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RECORD OF DECISION SITE 7 FORMER BERYLLIUM LANDFILL ALLEGANY BALLISTICS LABORATORY ROCKET CENTER WV

9/1/2001

CH2M HILL

RECORD OF DECISION

SITE 7 - FORMER BERYLLIUM LANDFILL

at the

ALLEGANY BALLISTICS LABORATORY, WEST VIRGINIA

September 2001

1 Declaration

1.1 Site Name and Location

Site 7, Former Beryllium Landfill (also identified as Operable Unit {OU} 7 and Solid Waste Management Unit {SWMU} 10)
Allegany Ballistics Laboratory (ABL), Rocket Center, West Virginia
National Superfund Database Identification Number: WV0170023691

1.2 Statement of Basis and Purpose

This decision document presents the Selected Remedy for Site 7, Former Beryllium Landfill, at ABL in Rocket Center, West Virginia (the "site"). The Selected Remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by Superfund Amendments and Reauthorization Act of 1986 (SARA), and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the Administrative Record file for this site.

1.3 Description of Selected Remedy

The U. S. Navy (Navy), as lead agency, in conjunction with the U. S. Environmental Protection Agency Region III (EPA), has determined that no further remedial action under CERCLA is necessary to protect the public health or welfare or the environment at Site 7. This remedy has been selected because the landfill materials and associated soil were removed and confirmatory sampling data indicate remaining chemical levels in site soil and groundwater do not pose an unacceptable risk to public health or welfare or the environment.

The State of West Virginia concurs with the Selected Remedy.

1.4 Statutory Determinations

The Selected Remedy is protective of human health and the environment. This determination has been made because the landfill debris has been removed and the chemical concentrations remaining in the site soil and groundwater are below levels that could represent potential human health or ecological risks above those associated with naturally occurring (i.e., background) levels.

Because existing chemical concentrations in Site 7 soil and groundwater permit unlimited use and unrestricted human and ecological exposure, no five-year review will be required under this Record of Decision (ROD).

1.5 Authorizing Signatures

David W. Anderson
Director
Installations and Equipment Office,
by direction of Commander
Naval Sea Systems Command

26 SEP 01
Date

Abraham Ferdas, Director
Hazardous Site Cleanup Division
U.S. EPA – Region III

9/28/01
Date

The State of West Virginia has reviewed this Record of Decision and the materials on which it is based and concurs with the selected remedy.

Ken Ellison, Director
Division of Waste Management
West Virginia Department of Environmental Protection

September 27, 2001
Date

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Appendices

2 Decision Summary

2.1 Site Name, Location, and Description

Site 7 – Former Beryllium Landfill (also identified as OU 7 and SWMU 10)
Allegany Ballistics Laboratory, Rocket Center, West Virginia
National Superfund Database Identification Number: WV0170023691
Lead Agency: Department of the Navy
Support Agencies: U.S. Environmental Protection Agency Region III
West Virginia Department of Environmental Protection
Source of investigation and removal action funds: Environmental Restoration, Navy (ER,N)

Allegany Ballistics Laboratory (ABL) is a research, development, and production facility located in Rocket Center, West Virginia, in the northern part of Mineral County. The facility is situated along a reach of the North Branch Potomac River, separating West Virginia and Maryland. The facility consists of two plants. Plant 1, owned by the Navy and operated by Alliant Missile Products Company (AMPC), occupies approximately 1,577 acres, of which only about 400 acres are within the developed floodplain of the North Branch Potomac River. The remaining acreage, including that containing Site 7, is primarily forested and mountainous. Plant 2, a 57-acre facility adjacent to Plant 1, is owned and operated by AMPC. In May 1994, Plant 1 was listed on the National Priority List (NPL). Plant 2 is not on the NPL. Figure 2-1 shows the location of ABL (including Plant 1 and Plant 2) and the approximate locations of its Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites.

As shown in Figure 2-1, Site 7 is located in the undeveloped southwest portion of Plant 1, adjacent to State Route 956. The former landfill site is a small open area on the west side of Knobly Mountain. The site is not currently used for any facility activities nor are there any buildings present at the site. The surrounding land consists of undeveloped woodland, cropland, and a limestone quarry.

2.2 Site History and Enforcement Activities

2.2.1 History of Site Activities

In the 1960s, research was conducted at ABL on propellants containing beryllium, which required disposal facilities for small amounts of both beryllium-containing propellants and elemental beryllium. On February 23, 1967, Hercules Power Company (the former operator of ABL) submitted a water pollution control permit and disposal of industrial waste application to the West Virginia Department of Natural Resources (WVDNR) to establish a landfill for disposal of beryllium containing non-explosive waste. Under the permit granted by WVDNR (Permit 3324), a small (10 feet by 15 feet by 6 feet deep) earthen pit was excavated down to the limestone bedrock adjacent to State Route 956 and used

intermittently to dispose of primarily-beryllium containing wastes until the late 1960s, when beryllium research ceased at ABL.

Records documenting the material disposed of at the landfill were not kept and identification of material disposed of was based on interviews with facility personnel who were present at the time the landfill was active. The following summarizes the information from the interviews:

- No beryllium-containing propellant was landfilled.
- Beryllium-containing wastes included wiping tissues, gloves, emptied containers, and respirator cartridges which might have been contaminated with metallic beryllium or beryllium oxide.
- The total quantity of waste disposed of in the landfill was considered "small" because the landfill was approximately 150 square feet in area and 6 feet deep. Waste was placed in the pit and covered with a few shovels of dirt.
- A small quantity of laboratory chemicals also was placed in the landfill; however, no personnel were able to provide information as to the specific chemicals or chemical types.

The landfill permit was withdrawn at the facility's request in 1979 by the State of West Virginia. In June 1980, the landfill was inspected by the State of West Virginia and the facility was directed to remove the landfilled waste. At the time, the landfill was proposed for inclusion in the Navy Assessment and Control of Installation Pollutants (NACIP) program and, therefore, the contents were not immediately removed. On May 29, 1981, the USEPA received a Notification of Hazardous Waste Site form from ABL that identified two solid and hazardous waste management units, including the beryllium landfill.

2.2.2 Previous Investigations and Landfill Debris Removal

Several investigations and a removal action were conducted at Site 7 between 1983 and 2000. Because beryllium is toxic, this site was investigated to determine the condition of the beryllium in the landfill and the potential for offsite movement of beryllium from the landfill area. These activities are discussed below. A more detailed description of the investigations summarized below can be found in the *Final Streamlined Remedial Investigation/Feasibility Study Report for Site 7 – Former Beryllium Landfill at Allegany Ballistics Laboratory, Rocket Center, West Virginia* (CH2M HILL, May 2001) and the investigation-specific documents listed below.

Initial Assessment Study (IAS)

The first investigation at Site 7 was the IAS conducted by the Naval Energy and Environmental Support Activity (NEESA) under the NACIP program in January 1983. The IAS included a preliminary evaluation of potentially contaminated sites at ABL, which were identified through records review, personnel interviews, and site visits. The IAS identified the beryllium landfill as an area where hazardous substances potentially existed and indicated that up to 2 pounds of beryllium were buried in the landfill. In addition, the IAS reported that less than 100 pounds of miscellaneous unidentified laboratory chemicals were disposed of in the landfill. The IAS concluded that there was a low potential for ground-

water contamination resulting from downward movement of beryllium and other potentially hazardous constituents because of the small amounts of waste disposed of in the landfill. The results of the IAS are documented in the *Initial Assessment Study of Allegany Ballistics Laboratory* (Environmental Science and Engineering, Inc., January 1983).

Confirmation Study (CS) /Interim Remedial Investigation (Interim RI)

In 1984, the Navy determined that additional information was required to assess the potential risks at Site 7. Site 7 was therefore included in the *CS*, completed in August 1987, and documented in the *Interim Remedial Investigation for Allegany Ballistics Laboratory* (Roy F. Weston, Inc., October 1989).

During the CS, test pits were excavated in the landfill and soil samples collected from the walls of the excavations and analyzed for volatile organic compounds (VOCs), acid/base neutral extractable compounds (BNAs), pesticides, polychlorinated biphenyls (PCBs), inorganics, cyanide, and phenol. Because the concentrations of beryllium detected were below a level that might pose a human health risk, the Interim RI report concluded that beryllium was not a concern in soil at Site 7. Mercury and silver were the only inorganics detected at concentrations above naturally occurring levels (i.e., background), but the concentrations of both were below regulatory levels for hazardous waste disposal, indicating very low potential for leaching.

Remedial Investigation (RI) and Subsequent Sampling Activities

Because only soil had been evaluated up to this point, a bedrock monitoring well (designated as 7GW01) was installed in the presumed direction of groundwater flow from the beryllium landfill in July 1992 as part of the RI conducted at ABL. No overburden well was installed at the site because less than 2 feet of overburden is present, none of which is saturated. The well was sampled on October 29, 1992, for VOCs, explosives, and inorganics. These data showed that no VOCs or explosives were present, and that only inorganics, which are naturally occurring chemicals, were present in the groundwater at Site 7. Because the 1992 data were not validated, groundwater at Site 7 was re-sampled on October 18, 2000, for a range of organic chemicals, inorganics, and nitroglycerin analyses. The results of these analyses are discussed with respect to potential risks in Section 2.7.

Landfill Debris Removal

Soil and waste contained in the Site 7 beryllium landfill were excavated and disposed of by the Navy in June 1994 as an action under the CERCLA process. Excavation activities began at one end of the landfill with soil visibly free of containers and debris and continued across the landfill until soil visibly free of containers and debris was again encountered. The soil first excavated that was visibly clean and contained no debris was placed in the first of three steel 20-cubic-yard (yd^3) containers. The remainder of the debris, some of which was found to contain laboratory bottles and small vials containing beryllium oxide, beryllium powder, and mercury, was placed in the remaining two 20-yd^3 containers.

Samples of the material in the 20-yd^3 containers were collected to determine the final disposition procedures. The rolloffs containing vials were determined to contain listed hazardous wastes (i.e., beryllium dust [P015] and mercury [U151]). For this waste, the material contained within the rolloffs was segregated into appropriate waste streams-beryllium dust, mercury vials, debris, and contaminated soil. The beryllium dust and mercury vials were lab-packed and disposed of in accordance with applicable regulatory

requirements. The debris and contaminated soil were transported to a permitted hazardous waste facility in Canada for disposal. The remaining debris (i.e., in the remaining 20-yd^3 container) was characterized and found not to constitute a listed or characteristic hazardous waste; therefore, it was disposed of at a permitted solid waste landfill.

When the excavation activities were complete, soil samples were collected from the walls and the bottom of the excavation to ensure remaining soil did not pose a human health risk. The initial soil sample from the bottom of the excavation contained mercury at a level that was determined to be a potential human health risk. Therefore, an additional 5 yd^3 of soil were removed from the bottom of the excavation. A second soil sample was collected from the bottom of the excavation and did not contain a level of mercury that posed a human health risk. Based on this information, the excavation was backfilled with clean fill material.

Streamlined Remedial Investigation/Feasibility Study (RI/FS)

A streamlined RI/FS for Site 7 was undertaken to document all historical investigative and remedial activities at the site. The study also evaluated the nature and extent of contamination, the potential human health and ecological risks associated with existing soil and groundwater chemical concentrations, and the potential need for further remedial action. This was done by comparing the existing soil and groundwater data (post-soil removal activities) to federal regulatory levels. A summary of this evaluation is presented in Section 2.7.

2.2.3 CERCLA Enforcement Activities

On September 6, 1996, the State of West Virginia issued a Notice of Violation (NOV) to the Navy for failure to meet the substantive requirements of RCRA storage and disposal. The violation was in regards to storage of a hazardous waste (i.e., rolloff containers containing hazardous {beryllium and mercury} waste) for longer than 90 days and without proper labeling. The settlement of the NOV was signed by the Navy and State of West Virginia on May 22, 1997.

2.3 Community Participation

The Navy, as lead agency for Site 7, has met the public participation requirements established in Section 300.430(f)(3) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) as follows:

- The notice of availability of the Proposed Remedial Action Plan (PRAP) for Site 7 was published in the Cumberland Times-News and the Mineral Daily News Tribune on Tuesday May 22, 2001.
- The Navy held the public comment period on the Site 7 PRAP from May 22, 2001 to July 6, 2001.
- The Site 7 Administrative Record (i.e., the PRAP and supporting documents related to Site 7) was made available to the public at the following information repositories:

LaVale Public Library
LaVale, Maryland

Fort Ashby Public Library
Fort Ashby, West Virginia

- The Navy held a public meeting on Tuesday June 5, 2001 to explain the PRAP and to address public comments. A transcript of the meeting was prepared by Court Reporters, ETCetera, Inc. and has been added to the Site 7 Administrative Record in the public information repositories.
- No written comments were received during the public comment period; the comments and responses made during the Public Meeting are presented in the Responsiveness Summary (Section 3 of this ROD).

In addition to the NCP public participation requirements, the Navy and ABL have had a comprehensive public involvement program for several years. Starting in 1993, a Technical Review Committee (TRC) would meet on average twice a year to discuss issues related to investigative activities at ABL. The TRC comprised mostly governmental personnel; however, the meetings were open to the public and a few private citizens attended the meetings.

In early 1996, the Navy converted the TRC into a Restoration Advisory Board (RAB) and 8 to 10 community representatives joined. The RAB is co-chaired by a community member and has held meetings, which are open to the public, approximately every 3 months since.

To assist the Navy in meeting the needs of the local community for information about, and participation in, the ongoing investigation and remedial processes at ABL, the Navy developed a Community Relations Plan (CRP) in 1994 and an update in 2001. The CRP identifies community concerns about the investigation and restoration of potentially contaminated sites at ABL and outlines community relations activities to be conducted during the ongoing and anticipated future restoration activities. Recommendations for future community relations activities are based on information about community concerns and the effectiveness of public participation activities to date, which were obtained during interviews with members of the local community.

2.4 Scope and Role of Operable Unit or Response Action

Site 7 is one of many sites identified in the Federal Facilities Agreement for ABL. Over the last three years, RODs have been signed for three other sites at ABL in accordance with the priorities established in the Site Management Plan.

Site 7/Operable Unit (OU) 7 consists of soil and groundwater that may have been contaminated by the Former Beryllium Landfill. At OU 7, the removal of all waste material in the landfill and associated contaminated soil reduced the potential human health and ecological risks to an acceptable level. Therefore, no further action for this operable unit is selected.

2.5 Site Characteristics

2.5.1 Site Overview

Site 7 is a former small (10 feet by 15 feet by 6 feet deep) earthen pit excavated down to limestone bedrock. The former pit is located in a small open area within the undeveloped portion of Plant 1, adjacent to State Route 956 on the western side of Knobly Mountain (Figure 2-1). The site is not currently used for any facility activities nor are there any buildings present at the site. The surrounding land consists of undeveloped woodland, cropland, and there is a limestone quarry approximately ¾ mile to the south along State Route 956. No known areas of archaeological or historical importance are present at Site 7.

The area surrounding Site 7 is predominantly oak-hickory-pine forest. There are no aquatic or wetland habitats on or in the immediate vicinity of the site, but the area does support a variety of indigenous wildlife species such as white-tailed deer, opossum, squirrel, raccoon, rabbit, and numerous game birds, reptiles, and amphibians.

Site 7 is at an elevation of approximately 920 feet above msl, although the topography on the site itself is relatively level. Surface-water runoff at the site likely flows northward approximately 200 feet into an intermittent stream valley and then down Knobly Mountain toward the North Branch Potomac River, the predominant hydrologic feature in the vicinity of Site 7, which lies approximately 2,000 feet to the west.

Based on test pit and drilling information, surface soil at Site 7 is underlain by several feet of clay and clayey gravel. Bedrock at the site lies just below the clay and is composed of primarily limestone.

Because only a thin layer of overburden overlies the bedrock at Site 7, there is no shallow groundwater. Groundwater at the site is approximately 30 feet below the ground surface and likely moves westward through bedrock fractures and along narrow zones between different types of rock or along the contact between different layers of rock toward the North Branch Potomac River, which is the predominant hydrologic feature in the vicinity of the site.

2.5.2 Sampling Strategy

A bedrock groundwater monitoring well was installed and soil samples were collected at Site 7 during various activities. See Section 2.5.4 for a complete discussion of the sample results.

2.5.3 Source of Contamination

The potential source of contamination at Site 7 was the beryllium-containing and laboratory waste buried in the earthen pit, which was removed in June 1994.

2.5.4 Nature and Extent of Chemicals in Site Groundwater and Soil

2.5.4.1 Groundwater

One bedrock groundwater monitoring well (i.e., 7GW01) exists at the site. The well was sampled once on October 29, 1992 during the Remedial Investigation for VOCs, explosives,

and inorganic chemicals in unfiltered water samples; however, the data were not validated. Therefore, the well was again sampled on October 18, 2000 and analyzed for the full organic chemicals on USEPA's Target Compound List, inorganic chemicals on USEPA's Target Analyte List (in both unfiltered and filtered water samples), and nitroglycerin. Following analysis, all data were validated by an independent data validator in accordance with USEPA Region III Level 4 data validation requirements. These validated results are described below.

Four organic and fourteen inorganic chemicals were detected in Site 7 groundwater samples. The analytical results of detected chemicals were compared to USEPA primary Maximum Contaminant Levels (MCLs) under the Federal Safe Drinking Water Act. The purpose of primary MCLs is to protect human health by regulating the maximum level of certain chemicals in drinking water. The results were also compared to USEPA secondary MCLs under the Federal Safe Drinking Water Act, which have been developed to regulate aesthetic qualities of drinking water, such as taste, odor, and color.

EPA Region III additionally has developed a set of Risk-Based Concentrations to help scientists quickly identify chemical concentrations that may be harmful to humans. Scientists sometimes use these concentrations as "screening levels" to help "screen out" or eliminate from consideration, chemical concentrations that are too low to pose a potential risk. For the purposes of screening the Site 7 groundwater data, the Navy adjusted the concentrations to ten times lower than the EPA Region III Risk Based Concentrations (USEPA, October 2000) for tap water. Chemical concentrations at Site 7 that were more than 10 times lower than the EPA Region III Risk Based Concentrations were considered too low to potentially harm human health and were eliminated from further consideration.

Lastly, the results were compared to groundwater results from bedrock well 5GW06. This well is considered a "background" well in relation to Site 7. Background in this case means a well in an area not affected by contamination and that represents the naturally occurring chemical concentrations of the groundwater. The comparison to background is a way to evaluate how different the chemical concentrations in the Site 7 well are from naturally occurring chemical concentrations. If the Site 7 concentrations are greater than the background values it might indicate contamination resulting from Site 7. The results of all these comparisons are presented in Table 2-1.

No organic chemicals were detected above the primary or secondary USEPA MCL or the adjusted Risk Based Concentration screening criteria for tap water. However, it should be noted that 2-butanone and 1,2-dibromo-3-chloropropane were reported as non-detects but the results were rejected by the independent data validator due to a poor instrument response factor during initial calibration. This rejection of the data by the validator means that the analytical results alone cannot be used to guarantee that these chemicals are not present in the groundwater. However, neither of these chemicals was detected during the 1992 groundwater sampling event nor were they reported to have been disposed of at the landfill.

No inorganic chemicals were detected above the primary USEPA MCLs. Three inorganic chemicals were detected above their secondary USEPA MCLs (i.e., aluminum, iron, and manganese). Lead was detected above the USEPA Safe Drinking Water Act (SDWA) action level of 15 µg/l only in the duplicate of the unfiltered groundwater sample. This detection,

only in the duplicate sample, implies that lead concentrations in the groundwater might not be as great as reported. Because the result was from an unfiltered sample, the concentration could be caused by small particles in the duplicate sample that were not in the primary sample. Furthermore, lead was not detected in the groundwater sample collected from well 7GW01 in 1992.

In addition, four inorganic chemicals (i.e., antimony, chromium, iron, and manganese) were also detected in unfiltered groundwater samples above the adjusted Risk Based Concentration screening criteria for tap water. The chemicals that exceed any screening criteria are discussed in Section 2.7, Summary of Site Risks.

2.5.4.2 Soil

During the landfill debris removal at Site 7, five confirmatory soil samples were collected from the bottom and sides of the excavation to determine when sufficient material had been removed. Soil samples were analyzed for EPA's Target Compound List VOCs, semivolatile organic compounds, and pesticides/PCBs, and for EPA's Target Analyte List inorganics. Due to an elevated mercury concentration in the initial sample collected from the bottom of the excavation (i.e., B005), additional soil removal was performed and a second soil sample was collected from the bottom of the excavation (i.e., B005-2) and analyzed for mercury only. These data were validated by an independent data validator in accordance with USEPA Region III Level 4 data validation requirements. These validated results are described below.

The EPA has developed Risk Based Concentrations for soil concentrations to help scientists quickly identify chemical concentrations in both residential and industrial soil settings that may be harmful to humans. The EPA has also developed Soil Screening Levels that can be used to evaluate the potential for certain chemical concentrations in soil to migrate from the soil to groundwater (i.e., leach) and produce groundwater concentrations that could be harmful to humans. In addition, EPA Region III Biological Technical Assistance Group has developed a list of soil concentrations that are potentially harmful to plants and animals. Scientists sometimes use all these soil concentrations as "screening levels" to help "screen out" or eliminate from consideration, chemical concentrations in soil that are too low to pose a potential risk. For the purposes of screening the Site 7 soil data, the Navy adjusted the concentrations to ten times lower than the Risk Based Concentrations (USEPA, October 2000) for residential and industrial settings and the Soil Screening Levels for potential leaching to groundwater.

The analytical results for chemicals detected in confirmatory samples were compared to adjusted residential and industrial Risk Based Concentration screening criteria, adjusted Soil Screening Levels, Biological Technical Assistance Group screening criteria, and background inorganic concentrations from Plant 1. The comparison to background soil concentrations is a way to evaluate how different the chemical concentrations in soil at Site 7 are from naturally occurring chemical concentrations. The results of this comparison are presented in Table 2-2.

Two VOCs (i.e., methylene chloride and 2-butanone) and one semivolatile organic compound (i.e., bis(2-ethylhexyl)phthalate) were detected in soil. The results for 2-butanone were reported as non-detect but were rejected by the data validator due to a poor

instrument response factor during initial calibration. This rejection of the data by the validator means that the analytical results alone cannot be used to guarantee that this chemical is not present in the soil. However, the concentrations of all three organic chemicals are well below their respective screening criteria (Table 2-2) for protection of both humans and plant and animals.

As shown in Table 2-2, 12 of the 18 inorganic chemicals were detected above one or more human health or ecological screening criteria. These are aluminum, antimony, arsenic, beryllium, chromium, iron, lead, manganese, mercury, nickel, vanadium, and zinc. Of these 12 inorganics, the maximum concentrations of beryllium, lead, nickel, vanadium, and zinc exceed only the Biological Technical Assistance Group screening criteria. And of these five inorganics, only the mean and maximum concentrations of beryllium are above the facility background mean and maximum concentrations. However, the maximum beryllium concentration (i.e., 6.26 mg/kg) is from the original excavation bottom sample (i.e., B005). Additional soil was removed from the bottom of the excavation after this sample was collected. The concentration of mercury, which was the only constituent analyzed for in both the initial excavation bottom sample (i.e., B005) and the excavation bottom sample collected after additional soil removal (i.e., B005-2), declined by two orders of magnitude. Assuming a corresponding decline in the other inorganic chemicals, the remaining beryllium concentrations are likely similar to those of the facility background concentrations (i.e., mean and maximum).

Of the remaining seven inorganic chemicals, four (i.e., aluminum, arsenic, iron, and manganese) exceed the adjusted residential RBC screening criteria and five (i.e., antimony, arsenic, chromium, manganese, and mercury) exceed the adjusted Soil Screening Level screening criteria. The chemicals that exceed any screening criteria are discussed in Section 2.7, Summary of Site Risks.

2.5.5 Contaminant Location and Potential Routes of Migration

The landfill debris and contamination source(s) have been removed and replaced with clean fill material, thereby reducing contamination at the site to a level protective of human health and the environment. Therefore, the potential for exposure to and migration of contamination have been reduced to acceptable levels.

2.5.6 Groundwater Contamination

As noted in Section 2.5.1, there is no shallow groundwater at Site 7. Groundwater at the site occurs in the bedrock and is assumed to move west toward the North Branch Potomac River through bedrock fractures and along narrow zones between different types of rock or along the contact between different layers of rock. Groundwater data collected to date indicate existing chemical levels are protective of human health and the environment.

2.6 Current and Potential Future Site and Resource Uses

2.6.1 Current and Potential Future Land Uses

Currently, Site 7 is not used for any facility activities nor are there any buildings present at the site. With debris removal and site restoration having been completed in 1994, the site itself is completely vegetated and the immediate surroundings are forested.

The site is part of the undeveloped portion of ABL Plant 1, which is owned by the Navy. It is anticipated that this area will remain under Navy ownership and no development or use of the area is anticipated for the foreseeable future. However, because human health and ecological risks were determined to be within acceptable regulatory levels, future use of the land at Site 7 will not be restricted under CERCLA. In accordance with Section 22-18-21 of the West Virginia Code of State Regulations (CSR), a notation will be filed as a separate notice with the ABL Plant 1 property deed that indicates Site 7 had historically managed hazardous waste. This notation does not dispose, alienate, or encumber any real property interests held by the United States and creates no independent enforcement authority in the State of West Virginia or any third parties.

2.6.2 Current and Potential Future Groundwater and Surface Water Uses

As noted in Section 2.5, there are no perennial surface water bodies at Site 7; the closest perennial surface water body is the North Branch Potomac River, which is 2,000 feet west of Site 7. The closest groundwater production wells to Site 7 are approximately 3,000 feet to the southwest. Currently, no groundwater is extracted at the site for any use, nor is this activity anticipated in the foreseeable future. However, future use of the groundwater at Site 7 will not be restricted under CERCLA.

2.7 Summary of Site Risks

Potential risks to the health of people, animals, and/or plants from coming into contact with the chemicals detected in the soil and groundwater at Site 7 are considered to be very low because the landfill contents (in other words, the source of potential contamination) were removed in 1994. Specific details regarding any remaining potential risks to plants and animals, commonly referred to as ecological risks, and to people, commonly referred to as human health risks, are discussed below.

2.7.1 Ecological Risks

For plants or animals to be harmed by chemicals at the site, there must be, at the very least, (1) a source of chemical contamination and (2) a path by which the chemicals can come in contact with or enter the bodies of the plants or animals (known as an "exposure pathway"). At Site 7, the source of contamination has been removed by excavation. Soil samples taken from the bottom of the excavation showed residual concentrations of some chemicals at the bottom of the excavation. However, the excavated area has now been covered with 4 to 6 feet of clean soil. Because they are buried 4 to 6 feet beneath clean soil, the contaminated areas are not readily accessible to plants or animals. Plants and animals cannot readily come into contact the contaminated areas or ingest soil from them. In addition, there is no evidence to suggest that buried contamination is migrating over the surface or through

groundwater to areas where plants and animals could be exposed to it. In short, there is no complete exposure pathway for plants and animals. As a result, ecological risk from the chemicals at Site 7 is within acceptable limits.

2.7.2 Human Health Risks

The human health risks associated with exposure to Site 7 soil and groundwater were evaluated for potential future residential land use (i.e., most conservative). Cancer risks are presented as a number indicating the potential for an increased chance of developing cancer if directly exposed to contaminants. As an example, EPA's acceptable risk range for cancer is 1×10^{-6} to 1×10^{-4}, which means there might be between one additional chance in one million and one additional chance in ten thousand that a person exposed to potentially cancer-causing chemicals at the site would develop cancer.

Non-cancer risks are presented as a number indicating the potential for an increased chance of developing a non-cancer-related health effect if directly exposed to contaminants. The number is expressed as a hazard index (HI); an HI of one or less indicates a very low potential to experience any adverse health effects based on EPA's recommended exposure scenario.

Tables 2-1 and 2-2 describe the human health risk screening process for Site 7 groundwater and soil, respectively.

2.7.2.1 Groundwater

All of the chemicals detected in groundwater at Site 7 were evaluated to determine the potential risk to human health (both cancer and non-cancer related). No chemicals were found at concentrations that pose an unacceptable cancer or non-cancer risk and none were found above EPA's primary Maximum Contaminant Levels or other screening criteria; therefore, no chemicals of concern were identified for groundwater.

In addition, lead was detected in groundwater at a concentration of 30 micrograms per liter (µg/l), which is above the EPA Safe Drinking Water Act (SDWA) action level of 15 µg/l. The potential risk associated with lead in groundwater was evaluated using an EPA-approved risk model that predicts potential blood-lead levels in children. Based on potential exposure to the lead level in Site 7 groundwater, the calculated average blood-lead level in a child would be 5.7 micrograms per deciliter (µg/dl), which is below the EPA's health screening level of 10 µg/dl.

2.7.2.2 Soil

All of the chemicals detected in soil collected following removal of landfill contents at Site 7 were evaluated to determine the potential risk to human health (both cancer and non-cancer related). No chemicals were found at concentrations that pose an unacceptable cancer or non-cancer risk.

As noted in Section 2.5.4.2, the EPA has developed Soil Screening Levels to evaluate the potential for certain chemical concentrations in soil to migrate from the soil to groundwater (i.e., leach) and produce groundwater concentrations that could be harmful to humans. At Site 7, antimony, arsenic, chromium, manganese, and mercury were detected in soil samples at concentrations that exceed these Soil Screening Levels. However, the concentrations of

antimony, arsenic, and chromium were found to be consistent with naturally occurring soil concentrations at ABL, which means that their concentrations at Site 7 are not related to potential contamination from the former landfill debris and that their leaching to groundwater would not produce unacceptable groundwater concentrations above those produced in non-affected (i.e., naturally occurring) areas at the facility.

Although the average concentration of mercury in soil at Site 7 is above the naturally occurring soil concentrations at ABL, this concentration is below the Soil Screening Level. On the other hand, the average Site 7 soil concentration of manganese was found to be above both the Soil Screening Level and the naturally occurring soil concentration. However, recent groundwater data indicate the concentration of manganese in Site 7 groundwater is comparable to naturally occurring levels. Here it should be noted that the Soil Screening Levels were developed for generic site conditions; actual leaching characteristics of individual chemicals, such as manganese, are dependent upon site specific conditions, which may be vastly different from those used by EPA to develop the Soil Screening Levels.

2.7.3 Risk Summary

To summarize, the potential risk to human health and the environment from existing chemicals in Site 7 soil and groundwater is within acceptable limits. Accordingly, no remedial action is necessary to protect human health or the environment at Site 7. Waste excavation and disposal has provided the most reliable long-term protection by removing the source of contamination from the site to a level protective of human health and the environment. Source removal prohibits further potential exposure to contamination and eliminates the need for further contaminant controls.

2.8 Documentation of Significant Changes

The Proposed Plan for ABL Site 7 was released for public comment on May 22, 2001. The Proposed Plan recommended no further remedial action as the Preferred Alternative for the site. No written comments were received during the public comment period; verbal comments were submitted and addressed only during the public meeting on June 5, 2001. The Navy, EPA, and WVDEP reviewed all verbal comments and determined that no significant changes to the proposed alternative, as originally identified in the Proposed Plan, were necessary or appropriate.

TABLE 2-1
Screening Comparison for Chemicals Detected in Groundwater

Chemical	USEPA MCLs	USEPA Region III Adjusted RBCs for Tapwater (HQ=0.1)	Background Groundwater (5GW06)	AS07-7GW01-R01	AS07-7GW01P-R01 (duplicate)	Max (Step 1)	AHI (Step 2)	COC? (Step 3)
Organic Chemicals (µg/l)								
Acetone	---	61	NA	3 J	3.7 J	3.7		
2-Butanone (MEK)	---	190	NA	5 R	5 R	NA		
1,2-Dibromo-3-chloropropane	0.2	0.042	NA	1 R	1 R	NA		
Di-n-butylphthalate	---	370	NA	1.43 J	1.32 J	1.43		
Total Inorganic Chemicals (µg/l)								
Aluminum	50[a]	3,700	19.2 U	2,520	1,660	2,520		
Antimony	6	1.5	6.3 B	4.8 J	4.9 J	4.9[c]	0.33	No
Barium	2,000	260	156 J	148 J	131 B	148		
Calcium	---	---	98,000	183,000	157,000	183,000		
Chromium	100	11	12.6	23.8	18	23.8[c]	0.22	No
Cobalt	---	220	2.8 B	2.5 J	1.9 J	2.5		
Iron	300[a]	1,100	5,770 J	3,050	1,830	3,050[c]	0.28	No
Lead	15[b]	---	2 U	8.1	30			
Magnesium	---	---	26,600	35,700	30,400	35,700		
Manganese	50[a]	73	129	114	92	114[c]	0.16	No
Nickel	---	73	21.4 J	21.4 J	17.5 J	21.4		
Potassium	---	---	4,710 J	4,680 J	4,270 J	4,680		
Sodium	---	---	12,000	12,600	6,910	12,600		
Vanadium	---	26	1 U	4.3 J	2.9 J	4.3		
Step 3: Non-Cancer Risk CAHI (antimony, chromium, iron, and manganese)							0.99	
Step 3: Cancer Risk CAHI (none)							NA	

Notes:

[a] Secondary MCL; value not included in the screening process.

[b] Action level; not included in the screening process. Rather, biokinetics model used to evaluate risk.

[c] RBC (at HQ=0.1) exceedance.

TABLE 2-1
Screening Comparison for Chemicals Detected in Groundwater

Chemical	USEPA MCLs	USEPA Region III Adjusted RBCs for Tapwater (HQ=0.1)	Background Groundwater (5GW06)	AS07-7GW01-R01	AS07-7GW01P-R01 (duplicate)	Max (Step 1)	AHI (Step 2)	COC? (Step 3)

U – Not detected

J – Estimated concentration below the instrument quantitation limit

B – Chemical detected in blank and quantity reported is not 5-10 times greater than that found in the blank

R – Result rejected by the data validator

MAX = Maximum Concentration

AHI = Apparent Hazard Index; CAHI = Cumulative Apparent Hazard Index;

COC = Chemical of Concern; N/A = Not Applicable

TABLE 2-2
Screening Comparison for Chemicals Detected In Post-Excavation Confirmatory Soil Samples

						Sample Results						Facility Background		Subsurface Soil				
Chemical	**Adjusted Residential RBC for Soil (HQ=0.1)**	**Adjusted Industrial RBC for Soil (HQ=0.1)**	**SSL for transfer to groundwater DAF 20 (HQ=0.1)**	**BTAG Soil Flora**	**BTAG Soil Fauna**	**B005**	**B005-2**	**E002**	**N001**	**S003**	**W004**	**Mean Subsurface Soil Concentration**	**Maximum Subsurface Soil Concentration**	**Max (Step 1)**	**RBC AHI/SSL AHI (Step 2)**	**RBC COC?/SSL COC? (Step 3)**	**Mean (Step 4)**	**Site Mean Above Background Mean? (Step 4)**
Volatile Organic Compounds (µg/kg)																		
Methylene Chloride	8.5×10^4	7.6×10^5	19	300	300	2.29 J	NS	5.68 U	6.19 U	5.96 U	2.12 J	---	---	2.29				
2-Butanone	4.7×10^6	1.2×10^8	7.9×10^2	---	---	6.11 R	NS	5.68 R	6.19 R	5.96 R	5.91 R	---	---	6.19				
Semivolatile Organic Compounds (µg/kg)																		
Bis(2-ethylhexyl)phthalate	4.6×10^4	4.1×10^5	2.9×10^6	---	---	96.7 J	NS	1,040	828	1,530	2,820	---	---	2,820				
Inorganic Chemicals (mg/kg)																		
Aluminum	7.8×10^3	2×10^5	---	---	1	8,390	NS	12,500	7,590	7,390	7,140	13,128	22,500	12,500[d]	0.16/NA	Y/NA	8,602	N
Antimony	3.1	82	1.3	---	0.48	0.994 K	NS	1.37 K	1.9 K	0.851 K	0.777 U	2.3	3.0	1.9[e]	NA/0.15	NA/Y	1.1	N
Arsenic (C)	0.43	3.8	0.026	---	328	2.66	NS	1.91 J	2.38 J	2.58	2.98 J	8.2	13.1	2.98[de]	6.9/115	Y/Y	2.5	N
Arsenic (N)	2.3	61	---	---	328	2.66	NS	1.91 J	2.38 J	2.58	2.98 J	8.2	13.1	2.98[d]	0.13/NA	Y/NA	2.5	N
Barium	5.5×10^2	1.4×10^4	2.1×10^2	440	440	61.8	NS	99.6	68.2	78.5	85.5	108	220	99.6				
Beryllium	16	4.1×10^2	1.2×10^2	---	0.02	6.26	NS	1.19	1.4 J	1.06	0.962	0.85	1.5	6.26				
Calcium	---	---	---	---	---	7,390 J	NS	3,720 J	2,470 J	2,360 J	2,140 J	14,647	67,000	7,390				
Chromium[a]	23	6.1×10^2	4.2	0.0075	0.02	12 J	NS	14.9 J	16.6 J	9.82 J	13.5 J	16.4	24.0	16.6[e]	NA/0.4	NA/Y	13.4	N
Cobalt	4.7×10^2	1.2×10^4	---	200	100	10.2 J	NS	15.2 J	14 J	8.08 J	12.8 J	12.7	19.0	15.2				
Copper	3.1×10^2	8.2×10^3	1.1×10^3	---	15	10.7	NS	14	11.6	7.14	6.49	24.6	31.6	14				
Iron	2.3×10^3	6.1×10^4	---	12	3,260	25,400	NS	30,700	27,500	17,800	19,500	30,215	41,300	30,700[d]	1.3/NA	Y/NA	24,180	N
Lead	400[b]	---	---	0.01	2	17.2 J	NS	20.1 J	19.7 J	18.4 J	22.2 J	15.2	23.2	22.2				
Magnesium	---	---	---	---	---	544 J	NS	837 J	623 J	374 J	344 J	2,108	2,730	837				
Manganese	1.6×10^2	4.1×10^3	95	330	330	471	NS	415	873	671	1,160	585	1,240	1,160[de]	0.73/1.22	Y/Y	718	Y
Mercury[c]	2.3	61	0.2	0.058	0.058	35.2	0.304	0.163	0.288	0.363	0.068	0.02	0.05	0.363[e]	NA/0.18	NA/Y	0.24	Y
Nickel	1.6×10^2	4.1×10^3	---	2	2	9.39	NS	16	13.9	5.85	5.5	22.3	27.0	16				
Potassium	---	---	---	---	---	688 J	NS	844 J	608 J	520 J	498 J	1,430	1,880	844				
Vanadium	55	1.4×10^3	5.1×10^2	58	0.5	20.1 J	NS	22.2 J	19.3 J	17.3 J	20.6 J	20.9	33.4	22.2				
Zinc	2.3×10^3	6.1×10^4	1.4×10^3	---	10	23.9 J	NS	26.7 J	24.4 J	17.2 J	15.4 J	52.5	87.0	26.7				

Step 3: Non-Cancer Risk RBC CAHI (Al, As, Fe, Mn)/SSL CAHI (Sb, Cr, Mn, Hg): 2.32/1.95

Step 3: Cancer Risk RBC CAHI (As)/SSL CAHI (As): 6.9×10^{-6}/ 1.15×10^{-4}

ep 5: Recalculated Non-Cancer Risk RBC CAHI (Mn)/SSL CAHI (Mn, Hg): 0.73/1.4

tep 5: Recalculated Cancer Risk RBC CAHI (none)/SSL CAHI (none): NA/NA

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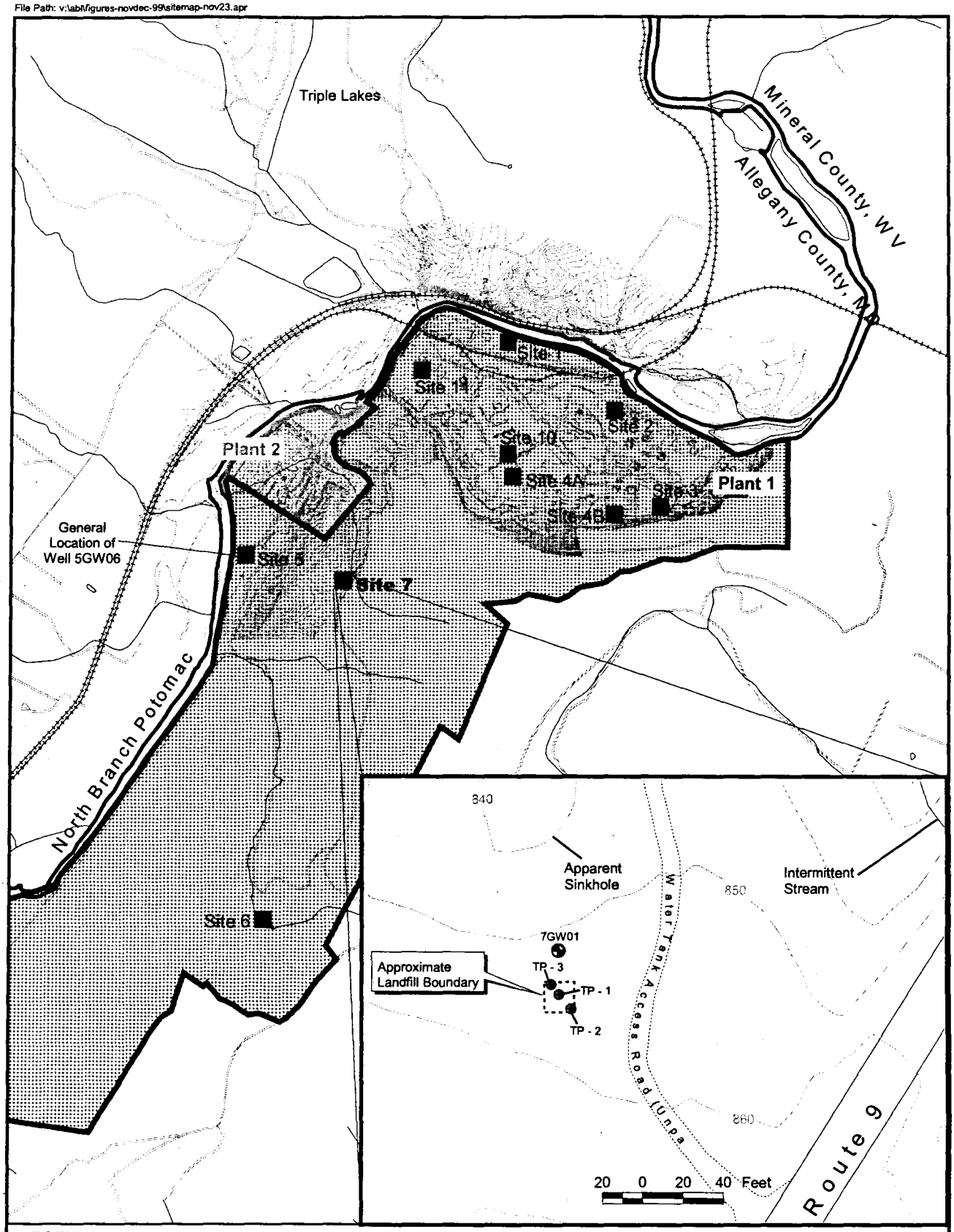


LEGEND

- Index Contours (10ft Intervals)
- Paved Road
- Dirt Road
- Stream
- Monitoring Well Location and Designation
- Test Pit Location

N

1000 0 1000 2000 Feet

Figure 2-1
Facility and CERCLA Site Locations
Site 7 Record of Decision
Allegany Ballistics Laboratory

CH2MHILL

3 Responsiveness Summary

The selected alternative for Site 7 is no further action. With the exception of the public meeting, no written or verbal comments, concerns, or questions were received by the Navy, EPA, or the State of West Virginia during the public comment period, which was held from May 22, 2001 through July 6, 2001. A public meeting was held on June 5, 2001 to present the Proposed Plan for Site 7 and address any questions or comments on the Proposed Plan and on the documents in the information repositories. Three questions were asked and responded to during the meeting. Based on the limited comments, the public appears to support the selected alternative. The transcript of the public meeting is part of the administrative record for this site and a copy is included as Appendix A of this ROD.

3.1 Stakeholder Issues and Lead Agency Responses

A summary of the questions addressed during the public meeting is presented below. Clarifying annotations to the questions and responses are shown in parentheses.

Question 1: What was that picture in that one photo (photo of existing Site 7 condition, taken in May 2001)?

Response: This is that well (pointing to location of well 7GW01), the one bedrock well that was installed at that location. The groundwater flow at this site would be this way, toward the west, toward the river which is down here (pointing in the direction of the North Branch Potomac River). Here was the old landfill (pointing at the former location of the landfill), so a bedrock well was put in right there to monitor any potential contaminants.

Question 2: The propellant contains beryllium. I presume that never actually went into production? That it was just simply experimental?

Response: That is correct. It did not go into production.

Question 3: When you say "no further action," nothing more will be done there ever again?

Response: That's right, this site will be closed.

This constitutes the extent of the comments and responses on the Proposed Remedial Action Plan for Site 7 at Allegany Ballistics Laboratory.

Appendix A Public Meeting Transcript

MEETING

* * * * *

PROPOSED REMEDIAL ACTION PLAN

SITE 7

FORMER BERYLLIUM LANDFILL

* * * * *

TUESDAY, JUNE 5, 2001

5:35 p.m. to 6:10 p.m.

Held at:

Allegany Ballistics Laboratory

Building 300 Conference Room

210 State Route 956

Rocket Center, West Virginia

* * * * *

*

Reported by: Gerald T. Brooks

IN ATTENDANCE

G. BRETT DOERR, P.G., Hydrogeologist

ROGER ANTOINE Z. AZAR, PE, Civil and Environment Engineer

DOMINIC O'CONNOR, PE, Remedial Program Manager

P-R-O-C-E-E-D-I-N-G-S

(5:35 p.m.)

MR. DOERR: Okay. The purpose of this public meeting is to present the Proposed Remedial Action Plan for Site 7, which is the former beryllium landfill at Plant 1 of the Allegany Ballistics Laboratory.

AUDIENCE PARTICIPANT: Can you introduce yourself?

MR. DOERR: Yes, I'm sorry. My name is Brett Doerr. I'm with CH2MHILL. I'm the IR program contractor for the Navy at the ABL.

So jumping right into this, what you have in front of you, the Proposed Remedial Action Plan that I passed out, a quick one-line summary of that would be that that proposed plan is for no further action beyond what has already been done there, which is removal of the landfill debris.

The presentation that I'm going to give -- everything that I'm going to talk about

is in the Proposed Remedial Action Plan which I am going to abbreviate as PRAP.

I won't be following along exactly in order, and I probably won't cover every single point in there, but, in general it does follow what you have in your PRAP.

What I'm going to talk about are four main highlights: The facility and site background, nature and extent of contamination, summary of the risk characterization done for the soil and groundwater at Site 7, and then what is the proposed or preferred alternative for the site.

In terms of the facility and site background, I'll just talk about just very briefly about the location history of ABL, the physical setting both of ABL as well as Site 7, including: Topography, geology, groundwater, surface water, surrounding land uses, the history of Site 7 and previous investigations and landfill removal activities that have been

conducted there.

ABL is, as you know, located in the northern part of Mineral County, West Virginia, separated from Allegany County, Maryland by the north branch Potomac River.

Since about 1943 the facility has been used for research development, production and testing of solid propellants and motors for ammunition, rockets, and other armaments.

The facility consists of two plants. Plant 1 is the larger of the two. It's about 1,580 acres and that is owned by the Navy and operated by Alliant Missile Products Company.

Plant 2 is a 57-acre parcel of land adjacent to Plant 1 that's owned and operated by Alliant Missile Products Company.

And this is just a graphical display of what I was just referring to. Here you can see Plant 1 is shaded.

And what you can see from this is, in fact, it doesn't even cover the entire 1,577

acres. But here is the developed portion of Plant 1 which we, in general, speak about all the time because most of our IR program sites are located at the developed portion of Plant 1 which is in the 400 acres or so, rough 400 acres, of the floodplain of the north branch here.

Here's Plant 2 adjacent to Plant 1. The site of interest today is Site 7 located just off State Route 956, which runs right through here. And you can see that Site 7 is located in the undeveloped area in the mountainous region of Plant 1.

As I just alluded to, Site 7 is located in the undeveloped area of Plant 1. The site itself is relatively flat. It's just off of State Route 956. The course to the west and the east, the steep slopes of Knobly Mountain; in fact, to the west the land slopes quite steeply right on down to the north branch Potomac River.

Because it so far up into the mountains, you don't really have a lot of soil

developed on top of the bedrock. The bedrock there is found within several feet of the ground surface.

Again, as I said, there's not a whole lot of soil developed on top of the bedrock, so you don't have an alluvial or surficial aquifer there. At that location you find groundwater only in the bedrock at about 30 feet below the ground surface.

The groundwater -- you know, groundwater flow and surface water flow, surface water flow through surface drainage into small intermittent stream valleys down the river. And also groundwater flow in the bedrock, in this case would be predominantly west towards the north branch Potomac River.

The surrounding land is -- immediately surrounding Site 7 is primarily just all forest. The farther out you go you do find some cropland and then a little farther south along State Route 956 there's a limestone quarry.

Okay. A little bit about the history of Site 7. In the 1960s, in fact, in the late 1960s, ABL began research on propellants using beryllium in place of aluminum. And the reason they decided to try to use beryllium was because they were trying to increase the performance of the propellants and so they wanted to substitute beryllium for aluminum in this research on these propellants.

And in support of this research, they would need a place to dispose of the beryllium-containing waste, and so a permit was issued to ABL by the West Virginia Department of Natural Resources to allow them to establish a landfill for disposal of the non-explosive beryllium-containing waste from this research.

This is just a picture. This is July 1994. This was before the waste was removed. It gives you an idea of what the surroundings of this former landfill looked like. This is actually before the waste was removed. It's a

very small landfill. It's approximately in this area here. You can't see it, of course, because they would put the waste in there and then they would cover it with dirt and then grass grew on top of it.

As I said, the landfill was quite small. It was about 10 feet by 15 feet, 6 feet deep and the depth was based on how far they dug down until they hit the bedrock. In this case, about six feet below the ground surface.

They would bring the non-explosive beryllium-containing waste to the landfill, put it in the pit and then cover it with several shovelfuls of dirt or whatever.

As I said before, they got the permit in 1967 and the landfill received the waste from the research until the late 1960s. So it didn't happen over a long period of time.

In the late 1960s beryllium research ceased at ABL, and the reason it ceased was because although the beryllium may have increased

the performance of the propellant, what they found is that that gain was offset by the fact that beryllium doesn't burn all that efficiently.

So, as I said, by the late 1960s they stopped doing research with beryllium and stopped using the landfill for disposal.

Beginning in 1983 and continuing through late last year, a number of investigations and in one case a landfill removal activity was conducted at Site 7. In 1983 they conducted an initial assessment study where they interviewed facility personnel and they gathered as many records that they could to try to determine what was in that landfill. And what they found was that up to only about 2 pounds of beryllium and 100 pounds of miscellaneous laboratory chemicals have been disposed of in the landfill over the period of time that it operated in the late 1960s.

So, based on this information, the Navy conducted a confirmation study in 1987 in

which they went out of the landfill and they dug some test pits and they took samples of the soil in the test pits to determine if there were any chemicals in the soil that they should be concerned about. And what they found was most or all of the chemicals they found were either very similar to naturally occurring, what we call "background levels," or they were below levels representing an unacceptable risk to people. And that's determined by comparing the data you collect on your chemicals to federal screening levels, risk-based levels that the EPA derives.

One thing they didn't do during the confirmation study was sample groundwater. So during the remedial investigation that they actually conducted for a number of the IR program sites at ABL, they went out to Site 7 and they installed a bedrock well and they took a sample. And what they found was no organic chemicals, volatile organic chemicals, or semi-volatile organic chemicals and no explosive chemicals were

detected in the groundwater sample.

A couple of years later they mobilized to the site to remove the landfill debris. And the way they determined the limit of their excavation was by visual inspection. The debris that went into the landfill was clearly distinguishable from the native soil there. It had vials containing beryllium and other laboratory waste that was in there.

So they were able to start at one edge of the landfill, start digging across and down until they dug in all directions and were visibly free of the waste that had been disposed there.

To make sure they had excavated everything out of there, they took confirmatory soil samples, one from each of four walls of the excavation. It was a rectangular excavation, each of four walls and one from the floor of the excavation. And to make sure that they could stop digging, they compared those -- the data they collected from those soil samples, they

compared the data to federal, again, risk screening levels.

And actually what they found was only one constituent and it happened to be mercury in the bottom of excavation -- in the excavation bottom sample was at a level that was above the risk screening level. And so what they did was they dug some more out, took another sample, analyzed it for mercury and that result was below that screening level. And so they backfilled with clean fill.

In late 2000 and early 2001 what we called a "Streamlined Remedial Investigation Feasibility Study Report" was prepared and there were really two primary purposes for doing this document.

One was to summarize all the data that had been collected to date. There was a lot of work that was done in the past. A lot of data out there, and we wanted to bring it all into one document, primarily for the purpose of evaluating

it to determine what was out there and did it pose a risk to people, plants, or animals.

Secondly, we needed to resample that bedrock well that was sampled back in 1992 because the level of quality control in terms of evaluating data has changed sufficiently since 1992. And so we needed to collect a sample where we had a higher level of quality control on that so that the conclusions we were going to draw with respect to the groundwater constituents, we had a higher level of certainty in.

So we resampled the well in late -- I think it was October of 2000. We took that data, we took the confirmatory soil data from the landfill removal activities and we evaluated them to determine what we had out there, the remaining constituent concentrations in both the soil and groundwater and we also used that data to perform a risk evaluation for people, plants, and animals.

To summarize what the groundwater was

sampled for, we sampled for organic chemicals, primarily volatile organic chemicals, semi-volatile organic chemicals, explosive chemicals and metals. What we found was a couple of detections of organic chemicals at very low levels. And when I say "very low," I mean very low compared to the screening levels that are provided by -- the federal screening levels that you compare the data to.

We found no explosive chemicals in the groundwater and we found that most of the metals in the groundwater were similar to naturally occurring concentrations.

We had a few that were above what is an initial screening that you do with data in terms of a risk screening level. We had four metals: Antimony, chromium, iron and manganese that exceeded this initial screening value. We then took that data and put it through a more extensive risk screening evaluation.

Similarly, for soil the confirmatory

samples were analyzed for organic chemicals and metals and it got a very similar result; a couple of very low detections of some organic chemicals well below risk screening levels and a few metals similar to what we found in the groundwater.

And, again, those metals data were screened using a more extensive risk screening evaluation.

One thing that I haven't talked about, except for the history of the site, is beryllium. What about beryllium in the landfill?

Well it wasn't detected in the groundwater. And in the soil, the concentration that was found in the soil was less than what is the screening level for a potential risk to people.

So what that means is, that very early on in the risk screening evaluation, beryllium kind of fell out and we were actually concentrating on those other metals that were there.

So, as I said, we took the groundwater data and the soil data we had, we took and put it through both a human health and an ecological risk evaluation. What we found for groundwater were there were no exceedance (phonetic) of the EPA maximum contaminant levels.

The screening evaluation that you do with data is you screen them against levels that are -- how can I put this -- there are some chemicals that have a potential to cause cancer and there are other chemicals that don't cause cancer but they can cause a negative health effect.

So we screened our data versus all of those numbers, whether it was a potential cancer causer or not, the data was screened against those levels, those federal levels. What we found for groundwater was, nothing exceeded any cancer risk screening level and the non-cancer risk screening level that we calculated was less than the federal level for considering your

overall risk to be -- above the level where you consider that you have a risk associated with exposure to those particular chemicals.

That number -- for non-cancer risk, that number is one. The value we came up with for all those metals that I showed you in groundwater earlier was .79. So it was less than the one threshold criteria.

Lead was detected in groundwater there also, but that lead was screened against a very conservative level for a negative effect on children, and was found to be well below what that level is.

Similarly for soil, the confirmatory soil data, we took that data, put it through the same screening process for constituents that are potential cancer causers, ones that are not cancer causers; we did the same kind of screening process. What we found is that you had most of chemical concentrations were either very similar to the naturally occurring concentrations

elsewhere in this area, or they were below those threshold levels for non-cancer and cancer risk.

So that was the risk evaluation we did for human health -- for people. We also looked at the data for any potential risk associated with exposure to plants and animals; an ecological risk assessment.

And in summary what -- and, again, it's in more detail in the PRAP document that you have, but basically what the ecological risk evaluation determined was, we had an area that was very small and isolated. There wasn't a lot of potential exposure to plants and animals to begin with.

Beyond that, the potential source of the contamination had been removed, the area had been backfilled with clean soil. And we didn't find any evidence of contamination from that landfill in groundwater.

So in other words, it really didn't look -- there really was nothing; there's nothing

in the remaining soil or in the groundwater that would pose any risk to plants and animals at the site in the future.

I showed you earlier a picture of what the landfill looked like; what the site looked like before the landfill removal activities. That was actually -- that picture was looking down toward the river. That's a downslope. This one is post-removal. I just actually took this last month. This is looking more upslope. It's back towards -- here is State Route 956 coming around there.

This is approximately where the landfill was, but, again, it has been removed and grass is growing up over it.

The removal and backfilling with the clean material has provided the long-term reliability for the continued protection of both people, plants, and animals that would come into contact with this particular site.

Because the contaminated material has

been removed, there either is no risk at all or the risk is below or within acceptable regulatory limits. For that reason no further action beyond what was already done is proposed for the site in the future.

That's the presentation. Additional information can be found in the Site 7 administrative record. This administrative record contains the documents -- the reports for all those investigations that I talked about earlier. Each one of those investigations will be in there, as well as the streamlined RIFS report which brings everything together. That's all in the admin record and you can get the admin record at both the LaVale Public Library and the Fort Ashby Public Library.

As also noted on your PRAP document, the public comment period began with the notice that came out in the paper on May 22nd, and will continue for 45 days until July 6.

If you have comments, on the back of

the PRAP document there is a place where you can fill out. I think it's on the back cover of the document, you can fill out -- I take that back. It's on the very last page before -- right. You can fill out your comments there, slice that last page off, fold it over, put a piece of tape on it, stamp on it and it's already addressed to Mr. Dominic O'Connor, and send it off.

In addition to sending your comments to Dominic O'Connor with the Navy, you can also submit comments to Mr. Bruce Beach with the U.S. EPA, or Mr. Tom Bass with the West Virginia Department of Environmental Protection.

All comments must be postmarked by the last day of the comment period, which is July 6th. That's it.

I sure would be happy to entertain any questions.

AUDIENCE PARTICIPANT: What was that picture in that one photo?

MR. DOERR: This is that well, the one

bedrock well that was installed at that location. The groundwater flow at this site would be this way, toward the west, toward the river which is down here. Here was the old landfill, so a bedrock well was put in right there to monitor any potential contaminates.

Yes?

AUDIENCE PARTICIPANT: The propellant contains beryllium. I presume that never actually went into production? That it was just simply experimental?

MR. DOERR: I believe that's right.

MR. O'CONNOR: That is correct.

MR. DOERR: It did not go into production.

AUDIENCE PARTICIPANT: When you say "no further action," nothing more will be done there ever again??

MR. DOERR: That's right, this site will be closed.

AUDIENCE PARTICIPANT: Closed totally.

Okay.

MR. DOERR: The disposal activities ended in the late '60s. The well wasn't sampled until 1992 and then again in 2000. So, 30-plus years later nothing was detected in the groundwater.

Any other questions?

(No response.)

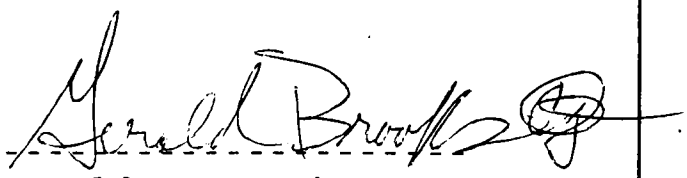
MR. O'CONNOR: No further questions.

That concludes the meeting for the PRAP.

(The meeting concluded at 6:10 p.m.)

CERTIFICATE OF REPORTER

I, GERALD T. BROOKS, do hereby certify that the foregoing was taken by me electronically at the time and place mentioned on the cover sheet hereof and thereafter transcribed by me to the best of my ability.



Gerald T. Brooks