

MINUTES

**INSTALLATION RESTORATION PROGRAM
RESTORATION ADVISORY BOARD MEETING
ABERDEEN PROVING GROUND, MARYLAND**

THURSDAY, 25 MARCH 2004

7:00 p.m. – 9:50 p.m.

EDGEWOOD SENIOR CENTER

RESTORATION ADVISORY BOARD MEMBERS PRESENT AT THIS MEETING:

Ms. Mandi Elliott-Bird
Ms. Glenda Bowling
Mr. Gary Browning (Alternate for
Mr. Kevin Barnaba)
Mr. Arlen Crabb
Mr. Roy Dietz
Mr. Butch Dye (Maryland
Department of the Environment)

Ms. Christine Grochowski (Community
Co-Chair)
Mr. Ted Henry
Mr. Thomas G. McWilliams
Mr. Ken Stachiw (Army Co-Chair)
Mr. Frank Vavra (U.S. Environmental
Protection Agency)
Mr. Dennis Warwick
Ms. Ruth Ann Young

RESTORATION ADVISORY BOARD MEMBERS NOT PRESENT AT THIS MEETING:

Mr. Greg Kappler
Mr. Dan Pazdersky

Mr. Doug Richmond (Harford County
Emergency Operations Center)

ENCLOSURES TO THESE MINUTES:

- 1: Roster of Meeting Attendees
- 2: Agenda
- 3: April 2004 Calendar of Events
- 4: Unexploded Ordnance (UXO) Incident Reports
- 5: Munitions Assessment and Processing System (MAPS) Presentation Materials
- 6: Canal Creek Study Area Presentation Materials
- 7: J-Field Study Area Presentation Materials

I. EXECUTIVE SUMMARY

Administrative Comments

Mr. Ken Stachiw (Chief, Directorate of Safety, Health and Environment (DSHE) Environmental Conservation and Restoration Division (ECRD)) reported a public meeting for the Graces Quarters Proposed Plan has been tentatively scheduled for 27 April 2004.

Perchlorate Detections Update

Mr. Ken Stachiw (Chief, Directorate of Safety, Health and Environment (DSHE) Environmental Conservation and Restoration Division (ECRD)) reported that an effort is ongoing to possibly obtain research and development funds to complete a research project for perchlorate. Mr. Stachiw displayed a slide depicting results from the latest round of perchlorate sampling. The perchlorate detections reported from the City of Aberdeen 16 March 2004 sampling event ranged from non-detect to 1.9 parts per billion (ppb). A result of 0.55 ppb was reported for the finished water.

Munitions Assessment And Processing System

Mr. Donald Benton (Munitions Assessment and Processing System (MAPS) System Manager) provided an update on the MAPS facility. The mission of the facility is to process stable and transportable chemical and smoke munitions while supporting APG Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) clean-up activities in areas suspected to contain buried chemical weapons. Mr. Benton provided a detailed description of the MAPS process for handling munitions.

The Resource Conservation and Recovery Act (RCRA) Research Development and Demonstration (RD&D) permit was issued on 19 March 2001. The construction contract was awarded to the John C. Grimberg Company on 18 May 2001, with construction completed in January 2004. Explosives only testing began in the burster detonation vessel (BDV) on 27 February 2004. A ribbon cutting ceremony for the facility has been scheduled for 5 May 2004. Chemical testing and permitted RD&D operations are planned to begin in the fall 2004.

Canal Creek Study Area

Mr. John Wrobel (DSHE ECRD Project Officer) concluded the update on the Canal Creek Study Area by providing an update on the Building 99 area.

Building 99

Remedial Investigation/Feasibility Study (RI/FS) activities were completed to determine the presence of contaminants in soil and the locations of contaminant source features and their relationship to volatile organic compounds (VOCs) in the Canal Creek aquifer. A screening-level Human Health Risk Assessment (HHRA) and screening-level Ecological Risk Assessment were completed in support of the RI/FS. Field activities in 2003 included the collection and analysis of 17 surface soil samples, five subsurface soil samples (0.5 to 2 feet), and eight subsurface soil samples (greater than 2 feet). Test excavations were completed at potential contaminant source features, and Direct Push Technology (DPT) soil conductivity logging was completed at seven locations around the Building 99 site. Nine samples were collected from the deeper (7 to 17 feet) vadose zone for VOC analysis. A total of 13 DPT samples groundwater samples were also collected for VOC analysis. Groundwater samples were also collected from monitoring well CC-120B.

The 2003 groundwater sampling results indicated elevated levels of VOCs in groundwater. Primary contaminants include 1,1,2,2-Tetrachloroethane (TeCA), carbon tetrachloride (CT), and trichloroethene (TCE). The groundwater contamination will be addressed as part of the West Canal Creek Area, Canal Creek Aquifer FS. Other sampling results for 2003 resulted in no underground storage tanks or vaults being detected. No significant vadose zone contamination or up-gradient VOC sources were identified. Isolated soil contaminants were determined to be unrelated to groundwater contamination.

The screening-level HHRA findings included arsenic concentrations elevated above reference values in a small portion, 100 feet north of the Building 99 slab. The arsenic concentrations in surface soil exceeded the screening levels for all land use scenarios. For the current worker/visitor scenario, only arsenic was found to exceed the screening levels. Elevated polyaromatic hydrocarbons (PAH) concentrations were detected near the former Building 99 and 91 locations. PAH concentrations are likely related to railroad ties, and therefore are not covered under CERCLA. Most manganese and cobalt detections, although elevated above background, are not indicative of contamination. The HHRA also found aluminum concentrations exceeding reference values, most likely because of natural variation in soils. The total carcinogenic risk for all scenarios fall within the target risk range and the sum of the non-carcinogenic hazard quotients for the child resident scenario is approximately 1. As a result of the manganese and aluminum exposures, the non-carcinogenic hazard index for construction workers is 22. Results of the screening-level HHRA do not indicate a need for remediation of surface soil to protect current and future land-users.

The screening-level ERA conceptual model was presented to the Biological Technical Assistance Group (BTAG) in the Fall 2003. Sediment samples from ditches and drainage areas were evaluated as soils. Assessment endpoints were evaluated for terrestrial plants, soil invertebrates, terrestrial wildlife, and aquatic and benthic invertebrates. Under the maximum case scenario, metals, PAHs, explosives, and pesticides equaled or exceeded criteria. Criteria were exceeded by one or more chemicals for terrestrial plants, soil invertebrates, vermivores, herbivores, and aquatic organisms. Samples were taken in December 2003, with results pending for toxicity tests for plants and earthworms. The Draft screening-level ERA will be submitted to stakeholders in the near future.

The schedule presented for Building 99 included: the draft screening-level HHRA sent to stakeholders by April 2004, completion of the Draft RI/FS in June 2004, and completion of the Final RI/FS in August 2004.

J-Field Study Area

Mr. Wrobel provided an update on the J-Field Study Area. Recent activities for the Former Toxic Burning Pits Area included the final Remedial Action Record of Decision (ROD) in 2001, Technical Impracticability (TI) waiver for the surficial aquifer in 2001, corrective actions from 2001 to 2003, and ongoing long-term monitoring. The RI for the white phosphorus (WP) burning pits was initiated in 2003.

Corrective actions for the surficial aquifer focused on the limited free-phase recovery of the dense non-aqueous phase liquid (DNAPL), as specified by the 2001 ROD. The delineation and well installation plan involved Cone Penetrometer Technology (CPT) field investigation, stratigraphic geospatial modeling, a DPT field investigation, and plume geospatial modeling. Two wells were installed and recovery was attempted five times. A total of approximately 6 liters of DNAPL were recovered.

The Corrective Action Plan for the confined aquifer included the abandonment of leaky wells, collection of additional groundwater samples, evaluation of contaminant trends and groundwater flow directions, a decision reached with regulators that the addition of any type of supplements to the confined aquifer to

degrade contaminants was not needed, and a decision if additional replacement wells should be installed depending on contaminant levels and flow conditions.

The long-term monitoring/operations and maintenance (LTM/O&M) plan established activities for the surficial aquifer, confined aquifer, eastern marsh, southern shoreline, and protective soil blanket (PSB). The document is currently in the Draft Final stage. The LTM/O&M activities outlined for the surficial aquifer involves the inspection of source area wells for DNAPL, assessment of changes in concentrations and redox conditions for the chlorinated VOC plume, and the evaluation of the potential for contaminant mass loading to the marshes. The LTM/O&M for the surficial aquifer will also involve phytoremediation with the demonstration plantation providing seasonal hydraulic containment of the plume.

The LTM/O&M for the confined aquifer involves five wells for water-level surveys, and four wells for groundwater samples to monitor the former confined aquifer hotspot and verify that the contaminants are not migrating off-site. The Eastern Marsh LTM/O&M will evaluate the success of remedial actions in controlling further contaminant input via groundwater infiltration into the marsh. The regulatory review of the Eastern Marsh approach has not been completed.

The LTM/O&M for the southern shoreline will involve the assessment of shoreline erosion and settlement of the rock stabilization structure. The PSB prevents ecological exposure to contaminants in and around the former toxic burning pits area. The LTM/O&M for the PSB includes annual inspections to evaluate the integrity of the soil blanket.

The WP pits were used between the late 1940s and 1990s for open burning/open detonation (OB/OD). Low levels of metals and semivolatile compounds (SVOCs) were found in the soil during the 1994 RI sampling. TCE was also detected during the RI sampling. A CERCLA investigation is underway due to the potential concern from past site use. An x-ray fluorescence (XRF) survey was conducted in September 2003. Tentative results show elevated lead and zinc concentrations in the western portion of the north pit and in the push out area west of the southern pit. Elevated zinc concentrations were also observed in Grid 2. Elevated iron was detected in discrete portions of Grids 1, 2, and 3 and in each of the burn pits.

II. OPENING REMARKS AND ADMINISTRATIVE COMMENTS

The March 2004 U.S. Army Garrison Aberdeen Proving Ground (APG) Installation Restoration Program (IRP) Restoration Advisory Board (RAB) meeting was called to order by Mr. Kenneth Stachiw (Chief, Directorate of Safety, Health and Environment (DSHE) Environmental Conservation and Restoration Division (ECRD); Army Co-Chair) at 7:00 p.m. on Thursday, 25 March 2004. The meeting took place at the Edgewood Senior Center located at 1000 Gateway Road in Edgewood, Maryland.

Enclosure 1 to these minutes is a meeting attendance list. RAB Members in attendance received an agenda (Enclosure 2), a RAB calendar of events for April 2004 (Enclosure 3), Unexploded Ordnance (UXO) Incident Reports (Enclosure 4), a copy of the Munitions Assessment and Processing System (MAPS) presentation (Enclosure 5), a copy of the Canal Creek Study Area presentation (Enclosure 6), and a copy of the J-Field Study Area presentation (Enclosure 7).

Mr. Stachiw reported that, due to a delay in reviewing the document, the Minutes from the 26 February 2004 RAB meeting have been included in the RAB Member packets for the March 2004 meeting. Mr. Stachiw encouraged the RAB members to review the minutes and let him know of any comments.

Mr. Stachiw reported a public meeting for the Graces Quarters Proposed Plan (PP) has been tentatively scheduled for 27 April 2004. The PP will address the groundwater for the Graces Quarters Study Area. Anyone interested in receiving a copy of the PP should contact Ms. Karen Jobes (IRP Manager Assistant).

Mr. Stachiw stated that a Fact Sheet should have been sent out to the RAB Members regarding a Biological Assessment that is being completed at APG. The contact person in charge of the Assessment will be contacted and the Fact Sheets will be distributed. A briefing on the Assessment can be scheduled if desirable.

After confirming RAB Members had no further comments, Mr. Stachiw provided an update on the perchlorate detections in the Aberdeen Area of APG.

III. PERCHLORATE DETECTIONS UPDATE

Mr. Stachiw displayed a slide depicting results from the latest round of perchlorate sampling. The perchlorate detections reported from the City of Aberdeen 16 March 2004 sampling event ranged from non-detect to 1.9 parts per billion (ppb). A result of 0.55 ppb was reported for the finished water. Mr. Stachiw stated that an elevated concentration of 5.6 ppb was detected by the City of Aberdeen during the 2 March 2004 sampling event. It is expected that the perchlorate detections will go up as a result of the plume moving past the wells being sampled.

Mr. Stachiw stated that the plume is measured with Direct Push Technology (DPT) sampling as opposed to wells. When using DPT, at the time of sampling, a hole is driven into the ground and the sample is taken, as opposed to an installed well that is permanently in place. In general, DPT sampling results are higher than results from well sampling. Sampling results from a well show concentrations over a 10-foot depth range, whereas a DPT is taken from a single point location within the aquifer.

Mr. Stachiw stressed that the finished water sampling results are still approximately 0.5 ppb and the production wells are correctly operating. An effort is ongoing to possibly obtain research and development (R&D) funds to complete a research project for perchlorate. The project would involve the removal of contaminated soil located in the Other Aberdeen Areas.

Mr. Stachiw stated that he has not heard any more discussion on the City of Aberdeen installing treatment systems on Production Wells 9 and 10. Ms. Ruth Ann Young (RAB Member) stated that two or three months after the treatment system is installed on Well 9, the City of Aberdeen will consider expanding the project and putting the treatment system on additional production wells.

Mr. Ted Henry (RAB Member) asked for clarification regarding the request for research money to address perchlorate contamination. Mr. Stachiw explained that the IRP asked for guidance from the Department of the Army (DA) and Department of Defense (DoD) regarding the use of DERA dollars to address perchlorate contamination in soil through a Treatability Study or Feasibility Study (FS). The guidance sent back to the IRP directed that a FS would be acceptable but that no environmental monies could be used for the study. The guidance also suggested that an investigation should be completed to determine if any entity in the R&D community would support the study. Mr. Stachiw stated that the IRP has been looking at entities such as U.S. Army Soldier and Biological Chemical Command (SBCCOM) and the Army Research Laboratories (ARL) to obtain RD&D funding.

Mr. Henry asked if Strategic Environmental Research and Development Program (SERDP) monies would be used for an R&D project. Mr. Stachiw responded that SERDP monies could not be used because it is considered environmental monies.

Mr. Henry questioned if the City of Aberdeen will be installing ion-exchange systems on the production wells in the hopes that APG will eventually install systems as well. Ms. Young stated that the City of

Aberdeen is setting aside \$32,500 for the initial study. Then a much larger amount of money would be needed to expand the treatment and include additional wells. Ms. Young added that consideration is being given to include two additional wells when the study is expanded.

Mr. Henry informed the RAB Members that he is a member of the perchlorate working team for the Interstate Technology Resource Council. The work team is just starting; therefore nothing will be documented until approximately six months to one year. The work team will evaluate available technologies for the treatment of perchlorate. Mr. Stachiw questioned if any new information is available regarding the National Academy of Sciences (NAS) study. Mr. Henry stated that the NAS review is ongoing, and will be completed in approximately one year. The work group will not be addressing risk issues, because that is being covered by the NAS review.

Mr. Henry asked for a copy of the presentation slides for the Performance-Based Contracts (PBC) update given at the December 2003 RAB meeting. Mr. Stachiw stated that copies would be provided to Mr. Henry.

Mr. Stachiw stated that some RAB Members did not receive the information regarding the proposed PBC for the Other Aberdeen Areas. Due to the confusion, a new copy of the information will be distributed to all RAB Members. Mr. Stachiw requested that Ms. Katrina Harris (General Physics Corporation) disseminate the information.

Ms. Young requested that a discussion be held regarding the proposed RAB rules. Mr. Stachiw stated that a discussion could be held at the end of the March 2004 RAB meeting. Mr. Stachiw stated that he would like to receive comments on the document and would suggest a more detailed roundtable or subcommittee of the RAB to thoroughly address the proposed rules. It may be beneficial to take a wait-and-see approach to observe how activities are conducted under the proposed rules. Mr. Stachiw added that, at the conclusion of the March 2004 RAB meeting, he will address several questions that were raised with regard to the annual Installation Action Plan (IAP) workshop.

After confirming RAB Members had no further comments, Mr. Stachiw introduced Mr. Donald Benton (MAPS System Manager) to provide an update on the Munitions Assessment and Processing System (MAPS).

IV. MUNITIONS ASSESSMENT AND PROCESSING SYSTEM (MAPS) UPDATE

Mr. Benton discussed several topics regarding the MAPS facility including the facility mission, process description with construction photos, summary of key program dates, facility systemization and start-up activities, and permitted Research, Development, and Demonstration (RD&D) activities.

Mr. Benton stated that the mission of the facility is to process stable and transportable chemical and smoke munitions while supporting APG Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) clean-up activities in areas suspected to contain buried chemical weapons.

Mr. Benton provided a detailed description of the MAPS process for handling munitions. For safety purposes, the munitions are over-packed before being transported to the MAPS facility. After the munition arrives at the MAPS facility, it is placed in a negative pressure glove box where the operators unpack the munition and prepare it for drilling. The munition is then moved into the explosive containment chamber (ECC) and is drilled. After drilling, the munition is transported back, under containment, into the glove box where it is drained and decontaminated. The drained liquid is then placed into a Department of Transportation (DOT) bottle. If the liquid is a known chemical agent, the filled

bottle is then transferred to the Chemical Transfer Facility (CTF) for permitted neutralization. If the liquid is an industrial chemical it can be transported off-site to a mixed waste Treatment, Storage and Disposal Facility (TSDF). The empty munition body is then placed in the burster detonation vessel (BDV) and destroyed with a C-4 donor explosive charge.

Mr. Benton displayed a photograph of the MAPS facility that was taken during the Fall 2003. Mr. Benton pointed out the carbon filtration system and stated that the system pulls negative pressure vacuum on the process area. Therefore, the only air exiting the facility has been filtered before being discharged into the atmosphere. Mr. Benton displayed a floor plan of the MAPS facility and described the process while pointing out specific locations on the plan. Locations noted on the plan included the airlock, glove box, ECC, BDV, control room, air monitoring room, and the carbon filtration systems.

Mr. Benton also displayed close-up individual pictures of the glove boxes, drill trolley, and the ECC. Pumps are located on bottom of each side of the glove box to allow for the system to pump the decontamination solutions out of the box into storage containers. A selection panel is located on the glove box to allow the operator to choose the appropriate decontamination solutions. Piping is located on top of the glove box to create greater negative pressure. The drill trolley has hydraulic hookups that allow for the drill to be manipulated remotely from closed circuit TV. The ECC measures approximately 7 feet tall, and over 20 feet long.

Mr. Tom McWilliams (RAB Member) expressed concern over the outcome if a detonation were to occur in the ECC. Mr. Benton assured that, if a detonation were to occur within the ECC, no one would be injured. The chamber was tested to 13 pounds of trinitrotoluene (TNT) equivalent.

Mr. Henry asked for an explanation of the costs and facility shutdown time that would occur as a result of an inadvertent detonation within the ECC. Mr. Benton explained that no specific costs are known that would be necessary to repair the ECC after a detonation. The drill trolley was a custom made item, and no duplicate trolley was made. If the drill trolley was damaged as a result of an inadvertent detonation, the machine would have to be remanufactured based on the existing construction drawings. Also, the other internal components of the ECC vessel would have to be replaced. An investigation would be necessary to determine why the detonation had occurred. Mr. Benton speculated that all repairs and investigations following a detonation would take at least three or four months, thus halting facility operations in the interim.

Mr. Henry questioned if the ECC was designed to drill exclusively configured rounds of munitions. Mr. Benton agreed and added that the drill trolley is equipped with automatic stops to prevent the drill from impacting the explosive burster inside the munition. Mr. Benton explained that the munitions are stable, range-removed items. All munitions have been deemed stable to allow for storage; unstable items would not come into the MAPS facility, they would be detonated using the Explosive Destruction System (EDS).

Mr. Arlen Crabb (RAB Member) asked for the approximate replacement cost for the drill trolley. Mr. Benton estimated that the replacement cost would be approximately \$100,000. A cost estimate is difficult, due to the original cost of the drill trolley including the design costs. The original drill trolley cost approximately \$200,000 including costs for the design and manufacturing of the equipment. Mr. Benton added that a company in Utah manufactured the drill trolley.

Mr. Butch Dye (Maryland Department of the Environment (MDE)) stated that the premise of the building is to dispose of munitions that are deemed safe for the MAPS facility process, although some rounds exist in the environment that are not stable. Mr. Dye asked for a description of the procedure that is used to

determine if a munition is safe to be brought into the MAPS facility. Mr. Benton explained that the Munitions Assessment and Review Board (MARB) is made up of ordnance experts that make an assessment as to the stability of munitions. Evaluations of the MARB include investigation of x-rays of the rounds, a portable isotopic neutron spectroscopy (PINS) analysis. Mr. Benton explained that the PINS analysis is a non-intrusive method used to determine the fill material of a munition. All the information is used to determine the suitability of the munition for storage. If the munition is deemed safe for storage, it will be processed at the MAPS facility.

Mr. Robert Maddox (U.S. Army Technical Escort Unit (TEU)) agreed that the PINS analysis is part of the MARB analysis. The MARB evaluates x-rays and photographs of the item, where the item came from, and the condition of the fuse and burster. After review of the information, all MARB members make a recommendation in reference to the condition of the munition and whether or not the munition can be placed in storage. Comments can also be added to the evaluation recommending the munition to be processed at the MAPS facility.

Mr. Erik Titland (Community Member) asked for a detailed explanation of the PINS analysis. Mr. Maddox explained that the acronym stands for portable isotopic neutron spectroscopy analysis. The analysis uses a low-level neutron source. The neutrons pass through the munition wall and break the atoms with positively charged electrons in the form of gamma rays. The gamma rays are then focused into a germanium crystal. The energy levels are then counted and transformed put into a spectra and entered into a computer for analysis. The number of gamma rays that come off of the item determines the type of fill in the munition.

Mr. Dennis Warwick (RAB Member) questioned what types of hazards the workers are exposed to at the glove box station. Mr. Benton explained that the operators are not exposed to any hazards at the glove box station. The operators are equipped with butyl rubber gloves, and if an item with sharp edges is being handled inside the glove box, the operators wear work gloves over their rubber gloves. The entire glove box is under a negative vacuum compared to where the operator is standing. The whole room is also under negative vacuum compared to the outside. The glove box is equipped with differential pressure gauges, with audible and visual alarms being activated if the differential pressure is compromised. Mr. Benton assured the RAB Members that glove box operations are well established and very safe. Mr. Warwick asked if the operator was responsible for placing the munition on a cradle inside of the glove box. Mr. Benton responded that the process is a hand-operation and the worker is responsible for placing the munition in the cradle.

Mr. Benton displayed pictures of the BDV and the reagent/waste storage containers. The BDV is a commercial vessel that was procured. The empty, drained munition body is placed on a sacrificial cradle assembly and is placed inside the BDV. The detonator wires are run inside the upper sphere of the vessel and then the vessel is rotated over and straight down and is sealed by stainless steel locking clamps. The entire BDV is capped with stainless steel and contains two concentric shells. Each shell is 40 millimeters (mm) thick. The reagent/waste storage containers contain a variety of solutions such as bleach for the personnel decontamination station, monoethanol amine, sodium hydroxide, and waste from glove boxes. The air space over the reagent/waste storage containers is vented to a vacuum header filter system to ensure that no vapors fill the room. The air leaving the area, as well as other areas of the building, is monitored for chemical agents.

Mr. Benton reiterated that the MAPS facility does not treat the bulk chemical agent. The MAPS facility only containerizes the chemical agent and transports the material to the CTF for disposal. The MAPS facility deals solely with the rinse decontamination wastes from the solid munition body after it has been rinsed.

Mr. Henry asked if the reagent/waste storage containers were located in the process storage room. Mr. Benton confirmed that the storage containers are located in the process storage room.

Mr. Benton informed the RAB Members that the Resource Conservation and Recovery Act (RCRA) RD&D permit was issued on 19 March 2001. The construction contract was awarded to the John C. Grimberg Company on 18 May 2001, with construction completed in January 2004. Explosives only testing began in the burster detonation vessel (BDV) on 27 February 2004. A ribbon cutting ceremony for the facility has been scheduled for 5 May 2004.

Mr. Benton stated that the RAB Members should have received an invitation to the ribbon cutting ceremony. Anyone who did not receive an invitation and would like to attend the ceremony should contact Ms. Louise Dyson (Public Affairs Officer, Non-Stockpile Chemical Materiel Office). Mr. Henry asked for the time of the ceremony. Ms. Dyson explained that the ceremony is scheduled to start at 10:00 am, but any attendees should plan on arriving around 9:00 am to allow time for security procedures to be completed.

Mr. Benton reported that chemical testing in the BDV and permitted RD&D operations are planned to begin in the fall 2004. The purpose of the BDV testing is to perform explosive-only testing to fully evaluate the operational procedures before introducing a chemical agent. A pre-operational safety survey was conducted before explosive testing began. Any comments or problems that resulted from the safety survey were rectified before testing resumed. Explosive operations conducted to date include: detonators only on 27 February 2004; 2.5 pounds of C4 on 9 March 2004; and 2.5 pounds of C4 on 18 March 2004. The same amount of C4 that was used in operational testing will be used during explosive destruction of munition bodies.

Mr. Bill Brankowitz (U.S. Army Non-Stockpile Chemical Materiel Program) asked for Mr. Benton to discuss the noise level associated with a C4 detonation. Mr. Benton explained that the detonation can be heard in the control room with an open microphone but the explosion cannot be heard outside of the MAPS facility. No definitive measurement of noise level has been taken, but it is very clear that minimal noise is released outside of the building.

Mr. Titland asked for an explanation of the C4 explosive. Mr. Benton explained that C4 is a standard military explosive. Mr. Brankowitz added that C4 is commonly referred to as a plastic explosive.

Mr. Henry asked how much explosive is used for the typical burster during operations at the MAPS facility. Mr. Benton explained that the amount of explosive is dependant upon the specific size of the munition. The largest item to date is a 155-mm, which weighs approximately 3.8 pounds. Mr. Maddox stated that he was unsure and would have to check to determine the exact weight of a 155-mm munition. Mr. Brankowitz stated that the rounds typically found at APG are 75-mm, 4.2-inch mortars, or livens projectiles from World War I (WWI). During that time period, generally the small bursters were approximately equivalent to the diameter of a finger and weighed much less than the 2.5 pounds of C4 used in explosive operations testing. The net explosive weights typically ranged from 0.5 to 1.5 pounds. Mr. Brankowitz cautioned that other items may be uncovered at APG that would have a larger net explosive weight. Mr. Benton stated that the MAPS operations are using a larger explosive charge weight than the weight of the burster to ensure complete detonation of the burster.

Mr. Henry asked if the weight of the explosive charge being used for the testing operations in the MAPS facility is similar to what is used in the EDS. Mr. Brankowitz explained that the burster materials are virtually identical, but the donator charge is slightly larger because the MAPS uses only one charge, while

the EDS uses three charges. Mr. Benton added that the EDS uses a conical formation with the linear shape charges that focus the energy directly on the munition, while the MAPS facility uses more of “brute force” technique.

Mr. Benton explained that, during the testing phase, simulated items representing a wide range of munition sizes with various types and amounts of simulated fill material will be used. The items will undergo the entire process at the MAPS facility including drilling and draining. Mr. Benton reiterated that the simulated munitions will be used during the test phase, and all items will be filled with water. Explosive bursters will be put in some of the items and tested in the facility. Other items used for testing will include chemical filled phosgene, mustard, and GB bottles (no explosives allowed). Upon completion of the chemical filled item testing, liquid smoke munitions will be tested. Finally, as available, recovered chemical munitions will be processed at the MAPS facility.

Mr. Henry asked if available munitions in storage will be processed using the MAPS facility. Mr. Stachiw stated that a number of items in storage at N-Field will be suitable for processing at the MAPS facility.

Mr. Benton informed the RAB Members that the permitted RD&D operations begin with the introduction of the first waste munition into the MAPS. Munitions can include smoke, chemical agent, and industrial chemicals. The duration of the RD&D permit is 365 operational days, with operational days defined as those days when the facility is treating or storing hazardous waste. The permit may be renewed up to three times in accordance with permit requirements. Activity reports for the RD&D permit are required quarterly, or every 90-calendar days, and an RD&D term review is required after 300 operational days. Eventually, the RD&D permit will transition into a conventional RCRA permit.

Mr. Benton stated that MAPS is envisioned as an intermittent-use facility. There will be periods of time when recovery operations are on going and there is nothing in N-Field that is suitable for destruction at MAPS. Mr. Benton speculated that the MAPS facility may be used during bad weather periods when recovery operations are halted, and workers can then go into the MAPS facility and proceed with the processing of the items recovered during fair-weather activities.

Mr. Dye asked for confirmation that, if in fact the system tests out and the RD&D permit has served its life, the move to the conventional RCRA permit would be a modification to APG’s existing hazardous waste permit. With that modification, the mandated administrative process would allow for public hearings. Mr. Benton agreed that public hearings would be scheduled during the transition from the RD&D permit to the traditional RCRA permit.

Mr. Benton summarized his presentation by reiterating that the construction of punch list items is nearing completion, MAPS has initiated preliminary testing using explosives only, systemization is currently proceeding on schedule, and RD&D permit activities are scheduled to begin later in 2004.

Mr. Crabb stated that Mr. Benton reported that the drained liquids would be put in a DOT bottle and transported to the CTF for disposal. Mr. Crabb asked for the approximate size of the DOT bottle and requested to view a photograph of the bottle. Mr. Crabb also questioned the distance from the MAPS facility to the CTF. Mr. Benton stated that the CTF is located approximately 1.5 to 2 miles from the MAPS facility. The DOT bottle looks similar to a gas cylinder bottle, and is equipped with a valve. The bottles come in a variety of sizes. All containers will be over packed in another container as per procedures in place for transporting materials at APG. The containers are vehicle transported to the CTF with an escort and following all required security procedures. Mr. Brankowitz stated that a photograph of the DOT bottle could be provided to the RAB Members at the April 2004 RAB meeting.

Mr. Henry questioned what company is operating the MAPS facility. Mr. Benton stated that the MAPS is currently being operated by the Edgewood Chemical and Biological Center (ECBC). The facility is a turn-key operation where the Non-Stockpile Chemical Materiel Program provides the funding and stipulates the monitoring, scheduling, and oversight of the operations, but ECBC personnel will complete the actual operation of the facility. Mr. Brankowitz added that the same team of personnel is also operating the EDS facility.

Mr. Henry expressed concern over the availability of the ECBC personnel to perform operations at both the EDS and MAPS facilities. Mr. Benton stated that, in general, the personnel for the facilities will be available at most times. Mr. Benton stressed that the MAPS process is not an emergency operation, but used to process stable munitions that are suitable for, and are currently in storage.

Mr. Henry asked for the final cost of the MAPS facility. Mr. Benton responded that the construction contract for the MAPS facility was approximately \$14 million.

After confirming that no one present had further questions, Mr. Stachiw introduced Mr. John Wrobel (DSHE ECRD Project Officer) to provide the conclusion of the Canal Creek Study Area update.

V. CANAL CREEK STUDY AREA UPDATE

Mr. Wrobel thanked RAB members for the opportunity to conclude the update on the Canal Creek Study Area. Mr. Wrobel informed the RAB Members that, since the February 2004 RAB meeting, all equipment has been replaced at the Groundwater Treatment Plant (GWTP) for the East Branch Canal Creek. The plant has resumed normal pumping operations and all equipment is working properly. Mr. Wrobel added that the operating contractor finished all repair and replacement work one week ahead of schedule.

Mr. Dietz questioned the results of the investigation into why the gearbox had failed. Mr. Wrobel explained that the report from the engineer has not been completed, but based on conversations with the engineer, it would be beneficial to have a spare gearbox on site. Mr. Wrobel added that the failed gearbox was sent back to the manufacturer for repair and will be returned to the GWTP to be kept on site as a spare in case of another failure.

Mr. Crabb asked Mr. Wrobel if he could come to his office to review the pictures taken during the investigation of the failure of the gearbox. Mr. Wrobel stated that Mr. Crabb was welcome to come by and view the pictures at anytime, or the copies of the pictures could be sent to Mr. Crabb for review.

Building 99

Mr. Wrobel reported that the area is the site of the old White Phosphorus (WP) filling plant that was used beginning in 1917. The building was then converted for other uses from the 1940s to the 1970s. The building was used for testing and production work for chemical weapons. The building was leveled several years ago and the sumps that received the waste handling from the process plant were filled with concrete. The only visible landmark on site is the concrete slab where the building foundation was once located.

Mr. Wrobel informed the RAB that Remedial Investigation/Feasibility Study (RI/FS) activities were completed to determine the presence of contaminants in soil and the locations of contaminant source features and their relationship to volatile organic compounds (VOCs) in the Canal Creek aquifer. A

screening-level Human Health Risk Assessment (HHRA) and screening-level Ecological Risk Assessment were completed in support of the RI/FS.

Mr. Wrobel displayed a map depicting the Building 99 soil sampling locations. Mr. Wrobel pointed out the former building and sump line locations. The importance of collecting soil samples at a variety of depths is to obtain data for all possible receptors. For example, human and certain ecological receptors will be potentially receptive to the top six inches of soil. Also, deeper soil samples will allow for evaluation of contaminants to determine if they are contributing to groundwater contamination. The soil sample locations were chosen around buildings and former structures that were, based on historical records, used for waste handling and disposal activities.

Mr. Wrobel reported that field activities in 2003 included the collection and analysis of 17 surface soil samples, five subsurface soil samples (0.5 to 2 feet), and eight subsurface soil samples (greater than 2 feet). Test excavations were completed at potential contaminant source features. Mr. Wrobel explained that, during the mid-1990s, a geophysical survey and underground mapping of the area were completed. The survey and mapping identified what was believed to be an underground vault. Test pits were completed in the area, and no vault was identified.

Mr. Wrobel stated that additional field activities for 2003 included Direct Push Technology (DPT) soil conductivity logging at seven locations around the Building 99 site. Nine samples were collected from the deeper (7 to 17 feet) vadose zone for VOC analysis. A total of 13 DPT samples groundwater samples were also collected for VOC analysis. Groundwater samples were also collected from monitoring well CC-120B.

Mr. Wrobel reported that the 2003 groundwater sampling results indicated elevated levels of VOCs in groundwater. The maximum total VOC concentrations for Well CC-12B, screened at 60 to 65 feet below ground surface (bgs) were found to be 923 ppb. During an April 1994 sampling event, Well CC-12B detected total VOC concentrations of 1,530 ppb. Sampling location DPT-03 had total VOC detections ranging from 1,132 ppb to 1,415 ppb depending on depth, and a 1,360 ppb detection in the Canal Creek Aquifer. Sampling location DPT-04, at depths of 24 to 28 feet bgs, had a total VOC detection of 9,516 ppb and a detection of 8,983 ppb in the Canal Creek Aquifer. Total VOCs detected ranging from 24 to 36 feet bgs could be contributing to the contamination in monitoring well CC-120B. Primary contaminants include 1,1,2,2-Tetrachloroethane (TeCA), carbon tetrachloride (CT), and trichloroethene (TCE). After consulting with the EPA, it was determined that the groundwater contamination will be addressed as part of the West Canal Creek Area, Canal Creek Aquifer FS.

Mr. Wrobel displayed graphics depicting a cross section traverse going from west to east from the location of monitoring well CC-120B to DPT-05. The cross section allows for an analysis of the subsurface and to determine if a contamination source area upgradient of the Building 99 site is contributing to the groundwater contamination being detected in the Building 99 area. The cross section also depicts the total VOC detections at specified depths. Mr. Wrobel stated that the geologist that prepared the cross section explained that the area does not have a clearly defined confining layer (i.e. clay layer) that retards the flow of the contaminants into the groundwater. The subsurface in the cross section is made up of sand and silty/clay layers.

Mr. Stachiw questioned if the area in the cross section was unsaturated. Ms. Karen Thorpe (General Physics Corporation) and Mr. Matt McCaughey (Weston Solutions, Inc.) stated that the area is in fact saturated.

Mr. Wrobel reported that no underground storage tanks or vaults were detected. No significant vadose zone contamination or upgradient VOC sources were identified. Isolated soil contaminants, mostly poly aromatic hydrocarbon (PAHs) and metals, were determined to be unrelated to groundwater contamination.

Screening-Level Human Health Risk Assessment: Mr. Wrobel reported that the screening-level HHRA data evaluation included surface and subsurface soil data. Sediment data collected from small drainage ditches existent after precipitation events were evaluated as soil data. Surface water from the drainage ditches was not evaluated. The EPA approved the technical approach for the screening-level HHRA. Exposure groups included current human receptors, with the risk and will being evaluated based on all surface soil data. Risk for future human receptors will be based on a mixture of surface and shallow subsurface soil data due to the construction scenario. Risk scenarios include current (worker/visitor) and future (indoor and outdoor industrial workers; construction worker, and residents). Exposure scenarios included ingestion, inhalation, and dermal pathways. An evaluation was also completed to determine the potential for soil contamination to leach into the underlying aquifer.

Mr. Wrobel reported that the screening-level HHRA findings included arsenic concentrations elevated above reference values in a small portion, 100 feet north of the Building 99 slab. The arsenic concentrations in surface soil exceeded the screening levels for all land use scenarios. For the current worker/visitor scenario, only arsenic was found to exceed the screening levels. Elevated PAH concentrations were detected near the former Building 99 and 91 locations. PAH concentrations are likely related to railroad ties, and therefore are not covered under CERCLA. Most manganese and cobalt detections, although elevated above background, are not thought to be indicative of contamination.

Mr. Henry requested an explanation as to why the assumption was made that manganese and cobalt concentrations are not indicative of contamination. Mr. Wrobel explained that the metals are not typically found to be risk drivers at any of the sites at APG. Manganese and cobalt are often found in background soils. The risk assessment personnel do not feel that action should be taken at the site based on the risk associated with the metals. Mr. Henry stated that although the metals are not a risk driving issue, the elevated levels of metals could still be indicative of past activities at the site. Mr. Wrobel agreed but stated that the PAH contamination can be associated with the historical use of railroad ties in the areas around the Building 99 site.

Mr. Henry asked for an explanation of the historical activities that were conducted at Building 99. Mr. Wrobel explained that the building was used as a WP filling plant from 1917 into the 1920s. The WP was used by the military for screening troop movements because it is very reactive with the air. Other buildings across from Building 99 were associated with the WP production. All the buildings were eventually converted for other uses including mustard and chemical agent operations. Mr. Henry questioned if any operations involving Lewisite were completed in the area. Mr. Wrobel stated that he was unsure if Lewisite was used in the area, but he would check and forward the information to Mr. Henry.

Mr. Henry questioned if any determination had been made as to why elevated levels of arsenic were detected at the Building 99 site. Mr. Henry speculated that Lewisite operations on site could have contributed to the arsenic contamination. Mr. Wrobel stated that arsenic contamination could be a result of Adamsite as well as Lewisite. An investigation into historical site activities will be completed to determine if either Adamsite or Lewisite were used at the site.

Mr. Henry questioned if soil samples were analyzed for WP. Mr. Wrobel stated that soil samples have been analyzed for WP in the past. Mr. Henry asked for confirmation that WP could be detected in soils at

a small enough concentration that the WP would not ignite during analysis. Mr. Wrobel stated that, when analyzing for WP in the past, the laboratory must be alerted so that certain precautions can be taken in the laboratory. Mr. Henry questioned if the soil samples collected in the Building 99 area were analyzed for WP. Mr. Wrobel stated that the soil analysis did not include WP due to the soils on site being subjected to many disturbances. No WP was encountered during excavations at the site. Mr. Wrobel added that WP was not determined to be a contaminant of concern for the Building 99 area. Mr. Wrobel stated that across the street from the Building 99 area, smoking has been observed during drying of soils after excavations.

Mr. Henry asked if WP will be analyzed during the investigation of the areas across the street from Building 99. Mr. Wrobel stated that, based on observations during excavations, the soils will be evaluated for WP when an investigation of the areas across the street from Building 99 is completed. Mr. Wrobel added that the method used to analyze for WP was developed in Canada.

Mr. Henry asked what type of WP levels can be expected from the soils in the area across the street from Building 99. Mr. Wrobel speculated that the detection level for WP is 5 ppb, and it is unknown if levels less than 5 ppb can be detected. Mr. Wrobel stated that WP is very toxic, if ingested it can be fatal, especially in wildlife and birds.

Mr. Wrobel informed the RAB Members that the HHRA also found aluminum concentrations exceeding reference values, most likely because of natural variation in soils. Aluminum contamination is not suspected. The total carcinogenic risk for all scenarios falls within the target risk range (10^{-6} to 10^{-4}) and the sum of the non-carcinogenic hazard quotients for the child resident scenario is approximately 1. As a result of the manganese and aluminum exposures, the non-carcinogenic hazard index for construction workers is 22. The draft screening-level HHRA will be forwarded to stakeholders during the first week of April 2004. Results of the screening-level HHRA do not indicate a need for remediation of surface soil to protect current and future land-users.

Screening-Level Ecological Risk Assessment: Mr. Wrobel reported that the screening-level ERA conceptual model was presented to the Biological Technical Assistance Group (BTAG) in the Fall 2003. Sediment samples from ditches and drainage areas were evaluated as soils. Assessment endpoints were evaluated for terrestrial plants, soil invertebrates, terrestrial wildlife, and aquatic and benthic invertebrates. Under the maximum case scenario, metals, PAHs, explosives, and pesticides equaled or exceeded criteria. Criteria were exceeded by one or more chemicals for terrestrial plants, soil invertebrates, vermivores, herbivores, and aquatic organisms. Samples were taken in December 2003, with results pending for toxicity tests for plants and earthworms. The draft screening-level ERA will be submitted to stakeholders in the near future.

Mr. Titland questioned the concern about earthworms in the screening-level ERA, and he stated his belief that earthworms would die if exposed to toxic contaminants. Mr. Wrobel stated that it is extremely important to evaluate earthworms within an ERA because they are an essential part of the food chain and are a good indicator for toxic effects on other animals. Mr. Wrobel explained that the earthworms are exposed to contaminated soils in a controlled environment. The results are not yet in, but the information is then processed to observe the effects on other organisms as you progress up the food chain.

Building 99 Schedule: Mr. Wrobel informed the RAB Members that the schedule for Building 99 included: the draft screening-level HHRA sent to stakeholders by April 2004, completion of the draft RI/FS in June 2004, and completion of the final RI/FS in August 2004.

Fiscal Year 2004 Planned Activities

Mr. Wrobel presented a schedule for planned activities for the Canal Creek Study Area for fiscal year 2004. The East Branch Canal Creek GWTP will continue current pumping operations. The Final FS and Draft PP for Building 99 will be completed. The Final FS and PP/Draft Record of Decision (ROD) will be completed for the Three Sites. The upland groundwater plume delineation and biomat pilot study for the West Branch Canal Creek will be completed. Monitoring for Building 103 and Beach Point will continue throughout fiscal year 2004.

Mr. Henry asked for specific arsenic levels that were detected in the Building 99 area. Mr. Wrobel stated that he would provide the specific detection levels during the break.

VI. INTERMISSION

At 8:25 p.m., after confirming that no one present had further questions, Mr. Stachiw requested a 15-minute break. At 8:40 p.m. the meeting resumed and Mr. Wrobel provided an update on the J-Field Study Area.

VII. CANAL CREEK STUDY AREA UPDATE CONTINUED

Mr. Henry asked for an explanation for the extra slides included with the Canal Creek Study Area presentation. Mr. Wrobel explained that he included the slides in case anyone had questions regarding several topics (perchlorate, well locations, etc.) discussed during the Canal Creek Study Area update.

Mr. Henry asked if the perchlorate detections were found within the area that is being treated by the East Branch Canal Creek GWTP. Mr. Wrobel responded that the perchlorate detections were found in the West Branch Canal Creek Aquifer. The perchlorate detections will be investigated as part of the West Branch Canal Creek FS.

Mr. Henry asked why Mr. Wrobel would include a slide of the GWTP vapor readings. Mr. Wrobel stated that, during the Canal Creek update at the February 2004 RAB meeting, an update was given regarding vapor readings at the GWTP. The slide was included in the event that someone had specific questions regarding the vapor readings and the methane detections previously reported.

Mr. Henry asked for the highest level of DIMP that was detected in the Canal Creek Aquifer. Mr. McCaughey stated that he was unsure of the exact detection, but speculated that the highest detection ranged between 10 ppb and 30 ppb. Only approximately 12 low concentrations of DIMP were detected within the aquifer. Mr. Henry requested information regarding the exact range and highest detection of DIMP found in the Canal Creek Aquifer. Mr. Wrobel stated that the requested information would be provided to Mr. Henry.

Mr. Titland questioned if the methane vapors detected in the treatment plant were combustible. Mr. Wrobel explained that the methane detections were well below the explosive limit.

Mr. Henry requested that Mr. Wrobel provide an explanation of the chemical signature plot slide, including a description of the difference in the diameter size of the plots. Mr. Wrobel explained that the larger diameter circles had higher total VOC detections. Mr. Henry suggested including a legend relating the VOC concentrations to the diameter of the circles. Mr. Wrobel agreed, stating that a legend could be included in the chart.

Mr. Henry questioned the eventuality of having the water coming out of the GWTP be declared potable and approved for use. Mr. Wrobel stated that the MDE provided questions regarding the potential use for

potable water. The Army provided responses to the questions but has not received any feedback from the State regarding the responses. Mr. Wrobel added that the operational data will be gathered and resubmitted to MDE to show that the water is in compliance with drinking water standards.

Mr. Henry requested a copy of the questions from MDE, the responses provided by APG, and MDE's opinion on the responses. Mr. Dye stated that he did not have any specific answers regarding the responses received from APG. Mr. Dye stated that he would check internally on the status of the issue.

Mr. Henry asked for the standard or comparison number for DIMP. Mr. Vavra speculated that the detected levels of DIMP were slightly higher than the risk-based comparison number. DIMP was determined not to be a serious problem to be addressed. Mr. Vavra and Mr. Dye agreed to check on and provide any comparison numbers for DIMP.

VIII. J-FIELD STUDY AREA UPDATE

Mr. Wrobel displayed a map depicting the different site areas within the J-Field Study Area. The J-Field Study area is located on the southern most portion of APG's Edgewood Area peninsula. Mr. Wrobel stated that operable units (OUs) were associated with historical activities that took place within J-Field. One ROD is in place that governs the majority of OUs, with the exception of the WP Burn Pits area that is currently in the RI phase.

Mr. Wrobel stated that recent activities for the Former Toxic Burning Pits Area included the final Remedial Action ROD in 2001, Technical Impracticability (TI) waiver for the surficial aquifer in 2001, corrective actions from 2001 to 2003, and ongoing long-term monitoring. The RI for the WP burning pits was initiated in 2003.

Surficial Aquifer Corrective Actions

Mr. Wrobel reported that corrective actions for the surficial aquifer focused on the limited free-phase recovery of the dense non-aqueous phase liquid (DNAPL), as specified by the 2001 ROD. The delineation and well installation plan involved Cone Penetrometer Technology (CPT) field investigation, stratigraphic geospatial modeling, a DPT field investigation, and plume geospatial modeling. Two wells were installed and recovery was attempted five times. Approximately 6 liters of DNAPL were recovered. Mr. Wrobel displayed a photograph depicting the DNAPL (denoted by red dye) after it was pumped out of the wells. A photograph showing an example of the cone penetrometer was also displayed.

Mr. Wrobel displayed a plume map depicting the TeCA distribution in the surficial aquifer from July 2001. The highest concentration was detected at well location GP-53. The area surrounding GP-53 was investigated to determine the correct placement of the DNAPL recovery wells.

Mr. Wrobel displayed a map showing the DNAPL well locations around well GP-53. The map shows approximately a 50-foot area around the well. Two 6-inch recovery wells were installed in the lower sand where most of the free-product DNAL was recovered during the field event. Mr. Wrobel explained that the amount of DNAPL recovered was diminishing with each recovery attempt. The last recovery attempt yielded only approximately 100 milliliters (mL) of DNAPL. Based on the recovery rates, additional recovery attempts will take place on a frequency no sooner than annually.

Confined Aquifer Corrective Actions

Mr. Wrobel reported that the Corrective Action Plan for the confined aquifer included the abandonment of leaky wells that were installed in the late 1980s, collection of additional groundwater samples, evaluation of contaminant trends and groundwater flow directions, a decision reached with regulators that

the addition of any type of supplements to the confined aquifer to degrade contaminants was not needed, and a decision if additional replacement wells should be installed depending on contaminant levels and flow conditions. Mr. Wrobel displayed a slide depicting the various VOC detections and associated locations within the confined aquifer. The slide also shows the locations of the abandoned wells.

Mr. Wrobel informed the RAB Members that the results of the confined aquifer corrective actions included the completion of the well abandonment. The existing confined aquifer wells were sampled in the Fall 2003 prior to the abandonment, with only limited VOC contamination being detected at well location JF-51. The natural attenuation data suggested that isolated VOC contaminants are degrading, and the well abandonment is providing contamination source control. Based on analytical results and demonstrated source control, it was decided at a briefing with EPA and MDE that the installation of additional wells and supplements is not warranted unless VOC concentrations increase in the future. Additional monitoring will be conducted as part of the long-term monitoring program.

Long-Term Monitoring/Operations and Maintenance Plan

Mr. Wrobel reported that the long-term monitoring/operations and maintenance (LTM/O&M) plan established activities for the surficial aquifer, confined aquifer, eastern marsh, southern shoreline, and protective soil blanket (PSB). The document is currently in the Draft Final stage.

Surficial Aquifer: Mr. Wrobel stated that the LTM/O&M activities outlined for the surficial aquifer involve the inspection of source area wells for DNAPL, assessment of changes in concentrations and redox conditions for the chlorinated VOC plume, and the evaluation of the potential for contaminant mass loading to the marshes. Mr. Wrobel reiterated that DNAPL recovery was attempted five times with diminishing returns. The DNAPL will be monitored on an annual basis and recovered if necessary. Additional monitoring will involve sampling for natural attenuation parameters and investigation to determine if the groundwater is discharging into the eastern marsh.

Mr. Wrobel added that the LTM/O&M for the surficial aquifer will also involve phytoremediation with the demonstration of seasonal hydraulic containment of the plume. Monthly manual water level surveys are being completed in conjunction with continuous monitoring with transducers during the growing season. A Maryland licensed registered forester has been hired to provide maintenance and technical advice for the phytoremediation plantation. A nursery will be installed in the Spring 2004 to include 200 native hardwoods and 50 native conifers. The nursery trees will be transplanted into the phytoremediation plantation as needed.

Confined Aquifer: Mr. Wrobel stated that the LTM/O&M for the confined aquifer involves five wells for water-level surveys, and four wells for groundwater samples to monitor the former confined aquifer hotspot and verify that the contaminants are not migrating off-site.

Eastern Marsh: Mr. Wrobel reported that the Eastern Marsh LTM/O&M will evaluate the success of remedial actions in controlling further contaminant input via groundwater infiltration into the marsh. Chronic toxicity tests will be completed to target growth of phytoplankton, growth of aquatic plants, reproduction of zooplankton, and growth and survival of fish. The regulatory review of the Eastern Marsh approach has not been completed. Mr. Wrobel displayed a chart detailing the proposed biomonitoring program for the Eastern Marsh. The chart outlines the test/sampling activities, test organisms, assessment endpoint targeted, and the method reference.

Shoreline Stabilization: Mr. Wrobel stated that the LTM/O&M for the southern shoreline will involve the assessment of shoreline erosion and settlement of the rock stabilization structure. The shoreline will

be inspected annually and was inspected after Hurricane Isabel. No observable damage to the shoreline was found.

Protective Soil Blanket: Mr. Wrobel informed the RAB Members that the PSB prevents ecological exposure to contaminants in and around the former toxic burning pits area. The LTM/O&M for the PSB includes annual inspections to evaluate the integrity of the soil blanket to ensure no subsidence or rodent damage has occurred.

Long-Term Monitoring Sampling Frequencies: Mr. Wrobel displayed a slide detailing the sampling frequencies as outlined in the LTM/O&M Plan. The sampling frequency for the Surficial Aquifer Plume will involve annual inspections of the DNAPL recovery wells, and sampling of the VOC plume every two years. The Confined Aquifer Plume will be sampled every two years. The Phytoremediation Plantation will have monthly water level monitoring and annual tree surveys. Annual sampling and testing will be completed for the Eastern Marsh biomonitoring. The shoreline will undergo annual surveys and inspections. The PSB will also undergo annual inspections.

White Phosphorus Pits Remedial Investigation

Mr. Wrobel reported that the WP pits were used between the late 1940s and 1990s for open burning/open detonation (OB/OD) of chemical weapons materiel. Low levels of metals and semivolatile compounds (SVOCs) were found in the soil during the 1994 RI sampling. TCE was also detected in groundwater during the RI sampling. A CERCLA investigation is underway due to the potential concern from past site use.

Mr. Wrobel informed the RAB Members that an x-ray fluorescence (XRF) survey was conducted in September 2003. The XRF is a field-portable instrument that is brought on site to collect information on metals. The XRF is a screening tool used to identify areas with potentially elevated metals concentrations to allow for more focused soil sampling efforts. Mr. Wrobel stated that tentative results show unexpected elevated lead and zinc concentrations in Grid 1 in the western portion of the north pit and in the push out area west of the southern pit. Elevated zinc concentrations were also observed in Grid 2. Elevated iron was detected in discrete portions of Grids 1, 2, and 3 and in each of the burn pits.

Mr. Wrobel stated that the XRF results will be used to help focus where the additional soil samples should be located. Mr. Wrobel showed a slide depicting the tentative lead concentrations detected during the XRF survey. Mr. Wrobel cautioned that the Quality Assurance (QA) officer had not yet reviewed the data.

Mr. Wrobel displayed a series of maps showing RI sampling locations including sediment, surface water, soil, groundwater, and pit boring and sidewall sampling locations. Some sediment and surface water samples will be collected from the shoreline and into the Gunpowder River. Mr. Wrobel reiterated that all sampling locations are proposed and will be adjusted based on the finalized XRF survey results.

Mr. Henry questioned what type of analysis would be completed for the samples collected from within the pits and sidewalls. Mr. Wrobel explained that the Work Plan calls for all samples to undergo a full-suite chemical analysis. Mr. Wrobel stated that he will investigate if WP will be included in the analysis. Mr. Henry asked if WP was included in analysis during the 1994 RI sampling. Mr. Wrobel stated that WP was sampled for and identified during the 1994 sampling.

Mr. Titland requested that an index be included with the meeting minutes to spell out any acronyms used within the presentations. Mr. Wrobel provided definitions for the acronyms in his presentation and added that definitions for the acronyms will be included in the meeting minutes.

Mr. Crabb asked for the rate of erosion along the shoreline near the location of the WP pits. Mr. Wrobel stated that he was unsure of the rate of erosion. Some erosion has been occurring along the shoreline, and the issue was recognized in 1994 and 1995. One of the wells located north of the pits was subject to severe shoreline erosion. Some onshore revetments for shoreline stabilization were installed around the well to prevent any further erosion. Mr. Wrobel stated that, currently, no remedies have been identified for the WP pits due to the preliminary stage of the investigation. However, Mr. Wrobel speculated that shoreline protection will be evaluated in an FS as a possible remedy for the site.

Mr. Henry asked if the WP pits area was permitted under Subpart X as an emergency detonation site. Mr. Wrobel explained that Robbins Point is permitted under RCRA Permit Subpart X for Hazardous Waste Operations. The Subpart X covers OB/OD operations. The Robbins Point Area is on the permit application to be permitted for hazardous waste operations. Mr. Stachiw stated that he was unsure if a permit was ever issued. Mr. Dye explained that the permit is considered as "interim status". Mr. Dye stated his belief that MDE, while serving as the delegated agency by EPA, has not yet been authorized for OB/OD permitting at the Robbins Point area. Under interim status, any activities are de-facto permitted activities, but the Subpart X section is not yet part of the overall hazardous waste permit issued by MDE. Mr. Vavra clarified that the Subpart X does not solely address OB/OD, but addresses processes that don't fit into the standard waste type units. When applying for a Subpart X permit, an engineer or someone in the group must look at the circumstances to determine what is appropriate for the site and what should be protected.

Mr. Henry stated that he brought up the Subpart X permitting issue because he was a little surprised that no mention was given to a RCRA closeout requirement for the WP area. Wrobel added that, as part of the ROD, it was agreed that the WP pits area would be addressed under the CERCLA program, and those standards would be used to determine how to assess the site, as opposed to using the RCRA closure framework.

Mr. Henry questioned if a RCRA closeout would have to be completed when the Robbins Point area is closed. Mr. Wrobel confirmed that a closure of Robbins Point would require the completion of the RCRA closure framework.

Mr. Stachiw stated that Mr. Steve Hirsh (EPA) had requested several years ago that shoreline investigations should be completed on a regular basis. While doing investigations, some UXO has been identified at Maxwell Point, located in the Other Edgewood Areas Study Area. Mr. Stachiw added that a UXO pit was identified along the J-Field shoreline. Mr. Stachiw requested that Mr. Wrobel point out the location of the pit on a map, and stated that more information regarding the pit will be provided during the April 2004 RAB Meeting. Mr. Wrobel displayed a map, and pointed out the pit area. While completing the RI phase for the WP pits, during low tide, a variety of ordnance-related items in the immediate areas offshore were observed. Mr. Wrobel added that personnel from the TEU have visited the site to evaluate the ordnance-related items and they recommended that the items should be removed. Mr. Wrobel stated that items he had observed included burster tubes and fuses. It is difficult to assess the explosive hazard of the items because of the amount of corrosion that has occurred.

Ms. Christine Grochowski (RAB Community Co-Chair, Foster's Branch Homeowners Association) questioned how far offshore the items were discovered. Mr. Wrobel stated that the items were observed approximately 100 feet offshore into the Gunpowder River. Ms. Grochowski expressed concern that a pit was discovered, and questioned if more ordnance related items were identified in areas other than the offshore location. Mr. Stachiw stated that, based on the number of items identified, it is believed that all the items were once piled or buried together.

Ms. Grochowski questioned how the buried items would be removed. Mr. Wrobel explained that the proposed plan will involve the removal of all visible items from the surface. Then the TEU personnel will use a magnetometer to sweep the area to identify any buried items or pit locations.

Ms. Grochowski asked if the shoreline area is patrolled to deter trespassers. Mr. Wrobel stated that security exists around the site. Mr. Henry questioned if there are warning signs posted near the identified location of ordnance-related items. Mr. Wrobel and Mr. Bob Crouse (DSHE Safety Officer) confirmed that signs are posted in the area.

Mr. Henry asked how quickly TEU personnel will come to the site to remove the ordnance-related materials. Mr. Wrobel speculated that removal efforts could begin within several weeks. The schedule for removal will be dependant on tide cycles and weather conditions to allow for easy access to the items. Mr. Stachiw and Mr. Naren Desai (DSHE ECRD Project Officer) have resolved all funding issues, but the Health and Safety Plans still have to be reviewed. Mr. Wrobel offered to provide an update on the progress of the situation during the April 2004 RAB Meeting.

Ms. Grochowski stated that no information was included in the UXO Incident Reports regarding the identified UXO at Maxwell Point. Mr. Stachiw stated that shoreline investigations have been completed several times throughout the past year. Inspections are being completed to identify areas with pockets of rounds and pit or disposal locations. While investigating Maxwell Point, approximately 15 to 16 items, with some being explosively configured were discovered.

Ms. Grochowski expressed concern over safety issues along the shorelines and questioned how the information could be distributed to the public. Mr. Stachiw replied that signs are posted, and suggested that information could be included in boating guides. Security patrols should also be completed and enforcement of trespassing could be increased. Mr. Wrobel added that information is included in the Boaters Guide regarding safety issues along the entire Gunpowder River. In past years, buoys equipped with warning signage have been placed off the shoreline.

Mr. Henry requested a presentation regarding the shoreline investigations. Information in the presentation should include who is completing the investigations, how much money is being spent on the investigations over the past several years, and how much compliance money is required to complete the work in the future. Mr. Henry stated that eventually it has to be decided how much money has to come from the Munitions Response Program to complete the work. Mr. Henry stated that, when implementing PBCs, it will be harder to identify funds to complete work such as shoreline investigations. Mr. Stachiw agreed that a presentation would be beneficial, and will be scheduled for a future RAB meeting.

Mr. Crabb requested to visit the J-Field location where the ordnance-related items were observed. Mr. Wrobel stated that he would check the tidal charts to determine an optimal time to visit the site, and he will contact Mr. Crabb to schedule a site visit.

Mr. Henry requested a detailed list of items that were found and removed from the Kings Creek disposal area that was identified last year. Mr. Stachiw stated that an update will be provided during the April 2004 RAB meeting, and the information would be forwarded to Mr. Henry.

IX. CLOSING REMARKS

Installation Action Plan Workshop: Mr. Stachiw stated that a discussion was held during the February RAB meeting regarding possibly holding the annual Installation Action Plan (IAP) workshop during

RAB meetings. The IAP has been scheduled to take place in Delaware for three days in the beginning of April 2004. Mr. Stachiw proposed that the same information be presented to the RAB Members, but in a different fashion. Mr. Stachiw passed out copies of the 2003 IAP document and explained that the document contains detailed site information for over 250 Defense Site Environmental Restoration Tracking System (DSERTS) Sites. Mr. Stachiw explained that the IAP workshop involves going through each individual site to update the information on any new progress and determining what will be planned in the future for the site. Cost estimates are completed by using the Army's RACER software and spread out into future years based on the planned actions for the site. Some of the discussion is pure speculation because the amount of contamination has not yet been identified. In those cases a projection is made to allow for a cost estimates to be made.

Mr. Stachiw stated that costs cannot be discussed in an open forum due to procurement sensitivity. Mr. Stachiw proposed that the RAB Members be updated on proposed actions at each site. For example, during the April RAB Meeting when Mr. Don Green (DSHE ECRD Project Officer) is providing an update on the Bush River Study Area, he will go over some of the Bush River DSERTS sites. Information will be provided as to what has been completed and what is planned for the Bush River sites. Mr. Stachiw stated that cost data will be provided to the RAB Members externally. Cost information for each DSERTS site is included as an appendix to the IAP document, and is projected for every fiscal year through 2010. Mr. Stachiw added that no cost information is included if no future actions are planned for a site. An update on DSERTS sites within each Study Area will continue throughout future RAB meetings.

Mr. Henry asked for a spreadsheet that tracks all the actions that have been completed for each DSERTS site. Mr. Stachiw stated that some of that information is included in the IAP document that was distributed. Mr. Stachiw stated that the document is updated on an annual basis and the 2004 version will be provided to the RAB Members when finalized.

Mr. Stachiw reported that cost estimates for each site are completed with RACER, a program developed by AEC to estimate costs for different actions and technologies. The total bottom line cost for all sites is not fixed. But AEC does stipulate the amount of funding given for a particular year, which in turn forces the other required costs out into future years.

Mr. Henry asked if the information for all the DSERTS sites will be covered during a single RAB meeting. Mr. Stachiw stated that due to the amount of information, a number of sites will be covered during RAB meetings over the next several months, with additional meetings being scheduled if necessary.

Mr. Henry asked for the dates that are scheduled for the IAP workshop. Mr. Stachiw stated that the workshop is scheduled for April 6, 7, and 8, 2004. Mr. Henry asked for the location of the meeting. Mr. Stachiw stated that the workshop will be held at the University of Delaware and stated that anyone interested in attending is still welcome to come.

Performance-Based Contracting: Mr. Stachiw stated that he will ask Ms. Harris to poll the RAB Members to identify who is interested in serving on the PBC subgroup. The purpose of the group is to evaluate the PBCs as they progress forward and to establish criteria and concerns that can be used to determine the success and effectiveness of the process. The group could meet on a monthly basis to assess the progress and, if necessary, bring Mr. Randy Cerar (AEC) back to the RAB meeting to discuss outstanding issues or concerns.

Ms. Young asked how quickly Mr. Stachiw would like to form the PBC group. Mr. Stachiw stated that Ms. Harris will be contacting the RAB Members and he would like to form the group as soon as possible.

Proposed Restoration Advisory Board Rules: Ms. Young expressed concern regarding the second bullet on Page 16 of the proposed RAB rules. The section refers to the adjournment or resolution of the RAB. Ms. Young requested clarification on the section, specifically with regard to privatization. Mr. Stachiw suggested that the RAB Members raise the issue as a group and submit concerns in writing.

Mr. Stachiw stated that privatization is defined as someone buying what used to be yours. Mr. Stachiw stated that, as with any type of real estate transaction if there is any contamination it is your responsibility to clean it up. Mr. Stachiw stated that a Guaranteed Fixed Price Remediation (GFPR) is not a real estate transaction at all, and added that there will be no transfer of liability.

Mr. Henry stated that what they are saying is that once the cleanup process becomes privatized or PBCs are in place, the installation does not have to fulfill its responsibility to the RAB. Mr. Henry pointed out that Mr. Cerar stated in his presentation that the implementation of PBCs would not affect how the RAB works. Mr. Henry expressed great concern over the future of the RAB. Mr. Henry added that the proposed rule changes document has not yet been published in the Federal Register, but will be published in the near future.

Mr. Stachiw reiterated his suggestion that the RAB Members promptly submit formal comments. Mr. Stachiw stated that time can be scheduled during the April 2004 RAB meeting to allow for an open discussion of concerns and issues related to the proposed changes to RAB rules.

Ms. Young also expressed concern over the portion of the document discussing presentations that would be provided to the RAB regarding the demolition of buildings that were deemed as unsafe structures. Ms. Young expressed concern that contamination could remain in the buildings. Mr. Crabb added that the RAB has been briefed in the past with information about buildings that were demolished. Ms. Young suggested that a further discussion regarding the issue be completed at the next RAB meeting.

Mr. Henry asked if any soil samples at APG had ever been analyzed for asbestos. Mr. Stachiw stated that asbestos is not a CERCLA compound. Mr. Vavra stated that asbestos is handled under the Toxic Substance Control Act (TSCA), but some Superfund sites exist where asbestos has been determined to be the lead contaminant and the EPA reacted to the issue. Mr. Henry added that asbestos contamination in soil has been found as an unexpected major issue in Colorado. Mr. Stachiw stated that asbestos has been included as a TSCA program at APG, and is under separate funding.

At 9:50 p.m., after confirming that no one present had further questions, Mr. Stachiw adjourned the meeting. The next APG IRP RAB Meeting will be held on Thursday, 29 April 2004 at 7:00 pm in the Edgewood Senior Center. The topic of discussion will be the Bush River Study Area.