

Joint Base McGuire-Dix-Lakehurst (JB MDL) Restoration  
Advisory Board (RAB) Final Meeting Minutes Meeting  
No. 61 – 6 December 2018

SUBJECT: Restoration Advisory Board (RAB) Meeting No. 61 – Meeting Minutes

- 1) Place: Edward Holloway Senior Citizen Community Center, 5 Cookstown Browns Mills Road, Cookstown, New Jersey
- 2) Date/Time: Thursday, 6 December 2018; 6:30 PM
- 3) Co-Chairs: Mr. Christopher Archer, Deputy Base Civil Engineer, JB MDL  
Mr. Frank Storm, Resident, Burlington, NJ

4) Attendees:

Mr. Tom Besselman	RAB Community Member
Mr. Rich Bizub	RAB Community Member, Pinelands Preservation Alliance
Mr. Alex Carnivale	Community Resident
Ms. Carla Struble	US Environmental Protection Agency, Region II (EPA)
Ms. Donna Gaffigan	NJ Department of Environmental Protection (NJDEP)
Mr. Haiyesh Shah	NJ Department of Environmental Protection (NJDEP)
Mr. Carl Champion	JB MDL, 787 CES/CEI, Environmental Element
Mr. Michael Figura	JB MDL, AFCEC/CZO, Environmental Restoration Program
Mr. Curt Frye	JB MDL, AFCEC/CZO, Environmental Restoration Program
Mr. King Mak	JB MDL, AFCEC/CZO, Environmental Restoration Program
Mr. Jim Richman	JB MDL, AFCED/CZO, Environmental Restoration Program
Ms. Jalise Wright	JB MDL, AFCED/CZO, Environmental Restoration Program
Mr. Rich Sample	JB MDL, 787 CES/CEL Installation Management Flight Chief
Mr. Tim Llewellyn	Arcadis
Mr. Kevin Jago	Leidos
Ms. Katrina Harris	Bridge Consulting Corp./Arcadis

5) Handouts

- JB MDL Restoration Advisory Board, Meeting No. 61, 6 December 2018, Agenda
- JB MDL Restoration Advisory Board, Meeting No. 61, 6 December 2018, Presentation Slides
- JB MDL, List of Documents Provided to Mr. Tamn as of 6 December 2018
- Air Force PFOS/PFOA Snapshot, 30 October 2018

6) Call to Order:

The meeting was called to order by Mr. Christopher Archer, Deputy Base Civil Engineer, JB MDL. He advised Col. Altwies was not able to attend the meeting, nor was Mr. Tamn. He stated he would be filling in this evening for Col. Altwies as the military co-chair, and Mr. Storm would be filling in for Mr. Tamn as community co-chair. He welcomed everyone and thanked everyone for attending.

Mr. Archer stated there had been a groundbreaking the previous Monday for the KC-46 construction

support effort as this \$146 million project moves forward. He noted the NEPA Environmental Assessment is complete, and the design process is moving forward towards construction. He said ultimately the process will support the arrival of the KC-46 and the retirement of the KC-10 aircraft.

7) Minutes of Previous Meeting and Review of Agenda Items:

Mr. Storm, Acting RAB Community Co-Chair, asked for any comments on the minutes from 16 August 2018 meeting. A motion was made, seconded, and passed to approve the minutes.

Mr. Curt Frye noted the meeting was being recorded for purposes of preparing the minutes.

Mr. Curt Frye introduced a new member of the JBMDL Environmental Restoration team, Ms. Jalise Wright.

Mr. Frye reviewed the status of action items from the previous meeting:

- RAB Member Site Tour: Mr. Frye stated scheduling a tour of Dix environmental sites and the Lakehurst Parachute Jump Circle Removal Action site had been discussed at the last meeting. He advised there have been delays with the Lakehurst Removal Action so the tour has not been set up. He said when the site is ready, the Air Force will contact the RAB members about a tour. Mr. Frye said the surface clearance portion of the project has taken longer than anticipated to the point where there may be a change in contractors. He noted there may be some further delays before the Air Force is ready to remove the disposal pits.
- Recreational Usage Restrictions on Lakes: Mr. Frye stated Mr. Storm had asked a question about whether there is any concern about recreational use of the lakes as it relates to perfluorinated chemicals (PFCs). Mr. Frye advised there was a handout in the back of the room from the Agency for Toxic Substances and Disease Registry (ATSDR) with a link to their web site for more information. He said the ATSDR web site states that: "Studies have shown that only a small amount of PFAS can get into your body through your skin. Therefore, showering and bathing in water containing PFAS should not increase exposure. Washing dishes in water containing PFAS should not increase exposure." Mr. Frye noted this is one of the reasons why the investigations have focused on drinking water.

Mr. Storm asked if fish from the lakes is safe to eat. Mr. Frye responded that he had briefed the RAB at the last meeting that NJDEP performed some statewide studies, including sampling fish in ponds around the base, and they did find some PFOS; based on those results, New Jersey issued fish advisories for those lakes. Mr. Frye said the science around PFCs is evolving and will continue to evolve, and while different agencies may debate whether advisories are needed, the base issued advisories for the lakes and ponds on the base. Mr. Storm asked if people were made aware of the advisories. Mr. Frye said on the base everyone has to buy a license and obtain a permit to fish, so all permit holders were notified; signs were also posted at the lakes on base. Ms. Donna Gaffigan stated there is no data for the lakes and fish on base, but the base issued the advisories just as a precaution, and Mr. Frye agreed. Mr. Frye said he does not yet have approval to collect such data, but the Air Force agreed out of an abundance of caution to issue the advisories until data is available.

8) Perfluorinated Chemicals (PFCs) Update:

Mr. Frye discussed an updated chart showing the status of sampling off-base private drinking water wells. He noted the Expanded Site Inspection identified five areas off-base with the potential for

drinking water impact to private wells. He explained that Area 4 is on the northeast side of McGuire, Area 14 is on the south side of Dix, Area 16 is on the north side of Lakehurst (Jackson Township), Area 17 is also on the north side of Lakehurst (Manchester Township), and Area 18 is on the southeast side of Lakehurst (Manchester Township). Mr. Frye advised most of the detections have been near Lakehurst. He continued explaining that 261 packets of information were hand-delivered requesting permission to sample, 193 responses (74% response rate) have been received, and 188 samples have been collected. Mr. Frye noted some properties are vacant, and some property owners have declined the sampling; he estimated 15 to 20 owners have declined. Mr. Archer added that packets of information have been distributed three or four times. Mr. Frye said there will probably be one more attempt to reach owners with a deadline being provided for them to accept the offer of sampling. Mr. Archer noted that all water wells and distribution points on base were sampled. Mr. Frye said the base and most of the nearby municipalities obtain drinking water from deep aquifers, about 1,000 feet deep, where PFCs has not been detected. He stated the Air Force sampled all off-base municipal wells surrounding the base where there was a potential for impacts from PFCs; additionally, some townships conducted their own sampling if they had been required by EPA to sample.

Mr. Rich Bizub asked how many of the private wells are on point-of-entry systems, and Mr. Frye responded that there are three, however, one was put in place to be overly conservative and is probably not needed. He explained the initial sample showed an exceedance of the EPA health advisory level for PFOS/PFOA, but the next six rounds of sampling were non-detect, so it is likely there was a laboratory quality control issue with the first sample. Mr. Bizub asked if bottled water is being provided to the private well owners. Mr. Frye advised where there have been exceedances of the EPA health advisory level, the contract for mitigation includes bottled water, filtration systems, and connecting to municipal water. Mr. Frye said designs and plans are being finalized to connect several properties to municipal water.

Mr. Frye noted the 27 quarterly monitoring locations reflected on the chart are locations where there have been any detections of PFCs, but which were below the EPA health advisory level.

Mr. Frye said all of the off-base sampling is being conducted under an Expanded Site Inspection, including the quarterly sampling, new requests for sampling, and maintaining any filtration systems which have been installed. He advised the contract also include the capability to do additional step-out sampling at the fenceline if the Air Force becomes aware of any other areas which should be investigated. He noted this work is transitioning to a new contract from BERS-Weston to Cape-Weston.

Mr. Frye said other actions which are ongoing include installing an ion-exchange resin treatment system for two on-base backup wells at JBMDL-Lakehurst where there have been detections of PFCs above EPA's health advisory number. He advised the main well at JBMDL-Lakehurst is a deep well, installed in the early 1990s. Mr. Frye said the application was just sent to NJDEP to receive the required permit. He estimated the system will be in place within two to four months in case the backup wells needed to be used. Mr. Frye said the treatment system is an interim solution as a contract has also been awarded for installation of a new deep well and treatment system at JBMDL-Lakehurst to replace the shallow back-up wells.

Mr. Frye said another contract has been awarded to Tehama-HGL to provide an update to the basewide Conceptual Site Model, focused on protection of drinking water. He advised this multi-year effort will include modeling, mapping, and synoptic groundwater measurements. Mr. Frye noted funding also has been provided to the U.S. Geologic Survey (USGS) to partner and provide assistance with this project.

Mr. Frye said discussions continue regarding a basewide Remedial Investigation; however, there is no authority or funding in place yet.

Mr. Haiyesh Shah said since preliminary information exists on the source areas, NJDEP would not want to wait until the modeling effort is complete before moving forward. Mr. Frye said the Remedial Investigation is not dependent upon the model, as the Remedial Investigation is expected to be multi-phased. He said that while a Remedial Investigation can be started as soon as funding is programmed and a contract is awarded, it could not be finished as there are no established methods or standards for completing an ecological risk assessment which is a component of the Remedial Investigation.

Mr. Frye said there is a handout on the back table which gives an update on the Air Force's work on the PFAS issue.

9) Military Munitions Response Program (MMRP):

Mr. Mike Figura gave an update on the Military Munitions Response Program (MMRP).

Mr. Figura displayed an aerial photograph showing the site locations. He stated there are two sites on Dix (Small Arms Range and Practice Mortar Range), two sites on McGuire (Former Ordnance Storage Area and Former Skeet Range), and six sites at Lakehurst (Proving Grounds, Former Submarine Bombing Target, Small Arms Range, Skeet Range/Rifle Range/Pistol Range, Former Mobile Aircraft Launch and Recovery Equipment (MALRE), and Former Trap Range).

- McGuire Former Ordnance Storage Area: An investigation was performed in 2015/2016 using magnetometry on transects covering 5.17 acres in the 262 acre area; 1,494 anomalies were investigated and 49 three-inch Stokes mortars (practice mortars but with black powder spotting charges) were found and detonated at the former fire training area. An additional Remedial Investigation and additional magnetometry investigation will be done to delineate the impacted area to the north and move on to a Feasibility Study, Proposed Plan and Decision Document. The site most likely will have land use controls placed on it so if there is any sub-surface activity in the future, a scan for ordnance would have to be performed. The Air Force is in the process of finalizing an Explosive Safety Submission and a work plan addendum prior to conducting the additional investigation.
- McGuire Former Skeet Range: A Remedial Investigation conducted in late 2016 delineated on and off-base areas with lead above standards. A time-critical removal action is being planned to remove the lead above the residential standard on all off-base properties in 2019, along with a 30-foot buffer area onto the base so nothing will migrate off base in the future. Unrestricted Use/Unrestricted Exposure is anticipated after the removal action. The on-base portion will be addressed through a Feasibility Study, Proposed Plan and Decision Document.
- Dix Former Small Arms Range: Lead-impacted soil at the site was delineated both horizontally and vertically. A removal action in 2017 excavated soil down to a maximum depth of three and a half feet resulting in 266 truckloads of soil being removed. A Remedial Investigation conducted after the removal action recommended no further action for this site.
- Dix Former Practice Mortar Range: A large portion of the original site was cleared of

munitions prior to the construction of two housing developments. A Remedial Investigation of 51 acres was done in 2015. Transects were investigated by magnetometry and 100 percent clearance was completed on some randomly spaced grids in the northern area. No munitions or munitions constituents were found in the northern area, so it is presumed most of the impacts from the practice range fell to the south. Ten expended grenade fuzes were found and one practice grenade; none of these are considered munitions of explosive concern but are just remnants left from training exercises. The Remedial Investigation recommended no further action. The NJDEP requested additional clearance of the one-acre area where fuses and the practice grenade were found. The Air Force is deciding whether to do the action requested by NJDEP first and then move to no further action or go through a Feasibility Study, Proposed Plan and Record of Decision

- Lakehurst Former Mobile Aircraft Launch and Recovery Equipment (MALRE): At this site, augering was done down to about six feet, C-4 was detonated to create a cavity in the ground, and anchoring systems were installed. Magnetometry and ground penetrating radar has been used to identify any potential locations of the anchoring systems. These locations were excavated to metal posts in the ground with a concrete base which is the anchoring system. Soil boring samples were collected around the anchors down to about ten feet, and no explosives were detected. After completing the Remedial Investigation, this site was recommended for no further action.
- Lakehurst Former Small Arms Range: Sampling conducted at this site during the Remedial Investigation confirmed that groundwater was not impacted at this site. The Remedial Investigation recommended no further action for this site. Mr. Storm asked for confirmation that the Small Arms Ranges had non-military users such as state and local law enforcement. Mr. Figura confirmed Mr. Storm's statement was correct. Mr. Figura added that there were also recreational users that belonged to the base's Rod and Gun Club.
- Lakehurst Former Trap Range: An area of this site was previously cleared of lead bullets, but much lead shot remained in the wooded areas. The extent of lead and polyaromatic hydrocarbon (PAH) contaminated soil was delineated. The maximum depth of impacted soil was about 18 inches. The trees were cleared in this area, and soil was removed in 2017; post removal action sampling showed no lead or PAH-impacted soil remaining. This site is recommended for no further action.
- Lakehurst Former Skeet, Rifle and Pistol Ranges: Lead delineation was performed at the Rifle and Pistol Ranges as part of the Remedial Investigation, and soil excavation was conducted. No further action is being proposed for these sites. At the Former Skeet Range, lead and PAH-impacted areas were delineated, soil was excavated, and the site is being revegetated. The site is recommended for no further action.
- Lakehurst Former Submarine Bombing Target: This site is in the southeastern area of the base and was used from the 1930s to 1945 for aircraft practicing the dropping of bombs. During the Remedial Investigation in 2015 and 2016, 75 munitions of explosive concern were found—72 MK 23 and 3 MK 5 practice bombs. None of the items were high explosive; they just had a black signal charge so they could be seen when they landed. These items were detonated on site. Soil and groundwater samples were collected; no explosives were detected and metals were all below background levels. A Feasibility Study is being prepared and will propose land use controls and surface clearance on a regular basis.

- Lakehurst Proving Ground: A Remedial Investigation was performed for the two target areas within the Jump Circle in 2015, and two chemical warfare munition items, 37 unexploded ordnance items, 658 munitions debris items, and eight disposal pits were found. The chemical warfare munition items and unexploded ordnance items were destroyed on site, and six of the disposal pits were cleared as they only contained flares. Two of the disposal pits potentially contain high explosive or chemical munitions, and the Air Force is currently working on addressing these two pits. A contract was awarded in the fall of 2017 for performing a surface clearance of all the Lakehurst Proving Ground target areas and to remove the two disposal pits. Required documents have been prepared and completed, and the surface clearance activities started in September 2018 which were anticipated to take two to four weeks. The field team has already been out in the field almost eight weeks and are anticipating at least two more weeks of work. The project is currently experiencing delays because they are exceeding the amount of the contract. The government is working to modify the contract to complete the surface clearance and then obtain additional funding for addressing the disposal pits.

10) McGuire Operable Unit 7 and Operable Unit 8 Update:

Mr. Kevin Jago of Leidos, a partner with Arcadis on the performance-based remediation contract, provided an update on two sites within Operable Unit 7 (SS040) and Operable Unit 8 (FT008) where groundwater remediation pilot studies are being conducted. The studies will help develop appropriate alternatives for the Feasibility Study.

- Chlorinated solvents and petroleum contaminants in commingled groundwater plumes have been detected at both sites. The chemistry of the two types of contaminants is different and has an impact on the type of treatment technologies that can be used.
- Other technical challenges include SS040 being a large dilute plume, low pH groundwater conditions at McGuire, a heterogeneous aquifer, and shallow, intermediate, and deep zones of contamination down to 60 feet below ground surface.
- The initial plan was to look at in-situ groundwater treatment due to the large plume size and technical challenges. A pilot study or experiment was included in the approach to support the development and selection of remedial technologies that have good applicability to these field conditions. Two in-situ technologies being evaluated are in-situ chemical oxidation and bioremediation/bioaugmentation. Another objective of the pilot study is to examine what type of design may be required such as injection well design and spacing and injection delivery methods, as well as corresponding logistics and infrastructure considerations.
- The pilot study has two phases. The first phase is bench-scale testing or laboratory testing to answer some basic questions to feed the information into the design of field-scale phase. During the first phase, soil and groundwater samples were collected to look at current parameters, geo-chemistry and biological cultures. The second phase, field-scale, began back in July and the injections are being wrapped up this month.
- The field-scale work looked at focusing injections at the areas of highest contamination, examining well designs and injection delivery methods, and planning short-term and long-term monitoring for changes in aquifer conditions and contaminant trends.
- The results of the bench-scale test show there are some technologies that could be effective including in-situ chemical oxidation, a proven technology in the industry and also used at

McGuire so a field-scale test was not needed. Bioremediation/bioenhancement and bioaugmentation are two other potential technologies, and field-scale evaluation specific to JBMDL conditions and challenges was recommended.

- During the field-scale test, specific amendments were injected at different depths into the groundwater to promote contaminant degradation. Sodium bicarbonate was also injected to neutralize the aquifer pH. Bioaugmentation was also tested with specific microbial cultures to enhance degradation of contaminants.
- The field-scale test is currently being completed. Preliminary results show the injection system and delivery method performed well for chlorinated solvent injection amendments. Useful information was obtained from the field-scale test regarding injection well design which can be used in designing remedial alternatives. A future injection of bioaugmentation cultures for the chlorinated solvent treatment area is being evaluated. Short-term performance monitoring has begun, and the first year results will be integrated prior to the release of a Proposed Plan.
- Mr. Llewellyn advised the regulators will be seeing a field change order coming through soon. Mr. Shah asked about permit equivalency requirements, and Mr. Llewellyn said he would check into this issue.

#### 11) Performance-Based Remediation Contract Update:

Mr. Llewellyn stated he would be giving a brief, high-level summary of progress made on Arcadis' performance-based contract projects. He noted good progress is being made on the various McGuire Area Operable Unit documents in spite of a large number of documents moving through the process. He said remedies at State-led sites at McGuire and Dix are operating well, and more sites are moving toward completion. Mr. Llewellyn said the treatment systems in place at Lakehurst are also operating well, and minor system adjustments are being made as needed.

Mr. Llewellyn began his presentation with a discussion of some of the CERCLA NPL sites at McGuire where EPA is the lead regulatory agency. He noted Mr. Jago had reviewed current activities at OUs 7 and 8. In the interest of time, he suggested RAB members review the Power Point slides which contain more details. He referenced a chart showing the overall status of the NPL sites and explained blue means the document is under review by the Air Force, light green means EPA and NJDEP have reviewed and provided comments, and dark green means the document has been finalized.

- OU-1: Operable Unit 1 consists of two former landfills and a former recycling yard located in the northern portion of the base, outside the secure area. A Proposed Plan and public meeting are targeted for April 2019, followed by a Record of Decision in the fall of 2019 and remedy implementation in 2020.
- OU-2: Operable Unit 2 consists of 10 sites which range in complexity from former aircraft maintenance facilities with significant contamination to sites of former oil/water separators with partial contamination. The draft Feasibility Study has been reviewed by EPA and NJDEP, and their comments are being addressed. A Proposed Plan and public meeting are anticipated in the summer of 2019, followed by implementation of remedial action in 2020/2021.
- OU-3: Operable Unit 3 consists of three former landfill sites and one sludge disposal site. The Proposed Plan was finalized, a public meeting held, and a Record of Decision drafted. Some

expended 106mm cartridges were found in a limited area (60 feet by 40 feet) at LF019. No impact on the proposed soil cover remedy is anticipated, and the Air Force is putting together a contract for a time-critical removal action. Once a removal action is completed, the Record of Decision will be signed, with remedial action planned for 2020. In response to a question from Mr. Archer, Mr. Llewellyn said as much of the activities as possible will be done concurrently. Mr. Frye said he would hope to have an update on the funding for the removal action by the next meeting. Mr. Shah said NJDEP has reviewed the draft Record of Decision and has provided comments; he said as soon as the Removal Action Completion Report is received, NJDEP will provide a concurrence letter.

- OU-4: Operable Unit 4 is the bulk fuel storage area. Comments on the draft Feasibility Study have been received from the regulators and are being addressed. A Proposed Plan is under development.
- OU-5: Operable Unit 5 consists of one former aircraft maintenance facility and two former pesticide handling areas. Comments on the internal draft Feasibility Study have been received from the Air Force and addressed; the draft will be sent to EPA and NJDEP in early 2019. A Proposed Plan and public meeting are anticipated in the winter of 2019, followed by implementation of remedial action in 2020.
- OU-6: Operable Unit 6 addresses historical fuel releases under the aircraft apron. Comments have been received from the Air Force on the internal draft Feasibility Study; the draft will be sent to EPA and NJDEP in early 2019. Responses to EPA's comments on the draft final Remedial Investigation Report are being prepared. A Proposed Plan and public meeting are anticipated in 2019, followed by implementation of remedial action in 2020.

Mr. Llewellyn next discussed the petroleum sites at McGuire where NJDEP is the lead regulatory agency. He displayed a chart showing the sites and their status. He advised there are 30 compliance sites included in Arcadis' contract, with 15 of those sites already having met site close-out requirements. He noted of the remaining 15 sites, four are ready to be closed out pending the completion of some paperwork. Mr. Llewellyn discussed the status of TU025, noting that trenching was performed to try and locate a former fuel line. He advised the line cannot be positively located for further inspection, and a recommendation has been made to NJDEP that no further action be taken.

Mr. Llewellyn provided an update on the BOMARC Site. He advised the Proposed Plan and public meeting had been held, and air sparge barriers have been selected as the alternative. He said the Record of Decision is under review by the Air Force, the Remedial Design is underway and should be final in the summer of 2019, and work should begin in the summer or fall of 2019.

Mr. Llewellyn displayed a chart showing the status for the Dix State-Led Sites. He advised of the 20 sites, three have moved into the site close-out phase, and four more sites are ready to go to closure pending completion of paperwork. Mr. Llewellyn stated a Proposed Plan for Site NW042 is being reviewed by NJDEP with a proposed remedy of soil mixing and compliance averaging; a public meeting will be held in the spring of 2019.

Mr. Llewellyn gave an update on the four sites at Lakehurst. He advised the air sparge/soil vapor extraction systems continue to operate well.

Mr. Llewellyn showed an updated list of sites where site closure has been achieved. He advised site closure means remedial goals have been achieved, site restoration infrastructure has been removed, and the site is released for unrestricted use. He noted 18 sites have moved to site closure to date, with

a total of 34 sites projected for completion in 2019.

12) RAB and Public Comments:

Mr. Storm asked for questions from RAB members and then from members of the public observing the meeting.

Mr. Bizub requested a more detailed update on BOMARC at the next meeting.

13) Meeting Adjourned:

Mr. Storm asked for a motion to adjourn the meeting. A motion was made, seconded and unanimously passed to adjourn the meeting at 8:20 PM.

The tentative date for the next meeting is March 2019.