

**Massachusetts Military Reservation Cleanup Team (MMRCT) –  
Senior Management Board (SMB)  
Building 1805  
Camp Edwards, MA  
December 15, 2010  
6:00 – 8:55 p.m.**

**Meeting Minutes**

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**Action Items:**

1. Mr. LoGiudice requests that main roads are labeled on IRP maps used in future MMRCT presentations.

**Handouts Distributed at Meeting:**

1. Response to Action Items from the October 13, 2010 MMRCT Meeting
2. Presentation handout: Gun & Mortar Firing Positions Update
3. Presentation handout: Former K Range Update
4. Presentation handout: Former A Range Update
5. Presentation handout: IAGWSP Look-Ahead
6. Presentation handout: CS-20 Leading Edge Update
7. Presentation handout: Military Munition Response Program (MMRP) Follow-Up
8. Presentation handout: Installation Restoration Program Look-Ahead
9. MMR Cleanup Team Meeting Evaluation Form

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**Agenda Item #1. Introductions, Agenda Review, Action Item Review, Approval of October 13, 2010 MMRCT Meeting Minutes**

Mr. Field convened the meeting at 6:05 p.m. and reviewed the agenda, after which the Massachusetts Military Reservation Cleanup Team (MMRCT) members and Senior Management Board (SMB) members introduced themselves. Mr. Field asked if there any comments on the October 13, 2010 MMRCT meeting minutes, and Mr. Saucier noted that the name of his town was inaccurately identified on the attendance list at the beginning of the document. The minutes were approved with this one correction.

**Agenda Item #2. Demolition Area 1 Groundwater Update**

Mr. Gregson stated that the Demolition Area 1 (Demo 1) groundwater plume is located on the west side of MMR, at the boundary with the town of Bourne. He then showed an aerial photograph of the area and pointed out the base boundary, commercial buildings in Bourne across MacArthur Boulevard, and the pink coloration representing perchlorate contamination in groundwater. He noted that perchlorate is an oxidizer in rockets, other munitions, and fireworks. He also pointed out the Demo 1 source area, and noted that the Impact Area Groundwater Study Program (IAGWSP) has had a Demo 1

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active treatment system in place since 2004. He further noted that the system, which involves five extraction wells, has been quite successful at decreasing the areas of contamination.

Mr. Gregson then showed a close-up of the leading edge of the Demo 1 plume and pointed out the dots representing monitoring wells or drive-points where groundwater samples are collected, and a particular well where perchlorate was detected at 12 parts per billion (ppb). He noted that the state standard for perchlorate is 2 ppb and that the U.S. Environmental Protection Agency (EPA) health advisory for perchlorate is 15 ppb. Mr. Gregson reported that based on the 12 ppb detection, the IAGWSP installed a series of drive-points along the base boundary, with preliminary results showing a detection of 12 ppb in one of the northern locations. He also mentioned that the drive-points were situated about 150 feet apart from each other, and that results from permanent wells installed at the drive-point locations also showed perchlorate at 12 ppb at the northern position. Based on the drilling and sampling that was done, it appears that the plume is about 80 to 100 feet thick and a couple hundred feet wide in that area, and that it's possible that perchlorate contamination extends beyond the base boundary, and possibly out into the nearby neighborhood.

Mr. Gregson stated that his office has been working with EPA, which requested that the IAGWSP begin planning and preparation for a treatment system at the base boundary to capture the upgradient perchlorate contamination. That work is under way. EPA also asked the IAGWSP to verify that there are no exposure points (supply wells) downgradient of the contamination if indeed the plume has reached that far. Also, EPA requested that the IAGWSP conduct an off-post investigation to determine how far the contamination has traveled and decide whether additional actions are needed to clean up the groundwater off base. Mr. Gregson then displayed another figure and pointed out roads in the area where the off-post investigation would be conducted, downgradient of the contamination at the base boundary. He also noted that contamination following that path would ultimately discharge into the Pocasset River near Buzzards Bay.

With regard to confirming that all residences are on town water, Mr. Gregson noted that the IAGWSP has contacted the Bourne Water District and the Bourne Board of Health, both of which indicated that everyone in the area is on town water. The IAGWSP also checked the Bourne Water District's billing records against property records and found no discrepancies, and last week sent out letters to residents in the neighborhood asking them to confirm that their homes are on town water and report whether there are any existing wells on their property, either for water supply or irrigation.

Mr. Gregson reported that the IAGWSP has begun an off-base drive-point investigation, beginning with submitting an access permit application to the Massachusetts Department of Transportation Highway Division to get permission for drive-point locations along Route 28. He noted that currently the preference is to locate the drive-points along the right shoulder of the north bound lane. Based on results from these drive-points, the investigation, which will occur as soon as possible, will step out into the neighborhood, perhaps as far as Williams Avenue, and the IAGWSP already is working with town officials to obtain access to locations. Mr. Gregson also noted that EPA has established a deadline of May 15, 2011 to begin active treatment of the plume at the base boundary.

Mr. LoGiudice inquired about the thickness of the plume. Mr. Gregson replied that it's about 100 feet thick, or a little less. Mr. LoGiudice also asked about the plume's rate of travel. Mr. Gregson replied that plumes generally travel at a rate of about one foot per day.

Mr. Dinardo inquired about the elevation of the plume. Mr. Gregson displayed an east-west cross-section figure and noted that the plume is located about 80 feet below ground surface.

Ms. Valiela asked Mr. Gregson about the depth of the pond that's in the path of the groundwater contamination. Mr. Gregson said that he's not certain, but the depth of contamination from the water table is about 60 feet and he would doubt that the pond is that deep. If the plume is detected in drive-points in the neighborhood, however, it will be necessary to consider whether it's discharging to the

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pond (Lily Pond). Mr. Saucier inquired about the use of Lily Pond. Mr. Gregson replied that he's not sure, but aerial photographs indicate there isn't much access to it.

Ms. Barth of the Enterprise newspapers asked about the streets involved in the drive-point investigation. Mr. Gregson noted that the IAGWSP would be looking at Route 28 (or MacArthur Boulevard), Williams Avenue, Sabbatt Road, and Albert Road.

Mr. Hamilton, a resident of Williams Avenue, noted that he has an irrigation well on his property and wonders what he might expect in the coming months. Mr. Gregson replied that the IAGWSP will continue to provide him with information from the investigation and, if Mr. Hamilton wishes, will collect a sample from the irrigation well. Mr. Hamilton noted that the well has been shut down for the season, but he could provide the IAGWSP with information about the depth and so forth. Mr. Gregson said that he would contact Mr. Hamilton, and the well would be sampled as soon as possible.

Ms. Rubel, another Bourne resident, expressed concern about the flooding between Lily Pond and Picture Lake, probably due to a break in a natural barrier or some kind of culvert, and questioned whether the investigation would be extended farther into Williams Avenue and Picture Lake. Mr. Gregson noted that the water levels on Cape Cod have been at historic highs over the past year, which might have something to do with that flooding. He then referred to a figure and pointed out the projected path of any contamination that might travel off base. Ms. Rubel asked if it's correct that the monitoring will follow the projected path. Mr. Gregson confirmed that it is, and added that "we'd continue our investigation down in this direction here if we had to."

Mr. Field asked if there's been an effort to conduct surface water sampling at the pond. Mr. Gregson replied that if contamination is detected in that part of the neighborhood, surface water sampling will be conducted. Ms. Rubel mentioned that although there's no boating on Lily Pond, children do play and fish there, so she thinks surface water could be a concern.

### **Agenda Item #3. Tribute to the retiring Paul Marchessault of EPA**

At this time the group paid tribute to the retiring Paul Marchessault, the EPA project manager for the Air Force Center for Engineering and the Environment (AFCEE) Installation Restoration Program (IRP) at MMR, who would be completing his career with EPA at the end of 2010.

### **Agenda Item #4. Gun & Mortar Update**

Mr. Gregson stated that because of their similarities, the Gun & Mortar Positions, Former K Range, and Former A Range are being grouped together. He noted that they have little in the way of soil contamination, they have no groundwater plumes associated with them, and the IAGWSP plans to move forward with a no-further-action decision document for these sites.

Mr. Gregson displayed a figure and pointed out the Impact Area and the symbols representing the 37 gun and mortar firing positions. He reported that use of the positions began in the 1940s, firing of (high explosive) artillery rounds ended in the late 1980s, and all firing ended in 1997. He also noted that propellant, which was used to send the rounds into the targets, was found at the firing positions, and the propellants contained nitrocellulose, nitroglycerin, and dinitrotoluene (DNT) as a stabilizer. He explained that not all of the propellant is consumed when an artillery piece is fired, and that the past activity of burning excess propellant at the site may also be a source of some of the residual propellant. Mr. Gregson then stated that the primary contaminant of concern (COC) at the firing positions is 2,4-DNT.

Mr. Gregson reported that the initial soil investigation at the positions found a range of contaminant concentrations: 21 positions tested nondetect for 2,4-DNT; eight positions had low level detections of 2,4-DNT (less than the state standard of 700 ppb); and eight positions had 2,4-DNT levels that

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exceeded 700 ppb – up to about 2 parts per million (ppm). Other contaminants detected at some of the sites were 2,6-DNT, nitroglycerin, n-nitrosodiphenylamine, perchlorate, metals and the pesticide Dieldrin. Mr. Gregson also noted that eight groundwater monitoring wells with multiple screens were installed as part of the Gun & Mortar Positions investigation, and no artillery or mortar propellant constituents were detected there or in other nearby monitoring wells that were installed for other projects.

Mr. Gregson then reported that soil removal actions have been conducted. In 2000, in response to EPA Administrative Order #3 (AO3), a Rapid Response Action (RRA) was conducted at Gun Position 7 (GP-7), which involved removing approximately 57 tons of soil to a depth of about two feet and treating it by soil washing. In 2004, at GP-6 approximately 750 tons of soil was removed to a depth of about six inches, and treated in the thermal treatment unit. Mr. Gregson noted that GP-6 was selected because it had 2,4-DNT concentrations exceeding 700 ppb in a defined area.

Mr. Gregson then discussed a focused groundwater investigation undertaken by the IAGWSP a couple of years ago. He said that the investigation, which took place at GP-10 and GP-11, where there were higher concentrations of 2,4-DNT, involved installing six drive-points at the downgradient edge of the positions. Based on the drive-point results, one monitoring well was installed at each position, and four sampling events were conducted at each well. Mr. Gregson reported that at GP-10 no explosives or perchlorate were detected in the drive-points or the monitoring well in the first three sampling events. The fourth sampling event (August 2009), however, showed perchlorate at 0.053 ppb, a level several orders of magnitude below the drinking water standard. At GP-11, low levels of some explosives were detected in the drive-points, but those detections were not reproduced in the permanent monitoring well and were likely false positives.

Mr. Gregson stated that a few years ago the IAGWSP began using a multi-increment soil sampling approach that involves compositing around 100 sub-samples, which is believed to better represent the average concentration at a site and eliminate some of the problems associated with heterogeneity. He reported that: at GP-5, no explosives or propellant-related compounds were detected; at GP-6 and GP-7, low levels of 2,4-DNT and other propellant-related contamination was detected in surface soils that were not included in previous removal actions; and 2,4-DNT results from areas where previous soil response actions were conducted indicated that the actions were successful.

Ms. Donovan inquired about the propellant-related compounds and Mr. Gregson noted that the presentation handout includes a table that lists the compounds and compares them to various cleanup standards.

Mr. Gregson then continued reviewing results from the multi-increment soil sampling investigation: at GP-8, low levels of 2,4-DNT were detected; at GP-10 and GP-11, 2,4-DNT and other propellant-related contamination was detected in surface soils; at GP-12, GP-17, and GP-19, low levels of propellant-related compounds were detected; and at Mortar Position 1 (MP-1), no explosives or propellant-related compounds were detected.

Mr. Gregson stated that to answer the question of why propellants in soil weren't being detected in groundwater, the U.S. Army Corps of Engineers' Engineer Research and Development Center – Cold Regions Research and Engineering Laboratory (ERDC-CRREL) conducted a series of laboratory leaching studies on the environmental migration of 2,4-DNT and nitroglycerin in MMR soil. He then noted that propellants used at MMR included a single-base propellant consisting of nitrocellulose (NC) with 2,4-DNT as a stabilizer, and a double-base propellant consisting of NC, nitroglycerin, and other additives, including 2,4-DNT. Mr. Gregson explained that NC is a fibrous material that's treated with acid, but is hard and not susceptible to weathering in the form it's in with propellant. He then stated that the leaching studies showed a small initial release of propellant. The remainder of the DNT and nitroglycerin become encapsulated within the NC, with the initial release degraded by natural

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processes, or biodegradation. Mr. Gregson said that this seems to explain why the compounds seen in soil are not detected in groundwater.

Mr. Gregson then discussed groundwater risk screening, noting that the maximum detected concentration of each analyte was compared to preliminary screening levels. He reported the following: over several years of monitoring there was a single detection of TNT, which was not reproduced in subsequent sampling; perchlorate was detected above screening levels in two wells, both of which are associated with a different operable unit (the Northwest Corner); detections of arsenic in groundwater are attributed to the natural occurrence of the metal; chloroform, which was also detected, is ubiquitous in the groundwater on the Upper Cape and is attributed to sources unrelated to MMR; and earlier detections of MCP, an herbicide, are believed to have been false positives. Mr. Gregson stated that no COCs were identified in groundwater.

Mr. Gregson also discussed soil risk screening, noting that the IAGWSP conducted a site-wide comparison using the maximum detection of each analyte. He reported the following: 2,4-DNT and 2,6-DNT were detected at several positions, but DNT appears to be encapsulated in the NC and is essentially immobile in the environment; the low-level perchlorate concentrations that were detected did not warrant further investigation; any metals detections were generally consistent with background and are not anticipated to migrate to groundwater; there were a few random detections of semi-volatile organic compounds (SVOCs), PCBs, and pesticides/herbicides, but these compounds bind strongly to the soil and are unlikely to impact groundwater; and there were some volatile organic compound (VOC) detections, but those were likely unrelated to site activities (acetone and methylene chloride, which are laboratory contaminants, and chloroform, which is ubiquitous in the environment).

Mr. Gregson reviewed the conclusions slide: no explosives or propellant-related compounds were found in groundwater; contaminants detected in soil at the Gun & Mortar Positions do not appear to be a threat to groundwater, the environment, or human health; and 2,4-DNT (bound in NC), the most frequently detected propellant, is thought to be immobile in the environment. Mr. Gregson then stated that the IAGWSP believes that no further cleanup action is necessary at the Gun & Mortar Positions. He also noted that the investigation report is in the process of being finalized and a decision document, which will include a public comment period and will be combined with the Former A Range and Former K Range decisions, is expected to be issued in early 2011.

#### **Agenda Item #5. Former K Range Update**

Mr. Gregson displayed a map and pointed out the Former K Range, on the eastern side of the base, and explained that firing at the range was directed toward the Impact Area. He noted that the Former K Range is about 800 feet wide by 1,200 feet long, was originally constructed around 1960, initially functioned as a 3.5-inch rocket range, in 1968 was converted to an M79 grenade launcher range, and continued to be used until the early 1970s. He also reported that the site was part of the Phase IIb investigations conducted in 2000. Mr. Gregson then showed a close-up view of the range layout and pointed out the Impact Area boundary, the Former K Range firing point, the targets in the middle of the range, and another firing point and a target 2,000 meters downrange.

Mr. Gregson reported that geophysical surveys were conducted at the range, including an air magnetometry survey in 2000 and an EM-61 and handheld investigations in 2008. The surveys looked at presumed target areas, transects/firebreaks (recently cleared by the Air Force Research Lab), meandering paths behind target areas, prescribed burn areas, and trenches. He also noted that soil sampling, beginning in 2001 and completed in 2009, was conducted at presumed target areas. Over the same time period, groundwater sampling was conducted at two permanent monitoring wells – monitoring well 170 (MW-170) and MW-366 – and four drive-point locations were installed in 2006. Mr. Gregson stated that no contaminants associated with the Former K Range were detected in groundwater.

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Mr. Gregson showed a figure and pointed out the soil sampling locations and multi-increment soil sampling locations. He then displayed another figure and noted that it shows where the geophysical surveys were conducted. He also noted that not much was found at the range, and most of the munitions that were found were inert. The few high-explosive munitions that were found were blown in place. He said that from a munitions standpoint, nothing requiring a further response action was identified.

Mr. Gregson then reviewed investigation findings and actions taken. Regarding soil, he noted that: no explosive compounds were detected in any samples from Areas A, B, D, and F; RDX was detected at 7.5 milligrams per kilogram (mg/kg) in two 5-point composite samples in Area E (the Massachusetts Department of Environmental Protection [MassDEP] cleanup standard is 1 mg/kg), and in response 125 cubic yards of soil was removed and treated on site with alkaline hydrolysis; and trace detections of perchlorate were detected in multi-increment samples in Areas E and F, but the detections were not repeated.

Regarding munitions, Mr. Gregson noted that: hundreds of inert 3.5-inch rockets were discovered during the investigation; seven potentially explosive items (two 20mm projectiles, a perforator, one 30mm projectile, one 57mm projectile, and two 3.5-inch rockets) were recovered from the range; and of the seven potentially explosive items, only the 3.5-inch rockets were thought to have been used on the range, with the other projectiles thought to be from the neighboring J-2 Range.

Regarding groundwater, Mr. Gregson noted that: no explosives or perchlorate were detected in the drive-points along the downgradient edge of the range; no explosives were detected in the monitoring wells; and although in 2005 perchlorate was detected at 2.3 micrograms per liter ( $\mu\text{g/L}$ ) in MW-366, perchlorate has not since been detected in that well.

Mr. Gregson then stated that the IAGWSP believes that no further cleanup action is necessary at the Former K Range. He also noted that the investigation report is expected to be completed by the end of December or early January, and the decision document, expected to be issued in early 2011, will be combined with the Gun & Mortar Positions and Former A Range sites.

#### **Agenda Item #6. Former A Range Update**

Mr. Gregson stated that the Former A Range is located west of the Impact Area. He noted that the range is about 2,600 feet long by 1,500 feet wide and was used from World War II until the mid-1970s, initially as an anti-tank artillery and rocket range (also known as the gravity anti-tank range). Later, beginning in the 1960s, the range was used for machinegun training. Mr. Gregson then showed a map of the range and pointed out the narrow-gauge railroad track that starts at the top of a hill. He explained that targets were situated on a small rail car that ran down the track, by gravity, and soldiers would shoot at the targets from firing points.

Mr. Gregson then reported that initial soil sampling at Former A Range focused on the backstop berms of the target area, the target roll-out area, and the firing point. He displayed a figure that showed some of the soil sampling locations, and he noted that additional soil sampling was conducted from 2004 to 2009 to further delineate contaminants detected during the initial investigation. Mr. Gregson also noted that the groundwater investigation at the site involved sampling four wells specifically installed to monitor potential contamination from the range, in addition to sampling other wells in the vicinity, which were installed as part of the Central Impact Area investigation.

Mr. Gregson reminded the group of the robotics technology demonstration that took place at the range over the past few years, during which a remote-controlled excavator equipped with an electromagnet was used to remove unexploded ordnance (UXO), small arms, and metal debris from the backstop berms. He also noted that the soil removal action conducted in 2009 involved using an excavator to remove soil to a depth of two feet from the upper and lower backstop berms, mechanically screening

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the approximately 2,500 cubic yards of soil to remove any UXO and small arms, sampling soil stockpiles to determine the need for treatment or disposal of the soil (most of which was clean), and transporting approximately 100 cubic yards of TNT-contaminated soil off site for disposal.

Mr. Gregson reviewed the geophysical investigations conducted at the site: in 2001, airborne and ground-based magnetometer surveys; in 2004, target area configuration and ordnance penetration studies; and in 2010, site close-out geophysical surveys that included EM-61 surveys of the excavation footprint, a meandering path survey of the outside the target area, and detailed reconnaissance of the edges of the target area.

Mr. Gregson discussed investigation findings by noting the following: low levels of TNT and perchlorate (less than 1 µ/L) were detected in one groundwater monitoring well (MW-249M3); RDX at 0.31 µg/L and 1,3,5-trinitrobenzene at 0.33 µg/L were detected once, in 2005, at MW-249M3, but subsequent samples have been nondetect for those compounds; TNT and other explosives (TNT breakdown products 2A-DNT and 4A-DNT), SVOCs, and metals were detected in soil at the target area, with most detections below Massachusetts Contingency Plan (MCP) Method 1 standards; and in soil at the firing points, propellant-related compounds and SVOCs were detected at levels below MCP Method 1 standards.

Mr. Gregson also made the following statements regarding the geophysical work that was done: most of the munitions that were found were inert; the majority of live munitions found were 37mm and 40mm projectiles; other found items included one 4.5-inch rocket, one 3.5-inch High-Explosive Anti-Tank (HEAT) rocket, one 2.36-inch HEAT rocket, six 81mm mortars, two 57mm projectiles, and several partial 75mm shrapnel projectiles; most of the items discovered on the range contained either black powder, TNT, or tetryl; some of the 37mm projectiles contained a small amount of RDX (1.4 ounces); and the 3.5-inch HEAT rock contained Comp B (TNT and RDX) while the 81mm mortars contained either TNT or Comp B. Mr. Gregson noted that the areas with the highest density of subsurface munitions have been cleared or removed.

Mr. Gregson then stated that risk screening for groundwater involved comparing the maximum detected concentration of each groundwater analyte to preliminary screening levels. He noted that two compounds were detected above screening levels: naphthalene was detected once, in 2005 at MW-149S, at a concentration of 0.37 µg/L, with all subsequent results being nondetect for naphthalene; and chloroform, which is ubiquitous in groundwater on the Upper Cape, was also detected, but is attributed to sources unrelated to MMR. Mr. Gregson noted that no COCs were identified for groundwater.

Mr. Gregson also spoke about risk screening for soil. He reported that: six explosives compounds were detected above screening levels – TNT and its degradation products were detected infrequently (TNT in 9 out of 380 samples, 2A-DNT in 21 out of 380 samples, and 4A-DNT in 17 of 380 samples), and 2,4-DNT, nitroglycerin, and tetryl were detected only once or twice in 380 samples; various metals, SVOCs, and pesticides/herbicides were detected above at least one screening level, but these bind strongly to soil and are unlikely to impact groundwater; and eight VOCs were detected above the most conservative screening levels – two were common lab contaminants, five were infrequently detected at low concentrations, and chloroform detections were unrelated to site activities. None of these constituents, with the exception of chloroform, was detected in groundwater.

Mr. Gregson made the following summary statements: groundwater does not appear to be significantly impacted by past range activities in the area; soil on the range does not appear to be a threat to groundwater or human health; and as a result of the investigation and removal action, and based on the types of UXO discovered, it is unlikely that residual sources represent a significant threat to the environment. Mr. Gregson said that no further action at the site is recommended. He also noted that the investigation report will probably be completed in January.

Mr. LoGiudice commended Mr. Gregson on the fine job he did with his presentations.



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### **Agenda Item #7. IAGWSP Look-Ahead**

Mr. Gonser stated that six IAGWSP sites already have remedies in place (BA-4 Disposal Area, Demolition Area 1, Demolition Area 2, Northwest Corner, Western Boundary, and L Range). He also noted that a remedy has been selected for the J-1 Range plume, and the Decision Document for that plume, which is expected to be finalized this month, calls for the installation of a two-well treatment system. Remedy selection is pending for the three sites Mr. Gregson discussed this evening – Gun & Mortar Positions, Former A Range, and Former K Range, which have no groundwater contamination associated with them – and the final decision on these sites is expected early next year.

Mr. Gonser also reported that the feasibility study report for the Central Impact Area plume is under way and scheduled to be submitted to the regulators on December 23, 2010. The next step will be comment resolution, with the expectation that the feasibility study will be completed next spring, and a decision made in the spring/summer timeframe. Mr. Gonser noted that the IAGWSP and the regulators have been working together closely on Central Impact Area soil and groundwater, and he believes they are close to determining the best way forward. He said that the Central Impact Area site will be the IAGWSP's main focus over the next six months. He also said that the Central Impact Area plume is a complicated site in that it's made up of many independent fingers of contamination, has concentrations averaging less than 10 ppb, and has a great deal of UXO at the site and a large habitat area – all factors to consider when making the cleanup decision. Mr. Gonser noted that the IAGWSP and regulators will be eager to receive public input on the Central Impact Area decision.

Mr. Gonser also reported that later next summer the IAGWSP will be looking to complete the paperwork for the J-2 and J-3 Range sites, where treatment systems are in place, but final decisions are pending. And toward the end of 2011, the IAGWSP plans to move forward with documentation on the Small Arms Ranges and what's called the Training Areas Operable Unit (all other small sites that might be of concern).

### **Agenda Item #8. CS-20 Leading Edge Update**

Mr. Davis reminded the group that at the October 2010 MMRCT meeting the IRP had reported that increasing PCE trends were seen in the uncaptured portion at the leading edge of the Chemical Spill 20 (CS-20) plume. And at that time the team requested updates as new data become available. Mr. Davis stated that validated data have since become available for three sampling wells that are part of the semi-annual sampling program in the downgradient portion of the plume, and all three of the wells saw a decrease in PCE concentrations. He also noted that another round of sampling is planned for March 2011, and the data from that event will be shared with the MMRCT when available.

Mr. Davis displayed a figure showing a cross-section at the toe of the CS-20 plume. He pointed out the new data points and the two extraction wells in the area. He also reminded the group that because it hadn't been possible to obtain access for an extraction well to capture the toe of the plume, the cleanup decision was modified so that the toe portion of the plume would be closely monitored with the hope that it would die out right in that area. Mr. Davis then reported that since October, PCE concentrations dropped from 9 µg/L to 0.9 µg/L at the shallow screen at MW-19, from 19 µg/L to 16 µg/L at the middle screen at MW-19, and from 29 µg/L to 8.9 µg/L at MW-18, in a screen that's slightly shallower than the middle screen at MW-19. Mr. Davis noted that the decreases in concentrations in the two shallower screens are significant. He also said that the March sampling event will involve a much wider round of data, and noted that the blue dots on the figure represent wells to be sampled at that time.

Mr. LoGiudice requested that the IRP label main roads on maps used in future MMRCT presentations. Mr. Davis agreed to fulfill that request and pointed out Route 151 on the map.

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## **Agenda Item #9. Military Munitions Response Program (MMRP) Follow-Up**

Mr. Davis stated that the purpose of this presentation is to introduce the Military Munitions Response Program (MMRP) to the advisory teams and set the stage for future public engagement. He also noted that, like the IRP, the MMRP will use the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process for investigation and potential cleanup or removal actions.

Mr. Davis then explained that as a result of previous military training, there are Department of Defense (DoD) sites that might contain UXO, discarded military munitions (DMM), and/or munitions constituents (MC). Therefore, in 2001 Congress and DoD created the MMRP, and in 2002 it became a program element of the Defense Environmental Restoration Program (DERP), as is the IRP. Initially the program was focused on closed or transferring ranges, but has since transitioned to address all potential MMRP sites. Mr. Davis then noted that the purposes of the MMRP are to establish and reduce environmental liability (in financial terms) and to prepare properties for future transfer or other uses.

Mr. Davis also said that it's important to keep in mind that MMRP does not apply to operational ranges, such as those that Mr. Gregson discussed earlier this evening. He then explained that the munitions work conducted by the IRP and the IAGWSP on the operational range was done as part of efforts to address groundwater, which is not the same as MMRP. He then displayed a color-coded map that showed the part of MMR designated as operational range, which is the vast majority of it.

Mr. Davis then made the following statements about MMRP: it implements response alternatives to address unacceptable risks (both explosive safety risk and munitions constituent risks); it follows the CERCLA process and the National Contingency Plan (NCP); MMR's Federal Facility Agreement (FFA) applies to MMRP sites on the base; it provides for meaningful stakeholder involvement; it provides for response actions consistent with reasonable anticipated future land use; and it fosters and supports the development and application of improved and innovative technologies and methods.

Mr. Davis also showed a slide listing definitions of MMRP-related acronyms/abbreviations, including: munitions and explosives of concern (MEC), which encompasses UXO, DMM, and MC; munitions response area (MRA), an area known or suspected to contain MEC, 18 of which were identified at or near MMR; and munitions response site (MRS).

Mr. Davis reported that MMRP activity to date included the Army National Guard conducting an MMR-wide Historical Records Review (HRR) that looked at multiples archives, reports, and aerial photographs, and identified 15 MRAs. The Air National Guard also conducted an HRR that involved the traditional Otis Air National Guard Base property, which identified three additional MRAs that weren't identified in the Army National Guard's HRR. Mr. Davis then showed a figure entitled "Closure Programs for Munitions Response Areas" and pointed out the 18 MRAs that were identified. He also explained that the color-coding indicates: the 12 MRAs in the MMRP that will be managed by AFCEE; the three sites that are actually on operational range property, were therefore dropped from the MMRP, and are being managed by the IAGWSP; and the three off-base areas, which, although still part of the MMRP, are being handled by the Formerly Used Defense Site (FUDS) program.

Ms. Valiela asked if the Towns of Sandwich and Mashpee are aware of the FUDS sites. Mr. Barrette replied that Sandwich is aware of them, and Mr. Green said that he is aware of the sites but is not certain whether Mashpee is aware of all three of them.

Mr. Davis then continued his presentation by noting that the 12 sites to be addressed in the MMR MMRP will be included in a Phase I Comprehensive Site Evaluation (CSE) Report. He explained that the CSE involves: developing interim conceptual site models, prioritizing the sites to determine whether they require immediate funding, deciding whether further evaluation is required, developing initial cost estimates, and developing input data for conventional program management functions. Mr.

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Davis noted that the draft Phase I CSE Report is scheduled to be submitted to the regulators in January 2011, and the final version, which will inform the Phase II CSE (a more in-depth site evaluation), is expected to be issued in March 2011.

Mr. Dinardo inquired about the funding mechanism for MMRP. Mr. Davis replied that it involves going through the Program Objective Memorandum (POM) process, which involves laying out future needs for a couple of years in advance. He said that the dollars for Air Force have been running about \$400M a year for combined IRP and MMRP. He also explained that over the years fewer dollars are being spent on IRP while more are being spent on MMRP – across the entire DoD. He further noted that while the total available funds aren't really known until Congress makes its decisions, the MMRP has a pretty good history of obtaining the funding it's requested to do its work.

Mr. Gonser added that the prioritization process is heavily driven by the type of munition at a site and the likelihood that someone would come into contact with it. Therefore, to a certain extent the funding is provided on the basis of the prioritization score, with the higher-scoring sites more likely to receive funding than the lesser sites.

Mr. Field inquired about regulatory oversight for MMRP. Mr. Davis replied that EPA will provide oversight, and the state will also participate.

#### **Agenda Item #10. IRP Look-Ahead**

Mr. Davis stated that some of the IRP's major activities are: treatment system operation/optimization – an ongoing, iterative process, with special attention at the leading edges of the Ashumet Valley and CS-20 plumes; construction and startup of two new wind turbines (with foundation construction scheduled for spring 2011 and a possible startup timeframe of fall 2011); and continuing to conduct the Residential Well Verification Program. He noted that the Residential Well Verification Program document for Landfill 1 (LF-1)/CS-23 has been submitted. AFCEE is now concentrating on the Southwest Plumes in the Hatchville area of Falmouth (CS-4, CS-21, CS-21, and Fuel Spill-19 [FS-29]), which is due September 2011, and will then work on Ashumet Valley and CS-10, due in 2012, and then FS-1, FS-12, and Storm Drain 5 (SD-5), due in 2013. Mr. Davis explained that the timeframes he mentioned are Record of Decision (ROD)-driven delivery timeframes and it's quite possible that the documentation could be completed sooner. He also noted that there will be follow-up work associated with the program – for example, verifying in future years that homeowners are still not utilizing wells they may have on their property, and conducting further evaluation if in fact a homeowner has started to use a well.

Mr. Davis reviewed additional IRP activities: a Source Area Explanation of Significant Differences (ESD), which deals with clarifying cleanup levels at the CS-10, FS-1, and FS-9 source areas, and is expected to be finalized in early 2011; a Groundwater ESD, which addresses all the plumes and applies consistent language for land-use controls, remedies, and steps to achieve site closure, and is expected to be finalized in early 2011; Remedial Action Reports for the Petroleum Fuels Storage Area (PFSA) and the Landfill-2/Firefighter Training Area-2 site, to be completed in 2011; publication of the Ashumet Pond 2010 Alum Treatment Report this December and continuing to monitor the pond; continuing to address recommendations from the 2007 Five-Year Review and begin gathering information for the 2012 Five-Year Review; and for the MMRP, finalize the Phase I CSE in spring 2011, which will determine funding priority for the next phases of the investigation.

#### **Agenda Item #12. MassDEP Update**

Ms. Grillo announced that MassDEP's Vapor Intrusion policy and its Activity & Use Limitations policy are available on the MassDEP website for public comment.

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**Agenda Item #11. Next Meeting Schedule and Adjourn**

Mr. Field stated that the next MMRCT meeting is scheduled for February 9, 2011\*. He then adjourned the meeting at 8:18 p.m.

*\*Note: The February 2011 meeting was cancelled. The next MMRCT meeting will take place on Wednesday, March 16, 2011.*