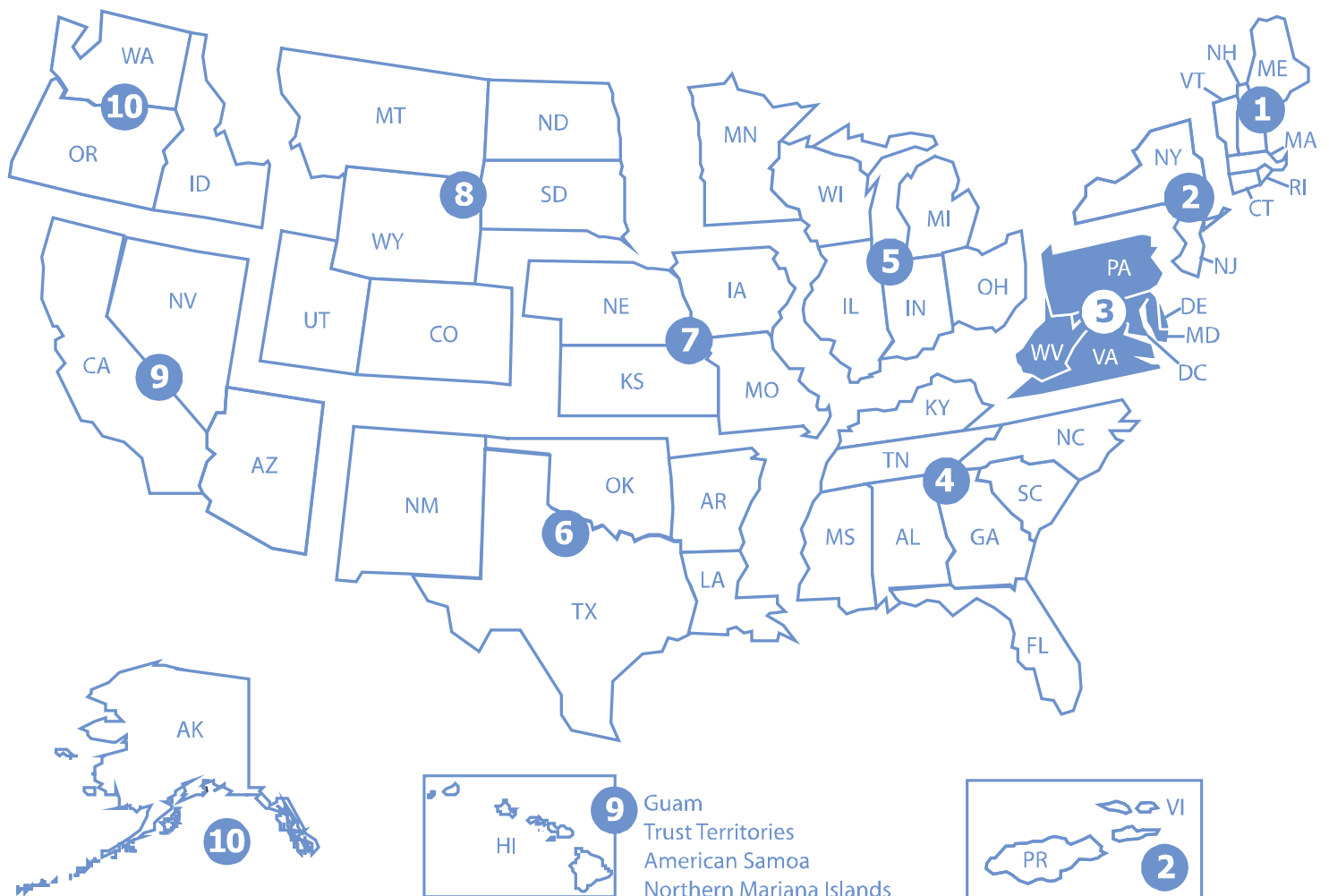




# Support Document for the Revised National Priorities List Final Rule – Fort Detrick Area B Ground Water



**Support Document for the  
Revised National Priorities List  
Final Rule  
Fort Detrick Area B Ground Water  
April 2009**

**Site Assessment and Remedy Decisions Branch  
Office of Superfund Remediation and Technology Innovation  
Office of Solid Waste and Emergency Response  
U.S. Environmental Protection Agency  
Washington, DC 20460**

## Table of Contents

<b>Table of Contents</b> .....	<b>ii</b>
<b>Executive Summary</b> .....	<b>iii</b>
<b>Introduction</b> .....	<b>iv</b>
<b>Background of the NPL</b> .....	<b>iv</b>
<b>Development of the NPL</b> .....	<b>v</b>
<b>Hazard Ranking System</b> .....	<b>v</b>
<b>Other Mechanisms for Listing</b> .....	<b>vi</b>
<b>Organization of this Document</b> .....	<b>vii</b>
<b>Glossary</b> .....	<b>vii</b>
<b>1.0 List of Commenters and Correspondence</b> .....	<b>1</b>
<b>2.0 Site Description</b> .....	<b>1</b>
<b>Response to Comments</b> .....	<b>1</b>
<b>3.0 Summary of Comments</b> .....	<b>2</b>
<b>3.1 Extent of Site</b> .....	<b>2</b>
<b>3.2 Need for Listing</b> .....	<b>4</b>
<b>3.3 Consideration of Response Actions and Current Conditions</b> .....	<b>5</b>
<b>3.4 Restriction on Further Remediation Activities</b> .....	<b>5</b>
<b>3.5 Use of Draft Documents</b> .....	<b>6</b>
<b>3.6 Changes to the Reference List/Revised References</b> .....	<b>6</b>
<b>3.7 Site Summary Additions and Revisions</b> .....	<b>7</b>
<b>3.8 Source 1, Area B-11 - Chemical Waste Disposal Pits</b> .....	<b>7</b>
<b>3.8.1 Waste Quantity after Removal Actions</b> .....	<b>7</b>
<b>3.8.2 Waste Characteristics-Presence of non-pathogenic form of Bacillus anthracis</b> .....	<b>9</b>
<b>3.9 Source 2, Area B-2</b> .....	<b>9</b>
<b>3.9.1 Containment and Future Actions</b> .....	<b>9</b>
<b>3.9.2 Containment Based on Evidence of Release</b> .....	<b>10</b>
<b>3.9.3 Adequacy of Background Metal Levels for Source 2</b> .....	<b>10</b>
<b>3.10 Source 3, Area B-Grid</b> .....	<b>12</b>
<b>3.10.1 Containment Based on Evidence of Release</b> .....	<b>12</b>
<b>3.10.2 Adequacy of Background Metal Levels</b> .....	<b>12</b>
<b>3.10.3 Waste Characteristics - Contaminant Concentrations below Regulatory Limits</b> .....	<b>14</b>
<b>3.11 Risk associated with Source 3 (Area B Grid) and Source 4 (Area B-20 South)</b> .....	<b>14</b>
<b>3.12 Other Possible Sources</b> .....	<b>15</b>
<b>3.13 Likelihood of Release: Use of Old Data in HRS Scoring</b> .....	<b>16</b>
<b>3.14 Targets</b> .....	<b>17</b>
<b>3.14.1 Provision of Alternative Water Supplies</b> .....	<b>17</b>
<b>3.14.2 Wells Upgradient of the Site</b> .....	<b>18</b>
<b>3.14.3 Wells across the Topographic Divide</b> .....	<b>19</b>
<b>3.14.4 Wellhead Protection Area</b> .....	<b>21</b>
<b>3.14.5 Scoring Sampled Wells as Potential Wells</b> .....	<b>21</b>
<b>3.14.6 Apportionment</b> .....	<b>21</b>

## **Executive Summary**

Section 105(a)(8)(B) of CERCLA, as amended by SARA, requires that the EPA prepare a list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States. An original National Priorities List (NPL) was promulgated on September 8, 1983 (48 FR 40658). CERCLA requires that EPA update the list at least annually.

This document provides responses to public comments received on the Fort Detrick Area B Ground Water site, proposed on September 3, 2008 (73 FR 51393). This site is being added to the NPL based on an evaluation under EPA's Hazard Ranking System (HRS) in a final rule published in the *Federal Register* in April 2009. Several additional sites are being promulgated concurrently.

## Introduction

This document explains the rationale for adding the Fort Detrick Area B Ground Water, site in Frederick, Maryland, to the National Priorities List (NPL) of uncontrolled hazardous waste sites and also provides the responses to public comments received on this site. The EPA proposed this site on September 3, 2008 (73 FR 51393). This site is being added to the NPL based on an evaluation under the Hazard Ranking System (HRS) in a final rule published in the *Federal Register* in April 2009.

## Background of the NPL

In 1980, Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. Sections 9601 *et seq.* in response to the dangers of uncontrolled hazardous waste sites. CERCLA was amended on October 17, 1986, by the Superfund Amendments and Reauthorization Act (SARA), Public Law No. 99-499, stat., 1613 *et seq.* To implement CERCLA, EPA promulgated the revised National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300, on July 16, 1982 (47 FR 31180), pursuant to CERCLA Section 105 and Executive Order 12316 (46 FR 42237, August 20, 1981). The NCP, further revised by EPA on September 16, 1985 (50 FR 37624) and November 20, 1985 (50 FR 47912), sets forth guidelines and procedures needed to respond under CERCLA to releases and threatened releases of hazardous substances, pollutants, or contaminants. On March 8, 1990 (55 FR 8666), EPA further revised the NCP in response to SARA.

Section 105(a)(8)(A) of CERCLA, as amended by SARA, requires that the NCP include

criteria for determining priorities among releases or threatened releases throughout the United States for the purpose of taking remedial action and, to the extent practicable, take into account the potential urgency of such action, for the purpose of taking removal action.

Removal action involves cleanup or other actions that are taken in response to emergency conditions or on a short-term or temporary basis (CERCLA Section 101[23]). Remedial action is generally long-term in nature and involves response actions that are consistent with a permanent remedy for a release (CERCLA Section 101[24]). Criteria for placing sites on the NPL, which makes them eligible for remedial actions financed by the Trust Fund established under CERCLA, were included in the HRS. EPA promulgated the HRS as Appendix A of the NCP (47 FR 31219, July 16, 1982). On December 14, 1990 (56 FR 51532), EPA promulgated revisions to the HRS in response to SARA, and established the effective date for the HRS revisions as March 15, 1991.

Section 105(a)(8)(B) of CERCLA, as amended, requires that the statutory criteria provided by the HRS be used to prepare a list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States. The list, which is Appendix B of the NCP, is the NPL.

An original NPL of 406 sites was promulgated on September 8, 1983 (48 FR 40658). At that time, an HRS score of 28.5 was established as the cutoff for listing because it yielded an initial NPL of at least 400 sites, as suggested by CERCLA. The NPL has been expanded several times since then, most recently on September 3, 2008 (73 FR 51368). The Agency also has published a number of proposed rulemakings to add sites to the NPL. The most recent proposal was on September 3, 2008 (73 FR 51393).

## Development of the NPL

The primary purpose of the NPL is stated in the legislative history of CERCLA (Report of the Committee on Environment and Public Works, Senate Report No. 96-848, 96th Cong., 2d Sess. 60 [1980]).

The priority list serves primarily informational purposes, identifying for the States and the public those facilities and sites or other releases which appear to warrant remedial actions. Inclusion of a facility or site on the list does not in itself reflect a judgment of the activities of its owner or operator, it does not require those persons to undertake any action, nor does it assign liability to any person. Subsequent government actions will be necessary in order to do so, and these actions will be attended by all appropriate procedural safeguards.

The NPL, therefore, is primarily an informational and management tool. The identification of a site for the NPL is intended primarily to guide EPA in determining which sites warrant further investigation to assess the nature and extent of the human health and environmental risks associated with the site and to determine what CERCLA-financed remedial action(s), if any, may be appropriate. The NPL also serves to notify the public of sites EPA believes warrant further investigation. Finally, listing a site may, to the extent potentially responsible parties are identifiable at the time of listing, serve as notice to such parties that the Agency may initiate CERCLA-financed remedial action.

CERCLA Section 105(a)(8)(B) directs EPA to list priority sites among the known releases or threatened release of hazardous substances, pollutants, or contaminants, and Section 105(a)(8)(A) directs EPA to consider certain enumerated and other appropriate factors in doing so. Thus, as a matter of policy, EPA has the discretion not to use CERCLA to respond to certain types of releases. Where other authorities exist, placing sites on the NPL for possible remedial action under CERCLA may not be appropriate. Therefore, EPA has chosen not to place certain types of sites on the NPL even though CERCLA does not exclude such action. If, however, the Agency later determines that sites not listed as a matter of policy are not being properly responded to, the Agency may consider placing them on the NPL.

## Hazard Ranking System

The HRS is the principle mechanism EPA uses to place uncontrolled waste sites on the NPL. It is a numerically based screening system that uses information from initial, limited investigations -- the preliminary assessment and site inspection -- to assess the relative potential of sites to pose a threat to human health or the environment. HRS scores, however, do not determine the sequence in which EPA funds remedial response actions, because the information collected to develop HRS scores is not sufficient in itself to determine either the extent of contamination or the appropriate response for a particular site. Moreover, the sites with the highest scores do not necessarily come to the Agency's attention first, so that addressing sites strictly on the basis of ranking would in some cases require stopping work at sites where it was already underway. Thus, EPA relies on further, more detailed studies in the remedial investigation/feasibility study that typically follows listing.

The HRS uses a structured value analysis approach to scoring sites. This approach assigns numerical values to factors that relate to or indicate risk, based on conditions at the site. The factors are grouped into three categories. Each category has a maximum value. The categories are:

- likelihood that a site has released or has the potential to release hazardous substances into the environment;

- characteristics of the waste (toxicity and waste quantity); and
- people or sensitive environments (targets) affected by the release.

Under the HRS, four pathways can be scored for one or more threats as identified below:

- Ground Water Migration ( $S_{gw}$ )
  - drinking water
- Surface Water Migration ( $S_{sw}$ )

The following threats are evaluated for two separate migration components, overland/flood migration and ground water to surface water.

  - drinking water
  - human food chain
  - sensitive environments
- Soil Exposure ( $S_s$ )
  - resident population
  - nearby population
  - sensitive environments
- Air Migration ( $S_a$ )
  - population
  - sensitive environments

After scores are calculated for one or more pathways according to prescribed guidelines, they are combined using the following root-mean-square equation to determine the overall site score (S), which ranges from 0 to 100:

$$S = \sqrt{\frac{S_{gw}^2 + S_{sw}^2 + S_s^2 + S_a^2}{4}}$$

If all pathway scores are low, the HRS score is low. However, the HRS score can be relatively high even if only one pathway score is high. This is an important requirement for HRS scoring because some extremely dangerous sites pose threats through only one pathway. For example, buried leaking drums of hazardous substances can contaminate drinking water wells, but -- if the drums are buried deep enough and the substances not very volatile -- not surface water or air.

## Other Mechanisms for Listing

There are two mechanisms other than the HRS by which sites can be placed on the NPL. The first of these mechanisms, authorized by the NCP at 40 CFR 300.425(c)(2), allows each State and Territory to designate one site as its highest priority regardless of score. The last mechanism, authorized by the NCP at 40 CFR 300.425(c)(3), allows listing a site if it meets the following three requirements:

- Agency for Toxic Substances and Disease Registry (ATSDR) of the U.S. Public Health Service has issued a health advisory that recommends dissociation of individuals from the release;
- EPA determines the site poses a significant threat to public health; and

- EPA anticipates it will be more cost-effective to use its remedial authority than to use its emergency removal authority to respond to the site.

## Organization of this Document

The following section contains EPA responses to site-specific public comments received on the proposal of the Fort Detrick Area B Ground Water site on September 3, 2008 (73 FR 51393). The site discussion begins with a list of commenters and correspondence, followed by a site description, a summary of comments, and Agency responses to each comment. A concluding statement indicates the effect of the comments on the HRS score for the site.

## Glossary

The following acronyms and abbreviations are used throughout the text:

<b>Agency</b>	U.S. Environmental Protection Agency
<b>AMSL</b>	Above mean sea level
<b>CERCLA</b>	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. Sections 9601 <i>et seq.</i> , also known as Superfund
<b>CFR</b>	Code of Federal Regulations
<b>EPA</b>	U.S. Environmental Protection Agency
<b>ERA</b>	Ecological risk assessment
<b>FR</b>	<i>Federal Register</i>
<b>FS</b>	Feasibility study
<b>HHRA</b>	Human health risk assessment
<b>HRS</b>	Hazard Ranking System, Appendix A of the NCP
<b>HRS score</b>	Overall site score calculated using the Hazard Ranking System; ranges from 0 to 100
<b>IRA</b>	Interim removal action
<b>MCL</b>	Maximum Contaminant Limit
<b>MDE</b>	Maryland Department of the Environment
<b>MEDCOM</b>	Army Medical Command
<b>mg/kg</b>	Milligram Per Kilogram
<b>NCP</b>	National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300
<b>NPL</b>	National Priorities List, Appendix B of the NCP
<b>PCE</b>	Tetrachloroethene
<b>RAB</b>	Restoration Advisory Board
<b>RBC</b>	Risk-based concentration
<b>RI</b>	Remedial investigation



<b>SLERA</b>	Screening level ecological risk assessment
<b>TCE</b>	Trichloroethene
<b>TDL</b>	Target distance limit
<b>UCL</b>	Upper confidence limit
<b>USACE</b>	United States Army Corps of Engineers

## 1.0 List of Commenters and Correspondence

EPA-Q-SFUND-2008-0585-0006	Correspondence dated March 6, 2008, from Martin W. O'Malley, Governor, State of Maryland
EPA-HQ-SFUND-2008-0585-0007	Comment submitted on November 13, 2008, from Addison Davis, IV, Deputy Assistant Secretary of the Army, Environmental, Safety and Occupational Health

## 2.0 Site Description

The Fort Detrick facility is an active U.S. Army Installation operated under the Army Medical Command (MEDCOM), in Frederick, Maryland. Fort Detrick is located within the city limits of Frederick and is surrounded by residential areas and county-owned land. Fort Detrick consists of three non-contiguous tracts of land designated as Areas A, B, and C. Sources evaluated in the Hazard Ranking System (HRS) documentation record for the Fort Detrick Area B Ground Water site are located in Area B. Area B has been the primary location of waste management activities for Fort Detrick and is the location of an active municipal landfill, animal farm, former skeet range, former explosives storage area, and former waste disposal/test areas associated with former research activities.

Area B occupies approximately 399 acres in Frederick Valley and is located to the east and at the foot of Catoctin Mountain. The formations underlying Area B are karst and fractured bedrock. All aquifers underlying sources at Area B are considered hydraulically interconnected and were evaluated as a single aquifer, the Frederick Valley Bedrock aquifer. The Catoctin Mountain, a southwest to northeast trending ridge located approximately 1 mile west of Area B, was identified as an aquifer discontinuity within the 4-mile target distance limit (TDL) of the Fort Detrick Area B Ground Water site. The exact location of the discontinuity is not known and probably varies based on karst features and fractures. EPA used 700 feet above mean sea level (amsl) elevation as the line of the aquifer discontinuity in conducting the HRS evaluation. This elevation was chosen based on an assessment of the local topography and geology. In the vicinity of the site, the Catoctin Mountain ridge is at an elevation of 600 to 800 feet to the south and rises to over 1700 feet to the north. Along the south/north line of the mountain, several faults exist that constitute, at minimum, local discontinuities that physically separate the formation that composes the mountain and also physically block western contaminant migration. One south/north major fault line runs the length of the mountain at an elevation of about 700 feet on the eastern slope of the mountain. Therefore, the 700 amsl elevation is considered a reasonable western limit to the aquifer threatened by releases from the Fort Detrick Area B Ground Water site.

Four sources and a release of hazardous substances including trichloroethene (TCE) and tetrachloroethene (PCE) were evaluated for the Fort Detrick Area B Ground Water site and were used to support NPL listing. The four sources evaluated include chemical waste disposal pits (Source 1), a landfill (Source 2) used as a waste disposal area, and contaminated soils (Sources 3 and 4). Numerous other possible sources are present in Fort Detrick Area B; these other possible sources were not evaluated as part of the HRS scoring of this site either because the sources have not been adequately characterized or because sufficient data are not available.

Since 1999, quarterly ground water sampling of monitoring wells and drinking water wells has been conducted in and south of Area B-11, an Area B chemical disposal area evaluated as Source 1. The volatile organic compounds (VOC) TCE and PCE are the major chemical constituents detected in ground water samples collected in and south of Area B-11. In June 2004, during a removal action at Area B-11 to remove contaminated soil, chemical containers, compressed gas cylinders, and laboratory waste, the discovery of live pathogens caused suspension of all intrusive work at the disposal area. The TCE and PCE concentration contour maps of ground water sampling conducted in Area B-11 in 2005 illustrate the TCE and PCE plume along the southwestern boundary of Area B, the south central areas of Area B, and along the southeastern boundary of Area B. TCE also was detected in a residential well located on the southern portion of Shookstown Road, southeast of Area B. Therefore, the plume may extend south of Area B as far as the location of this residential well.

TCE and PCE have been detected in drinking water wells that supply water to nearby residents. Most of the drinking water wells have been closed and residents are connected to public water or the Army provides them with bottled water. Ground water samples collected in 1992 from six drinking water wells and ground water samples collected in 2005 from two residential wells contained concentrations of TCE above the cancer risk screening concentration (i.e., at concentrations meeting the criteria for documenting Level I actual contamination). Thus, eight wells were evaluated as HRS Level I target wells.

### 3.0 Summary of Comments

Martin O'Malley, Governor of Maryland, expressed support of the listing. In a letter dated March 6, 2008, Governor O'Malley urged EPA to place Fort Detrick's Area B on the National Priorities List to ensure that the State's ground water supply in the area of Fort Detrick is protected for Maryland citizens. He noted that although the State of Maryland has worked with Fort Detrick since the early 1990s to encourage investigation of chemical contamination and the potential offsite impacts to ground water, a thorough investigation of the nature and extent of contamination of ground water has not been completed.

Addison Davis, Deputy Assistant Secretary of the Army, Environment, Safety and Occupational Health (herein referred to as the Army) commented on listing Fort Detrick Area B Ground Water site on the NPL. The Army claimed that EPA had used outdated information in its evaluation and requested that EPA rescore the Fort Detrick site "using the most current and/or correct information presented in these comments, relying upon the final CERCLA remedial action decisions that are in place for the surface areas of release on Fort Detrick." The Army stated that listing the site on the NPL is unnecessary; however, it will continue to work in full cooperation with EPA, Maryland Department of the Environment (MDE), the Restoration Advisory Board (RAB), and members of the public to complete the necessary remediation regardless of the decision to list the site on the NPL.

EPA is adding the Fort Detrick Area B Ground Water site to the NPL. EPA will work with the Army to determine what activities, if any, are necessary to complete the remediation of the site.

Specific comments regarding the HRS evaluation of the site and the decision to list the site on the NPL are discussed throughout this support document.

#### 3.1 Extent of Site

Comment: The Army remonstrated that by listing what EPA considered to be other possible sources contributing to the ground water contamination of the site, EPA could "be inappropriately construed as reopening . . . final remedy decisions without meeting the standards of CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) for changing final remedy selection decisions." The Army also stated that, "the general discussion presented here [in the other possible sources section of

the HRS documentation record] does not justify any later extension of the release proposed for listing to other releases that have not been evaluated or back to source areas that are already the subject of final CERCLA remedy decisions.” The Army claimed releases can be evaluated using only the criteria set forth in CERCLA Section 105(a)(8)(B) and that this evaluation had not met those criteria for the other possible sources identified in the HRS documentation record. The Army stated that the release evaluated is only the Area B Ground Water, and “the ground water is the only media that the HRS package demonstrates has not been evaluated using the statutory and regulatory criteria and is eligible for listing.”

The Army stated that final remedial action decision documents have been issued for many of the areas identified as other possible sources in Table 4 of the HRS documentation record and recommended that EPA add a discussion of the final remedy selection decisions that have been issued for these other possible sources.

Response: EPA’s actions in this listing were fully consistent with the statute and existing regulations. First, EPA is not reopening any final response action decisions through the listing decision. This listing is intended to identify the relative risk posed by the release or potential release at the site, not to make any cleanup decisions. Second, regarding limiting the extent of the site to a specific pathway or threat evaluated in the HRS evaluation, EPA notes that when using the HRS to score a release, it is not necessary to score all sources of the release, nor all pathways or threats. It is, however, commonplace and consistent with the HRS to identify other possible sources at the site as part of a site evaluation even if those sources are not used in the HRS scoring. Moreover, as described in Section F, *Does the NPL Define the Boundaries of the Site?*, of the September 3, 2008 *Federal Register* notice proposing the addition of Fort Detrick to the NPL:

The NPL does not describe releases in precise geographical terms; it would be neither feasible nor consistent with the limited purpose of the NPL (to identify releases that are priorities for further evaluation), for it to do so. Indeed, the precise nature and extent of the site are typically not known at the time of listing.

....

[T]he site consists of all contaminated areas within the area used to identify the site, as well as any other location where that contamination has come to be located, or from where that contamination came.

....

[I]t generally is impossible to discover the full extent of where the contamination ‘has come to be located’ before all necessary studies and remedial work are completed at a site . . . Thus, in most cases, it may be impossible to describe the boundaries of a release with absolute certainty.

Adding the site to the NPL is only the first step in the Superfund process. At the time of NPL listing, the final extent of the site is not known. What is known is that there are sufficient releases to warrant NPL listing and further investigation to ascertain the nature and extent of the released contamination from sources at the site.

EPA will review existing studies and determine in cooperation with the Army, the need for further investigation after listing. Hence, the identification of other possible sources at a site or evaluation of other pathways or threats is within the scope of the future investigations conducted under Superfund to characterize conditions and hazards at the site.

In this case, even if the HRS evaluation were to remove the discussion of other possible sources from the Fort Detrick Area B Ground Water site HRS documentation record, this action would not impact the listing decision. The discussion of other sources was not used to justify any of the assigned factor values used to calculate the site score.

Since EPA will review the Army's actions at a later stage of the Superfund process, it is premature to add a discussion of the Army's "final remedial action decisions" to the HRS documentation record, and adding such a discussion to the HRS documentation record would have no effect on the score in any case.

### 3.2 Need for Listing

Comment: The Army maintains that listing of the site on the NPL is unnecessary. It claims that it has made substantial progress on the completion of the environmental remediation of Fort Detrick, working in close cooperation with the State, local community, and more recently EPA. The Army stated that it "has CERCLA remedies in place or has achieved complete response [sic] for 35 of 42 sites [sources], has provided alternative drinking water supplies to affected and potentially affected drinking water well users, and has performed or will be conducting CERCLA remedial capping actions in Spring 2009 at source areas for the Area B Ground Water contamination." The Army argued that the work was performed under the Defense and Environmental Restoration Program (DERP) and CERCLA, and the final response for the site action is underway. The Army stated that it will continue to work in full cooperation with EPA, MDE, the Restoration Advisory Board (RAB), and members of the public to complete the necessary remediation regardless of the decision to list the site on the NPL.

Response: EPA considers it appropriate and advisable to add the site to the NPL, to facilitate protection of human health and the environment. The addition of the Fort Detrick Area B Ground Water site to the NPL is fully consistent with EPA regulations and guidance. To date, despite repeated State requests and a 1999 recommendation from the Army's own expert Advisory Panel, a thorough investigation of the nature and extent of contamination of ground water has not been completed; thus, progress has not been as positive as the Army suggests. Since Fort Detrick Area B is in close proximity to the drinking water supply for one of the most densely populated and fastest growing areas of Frederick County, the lack of a completed investigation is of concern and represents an unacceptable risk to human health and the environment. The formal regulatory process provided by NPL listing will help ensure that the threat posed by releases of TCE and PCE to the ground water in the area of Fort Detrick that are attributable to the Fort Detrick Area B Ground Water site is addressed properly and promptly.

However, The State of Maryland agrees with EPA regarding the listing, as documented in the March 6, 2008, letter from Governor Martin W. O'Malley. Governor O'Malley was explicit in his support for placing the site on the NPL. His letter states:

The State of Maryland strongly urges the U.S. Environmental Protection Agency to carry out its responsibilities under federal law and to place Fort Detrick's Area B parcel on the National Priorities List. The formal regulatory process provided by a NPL listing is critical to ensure that the State's groundwater supply in the area of Fort Detrick is protected for our citizens.

Since the early 1990s, Maryland has worked with Fort Detrick to encourage investigation of chemical contamination and the potential offsite impacts to groundwater. The facility ultimately acknowledged responsibility for the release and provided potable water connections for several impacted residential properties. . .

While we are greatly encouraged by the leadership and communication of the current command staff at Ft. Detrick, it is imperative that EPA list the site on the NPL to ensure a long term commitment to this investigation and cleanup.

Moreover, the aquifer underneath the Fort Detrick Area B Ground Water site is among the most contaminated aquifers in the nation. In the HRS evaluation of the site, the ground water pathway yielded a site score of 50.00, the highest possible score for evaluation of a single migration pathway, and substantially above the 28.50 required for listing a site on the NPL. While some progress has been made on the remediation of some areas of the site (see, for example, sections 3.8.1, Waste Quantity after Removal Actions, and 3.14.1, Provision of Alternative Water Supplies, of this support document), other sources identified in the HRS documentation record at proposal have not been addressed, and no plans for final remediation of the contaminated ground water have been agreed upon by EPA.

### 3.3 Consideration of Response Actions and Current Conditions

Comment: The Army commented that in scoring the site, EPA did not properly consider current conditions, removal actions, recent analytical data, or decisions already made with State and EPA oversight regarding remedy requirements and future actions to be taken at the site, particularly those in decision documents issued by the Army. The Army stressed that it had provided alternative drinking water supplies to all residents whose water supply had contamination above drinking water standards.

Response: The HRS site score of Fort Detrick Area B Ground Water site is appropriately based on initial conditions at the site. While EPA considers the effects of certain removal actions in the HRS scoring of a site to increase incentives for rapid response actions at sites, the effect on scoring is dependent on what HRS factor value is being evaluated and if the risk remaining after the action is completed can be determined. The final rule preamble to the HRS discusses consideration of such removal actions in the assignment of HRS scores (Section Q, 55 FR 51567-69, December 14, 1990). As discussed in Section Q, under the HRS, EPA will consider the effects of removals on the waste quantity factor value assigned to sources and pathways in some situations. The preamble also specifically states that “HRS scoring will not consider the effects of responses that do not reduce waste quantities such as providing alternate drinking water supplies to populations with drinking water supplies contaminated by the site. . . . Similarly, if residents are relocated or if a school is closed because of contamination due to the site, EPA will consider the initial targets in scoring the site.”

Specific comments submitted by the Army on how the HRS scoring does not reflect current conditions regarding the removal actions on waste quantity factor values, containment, eligibility of sources, and on target factor values due to the provision of alternative water supplies are addressed in sections 3.8.1, 3.9.1, 3.11 and 3.14.1 of this support document.

### 3.4 Restriction on Further Remediation Activities

Comment: The Army recommended that EPA add a statement to the HRS documentation record, stating that because of the finding of live pathogens in medical wastes at one source, Area B-11 [Source 1] that “future intrusive activities in disposal areas will be restricted due to the cost associated with implementing significant process and safety procedures.”

Response: EPA acknowledges the Army’s concerns for future remedial actions to be undertaken at the Fort Detrick Area B Ground Water site. However, it would be inappropriate for EPA to opine upon future cleanup activities at the site at this time, in this context. At a later stage in the cleanup process, when evaluating alternatives for remedial actions to protect human health and the environment, EPA will take these considerations into account. However, consideration of response actions is not a factor in the

decision to list the site on the NPL. Listing of a site informs the public that EPA has determined the site poses sufficient threat to human health and the environment to warrant further investigation. The appropriate actions necessary to mitigate those threats, including the types of actions and decisions selected by the Army, will be subject to continued EPA oversight after the site is listed on the NPL.

### 3.5 Use of Draft Documents

Comment: The Army pointed out that EPA had used draft versions of three documents (References 8<sup>1</sup>, 14<sup>2</sup>, and 47<sup>3</sup> of the HRS documentation record) in the site evaluation. It asserted that these draft documents did not contain the Army's endorsed data and the most reliable data for site characterization. The Army claimed that the final documents contain later acquired data which are reliable and usable for decision making and are available and have been provided to EPA. The Army stated that the scores based on the draft documents should be changed based on these final documents.

Response: EPA has examined the final versions of the draft documents made available to the Agency by the Army and has determined that the changes made in the documents between the draft and final versions do not result in a change in the listing decision. EPA has included the final versions of the documents in the docket at promulgation. That draft versions of documents were used as sources of site conditions does not necessarily mean that the information gleaned from them is incorrect or that it was revised in the final versions. EPA has reviewed each instance where information obtained from the draft documents was used to assign HRS factor values and the HRS site score. In situations where the information was changed in the final documents, the effects of these changes on the site score are discussed elsewhere in this support document.

Where changes in these documents do not directly impact the HRS evaluation, EPA will take into consideration these changes in future Superfund activities. For example, although Reference 8 of the HRS documentation record at proposal was revised and a final version (dated December 2006) was provided by the Army to EPA, the information used to establish source background levels and associate hazardous substances with Source 3 in the HRS evaluation of the site was not changed between the draft and final versions. (See section 3.10.2 of this support document for further discussion.)

### 3.6 Changes to the Reference List/Revised References

Comment: The Army requested that six CERCLA decision documents be added to the reference list for the HRS documentation record. In addition, the Army stated that the HRS documentation record acknowledges one removal action, which was the subject of an Army decision document for a removal action dated August 2000.

Response: The reference list contained in the HRS documentation record and the references provided as part of the HRS documentation package consist only of the references used in preparing the HRS evaluation of the site. It is not appropriate to list the additional documents suggested by the Army in the HRS documentation record unless the information contained in them has been used to revise the HRS evaluation, which has not occurred (see section 3.1 of this support document). However, the six decision documents that were referenced in the Army's comment were provided to EPA by the Army and are part

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<sup>1</sup> USACE. Fort Detrick, Frederick, Maryland. Remedial Investigation of Five Sites in Area B: Areas B-Ammo, B-Grid, B-20 North, B-20 South, and B-Skeet. Draft Final Document. August 2006. 305 pages.

<sup>2</sup> USACE. Fort Detrick, Frederick, Maryland. Area B-Skeet (IRP Site 29), Installation Restoration Program Site Close-Out Document, Draft Final Document. December 2005. 232 pages.

<sup>3</sup> ICF Kaiser. Remedial Investigation, Area B, Fort Detrick, Volume I. Draft Document. January 1998. Excerpt. 970 pages.

of the docket for the Fort Detrick Area B Ground Water site listing at promulgation. Information contained in these documents will be considered during future stages of the Superfund process.

### 3.7 Site Summary Revisions

Comment: The Army requested several editorial revisions to the site summary contained on pages 9 and 10 of the HRS documentation record as proposed. These requested revisions are on pages 1 and 2 of the Army's comment on the listing [EPA-HQ-SFUND-2008-0585-0007]. The requested revisions contain supplemental descriptions of site conditions.

Response: EPA has carefully evaluated each suggested edit and determined that none of the edits, if made, would affect the HRS site score. The site summary section of the HRS documentation record (pages 9 and 10 of the HRS documentation record as proposed) identifies the site location and provides a brief summary of site conditions so that a reader can follow the HRS scoring rationale presented in subsequent sections of the HRS documentation record. Any specific information contained in the site summary that is used in the assignment of HRS factor values and the overall site score is presented in greater detail in the sources, waste characteristic, likelihood of release, and targets evaluation sections of the HRS documentation record. Therefore, the Army's suggested changes to the site summary descriptions would not affect any HRS assigned factor values or the HRS site score that supports the listing decision. Although EPA has not revised the HRS documentation record at promulgation to accommodate the requested edits, the Army's comments will be considered in future Superfund activities.

### 3.8 Source 1, Area B-11 – Chemical Waste Disposal Pits

#### 3.8.1 Waste Quantity after Removal Actions

Comment: The Army stated that it removed the chemical waste disposal pits (Pits 1-4) during the Interim Removal Action (IRA) conducted between 2001 and 2004. The Army stated that the waste quantity, presently based on the volume of the pits, should be changed to reflect the removal action conducted in 2001 to 2004. It continued that the post-removal condition should be considered in calculating the volume of contaminated material estimated to be present in Area B-11 and in calculating the score [source hazardous waste quantity] for this area. The Army asserted that this change is consistent with the 1997 OSWER Directive 9345.1-25, *The Revised Hazard Ranking System: Evaluating Sites After Waste Removals* (EPA, April 1997), on evaluating releases after response actions.

Response: The hazardous waste quantity factor value of 100 for the ground water pathway would remain the same regardless of any consideration of the Army's response actions addressing Source 1.

The hazardous waste quantity factor value, as explained below in detail, is assigned by first assigning a source water quantity factor value to each source (see HRS Section 2.4.2, *Hazardous waste quantity*, and its subsections) then summing the source values. Based on the sum, the pathway hazardous waste quantity factor value is assigned according to the instructions in HRS Section 2.4.2.2, *Calculation of hazardous waste quantity factor value*. Hence, the HRS assigns source hazardous waste quantity factor values and then a pathway hazardous waste quantity factor value. The assignment of each is described as follows.

#### Source Hazardous Waste Quantity

HRS Section 2.4.2 and its subsections direct the scorer to assign a source hazardous waste quantity factor value using four tiers in an hierarchical order based on the hazardous constituent quantity, hazardous wastestream quantity, volume, and/or area (see HRS Sections 2.4.2.1.1 to 2.4.2.1.4). This assignment



depends on the completeness of the information and the largest value assigned to the tiers. The hazardous waste quantity for this source was assigned using HRS Section 2.4.2.1.3, *Volume*.

As presented on page 15 of the HRS documentation record at proposal, Source 1 was assigned a value of 1.1072. If the Army's response action were to be considered, the value would be assigned using HRS Section 2.4.2.1.1 *Hazardous constituent quantity*, which is an estimate based on the mass of CERCLA hazardous substances allocated to the source. The value assigned to the source post-response actions would be "greater than zero, but amount unknown," reflecting that while the hazardous substances in the source may have been responded to, no action had been undertaken to address or quantify the amount of hazardous substances that had already migrated from the source prior to the response action. Further, pages 12-13 of the HRS documentation record at proposal state that TCE, PCE, and PCBs were detected in soil samples collected from the bottom of the pit excavation after the removal activity. In addition, contaminants attributable to these sources have been found at observed release levels in the ground water. Thus, a post-response action source hazardous waste quantity for Source 1 of greater than 0 is justified.

#### Pathway Hazardous Waste Quantity

HRS Section 2.4.2.2, *Calculation of hazardous waste quantity factor value*, directs the assignment of a pathway hazardous waste quantity factor value based on all the source hazardous waste quantities. It first states:

Sum the source hazardous waste quantity values assigned to all sources . . . for the pathway being evaluated and round this sum to the nearest integer, except: if the sum is greater than zero, but less than 1, round it to 1. Based on this value, select a hazardous waste quantity factor value for the pathway from Table 2-6.

The sum of all the sources' individual hazardous waste quantities for the Fort Detrick Area B Ground Water site is presented in Table 14 on page 54 of the HRS documentation record at proposal. Without consideration of the removal, the summed value was 17.7625. Using the value of greater than 0 for Source 1, the sum of the values would be 16.653, reflecting the Source 1 value change from 1.1072 to greater than 0. HRS Section 2.4.2.2 then states "[b]ased on this value, select a hazardous waste quantity factor value for the pathway from Table 2-6." For the summed hazardous waste quantity factor value of either 17.7625 or 16.653, the "assigned value" from Table 2-6 is "1<sup>b</sup>". The footnote "b" states:

For the pathway, if hazardous constituent quantity is not adequately determined, assign a value as specified in the text; do not assign the value of 1.

Since the hazardous constituent value is not adequately determined for any of the 4 sources, this direction applies (see for example, page 28 regarding source 4 being estimated using the Area tier.)

The text of HRS Section 2.4.2.2 applicable in this situation (whether or not the response action is considered) states:

If the hazardous constituent quantity is not adequately determined for one or more sources (or one or more portions of sources or releases remaining after a removal action) assign a factor value as follows . . . If any target for that migration pathway is subject to Level I or Level II concentrations . . . assign either the value from [HRS] Table 2-6 or a value of 100, whichever is greater, as the hazardous waste quantity factor value for that pathway.

As identified on pages 55 and 56 of the HRS documentation record at proposal, there were at least 21.78 targets subject to Level I contamination. (See also section 3.14 and its subsections of this support document regarding comments on the eligibility of these targets.)

Therefore, whether or not the response action impacting Source 1 is considered in the scoring, the hazardous waste quantity factor value for the ground water pathway would be 100, the value assigned at proposal.

### **3.8.2 Waste Characteristics - Presence of Non-pathogenic Form of *Bacillus anthracis***

Comment: The Army requested that the Source 1 description on page 14 of the HRS documentation record be revised to state that the form of *Bacillus anthracis* found in the source was non-pathogenic.

Response: The HRS documentation record has appropriately characterized Source 1. The association of *Bacillus anthracis* with Source 1 on page 14 of the HRS documentation record is supported by Appendix A of Reference 7 of the HRS documentation record as proposed. Appendix A of Reference 7 is a list of materials identified in Source 1. This reference, authored by the Army, did not indicate whether the *Bacillus anthracis* detected in Source 1 was pathogenic or non-pathogenic; the Army did not provide documentation supporting its comment that the bacteria were non-pathogenic.

EPA notes that elsewhere in its comments the Army indicated that live pathogens were found in Source 1. The Army stated that because of “the discovery of live pathogens in medical wastes at B-11 [Source 1] . . . , future intrusive activities in disposal areas will be restricted due to the cost associated with implementing significant process and safety procedures.” (See section 3.4 of this support document.)

EPA notes that regardless of whether the bacteria found in Source 1 were or were not pathogenic, the site score would not be affected by this fact. The contested statement was presented only in a description of the source, and no HRS factor value or resulting HRS score was assigned based on the finding. However, this information will be considered in future Superfund activities.

## **3.9 Source 2, Area B-2**

### **3.9.1 Containment and Future Actions**

Comment: The Army asserted that EPA did not consider in its evaluation that Source 2, the landfill, is going to be capped in Spring 2009.

Response: Source 2 containment features were correctly evaluated using current conditions. The containment factor value for Source 2 was evaluated according to HRS Sections 2.2.3 and 3.1.2.1, and HRS Table 3-2. Source 2, a landfill, was assigned a containment factor value of 10 using the “All Sources” category of HRS Table 3-2, which provides for a source containment value of 10 to be assigned if no liner is present in a source. Even if the cover was presently in place, because the factor value of 10 is based on the absence of a liner, the value would remain a 10. That the Army indicated that Source 2 will be capped in Spring 2009 does not change the source containment factor value assigned to this source at the time of listing since capping would not change the absence of a liner. The addition of the cap once completed, however, will be considered in future Superfund activities.

### 3.9.2 Containment Based on Evidence of Release

Comment: In a comment addressing Source 2, the Army stated that existing ground water data should be used to address the release to the ground water pathway as opposed to applying containment (uncertainty) factors.

Response: The source containment value assigned to Source 2 based on the absence of containment features is consistent with the HRS. HRS Section 3.1.2.1, *Containment*, directs the scorer to assign the highest applicable containment factor value from HRS Table 3-2 to each source at the site. This results in a factor value between 0 and 10 being assigned. Under Table 3-2, the scorer must consider whether there is “[e]vidence of hazardous substance migration,” and/or whether there are various containment features present, to assign a factor value. One of the factors listed in Table 3-2 for “All Sources” (with certain exceptions not relevant here) is “[n]o liner[,]” which results in an assigned value of 10. Source 2 was assigned a value of 10 in the HRS documentation record at proposal (see p. 16 of the HRS documentation record at proposal) because it did not have a liner.

The assignment of source containment values is not based on an “uncertainty factor” but rather reflects the potential for hazardous substances to migrate from a source. Hence, as Source 2 does not have containment features to prevent such a migration of hazardous substances to the ground water pathway, the potential for a substance to migrate from Source 2 exists, and this is reflected in the containment factor value assigned.

### 3.9.3 Adequacy of Background Metal Levels for Source 2

Comment: The Army stated that the background metal levels used in associating metals with Source 2 were based on a draft 1998 Remedial Investigation (RI) report which used only three borings. The Army pointed to a study completed in 2004 for the soils in the Triassic shale and Cambrian limestone that presents new background levels for metals and asserted that, based on those levels, beryllium and cobalt should not be associated with Source 2. The Army requested that the 2004 background study report results be used for this NPL listing and that this change be reflected in the HRS documentation record.

Response: EPA considered the 2004 background study report, but doing so does not change the list of hazardous substances associated with Source 2. The HRS provides specific directions for associating hazardous substances with a source when evaluating the ground water migration pathway. HRS Section 2.2.1, *Identify sources*, states in part, “[f]or the three migration pathways, identify the sources at the site that contain hazardous substances.” HRS Section 2.2.2, *Identify hazardous substances associated with a source*, states in part, “[f]or each of the three migration pathways, consider those hazardous substances documented in a source (for example, by sampling, labels, manifests, oral or written statements) to be associated with that source when evaluating each pathway.”

The HRS thus contains no requirements for identifying source background samples or comparing them to source samples for purposes of associating hazardous substances with sources for the migration pathways (including the ground water migration pathway used to score this site). However, to show that the substances were present because of a release, EPA documented that the hazardous substance levels in the landfill samples are above background levels for naturally occurring or ubiquitous substances in local soils. This is because (1) Source 2 is a landfill, and therefore significant amounts of soil may have been used as daily cover material; and (2) Army documents do not specify whether the samples were of waste alone or were a mixture of waste and soil.

Contrary to the Army’s statement, EPA did not base the background metal levels it used in associating metals with Source 2 on data from the draft 1998 Remedial Investigation report (Reference 47 of the HRS

documentation record at proposal). Rather, EPA used the background levels from the Draft Final RI/FS Study report dated July 2006 (Reference 5 of the HRS documentation record at proposal). EPA compared the levels of hazardous substances found in the landfill listed in Table 1 on pages 17-19 of the HRS documentation record at proposal, with the background concentrations listed in column 2 of Exhibit 4-12 of Reference 5 of the HRS documentation record at proposal. In this comparison, the concentrations detected in the landfill and listed in Table 1 were three times the mean background values and above the detection limit. Specifically, the background levels for beryllium and cobalt were 1 mg/kg and 17.4 mg/kg, respectively. The value for each as listed in Table 1 (3.2 mg/kg and 53.1 mg/kg, respectively) was thus over three times greater than the background levels.

Reference 5 explains how the U.S. Army Corps of Engineers (USACE) established the background levels for Source 2. Page 4-3 of Reference 5 states:

To provide a sense of significance, detected metals are compared to mean background values. The 95% UCL [upper confidence limit] of the mean was selected for comparison to detected site concentrations. The 95% UCL is an upper bound approximation of the mean (with 95% confidence, the true mean would not exceed this value). . . . The appropriate data set for Area B-2 soil type is the "Triassic shale," presented in the Background Study Report (USACE, 2004b).

The 2004 study report cited by the Army in its comments as presenting new background levels that, if used in the HRS evaluation, would eliminate beryllium and cobalt from association with Source 2, is the *Fort Detrick Area B Background Study Report*, prepared by Shaw Environmental in April 2004 for the USACE (hereinafter the "2004 soil background study report"). This 2004 soil background study report is cited on pages 4-3 and 11-2 of Reference 5 of the HRS documentation record at proposal. The 2004 *Fort Detrick Area B Background Study Report* was added to the docket at promulgation.

The 2004 soil background study report is based on a January 2003 sampling event conducted for the Army to establish soil background levels for metals in Area B. In that study the data sets were divided according to the predominant underlying bedrock because soils in the area have generally been derived through weathering of the underlying bedrock (see page 3-1 of the *Fort Detrick Area B Background Study Report*). Based on that assumption, the 2004 soil background study examined the Triassic shale and the Cambrian Limestone/Alluvial deposits. Results are summarized in Exhibit 7-1, Summary of Descriptive Statistics for Area B Background Data Sets, of the *Fort Detrick Area B Background Study Report*. This is the study that the Army references in References 5 and 8 of the HRS documentation record at proposal to support soil background levels and which the Army states in its comments has different levels for cobalt and beryllium for Source 2. In a review of Exhibit 7-1 of the *Fort Detrick Area B Background Study Report*, the soil background levels for the Triassic shale are 1 mg/kg and 17.4 mg/kg for beryllium and cobalt, respectively, which are the same values presented in Exhibit 4-12 of Reference 5 of the HRS documentation record at proposal.

Further, even if cobalt and beryllium were no longer associated with Source 2, several other hazardous substances remain associated with Source 2. In Table 1 of the HRS documentation record as proposed, beryllium and cobalt are associated with Source 2 in one soil sample, BORE2B12-B collected at a depth of 10-12 feet below ground surface (page 17 to 19 of the HRS documentation record as proposed). If sample BORE2B12-B and therefore the association of beryllium and cobalt, were removed from the Source 2 evaluation, six other samples would remain that associate Aroclor 1254, chromium, fluoranthene, phenanthrene, pyrene, manganese, and thallium with Source 2 (see page 17 to 19 of the HRS documentation record at proposal).

In any case, EPA notes that dropping the association of beryllium and cobalt with Source 2 would not affect the site score because beryllium and cobalt were not used to assign the toxicity/mobility factor value for calculating the site score. TCE (found in Source 1) was identified correctly as the substance with the highest scoring toxicity/mobility factor value and was correctly used to calculate the toxicity/mobility factor value of the waste characteristics component used in calculating the HRS site score (see pages 53 and 54 of the HRS documentation record at proposal).

### **3.10 Source 3, Area B-Grid**

#### **3.10.1 Containment Based on Evidence of Release**

Comment: In a comment regarding Source 3, the Army stated that “existing ground water data should be used to address the release to the ground water pathway as opposed to applying containment (uncertainty) factors.”

Response: The source containment value assigned to Source 3 based on the absence of containment features is consistent with the directions of the HRS. HRS Section 3.1.2.1, *Containment*, directs the scorer to assign a containment factor value from HRS Table 3-2 to each source at the site. This results in a factor value between 0 and 10 being assigned. Under Table 3-2, the scorer must consider whether there is “[e]vidence of hazardous substance migration,” and/or whether there are various containment features present, to assign a factor value. One of the factors listed in Table 3-2 for “All Sources” (with certain exceptions not relevant here) is “[n]o liner[.]” which results in an assigned value of 10. Source 3 was assigned a value of 10 in the HRS documentation record as proposed because it did not have a liner (see page 21 of the HRS documentation record at proposal.)

The assignment of source containment values is not based on an “uncertainty factor” but, rather, reflects the potential for hazardous substances to migrate from a source. Hence, as Source 3 does not have containment features to prevent such a migration of hazardous substances to the ground water pathway, the potential for a substance to migrate from Source 3 exists. This potential for migration is reflected in the containment factor value assigned.

#### **3.10.2 Adequacy of Background Metal Levels**

Comment: The Army stated that the background metal levels used in associating metals with Source 3, a contaminated soil source, were based on a draft 1998 Remedial Investigation (RI) report which used only three borings. The Army pointed to a study completed in 2004 for the soils in the Triassic shale and Cambrian limestone that presents new background levels for metals and asserted that, based on those levels, samples HAGRD3-A, HAGRD4-A, HAGRD6-A, and HAGRD214-B should not be associated with Source 3 and should be removed from Table 2 of the HRS documentation record.

Response: The association of hazardous substances with Source 3 is consistent with the HRS. The HRS provides specific procedures for associating hazardous substances with a source. HRS Section 2.2.1, *Identify sources*, states in part, “[f]or the three migration pathways, identify the sources at the site that contain hazardous substances.” HRS Section 2.2.2, *Identify hazardous substances associated with a source*, states in part, “[f]or each of the three migration pathways, consider those hazardous substances documented in a source (for example, by sampling, labels, manifests, oral or written statements) to be associated with that source when evaluating each pathway.”

The HRS thus contains no requirements for identifying source background samples or comparing them to source samples for purposes of associating hazardous substances with sources for the migration pathway. However, to show that the substances were present because of a release, EPA used background samples at

the site to demonstrate that hazardous substance levels in soil sources (or sources commingled with soil) were above background levels for naturally occurring or ubiquitous substances. In the HRS documentation record at proposal, source soil samples were compared to background concentrations for alluvial surface soils listed in column 4 of Exhibit 4-9 of Reference 8 of the HRS documentation record at proposal. Reference 8 is a report titled, *Remedial Investigation of Five Sites in Area B: Areas B-Ammo, B-Grid, B-20 North, B-20 South, and B-Skeet*, and is a draft Final Document dated August 2006 prepared by the USACE. The background levels for metals, including cadmium (0.088 mg/kg), chromium (19.9 mg/kg), magnesium (3379 mg/kg), mercury (0.048 mg/kg), nickel (19.9 mg/kg), and thallium (0.15 mg/kg), which are the substances associated with Source 3 in the HRS documentation record at proposal, were established by the USACE.

Page 4-1 of Reference 8 states that the metals background levels are based on the 95% UCL for alluvial soil and cites the 2004 soil background study report as the source of the data supporting these background levels. Reference 8 further clarifies that, “[a]rsenic, however, was compared to the Triassic Conglomerate soil background 95% UCL . . . “. The 2004 soil background study report is cited on pages 4-1 and 10-3 of Reference 8 of the HRS documentation record at proposal, and is included in the site docket at promulgation. EPA notes that in Reference 8 the Army clearly indicated that the background levels for metals, excluding arsenic, in Source 3 were based on alluvial soils (see page 4-1 and 4-2 of Reference 8 of the HRS documentation record at proposal), and in the 2004 soil background study report the Cambrian limestone is also referred to as the alluvial deposits soil type (see page 3-1 of the 2004 soil background study report).

Hence, EPA used the Army’s own data available at the time of listing to characterize Source 3. However, EPA notes that the Army indicated that a final version of Reference 8 is now available. EPA reviewed the final version of Reference 8 (dated December 2006) in responding to the Army’s comments, and noted no revisions in background levels used to characterize Source 3 in the final version of Reference 8. (See also section 3.5 of this support document.)

EPA notes that the HRS evaluation of Source 3 considered the background levels established in the 2004 soil background study report. This study is based on a January 2003 sampling event conducted for the Army to establish soil background levels for metals in Area B. In that study the data sets were divided according the predominant underlying bedrock because soils in the area have generally been derived through weathering of the underlying bedrock (see page 3-1 of the 2004 soil background study report). Based on that assumption, the 2004 soil background study examined the Triassic shale and the Cambrian Limestone/Alluvial deposits, and the results are summarized in Exhibit 7-1, Summary of Descriptive Statistics for Area B Background Data Sets. In a review of Exhibit 7-1 of the 2004 soil background study report, the alluvial soil background levels for the substances associated with Source 3 are as follows: cadmium (0.088 mg/kg), chromium (19.9 mg/kg), magnesium (3379 mg/kg), mercury (0.048 mg/kg), nickel (19.9 mg/kg), and thallium (0.15 mg/kg). These are the same alluvial soil background levels presented in Exhibit 4-9 of Reference 8 (Draft Final Document dated August 2006) of the HRS documentation record at proposal and Exhibit 4-9 of the final version of Reference 8 (dated December 2006), which EPA used in its HRS evaluation.

EPA notes that the 2004 soil background study report stated that previous sampling data sets were reviewed, including the three samples collected in 1998, but these samples were not used to establish the background levels in the 2004 soil background study. The 2004 soil background study report states, “there were concerns about the data that made it preferable to acquire an entirely new background data set” (see page 2-1 of the 2004 soil background study report), and then concludes that “[b]ased on these concerns it was determined that an entirely new background data set should be developed” (see page 2-1 of the 2004 soil background study report). The Army then proceeded to collect samples in January 2003, at which time 11 locations were sampled and considered for the Triassic shale data set and 9 sample

locations were considered for the Cambrian Limestone/alluvial deposits data set (see page 3-1 of the 2004 soil background study report). Hence, the three samples mentioned by the Army in its comments were not used to establish background levels in the 2004 soil background study on the Triassic shale and Cambrian limestone/Alluvial soils data sets nor were they used to characterize Source 3 in the HRS documentation record at proposal.

Further, even if samples HAGRD3-A, HAGRD4-A, HAGRD6-A, and HAGRD214-B were no longer associated with Source 3, Source 3 would still remain an eligible source. In Table 2 of the HRS documentation record at proposal, 19 additional samples associating hazardous substances (including cadmium, chromium, magnesium, mercury, nickel, and thallium) with Source 3 would remain, and thus Source 3 would remain an eligible source (see page 23 of the HRS documentation record at proposal). Hence, removing samples HAGRD3-A, HAGRD4-A, HAGRD6-A, and HAGRD214-B from Source 3 characterization would not affect the evaluation of Source 3.

Further, cadmium and mercury are the hazardous substances associated with samples HAGRD3-A, HAGRD4-A, HAGRD6-A, and HAGRD214-B, and neither cadmium nor mercury were used to assign the toxicity/mobility factor value for calculating the site score. TCE (found in Source 1) was identified correctly as the substance with the highest scoring toxicity/mobility factor value and was correctly used to calculate the toxicity/mobility factor value of the waste characteristics component used in calculating the HRS site score (see pages 53 and 54 of the HRS documentation record at proposal).

### **3.10.3 Waste Characteristics: Contaminant Concentrations below Regulatory Limits**

Comment: The Army pointed out that of the substances associated with Source 3, only chromium and thallium were above industrial risk-based concentrations (RBCs). It added that for the other compounds, while above background, are below industrial RBCs. The Army recommended this clarification be added to Table 2 of the HRS documentation record.

Response: The association of hazardous substances with Source 3 in the HRS documentation record as proposed is consistent with the HRS; Table 2 of the HRS documentation record correctly associates hazardous substances with Source 3. As discussed in section 3.10.2 of this support document, the HRS provides specific procedures for associating hazardous substances with a source; these methods were followed in evaluating the Fort Detrick Area B Ground Water site as documented in the HRS documentation record and its supporting references. There is no requirement in the HRS that a substance be at or above a regulatory limit (such as an industrial RBC) for a substance to be associated with a source.

### **3.11 Risk Associated with Source 3 (Area B-Grid) and Source 4 (Area B-20 South)**

Comment: The Army pointed out that a Human Health Risk Assessment (HHRA) and a screening level ecological risk assessment (ERA) had been performed for Sources 3 and 4, and that the HHRA found that the cancer risks for adult and child residents were within EPA's target risk for total soil at this source. The Army asserted that based on the ERA, no further action for ecological receptors was recommended. The Army pointed out that a decision document was signed in February 2008 for Sources 3 and 4 which selects no further action as the final remediation action for this source. The Army requested that this information be added to the HRS documentation record.

Response: EPA notes that the Army's comment that an HHRA and an ERA have been performed for Sources 3 and 4 is supported by sections 6.3 and 6.4 of the final version of Reference 8 (December 2006 Final Document), which discuss the HHRA and the Screening Level Ecological Risk Assessment (SLERA) for Fort Detrick Area B-2- South, respectively. The final version of Reference 8 (December

2006 Final Document) was included in the docket at promulgation. However, whether an HHRA and ERA were performed on Sources 3 and 4 does not alter the HRS evaluation of these sources. The identification of Source 3 and Source 4 as sources at the Fort Detrick Area B Ground Water site and their evaluation in the HRS scoring is consistent with the HRS.

While the Army pointed out that the HHRA found that the cancer risks for adult and child residents were within EPA's target risk for total soil at these sources and no further action for ecological receptors was recommended, the risk reviewed was related to exposure to the soil, not to possible contaminant migration to ground water and then exposure through drinking water.

Furthermore, EPA has reason to consider that these sources could be contributing to ground water contamination. As discussed in section 3.10.1 of this support document, Source 3 (contaminated soil) was not found to be adequately contained to prevent hazardous substance migration from the source to ground water (see HRS section 2.2.3, HRS Table 3-2, and section 3.10.1 of this support document), and hazardous substances were associated with this source (see HRS section 2.2.2 and Sections 3.10.2 and 3.10.3 of this support document). Likewise, the source containment value assigned to Source 4 (contaminated soil) based on the absence of containment features is consistent with HRS Section 3.1.2.1, *Containment*, which directs the user to assign a containment factor value from HRS Table 3-2 to each source at the site. This approach results in a factor value between 0 and 10 being assigned. Under HRS Table 3-2, the scorer must consider whether there is "[e]vidence of hazardous substance migration . . .," and/or whether there are various containment features present to assign a factor value. Similar to Source 3 as discussed above, Source 4 was evaluated under the "All Sources" category and because this source had no liner, a containment value of 10 was assigned in the HRS documentation record at proposal.

Although EPA is not adding discussions of the HHRA and ERA to the HRS documentation record, EPA will consider these two risk assessment documents during future Superfund activities.

### 3.12 Other Possible Sources

Comment: The Army described the text in the Other Possible Source Areas section of the HRS documentation record as narrative text and asked that it be deleted. It argued that the Army along with Maryland, EPA, and the Restoration Advisory Board (RAB) had worked for several years to characterize the circumstances of the actual or potential releases area for the Area B ground water contamination and other general release areas at Fort Detrick. The Army stated that final remedial action decision documents have been issued for many of the areas listed in the Other Possible Source Areas section of the documentation record pursuant to delegated CERCLA remedy selection authority. It stated that the text in the other possible sources section of the HRS documentation record suggests that these areas have not been investigated and makes no mention of the final CERCLA remedial action decisions for many of these areas.

Response: The Other Possible Sources section was included in the HRS documentation record to inform the public that EPA considers that there are possibly sources at Fort Detrick other than the four sources included in the HRS evaluation, which could be contributing to releases from the operations at the Area B facility. EPA did not include all possible sources in the scoring for at least two reasons. First, in some cases the Army had not provided sufficient information about sources for the sources to be evaluated (for example, the location of some sources is in doubt). Second, based on the sources included in the scoring, the site score was sufficient to qualify the site for the NPL.

To the extent practicable, EPA attempts to score all sources. If the contribution of a source is unknown or minimal to the overall score, or if the information regarding the source is incomplete, in general, the source will not be scored. In these cases, the HRS documentation record may include a brief qualitative



discussion to present a more complete picture of the conditions and hazards at the sites. See also section 3.1 of this support document, which addresses the Army's comments regarding the extent of the site.

Since the other possible sources at the site were not used to assign any values used to score the Fort Detrick Area B Ground Water site, the Army's comments on the Other Possible Sources section of the HRS documentation record at proposal do not affect the listing decision. Whereas EPA has not modified the HRS documentation record as a result of the Army's comments, the Army's comments will be considered during future Superfund activities.

### 3.13 Likelihood of Release: Use of Old Data in HRS Scoring

Comment: In reference to the identification of an observed release based on analytical data from 1992, the Army stated that the identification of Observed Releases and Level I Targets should be based on current conditions, not based on data that are 16 years old. The Army noted that either the wells were closed or the house associated with the well was abandoned, or that wells still in use had not had detections of TCE or PCE contamination; and sampling of another well had only a one-time detection that had not been repeated in two years. The Army requested the documentation record text to accurately reflect this situation and that EPA base the scoring on current conditions.

Response: EPA evaluated the likelihood of release factor value and the identification of Level I targets for the Fort Detrick Area B Ground Water site in accordance with the HRS based on 1992 and 2005 analytical information. The HRS likelihood of release evaluation for the ground water migration pathway as discussed in HRS Sections 2.3, 3.1 and 3.1.1, is a measure of the likelihood that a waste has been or will be released to the environment. The maximum value of 550 for a migration pathway is assigned in accordance with the HRS whenever the criteria for an observed release are met for that pathway. When evaluating the ground water migration pathway, HRS Section 3.1.1 instructs EPA to "[e]stablish an observed release to an aquifer by demonstrating that the site has released a hazardous substance to an aquifer" [emphasis added] and base this demonstration on either direct observation or chemical analysis.

At the Fort Detrick Area B Ground Water site, an observed release to the aquifer has been documented by chemical analysis. In section 3.1.1 (pages 41-50) of the HRS documentation record as proposed, analytical data dated 1992 and 2005 were used to document an observed release by chemical analysis to the aquifer. Consistent with the HRS, the 1992 and 2005 data independently met the HRS requirements to establish that an observed release has occurred.

The Army provided no comments on establishing the observed release based on the 1992 and 2005 information except for the age of the data. Therefore, EPA has no reason to question the identification of an observed release based on these data.

Thus, the HRS likelihood of release criteria have been met. Even if a release is not currently occurring and the contaminated target wells are now closed, abandoned, or show reduced levels of contamination, new data do not negate that releases occurred in 1992 and 2005.

Regarding Level I targets, HRS Sections 3.3.1, *Nearest well*, and 3.3.2.1, *Level of contamination*, direct the scorer when to identify Level I targets for the ground water pathway. HRS Section 3.3.1 states, "if one or more samples meet the criteria for an observed release for that well, determine if that well is subject to Level I or Level II concentrations as specified in HRS Sections 2.5.1 and 2.5.2." Applying those sections, Level I contamination is assigned if the concentrations exceed any of the health-based benchmarks listed in Table 3-10 of the HRS. The HRS does not restrict the identification of targets to wells that currently meet observed release and Level I criteria currently, only that one or more samples meet the criteria for both [observed release and Level I].

The identification of Level I targets is documented on pages 51, 55 and 56 of the HRS documentation record at proposal. Page 51 identifies samples from 7 wells that had TCE concentrations at observed release levels also had TCE concentrations above the cancer risk screening concentration for that substance, a fact not disputed by the Army. Therefore, the wells were correctly identified as Level I wells.

EPA notes that the HRS evaluation reflects that the wells have been closed when assigning a target score to closed wells by assigning the targets factor value based on the population using the wells at the time of closure (see section 3.14.1 of this support document).

### 3.14 Targets

#### 3.14.1 Provision of Alternative Water Supplies

Comment: The Army objected to the use of wells that had been closed and alternative water supplies provided for the well users in identifying the factor value for likelihood of release, nearest well, and Level I target factor values. The Army pointed out that these actions eliminated the exposure pathway and requested that the site evaluation be based on current conditions. The Army requested the HRS documentation record be revised to identify these actions and state that residences in these areas have been provided with safe drinking water sources.

Response: EPA correctly included in the assignment of the HRS site score of Fort Detrick Area B Ground Water site consideration of wells that were contaminated due to a release from the site and replaced by an alternative water supply and the residents using the wells that were provided with the alternate source of drinking water. That the wells are eligible for consideration in the scoring of the site although the Army has supplied alternative water supplies to the users of contaminated wells was explained in the Section Q of the Preamble to the final HRS Rule (Section Q, 55 FR 51567-69, December 14, 1990) as EPA responded to comments on the proposed HRS Rule. The HRS preamble states:

HRS scoring will not consider the effects of responses that do not reduce waste quantities such as providing alternative drinking water supplies to populations with drinking water supplies contaminated by the site. In such cases, EPA believes that the initial targets factor should be used to reflect the adverse impacts caused by contamination of a drinking water supplies; otherwise, a contaminated aquifer could be artificially shielded from further remediation. This decision is consistent with SARA section 118(a), which requires that EPA give high priority to sites where contamination from the site results in closed drinking water wells.

Regarding the use of these wells in evaluating Likelihood of Release for the ground water pathway, as discussed in section 3.13 of this support document, this factor value is based on whether a release has occurred to ground water. Closing a well or stopping its use does not change the finding that samples from the well show contamination that meet observed release criteria, which demonstrate the contamination has been released from the site sources and has migrated to ground water.

Regarding the consideration of users of these wells as either “nearest well” or “Level I” targets, HRS Section 2.5, *Targets*, states that the types of targets evaluated in scoring include targets subject to “actual contamination,” which means those targets are associated with a sampling location that meets the criteria for an observed release (or observed contamination) for the pathway. The targets factor category for the ground water migration pathway includes factors for both “nearest well” and “population.” See HRS

Sections 3.3, 3.3.1, and 3.3.2. As EPA has previously explained in the preamble to the final HRS (55 FR 51568, December 14, 1990):

HRS scoring will not consider the effects of responses that do not reduce waste quantities such as providing alternate drinking water supplies to populations with drinking water supplies contaminated by the site.

EPA went on to state that the initial targets factor should be used in such a situation to reflect the adverse impacts, since otherwise a contaminated aquifer could be artificially shielded from further cleanup.

EPA believes that this logic applies with equal force here. Thus, the Target factor values, including the Level I wells and the nearest well assigned values, were correctly assigned based on wells contaminated due to a release of hazardous substances from the site, even if these affected residences were provided with an alternate drinking water supply. The Army's provision of alternative water supplies has no impact on the HRS site score since users of the wells were provided alternative water supplies due to contamination from the site. That alternative water supplies have been provided will be considered in future Superfund activities.

EPA notes that the HRS documentation record at proposal on page 51 identified the Army's provision of alternate water supplies.

Level I concentrations were detected in eight drinking water wells. The contamination was originally identified in October 1992. The residents were subsequently provided with bottled water or were connected to public water.

### **3.14.2 Wells Upgradient of the Site**

Comment: The Army asserted that the White Rock well was hydraulically and topographically upgradient from Area B. It stated that the elevation of this well is 60 to 100 feet higher than Area B. The Army asserted that Cloverhill III wells are also upgradient of the site.

Response: EPA correctly evaluated the Clover Hill III, White Rock, Gilbert Mobile Home Park, Spring View Mobile Home Park, and a portion of the Polings Mobile Home Estates wells as eligible target wells subject to potential contamination.

The HRS does not specifically take into account such level of detail as ground water flow gradients to determine potential target populations under the HRS (see discussion in 55 FR 51551, December 14, 1990). In responding to public comments on the proposed (original) HRS on July 16, 1982 (47 FR 31190), EPA explained that it is generally not practicable to determine the population actually exposed or threatened by using ground water flow information. In many instances, the information is not available, and in others the flow direction varies over time. Even where there is extensive knowledge of geohydrology, interpretation is nearly always subject to dispute. Requiring a precise measure of the affected population would add inordinately to the time and expense of applying the HRS. EPA reconsidered this issue when revising the HRS, and determined that the decision not to directly consider ground water flow direction in evaluating targets was still appropriate (55 FR 51551, 51553).

Instead, the HRS considers flow direction indirectly in the method used to evaluate target populations by weighting target populations based on actual and potential contamination of drinking water wells. In general, the HRS uses a radius of 4 miles around the sources at the site when determining the distance to the nearest well in the contaminated aquifer and the population at risk due to actual or potential contamination, provided there is no discontinuity that completely transects the aquifer of concern between

the sources at the site and the well being scored for HRS purposes. See HRS Sections 3.0.1, *General considerations*, and 3.3.1, *Nearest well*.

In addition, if wells have not been contaminated by the site, as would be typical of upgradient wells, the wells are considered potentially rather than actually contaminated, and the population drawing from those wells is distance weighted. Conversely, if wells have been contaminated, a likelihood for downgradient wells, the wells are considered actually contaminated and given higher weight in scoring. See HRS Sections 3.3.2.1, *Level of contamination*, through 3.3.2.4, *Potential contamination*.

### 3.14.3 Wells across the Topographic Divide

Comment: The Army asserted that wells at three mobile home parks (Polings Mobile Home Estates, Gilbert Mobile Home Park, and Spring View Mobile Home Park) were not within the contaminant flow path and are across a topographic divide from the site. The Army claimed that since ground water flow tends to mimic topography, these areas are not expected to be impacted by the release from Area B. The Army recommended these wells be removed from the site scoring.

Response: The HRS does not consider ground water flow direction when evaluating wells within the TDL that are subject to actual or potential contamination (see discussion in 55 FR 51551, 51553).

Wells subject to potential contamination were evaluated under the directions of HRS sections 2.5, *Targets*, 3.0.1.1, *Ground water target distance limit*, 3.3.2.1, *Level of contamination*, and 3.3.2.4, *Potential contamination*. HRS Section 2.5 defines potential contamination as a target not associated with actual contamination of that pathway or threat. For the ground water migration pathway, HRS Section 3.0.1.1 defines the TDL as the maximum distance from the sources at the site for which targets are evaluated, and instructs the scorer to use a TDL of 4 miles for the ground water migration pathway, except when aquifer discontinuities apply.

HRS Section 3.0.1.2.2, *Aquifer discontinuities*, defines an aquifer discontinuity as follows:

An aquifer discontinuity occurs for scoring purposes only when a geologic, topographic, or other structure or feature entirely transects an aquifer within the 4-mile target distance limit, thereby creating a continuous boundary to ground water flow within this limit. . . . When a discontinuity is established within the 4-mile target distance limit, exclude that portion of the aquifer beyond the discontinuity in evaluating the ground water migration pathway.

Per the HRS definition, wells within the TDL that are on the other side of an aquifer discontinuity would be eliminated from consideration in the HRS documentation record as potential target populations. EPA acknowledged in the HRS documentation record at proposal that the Catoctin Mountain, a southwest to northeast trending ridge located approximately 1 mile west of Fort Detrick Area B, is an aquifer discontinuity in accordance with the HRS definition (see page 39 of the HRS documentation record at proposal). As noted on page 59 of the HRS documentation record at proposal, EPA did not consider homes with private wells that are located within the 4-mile TDL but west of the Catoctin Mountain eastern side 700 ft amsl elevation, in the evaluation of wells subject to potential contamination.

In the vicinity of the site, the Catoctin Mountain ridge is at an elevation of 600 to 800 feet to the south and rises to over 1700 feet to the north. Along the south/north line of the mountain, several faults exist that constitute, at minimum, local discontinuities in the mountain that physically block western contaminant migration. One significant south/north major fault line runs at an elevation of about 700 feet on the eastern slope of the mountain and may completely transect the TDL. (See Plate 1 of Reference 11

of the HRS documentation record at proposal). Exactly where and at what elevations all these discontinuities exist cannot be mapped based on available information and varies site specifically with the extreme variability of the mountain topography. Given this situation, EPA chose to identify which potential targets to include in the scoring of the site by using the 700-foot elevation as a dividing line (since it is both an approximate location of a fault and a topographic high in part of the site vicinity). When wells were located near that elevation, EPA chose to look at more specific information that may be available, such as what aquifers the wells were screened in and whether the aquifer was considered within the same aquifer system that underlies the site.

The Polings Mobile Home Estates, Gilbert Mobile Home Park, and Spring View Mobile Home Park are located south of Area B within the TDL, as shown on the map presented as Reference 19 of the HRS documentation record at proposal. Reference 19 is a topographic map delineating the TDL for the ground water pathway at this site. The Gilbert Mobile Home Park, Spring View Mobile Home Park, and Polings Mobile Home Estates are located within the TDL approximately 2.5 miles south of the site. The Gilbert and Spring View Mobile Home Parks residences are at an elevation of 380 feet amsl (see Reference 19 of the HRS documentation record at proposal); both of these parks are clearly within the TDL and not across the topographic divide based on the 700 amsl elevation criteria.

The Polings Mobile Home Estates residences are at elevations of 660 to 760 ft amsl (Reference 19 of the HRS documentation record as proposed). The exact locations of the Polings Mobile Home Estates residences' wells were not available; the symbol pointing to the location of the Polings Mobile Home Estates wells on Reference 19 is large and extends into the 760 to 780 elevation contours of the topographic map used to delineate the TDL and target locations. Because the exact elevations of the Polings Home Mobile Home Estates wells were not available, EPA used the elevation range of the main street of the Polings Mobile Home Estates (Blue Spruce Lane) to estimate the wells' eligibility as targets.

Using 700 amsl elevation as the nominal topographic divide, it is reasonable to conclude that the Polings Mobile Home Estates residences (or a portion of them) could be served by wells in the Frederick Valley Bedrock Aquifer (the aquifer under the sites sources and which is being evaluated) within the TDL. In this case, EPA sought any other information that was available on what aquifer the wells were screened in and whether the aquifer was considered within the same aquifer system that underlies the site. This additional information was not available for the Polings Mobile Home Estates wells; however, based on the elevation criteria for the topographic divide, and the available street elevation data, EPA considered it reasonable and protective of human health and the environment to consider the wells at the Polings Mobile Home Estates subject to "potential contamination" in the HRS evaluation.

Moreover, EPA notes that even if the HRS documentation record consideration of the Polings Mobile Home Estates wells were eliminated from the evaluation, the site score would not be affected and the site would remain eligible for listing. As noted on page 59 of the HRS documentation record at proposal, the Polings Mobile Home Estates wells did not draw from a karst aquifer and thus were included in the scoring with other wells also not drawing from a karst aquifer. In Table 19 of the HRS documentation record at proposal, a non-karst aquifer distance-weighted population value for the 2- to 3-mile category consists of a domestic population of 435 and the Polings Mobile Home Estates population of 80. This combined population of 515 was assigned a distance-weighted population value of 68 in HRS Table 3-12. Removing the Polings Mobile Home Estates population from the 2- to 3-mile category results in a population of 435 ( $515 - 80 = 435$ ) for the non-karst aquifer population. In HRS Table 3-12, a non-karst aquifer population of 435 in the 2- to 3- mile distance category is assigned a distance-weighted population of 68, which is the same value assigned for that category in the HRS documentation record at proposal. Thus, even if the Polings Home Mobile Home Estates were removed from the HRS evaluation of the Fort Detrick Area B Ground Water site, there would be no impact on any HRS assigned value and the site score would remain as proposed.

### 3.14.4 Wellhead Protection Area

Comment: The Army asserted that MDE had approved of a wellhead protection program for White Rock and Cloverhill III areas which does not include Area B.

Response: Section 3.3.4 of the HRS documentation record at proposal (page 64) states that sources of potential contamination on Area B do not lie within a wellhead protection area; however, a wellhead protection area is within the TDL (see Reference 18). Therefore, while EPA concurs with the Army's comment that the wellhead protection area does not include Area B, EPA notes that the wellhead protection area falls within the 4-mile TDL of the site and is therefore appropriately considered in the HRS evaluation.

EPA assigned a Wellhead Protection Area Factor Value of 5 to the site in accordance with the instructions in HRS Section 3.3.4, which state:

. . . [A]ssign a value of 5, if, within the target distance limit, there is a designated Wellhead Protection Area applicable to the aquifer being evaluated or overlying aquifers.

### 3.14.5 Scoring Sampled Wells as Potential Wells

Comment: The Army noted that sampling of the Cloverhill III well had not detected PCE or TCE.

Response: The Cloverhill III well was correctly evaluated as a potentially contaminated well in the HRS site score for the Fort Detrick Area B Ground Water site. As stated above, HRS section 3.0.1.1, *Ground water target distance limit* establishes a target distance limit (TDL) of generally 4 miles within which targets are evaluated except when aquifer discontinuities occur as specified in HRS Section 3.0.1.2.2, *Aquifer discontinuities*. HRS Section 2.5, *Targets*, defines potential contamination as “[t]arget is subject to a potential release (that is, target is not associated with actual contamination for that pathway or threat).” HRS Section 3.3.2.1, *Level of contamination*, clarifies, “[i]f no samples meet the criteria for an observed release for a point of withdrawal and there is no observed release by direct observation for that point of withdrawal, evaluate that point of withdrawal using the potential contamination factor in section 3.3.2.4.” Hence, in accordance with the HRS, sampling documenting there has not been a release to a potentially contaminated target location does not eliminate this target from consideration as a potentially contaminated target. The fact that wells are not contaminated at the time of sampling, does not mean that there could be no future (potential) contamination nor is sampling required for potentially contaminated targets (see HRS section 2.5, *Targets*). Further, the Army has not shown that an aquifer discontinuity occurs between the site sources and the Cloverhill III wells, and those wells are within the TDL for the site. Hence, the Cloverhill III well meets the criteria for evaluation as a potentially contaminated target well.

### 3.14.6 Apportionment

Comment: The Army asserted that the City of Frederick obtained water from sources not discussed in the proposed HRS documentation record, including Lake Linganore and the Potomac River Pipeline, and recommended this information be added to the documentation record. The Army pointed out that the City of Frederick obtained water from surface water intakes on the Monocacy River, and Lake Linganore, and the Potomac River pipeline. It added that these sources are outside the influence of Area B.

Response: EPA agrees that the City of Frederick obtains water from multiple water sources and that some of the water sources are not impacted by the contamination at the site. None of the population served by the wells considered in this evaluation also receives water supplied by the City of Frederick, so this comment does not affect the HRS score of the site.

#### 4.0 Conclusion

The original HRS score for the Fort Detrick Area B Ground Water site was 50.00. Based on the above response to comments, the final scores for the Fort Detrick Area B Ground Water site remains unchanged:

Ground Water	100.00
Surface Water	Not Scored
Soil Exposure	Not Scored
Air Pathway	Not Scored
HRS Score	50.00