

# MINUTES

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

**THURSDAY, 26 JUNE 2003**

**7:00 p.m. – 9:15 p.m.**

**EDGEWOOD SENIOR CENTER**

**RESTORATION ADVISORY BOARD MEMBERS PRESENT AT THIS MEETING:**

Dr. Nasrin Begum  
Ms. Glenda Bowling  
Mr. Arlen Crabb  
Mr. John Fairbank (Maryland  
Department of the Environment)  
Ms. Christine Grochowski (Community  
Co-Chair)

Mr. Don McLaughlin (U.S. Environmental  
Protection Agency)  
Ms. Mary Moses (Harford County  
Emergency Operations Center)  
Mr. Ken Stachiw (Army Co-Chair)  
Ms. Ruth Ann Young

**RESTORATION ADVISORY BOARD MEMBERS NOT PRESENT AT THIS MEETING:**

Mr. Kevin Barnaba  
Mr. Roy Dietz  
Ms. Mandi Elliott-Bird  
Mr. Ted Henry  
Mr. Greg Kappler

Ms. Loretta McCullah  
Mr. Thomas McWilliams, Jr.  
Mr. Dan Pazdersky  
Mr. Dennis Warwick

**ENCLOSURES TO THESE MINUTES:**

- 1: Roster of Meeting Attendees
- 2: Agenda
- 3: July 2003 Calendar of Events
- 4: Unexploded Ordnance (UXO) Incident Reports
- 5: Other Edgewood Areas Study Area Update Presentation Materials

## **I. EXECUTIVE SUMMARY**

### **Administrative Comments**

Mr. Ken Stachiw (Chief, Directorate of Safety, Health and Environment (DSHE) Environmental Conservation and Restoration Division (ECRD)) informed the RAB Members that a ribbon cutting ceremony will be held on 27 June 2003 for the Canal Creek Groundwater Treatment Plant. A task-group meeting for OPSEC issues will be held in early August 2003. On 17 July 2003, a public meeting will take place to discuss Removal Actions near the RAD Yard, the I-Field Japanese Bunkers, and D-Field Aerial Spray Grid.

### **Perchlorate Detections Update**

Mr. Stachiw provided an update on the perchlorate detections. The 17 June 2003 sampling of the City of Aberdeen production (CAP) wells detected perchlorate at 1.3 parts per billion (ppb) in CAP well 9. The remaining CAP wells had detections ranging from 0.2 to 0.9 ppb. The reporting limit for the CAP wells was 0.2 ppb. Perchlorate was detected in the finished water at a concentration less than the reporting limit of 0.5 ppb.

### **Other Edgewood Areas Study Area Update**

Ms. Ruth Golding (DSHE ECRD Project Officer) introduced Mr. Tom DeReamer (General Physics Corporation) to provide an update on the Other Edgewood Areas. Investigation areas within the Other Edgewood Areas include Gun Club Creek, Wright Creek, Doves Cove, Maxwell Point, Coopers Creek, Swaderick-Watson Creek, Western Shore, and Boone Creek.

- *Gun Club Creek:* In Cluster 19, the extent of contamination plume was defined through the use of the monitoring well network, groundwater Direct Push Technology (DPT) sampling, soil sampling, and soil gas surveys. Four separate source areas have been identified based on location and groundwater flow directions. Low levels of Volatile Organic Compound (VOC) contamination were detected in the Gannon Road Area through groundwater sampling. The extent of the contamination appears to be localized. Groundwater sampling near the Wheeled Vehicle Facility detected high concentrations of total VOCs. Geotechnical borings were taken to delineate a potential vertical extent of VOC contamination and to further delineate the contamination plume. In Cluster 38, low levels of VOCs were detected in one monitoring well and 3 DPT samples detected elevated concentrations, above Risk Based Concentrations (RBCs), of VOCs. A preliminary interpretation of the data from the natural attenuation evaluation of Gun Club Creek Investigation Area wells revealed that reductive dechlorination is occurring.

An Interim Action has been proposed within the Gun Club Creek Investigation Area. The action involves the removal of potentially contaminated material (PCM) and soil from the area of thiodiglycol contamination, drum and junk dump sites, and demolition craters in the K-Field Demolition Ground. The Gun Club Creek schedule is as follows: Interim Action to be completed in Fall 2003; Remedial Investigation (RI) and risk assessment will be published in Fall 2004; Feasibility Study (FS) will be completed Spring 2005; Proposed Plan to be published in Summer 2005; and Record of Decision (ROD) will be completed in September 2005.

- *Wright Creek:* DPT groundwater sampling conducted in the Wright Creek Investigation Area detected several compounds exceeding RBCs including: methylphosphonic acid (MPA), carbon tetrachloride, chloroform, trichloroethene (TCE), and tetrachloroethene (PCE). Surface soil sampling in the Northern K-Field Pistol Range detected semivolatiles (SVOCs), pesticides, and metals. An x-

ray fluorescence (XRF) survey has been proposed to delineate metals contamination at the K-Field Pistol Range. Additional sampling will be conducted to further delineate the MPA contamination, increase overall data coverage, and delineate low-level VOC detections.

- *Doves Cove*: Concentrations of 1,1-dichloroethene (1,1-DCE) were detected in ten DPT groundwater sampling locations in the Doves Cove Investigation Area at values above the RBC for tap water. TCE and the explosive compound RDX were also detected at elevated concentrations. Surface soil sampling detected values of copper, thiodiglycol, 2,4,6-trinitrotoluene, and nitrobenzene that exceeded Biological Technical Assistance Group (BTAG) screening values. One surface water sample contained copper above BTAG screening values but below APG background values. Sediment sampling revealed detections of three explosive related compounds and 14 polycyclic aromatic hydrocarbons (PAHs). Additional samples will be collected to further delineate the groundwater contamination and to increase data coverage.
- *Swaderick-Watson Creek*: In the western extent of the Swaderick-Watson Creek Investigation Area, surface water/sediment, soil, and DPT sampling is proposed to investigate the M-Field Bomblet Projector, Grenade Range, and Clothing Shack area. Surface water/sediment sampling is proposed to delineate SVOCs. In an effort to identify potential source areas in the central extent, surface water/sediment, surface soil, and DPT sampling have been proposed. Sampling sites include the M-Field Tunnel Complex, Dugout, 1930s Facilities, Pre-WWII Agent Test Sites C, B, and E, and the M-Field Test Slab. Additional samples will be collected to confirm pesticide concentrations and to increase data coverage. In the eastern extent, surface water/sediment, surface soil, and DPT sampling has been proposed to characterize the N-Field Target Range and Storage Bunker, M-Field Mine Field, Tunnel Complex No. 3, and Southeast Burn Trench as potential sources. Seven additional DPT locations have been proposed to delineate VOCs and RDX in the surficial aquifer at the Prototype Building.
- *Maxwell Point*: Concentrations of ten VOCs, benzene, and manganese above screening criteria were detected during groundwater sampling in the Maxwell Point Investigation Area. Surface soil sampling detected concentrations of metals, DDT, and diethyl phthalate at concentrations exceeding BTAG screening values and APG background values. Concentrations of metals detected exceeded BTAG screening values in surface water. The diethyl phthalate concentration in one sediment sample exceeded BTAG screening values. Metals, pesticides, and PAHs were detected in samples from an unused septic system associated with Building E7368. Additional surface water/sediment and DPT samples will be taken to increase data coverage and to characterize potential groundwater contamination within the surficial aquifer.

An Interim Action at the Smoke Generator Debris Area is proposed to remove PCM and soil. A follow up to the US Environmental Protection Agency Emergency Response Team (ERT) offshore geophysical investigation was completed in November 2000. No areas of disposal were encountered in the 300-foot by 800-foot search area.

- *Coopers Creek*: Groundwater sampling in the Coopers Creek Investigation Area detected RDX, total arsenic, and total chromium. Surface soil sampling detected concentrations of arsenic, mercury, and thiodiglycol. Metals and thiodiglycol concentrations were detected in surface water samples. Sediment samples detected concentrations of 2,4-dinitrotoluene, DDT, and zinc. Additional samples will be collected to identify potential source areas and increase data coverage. In Cluster 22, test digs will take place in 5 areas to determine the vertical extent of waste identified by geophysical surveys.

A Removal Action has been scheduled for the shoreline stabilization of the D-Field Area extending from Briery Point to Sandy Point. The Removal Action schedule is as follows: Action Memorandum

signed in April 2003; Addendum to Action Memorandum was signed in June 2003; contract was awarded in June 2003; public availability meeting will be held to discuss the action July 17, 2003; draft work plan to be published in September 2003; and field activities will commence in October 2003.

- *Western Shore:* Compounds detected in exceedance of the screening criteria in the Western Shore Investigation Area are 1,2-DCE, benzene, ethylbenzene, and toluene. High concentrations of xylenes were also detected. Proposed sampling includes resampling of five existing monitoring wells, 10 DPT sampling locations to define the extent of VOC contamination, installation of up to two monitoring wells, and subsurface soil samples to determine the presence of vadose zone contamination. Test digs and geophysical surveys to characterize wastes along the shoreline will also be completed.
- *Boone Creek:* Surface water/sediment, surface soil, and DPT groundwater sampling will be collected in the Boone Creek Investigation Area to characterize potential source areas, verify metals concentrations, and increase data coverage. Test digs will be completed at a suspect location of the Smoke Pot Disposal Site. Site reconnaissance and land-based geophysics are proposed to identify potential disposal areas. Media sampling has been proposed for the initial characterization of Pooles Island.

A Removal Action will be conducted at the I-Field Japanese Bunkers A and F. The Removal Action will address PCM and potentially contaminated water and soil. The Removal Action schedule is as follows: Action Memorandum was signed February 2003; a public availability meeting will take place July 17, 2003; draft work plan will be published in July 2003; and field activities will commence Fall 2003.

- *Other Edgewood Areas Geotechnical Borings:* The previous deep geotechnical borings have focused on the central and southwestern portions of the Other Edgewood Areas. In 2002, six additional geotechnical borings were conducted in the northern and eastern portions of Other Edgewood Areas to address spatial data gaps. The sonic drilling technique was used to obtain 200 feet of continuous core samples and collect discrete groundwater samples from five intervals per location. The groundwater results will be used as a screening tool and aid in the placement of future monitoring wells.

### Schedule

The Other Edgewood Areas Schedule for completion of a ROD for each area is as follows:

- |                                    |            |
|------------------------------------|------------|
| • Operable Unit 1 (Gun Club Creek) | Sept 2005  |
| • Operable Unit 2 (Maxwell Point)  | May 2008   |
| • Operable Unit 3 (D-Field Area)   | April 2007 |
| • Other Edgewood Areas Overall     | 2011       |

## **II. OPENING REMARKS AND ADMINISTRATIVE COMMENTS**

The June 2003 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, 26 June 2003. 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 July 2003 (Enclosure 3), Unexploded Ordnance (UXO) Incident Reports (Enclosure 4), and a copy of the Other Edgewood Areas Study Area presentation (Enclosure 5).

Mr. Stachiw informed the RAB Members that a working task-group meeting for Operations Security (OPSEC) issues will be held in early August 2003. Ms. Katrina Harris (General Physics Corporation) will contact each RAB Member to determine who would be interested in participating in the meeting. Mr. Stachiw requested that the RAB Members email him or Ms. Karen Jobes (DSHE ECRD) if they are interested in an update on current chemical demilitarization operations. If the RAB Members are interested, Mr. Stachiw will schedule a speaker from the chemical demilitarization project at an upcoming RAB meeting. On 27 June 2003, a ribbon cutting ceremony will be held for the Canal Creek Groundwater Treatment Plant. Mr. Stachiw encouraged the RAB Members to attend.

On 17 July 2003, a public meeting will take place to discuss Removal Actions near the RAD Yard and the I-Field Japanese Bunkers. The public meeting will begin at 7:00 p.m. and will take place at the Edgewood Senior Center. As discussed by Mr. Don Green (DSHE ECRD Project Officer) last month, contaminated soil near the RAD Yard needs to be removed. Shoreline stabilization work and removal actions are scheduled in the Other Edgewood Areas. The RAB Members will learn more about the actions from the upcoming presentation.

In the next few weeks, RAB Members will be receiving community-relations questionnaires. Mr. Stachiw requested that the RAB Members contact Ms. Harris with their opinions on the availability of non-RAB related community information (i.e. newsletter, press releases, website).

After confirming the RAB Members had no further comments, Mr. Stachiw provided an update on the perchlorate detections.

### **III. PERCHLORATE DETECTIONS UPDATE**

Mr. Stachiw reported that the 17 June 2003 sampling of the City of Aberdeen production (CAP) wells detected perchlorate at 1.3 parts per billion (ppb) in CAP well 9. The remaining CAP wells had detections ranging from 0.2 to 0.9 ppb. The reporting limit for the CAP wells was 0.2 ppb. Perchlorate was detected in the finished water at a concentration less than the reporting limit of 0.5 ppb. Mr. Stachiw stated that CAP wells 7, 8, 9, and 10 have been turned on.

Mr. Stachiw explained that the 1.3 ppb detection represents the contamination plume moving off-post. No new remediation plans have been established but information is continually being collected and analyzed for the CAP and the Harford County production wells. Mr. Stachiw has read the letter signed by Mr. John Paul Woodley, Jr. (Department of Defense (DoD), Assistant Deputy Under Secretary of Defense for Environment), but there has been no official notification of plans.

Ms. Ruth Ann Young (RAB Member) questioned if the City of Aberdeen has begun work on the wellhead protection plan. Mr. Stachiw stated that a copy of the plan has been reviewed. He shared with the Installation master planner APG Superfund Citizen Coalition's (APGSCC) buffer zone recommendations.

Ms. Glenda Bowling (APGSCC, RAB Member) inquired when the buffer zone meeting with the Installation master planner and the APGSCC will be scheduled. She stated that she prefers the meeting take place in the next two weeks. Mr. Stachiw requested that Ms. Jobs coordinate the meeting plans.

Dr. Nasrin Begum (RAB Member) questioned why different reporting limits are used for the wells and finished water. Mr. Stachiw suggested the difference is because the Army sampled the wells and Harford County sampled the finished water. Mr. Paul Miller (U.S. Army Corps of Engineers (USACE) Waterways Experiment Station (WES)) explained that the finished water contains additives, such as fluoride and chlorine. Since the wells do not have additives, perchlorate can be detected at lower levels.

#### **IV. LAUDERICK CREEK CWM REMOVAL ACTION UPDATE**

Mr. Stachiw informed the RAB Members that Mr. Billy Sanders (USACE Environmental Remediation Resident Office (ERRO)) will report on the Lauderick Creek Chemical Warfare Materiel (CWM) Removal Action at a future meeting. Mr. Stachiw questioned if Mr. Arlen Crabb (RAB Member) is satisfied with Mr. Sanders' response to his question regarding the selection of QA/QC grids. Mr. Crabb replied that he has not had a chance to read the material, but will provide feedback as soon as possible. Mr. Stachiw expressed his desire for Mr. Crabb and Mr. Ted Henry (RAB Member) to be satisfied with the completed work.

Ms. Bowling asked if, once Lauderick Creek is finished, a Removal Action will occur at G-Street. Mr. Stachiw explained that the Army Environmental Center (AEC) requires a Record of Decision (ROD) before the Remedial Action can take place. Therefore, the G-Street Action is currently on hold. The G-Street area has different agents of concern, such as possible nerve agents, than those involved in the Lauderick Creek CWM Removal Action. A new Health and Safety Plan will be required. Mr. Stachiw stated personnel from the Lauderick Creek CWM Removal Action will not likely work on the G-Street project when it begins.

After confirming the RAB Members had no further comments, Mr. Stachiw introduced Ms. Ruth Golding (DSHE ECRD Project Officer) to provide an update on the Other Edgewood Areas Study Area.

#### **V. OTHER EDGEWOOD AREAS STUDY AREA UPDATE**

Ms. Golding informed the RAB Members that the Other Edgewood Areas (OEA) study area consists of 29 clusters, over 80 sites, and eight investigation areas. Investigation Areas within OEA include Gun Club Creek, Wright Creek, Doves Cove, Maxwell Point, Coopers Creek, Swaderick-Watson Creek, Western Shore, and Boone Creek. Ms. Golding introduced Mr. Tom DeReamer (General Physics Corporation) to provide an update on OEA activities. Mr. DeReamer stated that OEA, located in the middle portion of the Gunpowder Neck, is about 4842 acres in size. The Investigation Areas have been divided by watershed and will be presented in order from north to the south along the peninsula. Included with the presentation is a packet of media sampling results that exceed criteria.

##### **Gun Club Creek**

Mr. DeReamer displayed graphics illustrating the locations of OEA and Gun Club Creek. Located in the northern section of OEA, the Gun Club Creek Investigation Area has commercial and industrial buildings in the north and is a mixture of wooded area and marshland toward the south. Consisting of 290 acres, the Gun Club Creek Investigation Area contains the following sites: Douglas Road Munitions Disposal, Drum and Junk Dump, Topsoil Pile, Wheeled Vehicle Facility (WVF), Bldg. E4585 Demolition Debris, Gun Club Demolition Debris, Rod and Gun Club Skeet Range, and K-Field Demolition Ground.

In Cluster 19, also called Fort Hoyle, the extent of contamination was defined through the use of the monitoring well network, groundwater Direct Push Technology (DPT) sampling, soil sampling, and soil gas surveys. Four separate volatile organic compound (VOC) source areas have been identified based on location and groundwater flow directions. The four areas include the Gannon Road area, an Underground Storage Tank (UST) site north of Beal Road, an area south of WVF, and an area north of the WVF.

In the Gannon Road area, low levels of VOC contamination were detected in monitoring well WKF-08 and previously from samples taken from DPT-57. The highest detected concentration is 28 µg/L of total 1,2-dichloroethene (1,2-DCE). Two additional DPT locations were completed in 2002 in order to delineate the potential VOC source. Since VOCs were not detected, the extent of contamination appears to be localized. Well WKF-08 was evaluated for natural attenuation parameters.

Mr. John Fairbank (Maryland Department of the Environment (MDE)) questioned why only two DPT locations were sampled. He inquired if it would have been wiser to sample not just upgradient from the monitoring well, but also between the well and the adjacent creek in order to confirm that the contamination has not spread. Mr. DeReamer clarified that the two DPT locations represent the latest DPT sampling locations. Other DPT samples were taken around the monitoring well and contamination was not detected.

By utilizing a phased approach, the VOC plume north of the WVF has been delineated. The highest total VOC concentrations detected are 26,593 µg/L from monitoring well WKF-15 and 46,161 µg/L from DPT-65. 1,2-DCE is the primary VOC. Recently completed field activities include the installation of three (4-inch diameter) and 25 (½-inch diameter) prepack wells; two sampling rounds of newly installed groundwater monitoring wells; synoptic groundwater level measurements; the collection of groundwater samples for natural attenuation parameters and bioremediation evaluation on all Gun Club Creek wells; and the logging of three geotechnical borings with groundwater samples.

Mr. DeReamer displayed several graphics depicting plumes, based on the total chlorinated VOC concentrations. In the graphics, the red colored areas represent the areas of highest concentration. Mr. DeReamer explained to the RAB Members that the area has been well delineated from the completed sampling events.

Mr. Fairbank inquired which three chlorinated solvents are present in the greatest concentration. Mr. DeReamer recounted that 1,2-DCE, 1,1,2,2-tetrachloroethane (1,1,2,2-TeCA), and trichloroethene (TCE) were detected at the highest concentrations.

Mr. Crabb questioned if the question marks on the edges of the concentration plume are due to the plume being under the WVF. Mr. DeReamer affirmed this. The regulators are satisfied with the amount of samples taken around the building in order to delineate the plume. The groundwater is located 10-15 feet below ground surface (bgs). In order to fully assess risk, the regulators have requested sampling to evaluate air pathways and to confirm that airborne VOCs are not present in the building.

The objectives of the WVF geotechnical borings were to determine the relationship of the surficial aquifer to the confined Canal Creek Aquifer, determine the continuity of the confining unit separating the two aquifers, determine the potential vertical extent of VOC contamination, and to confirm the presence of a paleochannel south of the WVF. Discrete groundwater samples were collected at two locations. A third sample, GC-SB-02, was planned to be taken but the location was dry.

Ms. Young questioned the age of the WVF. Mr. DeReamer stated that the building was built in the 1980s. Mr. Crabb stated that ground was broken for the WVF in 1989. Mr. DeReamer stated that the

WVF is relatively large, about 6 acres in size and the plume is 17 acres in size. Mr. Stachiw explained to the RAB Members that the contamination plume predates the building. Industrial hygiene concerns were raised during the building's construction due to gas releases.

Mr. Fairbank questioned what existed in the area before construction of the WVF. Mr. Crabb stated that the area was a training area before the WVF was built. Ms. Golding informed the RAB Members that drums found at the site likely contributed to the contamination plume, and noted that the area was used for decontamination. Mr. DeReamer informed the RAB Members that the drums were staged in a wooded area north of the WVF surrounded by flat open ground. Frequent flooding of the area likely causes the contamination to spread.

Porewater sampling was conducted to assess any impact from discharge of the surficial aquifer to Gun Club Creek. Mr. DeReamer displayed a graphic illustrating the porewater sampling locations. Six porewater (or water in sediment) samples were analyzed for VOCs. No chlorinated VOCs were detected in the samples collected from three feet bgs.

In Cluster 38 (K-Field Demolition Ground) surficial aquifer groundwater sampling detected low-level concentrations of VOCs in monitoring well WKF-13. Detected VOCs include 3 µg/L 1,1,2,2-TeCA, 3 µg/L TCE, and 18 µg/L total 1,2-DCE. Subsequent groundwater samples taken from location DPT-13 zero to three feet bgs detected concentrations of 80.3 µg/L 1,1,2,2-TeCA and 11 µg/L TCE.

Mr. DeReamer displayed a graphic depicting Cluster 38 groundwater sampling locations. Sixteen DPT groundwater samples were collected at 25- and 50-foot spacings to delineate potential VOC sources. Low-level VOCs were detected above tap water Risk-Based Concentrations (RBCs) in three samples. No VOCs were detected at the base of the aquifer. The sampling effort delineates a small, isolated source. The regulators have agreed that sufficient samples were taken to delineate the contamination plume.

As part of the natural attenuation evaluation, hydrogeologic and geochemical data were acquired to evaluate oxidation-reduction (REDOX) zones, VOC degradation pathways, and kinetic rate constants. This information is needed for potential treatability studies and plume monitoring approaches. A preliminary interpretation of the natural attenuation data revealed evidence that reductive dechlorination is occurring in the source area wells. Degradation is not complete, stopping at 1,2-DCE and vinyl chloride. Organisms necessary to complete degradation, such as Dehalococoides, may not be present in the aquifer. In the diffuse plume, outside the source area, evidence for degradation is weaker and REDOX conditions are not as reducing as in the source area. The data may be used in feasibility and treatability studies.

Dr. Begum questioned if the type of organism present is known. Mr. DeReamer clarified that the report was not specifically focused on the type of organisms present. The specific organisms present are not yet known, but evidence shows that Dehalococoides are not present because the solvents are not being degraded beyond 1,2-DCE, which is present at levels above drinking water standards. Dr. Begum inquired if she could have a copy of the study. Mr. DeReamer stated that he a copy will be provided to her when it is published.

The proposed Interim Action for the Gun Club Creek Investigation Area involves the removal of potentially contaminated material (PCM) and soil from the area of thiodiglycol contamination, nine isolated Drum and Junk Dump Sites, and demolition crater area in the K-Field Demolition Ground. Interim action objectives include: protect future workers and military personnel from hazards associated with the PCM and soils at the dumpsites; protect ecological receptors in the surrounding habitat from risks associated with the PCM and soils at the dumpsites; control the migration of contaminants from

PCM and soils to the surrounding habitat; and obtain data to assess post-excavation soil conditions in support of the Gun Club Creek Investigation Area Remedial Investigation (RI) and baseline risk assessment.

Mr. DeReamer displayed a graphic depicting the Cluster 19 Drum and Junk Dump Sites. The darker purple areas represent concentrated waste areas. The area where thiodiglycol was found is a small area near the center of the graphic.

Ms. Young inquired what was dumped in the area. Mr. DeReamer recounted that most of the waste is from past testing, and includes metal trays, empty drums, gas mask waste, and miscellaneous waste. Ms. Young questioned if the drums are sealed. Mr. DeReamer stated that the drums were used in the Fort Hoyle training area prior to WWII, and are now empty, isolated pieces of waste.

Mr. Fairbank questioned if explosives analysis was completed. Mr. DeReamer replied that there was a full chemical analysis and metals were the main contaminant. There were no explosives detections. Metals were found in only one sample and were not present in the ground. Ms. Golding recounted that one well had 900 ppb manganese. Mr. DeReamer stated that the contamination was only three to four feet below the craters. There are plans to remove the surface material and then the contaminated soil.

Mr. DeReamer displayed an enlargement of the Cluster 38 K-Field Demolition Ground. Mr. Crabb inquired where the enlargement was in relation to the previous slide. Mr. DeReamer explained that the K-Field Demolition Ground is behind the fence, and was included in the Gun Club Creek area because of its proximity to the Gun Club Creek drainage basin.

Interim actions for the Gun Club Creek Investigation Area will be completed in Fall 2003, and the RI and Risk Assessment will be complete in Fall 2004. The Feasibility Study will be complete in Spring 2005, followed by the Proposed Plan in Summer 2005. The Record of Decision will be complete in September 2005.

#### Wright Creek

The Wright Creek Investigation Area is 600 acres in size and includes: the K-Field Training Area 1; G-Field Real Time Analytical Platform Garage (Bldg E1434); G-Field Bunker Sites; G-Field Drum Bunker Sites; G-Field Bomb Casing Dump Site; G-Field Impact Area North; Western C-Field and Northeastern G-Field Testing and Training Areas; K-Field Pistol Range; and Marsh Dump Sites.

In the northern K-Field Pistol Range, the surficial aquifer contained VOC concentrations of tetrachlorethene (PCE) and TCE that exceed the RBC tap water levels of 0.63 µg/L and 0.26 µg/L, respectively. PCE concentrations were found in the following DPT locations: WC-DPT-10 had 3µg/L, WC-DPT-17 had 13.9 µg/L, and WC-DPT-20 had a concentration of 33 µg/L. TCE was detected at a concentration of 1.9 µg/L at DPT location WC-DPT-20.

Surficial aquifer VOC concentration results from the G-Field Bunker Area include elevated concentrations of carbon tetrachloride (CT), chloroform, and TCE exceeding RBC tap water levels from well locations WGF-06 and WGF-07. PCE and TCE were detected in monitoring well WGF-09 at concentrations exceeding RBC tap water levels. Methylphosphonic acid (MPA) was detected at SW-DPT-01, located in the southern K-Field Pistol Range, at 24000 µg/L.

Ms. Young questioned the source of MPA. Mr. DeReamer explained that MPA is a chemical compound that is a nerve agent degradation product. Ms. Grochowski inquired if MPA was detected elsewhere. Mr.

DeReamer replied that MPA was not detected in the second round of samples and additional samples surrounding SW-DPT-01.

Surface Soil samples detected semivolatile organic compounds (SVOCs), pesticides, and metals in the northern K-Field Pistol Range at sample location WC-SO-018. Metals and thiodiglycol (a mustard agent degradation product) have also been detected in surface soil samples collected south of Wright Creek.

Mr. DeReamer displayed a graphic depicting proposed sampling locations. Proposed groundwater field activities include: three DPT to delineate low-level VOC detections at WGF-09; eight DPT to delineate low-level VOC detections at G-Field Bunkers; three DPT to characterize the Drum Disposal Site; six DPT to confirm the previous MPA detection; eight additional DPT to increase overall groundwater coverage; and three DPT proposed to delineate VOC detections at the K-Field Pistol Range.

Ms. Grochowski questioned if there is land to the west of the road and if the mixture of erosion and heavy rains could wash the road away. She also inquired if there was a lot of erosion into the Gunpowder River. Mr. DeReamer explained that, in the past, Hoadley Road, which ends in Maxwell Point, needed to be stabilized. Also, erosion at K-Field is of concern due to its proximity to the Bay. Ms. Grochowski inquired if the MPA was found in the K-Field area. Mr. DeReamer confirmed the location and added that the proposed sampling is intended to determine whether a source exists for the MPA previously detected.

Ms. Young asked for more information about nerve agents. Mr. DeReamer explained that the main nerve agents are Tabun (GA), Sarin (GB), or O-ethyl S- (2-diisopropylaminoethyl) methylphosphonothioate (VX). The nerve agents were used in munitions. MPA is a nerve agent degradation product.

Mr. Crabb inquired if samples from the pistol range were analyzed for lead. Mr. DeReamer affirmed that the samples were analyzed for lead and stated that lead is included as an analytical parameter in the proposed sampling.

Mr. DeReamer displayed a graphic depicting proposed sampling locations. Proposed field activities for surface water, sediment, and soil include: four surface water/sediment samples to increase data coverage of Wright Creek; one surface water/sediment sample to determine if VOCs detected in groundwater are impacting the northern marsh; and an x-ray fluorescence (XRF) survey to delineate metals contamination at the K-Field Pistol Ranges with RI soil samples. The XRF survey will be made up of 300 samples taken at 20-foot grid spacing.

Mr. Fairbank asked if the area is an impact area and if high lead concentrations are expected. Mr. DeReamer stated that lead is not the main metal of concern. Mr. Fairbank asked if, during sampling, the soil is sieved from the larger pieces of metal or if the metal remains with the sample. Mr. DeReamer replied that since the samples are supposed to be soil, known non-soil materials are not allowed with the sample. Mr. Fairbank suggested that during XRF sampling at the K-Field Pistol Range, the samplers keep a record of items found that could not be included for soil analysis. He recounted a previous incident when the samplers at another site removed all of the lead and then the soil samples came back indicating no lead contamination. Mr. DeReamer stated that he would keep that suggestion in mind during the sampling event.

#### Doves Cove

The Doves Cove Investigation Area, located east of Wright Creek, is 450 acres in size and contains the following sites: C-Field Bldg. E1400/1401 Wastewater System; C-Field Bldg. E1407/E1415; and the C-Field Bldg. E1412 Munitions Burial Site. Mr. DeReamer informed the RAB Members that the exact location of the Munitions Burial Site is unknown.

The groundwater contamination summary includes 1,1-DCE detected in 10 DPT groundwater sampling locations north and south of the Vibratory Testing Facility (Bldg. E1407); concentrations of 1,1-DCE ranged from 1.2 to 17.3 µg/L, which are above the RBC tap water value of 0.044 µg/L. Location DC-DPT-02 contained TCE at a concentration of 10 µg/L, which is above the RBC tap water value of 0.026 µg/L. Cyclotrimethylene trinitramine (RDX) (an explosives compound) was detected at the Wilson Point area at concentrations ranging from 1.2 to 3.2 µg/L, which are above RBC tap water value of 0.61 µg/L. In general, the concentrations are low, but above the RBC values.

The surface soil contamination summary states that DC-SO-05 contained copper at 631 mg/Kg, which is above both the Biological Technical Assistance Group (BTAG) screening value of 15 mg/Kg and APG reference background values of 27.5 mg/Kg. Thiodiglycol was also detected in sample DC-SO-05 at 540 µg/Kg. Located along the western shoreline, DC-SO-19 contained explosive related compounds 2,4,6-trinitrotoluene at 75 µg/Kg and nitrobenzene at 270 µg/Kg. Also located along the western shoreline, DC-SO-23 contained thiodiglycol at 350 µg/Kg.

Surface water sample DC-SW-06 contained a total copper concentration at 9 µg/L in the first round sample, which is above the BTAG screening value of 6.5 µg/L, but below the APG reference background value of 9.7 µg/L.

Sediment sample DC-SD-12 contained three explosive-related compounds, 2,4-dinitrotoluene at a concentration of 110 µg/Kg, 2-nitrotoluene at 550 µg/Kg, and nitrobenzene at 100 µg/Kg. Sample DC-SD-13 contained nitrobenzene at 92 µg/Kg. Polycyclic aromatic hydrocarbon (PAH) compounds, which are SVOCs, were detected in samples DC-SD-15 and DC-SD-17.

Mr. DeReamer displayed a graphic depicting the Doves Cove Investigation Area proposed sampling locations. Proposed groundwater field activities include: 14 DPT locations to delineate VOC detections and a potential source area; three DPT locations for coverage to increase overall groundwater coverage; and two DPT locations to verify RDX concentrations in the Wilson Point Area. Proposed surface water, sediment, soil, and XRF survey field activities include: one surface water/sediment sample proposed to confirm metals concentrations; eight soil and two surface water/sediment locations to increase data coverage; three previously sampled sediment locations will be resampled to verify arsenic and SVOC detections; and one surface soil sample to confirm metals and thiodiglycol concentrations.

Mr. Fairbank inquired about the previous use of Wilson Point Area. Mr. DeReamer stated that the area was, and currently is, used as a testing area. The area does not have a wastewater system and was not used as burial site.

Dr. Begum requested details regarding the XRF survey process. Mr. DeReamer explained that a technician collects the samples in a bag, and the samples are analyzed using an XRF instrument. The instrument may be brought on site, but the analysis is usually completed in a lab. The data cannot be used for Risk Assessment, but is a good screening tool for detecting contamination in large areas. Using a grid with 20-foot spacing, the data provides an idea of metals that are available in high concentrations. Soil samples can then be collected from those identified locations to provide metal concentrations.

Mr. Crabb inquired if nitrobenzene is a component of fuel bombs (such as napalm). Mr. Andy Murphy (DSHE) stated that it is a common mustard simulant.

Swaderick-Watson Creek

The Swaderick-Watson Creek Investigation Area is 1349 acres in size and covers the middle section of the peninsula, excluding O-Field. The Investigation Area includes the following M-Field sites: Mine Field, Concrete Structures, Prototype Building, Prototype Burning Trench, Southeast Test Area, Southeast Burning Trench, Test Slab, Tunnel Complexes 1-4, Dugout, Wind Tunnel, 1930s Facilities, Pre-WWII Agent Test Sites A-E, Clothing Shack Area, Grenade Range, and Bomblet Projector. Other sites include: N-Field Target Range and Storage Bunker, G-Field Tunnel Complex No. 4, K-Field Chemical Warfare Training Area II, and Maxwell Point Rifle Range.

Ms. Young inquired what materials were historically stored in the N-Field Storage Bunker. Mr. Stachiw stated that the information will have to be researched and will be provided to Ms. Young when available.

Mr. DeReamer displayed a graphic illustrating proposed sampling locations in the western extent of the Investigation Area. Proposed field activities for the western extent include: four surface water/sediment, five soil, and three DPT locations to investigate the M-Field Bomblet Projector; five surface water/sediment, five soil, and one DPT location to investigate M-Field Grenade Range; confirmation sampling of one previous surface water/sediment location; and three proposed surface water/sediment locations to delineate SVOC contamination. In Cluster 42, five surface water/sediment, ten soil, and eight DPT locations have been proposed to investigate the M-Field Clothing Shack Area.

Ms. Grochowski inquired if buildings were present in the Cluster 42 area. Mr. DeReamer stated that there are several trailers located in the Cluster 42 area and the M-Field Clothing Shack.

Mr. DeReamer displayed a graphic illustrating proposed sampling locations in the central extent of the Investigation Area. Proposed field activities include: one surface soil and two DPT locations to characterize Tunnel Complex No. 1 as a potential source; two DPT locations to characterize the Wind Tunnel as a potential source; two surface soils to characterize the Dugout as a potential source; two surface soils and one DPT location to characterize the 1930s Facility as potential source; three DPT locations to characterize the Pre-WWII Agent Test Sites C, B, and E as potential sources; resampling of a previous surface water/sediment location to confirm pesticide (DDT, heptachlor) concentrations; one surface soil to characterize Tunnel Complex No. 2 as a potential source; three surface water/sediment and one DPT location to increase data coverage; and three surface water/sediment and four DPT locations to characterize the Test Slab as a potential source.

Mr. Crabb inquired if the Tunnel Complex was used for training for the Vietnam War or WWII. Ms. Golding stated that it was used in the Vietnam War time frame.

Mr. DeReamer displayed a graphic illustrating proposed sampling locations in the eastern extent of the Investigation Area. Proposed field activities include: six surface soil and one surface water/sediment location to characterize the Target Range and Storage Bunker as potential sources; three surface soil, two surface water sediment, and three DPT locations to characterize the Mine Field as a potential source; two DPT locations to characterize the Southeast Burn Trench as a potential source; seven DPT locations to delineate VOCs and RDX in the surficial aquifer at the Prototype Building; and three DPT locations to characterize Tunnel Complex No. 3 as a potential source.

Ms. Grochowski questioned what the dotted line square shapes on the map represented. Mr. DeReamer stated that they are not building footprints, since there are not structures in the area, but represent site areas.

## **V. INTERMISSION**

At 8:20 p.m Mr. Stachiw announced a brief intermission. At 8:30 p.m., the meeting resumed, with the conclusion of the OEA Study Area Update.

## **VI. OTHER EDGEWOOD AREAS STUDY AREA UPDATE CONTINUED**

Mr. Crabb questioned what chemicals will be analyzed for when sampling within the Tunnel Complex. Mr. DeReamer explained that a full chemical analysis will be completed to evaluate the existence of source material. Ms. Golding added that VOCs are the main concern.

### **Maxwell Point**

The Maxwell Point Investigation Area is 45 acres in size and includes the following sites: South Beach Munitions Disposal Site; Bldg. E7332 Test Site; Bldg. E7340/E7350 Test Site; and Bldg. E7365/E7368 Test Site.

In the Maxwell Point Investigation Area, samples of each media were analyzed. Groundwater samples had concentrations of 10 chlorinated VOCs (1,1,2,2-TeCA, 1,1,2-TCA, 1,2-DCA, total 1,2-DCE, PCE, TCE, CT, chloroform, vinyl chloride, 1,1-DCE), benzene, and manganese exceeding RBC tap water values. Surface soil samples had concentrations of metals (cadmium, copper, lead, iron, mercury, nickel, and zinc), DDT, and diethyl phthalate. Sample location MP-SS-07, associated with smoke generator waste, had concentrations that exceeded BTAG screening values and APG reference background values. At the Bldg. E7340/E7350 Test Site, concentrations of copper, mercury, and zinc exceeded BTAG screening values and APG reference background values. Located downgradient of a smoke generator, surface water sample MP-SW-08 had concentrations of aluminum, copper, iron, mercury, and zinc that exceeded BTAG screening values. Sediment sample MP-SD-09, located at the southwestern tip of Maxwell Point, had a concentration of diethyl phthalate exceeding BTAG screening values. Metals, pesticides, and PAHs were detected in samples from an unused septic system associated with Bldg. E7368.

Mr. DeReamer displayed two graphics depicting total VOC concentrations in the Maxwell Point Investigation Area. The contamination plume is less than three acres in size and has been well defined in the southern and eastern regions. More samples will be taken to better define the northern and western areas of the plume. Since more than one source has been identified, it has been determined that isolated incidents (i.e., spills) caused the plume. Possible contamination may have come from chemicals that were stored in above ground tanks.

Mr. DeReamer displayed a graphic of the Maxwell Point Investigation Area. Proposed field activities include: 15 DPT locations to delineate source areas of VOC contamination; ten DPT locations to characterize potential groundwater contamination within the surficial aquifer at the Bldg. E7340/E7350 Test Site and Bldg. E7332 Test Site; one surface water/sediment location to evaluate pits that contain metal boxes; and nine surface water/sediment locations to increase data coverage.

Mr. DeReamer displayed a graphic depicting the Maxwell Point Investigation Area with land-based geophysical data. The color blue indicates a greater concentration of metal, and no color indicates that there is no metallic material below the surface. Based on this information, test digs are proposed for 15 areas to provide anomaly verification and identify observed wastes. Based on the results of the test digs, 10 surface or subsurface soil samples will be collected. In the central area, an XRF survey of two acres is proposed, followed by the collection of 10 surface soil samples.

Mr. DeReamer provided an update on the Interim Action at the Smoke Generator Debris Area. Results of soil samples collected at the Generator Debris Disposal Site indicated possible metals (cadmium, copper,

zinc, arsenic, mercury, and lead) contamination in soils above the ecological risk screening criteria. Field inspection indicates that approximately 20 cubic yards of scattered waste will be removed from a one-acre area. The Interim Action includes debris and contaminated soil removal followed by confirmation soil sampling.

At the Smoke Generator Debris Area, an XRF survey was conducted to delineate the extent of metals contamination from an approximate one-acre area surrounding the RI sample location. Ten confirmation soil samples were collected to further delineate the extent of metals contamination. Arsenic concentrations varied from 1.1 to 17 mg/Kg, which exceeds the RBC residential value of 0.43 mg/Kg. Detected concentrations of antimony, copper, iron, lead, mercury, nickel, vanadium, and zinc exceed both BTAG screening values and APG reference background values. Mr. DeReamer displayed a table of highest detected metals concentrations found in the area.

A follow-up to the US Environmental Protection Agency Emergency Response Team (USEPA ERT) offshore geophysical investigation was completed in November 2000. A shallow water search and characterization of selected magnetic anomalies was performed in November 2002. No areas of disposal were encountered in the 300-foot by 800-foot search area. Isolated items discovered during search operations include: magnetic rocks and bricks; metal drum rings; scrap metal; barbed wire; metal re-bar; and part of an anchor. No intact unexploded ordnance (UXO) items were encountered.

Mr. Fairbank inquired if UXO scrap was found. Mr. DeReamer confirmed that UXO scrap was found, but no intact or reportable items were discovered. Mr. Fairbank commented that the presence of scrap may indicate the presence of past items as something to take note of.

#### Coopers Creek

The Coopers Creek Investigation Area is 910 acres in size and includes the following sites: Bell Farm Impact Area (Cluster 47); Toxic Storage Yard; Bunker #1453; Manhole Structure; Tower Base; Ruins; Moving Target Track; D-Field Chemical Agent Test Grid; L-Field Ballistic Track End Area; L-Field Bldg. E1492; L-Field Demolition and Propellant Sites; L-Field Old Bush River Dock; E-Field Lego Point Impact Area; and E-Field Dredge Spoil Site. The area was used in the time period between WWI and WWII.

In the Coopers Creek Investigation Area, samples of each media were analyzed. Small quantities of RDX were detected in groundwater samples. In Well WDF-07 total arsenic and chromium were detected. Arsenic, mercury, and thiodiglycol were detected in surface soil samples. In surface water samples, metals (arsenic, chromium, copper, lead, mercury, and zinc) and thiodiglycol were detected, and 2,4-dinitrotoluene, DDTr, and zinc were detected in sediment samples.

Mr. DeReamer displayed a graphic depicting the locations of proposed media sampling locations. Proposed groundwater field activities include: two rounds of groundwater and surface water elevation measurements to gain a better understanding of groundwater flow directions; 12 DPT locations to delineate VOCs and identify potential source areas within the Cluster 22 surficial aquifer; and four monitoring wells for RI Human Health Risk Assessment and hydrogeological characterization. Additional proposed field activities include: one surface water/sediment and three soil samples at Cluster 49; two surface water/sediment samples located downgradient of a potential source area; three surface water/sediment located downgradient of an additional potential source area; test digs and five soil samples to determine if subsurface wastes contributed to the thiodiglycol detections; three surface water/sediment samples for data coverage; and test digs in a potential waste area identified during site inspection.

Mr. Crabb inquired if drums were found near the area where thiodiglycol was detected. Mr. DeReamer stated that drums were found in the area. There are plans to remove the drums in the future. The proposed sampling is intended to determine whether a source exists for the previously detected thiodiglycol.

Ms. Grochowski questioned if the thiodiglycol was a byproduct of mustard gas. Mr. DeReamer confirmed that thiodiglycol is a mustard agent degradation product. Mr. Crabb inquired if the Coopers Creek Investigation Area is the area where a worker had a rash develop on his hand about one year ago. Ms. Golding stated that it was in the area that a worker had gotten water under his glove and subsequently developed a rash. The worker then went to the doctor and it was determined that the rash was not mustard agent-related.

Mr. DeReamer displayed a graphic depicting Cluster 22 (L-Field) with geophysical analysis and with proposed soil and test dig sample locations. The test digs proposed in five areas will help to determine the vertical extent of waste identified by the geophysical surveys performed in 2000. Ten surface soil samples have been proposed based on the test dig results.

Ms. Grochowski asked Mr. DeReamer to clarify the location of the tree line and rail line on the Cluster 22 graphic. Mr. DeReamer indicated these areas on the graphic. Ms. Grochowski expressed her belief that the presentation maps are useless, and make it difficult to conceptualize the information. Mr. Crabb stated he is also confused. Ms. Grochowski stated that the maps are not helpful and a step backwards in terms of graphics. Mr. Stachiw replied that he is not sure it is possible to enhance this particular graphic since the area may not have had buildings or fences. Ms. Grochowski replied that the other maps have been equally unhelpful. Mr. Crabb stated that an aerial photograph of the area might be helpful. Mr. Stachiw stated that their opinions would be "on record" and the RAB Members would evaluate the differences from previous years.

Mr. DeReamer provided an update to the RAB Members on the upcoming D-Field Area Shoreline Stabilization Removal Action. In January 2002, the disposal site was identified along the shoreline during routine environmental fieldwork. The disposal area appears to have been exposed along the shoreline due to erosion. A time-critical Removal Action was completed in three phases. A geophysical survey was then conducted over 10 acres of land to identify if additional disposal sites exist in the area. Two anomalies were detected in areas of possible waste disposal.

Approximately 5800 feet of shoreline, extending from Briery Point to Sandy Point, will be protected through the upcoming Removal Action. Shoreline stabilization will prevent future erosion and exposure of additional shoreline disposal sites. Individual surface and shallow near-surface wastes located along the D-Field Area within the shoreline stabilization area will be removed. Shoreline disposal sites potentially containing ordnance and ordnance-related components will be addressed through stabilization. Similar inland disposal sites within D-Field will be addressed under separate investigations and are not within the scope of this action.

The Removal Action schedule is as follows: the Action Memorandum was signed in April 2003; the Addendum to Action Memorandum was signed in June 2003; the contract was awarded in June 2003; the public availability meeting will be held to discuss the action on July 17, 2003; a draft Work Plan will be published in September 2003; and field activities will commence in October 2003.

Mr. Crabb recounted that a disposal site located away from the shore exists. He inquired if that area would be included in this Removal Action. Ms. Golding explained that the purpose of this Removal Action is shoreline stabilization, and the area that Mr. Crabb referred to will not be included. The Army

Environmental Center (AEC) will not fund the excavation of possible munitions. By stabilizing the entire length of the shoreline, other potential disposal sites will be protected from erosion. Mr. Crabb inquired if another disposal site, located about 30 feet from the shore, was previously cleared. Ms. Golding recounted that all observed surface objects were removed, but she does not remember if anything was removed from the bluff in particular. Mr. Crabb questioned what mechanism is in place so that the objects will not be exposed again. Ms. Golding stated that the purpose of the shoreline stabilization is so that the objects will not be exposed in the future.

Ms. Bowling questioned if there was a presentation on the D-Field disposal pits and Time-Critical Removal Action last year. Mr. Stachiw explained that while there was not a formal RAB presentation, the RAB Members were informed of the Time-Critical Removal Action. The disposal pit that was cleared last year was a smaller area, and did not require a Work Plan. The shoreline stabilization requires a Work Plan, which is being presented to the RAB Members.

#### Western Shore

The Western Shore Investigation Area is 360 acres in size and contains the following sites in H-Field: Pre-WWII Artillery Target Area I; Bldg. E1464 Septic Tank and Underground Storage Tanks (USTs); Bldg. E1467 Storage; Washrack Wastewater System; and Groundwater Supply Wells.

In 1995, two leaking USTs located near Bldg E1464 (H-Field Shop) were removed. Two rounds of samples of monitoring wells WHF-05 and WHF-07, both located downgradient of the former USTs, detected concentrations of 1,2-DCE, benzene, ethylbenzene, and toluene in exceedance of RBC screening criteria. High concentrations of xylenes were also detected.

Proposed sampling includes the resampling of five existing monitoring wells, 10 DPT sampling locations to define the extent of VOC contamination, installation of up to two monitoring wells, and subsurface soil samples to determine the presence of vadose zone contamination. Additional proposed field activities include: site reconnaissance of the Investigation Area west of Ricketts Point Road to evaluate mounds as potential areas of waste disposal; aerial and land-based geophysical surveys to identify potential waste disposal areas; and test digs to provide anomaly verification and characterization of waste. Based on information from the test digs, soil sampling will be performed to assess any potential contamination from waste. Mr. DeReamer stated that the sampling will occur during Winter 2003.

#### Boone Creek

The Boone Creek Investigation Area is 610 acres in size and is divided into H-Field and I-Field. The H-Field sites include: Pre-World War II Artillery Target Areas 2 and 3; Armored Vehicle Test Range; Concrete Target Areas; Sand and Gravel Pile; Munitions Disposal Site; and Smoke Pot Dump. The I-Field sites include: Pre-1960 Suspect Munitions Disposal Site; Reactive Chemical Disposal Site; Japanese Bunkers; Munitions Disposal Site; and Smoke Pot Burial Site.

Mr. DeReamer displayed a graphic identifying proposed sample locations. Proposed field activities include: 13 DPT, nine surface soil, and seven surface water/sediment samples to characterize potential source areas within the Cluster 28 area; site reconnaissance and land-based geophysics to identify potential disposal areas; test digs and two soil samples at the suspected location of the Smoke Pot Disposal Site; and five surface water/sediment and one surface soil sample to verify metals concentrations and increase data coverage east of Cluster 23 (I-Field Japanese Bunker area).

Mr. DeReamer displayed a graphic of Pooles Island. The 228-acre, Pooles Island site was used as an impact area. Currently located on the island are a lighthouse and navigational lighting towers used for

observation. Mr. DeReamer commented that a large heron population can be observed on the island. Media sampling has been proposed for the initial characterization of Pooles Island.

A Removal Action will be conducted at I-Field Japanese Bunkers A and F. The main objectives are to eliminate the threat to health and safety associated with direct human contact with waste material and to eliminate the potential for hazardous constituent release to soil, sediment, and surface water. The Removal Action will address only the waste materials (potentially contaminated water and soil) within Japanese Bunkers A and F. Waste materials within the remaining I-Field Japanese Bunkers will be addressed under separate investigations or removal actions and are not within the scope of this Removal Action. The Removal Action schedule is as follows: the Action Memorandum was signed in February 2003; a public availability meeting will take place on July 17, 2003; the draft work plan will be published in July 2003; and field activities will commence in Fall 2003.

Ms. Grochowski inquired why the other bunkers are not included in the Removal Action. Mr. DeReamer stated that, of the 20 existing bunkers, Bunkers A and F have the most waste material. Funding availability impacted the scope of the Removal Action. Ms. Golding recounted that Bunkers A and F contain chemicals and laboratory glassware, while the other bunkers do not contain items that would require a Removal Action. The other bunkers contain only sand and cinderblocks, not chemicals or glassware.

Bunker A was used primarily as a storage and work area and measures 19 feet in diameter and 12 feet total height, (8.5 feet above ground level). Minor exterior and interior damage (closed cracks, calcium carbonate precipitate) is related to the age of the structure and does not appear to be ordnance related. The inside of the bunker is divided into six evenly spaced V-shaped rooms that contain worktables, waste associated with testing and training activities, and shelving units holding multiple containers. Boxes and glass labware have been identified in the bunker. No standing water is visible inside the bunker.

Bunker F was used as a target. The interior bunker area is separated into two rooms showing roof damage caused by aerial bombs and wall damage caused by heavy projectiles. The bunker is flooded with approximately three feet of water with six to eight inches of silt covering the floor. Some glass labware and other debris are visible. Mr. DeReamer displayed a graphic of the inside of Bunker F.

#### OEA Geotechnical Borings

Previous deep geotechnical borings have focused on the central and southwestern portions of the OEA. In 2002, six additional geotechnical borings were conducted in the northern and eastern portions of OEA to address spatial data gaps. The sonic drilling technique was used to obtain 200 feet of continuous core samples and collect discrete groundwater samples from five intervals per location. The groundwater results will be used as a screening tool and aid in the placement of future monitoring wells. The data will be used to determine the aquifer locations and how the aquifers connect to one another. With this data, contaminant movement (if any) can be determined.

The OEA overall schedule is: the ROD for Gun Club Creek Investigation Area (Operable Unit 1) will be complete in September 2005; the ROD for Maxwell Point Investigation Area (Operable Unit 2) will be complete in May 2008; the ROD for D-Field Area (Operable Unit 3) will be complete in April 2007; and the OEA overall ROD will be complete in 2011.

Mr. Stachiw informed the RAB Members that he will review the quality of the photographs in the June 2003 RAB presentation as compared to previous OEA presentations. He will determine if information has been omitted due to OPSEC issues, and if so, the extent of missing information. Ms. Grochowski suggested that a section of a map is not sufficient and that the entire map is necessary.

**VII. CLOSING REMARKS**

At 9:15 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, 31 July 2003 at 7:00 pm in the Edgewood Senior Center. The tentative topic for discussion is the Lauderick Creek Study Area.