

**Joint Base Cape Cod Cleanup Team
Building 1805
Camp Edwards, MA
July 8, 2015
6:00 – 8:00 p.m.**

Draft Meeting Minutes

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Handouts Distributed at Meeting:

1. Responses to the Action Items from the April 8, 2015 Meeting
 2. Draft final of the April 8, 2015 Meeting Minutes
 3. Presentation handout: IAGWSP Demolition Area 2 Decision Document Addendum Update
 4. Presentation handout: IAGWSP Demolition Area 2 Decision Document Addendum
 5. Presentation handout: EPA Update to Emerging Contaminants Investigation
 6. Presentation handout: AFCEC Update on Emerging Contaminants
 7. Presentation handout: Petroleum Fuels Storage Area Plume Update
 8. Presentation handout: Fire Training Area-2/Landfill-2 Plume Update
 9. Presentation handout: Training Areas Investigation Update
 10. Handout: Testing of Ponds and Harbors
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Agenda Item #1. Introductions, Late-Breaking News, Approval of April 8, 2015 JBCC CT Cleanup Team Meeting Minutes

Ms. Donovan began the meeting and asked those at the table to introduce themselves.

Ms. Donovan announced that Mark Begley, the Executive Director of Environmental Management Commission (EMC) has retired. Len Pinaud will handle the “critical issues” for the EMC.

Ms. Boghdan noted two edits that will be made to the April 8, 2015 meeting minutes. No other changes were noted. The action item responses were reviewed and accepted.

Agenda Item #2. Demolition Area 2 Decision Document Addendum

Ben Gregson stated that recent monitoring work for the IAGWSP indicated the Demolition Area 2 (Demo 2) plume was taking longer than originally predicted to reach the cleanup goals through monitored natural attenuation (MNA). The IAGWSP now estimates it will take an additional five years to reach the cleanup goals. A Decision Document (DD) Addendum was created to address this change.

Mr. Gregson showed maps of the base and the Demo 2 plume. He noted the area is located in the central northern portion of Camp Edwards and was used from the late-1970s to late 1980s for light demolition training. The source area was removed in 2004 when 1,200 tons of soil were excavated from the berm, soil piles and center of the site.

A DD, signed in 2010, called for MNA and land-use controls as the groundwater remedy. Mr. Gregson noted that at that time it was predicted that the RDX remedial action goal of 0.6 ppb would be reached by 2013. However, RDX concentrations in groundwater samples collected in 2013 still exceeded the 0.6 ppb remedial action goal at three locations.

Figures were displayed which showed the Demo 2 plume outlines in 2009 and in 2014. Mr. Gregson pointed out some small plumelets in 2009, which had attenuated by 2014. He noted that there is are still concentrations in two areas above 0.6 ppb.

Mr. Gregson explained that modeling was performed to update the plume shell using sampling data from all wells from 1997 – 2014. The revised prediction is that RDX concentrations will be below the 0.6 ppb remedial action goal by 2018.

In order to match what was done in the original DD, a simulation was run with the addition of an extraction well to see if that reduced the cleanup timeframe. The assumed well was put at the leading edge of the plume extracting at 100 gallons per minute. Mr. Gregson explained that because of the time it takes for the groundwater near the source area to reach the extraction well, the cleanup timeframes were essentially the same as without an extraction well. Therefore, the additional expense did not justify adding an extraction well.

He then displayed figures which showed the reduction of the plume in 2014, 2016, and 2020. The revised DD changes the cleanup timeframe from 2013 to 2018. It also includes a modification to the monitoring program to install two additional downgradient monitoring wells to confirm that the groundwater follows the predictions.

Mr. Gregson noted that a Public Comment Period will be open until August 8th. Comments can be submitted to:

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Mr. LoGiudice asked if the cleanup timeframes are the same without the extraction well due to MNA. Mr. Gregson replied that is the case.

Mr. Goddard asked what was used to update the model. Mr. Gregson replied they added more recent monitoring information. The recent detections in the wells were forward migrated. Mr. Goddard asked if this has been done at other sites and Mr. Gregson replied that it is the normal procedure.

Agenda Item #3. Emerging Contaminations

Bob Lim introduced himself as the EPA Project Manager overseeing the Emerging Contaminants investigation at JBCC. He explained that at the last meeting, EPA announced they had issued a Notice of Violation Letter to the Air Force. He noted that a copy of that letter was attached to tonight's presentation.

Mr. Lim stated that EPA had asked the Air Force for several documents pertaining to the investigation and listed the following:

- Remedial Investigation /Feasibility Study (RI/FS) Work Plan for 1,4-dioxane at CS-10, CS-20 & LF-1
- RI/FS Work Plan for 1,4-dioxane & Perfluorinated Compounds (PFCs) at Ashumet Valley
- Site Inspection (SI) Work Plan for PFCs in Flight line & Downgradient Areas
- Copy of PFC Preliminary Assessment (PA) Report

He stated that AFCEC issued a response on April 24, 2015 and provided proposed dates for submission of the following work plans:

- 1,4-Dioxane RI/FS Work Plan for AV, CS-10, CS-20, LF-1
- Sampling and Analysis Work Plan for PFCs at AV
- PFC RI/FS Work Plan at Ashumet Valley
- PFC SI Work Plan for Flight Line

EPA issued a response letter on May 13, 2015, which required an RI/FS Work Plan for the Ashumet Valley plume to include both 1,4-dioxane & PFCs. The letter also asked AFCEC to sample private wells and two FS-1 wells.

AFCEC issued a letter on May 29, 2015 in which they agreed to sample the FS-1 wells but declined to do the private well sampling.

EPA responded on June 4, 2015 and stated that they would conduct private well sampling and EPA requested a PA report for PFCs.

Mr. Lim then provided an update on the private well sampling for PFCs in Mashpee. He noted that 14 locations were selected and 11 were sampled by EPA Field Teams. He noted that they are also sampling for nitrates, which are typically detected from septic systems. Analysis is being conducted by EPA's Region 4 Laboratory, with results expected in 6 weeks (~mid-August). Mr. Lim explained that Ms. Forbes will talk about the workplans that will be submitted.

Ms. Donovan asked about the location of the private wells and Ms. Forbes pointed them out on a figure.

Mr. LoGuidice asked what had precipitated this sampling. Mr. Lim explained that in 2013 the Air Force completed a Five Year Review for the site and a recommendation was made to look for emerging contaminants, PFCs and 1,4-dioxane. In 2014, the Air Force conducted some additional groundwater sampling on base and a number of plumes were identified, which require additional investigation. EPA also asked the Air Force to expand their investigation from the plumes into the flight line to look at where PFCs were used.

Ms. Rielinger asked if the private wells are used for irrigation or drinking water. Mr. Lim replied they are used for drinking water.

Mr. Saucier asked why AFCEC declined to sample the private wells. Ms. Forbes stated that, “the Air Force has a policy that we have to confirm a release before we can sample off base, which we did in the case of Ashumet Valley. We did some sampling for PFCs and dioxane.” She added that they sampled for PFCs, in particular, because Aqueous Film Forming Foam (AFFF) was used at the fire training area and PFCs are a constituent of AFFF. A release was confirmed at Ashumet Valley and then AFCEC extended their investigation and sampled monitoring wells and private wells. She stated that the case with the flight line is different because no sampling has been completed at the flight line yet. There is no evidence of a release upgradient of the area where EPA requested that sampling be done. “Air Force management said we cannot sample the private wells, based on that.”

Ms. Jennings stated, “The reason why this is being addressed so aggressively by EPA is because of what is happening in New Hampshire at Pease Air Force Base (PAFB).” She noted that investigation is driving the work requested at JBCC. She said the situation started in much the same way, at the fire training area, where lower levels of PFCs were found in the drinking water and impacted a few private wells. EPA asked PAFB to sample a public water supply well that was next to the flight line. She stated, “They had no evidence of any spills or releases at the flight line. They sampled it and found very high levels of PFCs coming off the flight line. It knocked out a major water supply well up there. Since that time EPA has been aggressively working with the Air Force in NH to get them to delineate quickly and address any exposure pathways and remediating the aquifer.” Ms. Jennings noted that based on these events in 2014, EPA asked AFCEC to sample along the flight line to find out if people were drinking the water, find out if there had been any

releases and investigate the actual private wells. She said issues were raised regarding contracting, scheduling and following a certain process. She then added, “This is a very serious matter. We are still evaluating enforcement actions because of the fact that we had to step out and take these samples. EPA could have taken an enforcement action and required the Air Force to do the private well sampling but we decided not to take the time to do that but that doesn’t mean we consider the Air Force in compliance. We are working on what’s best for public health first, which is instead of wasting more time trying to find all of the releases on base.... We’ve got people very close to the base, drinking water that is close enough that it could be impacted. We need to answer that question first and foremost. People in NH have been drinking the contaminated water for a number of years, which led to a lot of other complicated things like blood studies. To put it all in perspective, we are trying to get the Air Force to work more aggressively here. Rather than focusing on our enforcement efforts, which are not done right now, we really wanted to focus on the public health part of this and find out if there are contaminated private wells.”

Mr. Saucier stated, “As somebody who worked in public health for 30 years on the front line, in the trenches, thank you. Thank you very much. I am sure the people in Mashpee are very happy to have someone in your position to push for them.”

Mr. Goddard commented, “I had expressed that be a priority the last time this came up and I am very pleased to see that part of the lessons learned from here is to just get to those most at risk, find out if they are at risk, and deal with the paperwork later. I am really glad we are doing that.”

Ms. Forbes commented, “I think this is a success story because when the Air Force couldn’t do something, the EPA did step up and do it. That’s a good thing, if we can work together on things. I just want to look at it from that perspective.”

Ms. Forbes stated that a contract was awarded June 1st to CH2M Hill for an RI/FS for 1,4-dioxane at four plumes. She reminded the team of the sampling work that was done last year to determine where 1,4-dioxane might be present in relation to solvent plumes. She stated the contract also includes additional investigations of PFCs at Ashumet Valley. She noted that EPA had asked for an RI/FS for Ashumet Valley and stated that was not included in the original Scope of Work back in November. Therefore, a contract modification is being done. The contract also includes SI for PFCs at the flight line.

The RI/FS for PFCs at Ashumet Valley is scheduled to be provided to EPA by the end of September.

Ms. Forbes referred to the EPA request to sample for PFCs at FS-1 because of the proximity to the flight line and the request to sample the private wells off base. She stated that the private wells were not sampled due to the issues she discussed earlier but the two source area wells at FS-1 were sampled in June.

AFCEC also presented the SI Work Plan for PFCs at Flight Line and PFC Sampling and Analyses Work Plan at a Technical Update Meeting with EPA and MassDEP in June. The regulatory agencies gave verbal approval for the sampling for PFCs at the flight line locations identified in the PA.

Ms. Forbes noted that the PA for PFCs at JBCC, the Draft SI Work Plan for PFCs at the Flight Line, and the Draft Pre-RI Sampling and Analyses Plan for PFCs at Ashumet Valley were delivered to EPA/MassDEP on June 29, 2015.

Mr. Lim asked for an update on the 1,4-dioxane work plan. Ms. Forbes stated it will be submitted by July 30, 2015.

Mr. LoGuidice asked how the PFCs got on the flight line. Ms. Forbes replied that PFCs are a constituent of AFFF, which is what fire fighters used to suppress the vapors so a fire doesn't get out of control or cause an explosion. Mr. LoGuidice asked how many fires occurred in the area. Ms. Forbes explained the highest rate of use was at the fire training area. She noted that AFFF was in use from 1970 until today, as it is still in stock. She said that it was not used to put out any "real fires" on the flight line but rather was used for testing done at a hangar and testing that was done with fire trucks; it was also used for for two tanker truck rollovers in early 2000.

Mr. LoGuidice expressed concern that this is still being used. Ms. Forbes noted, "There are no rules against using it. Anywhere." Ms. Donovan added that there are multiple applications of use.

Mr. Saucier asked for an estimate on the number of private wells downgradient. Mr. Karson replied that there are 85 wells. Mr. Saucier expressed concern that even if the property owners were testing their wells, the sampling might not include these contaminants. He commented there could be a huge impact. Mr. Karson clarified that the estimate of 85 wells includes efforts done to date. He stated that there are another 30-45 properties that have not been confirmed as having only one drinking water source.

Ms. Jennings commented that they had not expected the very high levels at PAFB. She noted they were relying on individual memories of when spills occurred and the

degree to which they were treated. She stated that these contaminants were not regulated at the time and there was no requirement for documentation. She stated, “We need to get out there and sample and use the data to verify whether it is or isn’t there.” She added the conceptual site model is not well understood.

Ms. Jennings also stated that while EPA has not issued a “stop use” order, the company that makes AFFF has voluntarily taken it off the market. It is still in use by many local fire departments because it is in their inventory but she thinks it is just a matter of time before the use is completely discontinued.

Ms. Jennings explained that 20 homes were selected for private well sampling to get a snapshot of the situation and will increase the sampling efforts as needed.

Ms. Rielinger asked if contamination is found, will EPA expect AFCEC to immediately begin an assessment of the private drinking water wells off base. Ms. Jennings confirmed that is the case. She said, “We can ask them voluntarily to take action, another option is to take an enforcement action to make them take action, or we can use our own emergency response authorities to either continue sampling, provide bottled water, or hook folks up. It really depends on what the results are and what we find. At this point, if we really feel that it is coming from the base, we are going to be pretty aggressive. I would think the Air Force, following in line with what they have done in the past, would likely step-up and do something.”

Ms. Rielinger asked if any assessment has been done of the area to identify other potential sources if contamination is found. She asked if there was industry around there. Ms. Jennings added that the sampling protocol does other include other constituents that are markers for septic waste.

Ms. Donovan noted that EPA put together a fact sheet about the potential sources and suggested EPA provide a copy to the team members.

Ms. Forbes noted that if the detections are relatively low and nitrates are present in the samples it could indicate that PFCs are coming from septic systems in the area because they are used in common household products. If the levels are very high, that would suggest a different story.

Mr. Karson noted that there are industrial sites located in the area including landscaping businesses and a cleaning company. He pointed to the location on a map.

Agenda Item #4. Petroleum Fuels Storage Area Plume Update

Due to a microphone issue, Mr. Hilyard's presentation cannot be transcribed. If you would like copies of the presentation, please contact Doug Karson at douglas.karson@us.af.mil.

During the discussion portion of the presentation, some questions and answers were captured and they are noted below:

Mr. Pinaud asked for a figure to be displayed. He stated, "Just to be clear, that plume depiction does not exist currently. The plume shell was drawn based on the one upgradient well." Mr. Pinaud surmised that the plume could be "very thin." Mr. Hilyard affirmed Mr. Pinaud's comment. The BTEX plume outline shown on the figure represents the historic extent of BTEX in groundwater. BTEX is no longer detected in groundwater at concentrations above cleanup standards.

Ms. Jennings asked Mr. Hilyard to provide the estimated cleanup timeframe to achieve cleanup goals for Alternative 2 and Alternative 3. Mr. Hilyard responded that the remedial timeframes for Alternative 2 and Alternative 3 are estimated to be approximately 20 years and 15 years, respectively.

Ms. Jennings noted that EPA had previously commented that the AFCE modeling exercise did not follow the traditional method and EPA had requested a "more robust approach." Mr. Hilyard replied that the groundwater data at PFSA, particularly the increasing trends at some of the source area monitoring wells, did not lend itself to the traditional approach for estimating aquifer restoration timeframes under an MNA remedy. Rather, AFCEC relied on a qualitative approach for estimating the aquifer restoration timeframe. Groundwater monitoring at PFSA has been on-going since the late 1980s. The estimate of aquifer restoration timeframe at PFSA was based on the observed degradation of other petroleum fuel compounds at PFSA, the observed decreases in plume footprint, the remedial activities completed at the source area and knowledge of release dates.

Ms. Jennings commented that the injection alternative has worked very well at other sites. She asked for clarification as to why the estimate is 15 years because she feels the method is more aggressive and the duration to achieve cleanup goals should be much shorter. Mr. Hilyard agreed that injection can be effective technology for reducing petroleum contamination in groundwater. The estimated remedial timeframe of 15 years under Alternative 3 was based on assumptions as to the

number of injection events that may be needed in the source area followed by a period of MNA estimated for the distal areas of the plume. The areal extent of the PFSA plume greater than five acres and much of the lower concentration portion of the plume underlies undeveloped woodlands where accessibility with a drill rig is limited. The approach designed for Alternative 3 was to address COC concentrations where they are the highest (i.e. the core plume area) with injection and rely on MNA for lower concentration areas of the plume that are generally inaccessible to a drill rig.

Ms. Forbes stated there should be another Technical Update meeting with a focus on the Response to Comment Letter and AFCEC's responses.

Mr. Saucier asked about the process of injection. Mr. Hilyard responded that in order to promote the aerobic degradation of petroleum compounds in the groundwater, a slurry of slow-release material that releases oxygen to the groundwater is typically injected through a series of temporary injection points. It is common that multiple injection events in an area need to be conducted in order to address any rebound of contaminant concentrations that may occur at locations previously treated with injection.

Agenda Item #5. Fire Training Area-2/Landfill-2 Plume Update

Due to a microphone issue, Mr. Hilyard's presentation cannot be transcribed. If you would like copies of the presentation, please contact Doug Karson at douglas.karson@us.af.mil.

During the discussion portion of the presentation, some questions and answers were captured and they are noted below:

Ms. Rielinger asked if AFCEC had looked at the potential impacts of the CS-10 reinjection wells and if that affected that tail end of the plume, possibly pushing it in an area without contamination or diluting it. Mr. Hilyard responded that based on the distribution of contaminants at the leading edge of the plume, it appears that hydraulic mounding from the reinjection of treated water at the CS-10 Sandwich Road reinjection well fence is inhibiting and continued migration of the FTA-2 plume. Ms. Forbes clarified, "If it is being deflected, it is being captured by the extraction wells installed for the CS-10/Sandwich Road plume."

Agenda Item #6. Training Areas

Mr. Gregson reviewed a figure of the Training Areas and a list of the sites under investigation. He pointed to an area on the figure and explained the large area were where troop training activities took place. He noted that potential concerns are based on use of pyrotechnics (smokes and flares) and/or chemical warfare training (tear gas). The Conceptual Site Model for these types of sites includes training with smokes, flares, pyrotechnics and chemical warfare simulators. The IAWGSP is looking for residue deposited on ground surface and if there is a potential to leach to groundwater.

Mr. Gregson stated an Aerial Photographic Site Analysis was done by ERI in 1994. They looked at things that were unusual on the ground surface, based on color, tone, shadow, texture, size, shape, pattern and association with other features. They identified items on the aerial photographs that could be pits, excavations, trenches, ground scars, cleared areas, bunkers, and former buildings. Mr. Gregson noted the main objective was to determine if these sites could be sources for soil or groundwater contamination.

Mr. Gregson displayed a figure showing the location of disturbed soil areas, which were investigated in the late 1990s. He added that samples were collected at a number of the sites and the data will be evaluated as part of the Training Areas Investigation.

Mr. Gregson explained that one area of investigation is the Demolition Areas. He noted that this investigation is complete at the primary demolition areas on Camp Edwards (Demo 1 and Demo 2). He stated that there were reports of large rocks demolished with explosives at Demolition Area 3. There were reports of demolition of 5-ton trucks with high explosives at Demolition Area 4. There are also some inactive Demolition Sites that are shown on 1940s-era map and they are visible on aerial photos through 1960s. Demolition activities are a known source of groundwater contamination because explosives and perchlorate deposited on ground surface can leach to groundwater

Mr. Gregson showed a figure with pond and swamp locations on Camp Edwards, which include Bailey's Pond, Donnelly Pond, Deep Bottom Pond, Opening Pond and Gibbs Pond. Witness interviews reported munitions disposal, scrap disposal, runoff and drum storage in and/or around ponds.

Other sites include a variety of investigations, including Training Area BA-1, Grenade Ranges, WW II Mock Village, Ammunition Supply Points, 1940s-era

Latrines, Stables, Bayonet Areas, Waste Oil Dump Sites and Air-to-Air Target Darts. Mr. Gregson noted that a number of differing activities occurred at these sites and the IAGWSP needs to determine if any of those activities pose a threat to groundwater.

Four ranges were investigated under Training Areas:

- Former E Range –used as a WWII rocket and machine gun training area
- IBC Range/Infantry Battle Course – used in the 1980s to 1997 for small arms, rifle grenade and pyrotechnics
- U Range – used from 1968 to 1997 for grenade launcher, M73 rocket, LAW Rockets
- KD Range – used from the 1960s to 1997 for 40mm grenade, Dragon missiles, TOW Missiles and 90mm recoilless rifle

A variety of small arms and rockets were fired on the ranges. Explosives and propellant residue deposited on surface have the potential to leach to groundwater.

Mr. Gregson summarized the status of the work. Field reconnaissance and soil sampling has been conducted at many sites. Investigations are ongoing at KD, IBC and U Range. The Draft Investigation Report is being prepared and should be submitted to the regulators by the end of July. A Draft Remedy Selection Plan is scheduled to be submitted at the beginning of September and the Final Remedy Selection Plan should be completed by the end of September. There will be a Public Meeting/Comment period as part of the October 14, 2015 JBCC-CT meeting. A Draft Decision Document will also be issued by the end of September and the Final Decision Document is schedule for the end of December.

Agenda Item #7. Final Discussions, Adjourn

Ms. Donovan stated that the next meeting is scheduled for October 14, 2015. The meeting was adjourned.