEPA Region 3 residential RBCs were the same as the initial RBCs for all COPC. The CSFs used in the initial RI did not change. Additional CSFs are now available for Arochlor 1260, 4-4'DDD, and 4-4' DDE; however these chemicals contributed less to the overall risk value than 4-4'-DDT, which did not have a change in CSF. The RfD values for three COPC did change; however most changes are within an order of magnitude and are not expected to affect the risk results.

Since site usage has not changed, there are no changes in the exposure pathways or receptors. Further, changes in contaminant toxicity have been minor and have not impacted the protectiveness of this remedy.

**7.3 QUESTION C: HAS ANY OTHER INFORMATION COME TO LIGHT
THAT CALLS INTO QUESTION THE PROTECTIVENESS OF THE
REMEDY?**

Neither the Facility inspection, document review, or Facility interviews has identified any information that would call into question the protectiveness of the remedy.

7.4 TECHNICAL ASSESSMENT SUMMARY

As long as the institutional controls prohibiting future residential use remain in place, there will be no unacceptable human health risks.”

8.0 ISSUES

The implemented remedy is functioning properly as there is no evidence of current or planned residential activity on the Bay Head Road Annex property. However, based on the Facility inspection and data review, three inadequate access control issues were observed on the property.

1) There is an opening in the southern fence line that appears to have been used for human entrance and exit onto the property. 2) One of the missile magazine hatches over one of the Nike missile underground storage areas was open and was not secured behind a fence on the property. This is a physical hazard to anyone who is already on the property; this would include those who use the children's theater on the property. 3) A portion of the fence surrounding the former launch area is missing thereby allowing easy access to those who use the children's theater on the property. The interviews have revealed that the community in general is frustrated with the lack of progress for reuse of this property: both for the deteriorating status of the property (i.e. the baseball fields) and the community's needs for more field and recreational property.

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9.0 RECOMMENDATIONS AND FOLLOW-UP ACTIONS

In order to address the issues identified in the previous section, the following items are recommended.

- 1) Secure the opening in the southern fence line as well as inspect the remainder of fencing along the property boundary.
- 2) Secure the opening to the missile magazine hatch in the former Nike missile launch area.
- 3) Install additional fencing around the former launch area to prevent people, especially those who use the children's theater, from entering the former launch area.

These safety/access issues have been reported by the Navy to Anne Arundel County with a recommendation that the issues be corrected.

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10.0 PROTECTIVENESS STATEMENT

The remedy of institutional controls for the Bay Head Road Annex is protective of human health and is functioning as intended. The exposure assumptions and toxicity data used at the time of the final remedy selection are still valid. No other information has come to light that could call into question the protectiveness of the final remedy.

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11.0 NEXT REVIEW

The next Five-Year Review for the Bay Head Road Annex will be completed within five years of the signature date of this report.

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REFERENCES

EA Engineering, Science, and Technology, Inc. 2000a. Remedial Investigation, Naval Surface Warfare Center, Carderock Division-Annapolis Detachment, Bay Head Road Annex, IR Program Site 1, Annapolis, Maryland. Final prepared for Department of the Navy Engineering Field Activity Chesapeake. January.

EA Engineering, Science, and Technology, Inc., 2001. Site Inspection Study, David Taylor Research Center, Bay Head Road Annex, Annapolis, Maryland.

U.S. EPA, June 2001, Comprehensive Five-Year Review Guidance, Office of Emergency and Remedial Response, EPA-R-01-007.

U.S. Navy, 2001a. Finding of Suitability to Transfer (FOST), Naval Surface Warfare Center, Carderock Division, Annapolis Detachment, Annapolis, Maryland. March.

U.S. Navy, 2001b. Record of Decision Bay Head Road Annex, IR Program Site 1, Former Naval Surface Warfare Center-Carderock Division, Annapolis Detachment, Annapolis, Maryland. May.

U.S. Navy 2001c. Navy/Marine Corps Policy for Conducting Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Statutory Five-year Reviews, November, 2001

APPENDIX A: SITE INSPECTION CHECKLIST

I. SITE INFORMATION													
Site name: <u>BAYHEAD ROAD ANNEX</u>	Date of inspection: <u>4/5/04</u>												
Location and Region: <u>ANNAPOLIS, MD</u>	EPA ID:												
Agency, office, or company leading the five-year review: <u>EPA / NAVY</u>	Weather/temperature: <u>SUNNY, WINDY, COLD</u>												
Remedy Includes: (Check all that apply) <table border="0" style="width: 100%;"> <tr> <td>☐ Landfill cover/containment</td> <td>☐ Monitored natural attenuation</td> </tr> <tr> <td>☒ Access controls</td> <td>☐ Groundwater containment</td> </tr> <tr> <td>☒ Institutional controls</td> <td>☐ Vertical barrier walls</td> </tr> <tr> <td>☐ Groundwater pump and treatment</td> <td></td> </tr> <tr> <td>☐ Surface water collection and treatment</td> <td></td> </tr> <tr> <td>☐ Other _____</td> <td></td> </tr> </table>		☐ Landfill cover/containment	☐ Monitored natural attenuation	☒ Access controls	☐ Groundwater containment	☒ Institutional controls	☐ Vertical barrier walls	☐ Groundwater pump and treatment		☐ Surface water collection and treatment		☐ Other _____	
☐ Landfill cover/containment	☐ Monitored natural attenuation												
☒ Access controls	☐ Groundwater containment												
☒ Institutional controls	☐ Vertical barrier walls												
☐ Groundwater pump and treatment													
☐ Surface water collection and treatment													
☐ Other _____													
Attachments: ☐ Inspection team roster attached ☐ Site map attached													
II. INTERVIEWS (Check all that apply)													
1. O&M site manager _____ <table border="0" style="width: 100%;"> <tr> <td style="text-align: center;">Name</td> <td style="text-align: center;">Title</td> <td style="text-align: center;">Date</td> </tr> <tr> <td colspan="3"> Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____ </td> </tr> <tr> <td colspan="3"> Problems, suggestions; ☐ Report attached _____ </td> </tr> </table>		Name	Title	Date	Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____			Problems, suggestions; ☐ Report attached _____					
Name	Title	Date											
Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____													
Problems, suggestions; ☐ Report attached _____													
2. O&M staff _____ <table border="0" style="width: 100%;"> <tr> <td style="text-align: center;">Name</td> <td style="text-align: center;">Title</td> <td style="text-align: center;">Date</td> </tr> <tr> <td colspan="3"> Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____ </td> </tr> <tr> <td colspan="3"> Problems, suggestions; ☐ Report attached _____ </td> </tr> </table>		Name	Title	Date	Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____			Problems, suggestions; ☐ Report attached _____					
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Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____													
Problems, suggestions; ☐ Report attached _____													

- 3.

Contact

Name _____

Title

Date Phone no.

Problems; suggestions; ☐ Report attached

Agency

Contact

Name _____

Title

Date Phone no.

Problems; suggestions; ☐ Report attached

Agency

Contact

Name _____

Title

Date Phone no.

Problems; suggestions; ☐ Report attached**Agency**

Contact

Name _____

Title

Date Phone no.

Problems; suggestions; ☐ Report attached

- 4.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

- 1.

☐ As-built drawings

Remarks

☐ Readily available☐ Readily available☐ Up to date☐ Up to date☐ N/A.☐ N/A

Remarks

2.	Site-Specific Health and Safety Plan ☐ Contingency plan/emergency response plan Remarks _____	☐ Readily available ☐ Readily available	☐ Up to date ☐ Up to date	☐ N/A ☐ N/A
3.	O&M and OSHA Training Records Remarks _____	☐ Readily available	☐ Up to date	☐ N/A
4.	Permits and Service Agreements ☐ Air discharge permit ☐ Effluent discharge ☐ Waste disposal, POTW ☐ Other permits _____ Remarks _____	☐ Readily available ☐ Readily available ☐ Readily available ☐ Readily available	☐ Up to date ☐ Up to date ☐ Up to date ☐ Up to date	☐ N/A ☐ N/A ☐ N/A ☐ N/A
5.	Gas Generation Records Remarks _____	☐ Readily available	☐ Up to date	☐ N/A
6.	Settlement Monument Records Remarks _____	☐ Readily available	☐ Up to date	☐ N/A
7.	Groundwater Monitoring Records Remarks _____	☐ Readily available	☐ Up to date	☐ N/A
8.	Leachate Extraction Records Remarks _____	☐ Readily available	☐ Up to date	☐ N/A
9.	Discharge Compliance Records ☐ Air ☐ Water (effluent) Remarks _____	☐ Readily available ☐ Readily available	☐ Up to date ☐ Up to date	☐ N/A ☐ N/A
10.	Daily Access/Security Logs Remarks _____	☐ Readily available	☐ Up to date	☐ N/A
IV. O&M COSTS				
1.	O&M Organization ☐ State in-house ☒ PRP in-house ☐ Federal Facility in-house ☐ Other _____	☐ Contractor for State ☐ Contractor for PRP ☐ Contractor for Federal Facility		

2.

O&M Cost Records☐ Readily available☐ Up to date☐ Funding mechanism/agreement in placeOriginal O&M cost estimate _____ ☐ Breakdown attached

Total annual cost by year for review period if available

From _____	To _____	_____	☐ Breakdown attached
Date	Date	Total cost	
From _____	To _____	_____	☐ Breakdown attached
Date	Date	Total cost	
From _____	To _____	_____	☐ Breakdown attached
Date	Date	Total cost	
From _____	To _____	_____	☐ Breakdown attached
Date	Date	Total cost	
From _____	To _____	_____	☐ Breakdown attached
Date	Date	Total cost	

3.

Unanticipated or Unusually High O&M Costs During Review Period

Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A**A. Fencing**

1.

Fencing damaged☐ Location shown on site map☒ Gates secured ☐ N/ARemarks SMALL OPENING OF FENCE ON SOUTH FENCE-LINE, APPEARS TO BE USED
AS ENTRANCE/EXIT POINT.**B. Other Access Restrictions**

1.

Signs and other security measures☐ Location shown on site map☐ N/A

Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☒ No ☐ N/A

Site conditions imply ICs not being fully enforced ☐ Yes ☒ No ☐ N/A

Type of monitoring (e.g., self-reporting, drive by) _____

Frequency _____

Responsible party/agency _____

Contact _____

Name	Title	Date	Phone no.
------	-------	------	-----------

Reporting is up-to-date ☐ Yes ☐ No ☒ N/A

Reports are verified by the lead agency ☐ Yes ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☐ No ☐ N/A

Violations have been reported ☐ Yes ☐ No ☐ N/A

Other problems or suggestions: ☐ Report attached

2. **Adequacy** ☒ ICs are adequate ☐ ICs are inadequate ☐ N/A

Remarks Fix HOLE IN SOUTH FENCE-LINE

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☐ No vandalism evident

Remarks SAME HOLE IN FENCELINE; NO VANDALISM EVIDENT

2. **Land use changes on site** ☐ N/A

Remarks _____

3. **Land use changes off site** ☐ N/A

Remarks _____

VI. GENERAL SITE CONDITIONS

A. **Roads** ☒ Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map ☒ Roads adequate ☐ N/A

Remarks _____

B. Other Site Conditions

Remarks ONE OF THE ENTRY / MAN-HOLE COVERS INTO A NIKE MISSILE UNDER-GROUND AREA WAS OPEN. THERE IS NO FENCING PROTECTING THIS AREA FROM THE CHILDRENS THREATEN. THIS IS A PHYSICAL HAZARD. CLOSE THE ENTRY ON FENCE THE AREA TO LIMIT ACCESS.

VII. LANDFILL COVERS ☐ Applicable ☒ N/A

A. Landfill Surface

1.	Settlement (Low spots) Areal extent _____ Remarks _____	☐ Location shown on site map Depth _____	☐ Settlement not evident
2.	Cracks Lengths _____ Widths _____ Depths _____ Remarks _____	☐ Location shown on site map ☐ Cracking not evident	
3.	Erosion Areal extent _____ Remarks _____	☐ Location shown on site map Depth _____	☐ Erosion not evident
4.	Holes Areal extent _____ Remarks _____	☐ Location shown on site map Depth _____	☐ Holes not evident
5.	Vegetative Cover ☐ Grass ☐ Cover properly established ☐ No signs of stress ☐ Trees/Shrubs (indicate size and locations on a diagram) Remarks _____		
6.	Alternative Cover (armored rock, concrete, etc.) ☐ N/A Remarks _____		
7.	Bulges Areal extent _____ Remarks _____	☐ Location shown on site map Height _____	☐ Bulges not evident
8.	Wet Areas/Water Damage ☐ Wet areas ☐ Ponding ☐ Seeps ☐ Soft subgrade Remarks _____	☐ Wet areas/water damage not evident ☐ Location shown on site map ☐ Location shown on site map ☐ Location shown on site map ☐ Location shown on site map	Areal extent _____ Areal extent _____ Areal extent _____ Areal extent _____
9.	Slope Instability ☐ Slides Areal extent _____ Remarks _____	☐ Location shown on site map	☐ No evidence of slope instability

B. Benches

☐ Applicable ☐ N/A

(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1.	Flows Bypass Bench Remarks _____	☐ Location shown on site map	☐ N/A or okay
2.	Bench Breached Remarks _____	☐ Location shown on site map	☐ N/A or okay
3.	Bench Overtopped Remarks _____	☐ Location shown on site map	☐ N/A or okay
C. Letdown Channels ☐ Applicable ☐ N/A (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)			
1.	Settlement Areal extent _____ Remarks _____	☐ Location shown on site map	☐ No evidence of settlement
2.	Material Degradation Material type _____ Remarks _____	☐ Location shown on site map	☐ No evidence of degradation
3.	Erosion Areal extent _____ Remarks _____	☐ Location shown on site map	☐ No evidence of erosion
4.	Undercutting Areal extent _____ Remarks _____	☐ Location shown on site map	☐ No evidence of undercutting
5.	Obstructions Type _____ ☐ Location shown on site map Areal extent _____ Size _____ Remarks _____	☐ No obstructions	
6.	Excessive Vegetative Growth Type _____ ☐ No evidence of excessive growth ☐ Vegetation in channels does not obstruct flow ☐ Location shown on site map Areal extent _____ Remarks _____		
D. Cover Penetrations ☐ Applicable ☐ N/A			
1.	Gas Vents ☐ Active ☐ Passive ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition ☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A Remarks _____		

2.	Erosion ☐ Erosion not evident Remarks _____	Areal extent _____	Depth _____	
3.	Outlet Works Remarks _____	☐ Functioning	☐ N/A	
4.	Dam Remarks _____	☐ Functioning	☐ N/A	
H. Retaining Walls ☐ Applicable ☐ N/A				
1.	Deformations Horizontal displacement _____ Rotational displacement _____ Remarks _____	☐ Location shown on site map	☐ Deformation not evident Vertical displacement _____	
2.	Degradation Remarks _____	☐ Location shown on site map	☐ Degradation not evident	
I. Perimeter Ditches/Off-Site Discharge ☐ Applicable ☐ N/A				
1.	Siltation Areal extent _____ Remarks _____	☐ Location shown on site map	☐ Siltation not evident Depth _____	
2.	Vegetative Growth ☐ Vegetation does not impede flow Areal extent _____ Remarks _____	☐ Location shown on site map	☐ N/A Type _____	
3.	Erosion Areal extent _____ Remarks _____	☐ Location shown on site map	☐ Erosion not evident Depth _____	
4.	Discharge Structure Remarks _____	☐ Functioning	☐ N/A	
VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A				
1.	Settlement Areal extent _____ Remarks _____	☐ Location shown on site map Depth _____	☐ Settlement not evident	
2.	Performance Monitoring Type of monitoring _____ ☐ Performance not monitored Frequency _____ Head differential _____ Remarks _____			
			☐ Evidence of breaching	

2.	Gas Monitoring Probes ☐ Properly secured/locked ☐ Evidence of leakage at penetration Remarks _____	☐ Functioning ☐ Needs Maintenance	☐ Routinely sampled ☐ Needs Maintenance	☐ Good condition ☐ N/A
3.	Monitoring Wells (within surface area of landfill) ☐ Properly secured/locked ☐ Evidence of leakage at penetration Remarks _____	☐ Functioning ☐ Needs Maintenance	☐ Routinely sampled ☐ Needs Maintenance	☐ Good condition ☐ N/A
4.	Leachate Extraction Wells ☐ Properly secured/locked ☐ Evidence of leakage at penetration Remarks _____	☐ Functioning ☐ Needs Maintenance	☐ Routinely sampled ☐ Needs Maintenance	☐ Good condition ☐ N/A
5.	Settlement Monuments Remarks _____	☐ Located	☐ Routinely surveyed	☐ N/A
E. Gas Collection and Treatment ☐ Applicable ☐ N/A				
1.	Gas Treatment Facilities ☐ Flaring ☐ Good condition Remarks _____	☐ Thermal destruction ☐ Needs Maintenance	☐ Collection for reuse	
2.	Gas Collection Wells, Manifolds and Piping ☐ Good condition Remarks _____	☐ Needs Maintenance		
3.	Gas Monitoring Facilities (e.g., gas monitoring of adjacent homes or buildings) ☐ Good condition Remarks _____	☐ Needs Maintenance	☐ N/A	
F. Cover Drainage Layer ☐ Applicable ☐ N/A				
1.	Outlet Pipes Inspected Remarks _____	☐ Functioning	☐ N/A	
2.	Outlet Rock Inspected Remarks _____	☐ Functioning	☐ N/A	
G. Detention/Sedimentation Ponds ☐ Applicable ☐ N/A				
1.	Siltation Areal extent _____ Depth _____ ☐ Siltation not evident Remarks _____			☐ N/A

IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable ☒ N/A		
A. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable ☐ N/A		
1.	Pumps, Wellhead Plumbing, and Electrical ☐ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A Remarks _____ _____ _____	
2.	Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances ☐ Good condition ☐ Needs Maintenance Remarks _____ _____ _____	
3.	Spare Parts and Equipment ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks _____ _____ _____	
B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☐ N/A		
1.	Collection Structures, Pumps, and Electrical ☐ Good condition ☐ Needs Maintenance Remarks _____ _____ _____	
2.	Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances ☐ Good condition ☐ Needs Maintenance Remarks _____ _____ _____	
3.	Spare Parts and Equipment ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks _____ _____ _____	
C. Treatment System ☐ Applicable ☐ N/A		
1.	Treatment Train (Check components that apply) ☐ Metals removal ☐ Air stripping ☐ Filters ☐ Additive (e.g., chelation agent, flocculent) ☐ Others _____ ☐ Oil/water separation ☐ Carbon adsorbers ☐ Bioremediation ☐ Good condition ☐ Needs Maintenance ☐ Sampling ports properly marked and functional ☐ Sampling/maintenance log displayed and up to date ☐ Equipment properly identified ☐ Quantity of groundwater treated annually _____ ☐ Quantity of surface water treated annually _____ Remarks _____ _____ _____	
2.	Electrical Enclosures and Panels (properly rated and functional) ☐ N/A ☐ Good condition ☐ Needs Maintenance Remarks _____ _____ _____	

3.	Tanks, Vaults, Storage Vessels ☐ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance Remarks _____			
4.	Discharge Structure and Appurtenances ☐ N/A ☐ Good condition ☐ Needs Maintenance Remarks _____			
5.	Treatment Building(s) ☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair ☐ Chemicals and equipment properly stored Remarks _____			
6.	Monitoring Wells (pump and treatment remedy) ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition ☐ All required wells located ☐ Needs Maintenance ☐ N/A Remarks _____			
D. Monitoring Data				
1.	Monitoring Data ☐ Is routinely submitted on time ☐ Is of acceptable quality			
2.	Monitoring data suggests: ☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining			
D. Monitored Natural Attenuation				
1.	Monitoring Wells (natural attenuation remedy) ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition ☐ All required wells located ☐ Needs Maintenance ☐ N/A Remarks _____			

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

INSTITUTIONAL CONTROLS, THE ONLY REMEDY, ARE TO IMPLEMENT DEED RESTRICTIONS.
IC'S ARE EFFECTIVE AND FUNCTIONING

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

NO CHANGES

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

APPENDIX B: PHOTOGRAPHS



Photo 1: View of Nike missile facilities from former ball field.



Photo 2: View of former ball fields and picnic area and facility.



Photo 3: Cover of former underground Nike missile magazine elevator.



Photo 4: Children's Theater on the Bay Head Road Annex property.



Photo 5: Aboveground Water Storage tank on property, which is empty and disconnected.

APPENDIX C: SITE INTERVIEWS

FIVE-YEAR REVIEW QUESTIONARE

Facility: Bay Head Road Annex
Site(s): IR Program Site 1, Former Naval Surface Warfare Center, Carderock Division
Annapolis Detachment, Annapolis, Maryland
Interviewee: Jeff Morris
Title: BRAC Environmental Coordinator/Remedial Project Manager
Date: 4/22/2004

Background

1. What effects have site operations had on the surrounding community or area?

None that I am aware of. The only activity going on is the Children's Theater, which was on site prior to property transfer.

2. Are you aware of any community concerns regarding the site or its operation and administration? If so, please give details.

According to newspaper articles, the community at-large is concerned that, given the recreational needs in the area, the County has not yet developed the site for ball fields, as promised.

3. Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities? If so, give details.

No.

4. Are you aware of any recreational uses of the site, such as fishing, boating, or other casual uses?

No.

5. Do you feel well informed about the site's activities and progress?

While I live in the area and read the local paper to get information about the site, I have not been notified directly by anyone involved.

State and Local Considerations (Regulatory)

1. Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please give purpose and results.

None, other than this 5-year review.

2. Have there been any complaints, violations, or other compliance issues related to the site requiring a response by your office? If so, please give details of the events and results of the responses.

No.

3. Have there been any changes in regulations or cleanup levels since implementation that may impact the site?

None that I am aware of.

Performance, Operation, and Maintenance Problems

1. Is the remedy functioning as intended by the decision documents? How well is the remedy performing?

The remedy appears to be working satisfactorily up to this point. However, since nothing has actually been done to redevelop the site yet, there isn't much to go on. This 5-year review should determine if the legal requirements (i.e. deed) are in place correctly.

2. Describe the O&M staff and activities. If there is not a continuous on-site presence, describe the staff and frequency of site inspections and activities.

No official visits have been made other than those associated with this review. I have been by the site several times unofficially over the past couple of years. There is no O&M requirement.

3. Have there been any significant changes in the O&M requirements, operational adjustments, maintenance schedules, or sampling routines since start up or in the last five years? If so, do they affect the protectiveness or effectiveness of the remedy? Please describe the changes and impacts.

There is no O&M requirement.

4. Do you have any comments or feedback on the adequacy of the implemented remedy? Are all the right constituents included? Frequency adequate?

N/A

5. Do you have any comments, suggestions, or recommendations regarding the site's management or operation?

I share the community's frustration that nothing has been done with this site yet – it is too valuable to let it just sit, with buildings, etc. deteriorating and becoming more likely by the day of being vandalized. The NIKE magazines present risk to trespassers and should be secured at a minimum (this review identified that one of the access hatches is open). The County received funds from Congress to demolish them and the other buildings and they should get the work done.

FIVE-YEAR REVIEW QUESTIONARE

Facility: Bay Head Road Annex
Site(s): IR Program Site 1, Former Naval Surface Warfare Center, Carderock Division
Annapolis Detachment, Annapolis, Maryland
Interviewee: Curtis DeTore
Title: Maryland Department of the Environment Remedial Project Manager
Date: 4-22-04

Background

1. What effects have site operations had on the surrounding community or area?
The documents detailing the transfer of the property from the Navy to Anne Arundel County did not require this office to oversee effects on the surrounding community. Since the property's transfer to Anne Arundel County, no environmental issues have arisen that would require this office's attention.
2. Are you aware of any community concerns regarding the site or its operation and administration? If so, please give details.
No.
3. Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities? If so, give details.
No.
4. Are you aware of any recreational uses of the site, such as fishing, boating, or other casual uses?
No.
5. Do you feel well informed about the site's activities and progress?
At the time of the property transfer, this office was well versed in all of the environmental issues pertaining to the Bay Head Road Annex.

State and Local Considerations (Regulatory)

1. Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please give purpose and results.
The documents detailing the transfer of the property from the Navy to Anne Arundel County did not require reporting activities or site inspections from this office. Since the property's

transfer to Anne Arundel County, no environmental issues have arisen that would require this office's participation.

2. Have there been any complaints, violations, or other compliance issues related to the site requiring a response by your office? If so, please give details of the events and results of the responses.
No.
3. Have there been any changes in regulations or cleanup levels since implementation that may impact the site?
No.

Performance, Operation, and Maintenance Problems

1. Is the remedy functioning as intended by the decision documents? How well is the remedy performing?
Yes. The remedy is performing to expected levels.
2. Describe the O&M staff and activities. If there is not a continuous on-site presence, describe the staff and frequency of site inspections and activities.
The documents detailing the transfer of the property from the Navy to Anne Arundel County did not require an O&M presence from this office. Since the property's transfer to Anne Arundel County, no environmental issues have arisen that would require this office's attention.
3. Have there been any significant changes in the O&M requirements, operational adjustments, maintenance schedules, or sampling routines since start up or in the last five years? If so, do they affect the protectiveness or effectiveness of the remedy? Please describe the changes and impacts.
No.
6. Do you have any comments or feedback on the adequacy of the implemented remedy? Are all the right constituents included? Frequency adequate?
The remedy is performing to expected levels.
7. Do you have any comments, suggestions, or recommendations regarding the site's management or operation?
No.

FIVE-YEAR REVIEW QUESTIONNAIRE

Facility: Bay Head Road Annex
Site(s): IR Program Site 1, Former Naval Surface Warfare Center, Carderock Division
Annapolis Detachment, Annapolis, Maryland
Interviewee: Robert Stroud
Title: EPA, RPM
Date: 5-26-2004

Background

1. What effects have site operations had on the surrounding community or area?

I believe the effects have been minimal.

2. Are you aware of any community concerns regarding the site or its operation and administration? If so, please give details. No, I am not aware of any community concerns.

3. Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities? If so, give details.

None that I am aware of.

4. Are you aware of any recreational uses of the site, such as fishing, boating, or other casual uses?

None that I am aware of.

5. Do you feel well informed about the site's activities and progress?

I have not had much contact with the site personnel since the transfer.

State and Local Considerations (Regulatory)

1. Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please give purpose and results. Nothing has happened since the transfer of the site

2. Have there been any complaints, violations, or other compliance issues related to the site requiring a response by your office? If so, please give details of the events and results of the responses. None that I am aware of.
3. Have there been any changes in regulations or cleanup levels since implementation that may impact the site? Not to my knowledge.

Performance, Operation, and Maintenance Problems

1. Is the remedy functioning as intended by the decision documents? How well is the remedy performing? The remedies were no action with institutional controls (ICs). I am assuming that the ICs are being adhered to so the remedy is functioning as intended.
2. Describe the O&M staff and activities. If there is not a continuous on-site presence, describe the staff and frequency of site inspections and activities.
3. Have there been any significant changes in the O&M requirements, operational adjustments, maintenance schedules, or sampling routines since start up or in the last five years? If so, do they affect the protectiveness or effectiveness of the remedy? Please describe the changes and impacts.
4. Do you have any comments or feedback on the adequacy of the implemented remedy? Are all the right constituents included? Frequency adequate?
5. Do you have any comments, suggestions, or recommendations regarding the site's management or operation?