Massachusetts Military Reservation Cleanup Team
Building 1805
Camp Edwards, MA
January 9, 2013
6:00 – 8:00 p.m.

***Draft* Meeting Minutes**

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Action Items:

1. The IAGWSP will confirm the extent to which the Demolition Area 1 plume is believed to have traveled off base.

2. The project managers will consider the suggestion to recruit new MMRCT members.

Handouts Distributed at Meeting:

1. Responses to Action Items from the September 12, 2012 MMRCT Meeting
2. Booklet: Energy Conservation and Renewable Energy Booklet, MMR Fall 2011, with two January 2013 fact sheets: MMR/AFCEC Wind 1 Performance & MMR/AFCEC Wind II Performance
3. MMRCT Potential Future Agenda Topics
4. Presentation handout: Impact Area Groundwater Study Program Overview
5. Map: MMR Groundwater Plume Map

6. Maps & Figures to accompany IAGWSP Program Overview
7. Presentation Handout: Air Force Civil Engineer Center Overview
8. Paper: Highest Concentrations of COCs
9. Back-pocket slides to accompany AFCEC Program Overview
10. Presentation Handout: Five-Year Review Update
11. MMR Cleanup Team Meeting Evaluation form

Agenda Item #1. Introductions, Agenda Review, Approval of September 12, 2012 MMRCT Meeting Minutes

Mr. Karson convened the meeting of the Massachusetts Military Reservation Cleanup Team (MMRCT) at 6:02 p.m. and announced that the Air Force Center for Engineering & the Environment (AFCEE) has been renamed the Air Force Civil Engineer Center (AFCEC). He also noted that AFCEC and the Impact Area Groundwater Study Program (IAGWSP) are in the process of updating the MMR Cleanup Update. Mr. Karson then asked if there were any changes or additions to the September 12, 2012 MMRCT meeting minutes. No changes were offered and the minutes were approved as written. Mr. Karson further stated that, as noted in the Responses to Action Items from the September 12, 2012 MMRCT meeting, a booklet issued in fall 2011 summarizing all the energy initiatives at MMR, along with two new fact sheets on wind turbine performance, have been provided at tonight's meeting.

Agenda Item #2. Meeting Overview and 2013 Agenda Planning

Ms. Jennings reminded the group that during the September 2012 meeting it was determined that the regulatory agencies would come up with a proposal regarding future MMRCT meeting format and frequency. She then stated that the proposal is to hold quarterly meetings: in January, April, July, and October, with the first to be a kickoff meeting where the cleanup programs provide a general update and overview of upcoming projects. Subsequent meetings would include more focused presentations pertaining to decision documents, optimizations, Five-Year Reviews, and the like. Ms. Jennings also mentioned the idea of a site visit for MMRCT members – perhaps immediately prior to the April or July meeting. She further noted that, if schedule dictates, an additional meeting might be held in order to coincide appropriately with a specific public comment period.

Ms. Jennings said that there is a spot later in tonight's agenda for the team to discuss the proposed meeting schedule and agenda topics. She also noted the importance of focusing MMRCT discussions on cleanup-related issues and added that the regulators plan to be a gate-keeper in that regard going forward.

Mr. LoGiudice remarked that he finds site visits very helpful. Mr. Karson asked team members to give some thought about which specific sites they might want to see, so this could be discussed later.

Mr. Dinardo said that he thinks that meeting on a quarterly basis is more than adequate. He further noted, however, that he thinks it's important to leave the door open to additional meetings should any unanticipated discoveries or findings arise. Mr. Dinardo also referred to the issue of meeting attendance, and mentioned the idea of bringing new team members to the table.

Agenda Item #3. IAGWSP Program Overview

Mr. Gregson listed the IAGWSP plumes with active treatment systems (Demolition Area 1 [Demo 1], J-1 Range Southern, J-1 Range Northern, J-2 Range Eastern, and J-3 Range), the plumes in long-term monitoring (the Northwest Corner, L Range, Western Boundary, Demo 2, and Former A Range), sites determined to require no further action (Former K Range and the Gun & Mortar Positions), and the plumes where future treatment systems are planned (the Central Impact Area and J-1 Range Northern).

Mr. Gregson then began a general overview of the cleanup program by noting that military activities occurring at the base, which began in 1911, have included artillery, small arms, pyrotechnics, and demolition training, and testing and disposal at contractor-leased ranges. He noted that the IAGWSP started in 1997 in response to U.S. Environmental Protection Agency (EPA) Administrative Orders (AOs) 1 and 2, which required an investigation into the nature and extent of contamination, and to cease artillery and mortar firing. AO3, which was issued in 2000, required the initiation of Rapid Response Actions (RRAs) (feasibility studies and remedial actions) to address contamination, unexploded ordnance (UXO), and munitions. AO4, issued in 2001, dealt with the disposal of munitions in a contained detonation chamber (CDC).

Mr. Gregson reported that investigations, which began in 1996 and continue into the present, have involved the installation of more than 1,200 monitoring well screens in 500 locations, the collection of more than 100,000 groundwater and soil samples, and the investigation of more than 10,000 geophysical anomalies. The first treatment system was built in 2004, for Demo 1, and the last one to be constructed will be for the Central Impact Area, at the end of this year.

Mr. Gregson noted that for most IAGWSP sites, the contaminants of concern (COCs) for groundwater are RDX or other explosives, and perchlorate. For soil, the COCs are explosives, propellants, perchlorate, and metals – primarily lead and tungsten. Currently remedies or interim treatment systems are in place for 11 groundwater plumes, five treatment systems are cleaning more than 2.4 million gallons of groundwater per day, startup of two treatment systems is slated for this year, and known source areas for five plumes have been removed, with more than 120,000 tons of soil excavated and treated.

Mr. Gregson noted that unlike AFCEC's Installation Restoration Program (IRP), which is conducted under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as Superfund, the regulatory framework under which the IAGWSP conducts its cleanup work is the AOs that were issued under the Safe Drinking Water Act (SDWA). Although the two frameworks do not differ much in terms of how the investigation and cleanup play out, it does influence the source of IAGWSP funding and certain authorities and exemptions. Also, unlike AFCEC, the IAGWSP deals more with natural resources and habitat issues associated with the Impact Area, as well as the issue of UXO.

Mr. Gregson reviewed the background portion of the Demo 1 slide, which noted the following: the site was used from the mid-1970s to 1997 for disposal of munitions, fireworks, and explosives; the Demo 1 source area was removed in 2004 when 28,000 tons of soil was excavated, treated, and returned to the site; an interim groundwater treatment system was installed in 2004, expanded significantly in 2006, and to date has treated 2 billion gallons of groundwater; more recent investigations at the downgradient portion of the plume identified that perchlorate had migrated more than 1,000 feet beyond the base boundary; and in 2010 an additional extraction well and mobile treatment unit (MTU) were installed at the base boundary to stop contamination from migrating off-base. Mr. Gregson also noted that the IAGWSP is currently conducting an investigation and feasibility study of the off-base portion of the plume, and expects to reach a final decision on the remedy there by the end of September 2013.

Mr. Gregson reviewed the current status of the plume: current maximum RDX concentrations are 15 parts per billion (ppb) and current maximum perchlorate concentrations are 30 ppb; the IAGWSP has been working with the Town of Bourne and private property owners to obtain access for the off-base investigation; additional monitoring well locations have been identified at a private wooded property and on County Road; and modeling to evaluate an alternative for the off-base portion of the plume is under way.

Mr. Saucier inquired about the status of the private well belonging to a landscaping company in the area, with the company using the water to mix with chemicals to spray trees and so forth. Mr. Gregson

pointed out the location of the well, which he noted has been tested, and explained that because the well is shallow it does not intercept any contaminant, as the plume travels underneath it. He also noted that no one in the area using a private well for drinking water purposes has been identified. Mr. Saucier then asked if the well was pumped for an extended period of time to determine whether it would draw up contamination, or if just a quick sample was taken. He was then told that there was no long-term pumping done on the well, and it was explained that the depth of the plume would keep it from being drawn into the well in any event; the water being used for the landscaping business could be used for drinking water if the owner desired.

Ms. Saucier also asked if the surface water body in the area is used recreationally. Mr. Gregson replied that there is a recreational beach on the northern part of the pond, but the plume is well below the pond bottom and is not upwelling.

Mr. Jacobs referred to the statement that the plume had traveled about 1,000 feet off base, but noted that according to the scale bar, it appears that it's traveled closer to 4,000 feet beyond the base boundary. Mr. Gregson replied that the IAGWSP will confirm the extent to which the Demo 1 plume is believed to have traveled off base.

Mr. Gregson then continued his presentation by reviewing the Central Impact Area background: from the 1930s through 1997 the Central Impact Area was the primary target for artillery and mortar firing from gun and mortar positions; the area is 330 acres in size; and it includes the Chemical Spill 19 (CS-19) site for which AFCEC has a Record of Decision (ROD) for no further action. Mr. Gregson referred to a figure and pointed out the primary area of contamination, the source in the central part of the Impact Area, and Turpentine Road and Tank Alley, where most of the targets for artillery firing were located. He also noted that more than 50 acres were cleared of munitions and about 15,000 tons of soil was excavated and treated on site or taken off site for disposal. He further noted that the Central Impact Area groundwater contamination is made up of several finger-like plumes of RDX, along with smaller plumes of perchlorate, and that one finger of RDX contamination appears to have traveled all the way to the Cape Cod Canal.

Mr. Gregson then referred to the status portion of the Central Impact Area slide, which noted the following: the current maximum concentration of RDX in Central Impact Area groundwater is 15 ppb and the current maximum concentration of perchlorate is 10 ppb; the Decision Document (DD) calls for installation of a three-extraction-well treatment system and clearance of 75% to 95% of the UXO source over 58 acres; a 30-acre source removal action (Phase 1) begins this year; and UXO clearance activities are ongoing, including an innovative technology program with the Environmental Security Technology Certification Program (ESTCP), a modified EM-61 initiative, and finalizing of work plans for the upcoming field season. Mr. Gregson stated that next steps are to construct the groundwater treatment system, which is slated to become operational by December 2013, and begin Phase 1 of the source removal work.

Mr. Saucier asked if the plan is to use a portable filter system to treat the extracted groundwater. Mr. Gregson replied that the current plan is to use MTUs, which save money in construction costs, and provide flexibility in that they are portable. Mr. Saucier then inquired about past discussion that the water would be piped to an existing treatment plant. Mr. Gregson explained that the earlier plan was a pipeline run down Burgoyne Road, past Range Control, and to the Demo 1 treatment plant, which has excess capacity. Through looking more closely at system design, however, it was determined that such a pipeline run would be very long and very expensive, and the MTUs would be more cost-effective, despite the excess capacity at the Demo 1 treatment plant.

Mr. Gregson continued by reviewing the J-1 Northern background: the range was used for military training from the 1930s to 1970s, and by defense contractors from 1957 to the late 1980s; over the course of the investigation, 5,700 tons of soil was removed and treated, and 3,300 munitions removed;

the plume is migrating from the middle of the J-1 Range into the Impact Area; the DD, issued in May 2011, called for a two-well extraction system, pumping at 250 gallons per minute (gpm), to be constructed by September 2013.

Mr. Gregson stated that the maximum RDX concentration is 34 ppb and the maximum perchlorate concentration is now 41 ppb, the IAGWSP completed a drilling program downgradient of the plume to optimize the location of extraction wells, modeling to determine the final location of the extraction wells is ongoing and expected to be completed within the next month, and the system is scheduled to be built this summer.

Mr. Gregson reminded the group that the J-1 Southern plume had migrated out into the Forestdale neighborhood of Sandwich, and so in 2007 an interim groundwater treatment system was installed at the base boundary to prevent further off-base migration. In 2012 an additional extraction well, which required easements from private property owners and town officials, was installed and tied into the base boundary treatment system.

Mr. Gregson stated that, based on monitoring well data, the current max concentration of RDX is 16 ppb. Based on historic data, however, there may be higher concentrations that are currently between sampling points. He also mentioned that the pipeline associated with the off-base extraction well was installed using a directional drilling rig; therefore no trench had to be dug, which helped alleviate some of the disruption to the neighborhood. He added that system startup occurred in December 2012, system performance will continue to be monitored, and it's expected that the system will operate for another 11 years or so.

Mr. Gregson reviewed the J-2 Range background: the site was used for military training in the 1940s and by defense contractors for munitions testing from 1953 to the late 1980s; excess explosives, propellants, and munitions were burned and buried on the range; 10,000 tons of soil was removed and treated and 42,000 munitions items were removed; two groundwater plumes are associated with the site – J-2 Northern and J-2 Eastern, which are located upgradient of Upper Cape Cooperative Water Supply wells; and two interim treatment systems were installed in 2006 (the J-2 North system) and 2008 (the J-2 East system).

Mr. Gregson reported that at J-2 Northern the current maximum RDX concentration is 4 ppb and the current maximum perchlorate concentration is 96 ppb. At J-2 Eastern the current maximums are 17.6 for RDX and 47 ppb for perchlorate. To date, more than a billion gallons of groundwater have been treated at J-2 Northern and more than 750 million gallons treated at J-2 Eastern. The two systems together have six extraction wells operating at a combined 800 gpm. Mr. Gregson stated that recent drilling near extraction well 1 (EW-1) at J-2 North is being conducted to better define the plume in that area. He further noted that the plume shells and modeling are being updated to complete the remedial investigation/feasibility study (RI/FS), and a Remedy Selection Plan (RSP) and DD will be issued by September 2013.

Mr. Gregson stated that the J-3 Range plume, the southernmost of the J Range plumes, is sourced in the center of the J-3 Range and flows due south towards Snake Pond. He then reviewed the J-3 Range background: the area was used in the 1940s as a mortar and rocket impact area; from 1968 to the late 1990s it operated as a defense contractor range for weapons testing and as a development range, with Textron being the most recent contractor; 3,500 tons of soil was removed and treated by thermal desorption, in 2004; the J-3 Range plume, which contains both RDX and perchlorate, extends off base into the town of Sandwich, in an area where all residences are on town water and no contaminants associated with the plume have been detected in samples from nearby ponds.

Mr. Gregson reported that the current maximum concentration of RDX is 1.3 ppb and the current maximum detection of perchlorate is 8.6 ppb. The interim treatment system, which involves three

extraction wells operating at a combined 195 gpm, has been running since 2006 and has treated more than 500 million gallons of groundwater to date. An RI/FS is ongoing to determine if the existing system is adequate for the final remedy. The RSP and DD for the J-3 Range plume are scheduled to be issued in 2014.

Mr. LoGiudice asked if Textron is still in business, and being held responsible for some of the cost of the J-3 Range cleanup. Mr. Gregson replied that Textron is still in business and was involved in a settlement with EPA and other parties about five years ago, when the company made a payment to help with the cleanup. Mr. LoGiudice asked how much Textron paid. Mr. Karson said that he thinks it was about $2 million.

Mr. Jacobs stated that a drive-point investigation conducted sometime last year showed perchlorate concentration in the hundreds of parts per billion – much higher than the 8.6 ppb noted in the presentation. Mr. Gregson clarified that the data he's discussing tonight is from monitoring wells, but it's correct that the drive-point investigation yielded higher concentrations than those currently being seen in the wells. He also noted that the purpose of the drive-point work was to ensure good definition of the plume, and its capture by the upgradient extraction well.

Mr. Gregson stated that in 2010 a final DD was issued for L Range, which was primarily used since the 1940s as a 40mm grenade-launcher familiarization range. The source area was removed during a series of removal actions in 2008 and 2009, using robotic equipment, and some residual groundwater contamination occurs as isolated lobes detached from the source area. The current maximum RDX concentration is about 10 ppb and the current perchlorate concentration is less than 1 ppb. A drilling program is presently under way to better define the 10 ppb RDX detection and make sure it's not going to be a problem. Mr. Gregson also reported that the L Range DD calls for monitored natural attenuation (MNA), which is ongoing. He further noted that the Massachusetts Army National Guard (the Guard) is hoping to return to use of the range for inert 40mm grenades later this year.

Mr. Gregson then stated that the Northwest Corner site, which is an area of perchlorate and RDX contamination located near the Cape Cod Canal, includes the finger of RDX contamination believed to track back to the Central Impact Area. The perchlorate at the site either came from the use of fireworks in the area or from military training involving smokes and pyrotechnics, which occurred at the base boundary.

Mr. Gregson reported that the Northwest Corner DD, signed in 2010, calls for MNA as the contamination discharges into the canal. The current maximum RDX concentration is 1.5 ppb (which has dropped significantly from the previous sampling round, when the maximum was 10 ppb) and the current maximum perchlorate concentration is 2.5 ppb. The IAGWSP will continue to monitor the site, track progress, and evaluate cleanup times.

Mr. Gregson stated that the Demolition Area 2 (Demo 2) site is located east of the Northwest Corner. It was used from the late 1970s to the late 1980s for demolition training involving small explosive charges. This RDX plume is entirely on base and there are no downgradient public or private water supplies. The Demo 2 DD, which was signed in 2010, calls for MNA, which will continue until contaminant concentrations are well below risk-based levels. The current maximum RDX concentration is 1.1 ppb, quite close to the 0.6 ppb value. Two additional monitoring wells, required by the DD to ensure that the existing monitoring network isn't missing anything, are being installed in the next couple weeks.

Mr. Gregson reported that the investigation of the Western Boundary site, which extends from inside the base to Monument Beach in Bourne, was initiated to evaluate perchlorate detections along the base boundary, upgradient of Bourne water supply wells. Soil investigations failed to find any distinct source area, but it's believed that historic use of pyrotechnics was probably the source of perchlorate. Concentrations of perchlorate in groundwater ranged from less than 1 ppb to about 3 ppb, with recent

monitoring results all below 1 ppb. The Western Boundary DD, signed in 2010, calls for MNA, which is ongoing.

Mr. Gregson stated that there are about 40 Small Arms Ranges at MMR. The IAGWSP has been investigating and cleaning up these ranges over the years, beginning with the 1998 Berm Maintenance Program that removed about 36,000 tons of lead-contaminated soil from target berms at 16 ranges. In 2009, more than 7,000 tons of lead-contaminated soil was removed at three former ranges. The switch to using tungsten-nylon ammunition turned out to pose a potential problem with leaching to groundwater, and in 2006 the IAGWSP removed 3,500 tons of tungsten-impacted soil.

Mr. Gregson reported that Tango, Juliet, and Kilo Ranges were investigated and cleared by EPA for use with lead ammunition using STAPP bullet collection systems, and last year Sierra and India Ranges were investigated and cleared for use with copper ammunition. All five of these ranges are currently being used by the Guard.

Mr. Gregson then reviewed next steps pertaining to the Small Arms Ranges: the regulatory agencies have reviewed the preliminary draft Small Arms Ranges report; additional investigations are being scoped; investigations are expected to continue through Fiscal Year 2013 (FY13); a DD is anticipated to be issued in early FY14; and the IAGWSP will continue to actively work with the Guard to prioritize ranges based on training requirements.

Mr. Gregson stated that the DD signed in September 2012 for the Gun & Mortar Positions states that no further action is required. The IAGWSP investigated the 37 Gun & Mortar Positions at MMR, which were used from the 1930s until 1997 as firing points for artillery shot into the Impact Area. Soil removals were conducted at two of the positions, in 2001 and 2004. Studies conducted after that indicated that the nitroglycerin and 2,4-DNT being found in the soil do not migrate to groundwater. Mr. Gregson noted that the Gun & Mortar Positions are important training sites and are being returned to the Guard's inventory of training lands.

Mr. Gregson reported that soil removals were conducted at Former A Range (an anti-tank range) and at Former K Range (a rocket and grenade launcher range). No significant groundwater contamination above cleanup goals was identified at either of these sites. In September 2012 a DD was signed that called for no further action at Former K Range and limited monitoring at Former A range, to ensure that nothing shows up in the groundwater there.

Mr. Gregson explained that now that the IAGWSP has looked at all the sites that were considered the highest risk, the remaining training areas are being evaluated to determine if any additional work needs to be done. He showed a figure and pointed out some of the areas that might require additional investigation, such as the Former U Range and the KD Rocket Range. He stated that a review of the sites is under way, additional investigations will be scoped in 2013, and an investigation report will be issued in 2014.

Mr. Dinardo asked if the calculation that MTUs would be less expensive than piping at the Central Impact Area accounted for the full course of treatment. Mr. Gregson replied that it did. He also noted that the Central Impact Area plume is very heterogeneous, made up of multiple fingers of contamination, so it's possible that in the future it will be found that an additional extraction well needs to be installed, and the MTUs can accommodate such an occurrence because of their flexibility.

Mr. Dinardo inquired about the Northwest Corner contamination entering the canal. Mr. Gregson explained that the levels discharging into the canal are so low and the volume of water surging through the canal is so great that the contamination would never be detectable.

Agenda Item #4. IRP Program Overview

Mr. Davis noted that although he had structured his presentation a little differently, MMRCT members were provided with back-pocket slides detailing each of the IRP sites, as well as a COCs chart. He then reviewed the outline of his presentation: provide an overall snapshot of the IRP, highlight upcoming issues/changes, identify candidate topics for future meetings, and adjust candidate topics based on team feedback.

Mr. Davis stated that all of the IRP's conventional CERCLA sites have remedies in place. However, a change in remedy at a site is possible due to a number of reasons, including: the current remedy is not performing as designed; the conceptual site model changes substantially (the plume turns out to be larger than currently understood); there's a change in toxicity values for known contaminants (for example, there's recent talk that TCE may be more toxic than assumed, and a change in the maximum contaminant level [MCL] would impact not only the Department of Defense [DoD], but also the whole country) or cleanup targets are established for emerging contaminants (such as Perfluorooctanoic Acid [PFOA], an ingredient in fire-fighting foam like that used at MMR fire-fighter training areas); new technologies are developed; and the timeframe for remedy completion becomes accelerated due to an unanticipated change in resource use. Mr. Davis also made a point of noting that the regulatory agencies continually monitor cleanup progress and performance, including by way of Five-Year Reviews, which are required by law.

Mr. Davis then noted that it's likely that most future IRP presentations will focus on optimization, the continual system monitoring and improvement processes that can lead to installing new extraction wells, changing pumping rates, turning off wells, and the like. He also noted the wind turbines that were erected are considered an optimization because they reduce the cost of electricity to run the pump-and-treat systems. Examining new technology is also considered an optimization.

Mr. Davis stated that another likely future area of interest is the Land Use Control (LUC) Residential Well Verification program. He noted that more than 2,000 parcels overlie the plume areas, and more than 450 private wells have been identified there, with only two of them being used for potable water. He further noted that only a small number of the 450 wells are actually turned on, but were left behind when the residences were connected to town water. The IRP is required to conduct ongoing evaluations to ensure there is no unacceptable exposure to contaminants.

Mr. Davis then noted that additional likely future areas of interest include: the Five-Year Review; Ashumet Pond and the phosphate plume, which, although not a CERCLA contaminant, is being addressed by AFCEC; the Military Munitions Response Program (MMRP), which pertains to sites outside of the active range, and which is moving into Phase II in 2013 whereby samples will be collected to confirm or deny the existence of munitions or munitions constituents at the sites; and performance-based contracting, a new approach that involves a 10-year contract.

Mr. Davis reminded the group that the back-pocket slides include snapshots of each of the plumes, how they've changed over the years, and their current status. He also noted that to date the IRP has treated more than 61 billion gallons of groundwater.

Mr. Davis then reviewed proposed IRP topics for upcoming MMRCT meetings: for April 2013 – the CS-10 plume, which is now believed to have significantly more mass than originally understood and therefore may require some system adjustments and infrastructure expansion; for July 2013 – the CS-20 plume, which will pertain mostly to routine optimization, and Residential Well Evaluation for all plumes; for October 2013 – the Fuel Spill 12 (FS-12) plume, which will pertain to an in situ technology demonstration at the site, and an update on the Five-Year Review; for January 2014 – Landfill 1 (LF-1)/CS-23 optimization and sampling data; for April 2014 – an Ashumet Pond update that includes 2012 and 2013 data; for July 2014 – an update on MMRP sites; and for October 2014 – award of the performance-based contract.

Mr. LoGiudice asked who the new contract team would be. Mr. Davis replied that that isn't known yet. Mr. LoGiudice then asked where the IRP is going. Mr. Davis clarified that the IRP will continue to be present, but it's uncertain which contractor (employing those support the IRP by taking samples, producing graphics, and so forth) will be awarded the 10-year contract.

Mr. Saucier suggested that the IRP encourage homeowners who are not currently using their private wells to modify them for geothermal heating and cooling of their homes. Mr. Davis noted that this topic is outside of the cleanup discussion, but also said that most individuals want to keep their wells in the event they decide they want to use them in the future. He also mentioned that in most situations the wells are not nicely cased wells that could easily be modified for geothermal uses.

Ms. Donovan asked if the move to performance-based contracting is an Air Force requirement. Mr. Davis confirmed that it is. Ms. Donovan then asked why AFCEC has not already had to comply with the requirement. Mr. Davis explained that the requirement was spread over four years, and the requirement for his program fell to FY14.

Agenda Item #6. Five-Year Review Report Discussion

To start out the presentation, Mr. Davis showed a brief video developed by EPA and DoD, entitled "Getting to Know the Five Year Review: A Guide for Communities near Federal Facilities." He also noted that he is presenting on this topic for both the IRP and the IAGWSP.

Mr. Davis stated that the Five-Year Review addresses three primary questions: Is the remedy functioning as intended by the decision documents? Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid? and, Has any other information come to light that could call into question the protectiveness of the remedy? Mr. Davis also explained that the Five-Year Review is used to make a protectiveness statement for each site, which may result in recommendations to be implemented in order to ensure protectiveness in the short term or long term. These recommendations are acted upon and then revisited during subsequent reviews.

Mr. Davis noted, for example, that a recommendation from a previous Five-Year Review identified that the IRP had not looked at the vapor intrusion pathway (where volatiles migrate through soil vapor and enter basements and buildings). Since that time, the IRP conducted a very extensive evaluation on vapor intrusion and submitted a report to the regulators prior to the upcoming Five-Year Review. He also explained that Five-Year Reviews continue until a site is available for unlimited use/unrestricted exposure – that is, any waste left in place is below all risk thresholds.

Mr. Davis reported that the IAGWSP has drafted its first Five-Year Review, which covers the period from 2006 to 2011. Regulator comments on the review are being addressed, and the final document is anticipated for release in March 2013. The IRP has completed three Five-Year Reviews so far, with the most recent addressing the period from 2002 to 2007. The draft of the next review is planned for delivery to the regulators in March 2013, perhaps with the final completed by July 2013, ahead of the EPA deadline of September 2013.

Mr. Saucier inquired about the results of the vapor intrusion study. Mr. Davis replied that vapor intrusion is not an issue at MMR because the groundwater contamination is overlain by a lot of clean groundwater, which prevents the contaminants from volatizing and migrating through. Areas near ponds, where the clean water lens is much thinner, were also evaluated, but concentrations there were not high enough to drive a volatile issue. Mr. Saucier raised concern about other plumes, not related to MMR. Mr. Davis assured him that the vapor intrusion issue has been integrated into other cleanups being evaluated under state regulations.

Agenda Item #7. Review Meeting Schedule and Topics

Mr. Karson began by recapping some of the topics discussed earlier: a possible site visit in April or July; modifying MMRCT meeting dates or schedule based on public comment periods as they arise; focusing MMRCT discussions and presentations on cleanup-related issues; and the idea of recruiting for new membership.

Mr. Davis said that he thought the Demo 1 discussion at tonight's meeting brought up a potential topic, understanding the interaction between plumes and wells. He noted that while every measure is taken to prevent contamination from entering a private well, the cleanup levels with which the programs are working are very conservative. He explained that the cleanup levels consider a 70-year duration of exposure, while the plumes are not even going to be around for nearly that long, and they also assume that is the only water an individual is consuming or using for bathing – then, if the contaminant is a carcinogen, there would be an increased one-in-a-million chance of developing a cancer. Mr. Davis said that he thinks it's important for team members to understand this concept, and noted that in Bourne, for example, people consume drinking water containing 3 ppb of PCE day after day, but that would probably make headlines if it occurred in someone's private well. He stated that he thinks the "risk versus what gets in people's water" is a topic that deserves some discussion.

Ms. Jennings stated that there's a lot of uncertainty associated with this issue as well, and she would caution against trying to have public debate on risk assessment in this forum. She added that there are established cleanup levels, and right now it's being verified that people are not drinking the water from their private wells (in plume areas), and if there's a chance that they are, the wells are being sampled to ensure there's no contamination there. Ms. Jennings said that she doesn't think it makes sense for the MMRCT to debate the issue of a private well turning out to be contaminated at a 2 or 3 ppb level. She also mentioned the public outcry and activism over contaminated water during the early history of the site, and said that the people were upset for legitimate reasons, which led to the cleanups that are ongoing. Ms. Jennings stated that she would like MMRCT discussions to focus on the cleanup programs, the plumes, and whether the cleanup levels established in the DDs are being met.

Mr. Davis said that he doesn't think exposure is really understood beyond immediate concern about contamination and its effect on property values, which is valid and has been acknowledged; but the risk question is always put aside, and it's an opportunity for education.

Ms. Donovan stated that the whole risk assessment process is a major component in the program – and the process of standard-setting is a very lengthy involved scientific process. She said that she doesn't think "we're in the business at MMR to change how risk standards are developed." Mr. Davis clarified that he was talking about risk communication.

Mr. Dinardo said that it's correct that "we could debate it forever" but the limits are what they are and the standards are what they are. He also noted that the MMRCT has had past discussions about communication risk factor impacts, such as the swimming pool discussion (pertaining to the amount of contaminant needed to bring an Olympic-size pool up to the MCL). He then said that he thinks that in one sense Mr. Davis is absolutely right, the general population needs some way of measuring their comfort level - "and their comfort level is in response to the success of the program." He also said that while the acceptable levels and risk factors aren't going to change, perhaps there's a way, through public outreach, "for people to have a sense of what that really means to them…and make judgments on their own."

Mr. Saucier said that he thinks it's important to have something with which to compare the monitoring results, such as the state's drinking water standards, so it can be understood whether there's a high risk or not. Mr. Davis clarified that that is what he's referring to when he mentions the word MCL, or the

state's standard, the MMCL (Massachusetts MCL), if more stringent – those are the standards the cleanup programs use.

Mr. Karson referred to the list of potential future agenda items for the remaining 2013 meetings and noted that he would like to include some information about the Residential Well Verification efforts, including the process of evaluating and making determinations about the safety of those wells. He also described the communication associated with the program – contacting the homeowners to ask if they have a well, and if so, if and how it's being used, and then evaluating the well and following up with the homeowners on the results of the evaluation.

Ms. Donovan said that the IAGWSP Five-Year Review should be added to the April 2013 MMRCT agenda. She also mentioned that the J-1 North RSP/DD occurs in September, so she isn't sure how that public comment period should be handled since the meetings are in July and October. Ms. Richardson clarified that J-1 North is complete, but the Demo 1 DD should be added to the July 2013 MMRCT agenda.

Mr. Karson turned the team's attention to the subject of a future site visit. Mr. Dinardo recommended that it might be preferable if the site visit occurred separately from a meeting, rather than immediately prior to one – perhaps on a Saturday. Mr. Karson acknowledged Mr. Dinardo's recommendation and offered to coordinate the development of a proposed itinerary for the team to consider. Mr. Dinardo responded favorably to the offer.

Ms. Jennings said that the team might be interested in seeing some of the munitions removal work occurring at the Central Impact Area. She also mentioned the idea of visiting one of the treatment plants, and Mr. Davis added that the bogs are always popular. Ms. Jennings said that one of the Small Arms Ranges with a STAPP system in place might also be interesting, and then perhaps one that's not in use, for comparison purposes.

Mr. LoGiudice said that the team looked at Small Arms Ranges prior to work being done there, during a previous site visit, and then asked if they have now all been addressed. Ms. Jennings replied that investigation is being completed this year, but much has already been done – to the point that training on Juliet, Kilo, and Tango Ranges has resumed. She also noted that one of the AO requirements was to do a soil fixation of the lead berms, which needs to be revisited as a long-term solution. Another task to accomplish is to determine whether tungsten contamination is a long-term concern and whether any additional tungsten cleanup is required.

Mr. Saucier said that he'd like to see where the cleanup program personnel work every day, how they accumulate all their information, and how they put it all together. Ms. Jennings said that the team might like to see the IRP's treatment-system control center, which she thinks really provides an understanding of the magnitude of groundwater work that's happening. Mr. Davis said that he's thought about the topic of what it takes to end up with a monitoring result number – and although there are crews sampling out in the field, which is something to see, "most of us are setting at computers in a trailer." Mr. Saucier asked if the IRP has an onsite lab. Mr. Davis replied no, samples are sent to offsite laboratories; but a great deal goes into the whole data quality process.

Mr. Dinardo suggested that it might be good to invite additional individuals to participate in the site visit, such as town officials or others who might benefit from the experience. Mr. Karson replied that in the past, when public interest in groundwater contamination from the base was at its height, he spent many Saturdays giving tours to such people so they could see what was going on.

Mr. Karson also referred to Mr. Dinardo's earlier suggestion about possibly recruiting new team members and said that it would make sense to wait until after new members joined the team so they could be part of the site visit. He then asked if in fact the team is interested in recruiting new members. He also briefly described the process, which includes advertising, having potential candidates submit a

letter of interest, presenting it to the regulators, inviting the candidate to a meeting, and voting the candidate in as a new member that night.

Mr. Michaud said that he supports Mr. Dinardo's suggestion to recruit additional team members. Mr. Karson noted that a couple of members have left the team over the past two years.

Mr. Davis stated that the Superfund law makes community involvement a requirement, but it also states that a Restoration Advisory Board (RAB) can be closed down when there's no more community interest. He then noted that at this point, the IRP isn't expecting team feedback that's specific to setting well screens, pumping rates, and so forth – rather, it's looking for feedback about team members'/the communities' concerns. He added that a great job has been done of quelling the outrage that existed in the late 1990s; the program has been very successful in that regard. Mr. Davis said that if a recruitment effort were to be undertaken, he thinks it's important to determine what the goal of the community involvement team would be in the post-remedy decision years, which will be the case before too long. He also said that his initial reaction is not to recruit for the sake of recruiting, but instead advises thinking about why more members might be needed, and what is the goal or purpose of having the membership.

Ms. Donovan made a point of noting that there are four towns surrounding MMR, and she feels that as long as cleanup projects are ongoing there is a need for the community involvement process. She also mentioned that it's her understanding that the broad mailing list is no longer being used. She then said that while the IRP has reached its significant milestones, many are still ahead for the IAGWSP. She further noted that a couple of years ago it was thought that the cleanup programs would be all wrapped up by now, yet tonight it was demonstrated that four meeting agendas can be filled with topics, and there's always something that needs to be brought to the table. Ms. Donovan added that she thinks it would be good to reach out to the Boards of Health and Boards of Selectmen and find out what it is they need. She also said that tonight's meeting shows that the citizen team members who represent their communities are still interested.

Mr. Saucier said that since some of the plumes extend beyond the base boundary, the public should continue to be informed and be allowed to participate as much as possible. He added that he would recommend contacting citizens from Sandwich and Bourne to see if they would be interested in being part of the MMRCT.

Ms. Richardson assured the group that the IAGWSP has compiled targeted mailing lists associated with plumes that have migrated off base. For example, today the IAGWSP sent out a mailing to about 150 Bourne residents in an area where drilling is scheduled to occur next week, and about 10 mailings were sent out to residents in the J-1 Southern plume area over the past two years. She further noted that the IAGWSP's plume-related publication was distributed to all the Boards of Selectmen. Mr. Saucier said that he appreciates that, but also noted that he spoke with a family who lives in the J-1 Southern plume area who said they were clueless. Ms. Bonin replied that over the past four years at least 20 notices were mailed to that neighborhood. She also mentioned that she receives very few phone calls at her office from people with questions about contamination; rather, the majority of phone calls she receives are from individuals looking for work opportunities at the base.

Mr. LoGiudice suggested that it's possible that the cleanup programs are doing such a good job that community members are very comfortable with what's going on at the base and with what the cleanup programs are doing.

Mr. Karson said that the majority of phone calls he receives at the IRP are from realtors looking for information to provide to their clients. He noted that one of the documents homebuyers sign is a statement acknowledging MMR as a Superfund site, and his name and phone number is included on that statement. He also said that the idea of recruiting new members would be discussed internally and brought back to the team.

Agenda Item #8. Adjourn

Mr. Karson adjourned the meeting at 8:09 pm. The MMRCT is scheduled to meet next on April 10, 2013.