

MEMORANDUM FOR RECORD

SUBJECT: Fort Detrick Restoration Advisory Board (RAB) Meeting Summary,
28 AUGUST 2013

1. Summary Contents

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

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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 Brian Barthelme, Fort Detrick, Co-Chair
Dr. Gary Pauly, Community RAB Member, Co-Chair
Mr. Rolan Clark, Community RAB Member
Mr. Robert Craig, Chief, Environmental Management Office, Fort Detrick
Mr. Joseph Gortva, Environmental Restoration Program Manager
Dr. Elisabeth Green, Maryland Department of the Environment
Ms. Jennifer Hahn, Community RAB Member
Mr. Cliff Harbaugh, Community RAB Member
Ms. Karen Harbaugh, Community RAB Member

Others Present:

Mr. John Buck, US Army Corps of Engineers
Mr. Robert Craig, Fort Detrick Environmental Office
Mr. Dale Moncer, Fort Detrick Environmental Office
Mr. Gareth Buckland, Fort Detrick Environmental Office
Mr. Nick Minecci, Fort Detrick Public Affairs Office
Mr. Gary Zolyak, Fort Detrick Office of the Staff Judge Advocate
Mr. Keith Hoddinott, US Army Public Health Command
Mr. and Mrs. Batt, Community Members
Ms. Carol Krimm, City of Frederick Alderman
Mr. DiPalma, Community Member
Mr. James St. Angelo
Mr. George Rudy, Community Member
Ms. V. Smith, Rocky Gorge Development
Mr. Tom Lynch, Waverly View/Rocky Gorge Development
Dr. Barbara Brookmyer, Frederick County Health Dept.
Ms. Violet Rice, Community Member
Mr. Bill Ryan, City of Frederick Planning Commission
Mr. John Cherry, ARCADIS
Mr. Tim Llewellyn, ARCADIS
Ms. Shelly Morris, ARCADIS
Mr. Rob Wasserman, ECC
Ms. Katrina Harris, Bridge Consulting Corp.

Members Absent:

Mr. Charles Billups, Community RAB Member
Dr. Henry Erbes, Community RAB Member
Ms. Alicia Evangelista, Frederick County Health Department
Ms. Laurie Haines-Eklund, Army Environmental Command
Mr. Barry Kissin, Community RAB Member
Ms. Helen Miller-Scott, Community RAB Member
Mr. Robert Thomson, U.S. Environmental Protection Agency
Mr. Gerald Toomey, Community RAB Member
Mr. Craig Toussaint, Community RAB Member
Mr. Thomas Wade, Community RAB Member

3. Meeting Opening / Remarks

Mr. Joe Gortva called the meeting to order. He thanked everyone for attending and welcomed everyone to the meeting. Mr. Gortva invited any community members in the audience who were interested to consider applying for membership to the Board. LTC Brian Barthelme introduced himself as the new Army co-chair. Mr. Gortva invited everyone present to introduce themselves.

Mr. Gortva advised that Laurie Haines from the Army Environmental Command could not be present due to budget constraints; likewise Rob Thomson from EPA cannot travel until the new fiscal year. Dr. Pauly asked if it was possible for EPA staff to call in to the meeting if they cannot travel in the future. Mr. Gortva said he had asked Mr. Thomson that question, and Mr. Thomson said EPA staff also have restrictions on the number of hours they can work.

4. Purpose of RAB Meetings presented by Dr. Gary Pauly, Board Community Co-Chair

Dr. Gary Pauly summarized the purpose of the Board and meetings. He noted a Restoration Advisory Board is put together whenever a Department of Defense facility sees it has to deal with an environmental issue. He stated that the facility convenes a board of environmental experts like the U.S. Environmental Protection Agency and the Maryland Department of the Environment, together with representatives of the facility, in this case Ft. Detrick, and community members. Dr. Pauly noted that the purpose of the Board is to disseminate information, give everyone an opportunity to see what is going on, and keep the process transparent.

Dr. Pauly said that the Board tries to stick to an agenda. He said that there are usually a number of presentations to get through. He requested if members of the public had questions on a presentation they should ask their question but hold any larger issues or longer comments until the Board gets through their agenda. He said that there would be time at the end of the meeting for comments and questions from the general public.

Mr. Gortva added the Board is not a decision-making body; the Board gives advice to the Army on the restoration program. He stated that it is an opportunity for stakeholders to come together and be involved in the environmental restoration program. Mr. Gortva noted that Board meetings are open to the public but are not public meetings in that they are primarily intended for Board members. In addition, there is a public participation portion at the end of the meeting as the Army want to hear from the general public on the restoration program.

5. Meeting Minutes presented by Mr. Joseph Gortva, Fort Detrick

Mr. Gortva noted that the minutes from the May 2013 minutes had been distributed to the Board members for review, and comments had been received from Ms. Jennifer Hahn. Mr. Gortva advised that the final version of the minutes are on Fort Detrick's web site at www.detrick.army.mil, under the Environmental tab.

Ms. Hahn requested that future meetings be recorded.

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

Mr. John Cherry reviewed the topics he would be covering including the work completed since the May 2013 meeting, the groundwater tracer study, the shallow direct push drilling, what additional work is on the horizon, and the path forward.

Mr. Cherry stated that since the last Board meeting the groundwater tracer study had been initiated with nine rounds of tracer sampling completed. He noted that some additional direct push well installation and groundwater sampling had also been completed.

Mr. Cherry displayed a slide showing a running list of activities ARCADIS has been tasked with for the Area B Groundwater Investigation and their current status. He noted that he would be discussing some of the vapor intrusion work that had been completed to date. He advised that a second round of vapor intrusion sampling of properties along Montevue Avenue will be conducted soon. He stated that when the vapor intrusion sampling is performed, the samples are analyzed for some of the groundwater constituents found in Area B groundwater; however, there were no detections of those constituents in the sub-slab gas samples that exceeded the comparison criteria set by EPA [for Perchloroethylene (PCE) and Trichloroethylene (TCE)]. Mr. Cherry said that another ongoing activity is the groundwater tracer study which will continue through this fall.

Ms. Hahn asked if Mr. Cherry would be clarifying in his presentation which buildings were sampled. Mr. Cherry responded that a figure with that information was in one of his last two Board presentations which are on Fort Detrick's web site.

Mr. Cherry discussed where the Area B Groundwater Investigation is in relation to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and stated that the site is still at the beginning of the process, in the Remedial Investigation phase. He stated that this is the phase where data is collected, the conceptual site model is developed, and all the information feeds into the Remedial Investigation Report which includes risk assessment and full data evaluation. He noted that this report helps the project move to the later stages of CERCLA, including the feasibility study where the Army starts considering possible remedies and possible actions that can be implemented to address the groundwater. Mr. Cherry said that there will be Proposed Plan which involves public participation, followed by the Record of Decision which documents the remedy, and eventually implementation of the remedy.

In response to a question about the timeline for the CERCLA process for the Area B groundwater, Mr. Gortva stated that the remedial investigation is the longest phase, making sure the Army knows how and what is occurring at the site. He stated that once the remedial investigation phase is complete, the Army can start looking at the feasibility study phase. Mr. Gortva said that an estimated timeline would be another year and a

half to two years to complete the remedial investigation phase, followed by about a year on the feasibility study phase. He noted implementation of a remedy would be however long it takes. He said that if the remedy is a combination of bioremediation and natural attenuation, the bioremediation portion could take one or two years, or longer while the natural attenuation portion may take 10 or 20 years to get to drinking water standards. Mr. Gortva said that to try to develop a schedule is premature because it is a function of the type of remedy to be put in place.

Mr. Cherry displayed a graphical representation of the Area B conceptual site model. He stated that Area B-11 where disposal activities had occurred is the potential source area. He noted that while a soil removal action occurred in 2004, any solvents that may exist in the deep bedrock are a continuing source. Mr. Cherry pointed out the location of Area B-11 and noted that it is close to Fort Detrick's boundary. He stated that high levels of trichloroethylene (TCE), thousands of parts per billion compared to a standard of five parts per billion, have been detected in the groundwater underneath Area B-11. He said that the Waverly View property borders Area B and that access to the Waverly View Property has been granted to allow the Army to conduct deep groundwater sampling on that location. Mr. Cherry said that the Army is in discussions with EPA and MDE about the location of the proposed deep wells and anticipates conducting the work in the fall.

Mr. Cherry noted that the concentrations of TCE drop off steadily as the groundwater moves to the east/southeast. He stated that there are hundreds of monitoring wells, piezometers and stream gauges on Areas A and B which have been used to assess the groundwater direction and which show groundwater is flowing to the east/southeast. Mr. Cherry said that the levels of TCE decrease to single digits as the groundwater moves away from B-11, but that concentrations are detected all the way to the primary discharge areas which are the series of streams and seeps where TCE has been detected at low levels as compared to recreational criteria set by EPA for swimming and long-term exposures.

In response to a question about the speed of the groundwater flow, Mr. Cherry responded that the current groundwater tracer study is providing information on the velocity. In response to a question about whether action can be taken now to address the migration of TCE in the groundwater, Mr. Cherry stated that the project is in the remedial investigation phase and not yet at the point where there is a solid understanding of the nature and extent of contamination and that an evaluation of many possible alternatives has been completed, so smart decisions about effective and efficient action can be made. Mr. Robert Craig added that he has asked EPA if it is time to consider an interim action to address the source area, and EPA said that interim action should not be considered until the boundaries of the plume are verified [and that the site has been sufficiently characterized and all necessary data gaps have been investigated]. Mr. Gortva said that if a treatment system was put in place without all the information from a thorough investigation, it is possible a fracture would be missed where the bulk of the contamination might be. Mr. Gortva said that this is the reason EPA is adamant that the additional studies such as the planned deep wells need to be installed first and the investigation completed.

Mr. Cherry explained that at B-11, the principal source area, where the highest levels of solvents have been detected, there is likely Dense Non-Aqueous Phase Liquid or DNAPL present. He continued explaining that DNAPL is free product; the heavy liquid solvent which when released sinks down deeper than water and pools. Mr. Gortva stated that it is the reverse of mixing oil and water where oil stays on the top and water on the bottom; in this case, water is on the top and DNAPL is at the bottom. Mr. Cherry stated that DNAPL can fill cracks and crevices in the karst geology, and when groundwater flows through and comes into contact with the free product, the product slowly dissolves into the groundwater. In response to a question about the pure phase versus the dissolved phase of the TCE, Mr. Cherry gave an example of sugar dissolving in coffee. Dr. Pauly noted that solvents have very low solubility limits. He said that in the pure phase the TCE is the pure liquid; in the dissolved phase the TCE has been absorbed into the groundwater. Mr. Cherry stated that there is an extensive network of monitoring wells and sampling points which monitor the groundwater and any contamination as it flows to the primary discharge area, Carroll Creek.

[DNAPLs are liquids that are denser than water and relatively insoluble in water. Common DNAPLs include compounds that have been and are still widely used in industrial and commercial processes. Possibly the most common DNAPLs are halogenated solvents such as trichloroethylene (TCE) and tetrachloroethylene (PCE). When a DNAPL is released in the environment, it can migrate through the soils and groundwater into fractured bedrock. If DNAPL is present in bedrock, it will slowly dissolve into groundwater that is flowing through open fractures, giving rise to aqueous phase plumes. The dissolved plumes will generally migrate in the hydraulically down-gradient direction following the flow of groundwater. The concentration of a contaminant dissolved in groundwater will generally decrease as it migrates. Causes of this decrease may include dilution, adsorption to matrix materials, or physical/chemical degradation. The distance over which contaminant concentrations decrease to acceptable levels will depend on the chemical properties of the contaminant, the physical properties of the groundwater flow paths, and the magnitude of the contamination. All plumes in fractured bedrock will eventually reach a steady-state configuration where the leading and side edges of the plume (as defined by a specific concentration level) are no longer expanding. Once the source zone is exhausted, the plume will shrink.]

Mr. Cherry noted that additional monitoring wells were installed in 2011 and 2012, along with a direct push investigation involving approximately 50 borings, including locations along Carroll Creek, Shookstown Road, and along the Area B property line. He stated that more recent direct push work in the last month, both deep and shallow, had been conducted in off-site areas. He said that seep and spring assessments have been completed, looking for evidence of groundwater flow into Carroll Creek. He advised that vapor intrusion work has been done at locations where shallow groundwater is impacted.

Mr. Cherry stated that the investigation is not yet done, but the field work completed so far is reducing uncertainty and getting to the point where decisions can be made. He noted that there are plans to install a deep well to evaluate deeper groundwater flow. He stated that the work performed to date has allowed the conceptual site model to be

formalized and has provided good information on what is happening with the primary source area and groundwater migration.

Mr. Cherry next discussed the groundwater tracer study. He stated that it began with a baseline study where samples are collected over a period of weeks from a network of 90 or more locations (monitoring wells, seeps and springs) to determine what is already present in the groundwater. He noted that many tracers can be fairly common compounds used for other purposes so the analysis helped select an appropriate tracer to be used in this study. He explained that this type of study introduces a non-toxic tracer into the ground at one location and that weekly monitoring is then conducted to see where the tracer shows up. Mr. Cherry said that the study takes about six months to complete. He stated that it helps evaluate groundwater flow direction, velocity and discharge.

Mr. Cherry stated that there had been a previous tracer study conducted in shallow groundwater, but questions had arisen about the deep groundwater flow so that the 2010 work plan included the deep groundwater tracer study. Mr. Cherry said that the tracer study is specific to the B-11 area and looks at what groundwater does and where it is going.

Mr. Cherry displayed maps showing the generalized patterns of groundwater flow and the approximate tracer study area. He also pointed out the primary [groundwater] discharge area in Carroll Creek and some of its tributaries. He stated that due to the large network of monitoring wells, there is a good understanding of how groundwater moves across Area B. He said that there is a trough-like area at Area B where the groundwater flows in the east/southeasterly direction. He pointed out the area on top of the mountains and noted that groundwater flow there is towards the valley. Mr. Cherry said that past work done on the Waverly property, where samples were collected from wells down to about 100 feet, show groundwater flow is back towards Area B.

Ms. Hahn said that at the last Board meeting a question was asked if the Army had received unfettered access to the Waverly property and the answer given was yes. She stated that she received a letter from someone who had received a letter from EPA stating that the Army was denied access to Phase I as it was going to be sold. Mr. Gary Zolyak stated that the Army's right of entry with the Waverly property owner was something that was very heavily negotiated. He stated that the Army cannot go on someone's land unless they are given permission. Ms. Hahn said that the Army has 30 days after being denied access to so advise EPA at which point EPA has jurisdiction; in this case, that EPA chose to step back and allow negotiations to continue.

Mr. Cherry stated that the Army and ARCADIS have access to do the work which they believe is technically needed to assess what is going on at the Waverly property.

Mr. Gortva stated that the property owners asked questions about the specifics of what types of activities the Army wished to conduct, so the Army came up with a list of possibilities. He said that the list included a broad range of activities, including testing some wells that had been tested in the past. Mr. Gortva said that the area the Army really needed access to as discussed with the regulators and the developer is the area

the Army was given access to for the current field work. Mr. Gortva said that the lack of access to other areas [Phase 1] is not an issue at this time as there is no data that would lead the Army to believe there are any problems in the other [Phase 1] area. He continued explaining that if findings from the fieldwork are contrary to that belief, the data will determine where the investigation needs to go as the next step.

Ms. Hahn said she that appreciated the Army's position but there is some urgency as the Planning Commission is getting ready to vote on the property, and if there is some threat to the public health and safety, the land management code requires them to step back and make sure there is not a problem.

Mr. Gortva noted that they had discussed at the last meeting what the potential impacts could be to residents, and since they are not drinking the groundwater, the only potential issue would be vapor intrusion. He said that a vapor intrusion issue results from contamination in the shallow groundwater which could move into a building, so if the shallow groundwater is clean there is no impact on the property. He stated that all the information to date—the Army's conceptual site model and groundwater sampling results from both the Army and the developer—indicate Parcel 1 does not have any impact from the solvents in the groundwater under Area B.

Mr. Cherry added that the State of Maryland does have a groundwater use restriction on the property so the developer cannot use groundwater for potable purposes.

Mr. Cherry said that the investigation underway is to confirm the nature and extent of contamination so the Army and regulators can make decisions regarding remedial actions. He noted that if any findings come to light during the investigation that pose an immediate threat to public health, the Army, EPA and Maryland Department of the Environment would take action.

Mr. Cherry continued his discussion of the tracer study. He showed a map of the tracer study area, indicating that everything in yellow is where there are monitoring locations. He stated that the tracer was introduced at B-11. He pointed out the 100 or so monitoring locations, including those along Rock Creek and Carroll Creek.

Mr. Cherry said that two tracers were introduced in key monitoring wells at B-11 where the highest concentrations of solvents have been found, with one well being deeper than the other. He reviewed the study objectives—introduce a tracer, monitor locations, and figure out where the tracer is going in the deep groundwater. He noted that the tracer study will answer questions such as whether deep groundwater is flowing to the same locations as shallow groundwater.

Mr. Cherry advised that Tracer A, introduced in the well with the highest TCE detections, showed up in a spring in the middle of Area B in two or three weeks. Mr. Cherry said that this was fairly quick and shows the connectivity between deep groundwater and surface water. He stated that in five to seven weeks the tracer showed up in on-post monitoring wells. He noted that the concentrations "showing up" were very low concentrations. He advised that 19 or 20 pounds of the tracer was put in the wells with a good bit of water to introduce it into the formation. He said that eight to

10 weeks into the study, the tracer was detected in two locations in the primary discharge area. Mr. Cherry noted that this was important information as it is providing confirmation there is some connectivity with deep groundwater flow and surface water features at Area B. He noted that the data is very preliminary and that it is subject to continued review and evaluation but appears to be consistent with the current understanding of groundwater flow at Area B and the conceptual site model.

Mr. Cherry said that Tracer B was installed in the deep zone. He advised that some of the observations when drilling deep monitoring wells was there were fewer fractures at depth and that most of the groundwater is moving through the shallow portions of the formation, approximately the top 150 feet; and at deeper levels, fractures are fewer and there is not as much groundwater flow. He noted that Tracer B showed up fairly quickly in shallow monitoring wells near the point of introduction, which shows a very distinct connectivity between the deep and shallow formations. Mr. Cherry stated that eight to ten weeks later Tracer B has not shown up elsewhere.

Ms. Hahn asked if the weight of the tracer was similar to the TCE and DNAPLs. Mr. Cherry responded that the free products or DNAPL will sink to the bottom of the water. [TCE and PCE dissolved in groundwater and the tracer dissolved in groundwater will behave in the same way and will move with groundwater flow. This is why the tracer was added at the depths where the DNAPL may exist.] He stated that the focus of this study is the dissolved concentrations that move with the groundwater.

Mr. Robert Craig asked for confirmation that it appears the groundwater is flowing about 500 feet a week, and Mr. Cherry concurred that the groundwater moves quickly and then discharges to Carroll Creek. Mr. Cherry added that there are monitoring points on the other side of the Creek. Ms. Hahn asked if the purple symbols on the map indicate where the tracer has been detected, and Mr. Gortva clarified the purple symbols indicate sampling points. Mr. Cherry added that the locations on the map where the tracer has shown up have arrows but monitoring is continuing.

Mr. Gortva clarified that the lines on the maps are not the actual path the tracer is following but only indicate the points from where the tracer was introduced to where it is being detected.

Mr. Rolan Clark asked about the impact on the water pressure from the mountains, and Mr. Cherry responded that the water is pushed [draining] in a certain direction as it moves from the higher elevations.

In response to a question about whether the amount of water has an impact on how fast it flows, Mr. Cherry responded that it is a consideration as infiltration and rain can temporarily affect ground water levels in monitoring wells and streams, and measurements are collected to consider those effects. He explained that transducers installed in a series of wells are constantly collecting water levels to determine if the water levels are responding to seasonal changes and rainy periods. He continued explaining that physical data is also collected from stream gauges on how much water is coming out of the stream, and that they specifically try to target these sampling periods to get a range of points from lower flow times to higher flow times, perhaps after

a rain event. Mr. Cherry said that the data does not show much in the way of significant changes, with the system showing it is quite consistent regardless of the seasonal patterns.

Mr. Cherry said that the differences over the long-term are also considered, and there have been more than 30 different rounds of synoptic groundwater level measurements. He said that the data shows a fairly consistent picture over the long-term.

Mr. Gortva added that a number of years of monitoring has been done at Area B including quarterly monitoring for the wells on Area B during drought conditions and high water conditions after storms, and that the data shows the same general trend of groundwater flow direction. He stated that there is some flattening of the groundwater elevations during drought conditions and that under high water conditions, there are sharper rises and falls but the general trend [groundwater flow direction] is relatively the same.

Ms. Hahn asked if the groundwater discharge rate at the primary discharge area of about 1,100 gallons per minute is the reason that the contamination levels are lower at those sampling points.

Mr. Cherry said that if the groundwater flow was much less, for example, 5 gallons per minute, the levels of contamination would not be much different. He noted that the important point to remember about the 1,100 gallons per minute is that it shows there is a lot of water moving through the area, it is a very large discharge area, and because of that, the persistent low concentrations of solvents are detected in the surface water. He pointed out a surface water location on the map where the tracer was detected. He explained that the tracer is not coming into the creek at that point but further upstream and then migrating in the creek to the sampling point.

Mr. Cherry displayed a cross section of the site and explained that it depicts the site being cut in half. He pointed out the two areas where the tracer was introduced, the dotted lines where the tracer has been detected, and the timeframe when the tracer was detected.

Mr. Cherry stated that the Army and ARCADIS are working closely with EPA and Maryland Department of the Environment on the study and have been sending them updates as data is received. He advised that the monitoring will continue until November 2013, and that the Board will continue to be updated. Mr. Cherry said that a report will be prepared after the study is completed.

Mr. Cherry next discussed the additional direct push drilling. Mr. Cherry said that the direct push borings have been installed in shallow locations, typically 30 to 40 feet deep, but there were shallow refusals [encountered bedrock] during this drilling event; in many cases groundwater was not encountered because of the rock in the drilling area.

A member of the public stated that he had cows on Area B for 30 or 40 years, his shallow well had gone dry, and that the Army drilled another deep well for him south of the woods about 20 years ago. He said that after about six months the well was shut

off, and he was not told why. He stated that two 13-year old heifers died from drinking the water. He suggested that ARCADIS look into this well.

Mr. Gortva stated that the well has been sampled in the past, and it is very similar to other monitoring wells in the area. Mr. Craig added that about 20 years ago was when the Army hooked up residences to public water so the closure of his well may have been concurrent. Mr. Gortva noted that it was most likely at the time the groundwater contamination was discovered, and rather than continue to operate the well, a water line was installed to make sure the cows had clean water.

Mr. Cherry continued discussing the August 2013 additional direct push drilling, noting that the three areas were selected by EPA based on previous sampling results for PCE. He noted that the detection levels were not alarming but raised a technical question or uncertainty that warranted further assessment. Mr. Cherry said that a good bit of time was spent negotiating access with property owners. He said that the work was completed in August, and that samples are being analyzed and validated so data will be presented at the next Board meeting.

A community member stated that he lived in Lake Coventry and that residents did not receive notice of the drilling. He asked if the water in the Lake had been tested. Mr. Cherry said that the point of contact was the homeowners association and that they had relied upon the association to bring it to the attention of homeowners. Mr. Cherry said that the Lake had been tested in the past and included in the tracer study. He said that the tracers have not been detected to date in the Lake. Mr. Gortva added that there were no TCE or PCE detections in the Lake during prior testing, and no tracer found in the Lake during the previous tracer study. Mr. Gortva said that there have been a number of sampling events over the years, and that there is nothing to indicate the Lake is affected by Fort Detrick groundwater.

Mr. Cherry summarized upcoming work noting that the groundwater tracer study would continue through the fall, that the second round of vapor intrusion at several properties would happen in a few days, and that additional deep on-post and off-post drilling would continue through the fall.

Mr. Cherry said that the additional deep on-post and off-post drilling would be done as deep as 400 to 500 feet in some locations. He said that there are seven wells at five locations, with three areas being on the Waverly property, a location in the center of Area B, and on the County Montevue complex. He showed a map of the locations, noting that they are downgradient of B-11 to assess what is happening with groundwater flow at depth; on the County property to assess what is happening on the other side of the primary discharge area; and, then the locations on the Waverly property which are just over the fence from B-11.

Mr. Gortva said that he wanted to clarify some information about the County property. He referred to the map just displayed by Mr. Cherry and noted that it showed some of the PCE detections on the county property, with many of the detections being less than 1 part per billion. Mr. Gortva said that there are two locations where the detections are different and asked Mr. Cherry to discuss these locations. Mr. Cherry stated that PCE

is at much lower concentrations at Area B, in the hundreds of parts per billion as compared to thousands of parts per billion for TCE on Area B. He said the PCE detections in the deep and shallow monitoring wells on the County property are at barely detectable concentrations so the detections of 9.1 and 26 do not seem to tie into what is going on back at the source area and warrant some additional work. He said that the other sampling points nearby were non-detect. He noted that they were also locations where water elevation measurements could be collected. He pointed out one location and noted that it is a slightly higher point, higher than the Creek where the primary seeps and streams are located. He said that the depth to groundwater is about 15 feet below the ground surface. Mr. Gortva added that the two detections do not fit the same profile as the other sampling results so they may be from a localized source and not Fort Detrick. Mr. Gortva said that the piezometer location is also being monitored to see if the tracer from Fort Detrick shows up.

7. Introduction to ECC-Watermark Projects presented by Rob Wasserman of ECC

Mr. Wasserman stated that ECC-Watermark was awarded a performance-based acquisition in September 2012 to perform four different activities. He said that the activities are designed to supplement the ongoing remedial investigation. He advised that the activities are vapor intrusion assessments of 10 buildings at Area A and various buildings at Area B; supporting the bedrock drilling and well installation at Area B in conjunction with ARCADIS; evaluating the institutional controls at Area C; and pending approval of the Engineering Evaluation/Cost Analysis, connecting five residences on Kemp Lane to potable water and abandoning their private wells.

Mr. Wasserman stated that the contract was awarded to a joint venture between Watermark Environmental and Environmental Chemical Corporation (ECC) in 2012. He stated that he works for ECC and his company has had a long-standing relationship with Watermark. He noted that he works out of the Manassas, Virginia office and that the company's other offices are in Abingdon, Maryland and Newtown, Pennsylvania.

Mr. Wasserman displayed a list of completed activities and said that most of the effort to date has been on completing the upfront documents that are required as part of the contract including a project management plan, quality assurance surveillance plan, accident prevention plan, and quality assurance project plan.

Mr. Wasserman said that the focus of his presentation is to provide a brief update on the vapor intrusion sampling completed at the former Montevue Care Facility at 355 Montevue Lane. He said that he would also provide a brief overview of what is planned at Area C.

Mr. Gortva explained that the vapor intrusion sampling was done at the County building that is going to be retrofitted for county employees to work at and which is close to piezometer PZ20 that had the detection of 9 parts per billion of PCE. He stated that the County requested the Army conduct vapor intrusion at the building. Mr. Gortva reiterated that the source of the PCE is not known, but the Army told the county that it could certainly do the vapor intrusion testing.

Mr. Wasserman said that the 10 locations within the building were sampled in mid-May. He said that it was an ideal situation as the building is being refurbished so it was down to bare studs and concrete floor which allowed for a very thorough evaluation.

Mr. Wasserman displayed a table showing the sampling results, along with the residential and industrial standards for indoor air and attenuation factors as determined by EPA. He stated that there were essentially non-detects at all 10 sampling locations; he explained that the J flags mean the lab is estimating trace detections, but the concentration was not at the point where the lab could quantify the detection with complete confidence. He said that while there were minor detections, none came close to the action levels.

Mr. Gortva stated that the residential standard is the allowable concentration in indoor air. He continued explaining that the sub-slab attenuation factor accounts for a concentration detected sub-slab, such as in the soil, but once it enters into the building there is a diffusion process that takes place and a reduction in the concentrations which is what EPA's attenuation factor takes into account. He noted that the results from the sampling were much below any of the action levels for any of the solvent compounds. Mr. Gortva summarized the sampling results by stating there are no vapor intrusion issues for this building.

Ms. Elisabeth Green asked if any indoor air samples had been collected. Mr. Wasserman said sub-slab samples are collected first to see if a pathway exists.

Mr. Wasserman said that a similar assessment is scheduled for some time next month at a Shookstown Road property. Mr. Gortva noted that the property is a day care facility, and sub-slab samples will be collected.

Mr. Wasserman next summarized the proposed work at Area C. He advised that Area C WWTP consists of a waste water treatment plant had an incinerator that was operational until 1975 and then demolished. He stated that incinerator at the site were active up until that point and that burned materials were disposed of in a burial pit. [surface disposal on the side of a hill.] Mr. Wasserman said that in 2000, a subsurface investigation was completed, and ash that contained potentially hazardous levels of dioxin was identified. He stated that a removal action was conducted in 2002 as a result of the investigation, and that the majority of the material was removed. Mr. Wasserman advised that in 2008, subsequent investigations found some residual material may still be present. Between 2002 and 2008, land use controls were established to prevent access to the material and restrict intrusive activity. He said that there is concern whether the land use controls are sufficient given the lateral coverage. Mr. Gortva added that the land use control area is the black shaded area on the displayed map. Mr. Gortva said that in 2008 when sampling was being performed for upgrades to the waste water treatment plant, some elevated levels of compounds were detected outside of the land use control area. Mr. Gortva said that as part of the recent five-year review of the site it was decided to take a look at this other area to determine if the ash disposal area extended over a little further and to see if the land use control area needs to be expanded. Mr. Gortva said that that decision led to the contract with ECC- Watermark to look at the area west of the land use control area.

Mr. Wasserman stated that the purpose of the current investigation will be to verify whether residual ash and demolition debris exist outside of the current land use control boundary and to characterize that material and any potential impacts. He noted that the Army and ECC-Watermark are working with Maryland Department of the Environment on the work plan which proposes a direct push investigation to both visually observe whether there is any ash or demolition debris and to collect samples for lab analysis. He stated that the samples would be analyzed for dioxins and metals to chemically characterize the subsurface. Mr. Gortva added that the draft work plan is under review by the Maryland Department of the Environment, and a copy is being provided to each Board member for their review.

Mr. Wasserman said that the field work is estimated to begin mid-September pending finalization of the work plan. He said that the work is anticipated to only take a couple days, and that the results will be reported at the next Board meeting.

Mr. Wasserman said that other pending work under their contract includes supporting the Army and ARCADIS with groundwater monitoring at Area B and vapor intrusion assessments at Areas A and B during the heating season.

In response to a question from Ms. Hahn, Mr. Wasserman said that ECC-Watermark is a different company than ARCADIS. Mr. Gortva explained that any time additional work needs to be conducted it has to be competitively bid and then awarded to a contractor based on a variety of factors. He stated that ARCADIS's original scope set a limited number of activities they are responsible for completing. Mr. John Buck stated that ARCADIS will still have the technical lead and Watermark ECC will be providing support for some of the additional work that needs to be done at Area B.

8. Engineering Evaluation/Cost Analysis for Kemp Lane Residences presented by Shelly Morris of ARCADIS

Mr. Gortva noted that there are several residences along Kemp Lane, near B-11, where the Army has been monitoring their wells for a number of years and where there were a few detections of TCE and PCE below drinking water standards. He continued explaining that the detections prompted the Army to provide bottled water for a number of years. Mr. Gortva stated that the City recently put in a water line along Kemp Lane which caused the Army to look and see if a more permanent solution can be implemented. He said that an Engineering Evaluation/Cost Analysis document has been prepared and would be discussed by Ms. Shelly Morris of ARCADIS.

Ms. Morris displayed an aerial photograph of Area B and pointed out B-11 and the five nearby properties on Kemp Lane being evaluated for connection to City water.

Ms. Morris noted that the Army has been conducting periodic tap water monitoring for volatile organic compounds since the early 1990s. She stated that the properties are adjacent to and in close proximity to B-11, the principal source of contamination at Area B. She said that in 2005 and 2006 TCE and PCE were detected at levels below EPA's maximum contaminant level of five parts per billion in two residential wells, one well one

year and one well the next year; TCE was detected in one well and PCE in another. She advised that at the same time there was also a detection at a boundary well at the maximum contaminant level of 5 ppb. Ms. Morris said that there was a drought during that time which is believed to have been a factor in why the detections occurred. She advised that since that time, there have been no other detections, and the Army continues to monitor the drinking water as a protective measure. Ms. Morris said that when the Army detected the TCE and PCE, they began to provide bottled water and they continue to do that today. She said that the Army is considering a long-term solution under a Non-Time-Critical Removal Action, which is a tool under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

Ms. Morris stated that cleanup activities are regulated under CERCLA which is a prescriptive regulatory process that is required to be followed. She said that CERCLA includes tools and processes for accelerating actions where conditions warrant it. Ms. Morris displayed the steps in the CERCLA process and noted that it includes a long study process before getting to a remediation solution. Mr. Gortva added that CERCLA allows for action to be taken more quickly to alleviate a problem and that is what is being proposed for the five Kemp Lane properties.

Ms. Morris explained that an Engineering Evaluation/Cost Analysis is similar to a Feasibility Study and is a tool under CERCLA for addressing actions in a quick manner. She noted that objectives are identified for the removal action, alternatives are identified to achieve the objectives, and the alternatives are evaluated against the criteria of effectiveness, implementability and cost. She said that the final component of the Engineering Evaluation/Cost Analysis is identifying the recommended approach.

Ms. Morris noted that a 45-day comment period on the Engineering Evaluation/Cost Analysis would start the following day and that a public information session would be held September 18. She noted that the final decision would be documented in an Action Memorandum and then the project would move forward with designing the action and putting it in place.

Ms. Morris stated that the Army looked at the following options: taking no action which is always considered as a baseline, continuing to supply bottled water and monitoring the groundwater, and connecting the homes to the city water supply. She said that the recommended action is connecting the homes to the city water supply as it would be effective in the long-term by providing a permanent solution and removing access to the source of the volatile organic compounds. She noted that the alternative is implementable because the city water line is available, it is cost effective, and it is a permanent solution.

Ms. Morris advised that the Army had met with the affected residents that week and reviewed the process with them. She reiterated that the public comment period would begin the next day and that the normal 30-day comment period had been expanded to 45 days to give the public more time to comment. She added that there would be a public meeting during the comment period on September 18. She noted that if the final action is connection to the city water supply, the action would occur sometime in the spring.

A member of the public asked how the vapor intrusion issue might apply to these homes. Mr. Gortva responded that vapor intrusion comes into play when concentrations in the shallow groundwater are above the five parts per billion level within 100 feet of the building. He noted that the levels in the private wells did not exceed the five parts per billion level. Mr. Gortva said that if a situation arises near a building which poses a risk [such as future detections in shallow groundwater at or above the 5 ppb screening level], vapor intrusion testing would be performed.

In response to a question as to what happens if the connection alternative is selected and residents say they still want bottled water, Mr. Zolyak stated that the Army is offering a permanent remedy and will no longer be providing bottled water.

Ms. Morris said that the Engineering Evaluation/Cost Analysis report will be on Fort Detrick's web site the next day and at the Frederick County and Fort Detrick libraries. Mr. Gortva said that he has copies available on disk for Board members.

9. RAB Member Open Discussion and General Community Comments

Ms. Hahn asked about the status of the archive report and more information on what is sensitive in the report which is delaying its release. Mr. Gortva stated that the report is still being reviewed. He explained that the sensitive nature of the report is not dealing with potential contamination. He said that in order to determine if there had been any potential environmental releases, the activities, processes and research performed at the location need to be examined. He said that at the time biological warfare research was being conducted in various buildings, information on the type of experimental activities is the type of information that makes the report sensitive. He said that because the source documents were classified, subsequent documents need to be examined to see if they still maintain the same type of classification. Mr. Gortva stated that he is not as concerned about what activities occurred at a site as much as if the activities had a potential impact. Mr. Craig said that the report does not specifically document where releases occurred, but provide information such as the location of tanks or refrigeration systems were used [and are areas where potential releases may have occurred] which may be information previously unknown. Mr. Craig stated that Mr. Gortva is already putting contracts in place to go look at the locations and do some sampling. Mr. Gortva added that although the report cannot yet be released, he and his staff have looked at the report and reviewed where there were activities that could have led to environmental contamination and which warrant investigation.

Ms. Hahn asked about a drum that was punctured when removing soil which is suspected to be the source of the contamination at Area B. Mr. Gortva confirmed that a drum was punctured during the initial drilling for soil samples at B-11. Ms. Hahn asked if other drums could still be present and add to the plume in the future and referred to the Federal Facilities Agreement's mention of a stockpile that was placed in Area B. Mr. Gortva responded that it is not possible to guarantee every buried drum has been located, but the likelihood that a [intact] drum of solvents still existing 40 years later is extremely low. He continued explaining that an early indication would have been detecting soil gas at the burial sites; the completed soil gas surveys pointed back to B-

11 so there is very low probability of intact drums in other locations. Mr. Gortva said that during the 2004 removal action at B-11, any remaining drums were looked for and that all that were found were drum carcasses. Ms Hahn had questions on the anti-crop agent disposal at Area B and herbicides. Mr. Gortva advised that the Federal Facilities Agreement refers to an anti-crop agent was a fungus researched at Fort Detrick for rice crops. He stated that the fungus had been produced and stockpiled until the end of biological warfare program when all drums of the fungus were incinerated and the ash tilled into the soil in the corner of Area B under the purview of the Maryland Department of the Environment. He said that it had nothing to do with Agent Orange or herbicides and that the fungus in question cannot affect a person as it is specific to rice crops.

Ms. Hahn asked if some type of RAB briefing could be sent to aldermen and county commissioners. Ms. Hahn stated that the Federal Facilities Agreement mentions some type of update between Board meetings. Mr. Gortva responded that the Federal Facilities Agreement does not specify that an update be provided to elected officials but the Army would be glad to do so. He noted that the Army is supposed to provide information to the community which is done by postings on the web site and putting information in the library.

Ms. Hahn asked officials present at the meeting how they would like to be updated and that the preferred method given was by email.

Mr. Craig stated that the Army has had very strong relationships with the mayors over the 10 years he has been at Fort Detrick, and that they periodically meet to discuss environmental issues, as well as other issues. He said that perhaps the Army and elected officials need to look at the discussions and determine if there is a need to improve communication and how best it can be done. He suggested that perhaps there might need to be technical briefings to not just the mayor but all the officials. Ms. Hahn offered to put together questions to be addressed at a technical briefing.

Mr. DiPalma stated that it would be very helpful to have EPA present at the next meeting.

Ms. Hahn asked if the Waverly property is a Superfund Site. Mr. Gortva stated that Area B Groundwater is listed as a Superfund site. Mr. Gortva said that if contamination from Area B moves off-site, the Army is responsible to address the contamination but it does not mean adjacent properties are on the Superfund list. Ms. Hahn said that she received a different answer from EPA, and she would forward the answer to Mr. Zolyak.

A community member asked if contamination moved to private property, would Maryland Department of the Environment be the lead regulator. Dr. Green responded that it would depend who the responsible party is; if the contamination originated on Army property from the Area B groundwater plume, EPA would be the lead regulator.

A community member and Ms. Hahn said that the questions they are raising are ones that are being raised at public hearings where there is much confusion, and no one is present who can give the correct answers. Ms. Hahn stated that she does not want to

make the Board meetings longer, but the questions being raised are the ones citizens are concerned about, especially questions related to private properties.

Mr. Gortva said that the Army does not have any information that indicates there is a major problem [imminent threat] on private or County properties that has to be immediately addressed. He said the Army has some questions and wants to collect information to get answers.

A community member stated that there is not a report available to the public that contains the information about off-site properties just summarized by Mr. Gortva. Mr. Gortva said that the Army is moving through the CERCLA process and collecting data, identifying data gaps, and then collecting additional data. He said that all the information will be summarized in the final Remedial Investigation Report which is not yet under contract. Mr. Gortva said that if all the additional data supports the conceptual site model, the Army can move forward with completing the report and moving into the next phase of completing human health and ecological risk assessments and the Feasibility Study. Mr. Gortva reiterated that he does not know of any areas off-site where additional rights of entry need to be obtained for the purpose of investigation, and that the Army believes it has a pretty good handle on the bounds of the issue.

10. Membership

Mr. Pauly stated that he would like to get feedback on Mr. DiPalma's application for membership as soon as possible. Based on a unanimous recommendation of the community members and the recommendations of Mr. Gortva and Mr. Craig, LTC Barthelme approved the acceptance of Mr. DiPalma as a community member of the Board. LTC Barthelme welcomed Mr. DiPalma to the Board.

11. Next Meeting

Mr. Gortva noted that the next meeting was tentatively scheduled for November 6, 2013 and all present agreed to this date. He proposed February 5, May 7, and August 6 as meeting dates for 2014.

The meeting adjourned at approximately 9:41 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)

Each Meeting Attendee (w/o enclosure)