Joint Base Cape Cod Cleanup Team
Building 1805
Camp Edwards, MA
August 13, 2014
6:00 – 8:00 p.m.

***Draft* Meeting Minutes**

Member:	**Organization:**	**Telephone:**	**E-mail:**
LTC Shawn Cody	ARNG	508-233-6520	shawn.c.cody.mil@mail.mil
Ben Gregson	IAGWSP	508-968-5821	benjamin.p.gregson.nfg@mail.mil
Lynne Jennings	US EPA	617-918-1210	jennings.lynne@epa.gov
Len Pinaud	MassDEP	508-946-2871	leonard.pinaud@state.ma.us
Rose Forbes	AFCEC/JBCC	508-968-4678	Rose.forbes@us.af.mil
Steve Hurley	MDFW	508-759-3406	Steve.hurley@state.ma.us
Dan DiNardo	JBCC CT/Falmouth	508-547-1659	ravensnests1@live.com
Wade Saucier	JBCC CT/Sandwich	508-833-6002	wdjsaucier@aol.com
Diane Rielinger	JBCC CT/Falmouth	508-563-7533	rielingerlegault@gmail.com
Charles LoGiudice	JBCC CT/Falmouth	508-563-7737	irextut@msn.com
Phil Goddard	JBCC CT/Bourne	508-759-3043	Pag456@comcast.net
Facilitators:	**Organization:**	**Telephone:**	**E-mail:**
Ellie Donovan	MassDEP	508-946-2871	ellie.donovan@state.ma.us
Attendees:	**Organization:**	**Telephone:**	**E-mail:**
Pam Richardson	IAGWSP	508-968-5630	pamela.j.richardson.nfg@mail.mil
Jon Davis	AFCEC/	508-968-4670	Jonathan.davis.2@us.af.mil
Gina Kaso	USACE	978-318-8180	Gina.a.kaso@usace.army.mil
Eric Kirwan	USACE		
Elbert Caraballo	USACE		
Amy Walker	USACE	256-895-1604	Amy.n.walker@usace.army.mil
Mark Hilyard	CH2M Hill	508-968-4670	mhilyard@ch2m.com
Jason Dalrymple	CH2M Hill	508-968-4670	Jason.dalrymple@ch2m.com
George Seaver	MBSC/CCA	508-564-4404	g.seaver@verizon.net
William Sullivan	E&RC	508-968-5147	William.g.sullivan.nfg@mail.mil

Handouts Distributed at Meeting:

1. Presentation handout: Central Impact Area UXO Removal Update
2. Presentation handout: Installation Restoration Program Overview
3. Presentation handout: Landfill 1 and Chemical Spill 23 Updates
4. Presentation handout: Ponds and Harbors Sampling

Agenda Item #1. Introductions, Late-Breaking News, Approval of May 14, 2014 JBCC CT Meeting Minutes

Ms. Donovan convened the meeting of the Joint Base Cape Cod Cleanup Team (JBCC CT) at 6:05 p.m. The team members introduced themselves. The meeting summary from the May 2014 meeting was approved, as written.

Ms. Donovan reviewed the responses to action items from the May 2014 meeting and noted discussions on resolving the issues surrounding the two Record of Decision (ROD) amendments are still ongoing and that an update on the progress would be provided at the next meeting.

Agenda Item #2. Advanced Classification at JBCC

LTC Cody explained that to perform the Unexploded Ordnance (UXO) work in the Central Impact Area (CIA), a team of geophysicists has been assembled from around the country and introduced Amy Walker from the Army Corps of Engineers (USACE) in Huntsville. He stated that she would be providing an overview and update on the technology being used at JBCC for advanced classification.

Ms. Walker stated that she has been with USACE Huntsville for thirteen years working on munitions response sites. She noted that over the last few years there has been a transition toward using new advanced classification technologies. Ms. Walker thanked LTC Cody and the Army National Guard for allowing USACE to work at JBCC and noted that the team at JBCC is at the forefront of the shift in the direction of newer technology. She explained that in a few years, it is anticipated that this type of technology will be used across the country but currently this project is one of the first to take it into production mode in a field setting.

Ms. Walker began with an overview of the basics of classification and the instruments being used on-site. She displayed photographs of munitions and scrap metal and explained that the concept behind advanced classification is to be able to distinguish between non-hazardous metal munitions debris and the UXO items that might be hazardous. Targets of interest (TOI) are those items that are of the size and shape of a munitions item and the goal is to separate those two classes of groups using geophysics while those items are still buried in the ground.

The technology being used is called electromagnetic induction (EMI) and a photograph of the EM-61, which is the industry standard detector, was displayed. Ms. Walker explained that the EM-61 works the same as any EMI detector. It has a transmitter and a receiver and the transmitter current runs through a loop of wire, which causes a magnetic field in the ground. Any metal in the ground responds to that current and its magnetic field is measured by the receiver coil. The information needed to be able to classify and determine the difference between the items is contained in the EMI data. This would include the size, shape, and material thickness. Ms. Walker noted however that the EM-61, while an effective detector, isn't very good at classification and separating TOI from the parts of the signal that are due to its location relative to the coil itself (e.g. how deep it is and the items' orientation in the ground). An example of EM-61 data was displayed showing three anomalies, all from a 2.36 inch rocket. The only difference between them was their depth and orientation in the ground. Ms. Walker explained that the operator would not be able to determine the difference between the items and anything that looks like an anomaly would have to be excavated.

Ms. Walker stated that geophysicists are moving away from the basic standard EMI sensors to detectors that have been specifically designed for munitions classification. At JBCC a "Metal Mapper" sensor is being used. While the Metal Mapper uses the same physics, it provides multi-access coils providing a complete look from any metal that is in the ground from one data shot. This allows users to separate the information useful for classification independent of location, which is referred to as polarizability curve. Ms. Walker displayed an example of a polarizability curve and explained that each munitions item in the ground has its own unique polarizability curve, much like a fingerprint, which is contained within a library. The polarizability curve is consistent for each item, regardless of where it is and how it is oriented.

Ms. Walker explained that the reason why this type of technology is useful at JBCC is that only one percent of the anomalies that are dug up are hazardous. The remaining items would be safe to leave in

the ground (e.g. pieces of scrap metal, referred to as "clutter"). Eight percent is considered "other targets of interest". Metal Mapper does not detect the explosives inside the munitions, but rather anything that looks like an intact item whether it is a practice item, sand or concrete filled. Ms. Walker noted that the team looks for those items, trying to leave as much of the clutter in the ground, which drastically reduces the cost and the time that it takes to perform the cleanup while still meeting the objectives.

Ms. Walker displayed a figure depicting the area where Metal Mapper is being used and explained that the CIA has a wide variety of munitions and an extremely high clutter environment where most holes that are dug unearth multiple pieces of metal. She explained it is a unique project because unlike other sites, the primary concern is the potential of munitions constituents to leak to groundwater. Therefore the team is working towards maximizing the removal of the net explosives weight.

Ms. Walker described the process for performing the work. The first step is to map the area with the EM-61 metal detector and select anomalies or targets. Once the anomaly list is established the Metal Mapper navigates to the target and collects static measurements. The data is reviewed in real-time to see if the data is good enough and data is recollected, if necessary. Once the data is collected, it is analyzed using the "UX-Analyze" software system, which was developed specifically for analyzing Metal Mapper data. Ms. Walker explained that at this point, the data is compared to the library of standard responses representing all the munitions items that are expected to be found at the site. If the anomaly data matches, the item is included on the "dig list" and is investigated. All detectable metal is removed from a 1-meter radius around each. Ms. Walker displayed a photograph with examples of items uncovered from recent Metal Mapper digs.

Ms. Walker reviewed demonstrations that USACE participated in at JBCC. She noted that USACE processed data from the demonstration in 2012 performed under the Environmental Security Technology Certification Program (ESTCP). This was to ensure that USACE geophysics were able to reproduce the results seen by others. After being scored by ESTCP, USACE collected two ¼ acre test grids with the Metal Mapper and dug everything in the grids, regardless of whether or not it met the dig criteria. These results were also scored in order to provide additional feedback on how Metal Mapper was working at the site.

Ms. Walker displayed the Receiver Operating Characteristic Curves (ROC) for several of the participants of the demonstrations and explained that they are used by ESTCP and the industry to present the results of these types of studies. She described that the graphs are intended to show the percentage of targets of interest correctly identified versus the number of clutter items dug. She explained that USACE achieved similar results to the other demonstrators and that the combined demonstration correctly classified 95% of the targets of interest and over 75% of the clutter, meeting the project objective. Ms. Walker explained that after reviewing the initial demonstration results, USACE performed a quality control check to determine why they missed some items and what they could learn. The team began using software that provided the capability to do real-time analysis in the field. In addition, an unexpected item was discovered so it was added to library. Ms. Walker explained that there are some unavoidable misses at any site where you have items that are too deep for detection or if there are too many items in one hole.

Ms. Walker displayed a graph depicting the decision strategy process for selecting items for the dig list. She noted it is designed to meet the project goal of 95%, while maximizing what's left safely in the ground.

Ms. Walker reviewed a map depicting the current status for the project. She explained that the EM-61 data collection was completed for 30 acres and the ESTCP six acre area. Metal Mapper collection in the eight acre area has been completed and survey is underway in the 16 acre area. She explained that approximately 30,000 anomalies have been assessed by the Metal Mapper, which is more than has been done anywhere else in the country. It is estimated that there are approximately 14,000 anomalies

remaining for Metal Mapper collection and the current average collection rate is approximately 160 per team per day. There are two Metal Mapper systems operating and the average digging rate is 30% of Metal Mapper points that are collected.

Ms. Walker reviewed the next steps for the project. She explained that the team will continue to utilize classification for the remaining portion of the 30 acre CIA site and that only anomalies classified as TOI will be intrusively investigated and all other metal will be left in the ground. EPA will select one ¼-acre grid per six acres for full intrusive investigation for ongoing validation and they are currently working in the first of those grids.

Mr. LoGiudice asked if the EMI sensor was able to detect "hot" items, i.e. if an item was able to explode at any point and asked if there were precautions in place. Ms. Walker clarified that the detector cannot detect if an item has explosive filler and that only qualified UXO technicians are allowed to perform any digging and they follow all the guidance and procedures for handling munitions. LTC Cody noted that when operations are ongoing, there are many teams working in the area and there are "stand-off" distances representing the largest item that could be encountered around each team. Ms. Jennings added that the UXO technicians can determine on-site what items are "hot" and in those instances, the items are not moved but destroyed in place. Items that are safe to move are stored for a period of time and then they are exploded all at once.

Mr. DiNardo commented that he thought this new technology was interesting and exciting and asked about the ground penetrating capabilities of a Metal Mapper. Ms. Walker answered that it was the same as the EM-61 and was dependent on the size of an item but noted that a rough rule-of-thumb was that it was approximately 11 times the diameter of the item. Mr. DiNardo noted that Ms. Walker mentioned cost and time asked if the standard operating procedure would be to use an EM-61 survey first, before the Metal Mapper. Ms. Walker explained that that is the current procedure, but noted that in recent demonstrations, teams are moving towards using the Metal Mapper only as a "one-pass" and that at some point in the future that would be the direction the technology is moving. Mr. DiNardo asked how much more is being found with the Metal Mapper over the EM-61. Ms. Walker clarified that they were not finding more with the Metal Mapper. All of the items were found with the EM-61 and would have been dug. Metal Mapper ensures that you don't have to dig as much of the clutter.

Mr. Goddard asked if this technology may become mobile on an aerial platform. Ms. Walker said that the problem with the aerial is that the further the detector is from the metal, the harder it is to find. Additionally, you lose the positioning information, which is needed to get the polarizability curves. Ms. Walker noted, however, that it is more mobile and that some versions are man-portable systems and can be carried. Mr. Goddard asked if the technology would work in water. Ms. Walker said it would and it is currently being researched by ESTCP for use in water. Mr. Goddard asked if there was any detectable chemical signature from UXO that could be also used as a marker. Ms. Walker said no and reiterated that this tool was only detecting the size and the shape of the metal.

Mr. Saucier asked if the soil conditions had any effect on the library curves. Ms. Walker explained that one of the steps that is performed at the beginning of an investigation is a background correction where they take readings in an area where they know there is not metal so they can determine the local background conditions and that is subtracted out from each reading.

Mr. Gregson asked if the libraries that are being developed here are transferrable to other sites. Ms. Walker indicated they are and noted that there is a new project that is just starting up with ESTCP to take the library information generated over the past five years and define a standardized library.

Agenda Item #3. Air Force Civil Engineer Center (AFCEC) Installation Restoration Program (IRP) Overview

Ms. Forbes reviewed the presentation outline and noted that the intent was to provide an overall snapshot of the IRP, highlight upcoming issues or changes and identify topics for future presentations. She noted that there was a significant amount of back-pocket information for each plume provided in the handout package that would not be covered during this presentation but encouraged team members to review the information and email her if they had any questions or wanted additional information.

Ms. Forbes reviewed the program status and noted that all remedies are in place but that a change in remedy is possible at a site at any time. An example of a change in remedy is if a site has a record of decision (ROD) for soil but now groundwater is being added, like the ROD amendments mentioned at the beginning of the meeting for Fire Training Area-2 and Petroleum Fuel Storage Area. Other examples for changes in remedy that might require a ROD amendment or a change in the documentation include if a current remedy is not performing as designed, the conceptual site model changes substantially, there is a change in toxicity values or an emerging contaminant, new technologies become available that may streamline or reduce costs or if the timeframe for aquifer restoration is significantly longer than when the ROD was originally signed. Ms. Forbes reiterated that AFCEC and the regulatory agencies continually monitor cleanup progress and system performance and comprehensive evaluations are done with each five-year review to ensure continued protectiveness.

Ms. Forbes explained that examples of potential future agenda topics for upcoming meetings are optimization of treatment systems, which includes wind turbine projects, the ongoing Land Use Controls (LUCs) and Residential Well Verification programs, Ashumet Pond, the Military Munitions Response Program (MMRP), the Performance Based Contract (PBC), ROD amendments, emerging contaminants and the five-year review.

Ms. Forbes displayed the latest plume update figure for the IRP plumes and explained that the remainder of the slides provided in the handout packet contained the details for each plume. She encouraged team members to review them and let her know if there were any topics that they would like additional information or have presented to the team at a future meeting.

Mr. DiNardo asked if the 10-year contract approach was being used at other sites and if it was functional at those sites. Ms. Forbes replies that there are a lot of different military bases that have PBCs and they do work but noted that some require modifications since it is difficult to predict ten years in advance. She noted that it is too preliminary to give them an overall grade.

Mr. Goddard stated that one of the topics that he would be interested in hearing more about as the program matures is that how what we have learned at JBCC, including the technology, the groundwater data, public outreach, etc. is getting back to the Department of Defense in a shared way so that other branches of the service can learn from experiences at JBCC. Ms. Forbes provided an example of a recent collaboration between JBCC IRP and Kirkland Air Force Base where they requested information on IRPs "Lessons Learned". Ms. Jennings noted that EPA has an active information exchange and noted that in her new role, she is responsible for all the bases in New England and talks monthly with her counterparts across the county about a variety of issues. which is then disseminated throughout the regions. Ms. Donovan added that the Environmental Council of the States (ECOS) includes the commissioner of the Department of Environmental Protection for every state providing an avenue for dialogue between states. She noted that she participates in both the Interstate Technology and Regulatory Council (ITRC), which looks at at all aspects of the environmental investigation and restoration process nationwide and the Association of State and Territorial Solid Waste Management Officials (ASTSWMO).

Agenda Item #4. Landfill 1 and Chemical Spill 23 Updates

Mr. Dalrymple explained that the Landfill 1 (LF-1) and Chemical Spill 23 (CS-23) presentation would provide background on the sites, and an update on the system performance and ecological impact monitoring, and recommendations.

Mr. Dalrymple showed the IRP plume map and pointed out the LF-1 and CS-23 on the western boundary. He noted that both plumes are treated with a treatment system on-base designed to prevent further migration of the plumes. The ROD for LF-1 was signed in October of 2007 and called for continued monitoring and maintenance of the landfill cap, and active treatment of the on-base portion of the plume using the existing five-well treatment system plus expansion of the system to increase capture of the southern portion of the plume. The remedy also called for natural attenuation of the off-base portion of the plume, a LUC program, and a provision for compensation for the Town of Bourne for the potential loss of public water supply. The CS-23 ROD was also signed in October 2007 and included continued active treatment of the on-base portion of the plume using the existing system, natural attenuation of the off-base portion of the plume and the implementation of a LUC program.

He stated that the original LF-1 treatment system came online in August of 1999 and included 5 extraction wells (EW), a treatment building, an infiltration system, and operated at 700 gallons per minute (GPM). In December of 2006 an extraction well was added concurrently with the CS-23 treatment system. In March 2008 one reinjection well was installed to replace failing infiltration gallery/trenches. In May 2008 a portion of the LF-1 effluent was diverted to the Veterans Administration Cemetery for irrigation purposes. He noted that remedial system optimization was recently completed and, as a result, the flow at the treatment plant was adjusted to 575 gpm.

Mr. Dalrymple stated that the LF-1/CS-23 treatment system to the south became operational in December 2006. The system consisted of two CS-23 EWs and two LF-1 EWs at the Hunter Avenue Treatment Facility (HATF), which operated at 1,350 gpm with two infiltration trenches. In April 2014 the extraction rate was adjusted to 1,070 gpm following system optimization. He displayed a figure with photos of the treatment systems and reviewed the locations of the extraction wells and infiltration galleries.

Mr. Dalrymple reviewed the Contaminants of Concern (COCs) and the drinking water standards for each site. For LF-1, the primary COCs are Tetrachloroethene (PCE) which has a maximum contaminant level (MCL) of 5 micrograms per liter (µg/L), Trichloroethene (TCE) MCL of 5 µg/L , Carbon Tetrachloride (CCl_4) MCL of 5 µg/L, Vinyl Chloride, MCL of 2 µg/L, 1,1,2,2-Tetrachloroethane (TeCA) has a Massachusetts Contingency Plan Groundwater-1 (GW-1) standard of 2 µg/L, 1,4-Dichlorobenzene (DCB), which has a Massachusetts Maximum Contaminant Level (MMCL) of 5 µg/L, EDB with an MMCL of 0.02 µg/L and Mn, which has a U.S. Environmental Protection Agency (EPA) health advisory (HA) of 300 µg/L. For CS-23, TCE and CCl_4 are the primary COCs.

He reviewed the summary of site risks and noted that there is no current risk of exposure to the plumes. All but two residents in the immediate vicinity of the plume are connected to town water. The LUC private well verification program was completed in 2010 and is reviewed annually. One of the two homes that have drinking water wells is sampled annually and no COCs have ever been detected. The other well is screened approximately 130 feet above the plume, therefore would not be impacted by it. There are ten homes in the area with wells that are used for outdoor purposes; none present an unacceptable exposure risk. He noted that the CS-23 plume boundary is increasing in the downgradient portion and, as a result, the LUC area is expanding and outreach is underway. There have been no detections in the Bourne public water supply wells since 2004 and although there are sporadic detections of COCs in the plume discharge points at Red Brook and Squeteague Harbors, they are below the MCLs.

Mr. Dalrymple displayed a map of the current monitoring network and reviewed the monitoring highlights for the LF-1 plume. He noted that there are concentration trend graph figures in the handout materials. In the source area wells, all concentrations are below the MCLs and most are non-detect and have been for some time, which supports the conceptual site model that the landfill cap is working and there is no ongoing source from landfill. In the northern lobe, TCE concentration trends in shallow upgradient lobe continue to decline (one TCE MCL exceedance in five wells sampled, max concentration is 10 µg/L). Additionally, 27EW0005 continues to capture the plume at base boundary and remediation is progressing as predicted by recent modeling. Well 27EW0005 expected to operate two to three more years. TCE concentrations in deep downgradient lobe are declining as expected through processes of natural attenuation.

Mr. Dalrymple explained that for the upgradient southern lobe, TCE concentrations continue to decrease at 27MW0031A. TCE concentration increased at 27MW2135A to 140 µg/L; but it is not expected to prolong the restoration timeframe. TCE concentrations have been increasing at 27MW0028B and 27MW1003A as the core of the plume migrates towards the extraction wells. For the downgradient portion of the plume, there are 10 monitoring wells that are sampled but there are no detections of TCE above the MCL and only one well has PCE above the MCL. He noted that aquifer restoration is occurring faster in this area than ROD model predictions through processes of natural attenuation.

Mr. Dalrymple began to review the monitoring highlights for the CS-23 plume by noting that in the upgradient portion of the plume, declining trends at the boundary wells are indicating that the plume is collapsing. He explained that the highest concentration upgradient of treatment system is 15 µg/L and the highest concentration near 27EW0008 is 8.8 µg/L. The extraction well is expected to operate two to three more years. In the downgradient area, there are two wells above the MCL. This TCE contamination is believed to have been downgradient of CS-23 extraction wells when they became operational and the remedy included natural attenuation of this mass. He noted that the CS-23 plume is being captured at the base boundary and concentrations in nearby monitoring wells remain below the MCL.

Mr. Dalrymple highlighted two locations on the figure near the plume boundary and explained that the first detection of TCE above the MCL in 2012 prompted a preliminary assessment of properties downgradient. He noted that AFCEC contacted the Massachusetts Division of Fisheries and Wildlife to request permission to install a monitoring well on their property. The request was denied due to the abundance of habitat disruption. AFCEC was able to install four borings to act as sentry locations and concentrations were below the MCL. Groundwater modeling results indicated that TCE contamination would migrate ~1,000 ft beyond Route 28 before attenuating below the MCL. Because of this, the LF-1/CS-23 LUC boundary has been expanded to encompass the updated CS-23 plume boundary and includes the off-base area between the base boundary and Route 28A to ensure protectiveness in this area. He noted that all properties with houses in the new CS-23 LUC area have town of Falmouth water accounts and AFCEC is proceeding with well verification outreach in the area. A figure showing the new plume and LUC boundaries for the area was displayed.

Mr. Dalrymple concluded by noting that the system performance and ecological impact monitoring data is generally consistent with the conceptual site model and indicates that the remedial goals are being met. Model predictions indicate that the last well extraction well at LF-1 will operate until 2043 and TCE concentrations are predicted to reach the MCLs by 2045 which is consistent with ROD predictions. For CS-23, model predictions indicate that the remedial system will operate until 2022 and reach MCLs by 2036, earlier than was predicted in the ROD. He noted that AFCEC will continue with all planned monitoring and LUC activities for the upcoming year by completing the private well evaluation for new CS-23 leading edge LUC area, performing hydraulic assessment of new operational scenario to confirm capture at the base boundary and system performance and ecological impact monitoring sampling and routine extraction well and plant sampling, which includes assessments for optimization opportunities.

He also noted that the emerging contaminant 1,4-dioxane was detected in LF-1 and additional investigation planned to determine the extent of contamination.

Mr. Goddard asked if there was evidence that monitored natural attenuation (MNA) was breaking things down, as predicted. Mr. Dalrymple confirmed that there was and noted that in the downgradient portion of the plume, dilution, dispersion, and adsorption is occurring and there is evidence of biodegradation in the core of the plume. Mr. Goddard asked if the predicted models for MNA were being refined based on the data. Mr. Dalrymple stated that while they have considered adding biodegradation to the models used at JBCC, it is extremely complicated and regionally-focused, so it was decided that the amount of data required in order to make it useful would be too difficult. Mr. Goddard stated that there had been multiple samplings of shellfish in the harbor and asked when the last sampling event was. Ms. Forbes replied that she would have to look it up but noted that she thought it was around 2002.

Mr. LoGiudice referred to the figure of the expanded CS-23 area and asked if it was Route 151. He recalled that there was a landfill in the area many years ago and suggested that AFCEC review historic aerials to see if they could identify it.

Ms. Rielinger referred to a well south of the CS-23 boundary and asked when it had been sampled and if it was defining the southern boundary. Mr. Dalrymple replied that it had been sampled for many years and was consistently non-detect; therefore it was removed from the sampling network. However, in light of the new data in this area, it was being added back in and was scheduled to be sampled soon. Ms. Rielinger referred to a figure of the LF-1 plume and noted that this is the first time she has seen the plume drawn as being detached. Mr. Dalrymple explained that recent data showed non-detect at wells in the area proving that there is hydraulic capture by the remedial system at the base boundary, and that concentrations of LF-1 COCs are below MCLs between the base boundary and Route 28.

Mr. Saucier referred to the private well that is sampled annually as part of the LF-1 LUC program and asked what it was tested for. Mr. Dalrymple replied that it was analyzed for all of the LF-1 COCs to ensure that the plume wasn't impacting that private well.

Mr. DiNardo referred to the new CS-23 LUC map and pointed to a well 27MWM51 off-base on Route 28 and asked if that location is where the detection was seen that required this expansion. Mr. Dalrymple replied that it was not. The well has not been sampled in approximately eight years but they plan to use that location as the new sentry well for the expanded area. Mr. DiNardo asked if the well was deep enough to effectively monitor the plume. Mr. Dalrymple explained that the well was drilled to bedrock and is at the right location and flow path however, their current predictions suggest that contamination will not travel that far. Mr. DiNardo asked if AFCEC anticipated adding any additional monitoring well locations off-base. Mr. Dalrymple noted that there are no plans to add wells at this point.

Agenda Item #5 Ponds and Harbors Sampling

Mr. Hilyard said that he would be providing a brief update on the sampling of ponds and harbors. He explained that AFCEC conducts testing annually in the spring at: two locations at Snake Pond in Sandwich, one location at Deep Pond in Falmouth, three locations at Ashumet Pond in Falmouth/Mashpee, and three locations at Johns Pond in Mashpee. He noted that the locations represented public access points to the pond so they are either swimming beaches or boat ramps. He explained the sampling was done to determine if any plume COCs were detected in the surface water bodies. Mr. Hilyard said that in addition, there are groundwater seep samples collected from one location at Red Brook Harbor and three locations at Squeteague Harbor in Bourne.

Mr. Hilyard stated that samples are collected in April just before the start of the recreational season for the ponds. He explained that results for ethylene dibromide (EDB) samples from Snake Pond and Deep Pond were both non-detect. Ashumet, Johns, and Deep Ponds are all sampled for plume-related volatile organic compounds (VOCs) and results were also non-detect. He noted that at the request of the town of Mashpee, there was a second sampling event at Johns Pond in July and results were non-detect.

Mr. Hilyard noted that in addition to the sampling that the IRP performs, the IAGWSP collects annual samples from three locations at Snake Pond in May and July. Samples are analyzed for explosives and perchlorate. For samples collected in May, all explosives results were non-detect. Perchlorate results were below the laboratory reporting limit and well below the Massachusetts drinking water standard of 2 µg/L. Results are still pending from July.

Mr. Hilyard reviewed the results of the monitoring of harbors. For the groundwater seep at Red Brook Harbor, results were non-detect for PCE and below the reporting limit (BRL) for TCE, which is similar to past years. At Squeteague Harbor groundwater seep, PCE was detected at 1.8 µg/L and TCE at BRL, also similar to past sampling events. PCE and TCE were BRL or non-detect at nearby surface water locations.

Mr. Hilyard noted that all results are forwarded to the Massachusetts Department of Public Health as part of an annual summary.

Ms. Rielinger asked why Coonamessett Pond was not sampled. Mr. Hilyard replied that while it was sampled in the past, there were never detections. In addition, the Fuel Spill-28 plume in the area is very deep. Based on this and other historic monitoring results, sampling was eliminated.

Mr. LoGiudice asked if it was safe to harvest shellfish in Squeteague Harbor. Mr. Hilyard replied that there are no problems with the plume discharge in that area.

Mr. Goddard asked if copies of the sampling information are provided to the local Boards of Health in time for the recreational season. Mr. Hilyard replied that the information is provided as part of an annual update given to each town.

Agenda Item #6. Final Discussions, Adjourn

Ms. Donovan stated that the next meeting is tentatively scheduled for October 15.

The meeting was adjourned.