

**Massachusetts Military Reservation Cleanup Team
 Building 1805
 Camp Edwards, MA
 June 20, 2012
 6:00 – 8:00 p.m.**

Meeting Minutes

Member:	Organization:	Telephone:	E-mail:
Rose Forbes (sitting in for Jon Davis)	AFCEE/MMR	508-968-4670	rose.forbes@us.af.mil
Shawn Cody	ARNG	508-233-6520	Shawn.cody@us.army.mil
Ben Gregson	IAGWSP	508-968-5821	Benjamin.p.gregson@us.army.mil
Lynne Jennings	US EPA	617-918-1210	Jennings.lynne@epa.gov
Bob Lim	US EPA	617-918-1392	Lim.robert@epa.gov
Len Pinaud	MassDEP	508-946-2871	Leonard.pinaud@state.ma.us
Dan Dinardo	MMRCT/Falmouth	508-547-1659	ravensnests1@live.com
Phil Goddard	MMRCT/Bourne	508-759-3043	pgoddard@aol.com
Diane Rielinger	MMRCT/Falmouth	508-563-7533	One-brain@verizon.net
Facilitator:	Organization:	Telephone:	E-mail:
Ellie Donovan	MassDEP	508-946-2866	ellie.donovan@state.ma.us
Attendee:	Organization:	Telephone:	E-mail:
Doug Karson	AFCEE/MMR	808-968-4670	Douglas.karson@us.af.mil
Pam Richardson	IAGWSP	508-968-5630	Pamela.j.richardson@us.army.mil
Lori Boghdan	IAGWSP	508-968-5635	Lori.boghdan1@us.army.mil
Karen Wilson	IAGWSP	508-968-5624	Karen.ann.wilson@us.army.mil
Bill Sullivan	E&RC	508-968-5147	William.g.sullivan@us.army.mil
J.C. King	ODASA(ESOH)	703-697-9564	Jc.king@us.army.mil
Anne Wood	ARNG		
Mark Begley	EMC	508-968-5127	Mark.begley@state.ma.us
Elliott Jacobs	MassDEP	508-946-2768	Elliot.jacobs@state.ma.us
Jane Gasper	Innovar Environmental	508-759-9114	jgasper@innovar-env.com

Handouts Distributed at Meeting:

1. Presentation handout: Former A, Former K, Gun & Mortar Positions Proposed Plan
2. Former A Range, Former K Range and Gun & Mortar Positions Decision Document Fact Sheet
3. Presentation handout: Testing of Ponds and Harbors
4. Presentation handout: Land Use Controls
5. Presentation handout: CS-20 Leading Edge Update
6. MMR Cleanup Team Meeting Evaluation form

**Agenda Item #1. Introductions, Agenda Review, Approval of March 14, 2012
 MMRCT Meeting Minutes**

Ms. Donovan convened the meeting of the Massachusetts Military Reservation Cleanup Team (MMRCT) at 6:07 p.m., reviewed the agenda, and asked if there were any changes or additions to the March 14, 2012 MMRCT meeting minutes. No changes were offered and the minutes were approved as written.

Agenda Item #2. Decision Document for the Gun & Mortar Positions, Former A Range, and Former K Range

Ms. Jennings noted that the public comment period on the proposed plans for the Former A Range, Former K Range, and Gun & Mortar Positions sites runs from June 11 through July 20, 2012, and an associated fact sheet is available at this meeting. She also displayed a map and pointed out where the sites are located on MMR.

Ms. Jennings reported that the Former A Range was used from 1941 until the mid-1970s. It was primarily used as an anti-tank artillery and rocket range, but was later converted to a machinegun training range. She displayed a layout of the range, pointed out the firing position, and explained that soldiers fired at targets situated on rail cars that moved along a track by gravity. She also pointed out four berms near the track – two upper and two lower – known as Berms A, B, C, and D.

Ms. Jennings stated that the source area investigations at Former A Range involved looking at both soil and munitions. Found in soil, primarily in the target berms, were TNT, other explosives, semi-volatile organic compounds (SVOCs), and metals. The majority of munitions found were 37mm and 50cal small arms rounds, also located primarily in the berms. With respect to the groundwater investigation, low levels of TNT and perchlorate were found in one well, but no plume of contamination was identified. Ms. Jennings also reported that the Army conducted a robotics demonstration at the range, which involved excavating soil from the berms, sifting out munitions, and stockpiling the soil. Fifty cubic yards of soil were removed from the berms and treated, and geophysics was performed to confirm that the majority of munitions were removed.

Ms. Jennings displayed a color-coded figure that showed areas on the range where soil was excavated at the berms, where geophysics work was done, and a meandering path where additional geophysics work was done to confirm whether munitions were in fact concentrated just in the upper part of the range. She noted that the geophysics did in fact confirm that, although some sporadic munitions were found on other parts of the range. Ms. Jennings then clarified that it's not believed that the number of munitions remaining at the range is significant enough to result in a source to groundwater contamination.

Ms. Jennings stated that the proposed decision for Former A Range is limited action, involving: groundwater monitoring to evaluate the sufficiency of the source- and munitions-removal work that was conducted; and the implementation of Land Use Controls (LUCs), primarily to protect the monitoring wells.

Ms. Jennings then discussed Former K Range, noting that it was constructed in 1960 and used as a 3.5-inch rocket range until 1967 and then converted to an M79 grenade launcher range, which was used until the early 1970s. She also displayed a layout of the range and pointed out the firing line (at Area A) and the target areas (Areas B through F), which, she noted, were the focus of the source area investigation.

Ms. Jennings reported that not much soil contamination was found, only some RDX concentrations above the action level at Area E, but at none of the other target areas. She noted that this makes sense because of the munitions that were found: several hundred inert 3.5-inch rockets that didn't contain explosive fillers, as well as seven random items (not used in training at MMR) that potentially contain explosives. A series of drive-points and monitoring wells were installed downgradient of the target areas, but nothing was found in the groundwater either – just a one-time detection of perchlorate in one well in 2005, but that's believed to have been from one of the other ranges.

Ms. Jennings said that about 125 cubic yards of soil was excavated from Area E and treated with alkaline hydrolysis. Based on this action and the investigation findings, the proposed plan for Former K Range is no further action.

Ms. Jennings also discussed the 37 Gun & Mortar Positions, noting that their highest use occurred in the 1940s and that firing from these positions ended in 1997 when the U.S. Environmental Protection Agency (EPA) issued its Administrative Orders. She displayed a figure, pointed out the various locations of the Gun & Mortar Positions, and explained that the difference between the two types of positions has to do with the type of munitions that were fired from them into the Impact Area.

Ms. Jennings reported that the primary contaminant of concern found during the source area investigations at the Gun & Mortar Positions was 2,4-dinitrotoluene (DNT), although some nitroglycerine was also found. She explained that the DNT came from propellants used in the guns to help launch munitions into the Impact Area. She further noted that a great deal of DNT was found early on and removal actions were done to address it. At the same time, DNT leaching studies were being conducted to help understand why DNT wasn't being found in groundwater. Results of the leaching studies showed that the DNT is bound within the matrix of the propellant and therefore doesn't leach, as originally believed, and therefore is not a threat to groundwater. Ms. Jennings also stated that a subset of the positions was investigated to determine whether any buried munitions were there, but that was not the case.

Ms. Jennings reported that the groundwater investigation, which was focused on a couple of the highest-used gun positions, showed no propellant constituents in groundwater. She also noted that the soil removal actions, conducted by the Impact Area Groundwater Study Program (IAGWSP) and completed prior to the leaching studies, involved the removal and treatment of 57 tons of soil from Gun Position 7 (GP-7) in 2000 and 750 tons of soil from GP-6 in 2004. The Installation Restoration Program (IRP) also did soil removal work at GP-9, when trying to reach site closure there.

Ms. Jennings stated that based on the previous removal actions, investigation findings, and the results of the leaching studies, the proposed plan for the Gun & Mortar Positions is no further action. She also reminded the group that the public comment period runs until July 20, 2012, and she noted that comments can be submitted to EPA's Jeanethe Falvey via mail, fax, or email. EPA will then develop a response to comments, and issue a final decision document, which is planned for September of this year.

Agenda Item #3. Pond/Recreational Beach Sampling

Mr. Karson reported that recreational pond and harbor testing is conducted annually in the spring at: two locations at Snake Pond in Sandwich; one location in Deep Pond in Falmouth; three locations at Ashumet Pond, which is located in both Falmouth and Mashpee; three locations at Johns Pond in Mashpee; one seep sampling location at Red Brook Harbor; and three seep/harbor sampling locations at Squeteague Harbor. He then displayed a map, pointed out the ponds and harbors, and noted that sampling occurs in areas that are accessible to the public.

Mr. Karson reviewed results from this spring's recreational pond sampling, which occurred in April: samples from Snake Pond and Deep Pond were tested for ethylene dibromide (EDB) and results were nondetect; samples from Ashumet, Johns, and Deep Pond were tested for plume-related volatile organic compounds (VOCs) and results were nondetect; and in May 2012 the IAGWSP tested samples from Snake Pond for explosive-related compounds, which also had nondetect results.

Mr. Karson further noted that harbor sampling conducted in April of this year yielded the following results: nondetect or below the reporting limit (BRL) for VOCs at the groundwater seep in Red Brook Harbor; PCE detected at 2.7 micrograms per liter ($\mu\text{g/L}$) and TCE at BRL in the groundwater seep at Squeteague Harbor, which is consistent with past low-level detections; and nondetect or BRL at the two surface water sampling locations at Squeteague Harbor.

Ms. Rielinger inquired about the sampling locations at Johns Pond, given that the Chemical Spill 10 (CS-10) plume is along the west side of the pond. Mr. Karson explained that the sampling is conducted at swimming beaches, including the area where the boat ramp is located.

Mr. Goddard asked if the pond and harbor sampling results are shared with the towns. Mr. Karson replied that he is in the process of setting up dates for his annual briefings to the towns' Boards of Health, at which time the data will be shared, as always. Mr. Goddard then asked whether Bourne's Department of Natural Resources (DNR) ever received the summary of results from the shellfish studies that were conducted around 2002 to 2004. Mr. Karson replied that he's certain that the Board of Health and Board of Selectmen were provided with that summary, but will check to be sure that the DNR also received a copy.

Agenda Item #4. Land Use Control / Residential Well Update

Mr. Karson stated that LUCs are restrictions or controls needed to protect human health and the environment. LUCs limit the use of and/or exposure to contaminated soil/groundwater, prevent interference with the remedy, are also known as Institutional Controls, and are maintained until a remedy reaches cleanup levels. Types of LUCs include: signs around a landfill (like Landfill 1 [LF-1] at MMR); well-drilling prohibitions for potable water supplies at MMR; well drilling prohibitions and testing requirements for potable water supplies at each of the four Upper Cape towns, which are verified annually; monitoring of daily Dig-Safe notices to look for well drilling and digging activity near IRP wells and treatment systems; and verification of the status of existing private and irrigation wells located on parcels in the footprint or in the future path of a groundwater plume – known as the Private Well Verification Program.

Mr. Karson said that the purpose of the program, and the Air Force Center for Engineering and the Environment (AFCEE)'s last major challenge at MMR, is to verify that there are no unacceptable exposures to plume contaminants from a private/irrigation well located within current plume boundaries. He also noted that this is formal requirement that's included in all of the Records of Decision (RODs) and follows a protocol approved by EPA and the Massachusetts Department of Environmental Protection (MassDEP). Mr. Karson then mentioned that the program is about four years old and began with looking at wells in the Ashumet Valley plume area, but then shifted to the LF-1 and CS-23 plume areas when exact deadlines were set. At this time, the focus is back on completing the work for the Ashumet Valley plume.

Mr. Karson reviewed the steps taken as part of the Private Well Verification Program: mailings of questionnaires to homeowners, repeated if necessary; phone calls to non-respondents to mailings; visual drive-bys to verify vacant lots, and if a vacant lot is on town property, checking with the town to ensure that no wells had been installed there; and then door-to-door canvassing to attempt to obtain information from non-respondents. Additionally, AFCEE coordinates with various town agencies, beginning with the assessor's office, to try to get the answers it needs. Mr. Karson also noted that private wells are regulated by the local Boards of Health, and AFCEE coordinates its efforts with them, including reviewing town drilling logs, participating in annual meetings, and providing final LUC Project Notes.

Mr. Karson explained that private/irrigation wells that are being used undergo a technical evaluation that may include testing. That evaluation involves looking at: the depth of the well, if known; data from nearby monitoring wells; the proximity of the plume; groundwater flow; whether the well is used for drinking water or irrigation; and results from any past testing of the well. If a well is found to pose an unacceptable risk, AFCEE would offer free decommissioning of the well to the homeowner. If a well poses an unacceptable risk and the homeowner doesn't accept decommissioning, the next step for AFCEE would be to notify the Board of Health, which would determine whether an action, such as

condemning the well, needs to be taken. Mr. Karson then reported that, for the two Project Notes issued so far, all of the wells in operation have been deemed safe to use.

Mr. Karson also noted that the information gathered through the Private Well Verification Program is shared with MassDEP, EPA, and the local Boards of Health. He further noted that the program is ongoing. Reevaluations are conducted every two years for existing wells that are not in service and for unoccupied structures, and every five years for all of the parcels involved in the program as part of the overall Five-Year Review process, with the next one scheduled for 2013. Mr. Karson then mentioned that the IAGWSP is also conducting a residential well verification program for several of its sites: the Northwest Corner, Demolition Area 1, and J-1 South.

Mr. Karson showed photographs of properties that fall under the “unoccupied” category. These included a very rundown house with an overgrown yard and an AFCEE notice on the front door, which had been there for several months; a house with holes in the roof; a house with a lockbox on the front door, which Mr. Karson explained sometimes includes contact information that he has tried to pursue, successfully in some cases; and a house that appears to be a rental property, seasonal residence, or second home – in fairly good shape, but apparently unoccupied. Mr. Karson noted that no activity has been observed for the past three or four months at any of the houses that are categorized as unoccupied, nor has there been any response to AFCEE’s earlier attempts to contact the property owners. He reiterated that these properties will be reevaluated in two years, but given the lack of activity there is minimal chance for exposure – if in fact a private well even exists at these locations.

Mr. Karson then reviewed statistics for the Private Well Verification Program: a total of 2,077 parcels (for all plumes); successful outreach achieved for 1,984 of those parcels; 93 more parcels left to be verified; a 96% completion rate; and 430 wells identified to date. He also noted that research is 100% complete and Project Notes have been issued and approved by the regulatory agencies for the following plumes: LF-1, CS-23, CS-20, CS-21, CS-4, Fuel Spill 28 (FS-28), and FS-29. He then reported that the Project Note for the Ashumet Valley plume is currently being drafted and will be delivered to the agencies soon. The remaining plumes are CS-10, FS-1, FS-12, and Storm Drain 5 (SD-5), and the plan is to finish work at CS-10 in early August of this year so a Project Note can be generated.

Mr. Karson then showed a table entitled “Well Use/Evaluation Summary,” which noted the number of wells for outdoor/irrigation use only (33 at Ashumet Valley, 18 at CS-20, 8 at CS-21, 7 at FS-28, 13 at FS-29, and 10 at LF-1) and the number of wells used as a primary source of drinking water (1 at Ashumet Valley, 1 at CS-20, and 2 at LF-1). It was also noted in the table that CS-10, FS-1, and SD-5 are still in research mode. Mr. Karson stated that all of the wells at properties in the two Project Notes that have been issued were determined to be safe to use. He also mentioned that a couple of the drinking water wells are part of an annual sampling program to ensure that nothing impacts them in the future.

Ms. Jennings inquired about the status of the identified wells that are not being used for irrigation or drinking water. Mr. Karson replied that those wells are not in operation. Ms. Jennings then asked if they have been decommissioned. Mr. Karson explained that while many of the wells might not be considered technically decommissioned, it would not be possible to operate them because of the way they’re currently situated, such as under a paved driveway. He said that some wells are decommissioned and some are just not in use, which is why reviews are conducted every two years, to determine whether any unused wells have been reconnected.

Mr. Goddard asked if AFCEE offered municipal water hookups to the homeowners with drinking water wells. Mr. Karson replied that they were not offered hookups, because their wells were not impacted by the plumes. He added that in two cases a potential future impact was identified, which is why those wells are being sampled, and in another case it was determined (based on the depth of the

well, the nearby monitoring network, and the depth of the plume) that there is no potential future impact.

Mr. Goddard said that he thinks the Town of Bourne has a bylaw that prohibits public or private drinking water wells within the footprint or path of a groundwater plume. Mr. Karson replied that he's not certain whether Bourne's bylaw pertains to existing wells or just new wells only. He noted that all four Upper Cape towns have bylaws on this subject and they're all worded slightly differently, but he does recall language that states that new wells cannot be drilled in a known plume area. Mr. Karson also said that AFCEE is in favor of the continued use of existing private wells, as the plumes are slowing cleaning up, and it can be demonstrated that the wells identified so far are safe to use.

Mr. Goddard then asked if AFCEE would be willing to pay for a hookup at the homeowner's request. Mr. Karson said that it would depend on the location of the well. If there was an imminent threat to the well, yes, AFCEE would pay for a hookup, and could take immediate steps (bottled water or a filtration system) until the conversion was completed.

Mr. Goddard then recommended, with respect to some of the unoccupied "mystery" parcels, that AFCEE consult with the towns to find out who – if anyone – is paying the property taxes, and then send well verification notices to those addresses.

Agenda Item #5. CS-20 Leading Edge Update

Mr. Dalrymple noted that CS-20 is one of the four Southwest plumes, which are located in the southwest corner of MMR and treated at the Hunter Avenue treatment plant. He then reported that the original remedial system design for CS-20 called for three extraction wells located down the spine of the plume. However, due to access issues, AFCEE was able to install only two of those extraction wells and had to forego installation of a leading edge well.

Mr. Dalrymple stated that in 2010 an increased concentration of PCE was observed at one of the monitoring wells in the uncaptured portion of the plume, 81MW0018B. As a result, the sampling frequency was increased at three monitoring wells: 81MW0013A, 81MW0018B, and 81MW0019C. In 2011 a decrease in PCE concentrations at 81MW0018B was observed, and concentrations have been below the maximum contaminant level (MCL) of 5 µg/L in that well for the last two sample rounds. However, above-MCL concentrations still exist at two screens in 81MW0013 – a concentration of 11 µg/L in the A screen and 23 µg/L in the B screen. Mr. Dalrymple also reported that PCE is not detected, or is at concentrations below the MCL, at the other five leading edge monitoring wells.

Mr. Dalrymple then showed a cross-section view and a plan view of the CS-20 plume and pointed out the downgradient extraction well (EW-2). He also pointed out the nearby monitoring well 81MW0015A&B, where PCE concentrations in the B screen were about 10 µg/L when EW-2 was turned on, went quickly to nondetect, and have been nondetect since, and where the A screen has been nondetect right along. At the next monitoring well downgradient, 81MW0018, concentrations in the shallow screen increased to about 30 µg/L in 2010, then decreased to about 10 µg/L in the next sample round, and have been below MCL for two consecutive sample rounds. The deep screen at that well has never had any detections above the MCL. Mr. Dalrymple reiterated that the only well where above-MCL detections continue to be seen is 81MW0013A&B (in the A screen, up to about 20 µg/L in 2010, and now down to about 11 µg/L; and in the B screen, up to about 30 µg/L and now down to about 23 µg/L).

Mr. Dalrymple also spoke about the sentry well that AFCEE installed a few years ago at the toe of the plume, 81MW0019. He reported that the A and B screens at the well have been nondetect since sampling began. In the C screen, which is the shallow screen near Deep Pond, PCE had been detected at 9 µg/L, but the well has tested below MCL for four consecutive sample rounds, and nondetect for

the past three. Mr. Dalrymple also pointed out another well, 69MW1507, which has never had a detection above the MCL.

Mr. Dalrymple noted that transport simulations from 2008 predicted that concentrations in the leading edge area of the plume wouldn't exceed 15 or 20 µg/L, but higher concentrations have been observed. The path forward is to complete semiannual sampling event this fall and share the data with the MMRCT when available. Also, a remedial system optimization evaluation is scheduled to be done at CS-20 this summer, and that modeling effort will include updated transport simulations for the leading edge.

Mr. Goddard asked if the contamination seen at 81MW0018B would be expected to show up at 81MW0019B. Mr. Dalrymple replied yes, or at 69MW1507 – if it makes it that far. Mr. Goddard asked if Mr. Dalrymple expects the concentrations to naturally attenuate before reaching 69MW1507. Mr. Dalrymple indicated that he thinks that it makes sense to wait and see the modeling results this summer. Mr. Goddard then asked if the leading edge contamination got by EW-2. Mr. Dalrymple clarified that that portion of the plume was already beyond EW-2 when the well was turned on. Mr. Goddard replied that that portion was expected to naturally attenuate then. Mr. Dalrymple agreed and noted that monitoring wells were installed near where a leading edge extraction well was intended to have been installed.

Agenda Item #6. Review Next Meeting Schedule and Adjourn

Ms. Donovan said that MMRCT members would be notified of the next meeting date via email, as no date has been set at this time. Mr. Goddard said he would prefer if the team didn't meet in July as he would be on vacation. He also asked for an update on the Natural Resource Damages Assessment process at a future MMRCT meeting.

Ms. Donovan then adjourned the meeting at 6:57 p.m.