

MEMORANDUM FOR RECORD

SUBJECT: Fort Detrick Restoration Advisory Board (RAB) Meeting Summary,  
11 JANUARY 2012

**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 James St. Angelo, Fort Detrick, Co-Chair  
Dr. Gary Pauly, Community RAB Member, Co-Chair  
Mr. Joseph Gortva, Environmental Restoration Program Manager  
Mr. Curtis DeTore, Maryland Department of the Environment  
Ms. Alicia Evangelista, Frederick County Health Department  
Mr. Roland Clark, Community RAB Member  
Ms. Jen Hahn, Community RAB Member  
Mr. Cliff Harbaugh, Community RAB Member  
Ms. Karen Harbaugh, Community RAB Member  
Ms. Helen Miller-Scott, Community RAB Member

### Others Present:

Mr. Robert Sperling, Fort Detrick Public Affairs Office  
Mr. John Buck, US Army Corps of Engineers  
Mr. Rob Thomson, U.S. Environmental Protection Agency, Region III  
Mr. William Hudson, U.S. Environmental Protection Agency, Region III  
Mr. Keith Hoddinott, USAPHC  
Mr. Tim Llewellyn, ARCADIS  
Mr. John Cherry, ARCADIS  
Ms. Katrina Harris, Bridge Consulting Corp.  
Ms. Violet Rice, Community Member  
Mr. Lou Krieger, VVA  
Mr. Patrick Burke, VVA  
Mr. John Chanol, Community Member  
Ms. Beverly Sangel, Community Member  
Ms. Courtney Mabeus, News Post  
Ms. Barbara Rice, Community Member  
Mr. Pondlio Rice, Community Member  
Mr. John Harding, Community Member  
Ms. Hannah Harding, Community Member  
Robin Summerfield, Office of Senator Ben Cardin  
Mr. Julianna Albowicz, Office of Senator Barbara Mikulski  
Mr. Carl Falcone, Community Member  
Mr. Mike Lansford, FDA  
Mr. Linda Selzo, Community Member  
Ms. Laura Pfeiffer, Frederick County Health Dept.  
Ms. Virginia Gaver, Frderick County Health Dept.  
Ms. Marta Leipzy, Community Member  
Mr. George Rudy, Community Member  
Ms. Francesca Colantuno, Community Member  
Ms. Bridget Rigby, Community Member

### Members Absent:

Mr. Charles Billups, Community RAB Member

Dr. Henry E. Erbes, Community RAB Member  
Mr. Barry Kissin, Community RAB Member  
Mr. Gerald Toomey, Community RAB Member  
Mr. Craig Toussaint, Community RAB Member  
Mr. Thomas Wade, Community RAB Member

### **3. Meeting Opening / Remarks**

Mr. Gary Pauly, Community Co-Chair, convened the meeting at 6:33 p.m., on Thursday, January 11, 2012, at the Hampton Inn & Suites, 1565 Opossumtown Pike, Frederick, Maryland. He then welcomed everyone and asked the other Board members and regulatory partners to introduce themselves.

### **4. Purpose of RAB Meetings** presented by Mr. Gary Pauly, Community Co-Chair

Mr. Pauly discussed the purpose of the RAB, noting that it was a forum for Fort Detrick to convey information both to the community and to the environmental regulators (Environmental Protection Agency (EPA) and Maryland Department of the Environment), including the status of environmental restoration projects. He said that the meetings generally follow some ground rules. He advised that the Board is limited in the topics that can be discussed to environmental restoration issues and activities. He stated that there is no video recording. Mr. Pauly advised that the Board has an agenda they would like to move through with as little disruption as possible to maintain a business atmosphere. He said, therefore, the Board requests questions be limited to the subject at hand. He explained that there is an opportunity at the end of the meeting for public comments and questions.

Mr. Pauly referred to the RAB's Purpose and Ground Rules, which were summarized on Power Point slides.

Mr. Pauly said that a RAB is established by a Department of Defense facility whenever there is a significant environmental restoration process. He said that it is jointly chaired by a community and installation member, with himself being the community co-chair and LTC St. Angelo being the installation co-chair for the Fort Detrick Board. Mr. Pauly advised that the Board has representatives from the community, as well as representatives of the Army and the regulatory agencies, like the EPA. He noted that the Board does not make decisions, but provides input and advice to the installation. Mr. Pauly said that the forum is an opportunity for stakeholders to be involved in the restoration process. He said that the forum is also for discussion and exchange of information and progress reports about restoration activities. He said that the meetings are open to the public and the Board's charter is governed by guidance from the Department of Defense.

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

Mr. Joe Gortva discussed the process of reviewing and approving meeting minutes, noting that the process has been to approve the minutes at the next meeting and then post them on the web site. He stated that he had sent a draft of the September 2011 meeting minutes to Board

members who were present at the meeting and asked for any comments. He said that having not received any comments, he would consider the minutes final and post them on the web site. Mr. Gortva said that he will be looking at speeding up the process so perhaps the minutes could be posted on the web site sooner.

**6. New Membership Applications** presented by Gary Pauly and LTC St. Angelo, co-chairs

Mr. Pauley advised that two applications for membership had been received from community members, Mr. Roland Clark and Ms. Jennifer Hahn. He stated that the current community members had discussed the applications and would recommend to the Army that both be appointed as Board members. LTC St. Angelo advised that the Army had also reviewed the applications and accepted the community members' recommendations. He welcomed Mr. Clark and Ms. Hahn as Board members.

**7. Updates on Archive Search Report and Herbicide Testing Project** presented by LTC St Angelo

LTC St. Angelo stated that the Army Corps of Engineers has finished their extensive research, and the findings will be provided in two reports. He stated that Fort Detrick is waiting to receive those reports. He advised that the Army and the regulators would be reviewing the reports from the perspective of asking for additional clarification and would not be suggesting changes.

LTC St. Angelo updated the Board on the Area B herbicide and dioxin site investigation, noting that the rights of entry issue had been resolved as of December 22, 2011. He advised that sampling had been conducted and completed the prior day, and the Army is awaiting the sampling results and report.

Mr. Gortva advised that both reports should be available before the next Board meeting and he will send out the reports to each Board member for review as soon as they are received.

**8. Area B Groundwater Workplan Update** presented by Tim Llewellyn, ARCADIS

Mr. Llewellyn introduced himself as the Project Manager for ARCADIS' current work at Area B. He noted that good progress had been made since the September Board meeting. Mr. Llewellyn reviewed the five topics to be covered by his presentation: brief background and objectives of the current phase of work, summary of on-site work including extensive drilling and discussion of safety protocols, summary of the quarterly sampling data, status of off-site work requiring rights-of-entry, and an overall summary and the anticipated path forward.

Mr. Llewellyn displayed an aerial map of Area B and stated that it is about 400 acres in size. He said that there are a number of former landfills at Area B which were capped in 2010. He pointed out the B-11 Disposal Area, which is a source of contamination to the groundwater under Area B. He said that the primary contaminants are industrial solvents, PCE (tetrachloroethylene) and TCE (trichloroethene). He added that there are other contaminants in the groundwater under Area B, but his presentation focused on the primary contaminants of TCE and PCE. Mr. Llewellyn stated that there have been high concentrations of these solvents in the groundwater under the B-11 Disposal Area, with a maximum detection of approximately 200,000 parts per

billion in the past. He advised that the results from the more recent sampling events are not detecting such high concentrations. In response to a question, Mr. Llewellyn advised that the 200,000 parts per billion detection occurred in 1998 near the B-11 Disposal Area, and the drinking water standard is 5 parts per billion. He explained that groundwater in this area flows from west to east towards Carroll Creek and carries some of the contamination with it. Mr. Llewellyn pointed out that the section of Area B outlined in red and blue on the map were where the contaminants in the groundwater exceed the drinking water standards; he stated that the lines will move as new data is received.

Mr. Llewellyn discussed the objectives of the current study, including further assessing the depth and extent of contamination, the full range of contamination, the groundwater flow directions including the potential deep groundwater flow under Carroll Creek, and the potential for vapor intrusion in on and off-site buildings.

Mr. Llewellyn reviewed the status of the planned work to meet the objectives. He advised that the first step, existing well assessment of approximately 75 wells, is complete and that the second step (new well installation) is being wrapped up after eight or nine months of drilling. He stated that the last five steps now have dates associated with them since most of the rights-of-entry have been received.

Mr. Llewellyn stated that the Army has and continues to work closely with EPA and Maryland Department of the Environment in all aspects of fieldwork and day-to-day activities. He said that bi-weekly conference calls are held to look at all the information being generated and, as a team, to make decisions on actions such as where to install wells and screens. Mr. Llewellyn advised that at the request of the Army, Maryland Department of the Environment collected groundwater samples simultaneously with ARCADIS in November. He said that these split samples underwent comparative independent analysis and that he will discuss the results later in the presentation.

Mr. Llewellyn next discussed the well drilling. He showed pictures of the drill rigs and stated that workers are on the 19<sup>th</sup> 10-day drilling shift. Mr. Llewellyn emphasized that there is continuous air monitoring to protect workers at the site.

Mr. Llewellyn showed a graphic of the subsurface and reminded the Board that the drilling is being done in fractured bedrock and limestone as it is important to understand what is going on in the subsurface and know where fractures and contaminated water is located.

Mr. Llewellyn next explained the drilling process, noting that they will initially drill down about 100 feet and then bring in the geophysical contractor to run a broad spectrum of instrumentation down the borehole. Mr. Llewellyn showed a photograph of the borehole taken with one of the geophysical instruments. He explained that the photograph shows a picture of the rock and open fracture along the side of the borehole; he also showed an acoustical image of the same area. He stated that these types of features are of high interest, and once they are found, additional testing is performed to find out if that fracture is transmitting water and if the water is contaminated. He continued explaining that to make these types of determinations a Packer system is placed in the borehole, which is a pump with inflatable seals above and below it to isolate the fracture. He

stated that the borehole is then pumped to see how much water that fracture is transmitting and whether the water is contaminated. Mr. Llewellyn said that this type of information is shared with the regulating agencies on a bi-weekly basis to make decisions about the wells.

Mr. Llewellyn showed a map with the status of the four aspects of the drilling process (drilling, geophysics, Packer testing, and well construction) updated for each well. He advised that he anticipates the wells to be finished by the end of the month. Mr. Llewellyn pointed out that the concentration of wells around the B-11 landfill is many as that is where most of the contamination is thought to be located.

Mr. Llewellyn summarized the drilling program, noting that 23 borings are completed or in progress and 24 new monitoring wells have been installed to bring the total number of wells in Area B to 100. He said that almost 4,000 linear feet of drilling has been completed, as well as 3,028 linear feet of geophysical logging and 37 Packer tests, with continuous air monitoring for volatile organic compounds at all borings.

Mr. Llewellyn next discussed the drilling near the B-11 landfill. He stated that the field work is looking for contamination and thus they expect to find contamination. He stated that there have been no incidents in the field that they were not prepared for with contingency plans, and there has been no unacceptable worker exposure to chemical concentrations.

Mr. Llewellyn showed an aerial photograph of the B-11 area and pointed out the location of the new wells being installed. He reminded the Board that the purpose of the field work is to find the groundwater contamination so finding contamination was anticipated, and the appropriate health and safety protocols are in place. In response to a question from a Board member, Mr. Llewellyn pointed out the location where 200,000 parts per billion of PCE was detected in 1998; he reiterated concentrations detected more recently have been much lower--in the 4,000 to 5,000 parts per billion range. Mr. Llewellyn advised that all 100 monitoring wells will be sampled in March 2012 and September 2012, with the samples being analyzed for a broad spectrum of analytes. He stated that the results will be presented at a future meeting in considerable detail.

Mr. Llewellyn stated that health and safety procedures are in place for every job and he reviewed some of the specific procedures in place for this work. He advised that there is an approved health and safety plan in place approved by the Army Corps of Engineers in January of 2011. He explained that there are dedicated site safety officers on site at all times whose primary job is to ensure the safety of ARCADIS' on-site workers. Mr. Llewellyn said ARCADIS is a very safety oriented company so another procedure is to conduct daily safety briefings, whether they are working at a hazardous waste site or constructing a building. He noted that slip, trip, and fall hazards are an example of a potential safety issue regardless of the type of job and are included in the health and safety plan, in addition to protection from any chemical exposure.

Mr. Llewellyn explained that continuous air monitoring is conducted for volatile organic vapors, carbon dioxide, carbon monoxide, oxygen, explosives, and hydrogen sulfide. He stated that if any action levels are exceeded, additional air monitoring would be conducted. He continued explaining that if action levels are exceeded, air samples would be collected about 100 feet downwind from the drilling site or at the property line, whichever is closer. Mr. Llewellyn said

that there is a contingency plan in place to coordinate with the County Health Department if any exceedances were detected during the expanded sampling, but to date there have not been any exceedances at 100 feet.

Mr. Llewellyn next discussed the worker protection action levels. He said that if concentrations of organic compounds are detected at sustained levels above 0.5 parts per million, that additional air sampling would be triggered. He said if sustained levels above five parts per million are detected, continued work would require Level C respiratory protection, which is a full-face filtered air mask, but is not a self contained supplied air system. He said that below the five parts per million concentration, respirators are not necessary. He explained that using the respirators when they are not needed creates a greater hazard as they limit mobility around heavy drill rigs, as well as limiting communication and vision. He said that they also create heat stress conditions in hot weather. He added that the Occupational Safety & Health Administration (OSHA) and EPA have recommendations and guidelines on how health and safety plans should be prepared, and the health and safety plan for this work conforms to that guidance in that it takes a layered approach as recommended. He stated that the layered approach includes advising that workers should not wear respiratory protection if action levels are not triggered.

Mr. Llewellyn said that no action levels had been triggered prior to drilling near Area B-11, but there was awareness that higher concentrations had been detected at Area B-11. He stated that the drilling crews are trained, certified, and equipped for working in Level C equipment as provided in the health and safety plan, so if action levels are triggered, the crews are prepared and ready to respond.

Mr. Llewellyn showed photographs of the Area B-11 drilling site. He explained that the drilling was conducted next to the landfill, but not through the landfill, to find contamination and to have a complete understanding of the vertical delineation of the contamination in that area. He stated that the existing well, BMW-67A, went down to 50 feet, and that new wells are being installed deeper. He advised that BMW-67B was installed down to 148 feet below ground surface, and that BMW-67C was intended to be installed to 300 feet. He stated that as drilling progressed at well 67C, action levels were triggered, so well 67C was screened at the depth where the action levels were triggered, and another well, 67D, was added which will go to the full depth.

Mr. Llewellyn next discussed how drill rigs work and why solvent vapors may be coming to the surface. He explained that drill rigs operate by advancing two casings into the subsurface, an outer and an inner casing, with a cutting shoe at the end of the inner casing, which brings drill cuttings back to the surface. He continued explaining that some drill rigs use water or mud; the one used for this work uses compressed air. He stated that it injects substantial quantities of compressed air down into the space between the inner casing and the outer casing and brings cuttings and water back to the surface. Mr. Llewellyn said that the fluids go through a flexible hose and discharge into a roll off; however, there is some air around the top of the borehole. He reminded the Board that there is continuous air monitoring at the surface with action levels set for 0.5 parts per million to trigger additional air monitoring and that measurements above five parts per million trigger the use of Level C equipment.

Mr. Llewellyn listed the chronology of drilling at well BMW-67C, reminding the Board that the plan was to drill down to 300 feet below ground surface. He stated at 155 feet below ground surface a water-filled fracture was encountered, and that the water in that fracture was sufficiently contaminated to vaporize solvents and bring them to the surface and trigger the action levels. He stated that a concentration of 10 parts per million was detected at the surface and drilling was stopped. He advised that volatile organic compound concentrations were detected at background levels about ten feet from the top of the borehole so vapors did not extend more than 10 feet from the drill rig. He stated that once the drilling stopped, concentrations dropped back to normal as the drilling process itself was bringing the vapors to the surface.

Mr. Llewellyn stated that the drillers could have put on Level C equipment and continued to drill; however, the team got together the following morning to discuss the situation with the Army, EPA, and Maryland Department of the Environment. He noted that ARCADIS suggested installing a permanent monitoring point at the 155 feet below ground surface location where drilling stopped so the fracture could be further investigated and all agreed.

Mr. Gortva added that the original plan was only to install one well at that location, but based on the discovery, an additional well was added right beside it to go down to the original planned depth of 300 feet.

Mr. Llewellyn advised that some additional water and air samples were taken as a precaution to verify that the conditions were safe. He said that there was no reason to assume the health and safety plan was not adequate, but additional sampling was done as an added precaution. He explained that the samples were analyzed for volatile organic compounds, semi-volatile organic compounds, and a list of tentatively identified compounds (compounds outside the ones the lab would normally look for). He advised that BMW-67B is a completed well so a sample was collected from 67B as well and analyzed for the full suite of parameters.

Mr. Llewellyn reviewed the results of the sampling and noted concentrations were consistent with expectations and that the existing safety protocols were found to be adequate. He stated that the air sampling [inside the well] found volatile organic compound concentrations in air similar to what was known and expected to be found. He continued explaining that only four tentatively identified compounds, all unknowns, were identified at low concentrations. He stated that breakdown products of TCE were identified. Mr. Llewellyn explained that air sampling is typically reported in parts per million, and the results shown are in parts per million.

Mr. Llewellyn reiterated that the trigger level to go to Level C equipment is 5 parts per million, which is substantially below the requirements to be protective, so workers would be donning respirators long before required to be protective. He stated that 10 parts per million of TCE is the level recommended by the American Conference of Governmental Industrial Hygienists (ACGIH) when protective actions need to be taken for workers. He showed that the OSHA permissible exposure level for TCE for workers which is 100 parts per million, 8 hours a day over a lifetime, without detrimental effects.

Mr. Llewellyn discussed the results from the groundwater sampling from the wells [BMW-67B and the well being drilled] and stated that the results were similar to the volatile organic compounds detected in the air samples, with eight semi-volatile organic compounds/tentatively identified compounds detected at low concentrations. He stated that the concentrations in the groundwater for TCE and PCE and breakdown products exceeded the drinking water standards and were consistent with the levels expected to be seen at this location. In response to a question, Mr. Llewellyn said that the Army has sampled residential wells and these compounds are not detected in residential wells. Mr. Gortva added that the results shown by Mr. Llewellyn are detections from a monitoring well on Fort Detrick and not from a drinking water well.

Mr. Llewellyn continued reviewing the drilling process for installing deep wells, including the additional well added, BMW-67D. He summarized the current status, noting that well BMW-67C was installed at 155 feet below ground surface, well BMW-67D is being drilled to a depth of 325 feet, and that groundwater sampling will be conducted in March. He stated that the wells met their intended purpose of providing additional data on contaminant distribution and the health and safety procedures worked by not having any worker exposure during the drilling. He stated that masks were worn, while the groundwater sampling he had just discussed was conducted, to be conservative.

Mr. Llewellyn next reviewed the sampling results from the November 2011 quarterly sampling event. He stated that it had been about a year since data had been collected on concentrations at Area B, so the Army initiated quarterly sampling of a subset of the wells at Area B; the samples are analyzed only for volatile organic compounds. He noted that the 15 wells being sampled are a mix of new and existing wells and includes wells near Area B-11 and along the property boundary. He advised that the quarterly sampling also includes Robinson Spring and 5 residential properties. Mr. Llewellyn stated that the Maryland Department of the Environment collected split samples at the same time and sent them out for independent analysis. Mr. Llewellyn showed a picture of the sampling set-up and the instrumentation used; he stated that the technique used is approved by the EPA.

Mr. Llewellyn advised that there was good correlation between the results from the Army sampling and analysis and the Maryland Department of the Environment results. He said that the volatile organic compound concentrations detected were similar to prior results.

Mr. Llewellyn reviewed the results for the five off-post residential wells, noting that PCE/TCE or other site-related volatile organic compounds were not detected nor were drinking water standards exceeded in any of the wells. He stated that low levels of MTBE (a gasoline additive) were detected in three wells at very low levels, substantially below the state guidance number of 20. He said that MTBE has not been detected on Fort Detrick Area B so there is no reason to believe the MTBE detected in the off-post wells is related to Fort Detrick.

Mr. Llewellyn summarized the on-post sampling results and stated that the maximum concentrations were detected in the vicinity of B-11, with the highest being 2,200 parts per billion of TCE, which is lower than the historical maximum, but above the drinking water standard.

Mr. Llewellyn said that TCE was detected in the Robinson Spring sample at 9.4 parts per billion, which is slightly above the drinking water standard of 5 parts per billion and consistent with historical detections.

Mr. Llewellyn showed an aerial photograph with the results from the Army's sampling and Maryland Department of the Environment's sampling and compared some of the results. He noted that guidance from EPA states that results within 30 percent is an acceptable comparison and all results were within 30 percent.

In response to a question regarding off-site detections, Mr. Llewellyn said that exceedances of the drinking water standard have been seen in Robinson Spring which is not on Fort Detrick, the portion of Carroll Creek on Fort Detrick, and very low concentrations in Carroll Creek downgradient of Robinson Spring (about 50 feet), but beyond that distance there have not been detections in Carroll Creek.

Mr. Llewellyn discussed the status of upcoming off-post work, noting that progress has been made in obtaining rights of entry for the off-post work. He displayed a map showing the locations where access is desired. He advised that the Army is still working with several property owners, and at a minimum, hoping to collect stream samples if the property owner will not allow a well to be installed.

Mr. Llewellyn showed pictures of the type of drill rig, direct push, which would be used for the off-post work and stated that it is smaller than the drill rig used on Army property. He explained that the direct push rigs push sampling rods into the ground using hydraulic pressure and can collect soil samples and groundwater samples, and can also leave behind small diameter, shallow wells that can be monitored in the future. He stated that the purpose of this work is to assess the depth of the rock beneath the Carroll Creek floodplain and to collect groundwater samples in that shallow aquifer above the limestone to see if there is any contamination. He continued explaining that the results of the work will guide further work, including potential additional vapor intrusion work or potentially drilling additional wells.

Mr. Gortva asked Mr. Llewellyn to confirm that no air pressure is used with the direct push method, and Mr. Llewellyn concurred and stated it is for this reason they do not expect to see any of the vapors that were detected at B-11.

Mr. Llewellyn displayed an aerial photograph with the locations of the proposed direct push borings and piezometers. He stated that they do not have access to all the properties so some adjustments may need to be made in the locations. He advised that the direct push work would be starting in February.

Mr. Llewellyn discussed the upcoming stream and seep sampling. He reminded the Board that the groundwater from Area B is discharging to Carroll Creek and Stream 2, and that there are seeps and springs present in Carroll Creek and along its banks. He stated that the Army had done some characterization, but the current work plan calls for relocating the known springs, looking for additional springs and seeps, and conducting surface water and sediment sampling.

Mr. Llewellyn showed an aerial photograph of the area where the spring/seep surveys will be conducted in the Spring of 2012.

Mr. Llewellyn next discussed the vapor intrusion sampling, explaining that vapors from solvents in shallow groundwater can move through the unsaturated zone above the water table and potentially accumulate below a building's basement foundation and potentially move through cracks into the building. He stated that vapor samples will be collected from below the building slab through small holes in building foundations, and that air samples will be collected from within the building. Mr. Llewellyn showed a map of where the vapor intrusion sampling will be conducted in the Spring of 2012.

Mr. Llewellyn reviewed the upcoming dye trace testing work and advised that this testing will help better understand the deeper groundwater flow conditions. He explained that a non-toxic colored dye will be injected in the sub-surface and then downgradient and potentially upgradient off-site locations will be monitored for about six months until the dye appears. He noted that this work would also be done in the Spring of 2012. He said that where the dye appears indicates where the groundwater is flowing and when the dye appears indicates how fast the groundwater is flowing.

Mr. Llewellyn gave a brief summary of his presentation and advised that all of the data collected will be incorporated into an updated Conceptual Site Model, which will be used to guide future work.

## **9. RAB Member Open Discussion**

Mr. Pauly invited comments and questions from Board members.

Ms. Jen Hahn stated that the current work does not extend much further than Rosemont Avenue and asked if there are any plans of extending the testing further down Carroll Creek or testing until contamination is no longer detected.

Mr. Llewellyn responded that much work has been done already on Area B, and the current work is designed to better understand the flow of deeper groundwater off-site. He continued explaining that if the dye trace results show a potential for deeper groundwater flow off-site, then there would potentially be more investigation of the deeper groundwater off-site. He explained that results from the current work will determine the need for and type of future work to be conducted. Mr. John Cherry of ARCADIS stated that the stream survey extends further downstream off-site than shown on the map earlier in Mr. Llewellyn's presentation.

Mr. Pauly asked if similar groundwater readings were received from wells B-67B and B-67C, thus indicating they are connected. Mr. Llewellyn responded that the readings were similar and they are likely in the same fracture.

Ms. Jen Hahn asked for an explanation of a well screen. Mr. Llewellyn explained that when a well is installed, the upper part is a solid casing so no water flows through the casing. He said that the lower part will have a well screen so water passes through.

Mr. Pauly asked if Mr. Llewellyn could speculate on what the final remedy might be after the investigation is finished. Mr. Llewellyn explained that the work is proceeding as required by EPA guidance, and it can take from months for an easy site to many years for a more complicated site like Fort Detrick to have a sufficient understanding of site conditions to make informed judgments about the final remedy. He stated that the next stage will be a Feasibility Study where potential remedial options are assessed. Mr. Llewellyn said that the step following the Feasibility Study is a Proposed Plan, which summarizes the investigations and remedial options for public comment. He advised that the final steps are to move to a Record of Decision and then implementing the chosen action. He concluded by saying that at this time there is no direct evidence that Area B is impacting any off-site resident.

Ms. Karen Harbaugh asked if the same safety protocols would be in place for the vapor intrusion and direct push work as were in place for the on-site drilling, and how quickly data would be received. Mr. Llewellyn responded that for the direct push work, vapors are not expected because elevated concentrations are not suspected to be present; in addition, there is not a mechanism to transfer the vapor from the sub-surface to the surface. He stated that the same health and safety plans will be in effect so there will be air monitoring, a dedicated safety officer, and contingency plans in place to take any steps required. He said that the soil vapor intrusion work is typically done over a longer period of time; canisters are put in the building and sample the air over specified periods and then go to the laboratory for analysis so that the data will be available in a couple of weeks.

Mr. Roland Clark asked if after all the testing is done is it possible to work backwards and measure how long ago was it that it leaked. Mr. Llewellyn stated that it is not possible as the compounds break down at different rates under different conditions. He said that the best that can be done is to look at the site history, such as when Area B-11 was operational, and assume that was probably when waste was placed at the site.

Ms. Jen Hahn suggested that more information needs to be provided to the community so they can be better educated in order to make their own decisions.

## **10. General Community Comments**

A member of the general public asked how people could be protected from being potentially affected by contamination in the groundwater such as through vapor intrusion. Mr. Llewellyn said that a scientific approach is needed and is being taken. He stated that at this site the work is looking at deep groundwater and fractured rock, and vapor intrusion typically happens when there are sandy conditions and high concentrations in groundwater near the ground surface. He noted that the current work is designed to confirm the nature and extent of the contamination. Mr. Llewellyn reiterated that the Army is sampling off-site residential wells to ensure there are no current issues while the investigation continues.

A member of the general public asked what characterization has been done once contamination was detected at monitoring well B-67C. Mr. Llewellyn said that when the fracture was encountered during the drilling, a choice had to be made to continue drilling or put a screen in so

it could be continued to be sampled. He said that the final decision was not to drill further but to screen the well at that depth and put in a well deeper 30 feet away.

A member of the general public asked about the contamination entering Carroll Creek and whether the levels are low because there is evaporation. Mr. Llewellyn said that the volatile organic compounds dissipate relatively quickly once they enter Carroll Creek through dilution and volatilization. He advised that it is not occurring along the whole run of the creek. In response to a question about whether the County Health Department should post notices where the contamination is being detected, Mr. Llewellyn said that if contamination is found off-site, the Health Department would be contacted.

In response to a question about the County Health Department's involvement at the Board meetings, Mr. Gortva stated that representatives from the County Health Department have been attending Board meetings for years; two representatives from the Health Department, Environmental Division, present at the meeting introduced themselves. In response to a question about residential well sampling, Mr. Gortva stated that residential wells have been consistently tested since 1992, either by Fort Detrick or its contractors or the State of Maryland. In response to a question about vapor intrusion testing, Mr. Gortva advised that when vapor intrusion was first looked at in conjunction with the State of Maryland, there were no issues identified. He stated technology and guidelines have changed over time, and the Army is again looking to see if there are any vapor intrusion issues.

Mr. Gortva stated that information is shared with regulators and appropriate people as the information is received by Fort Detrick. He stated that if the information is urgent, phone contact is made with EPA and Maryland Department of the Environment or the Health Department; if not urgent, the information is shared with regulators at the appropriate time.

A member of the general public stated that the Army has made a huge effort in the last two years to communicate better, but questioned whether appropriate contacts are being initiated by the Maryland Department of the Environment to the County Health Department. She questioned whether the Board can assist in further improving the communication.

LTC St. Angelo said that information is shared with the County Health Department. He advised that Fort Detrick is going to advise regulators and the Health Department when work is to occur off-post so that they are aware of the work schedule. Mr. Gortva added that the data will be put into reports which will be shared with everyone, including the Health Department.

A member of the general public asked why it took 20 years to begin the current drilling project. Mr. Gortva said that the groundwater monitoring at Area B started in the 1970s, and it was in 1992 that the concentrations began to rise and the Army informed the State. He continued explaining that it was then that the Army learned the contamination was going off-post, and it was at that point the Army started the restoration program. He stated that while investigations were begun in 1992 using the best technology at that time, the technology is much better now.

A member of the general public suggested Dr. Alvin Young review the archival records search report. LTC St. Angelo advised Dr. Young is under contract to review the report. The member

of the general public stated that he had information about Dalco coolant being disposed of at Area B. In response to a question from Mr. Pauly, Mr. Gortva advised Dalco coolant is an anti-freeze mixture.

Two members of the general public commented that the public and workers should be told they are possibly being exposed to areas that are contaminated. One of the members of the general public stated that she thought the workers should wear protective equipment at all times. Mr. Llewellyn stated that no one working in Area B has been or is currently being exposed to vapors. He said that the vapors detected around the drill rig were at concentrations below any health-based criteria. He stated that ARCADIS has more stringent action levels in place that were triggered for a very short period of time before drilling stopped; the action levels in place prevented anyone on-site from being exposed to harmful levels by requiring respirators be put on before they are actually needed. He explained that notification was not issued to the Health Department because there was an incident or off-site risk; notification was issued because the Army wanted to make sure once drilling restarted and workers were in Level C equipment, anyone observing the work would understand why they were wearing the equipment. He stated that there was no risk to anyone off-site. Mr. Llewellyn advised that the vapors detected were substantially below any health-based level, and that all workers are on a medical monitoring program. He said that the workers are trained and understand site conditions; he said that they understand if they feel something unsafe has occurred, they can contact their health provider and be checked.

A member of the general public asked if Fort Detrick operates under any permit for emissions which would apply to this work. Mr. Gortva said that there are no permits required for well drilling. He stated that there are no air permits at Area B as there are no sources that would go into the air.

A member of the general public asked if the Yellow Springs area was affected. Mr. Llewellyn stated that the area was substantially upgradient from Area B and would not be impacted.

A member of the general public stated that a groundwater pump and treatment system could be installed at the fenceline today as a preventive measure. Mr. Gortva responded that legally a remedy cannot be put in place without completing the studies. He advised that karst systems are usually not good candidates for a pump and treatment system and usually fail. Mr. Llewellyn added that without knowing all the transport systems, a pump and treatment system could be completely ineffective.

A member of the general public asked if information was being shared with other communities across the county who might be facing similar problems. Mr. Llewellyn responded that there is information sharing among Army installations and public outreach at installations with environmental restoration programs.

## **11. Meeting Close/Next RAB Meeting**

Mr. Pauly advised that he has established an email address for environmental restoration program questions between Board meetings: [detrickrab@gmail.com](mailto:detrickrab@gmail.com). He said that he will answer the questions or pass them along to the appropriate person.

Mr. Gortva stated that there are vacancies for community members on the Board and applications were available for anyone interested.

The Board agreed to tentatively schedule the next meeting for April 18, 2012. Mr. Pauly and LTC St. Angelo invited ideas for topics for the April meeting.

The meeting adjourned at approximately 9:08 p.m.

Reviewed by:

Approved/Disapproved

Enclosures:

Fort Detrick Installation Restoration Program Area B Groundwater Investigation Update  
Fort Detrick Installation Restoration Program Arsenic Sampling Data Review  
Fort Detrick Installation Restoration Program Program Status Update  
Meeting Sign-In Sheet

DISTRIBUTION:

Each RAB Member (w/o enclosure)  
Each Meeting Attendee (w/o enclosure)