Joint Base Cape Cod Cleanup Team
Building 1805
Camp Edwards, MA
February 12, 2014
6:00 – 8:00 p.m.

***Draft* Meeting Minutes**

Member:	**Organization:**	**Telephone:**	**E-mail:**
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/MMR	508-968-4678	Rose.forbes@us.af.mil
Dan DiNardo	MMRCT/Falmouth	508-547-1659	ravensnests1@live.com
Scott Michaud	Cape Cod Commission	508-362-3828	smichaud@capecodcommission.org
Diane Rielinger	MMRCT/Falmouth	508-563-7533	One-brain@verizon.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
Lori Boghdan	IAGWSP	508-968-5635	lori.p.boghdan2.nfg@mail.mil
Doug Karson	AFCEC/MMR	508-968-4678	Douglas.karson@us.af.mil
Bill Sullivan	E&RC	508-968-5147	William.g.sullivan@us.army.mil
Glen Kernusky	CPED (PAO)	548-958-2838	Glen.kernusky.mil@mail.mil
Elliot Jacobs	MassDEP	508-946-2786	Elliot.jacobs@state.ma.us
Mark Begley	EMC	508-968-5147	
Lannan O'Brien	Mashpee Enterprise	774-313-9201	Obrien@capenews.net
George Brennan	Cape Cod Times	508-548-9300	gbrennan@capecodonline.com
Henry Donovan	Monument Beach Sportsmen's Club	508-509-3614	henrydonovan@hotmail.com
Peter Valeri		508-776-3159	valconstruction@aol.com
Henry Cui	MassDEP	508-946-2889	

Handouts Distributed at Meeting:

1. Presentation handout: Small Arms Ranges Investigation and Remedy Selection (IAGWSP)
2. Presentation handout: Small Arms Ranges Investigation and Remedy Selection (EPA)
3. Information handout: Small Arms Ranges Remedy Selection Plan
4. Presentation handout: 1,4-Dioxane Sampling
5. Information handout: 1,4-Dioxane Technical Fact Sheet
6. Presentation handout: CY-2 Engineering Evaluation/Cost Analysis & Proposed Removal Action
7. Information handout: 4th Five Year Review Summary
8. Presentation handout: Military Munitions Response Program (MMRP) Update
9. News release: EPA reaches settlement with W.R. Grace

Agenda Item #1. Introductions, Late-Breaking News, Approval of November 13, 2013 MMRCT Meeting Minutes

Ms. Donovan convened the meeting of the Massachusetts Military Reservation Cleanup Team (MMRCT) at 6:05 p.m. The meeting summary from the November 2013 meeting was approved, as written.

Lynne Jennings announced that EPA had reached a settlement with W.R. Grace in the amount of $256,000. As part of the company's bankruptcy filing, all environmental claims needed to first be settled with EPA. Ms. Jennings explained that W.R. Grace was connected to MMR indirectly, as the successor company to Textron, a Potentially Responsible Party (PRP) that worked on Fuel Spill 12 (FS-12). The funds will be deposited into the same account that holds the Textron settlement funds and will be used for future oversight actions. No further comments were made on this issue.

The team then discussed the team name and agreed to formally change it to "Joint Base Cape Cod Cleanup Team."

Agenda Item #2. Small Arms Ranges Investigation and Remedy Selection

Mr. Gregson began the Small Arms Ranges Investigation and Remedy Selection presentation by reviewing the locations and history of the ranges, as well as the types of ordnance used at each. He started with a figure of the base and pointed out the Central Impact Area, the base boundaries with the towns of Bourne and Sandwich, and noted the individual ranges. He explained that the ranges are classified into three groups and pointed to them on the figure: Operational (Active), Operational (Inactive), and Non-operational. Firing is permitted on operational ranges after an Operations, Maintenance and Monitoring Plan (OMMP) is in place. This plan describes best management practices that must be followed. The current operational ranges are J, K, SE/SW, T, and I. Operational ranges that are inactive are not currently in use but, given their configurations and locations, they could be used again for small arms firing in the future. These ranges are A, B, C, D, E, G, H, KD East, N, O, P, Former N, Q, and Former R. Non-operational ranges have not been used for decades and many are situated in such a manner where development and activities, which now exist within their firing fans, would preclude their use. These ranges are Former B, Former C, Former D, E-1, E-2, GA/GB, Former K, L, L-1, L-2, L-4, Former M-1, Former M-2, Former M-3, Former M-4, Skeet Range 1 and 2, Succonsette Pond, and the 500-yard Rifle Range.

Mr. DiNardo suggested changing the color coding on the range figure so that it is easily discernible which were historical ranges and which ranges were going to be returned for training. IAGWSP agreed to do that for future presentations.

Mr. DiNardo also asked if the shooting at the ranges was directed into the berms, within the "Safety Zone." Mr. Gregson confirmed that all of the ranges do have berms to capture the bullets. The area within the Impact Area is the safety area in case any rounds went astray.

Mr. Gregson pointed out the 40 areas that were investigated and noted that they are located generally around the Impact Area. They have been used since WWII for a variety of Small Arms Training with weapons such as pistols, rifles, shotguns, sub-machine guns, and machine guns. He also showed the typical layout of a firing range with a firing line, a row of targets, and backstop berms between the firing line and the range floor.

Mr. Gregson discussed the investigation efforts done at the Small Arms Ranges and pointed out that soil samples have been collected from 38 of the 40 ranges. In general, propellant-related compounds were found at the firing points and projectile-related compounds were found at the target berms. He showed

photographs of some of the firing ranges and the STAPP system, which is the bullet-collecting mechanism.

Mr. Gregson explained that studies indicate small arms-related propellants do not leach to groundwater. He also noted that metals (antimony, copper, lead and tungsten) were detected at the target berm areas. He stated 54 groundwater monitoring wells have been installed and only a few small arms-related metals (lead, tungsten and antimony) were detected and they are currently below action levels.

Mr. Gregson reviewed several soil remediation projects conducted on the Small Arms Ranges to reduce contaminant concentrations and limit mobility. As part of the 1998 Berm Maintenance Project, soil in backstop berms was excavated, sifted to remove bullets, treated with a phosphate binder for lead and replaced on the ranges. Mr. Gregson explained that 56 tons of lead bullets were removed and 36,000 tons of soil was treated on-site. Other excavations removed nitroglycerine from the firing lines at the J, K, and Tango ranges. The sifted soil was stockpiled for later re-use on the ranges. Soil containing elevated levels of tungsten was also removed from ranges where tungsten bullets were fired. The 3,500 tons of soil was disposed of off-site. Finally, Mr. Gregson explained the Lead Bullet Removal Project undertaken at the inactive, former WWII Ranges to remove residual lead contamination. This project removed lead-contaminated soil and approximately 15 tons of lead bullets, which were recycled off-site.

Mr. DiNardo asked what was involved to "reactivate" a currently "inactive range" and was an OMPP required for each range. He also asked about the time frame to do so. Mr. Gregson replied that it was a lengthy process with an investigation, an OMPP, and potential monitoring wells installed, if necessary. He then deferred to Ms. Jennings to explain the regulatory process.

Ms. Jennings introduced herself and explained that her briefing to the team tonight was because a final decision has been proposed on what cleanup is necessary under the Safe Drinking Water Act (SDWA) Orders. She explained it is an effort that involves the investigation by the Army and the decision making by the EPA, the State, and the Army, collectively.

Ms. Jennings explained that there are two components to the Proposed Plan for the Small Arms Ranges: Groundwater Monitoring and Source Action. She noted that because of all the soil removal work thus far, active remediation is not required at this time. Long term groundwater monitoring will be conducted at the J, K, SE/SW, T, I, B, C and G Ranges. She also explained there will be additional source actions to address contaminated soil, which may pose a threat to groundwater. These actions include soil sampling and potential removal actions at the KD East, Former B, and Former D ranges. Soil removal actions are also planned at B, C, G, N, Former M-2, and Former N ranges. Currently there are no plumes associated with the Small Arms Ranges so continued monitoring will confirm that this remains to be the case and the source actions were protective. She added that groundwater modeling will also help to verify that the Berm Maintenance Projects, which fixated the lead so it does not leach to groundwater, were successful. Ms. Jennings added that, in some cases, elevated contaminants have been found in the pore water in lysimeters but the contaminants have not been found in the groundwater. EPA wants to monitor the situation to see if the contaminants do eventually reach the groundwater.

Ms. Jennings explained that there are different cleanup levels associated with the range categories (operational, active; operation, inactive; and non-operational). For example, the non-operational ranges will be cleaned up to an unrestricted use but operational ranges would not be remediated to such a stringent standard.

Ms. Jennings mentioned that the Five Year Reviews are another way for EPA to evaluate the effectiveness of the source control methods.

Ms. Jennings addressed Mr. DiNardo's earlier question about additional ranges becoming active, operational. She explained that, going forward, the Environmental Management Commission (EMC) will oversee the development of the OMPPs for ranges that could go active in the future.

Ms. Jennings noted that there is an ongoing Public Comment period for this Proposed Plan and she gave details as to how comments can be submitted to EPA through March 5, 2014.

Mr. DiNardo commented that "cleanup to an unrestricted use is a monumental task and the public should, at some point, be aware that this is an indication of what is really going on here." He asked Ms. Jennings how far along are the "inactive, never to be used" ranges in the cleanup process to a goal of unrestricted use? Ms. Jennings replied that they are "pretty close." For example, Former B, Former, C, Former D were cleaned to a residential standard based on the lead cleanup standard.

Mr. DiNardo reiterated his earlier request that these ranges be color coded so it was easily visible what work had been completed.

Mr. DiNardo also asked who is responsible for monitoring the use for each range to be sure it is used for the approved purpose. Ms. Jennings explained that Range Control has very specific rules and is aware of the environmental requirements for those ranges. She noted that they do an excellent job of controlling the range access and use. She added that environmental regulators are out in the area often and there would be stiff fine and penalties for violations.

Mr. DiNardo noted that he joined the team to support the cleanup process but also equally supports the mission of JBCC as a valid training site. He wants to keep JBCC as a viable training facility in the east and ensure the positive economic impact on the community.

Agenda Item #3. 1,4-Dioxane Sampling

Ms. Forbes explained that 1,4-dioxane is an organic compound used mainly as a stabilizer in 1,1,1-trichloroethane (TCA) to reduce degradation of TCA by preventing reaction between metal barrels and solvent. It was also used in paint strippers, dyes, greases, and wax and has been found as an impurity in antifreeze and consumer products (e.g. shampoos, cosmetics). She stated that 1,4-dioxane has been classified as an "emerging contaminant" by EPA and this refers to a chemical or material characterized by a perceived, potential, or real threat to human health or the environment, or by a lack of published health standards. A contaminant also may be "emerging" because of the discovery of a new source or a new pathway to humans.

Ms. Forbes noted there has been nationwide interest in emerging contaminants within EPA/AFCEC as decreases in the analytical method detection limit revealed the presence of 1,4-dioxane at chlorinated solvent plumes at other sites. 1,4-dioxane is a probable human carcinogen and soluble in water and recalcitrant (not easily biodegraded). She also noted that the compound does not adsorb very well to carbon particles (clays and silts) and will, therefore, travel with the groundwater. Because there is no MCL or MMCL, EPA uses a 10^{-6} risk-based level of 0.67 µg/L and MassDEP uses the Office of Research and Standards Guideline (ORSG) of 0.3 µg/L.

As part of the 4th Five Year Review, sampling for 1,4-dioxane is now recommended at several of the chlorinated plumes. Ms. Forbes noted that sampling had been done about ten years ago at the landfill but there were no detections at that time. The focus is now on the chlorinated, VOC plumes.

Ms. Forbes explained the primary industrial use of 1,4-dioxane was to stabilize solvents, particularly 1,1,1-TCA because it is less chemically stable than TCE. 1,4-dioxane is commonly associated with

TCA, or its breakdown product 1,1-DCE. 1,1,1-TCA (with 1,4-dioxane) replaced TCE at many facilities in the 1970s and 1980s because it was thought to be less toxic. There are TCE plumes at other sites with trace amounts of 1,1,1-TCA/1,1-DCE and 1,4-dioxane. This has lead to 1,4-dioxane being co-located with TCE, rather than 1,4-dioxane being linked directly to TCE usage. 1,4-dioxane concentrations are often the same order of magnitude as 1,1,1-TCA and 1,1-DCE levels. She noted the majority of JBCC TCA and DCE detections are less than 1 µg/L. The highest concentrations of TCA and DCE range from single digits to teens. The highest detection of TCA was 16 µg/L in 2002 and the highest concentration since 2010 has been 6.5 µg/L. The highest detection of DCE was 360 µg/L in 1999 and the highest concentration since 2010 has been 3.1 µg/L.

Ms. Forbes outlined the multi-step approach for sampling. Step 1 was done Oct-Dec 2013 and involved collecting influent and effluent samples from all of the VOC treatment plants including:
AV ETI, AV ETD, CS-10 IP, CS-10 SR, LF-1, and HATF (including CS-4/CS-20, CS-21 and LF-1/CS-23 sampling ports). Applicable residential well and public water supply well samples were also collected. These samples were analyzed for 1,4-dioxane to meet the following requirements: Method Detection Limit (MDL) of 0.075 µg/L and Reporting Limit (RL) of 0.15 µg/L. The data were compared to the EPA 10^{-6} risk-based level of 0.67 µg/L and MassDEP ORSG of 0.3 µg/L. Treatment plant results were assessed to determine potential presence/absence of 1,4-dioxane at VOC plumes and determine if it has been reintroduced in effluent to groundwater or surface water, and help determine what monitoring wells to sample. This was Step 2 (Nov 2013-Jan 2014). Ms. Forbes reiterated that 1,4-dioxane does not adhere well to carbon and would not likely be removed by the treatment systems.

The treatment plant and residential/public water supply well results were presented to EPA/MassDEP. AFCEC also presented the rationale for sampling up to 40 monitoring wells for 1,4-dioxane throughout VOC plumes and reinjection areas based on: historical distribution of 1,1,1-TCA detections (1996-2013), historical distribution of 1,1-DCE detections (1997–2013), and treatment plant results. Ms. Forbes noted that 1,1,1-TCA and 1,1-DCE detections in groundwater are most prevalent at LF-1, CS-20, and CS-10. A 1,4-dioxane monitoring well sampling work plan is currently undergoing regulatory review. Upon work plan approval, sampling of the monitoring wells will begin. Step 3, will include presenting the results of 1,4-dioxane sampling to EPA/MassDEP, presenting conclusions and path forward, and documenting results in a project note.

Ms. Forbes then reviewed the results of the sampling efforts at the treatment plants and extraction wells (a handout was included in the presentation).

She also explained the private well sampling effort and noted one property had two wells (potable and irrigation) and 1,4-dioxane was not detected in either well. Another property has one well used for potable supply and 1,4-dioxane was not detected. There was one property with one well used for potable supply where 1,4-dioxane was detected at an estimated concentration of 0.108J µg/L. This well will be resampled following finalization of the monitoring well sampling work plan.

Ms. Forbes noted 1,4-dioxane was detected at Bourne Public Water Supply (PWS) #5 at 0.206 µg/L but not detected at Bourne PWS well #2. She added that the Town of Falmouth had sampled the Crooked Pond PWS well for 1,4-dioxane analysis in August 2013 and it was not detected.

Ms. Forbes reviewed the next steps: sample 40 monitoring wells within the LF-1, CS-23, CS-20, AV, and CS-10 plumes for 1,4-dioxane in February 2014 in order to: 1) evaluate range of concentrations and 2) determine general geographic extent of 1,4-dioxane. Data will be used to assess presence/absence of 1,4-dioxane in each plume. These data can be used to focus additional investigation in each of the affected plumes (if necessary). The private well in AV with the 1,4-dioxane detection will also be resampled. Three additional seasonal private LUC wells that are used for potable water supply will also be sampled in the spring of 2014. Sampling will occur once EPA/MassDEP approves the Monitoring

Well Sampling Plan project note and the results will be reported at a future technical meeting and at the JBCC CT meeting (Spring 2014).

Mr. DiNardo commented that this was very interesting information and asked what would be the capture or extraction method for 1,4-dioxane, since carbon does not appear to be effective. Ms. Forbes replied that the extraction method would be the same (extraction wells) and that UV oxidation is one of the most common treatments and this could be added to the treatment train.

Ms. Rielinger asked if plume cleanup times would be extended. Ms. Forbes replied that it could if 1,4-dioxane is in the effluent and getting into other areas and, specifically, clean areas.

Ms. Rielinger asked what the requirements were for cleanup. Ms. Jennings replied that right now they are focused on nature and extent and to make sure citizens are not immediately impacted. The next step is to see if it is being captured or if it is beyond the existing system. Other factors to consider are monitored natural attenuation and land use controls. She noted that, absent an MCL, the cleanup would be done in accordance with a risk-based standard. EPA and the MassDEP have different standards and neither is promulgated at this time. Ms. Jennings referenced perchlorate and noted it was also an emerging contaminant at one time. She expressed the primary concern is making sure no one is drinking water with detections of 1,4-dioxane right now.

Ms. Rielinger then asked if some of the sampling points are near the effluent from the treatment plants. Ms. Forbes replied that is the case. She noted that CS-10 does have a combined effluent of four treatment trains so the effluent concentrations would likely be diluted, but she added that this would not be the case with the other treatment systems' effluent samples.

Ms. Forbes displayed figures with historic distribution of TCA and DCE to plot where 1,4-dioxane might be present. The next figure showed some of the locations where sampling will occur.

Mr. DiNardo asked if 1,4-dioxane is expected to be elsewhere, given the range of potential sources. He also asked if there were background levels associated with the compound.

Ms. Jennings replied that EPA's focus is currently on the water supplies and drinking water as a whole, requiring water suppliers to sample for it. Every town in MA has this requirement. She added that investigations of private wells is not happening, nor is the establishment of the nature and extent throughout a community or even New England, right now.

Mr. DiNardo asked if this was required testing for private wells when properties are sold or wells are drilled. Ms. Jennings replied that she does not know if it is a required constituent for sampling under those circumstances. She added she would be surprised if it is. Mr. DiNardo then asked who decides what should be tested. Ms. Jennings replied that for public water supplies, EPA and the states establish those requirements. But, she added, when it comes to private well sampling, the Board of Health (BOH) establishes the requirements. She is not familiar with how aware the Boards are of this contaminant and commented that there is a risk there.

Mr. Pinaud state that there are different ways the state tests for emerging contaminants. One is the "Unregulated contaminant monitoring rule," which is an EPA program under the SDWA, implemented by both EPA and the states' water suppliers. 1,4-dioxane has been a requirement for about one year now. He did not have results to present tonight but expects to have occurrence data for 1,4-dioxane in MA within a year's time. He added that testing for 1,4-dioxane has been required at landfills, landfill leachate, and landfill leachate plumes and that is why there is a GW-1 standard in MA. When the toxicological data changed in the EPA IRIS database, MassDEP recalculated it and that is why there is an ORSG number of 0.3 µg/L and the cleanup standards will be consistent with that.

Mr. Pinaud explained that about 10 years ago, MassDEP requested that the Air Force sample for 1,4-dioxane in the Northwest Operable Unit as part of the suite of contaminants at the landfill, as Ms. Forbes mentioned earlier. It was not found at the time but Mr. Pinaud added that it is often found at other landfills and landfill leachate plumes. As part of that, they also have to test private water supplies. He explained that this circumstance "is probably the only time that MassDEP would be requiring the testing of private water supplies." They are normally regulated by the BOH. He commented that the BOH is mainly focused on contaminants from septic systems.

Mr. Pinaud added that the good news, in this case, is that the public water supplies and residential wells samples have been below the 0.3 µg/L OSRG standard. MassDEP concurs with the approach to resample and act quickly if the contaminant is detected in someone's water supply to protect public health.

Mr. Michaud expressed support for the regulators' approach to first identify where the contaminant is located before determining what actions need to be taken. He noted a local, regional case currently ongoing at the Eastham Landfill, where 1,4-dioxane is moving off the landfill and there is ongoing monitoring of private wells downgradient of that. He also asked Ms. Forbes if there is any potential for significant atmospheric deposition of 1,4-Dioxane. Ms. Forbes said she will follow up with Mr. LeBlanc (USGS) to see if he is aware of any research related to this.

Ms. Jennings asked where the infiltration gallery for the LF-1 treatment plant is located. Ms. Forbes replied that the infiltration trench that had been installed failed so they installed a reinjection well. Ms. Jennings inquired about a monitoring well in the area and Ms. Forbes noted there isn't one in the area, but added that the Bourne Water District Sentry Wells are in the vicinity. Ms. Jennings stated this might be something to look at in the future.

Agenda Item #4. Coal Yard 2

Mr. Dalrymple began the presentation by explaining that the Coal Yard 2 (CY-2) Site was a coal storage area for the Air Force and the National Guard between 1957 and 1984. The site is approximately 14.5 acres in area and located near the southern JBCC boundary at Kittredge Rd. and Generals Blvd. The source of the contamination was storm water runoff, which deposited coal fragments and dust in drainage swale located at the southeastern side of the site. CY-2 is now within the Upper Cape Transfer Station property, which was built and opened in 1989. The Transfer Station uses the same railroad spur that was used for coal delivery prior to 1984.

A 1986 records search indicated CY-2 as potentially contaminated site and a site investigation was conducted in 1988. There were no groundwater detections of VOCs/SVOCs/metals above drinking water standards. One surface soil sample detected arsenic at 88 mg/kg, which is above the current MCP Method 1 S-1/GW-1 standard of 20 mg/kg. A 1988 Decision Document presented the finding that there was no threat to human health given current land use (transfer station). In 2008, the third 5-Year Review recommended a reassessment of site data against updated soil standards and an assessment to achieve unlimited use/unrestricted exposure (UU/UE) closure. This is the strictest standard in terms of potential use because it assumes someone is in direct, physical contact with the soil. The reassessment of site data indicated a soil removal action should be completed due to the presence of arsenic above MCP Method S-1/GW-1 standard in order to achieve UU/UE closure.

Mr. Dalrymple reported that soil sampling was conducted between 2009 and 2011 to delineate the extent of the area to excavate and he noted it was estimated to be approximately 112 cubic yards, or 190 tons. A soil removal action was conducted in April/May 2012 and significantly more soil (approximately 318

cubic yards, or 542 tons) was removed. Removal activities ceased because contract limits were reached. AFCEC then proposed an EE/CA to evaluate additional soil removal actions.

Mr. Dalrymple explained that an EE/CA can be used for non-time critical actions to establish remedial action objectives (RAOs), identify applicable or relevant and appropriate requirements (ARARs), evaluate cost-effective removal actions, and recommend a preferred removal action (as is the current case). The CY-2 Action Memorandum will document any public comments received on the CY-2 EE/CA and present agreed upon removal action.

The CY-2 EE/CA Remedial Action Objectives (RAO) are as follows:

- For ecological receptors, prevent exposure to site soils with arsenic exceeding the ecological risk-based cleanup level of 7.1 mg/kg (based on risk to northern short-tailed shrew)
- For potential future human residential receptors, prevent exposure to site soils with arsenic exceeding the MCP Method-1 S-1/GW-1 cleanup level of 20 mg/kg

The ecological risk-based cleanup level of 7.1 mg/kg for arsenic was developed during an ecological risk assessment at CS-16/CS-17. MCP Method-1 S-1/GW-1 cleanup levels are protective of groundwater because they consider leaching of soil contamination to groundwater.

The CY-2 EE/CA evaluated 2 alternatives: Alternative A: No action and Alternative B: Excavation and disposal of soil containing arsenic above the ecological risk-based cleanup level of 7.1 mg/kg. AFCEC recommends Alternative B because it will meet the RAOs and allow for UU/UE closure of the site, comply with ARARs, be easily implemented, and provide remediation at a reasonable cost.

Mr. Dalrymple noted that the CY-2 EE/CA Public Comment Period runs from February 3 – March 4. The final CY-2 EE/CA will be distributed in February 2014 and the soil removal action will take place in March/April. The final CY-2 Action Memorandum will be issued in June.

Ms. Jennings inquired as to how much has been spent on the removal thus far and the cost of Alternative B. Ms. Forbes said she didn't have the information at the meeting but would certainly be able provide it.

Ms. Rielinger asked, "Did the storm water ran off onto the ground and where did the outfall pipe lead?" Mr. Dalrymple explained the pipe led to a natural drainage swale on the southeastern side of the site and all of the storm water drains led to the outfall pipe and run off collected there.

Agenda Item #5. Military Munitions Response Program

Ms. Forbes referred to a previous presentation as a reminder of where the Military Munitions Response Program (MMRP) was in the past. As a result of previous military training, DoD sites may contain unexploded ordnance (UXO), discarded military munitions (DMM), and/or munitions constituents (MC). In 2001, Congress and DoD created the MMRP to address human health, safety, and environmental concerns at defense sites. In 2002, MMRP became a program element of the Defense Environmental Restoration Program (DERP) and the Installation Restoration Program (IRP) is also an element of DERP. AFCEC is managing the MMRP at JBCC.

The MMRP follows the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Contingency Plan. MMR's Federal Facility Agreement does apply to the MMRP. The MMRP does not apply to operational ranges, operating storage/manufacturing facilities, or to permitted treatment and disposal facilities. Ms. Forbes explained that much of JBCC is an Operational Range, thus MMRP does not apply to those parts of the installation.

Ms. Forbes explained that munitions work has been conducted by AFCEC (as part of IRP) and IAGWSP (under Safe Drinking Water Act Administrative Order) on the Operational Range as part of their efforts to address groundwater contamination and she stressed that this is NOT the MMRP.

The MMRP implements response alternatives to address unacceptable risks (both explosive safety and munitions constituent risks), provides for meaningful stakeholder involvement, provides for response actions consistent with reasonable anticipated future land use, and fosters and supports the development and application of improved and innovative technologies and methods.

Ms. Forbes reviewed the investigative efforts done in the past. The Army National Guard conducted a MMR-wide Historical Records Review (HRR) and accessed multiple archives, reports, and aerial photos. Nine Munitions Response Areas (MRAs) on MMR (not on the active ranges) were identified. The Air National Guard conducted a Historical Records Review (HRR) on Otis ANG Base and accessed multiple archives, reports, and aerial photos. Three additional MRAs were identified.

Ms. Forbes said the Comprehensive Site Evaluation (CSE) Phase I has been completed and the document is currently being finalized. In total, 13 MRAs were identified. Three are located off JBCC property and will be evaluated for eligibility under the Formerly Used Defense Site (FUDS) program, which is managed by the Army Corps of Engineers. One MRA (small arms range) will not go forward because it under a capped landfill. Nine MRAs will carry forward and be further evaluated by AFCEC in the CSE Phase II effort. Work at one MRA (Former Ammunition Supply Point) has started and the remaining eight MRAs are included in the JBCC Performance Based Remediation (PBR) contract. There is no evidence of munitions constituents (MC) requiring immediate action.

Ms. Forbes noted that a full assessment of the potential impact of MC will include an analysis of past or possible future releases associated with military munitions activities. This involves surveys and/or sampling the potentially impacted media (e.g., soil, sediment, and/or surface water), where MEC or munitions debris has been found and/or where the release or migration of MEC or MC may be expected. Environmental sampling/surveys will be performed, as applicable, as part of the CSE Phase II activities. The Comprehensive Site Evaluation (CSE) Phase I Report will be finalized in this month (February 2014). The Former ASP-West Work Plan will be drafted as part of CSE Phase II and will be submitted for regulatory review. AFCEC will finalize the Work Plan in March/ April and conduct field survey at ASP-West in the spring. Work at the Former ASP-East will be conducted in FY15. The contract award for the PBR will be done in June/July 2014 and CSE Phase II for eight MMRP sites will begin in FY15.

Mr. DiNardo asked about the FUDs program and where additional information can be found. Mr. Pinaud explained that the FUDs program is managed by the US Army Corps of Engineers (USACE) with federal funding and the agency that has primacy for implementing the programs are the states (MassDEP, in this case). USACE asks the states to help prioritize which sites should be worked on every year. He explained that the sites on Cape Cod (Scorton Neck, Popponesett Beach) have ranked very low and there are other sites that need the funding more. The sites will remain on the list and archive search reports have been done. He surmised that because most of the ordnance at these sites is probably under water, that is why the ranking is lower than other sites. Unless the ordnance starts to wash up on shore, as is the case elsewhere, these will likely remain lower priorities. Mr. DiNardo asked if there was a website for further information and Mr. Pinaud directed him to the USACE website and told him he can provide additional information, if needed.

Mr. Karson pointed out the updated Q&A Fact Sheet for the MMRP in the handout packet. There is a point of contact for the USACE and a website address.

Agenda Item #6. Final Discussions, Adjourn

Ms. Donovan pointed out the Five Year Review Fact Sheet, also in the handout packet. Mr. Karson noted that this is also available on the website, will be available at the libraries, and will be mailed to the IRP mailing list.

Ms. Donovan also reviewed the list of potential 2014 meeting dates and topics. She noted that the list may change and there may be a need for additional meetings to accommodate public comment periods. Mr. Gregson noted that the IAGWSP has two additional Decision Documents (J-3 Range and the Training Areas). He noted a program overview will be provided at the April meeting.

Mr. Karson explained that an extra meeting might need to be scheduled to accommodate an IRP public comment period.

Mr. Karson also noted that both the Army and Air Force have extensive private well verification programs and that while they have not previously included sampling for 1,4-Dioxane, they will in the future. He added that sampling areas may need to be expanded outside plume boundaries. Installation of private wells in contaminated areas is restricted by the BOH. He also stated that Dig Safe notices are monitored as another safety measure.

Ms. Jennings asked if there is a moratorium on drilling in the towns and Mr. Karson explained that the towns get a copy of the plume map on an annual basis and it is up to the BOH to make the ultimate decision based on the well purpose, sampling requirements, etc. He cited an example of a private well that was drilled in Mashpee. The BOH revoked the permit but subsequently gave approval with certain conditions attached. Ms. Jennings commented that there seemed to be "holes in the process" if a well is outside of a plume boundary because 1,4-Dioxane is not on the list for required sampling for private wells. She added that the next emerging contaminant will be PFCs and the potential contamination in the Ashumet Valley area. This will be discussed at a future meeting.

Ms. Donovan announced the next meeting will be held on April 9, 2014, and she adjourned the meeting.