IMFD –SEE 22 February 2013

MEMORANDUM FOR RECORD

SUBJECT: Fort Detrick Restoration Advisory Board (RAB) Meeting Summary, 6 February 2013

1. Summary Contents.

Items addressed at the meeting are listed below, with corresponding section numbers indicated in the column on the right.

Please note: PowerPoint presentations were utilized during the RAB meeting. A copy of the presentations is attached to these minutes and is incorporated into these minutes by this reference.

Text contained within brackets [ ] has been added for clarification purposes.

2. Attendees.

Members Present:
LTC James St. Angelo, Fort Detrick, Co-Chair
Dr. Gary Pauly, Community RAB Member, Co-Chair
Mr. Robert Craig, Chief, Environmental Management Office, Fort Detrick
Dr. Elisabeth Green, Maryland Department of the Environment
Mr. Rolan Clark, Community RAB Member
Ms. Jennifer Hahn, Community RAB Member
Ms. Laurie Haines-Eklund, Army Environmental Command
Mr. Cliff Harbaugh, Community RAB Member
Ms. Karen Harbaugh, Community RAB Member
Mr. Barry Kissin, Community RAB Member
Ms. Helen Miller-Scott, Community RAB Member
Mr. Rob Thomson, U.S. Environmental Protection Agency, Region III

Others Present:
Ms. Kathy Davies, U.S. Environmental Protection Agency, Region III
Ms. Linda Miller, U.S. Environmental Protection Agency, Region III
Mr. Gary Zolyak, Fort Detrick Office of Staff Judge Advocate
Mr. John Buck, US Army Corps of Engineers
Mr. Keith Hoddinott, USAPHC
Mr. Gareth Buckland, Fort Detrick Environmental Office
Mr. Nicholas Minecci, Fort Detrick Public Affairs Office
Mr. John Cherry, ARCADIS
Mr. Tim Llewellyn, ARCADIS
Ms. Shelly Morris, ARCADIS
Ms. Katrina Harris, Bridge Consulting Corp.
Mr. Jeff Parks, AMEC
Mr. Randall Morrison, AMEC
Mr. and Mrs. William Sanger, Kristen Renee Foundation
Dr. Barbara Brookmyer, Frederick County Health Dept.
Mr. David Iseri, HydroGeoLogic, Inc.
Ms. Linda Lee Smith, Fighting for Frederick
Ms. Stephanie Sigler, USAEC
Ms. Afton Hess, ARCADIS
Ms. Rosemarie Potocky, ARCADIS

Members Absent:
Mr. Charles Billups, Community RAB Member
Dr. Henry Erbes, Community RAB Member
Ms. Alicia Evangelista, Frederick County Health Department
Mr. Joseph Gortva, Restoration Manager, Fort Detrick
Mr. Gerald Toomey, Community RAB Member
Mr. Craig Toussaint, Community RAB Member

Mr. Thomas Wade, Community RAB Member

3. Meeting Opening / Remarks

Dr. Gary Pauly called the meeting to order and welcomed everyone to the meeting. He stated he co-chaired the Board as the community representative along with the Army's representative, LTC James St. Angelo. Dr. Pauly explained that the Board consisted of community members, Maryland Department of the Environment, the U.S. Environmental Protection Agency, and the Army. Dr. Pauly invited all present to introduce themselves.

4. Purpose of RAB Meetings presented by LTC St. Angelo, Fort Detrick

LTC St. Angelo presented the Board's ground rules for the meeting. He asked that all present to read the rules and noted the meeting is a working meeting of the Board that the public can observe. He added that there is time at the end of the meeting for questions from the public. He said that the Board wants to try and stick to the schedule and get through all the information, but also be able to answer everyone's questions. LTC St. Angelo displayed slides explaining what the Board is and its charter.

LTC St. Angelo stated that he wanted to thank the community members for the time and energy they put into working with Fort Detrick on a very important and intricate project. He expressed appreciation for their volunteering for the Board and providing good feedback, noting it helps guide Fort Detrick in where they want to go in conjunction with the input from the regulators.

5. Meeting Minutes presented by Mr. Robert Craig, Fort Detrick

Mr. Robert Craig advised that Mr. Joe Gortva could not be present as he is preparing for some upcoming surgery. Mr. Craig asked that if any member of the public had submitted an application to please see him as the application has been misplaced. Mr. Craig advised that the November 2012 meeting minutes had just been distributed by Mr. Gortva. Mr. Craig asked for any comments to be submitted within the next week to Mr. Gareth Buckland; he also requested that community members send an email advising if they concurred with the minutes. He noted once the minutes were finalized, Mr. Buckland would post them on the web site.

6. Area B Groundwater Investigation presented by Mr. John Cherry, Fort ARCADIS

Mr. John Cherry reviewed the topics he would be covering in his presentation. He stated that he would be providing an update on work completed since the November 2012 meeting, including a summary of the second round of sampling from the Fall, a discussion of the vertical contaminant distribution to address questions raised at the November meeting, a summary of the Carroll Creek surface water sampling, and a summary of the next steps in the project.

Mr. Cherry reviewed the work completed since the Board's November 2012 meeting. He reminded the Board that the work is being conducted under the work plan developed by the Army and its contractors in coordination with the U.S. Environmental Protection Agency and the

Maryland Department of the Environment. He stated that the work completed to date has been summarized in a draft Conceptual Site Model report given to the regulators the previous week, and electronic copies on disk are being provided to community members tonight. He explained that the Conceptual Site Model compiles all the information collected to date and provides a comprehensive overview of the site conditions, including the nature and extent of contamination.

Mr. Cherry said that since the last meeting the data collected from the September 2012 site-wide groundwater and surface water sampling event has been validated and a summary report was provided to the Army, which will eventually become an addendum to the Conceptual Site Model. He noted this summary report will be available to the Board in the near future.

Mr. Cherry advised that progress had also been made on the vapor intrusion task. He said that several buildings, off-post and on-post, were identified for vapor intrusion sampling, which is sub-slab gas sampling beneath the foundation of the building. He advised that sampling had been completed at four off-post buildings along Montevue Lane and one on-post building, and that all the properties were identified based on their proximity to the contamination. He explained that these locations were included when the work plan was being developed as initial locations to be sampled, and the Army is working on a broader study. Mr. Cherry stated that progress had also been made on the rights of entry needed for additional off-post shallow and deep drilling locations.

Mr. Cherry displayed a list of activities included in the original remedial investigation work plan and noted that the tasks completed included the assessment of approximately 80 existing wells and the repair of approximately 25 of those wells, drilling new borings (including 7 deep borings down to approximately 325 feet) and installing 29 new monitoring wells, the direct push investigation and collecting direct push samples from shallow locations, the survey of 17,000 linear feet of streams looking for springs and seeps, and two comprehensive rounds of groundwater and surface water sampling. Mr. Cherry said that remaining activities under the work plan includes the second round of vapor intrusion sampling, to be conducted in the Spring, and the dye trace study in the Spring/Summer time frame.

Mr. Cherry stated that as the data has been reviewed and compiled into the Conceptual Site Model and additional data needs have been identified. He said that additional direct push work is planned as soon as off-post rights of entry are obtained, hopefully this summer. He also noted that there will be additional on-post and off-post deep drilling. Mr. Cherry said that the additional deep drilling would be in three areas: southwest of the B-11 landfill, near existing B-11 borings, and east of Area B and Carroll Creek. Mr. Cherry advised that the Army and ARCADIS will be meeting with the regulators soon to discuss the next phase of investigation.

Mr. Cherry reminded the Board that the project is still in the Remedial Investigation phase of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) process with data collection and development of the Conceptual Site Model. He stated that another part of the Remedial Investigation is the development of a risk assessment. Mr. Cherry explained that an interim remedial action, which has been under development for some time, is to possibly connect select residences to municipal water. He noted that the future phases of the CERCLA process are the feasibility study where possible remedies are assessed, the proposed plan which

is a significant opportunity for public comment on the possible remedies, the record of decision, and then remedial action.

Mr. Cherry next discussed the summary of the results from the second round of sampling conducted in September 2012. He said that based on the comments from the Board at the last meeting, he was going to focus on the main contaminant detected, the volatile organic compounds.

Mr. Cherry explained that the scope of the second round of sampling included taking groundwater elevation measurements at 168 locations across the entire study area, both on-post and off-post, from monitoring wells, gauges in springs and streams, and piezometers installed during the direct push investigation. He continued explaining that these measurements help to assess groundwater flow direction. Mr. Cherry said that 76 groundwater monitoring wells were sampled, and the samples were analyzed for about 216 different parameters. He stated that 30 surface water samples were collected from Carroll Creek, including locations previously sampled plus five additional samples further downstream.

Mr. Cherry advised that the September 2012 sampling results were very similar to the April 2012 sampling results in terms of what is being detected and not detected and the concentrations. He stated that solvents, such as TCE, are still the main contaminant of concern with part per million levels in the vicinity of B-11 in the groundwater. He explained that 1 part per million equals 1000 parts per billion, and the highest concentrations detected in April 2012 were in the 15,000 parts per billion range. He reminded the Board that the drinking water standard for TCE is 5 parts per billion. He stated that the concentrations in the second round were slightly lower than those detected in the first round, but still very high.

Mr. Cherry stated that 41 volatile organic compounds were detected in groundwater monitoring wells, and 11 were detected above their respective drinking water standards. He noted that TCE was the most commonly detected volatile organic compound. Mr. Cherry advised that concentrations are highest near the B-11 landfill, but drop off significantly to the east toward Carroll Creek and to the west. He noted that there were some low concentrations in the seeps and springs in the primary discharge area along Carroll Creek.

Mr. Cherry displayed an aerial photograph of Area B showing TCE detections in the groundwater during the September 2012 sampling event. He reiterated that the highest levels are around B-11. He noted that there are no detections to the west. He pointed out the discharge area where there were 30 to 40 seeps and springs providing a significant quantity of water flowing into Carroll Creek in that area. Mr. Cherry briefly discussed the groundwater flow direction. Mr. Cherry stated that the highest concentrations are at B-11 with no detections to the west, but there are detections to the east and groundwater discharging to the seeps and springs flowing into Carroll Creek.

Mr. Cherry showed an aerial map with the off-post groundwater sampling locations. He stated that 89 off-post wells have been sampled to the west with no TCE detections in the wells closest to Area B. He advised that there was one low detection, below the drinking water standard, at 0.2 parts per billion from a well about a quarter mile from B-11 and considered to be upgradient

or cross-gradient from the source area. He stated that it seems unlikely to be related to B-11, but additional deep borings are proposed in the area between B-11 and this well.

Mr. Cherry next discussed groundwater contours and referred to his earlier discussion of collecting groundwater elevation measurements. He explained how the measurements are used to determine groundwater flow direction with water flowing from higher elevations to lower elevations. He displayed an aerial photograph with arrows showing the general groundwater flow direction through Area B and Area A.

Mr. Cherry stated that he would next discuss vertical contaminant distribution. He showed a diagram of the Conceptual Site Model for Area B and summarized the information provided by the model. He stated that the B-11 landfill is the primary source area and reminded the Board that there had been a removal in 2004; however, that there were still solvents in the bedrock acting as a continuing source. He pointed out the yellow line on the model which gives a general proximity of where the contamination is and its general flow direction to the east/southeast and emerging in the discharge area of Carroll Creek. Mr. Cherry pointed to an area along Fort Detrick's boundary where there are high concentrations of TCE and stated additional deep groundwater monitoring wells are proposed for installation on the other side of the boundary to delineate the extent of the TCE contamination. Mr. Cherry noted that another outstanding question is whether there is continued flow beyond the Carroll Creek discharge area, and additional work has been proposed to further investigate this question.

Mr. Cherry displayed a topographic map of the study area showing the elevation levels and the generalized patterns of groundwater flow.

Mr. Cherry discussed a cross-section showing vertical distribution of select groundwater wells across Area B from west to east. He stated that the investigations have found that the bulk of the groundwater appears to be flowing in the shallower portions of the aquifer, down to about 150 feet. He noted that at deeper depths the fractures are less frequent and were not transmitting as much groundwater as the shallower ones. Mr. Cherry added that this is a general observation as there are a few exceptions. He stated that some of the deep borings, at 300 feet or greater, did not encounter any water-bearing fractures so a monitoring well was not installed at that location. Mr. Cherry said that the Army and ARCADIS worked closely with the regulators during the drilling to review the findings and concur on the well construction plans. He noted that drilling a borehole down to three hundred feet or greater was taking about four weeks so the decision not to install a permanent well after such a significant expenditure of time and effort was not made lightly.

Mr. Cherry explained that the monitoring wells are clustered wells with screens at shallow and deep levels to enable groundwater samples to be collected at different depths. He noted that there are nine borings completed to depths greater than 300 feet across Area B with three wells screened deeper than 300 feet. Mr. Cherry displayed a map showing the locations of the deep borings and wells screened deeper than 300 feet. He added that the locations of the deep borings were focused around B-11 because it is the primary source, but that the locations were also the most risky due to the potential of exacerbating the problem due to the presence of high concentrations of solvents. Mr. Cherry pointed out that several boreholes along the property

boundary where monitoring wells were not installed as water was not encountered at the 300 foot depth range.

Mr. Cherry showed a series of slides depicting monitoring wells screened at various depths — 7 to 100 feet, 100 to 200 feet, 200 to 300 feet, and greater than 300 feet. He stated that at the most shallow depths the highest concentrations of solvents are around B-11; however, that there are many wells around the perimeter of B-11 where no solvents have been detected. He said that slightly deeper, the highest concentrations continue to be around B-11 and level off to the east with non-detections and with some low level detections approaching the primary discharge area. Mr. Cherry explained that at the 200 to 300 foot depth fewer water-bearing fractures were encountered. He said that a well drilled deeper than 300 feet near B-11 has high concentrations and that the two downgradient wells from B-11 have much lower concentrations. Mr. Cherry reiterated that additional work is being proposed off-post to contribute to the assessment for the Conceptual Site Model.

Mr. Cherry next reviewed key concepts in karst geology and dense non-aqueous phase liquid (DNAPL) contamination behavior in a karst environment. Mr. Cherry defined karst as a geologic formation shaped by the dissolution of soluble rock resulting in conduits and fractures that have groundwater flowing through those preferential pathways. He explained that DNAPL is a liquid, such as TCE and PCE, which is denser than water, does not readily dissolve in water, and tends to sink in water.

Mr. Cherry showed hypothetical sketches of what the sub-surface could look like at Area B with a limestone geology and dissolution along fractures. He explained that if DNAPL was released and migrated into the sub-surface it could dissolve and contaminate the groundwater and flow with the groundwater in the dissolved phase. He continued explaining that over time with DNAPL contamination it can diffuse into the bedrock and then later diffuse into the groundwater and thus be a continuing source. He noted that the DNAPL can also pool in various places in the sub-surface and be trapped in dead-end fractures. He stated that these possibilities are what make investigations and drilling in a karst environment so challenging. Mr. Cherry noted how observations about the sub-surface are gathered during the drilling process to help in making educated decisions about where to place monitoring points. He stated that where water-bearing fractures were not encountered in the 300 feet range, the borehole could be grouted up to a point where there was water or significant contamination and a well installed at that depth. Mr. Cherry stated that no DNAPL was observed during the most recent sampling.

Mr. Cherry displayed an aerial photograph showing the currently known vertical distribution of volatile organic compounds.

Mr. Cherry next discussed the sampling of surface water in Carroll Creek. He stated that samples had been collected in April and September of 2012 with five additional downstream locations added in September. He advised that the samples were analyzed for volatile organic compounds, PCBs, semi-volatile organic compounds, metals, and pesticides.

Mr. Cherry reminded the Board of the data shared at the July 2012 meeting that showed site-related contaminants had been detected at low concentrations in Carroll Creek surface water. He

advised that the data collected in September 2012 showed similar concentrations and distribution. He said that the concentrations continue to be below drinking water standards (5 parts per billion for TCE), even though Carroll Creek is not used for drinking water purposes. He said that the concentrations are also below human health screening criteria for recreational use of the creek by children or adults and are also below human health screening criteria for ingestion of fish from the creek.

Mr. Cherry displayed an aerial photograph showing the detections of TCE in surface water. Mr. Cherry said that the highest detections in surface water were at the middle of Area B. He said that there was no detection in Stream 2, which runs along the south property line, and no detections to the north along the property line. He noted that there was one detection in Robinson Pond slightly above the drinking water standard. He stated that low level detections of TCE were seen at the five new downgradient locations at decreasing concentrations from dilution and volatilization due to so much water coming in the Creek.

Mr. Cherry advised that the U.S. Geological Survey had estimated there is approximately a 1,100 gallons per minute contribution in the primary discharge area of water entering Carroll Creek from seeps and springs in the area which is quite a substantial amount of water.

Dr. Pauly asked Mr. Cherry to confirm the meaning of the "J" next to a detection level, and Mr. Cherry responded that it is a flag by the laboratory meaning the number is an estimated value and that it is a low concentration near or below the lab's ability to report a result.

Mr. Cherry discussed the next tasks to be completed from the original work plan and additional proposed activities. He noted that the expansion of the dye trace study is being discussed with the Army and the regulators. He explained that this study involves injecting dye in the groundwater and monitoring to see where it is discharged to further assess groundwater flow. He stated that another activity is the second round of vapor intrusion sampling. Mr. Cherry said that a scope of work is being prepared for some supplemental off-post direct push technology drilling, and discussions are underway with the affected property owners to gain access. He stated that follow-on drilling activities will also be discussed with the regulators based on the draft Conceptual Site Model report. Mr. Cherry showed a map of the locations where additional work is being considered — deep drilling slightly downgradient of B-11, deep drilling on the Waverley View property, and horizontal delineation east of Carroll Creek to assess potential deep underflow.

Ms. Jennifer Hahn stated that she has attended meetings of the planning commission on the development of the Waverley View property and found members of the planning commission did not seem to have updated information about the environmental investigations and asked if information is being provided to elected officials. She expressed concern that an important meeting is scheduled for February 11 and information should be presented at that meeting. Mr. Cherry responded that that Army and ARCADIS staff have traveled to Virginia to meet with the property owners and discussed the right of entry request, which had been pending for some time. Mr. Gary Zolyak said that the Army has requested a number of property owners provide a right of entry, and some have agreed and some have not as is within their rights. He said that the Army has explained why it is important for the Army to have access to their property. Mr.

Zolyak noted that there are three property owners who have said no, and the Army does not have the legal authority to issue an access order. Ms. Hahn emphasized she believes that it is important for the Army to go to the planning commission and provide updated information so an informed decision can be made about the need for any restrictions on the Waverley View property. Mr. Rolan Clark stated that he also thought this is an important issue, and he would be contacting his elected officials.

Ms. Hahn asked for more information about the historical work on the Waverley View property referred to earlier by Mr. Cherry. Mr. Cherry responded that the current owners of the Waverley View property went through the Maryland Department of the Environment Voluntary Cleanup Program. He explained that this program provides an avenue for a developer to purchase a property and be given inculpable person status by working with Maryland Department of the Environment to perform an investigation with the State's oversight and eventually receive a no further requirements designation for the property or develop a cleanup plan. Mr. Cherry continued explaining that the current developer, who was not a responsible party connected with any potential contamination, drilled seventy borings and put in about seven monitoring wells with depths varying down to about 115 feet. He said that the developer's sampling did not find elevated concentrations, and that the developer received a no further requirements designation. Mr. Cherry said that the recently acquired data from drilling at deeper depths and finding contamination has been conveyed to the developer, and that they have been advised that it warrants further investigation in that area.

Mr. Clark said that while more needs to be done, he wanted to thank the Army for funding the investigation and for the comprehensiveness of the investigation and data.

Ms. Hahn asked what were the highest level of TCE and PCE found along the Waverley View property border, and Mr. Cherry advised that TCE has been detected at 15,000 parts per billion and that the highest concentrations of all volatile organic compounds together has been 18,000 parts per billion.

Ms. Hahn said that she had discussed the Maryland Voluntary Cleanup Program guidance with Dr. Greene after the last meeting and asked if action needed to be taken in light of recent developments with this site. She stated that she was getting questions from the community as to what could be done and what the process was for making concerns known. Dr. Greene responded that the Waverley View property does have groundwater use restrictions on it as a result of the Voluntary Cleanup Program. Mr. Zolyak said that he believed there may be other opportunities to participate in discussions regarding the development of the property after the February 11 meeting. Ms. Helen Miller-Scott stated that efforts had been made in the past to have someone from the planning commission serve on the Board and perhaps that is an avenue that can be pursued again.

Mr. Kissin disagreed with Mr. Zolyak's opinion that the Army does not have the legal authority to access private property for sampling purposes as he believes the Comprehensive Environmental Restoration, Compensation and Liability Action, Section 104, provides this authority. Mr. Zolyak said that the authority has been delegated to the Secretary of Defense who has not further delegated the authority to the Army, and that this is why is it taking so long for

the issue to be resolved. Mr. Zolyak said that there has been much discussion at higher levels, and that EPA and Fort Detrick are trying to forge a way forward and should be able to report back in a month on the path forward.

Mr. Craig said that lawyers at the highest levels of multiple Federal agencies are talking about how to handle access to private properties; so staffs at the installation level are awaiting input from higher level personnel. He stated that Board community members are free to attend the planning commission meeting and provide their input.

Mr. Rob Thomson of the U.S. Environmental Protection Agency (EPA) said that he would take the information about the February 11, 2013 meeting back to his agency and ensure that the appropriate people at EPA are aware of the meeting.

Dr. Pauly said that he understood if a deep hole was partially filled with grout that the area below the grout would be isolated from the area above, but he inquired if the area selected for sampling is isolated from the groundwater above it. Mr. Cherry responded yes, and explained the slotted screen that is inserted into the monitoring well and capped with several feet of slurry to seal it off.

Mr. Barry Kissin asked if there was sufficient data from only three wells to fully assess deep groundwater flow and conditions. Mr. Cherry responded that data was obtained from the nine deep boreholes that were completed and the prevalence or lack of water-bearing fractures. Mr. Kissin questioned whether there was sufficient data to support the groundwater flow information in the draft Conceptual Site Model. Mr. Cherry responded that it would be difficult to imagine a scenario existing that would change the general groundwater flow direction as characterized in the model. Mr. Cherry said that gathering the data from the property to the west will reduce any uncertainty about the groundwater flow, but there will always be some degree of uncertainty although every attempt is made to reduce the uncertainty and make the best conclusions based on all the data. He said that based on the contaminant concentrations in the source area, the water elevation data, and the contaminant tracking for the 90 or so monitoring wells, that there is a fairly good picture of what is occurring at the site. He noted that while other circumstances are possible, it is becoming less likely that there are significant differences from the Conceptual Site Model.

Ms. Kathy Davies from the U.S. Environmental Protection Agency stated that the wells that existed before the work performed by ARCADIS were primarily shallower wells so the data set has more shallow wells than deep wells. She noted that the waste was not well characterized as the Army did not know exactly what was disposed of and where at Area B; thus, the monitoring well network was used to look at groundwater passing through those waste areas to see what might be coming from the waste. She stated that some of the issues being talked about had not been completely flushed out with the regulators, and the existing data may not support all the statements being made. Mr. Kissin expressed his appreciation for Ms. Davies expressing that her opinion may differ from the Army's and encouraged the regulators to continue to make their opinions known at Board meetings.

Ms. Davies noted that an important point with respect to DNAPL is that the primary way it moves is gravity, and since geology here dips, the DNAPL can move down into deeper depths through the fractures by way of gravity and not groundwater flow and distribute itself in areas where groundwater does not typically flow or move counter to groundwater flow at the source area. Mr. Cherry agreed on the importance of this point and mentioned that the model does contain some information about this issue. He stated that there is a good figure in the model to show the dips in the area which is another reason for the desire to do additional work on the Waverley View property.

Mr. Kissin asked at what depth is contamination in groundwater no longer a concern. Ms. Davies responded that it is typically a site-specific determination due to differences in how groundwater may be used. She advised that a general rule of thumb is as deep as residential and municipal wells in the surrounding community using that aquifer. Mr. Kissin asked if that depth is known for this community. Mr. Cherry responded that information on well depths has been obtained from the State's data base and is being analyzed.

Mr. Craig had the CD's with electronic copies of the Conceptual Site Model distributed to the Board and asked for the Board to review the draft report and provide comments. He reiterated that the Army would be meeting with the regulators the following week to discuss the report in detail and to clarify what the additional data needs are that need to be addressed, including the Waverley View property. He noted that Mr. Cherry's presentation was just a snapshot of where the Army is as of today and no one is saying that all the answers have been obtained yet.

7. Off-Post Private Well Investigation presented by Ms. Shelly Morris, ARCADIS

Ms. Morris reviewed the basis for the study which is to document known or any potentially unknown drinking water wells surrounding Fort Detrick's Area B and put the information in a comprehensive report. She stated that the second goal is to expand on Fort Detrick's current private drinking water well sampling effort and compile all the previous and current data into one comprehensive data set. Ms. Morris noted that the third goal is to verify that the volatile organic compounds (PCE and TCE) emanating from Area B have not affected private wells in the surrounding community.

Ms. Morris advised that the study area is approximately 1,300 acres surrounding Area B. She explained that about 2,500 tax parcels were identified in the study area, with approximately 149 parcels in the County area, which is not serviced by the public water service. She noted that they have worked with the City of Frederick to identify drinking-water sources for parcels within the City limits.

Ms. Morris displayed an aerial photograph and pointed out the boundary of the study area, the existing public water service areas, areas with no access to public water, and areas being phased into public water over the next one to six years.

Ms. Morris reviewed the project activities noting that completed public outreach activities have included mailings, newspaper announcements, a public meeting, and a door-to-door survey. She advised that there have been three mailings from September 2012 to the end of January 2013 to

first announce the project, then to verify water sources and invite people to participate, and finally a certified letter to try and reach non-responsive parties.

Ms. Morris said that the door-to-door survey occurred in November 2012 and 135 residences were visited. She said that the difference between the 135 residents visited and the 149 identified as not being on public water is related to vacant properties and a property that has been demolished. She advised that as a result of the outreach to date, 85 residents have agreed to participate.

Ms. Morris said that the private well sampling began in November 2012 and continued into January 2013 with 90 wells at 88 properties being sampled and the samples analyzed for volatile organic compounds. She noted that the certified letters to 32 property owners resulted in four rights of entry forms being received as of February 5, 2013, with three of those having been sampled in January 2013 and the remaining property in the process of being scheduled. Ms. Morris stated that additional wells may be added to program if additional responses are received soon.

Ms. Morris displayed an aerial photograph showing the off-post sampling locations and summarized the results. She stated that no volatile organic compounds were detected in 61 of 87 wells sampled through December 2012, with all but one of the detections being below the laboratory reporting limits. Ms. Morris advised that seven volatile organic compounds were detected with one chemical being detected at 25 wells and two chemicals detected at one well. She stated that all concentrations were below the Federal drinking water standards and that there was no immediate public health concern. Ms. Morris said that based on the information known today about Area B groundwater, it is unlikely the detections are associated with Area B due to the current understanding of the groundwater flow direction (eastward away from the private wells sampled), the distribution of detections across the study area and in relation to Area B, and the fact that properties are topographically higher than Area B and hydraulically upgradient/side gradient.

Ms. Morris reviewed a chart showing the chemicals detected off-post. LTC St. Angelo asked if the depth of the private wells sampled is known. Ms. Morris responded that a request for well construction information has been submitted to the Maryland Department of the Environment, and data is starting to come in and will be analyzed. Ms. Morris advised that the data base does not allow a well to be pinpointed based on an address, but requires a permit number, which makes it more difficult to obtain information. Mr. Llewellyn added that what he has seen to date are private wells around 150 to 200 feet deep and that one is known to be around 600 feet.

Mr. Thomson asked if the lab blanks showed any compounds, and Ms. Morris responded that the only detection in the blank was for methylene chloride, which was not detected in any of the wells.

Ms. Morris reminded the Board that the Army had indicated they would try to protect the identity of the properties sampled and therefore, the area had been identified in four quadrants for presentation purposes.

Ms. Morris summarized the results and advised that chloroform was the most widely detected compound and was detected in some wells in each quadrant. She stated that Methyl Tertiary Butyl Ether (MTBE) was the most frequently detected compound and was detected in three of the quadrants. Ms. Morris said that TCE was detected in quadrant 3.

Ms. Morris stated that MTBE was detected in 14 wells with the highest detection being 0.4J parts per billion compared to 12 parts per billion, which is the risk-based concentration standard. She advised that MTBE had first been detected on Area B in April 2012 at a maximum concentration of 0.2J parts per billion. She noted that it had also been detected in a private well upgradient of Area B at a maximum concentration of 1.4 parts per billion in 2002. Ms. Morris explained that MTBE has been used since 1979 as an octane enhancer in gasoline and that is a common contaminant that can enter the groundwater through storm water runoff or people spilling gasoline while filling their lawnmowers. Ms. Morris said that it is highly unlikely detections of MTBE are associated with Area B groundwater based on what is known as of today regarding groundwater flow direction, and that there is no history of underground gasoline storage tanks on Area B. She reiterated that MTBE had not been detected on Area B until April 2012. Mr. Craig asked if there could be a source upgradient of the homes. Ms. Morris said that an EDR report was done and explained EDR is a company that does due diligence research. She advised that the report showed one small gas tank not associated with a gas station and a quick search had not shown any gas stations in the area. She said that it is more likely that storm water runoff is a key component.

Ms. Morris said that TCE was detected in one well at 0.2J parts per billion, which is below the drinking water standard of 5 parts per billion. She noted that a confirmation sample was collected on January 29, 2013 and that they are waiting for the full data package and data validation report. Ms. Morris stated that the detection is unlikely to be associated with Area B groundwater based on the reasons cited previously. She noted that this well is about one-quarter mile away from B-11 and upgradient (topographically higher) of B-11.

Ms. Morris said that chloroform was the most widely distributed compound as it was detected in eight wells over the four quadrants at a maximum of 0.3J parts per billion, which is below the drinking water standard of 70 parts per billion. She advised that chloroform has been detected in Area B groundwater at levels exceeding the drinking water standard. She explained that chloroform is a drinking water disinfection byproduct commonly found in public water supplies and formed when chlorine reacts with organic matter. She said that the detections spread over the quadrants could be the result of multiple sources, such as property owners disinfecting their wells, infiltration of septic water where bleach was used for cleaning, or in laundry wastewater. She said that the detections are unlikely associated with Area B groundwater based on the reasons previously cited.

Ms. Morris advised that benzene was detected at one well at 0.3J parts per billion which is below the drinking water standard of 5 parts per billion. She said that benzene is most commonly found in gasoline. She said that the detection is unlikely to be associated with Area B groundwater based on the reasons previously cited, that there were no detections in multiple wells between Area B and this well, and that this well is located near the outer limit of the study area, more than a half-mile away from Area B.

Ms. Morris stated that 1, 2-dichlorobenzene was the only compound detected above the lab's reporting limit at 0.9 parts per billion, which is well below the drinking water standard of 600 parts per billion. She noted that there have been three historical detections of this compound at low levels below the drinking water standard in Area B groundwater. Ms. Morris explained that the compound is used in the production of many products including wood preservatives, paints, and insecticides used for termite control. She stated that it is unlikely the detection is associated with Area B groundwater based on the groundwater flow direction, no detections in multiple wells between Area B and this well, and that this well is located near the outer limit of the study area, more than a half-mile away from Area B.

Ms. Morris advised that 2-butanone was detected in one well at 2.7J parts per billion, which is well below the drinking water standard of 4,900 parts per billion. She noted that there were three historical detections with a maximum of 3.83J parts per billion in 2008 and one current detection at 2.5J parts per billion in Area B groundwater. She noted that this compound can be released from car and truck exhausts and can be found in household products such as paints, glues, and cleaning agents. She stated that the detection is unlikely to be associated with Area B groundwater based on the reasons previously cited.

Ms. Morris said that styrene was detected in one well at 0.4J parts per billion, which is well below the drinking water standard of 100 parts per billion. She stated that there has been one historical detection at 0.7J parts per billion in Area B groundwater. Ms. Morris explained that styrene can originate from cigarette smoke, automobile exhaust, and some foods contain small amounts of styrene; it is also used to make plastics, synthetic rubber, resins, and insulators. She stated that this detection is also unlikely to be associated with Area B groundwater based on the reasons previously cited.

Ms. Morris reiterated that 61 of the 87 wells sampled had no detections of volatile organic compounds and all detections were well below the Federal drinking water standards. She said that based on the concentrations detected there is no immediate public health concern. Ms. Morris added that the additional work discussed by Mr. Cherry will enhance the understanding of the groundwater flow direction. Ms. Morris said that the results will be reported to the individual homeowners. The final report will be provided to the RAB.

Mr. Clark commented on the excellent quality of the existing technology which allows for such low levels of compounds to be detected.

8. Program Status Update presented by Mr. Robert Craig, Fort Detrick

Mr. Craig updated the Board on several key projects.

Mr. Craig advised that the Area B Phase I Herbicide and Dioxin Site Investigation draft report has been delayed. He reminded the Board this report provides data from the sampling of a plot at Area B that was identified in historical documents as a possible test site. He stated that the report should be out for review in March 2013 and will be sent to the community members of the Board by email.

Mr. Craig said that the Archive Search Report, Phase II, was received by Fort Detrick in November 2012 and is an extensive document. He noted that some of the information is of a sensitive nature and Fort Detrick is awaiting input on what is releasable. He noted that the Phase I report is on the Fort Detrick web site, and ultimately the Phase II report will be there also.

Mr. Craig discussed an Engineering Evaluation/Cost Analysis (EE/CA) for the possible connection of select residences on Kemp Lane to municipal water. He said that the document will be provided to the Board members and the public in March 2013. He said that there will be a public meeting scheduled once the document is released, but no date is set yet. Mr. Craig said that if the decision is to move forward with the connection to public water, the action probably would occur in the Fall of 2013. Ms. Hahn asked how the public meeting will be advertised and if there will be posting beyond the short notices in the newspapers. Mr. Craig said that the notices will be in the newspapers, every other possible avenue will be used, and Board members will also be notified.

Mr. Craig said that the additional sampling to refine the western boundary of the Area C Former Ash Disposal Area/Land Use Control Area is scheduled for the Spring 2013.

Mr. Craig advised that the vapor intrusion testing is underway and additional buildings near the Building 568 TCE spill site on Area A will be tested for vapor intrusion in the Spring 2013 or Winter 2013/2014. Mr. Craig said that the contract put in place will also be available if the need for any additional vapor intrusion work is identified.

9. RAB Member Open Discussion

Ms. Hahn requested meeting minutes be sent out sooner than the day of the next meeting.

Ms. Hahn asked for contact information for the person to whom she can direct citizens to contact with questions. Mr. Craig advised that there were business cards with contact information for the Public Affairs Office on the back table. [The Public Affairs phone number is 301-619-2018; the email address is usarmy.detrick.usag.mbx.pao@mail.mil]

Mr. Kissin expressed concern that a local day care center near the discharge area declined the opportunity to participate in the vapor intrusion sampling program, and it was confirmed there is a home day care provider who has declined to participate.

Mr. Kissin asked Mr. Craig about his comment at the previous meeting that perhaps it is time to discuss an interim remedial action at Area B. Mr. Craig said that the Conceptual Site Model will be discussed with the regulators next week, and if time permits, he would like to start discussing the idea of an interim action to possibly remove some of the mass beneath B-11 even though there is still uncertainty about the full extent and nature of the groundwater contamination. He said that the first step would be to discuss the idea with the regulators, and he will be pursuing it.

10. General Community Comments

No additional comments were offered.

11. Next Meeting

Mr. Craig showed a list of proposed Board meeting dates: May 8, 2013; August 7, 2013; November 6, 2013; and February 5, 2014. The Board agreed with the proposed date of May 8 for the next meeting.

The meeting adjourned at approximately 9:13 p.m.

Reviewed by:

Approved/Disapproved

Enclosures:
Fort Detrick Installation Restoration Program Area B Groundwater Investigation Update Meeting Sign-In Sheet

DISTRIBUTION:
Each RAB Member (w/o enclosure)