

Joint Base McGuire-Dix-Lakehurst (JB MDL) Restoration
Advisory Board (RAB) Final Meeting Minutes Meeting
No. 59 – 22 February 2018

SUBJECT: Restoration Advisory Board (RAB) Meeting No. 59 – Meeting Minutes

- 1) Place: Edward Holloway Senior Citizen Community Center, 5 Cookstown Browns Mills Road, Cookstown, New Jersey
- 2) Date/Time: Thursday, 22 February 2018; 6:30 PM
- 3) Co-Chairs: Col. Aaron Altwies, 87th Civil Engineer Group Commander, JB MDL
Mr. Michael Tamm, Resident, Southampton Township, New Jersey

4) Attendees:

Mr. Rich Bizub	RAB Community Member, Pinelands Alliance
Mr. Tom Besselman	RAB Community Member
Mr. Matt Csik	RAB Member, Ocean County Health Department
Ms. Robyn Henderek	US Environmental Protection Agency, Region II (EPA)
Ms. Carla Struble	US Environmental Protection Agency, Region II (EPA)
Mr. Philip Cole	NJ Department of Environmental Protection (NJDEP)
Mr. Haiyesh Shah	NJ Department of Environmental Protection (NJDEP)
Mr. Christopher Archer	JB MDL, 87th CEG, Deputy Base Civil Engineer
Mr. Rich Sample	JB MDL, 87th CEI, Installation Management Chief
Mr. Jon Davis	AFCEC/CZO, McGuire ISS Chief
Ms. Nicole Brestle	JB MDL, AFCEC/CZO, Environmental Restoration Program
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
Ms. Erin Laux	JB MDL, AFCEC/CZO, Environmental Restoration Program
Mr. Jim Richman	JB MDL, AFCEC/CZO, Environmental Restoration Program
Ms. Cindy Hood	AFCEC/CZR
Mr. Tim Llewellyn	Arcadis
Ms. Julie Straus	Arcadis
Mr. Bob White	Arcadis
Mr. Eric Panhorst	Arcadis
Ms. Katrina Harris	Bridge Consulting Corp./Arcadis

5) Handouts

- JB MDL Restoration Advisory Board, Meeting No. 59, 22 February 2018, Agenda
- JB MDL Restoration Advisory Board, Meeting No. 59, 22 February 2018, Presentation Slides
- JB MDL, List of Documents Provided to Mr. Tamm as of 22 February 2018
- Acronym List

6) Call to Order:

The meeting was called to order by Col. Aaron Altwies, 87th Civil Engineer Group Commander, JB MDL. Col. Altwies welcomed everyone and thanked everyone for attending.

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

Mr. Michael Tamn, RAB Community Co-Chair, asked for any comments on the minutes from the November 2017 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. Frye reviewed the status of action items from the previous meeting. He advised several of the action items will be addressed through presentations being given this evening. Mr. Frye stated the Dix Site NW042 soil sampling results will be discussed at the next RAB meeting.

8) McGuire Operable Unit 4 (OU-4) Field Activities Update:

Mr. Bob White of Arcadis, a contractor to JB MDL, discussed planned well installation at Site ST009, the McGuire Bulk Fuel Storage Area. He explained the facility consisted of several large aboveground storage tanks with concrete secondary containments that currently hold jet fuel. He continued explaining that the remedial pre-design work includes installing some additional wells within the secondary containment areas. Mr. White showed an aerial photograph with the proposed well locations. He stated the Air Force is reviewing the draft work plan, and Arcadis plans to perform the work in the April/May timeframe. Mr. White said the work will also require a health and safety plan and utilities clearance.

9) Dix Magazine Area 1 Update:

Mr. Eric Panhorst of Arcadis reviewed current status at the Dix Magazine Area 1, Site SS007. He stated the site is located in the western part of Dix. Mr. Panhorst showed a close-up aerial photograph of the site, noting the area around the site is elevated and densely forested. He explained trichloroethene (TCE) was used as a degreaser at this site, with the TCE moving downhill with the groundwater flow.

Mr. Panhorst noted a Record of Decision was signed for the site in 2002, the Remedial Design was completed, and Arcadis is now implementing the remedy of in-situ bioremediation followed by monitored natural attenuation. He explained there had been a number of pilot-scale and bench-scale studies and some slight modifications made to the remedy. Mr. Panhorst said the in-situ bioremediation began in 2011 with injections of carbon into the ground to facilitate degradation of the TCE and the injections continued until 2015. He said TCE was readily degraded to cis-1,2-dichloroethene (DCE), a breakdown product of TCE, but significant degradation to vinyl chloride and ultimately to ethene was not seen. He explained a decision was made in 2015 to stop the injections and do an evaluation of monitored natural attenuation.

Mr. Panhorst explained the in-situ bioremediation process injects carbon into the ground which creates highly reducing conditions and those conditions continue to exist since the last injection more than two years ago. He continued explaining that sampling has continued, and there is still much carbon in the ground so in-situ bioremediation continues in the source area.

Mr. Panhorst displayed an aerial photograph showing the extent of contamination. He stated the constituents of concern (COCs) are TCE and its degradation or daughter products, DCE and vinyl chloride. He pointed out the wells that have been installed as part of the investigation, including wells downgradient of the source area to monitor the plume as part of the natural attenuation remedy to

ensure receptors are safe.

Mr. Panhorst explained that after four years of injections, an evaluation was done to look at trends and whether cleanup goals would be achieved without doing anything else in the source area. He explained a couple factors influence the ability of natural attenuation to work, and one is to have a monitoring well network in place to monitor the downgradient end of the plume and ensure receptors are safe and the plume is not discharging and creating a hazard that is not known. He said another aspect is to monitor the trends in the source area to ensure there are declining trends that ultimately lead to a clean site. Mr. Panhorst said the quarterly data collected for a number of years was evaluated and a statistical analysis performed.

Mr. Panhorst advised the evaluation showed much degradation of TCE to DCE but little change of DCE to vinyl chloride. He said the trends in the source area indicate the site is not on target to achieve remedial goals within the 20 years post in-situ bioremediation treatment as was outlined in the decision document. He explained the receptor evaluation found no immediate downgradient receptors. He continued explaining the groundwater velocity is about 90 feet per year which is slow. He said the analysis showed the current sentinel well/downgradient point is well MAG-102B which is about 850 feet from the source area. He stated groundwater is discharging to surface water features about 3,000 feet from the plume. Mr. Panhorst said based on the analysis there is not an immediate receptor issue, and the plume is fairly stable and not close to moving off-base.

Mr. Panhorst explained that when a plume has been in the groundwater a long time, the plume eventually is in equilibrium—high concentrations in the source area which decrease as you move downgradient to a point where the groundwater meets a cleanup goal. He said if nothing changes, the plume stays relatively stable and starts retracting as the contamination is cleaned up or degrades. Mr. Panhorst advised that historical data indicates the plume is fairly stable; however, some downgradient wells are showing increasing trends. Mr. Panhorst said sometimes when an in-situ bioremediation system is running, if the TCE does not fully degrade, there can be some increase in the solubility of the groundwater and increased mass which can move. He stated another well further downgradient has been added and will be included in the quarterly monitoring.

Mr. Panhorst said the other aspect of the evaluation was looking at the attenuation rate. He said the conclusions were that while there is still mass in the source area, the plume is not moving beyond an acceptable point.

Mr. Panhorst next discussed planned field activities. He stated quarterly groundwater monitoring at the sentinel and one new downgradient well will continue, while semi-annual monitoring will continue at other plume wells, and annual monitoring at source area wells.

Mr. Panhorst advised additional work is planned for the source area later in 2018 as levels are not declining as much as they need to be declining to meet remedial goals. He said additional hydraulic testing will be done in the source area, as well as further characterization of geologic features. Mr. Panhorst said the data will be used for installing a dynamic groundwater recirculation system in 2019 which will extract groundwater in the source area, treat it using granular activated carbon, and re-inject the treated water along the plume boundaries towards the extractions wells in the center. He noted a modification to the Record of Decision may be needed.

Mr. Tamn asked if the site is wetlands, and Mr. Panhorst responded said the site is pretty dry. He said groundwater is not coming up to the surface or ponding at the surface. Mr. Tamn asked if pH levels have been impacted by the injections or if there have been other changes. Mr. Panhorst responded there are still very reducing conditions in the site groundwater in that carbon has been injected along with bicarbonate and other amendments added to the sub-surface which has raised the pH level. Mr.

Panhorst said the data collected as of December 2017 shows high methane concentrations which indicate much biological activity occurring including degradation of TCE. Mr. Panhorst said there have been changes to the biogeochemistry as this was the intention; these changes will continue for some time because of the tight geologic formation and slow movement of groundwater. Mr. Tamn asked how long it would take to restore to original conditions. Mr. Panhorst said it will take another two to five years to restore the groundwater to background conditions; if an active remedy is implemented, the time will be reduced as water will be moved more quickly than natural groundwater flow. Mr. Cole said to add to Mr. Tamn's questions, perhaps it would be helpful to know when the groundwater will enter the nearest surface water body. Mr. Panhorst said groundwater would take about 50 years to reach the nearest surface water body. Mr. Panhorst added that sampling is not showing evidence of the injections in downgradient wells, so the impact of the injections is not moving beyond the source area.

10) Performance-Based Contract Update:

Mr. Llewellyn stated he would be giving a brief, high-level summary of progress made on Arcadis' performance-based contract projects.

Mr. Llewellyn began his presentation with a discussion of the CERCLA NPL sites at McGuire where EPA is the lead regulatory agency:

- 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. The Feasibility Study has been developed for two landfills with proposed remedies of soil covers, and comments from EPA are being addressed. A Proposed Plan comment period and public meeting is anticipated in the fall of 2018, followed by implementation of remedial action 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 minimal contamination. The Air Force has provided comments on the internal draft Feasibility Study, and Arcadis has been addressing those comments with the Air Force. The draft Feasibility Study is anticipated to be sent to EPA and NJDEP in March. A Proposed Plan and public meeting are anticipated in the winter of 2018/2019, followed by implementation of remedial action in 2020.
- 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. No comments on the Proposed Plan were received from the public. Pre-design work has begun to design the soil caps. Some expended 106mm cartridges were found in a limited area (60 feet by 40 feet) at LF019; no high explosive is associated with these cartridges, but their primers may be intact. It does not appear the cartridges are associated with the landfill, but rather were dumped onto the area after the landfill was closed. JB MDL Explosive Ordnance Division responded and removed about 40 cartridges; a contractor will address those remaining. No impact on the proposed soil cover remedy is anticipated, and the Air Force and EPA are discussing the best path forward for the 106mm cartridges. Remedial action is scheduled for 2019.
- OU-4: Operable Unit 4 is the bulk fuel storage area. The Feasibility Study submission to EPA and NJDEP has been slightly delayed but will be submitted soon. A Proposed Plan and public meeting are anticipated in winter of 2018/2019, followed by implementation of remedial action in 2020.

Mr. Llewellyn addressed Mr. Tamn's request at the last meeting for surface water and sediment results at ST009; any impacts to surface water would be at South Run to the north of the site. He

reminded everyone there had been historical spills of jet fuel which moved into the sub-surface between the tanks. Mr. Llewellyn discussed data from 2010 which shows no detections or no detections above the regulatory standards of the compounds expected to be present if impacted by jet fuel; therefore, it does not appear surface water has been impacted. Mr. Llewellyn said the conceptual site model suggests the jet fuel is contained in a low permeability environment. Mr. Llewellyn said some low levels detections of TCE in the surface water are believed to be related to OU-2, not OU-4. He noted the proposed remedy for OU-2 should address any impacts to the surface water.

Mr. Llewellyn said the situation is the same with impacts to the sediment with some very low levels of constituents seen, but not significant impacts in South Run.

- 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; the draft will be sent to EPA and NJDEP in March or April 2018. 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. The internal draft Feasibility Study is being reviewed by the Air Force. Responses to EPA's comments on the draft final Remedial Investigation Report are being prepared; a final version will be submitted in March. A Proposed Plan and public meeting is anticipated in 2019, followed by implementation of remedial action in 2020.
- OU-7 and OU-8: Comments from EPA on the Operable Unit 7 and Operable Unit 8 draft final Remedial Investigation Reports are being addressed. Feasibility Studies are scheduled for the end of summer of 2018, followed by Proposed Plans and public meetings. Remedial action implemented is scheduled for 2021. Pilot studies are being conducted at both OUs to gather additional data on potential groundwater cleanup technologies, including bench-scale studies to look at bioremediation as a possible remedy. The studies will take about two years. The Air Force will work with NJDEP on the substantive permit requirements.
- Mr. Llewellyn displayed a chart showing the status of the Operable Units against the CERCLA process.

Mr. Llewellyn next discussed the 13 petroleum sites at McGuire where NJDEP is the lead regulatory agency. He advised all the sites are under a decision document, and remedies have been selected. He stated he would be discussing continued operation of the biosparge system at TU023 (Pumphouse B) and the shutdown of the air sparge/soil vapor extraction system at TU013 (Spill Site 13). He noted sites under monitored natural attenuation remediation continue to be sampled and monitored and are generally showing signs of declining levels of contaminants; these sites will soon begin moving into the site closure stage.

Mr. Llewellyn showed the location of the TU023 Pumphouse B and noted an underground storage tank had been removed, and there had been spills at the site in the past. Mr. Llewellyn said the biosparge system has been running for about nine months to accelerate the natural degradation of the semi-volatile organic compounds. He reviewed recent soil data which shows a number of the exceedances are now below the standard. Mr. Llewellyn stated the system is not ready to be shut down yet, but good progress is being made at this site.

Mr. Llewellyn next discussed the air sparge/soil vapor extraction system at the TU013 Spill Site 13, a

gas station, to address significant groundwater contamination. He advised the system has been operating since 2016 and there has been good mass recovery; the mass recovery dropped off significantly towards the end of 2017. Mr. Llewellyn said the site conditions meet the shutdown criteria so will be moving to suspend operations and enter into a rebound study phase; groundwater monitoring and confirmatory soil sampling will be an important part of the post-shutdown strategy.

Mr. Llewellyn advised new Classification Exception Areas (CEAs) and Well Restriction Areas (WRAs) are in place at Dix and Lakehurst. He explained a CEA is an institutional control addressing geographically defined areas where Ground Water Quality Standards have been exceeded and provides notification that the chemicals of concern exceed standards applicable to that aquifer designation. He advised at JB MDL the aquifer designation is a non-degradation Pinelands aquifer so the Pinelands standards apply. He added that a CEA suspends the use of that aquifer. Mr. Llewellyn explained a WRA is included with the CEA where health-based drinking water standards are exceeded to restrict potable water use. He noted since Pinelands Standards are based on preserving natural water quality and are not health-based, a WRA will not be required if chemicals of concern are below health-based water standards. Mr. Llewellyn advised CEAs/WRAs are in place at Dix and Lakehurst; new CEAs/WRAs are being established for McGuire and BOMARC. He stated the BOMARC CEA/WRA was approved in January 2018, and the McGuire CEA/WRA, which is a basewide CEA/WRA, is under final review by NJDEP. Mr. Llewellyn said the basewide designation for McGuire does not mean all the groundwater is impaired, but it is being done for administrative convenience. Mr. Llewellyn said the WRAs may be lifted once health-based standards are met.

Mr. Llewellyn next discussed the three air sparge/soil vapor extraction systems at Dix Sites TU019a, TU970, and NW044, which have been operating at Dix since 2016. He advised about 1,600 pounds of material had been recovered, and while recovery has slowed, it continues so not ready to shut down the systems yet. Mr. Llewellyn said the shutdown and rebound study is anticipated to start in the second half of 2018.

Mr. Llewellyn next discussed the BOMARC Site and noted the public meeting on the Proposed Plan had been held just prior to this meeting. He reminded those presents that comments can be submitted on the Proposed Plan through March 19 and will be addressed in the Record of Decision. He said the Air Force's preferred remedy is air sparge/soil vapor extraction to address the contamination and contain it on base. Mr. Llewellyn said the remedial action is targeted for the winter of 2018.

Mr. Llewellyn gave an update on activities at Lakehurst. He advised installation of air sparge/soil vapor extraction systems continue at LF042, TT013, and TT017.

Mr. Llewellyn showed updated lists of sites moving to site closure. 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 some sites will be cleaned up to industrial standards so their use will be restricted to industrial activities.

11) RAB and Public Comments:

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

Mr. Rich Bizub asked for an update on PFCs. Mr. Frye advised off-base sampling of private wells continues within areas discussed at previous meetings; no new areas have been added. He stated to date approximately 185 private wells have been sampled off-base, with 4 wells showing exceedances of the EPA health advisory level. He said three of the detections are in PFC Area 18 which is near Lakehurst. Mr. Frye said bottled water or treatment systems continues to be provided, and a

monitoring program has been initiated for properties where there has been any level of detection, even those below the EPA health advisory level. He noted the quarterly monitoring program encompasses about 26 properties. Mr. Frye said the Air Force has met with Manchester Township officials to discuss connecting several properties to municipal water lines. Mr. Frye said no further sampling has occurred on-base. He stated the Air Force is working on responding to regulators' comments to finalize the Site Inspection Report.

Mr. Tamn requested Mr. Frye schedule a tour of the sites for RAB members. Mr. Frye suggested a tour in April, separate from the RAB meeting in May, or later in May or June if more daylight hours are needed. The RAB members discussed timing options as some members are not available until 5 p.m. Mr. Frye said he will be in touch with RAB members by email regarding a tour.

Mr. Tamn advised a representative from Burlington County Community College may be at the next meeting; a few other members of the community have also expressed interest in RAB membership.

12) Meeting Adjourned:

Mr. Tamn asked for a motion to adjourn the meeting. A motion was made, seconded and unanimously passed to adjourn the meeting at 8:16 PM.

The tentative date for the next meeting is May 17, 2018.