



DEPARTMENT OF THE AIR FORCE  
AIR FORCE CIVIL ENGINEER CENTER  
INSTALLATION RESTORATION PROGRAM  
JOINT BASE MCGUIRE-DIX-LAKEHURST, NJ 08641

2 June 2014

Mr. Curtis A. Frye  
Chief, Environmental Restoration Program  
AFCEC/CZO Northeast Region, McGuire IST  
2403 Vandenberg Avenue  
JB MDL, NJ 08641-5104

Re: Draft Minutes, 22 May 2014 Joint Base McGuire-Dix-Lakehurst (JB MDL) Restoration Advisory Board (RAB) Meeting

Dear Community Member,

Please reference the enclosed Draft minutes from the 22 May 2014 RAB meeting. In addition, we have attached a copy of the handouts that were distributed at the meeting. The next RAB meeting is scheduled for Thursday, 7 August 2014 at 6:30 PM, at the Edward Holloway Senior Citizen and Community Center on Main Street in Cookstown, New Jersey.

If you have any questions concerning this matter, please call Ms. Nicole Brestle at (609) 754-0068 or Mr. King Mak at (609) 754-3323.

Sincerely,

A handwritten signature in black ink, appearing to read "C. A. Frye".

CURTIS A. FRYE, P.E., DAFC  
Chief, Environmental Restoration Program

Attachments:

1. Draft Meeting Minutes, 22 May 2014
2. Presentation Materials, 22 May 2014



Joint Base McGuire-Dix-Lakehurst (JB MDL)  
Restoration Advisory Board (RAB) Draft Meeting Minutes  
Meeting No. 46 – 22 May 2014

SUBJECT: Restoration Advisory Board (RAB) Meeting No. 46 – Meeting Minutes

1) Place: Edward Holloway Senior Citizen Community Center, 5 Cookstown Browns Mills Road, Cookstown, New Jersey

2) Date/Time: Thursday, 22 May 2014; 6:30 PM

3) Co-Chairs: CAPT Christopher Fletcher, Deputy Joint Base Commander, JB MDL  
Mr. Michael Tamn, Resident, Pemberton Township, New Jersey

4) Attendees:

Ms. Theresa Lettman	Restoration Advisory Board Member
Mr. Tom Besselman	Restoration Advisory Board Member
Mr. Frank Storm	Restoration Advisory Board Member
Mr. Curtis Frye	JB MDL, AFCEC/CZO, Chief, Environmental Restoration Program
Mr. Michael Figura	JB MDL, AFCEC/CZO, Environmental Restoration Program
Mr. King Mak	JB MDL, AFCEC/CZO, Environmental Restoration Program
Mr. Michael Wierman	JB MDL, AFCEC/CZO, Environmental Restoration Program (AGEISS)
Ms. Nicole Brestle	JB MDL, AFCEC/CZO, Environmental Restoration Program (AGEISS)
Mr. Michael Brown	JB MDL, AFCEC/CZO, Environmental Restoration Program (AGEISS)
Ms. Stacey Schueler	JB MDL, AFCEC/CZO, Environmental Restoration Program (AGEISS)
Mr. Mike Brewin	Plexus
Mr. James Richman	CB&I
Mr. Constantine Tsentas	PARS Environmental
Mr. Phil Cole	NJDEP
Mr. Haiyesh Shah	NJDEP
Mr. Eric Panhorst	ARCADIS
Mr. George Leahy	URS
Mr. Mark Moese	AECOM
Mr. Richard Brown	Burlington County College
Mr. Mark Magness	CB&I

5) Handouts

- JB MDL Restoration Advisory Board, Meeting No. 45, 20 March 2014, Draft Meeting Minutes
- JB MDL Restoration Advisory Board, Meeting No. 46, 22 May 2014, Agenda
- JB MDL Restoration Advisory Board, Meeting No. 46, 22 May 2014, Presentation Slides
- JB MDL Restoration Advisory Board Member Information Handout, List of Documents Provided to Mr. Tamn as of May 22, 2014.

6) Call to Order:

The meeting was called to order by Mr. Curtis Frye, Chief, Joint Base McGuire-Dix-Lakehurst Environmental Restoration Program, who briefly introduced CAPT Chris Fletcher as the JB MDL RAB Co-Chair for this evening.

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

Mr. Tamn, RAB Co-Chair, asked for a motion to approve the minutes from the 20 March 2014 RAB meeting. Mr. Tamn asked Ms. Lettman if she had any specific concerns regarding the minutes, which she did not. There was a motion by Ms. Lettman to approve the minutes, which was seconded by Mr. Tamn as no one else present had attended the previous meeting.

8) Review of Action Items from the March 2014 RAB:

Mr. Frye announced that the RAB Handbook had been finalized, and indicated that a copy had been provided for each RAB member. The RAB Handbook includes the update JB MDL RAB Charter (signatures still required), the updated Community Involvement Plan (CIP) (signature still required), RAB Member and Stakeholder Contact List(s), an Acronym List, and JB MDL Site Fact Sheets. Mr. Frye stated that he is going to work with Mr. Tamn, the EPA, and the NJDEP on getting the RAB Charter and CIP signed between now and the next RAB meeting.

Mr. Frank Storm, Burlington County, complimented the base on the RAB Handbook binder and stated the acronym list and site histories were extremely helpful.

Mr. Haiyesh Shah, NJDEP, inquired as to when the Site Fact Sheets were updated. Mr. Frye responded that the McGuire Fact Sheets in the RAB Handbook binder were the most recently updated (within the past year) and that once the Lakehurst and Dix Fact Sheets are updated they would be included in the RAB Handbook binder as well.

9) Joint Base McGuire-Dix-Lakehurst Fence to Fence Performance Based Restoration Contract (PBR) Update:

Mr. Frye provided an overview on the upcoming 10-year Performance Based Remediation (PBR) Contract that is being awarded through the USACE, Tulsa District, for award in the Fourth Quarter of Fiscal Year 2014. Key points reviewed and discussed through questions and answers included the following:

- The PBR Contract includes approximately 104 sites;
- Included both CERCLA and Petroleum UST Sites, no MMRP Sites;
- Fixed Price "C" Contract;
- Unrestricted Business Class;
- RFP details the Minimum Performance Objective (MPO) required for each site;
- Once a site obtains Site Closure (SC), all necessary cleanup is complete, there are no restrictions on future use of the property, and money is no longer programmed for that site;
- For sites that are at the stage of Remedy in Place (RIP), the PBR contract requires bidders to propose Optimized Exit Strategies (OES), which are technical strategies to either achieve SC or maximize efficiencies and get a site as close to SC as possible during the 10 year period of performance
- The solicitation (W912BV-14-R-0007) was issued April 30, 2014 and proposals are due June 26, 2014;

- The pre-proposal conference/site visit will take place May 28 and 29, 2014; approximately 48 contractors will be attending; and
- Government Furnished Information (GFI) is available via IR/AR DVDs at local libraries, IR/AR repositories (contact Tulsa USACE office) and AFCEC PBRShare Google website.

Ms. Theresa Lettman asked if any new documents had been delivered to the library, to which Mr. Frye responded no. Mr. Tamn, however, will be receiving a several draft documents this evening. Mr. Frye clarified that draft documents are not kept at the library.

#### 10) McGuire BOMARC Site OT-16 Investigation Update:

Mr. James Richman, Project Manager, CB&I, provided a comprehensive update on the OT-16 TCE plume pilot study being conducted at BOMARC. The update included current milestones, performance objectives, long term performance monitoring evaluation, long term monitoring evaluation, focused feasibility study, and a summary of the proposed path forward. Key points included:

- NJDEP approved the Remedial Investigation Report group 4 Sites and concurred with the recommendation that groundwater contamination for OT-16 and WP-05 be managed as one plume;
- Vegetation was cleared and 4 monitoring wells were installed for the zero valent iron permeable reactive barrier (ZVI PRB) pilot study;
- Baseline sampling and ZVI PRB injections were completed as well as geochemical monitoring to evaluate aquifer conditions;
- Discussion of long term performance monitoring (LTPM) of site-wide groundwater and surface water to evaluate PRB and establish the CEA;
- As of March, 2014 the TCE concentration increased in the shallow areas or the northern, central and southern portions of the plume;
- Largest reduction of TCE compared to the baseline was observed in the southern portion;
- Contaminant reduction of TCE through Q1 was not as expected. Root cause analysis is planned to investigate ZVI PRB performance ;
- Proposed CEA boundaries are valid as proposed;
- Draft Focused Feasibility Study is currently under review by the State;
- Moving forward, the plan is to continue the LTPM, prepare a pilot study remedial action report, establish land use controls and prepare an annual groundwater assessment report by February 2015.

Mr. Tamn inquired if there was any sampling of the surface water stream located approximately 700' east of the plume. Mr. Richman responded that sampling had been done; TCE levels in the stream were approximately 20ug/l; as expected these results are consistent with sampling from last year.

Mr. Phil Cole, NJDEP Case Manager, inquired of the TCE degradation time in the downgradient wetlands area. Mr. Richman responded that degradation is expected in the wetlands but it will take a while. The groundwater is traveling at approximately 1' a day. Mr. Cole then asked if there were wells in place to identify if there is any downward trending and Mr. Richman responded that the location of wells are at their maximum limit of placement on the site and that the existing wells on the Lakehurst side have all resulted in non-detects.

Ms. Lettman asked how much clearing had been done for access to the site. Mr. Richman stated the area was approximately 100' by 20' however no clearing was done along the access road, they just needed to add stone for stability. A letter report was prepared in March 2014 summarizing these activities; this report is available on the AFCEC PBRShare Google site.

11) Remediation and Closure of the Dix Golf Course Pesticide Mixing and Storage Area:

Mr. Michael Brewin, Project Manager, Plexus, provided a comprehensive update on Dix Site SS035, the Golf Course Pesticide Mixing and Storage Area. The update included a background summary and review of the 2013 remedial investigation and remedial action, and the site closure schedule. Key points included:

- Contaminants of concern were dieldrin, heptachlor epoxide, and arsenic;
- Former Army Decision Document established Land Use Controls (fencing, Master plan amendment) as the remedy;
- Air Force determined to obtain Unlimited Use and Unrestricted Exposure (UU/UE) at the site and a soil removal was recommended in March 2013 via an Explanation of Significant difference (ESD);
- Initial excavation of 232.49 tons of contaminated soil in August of 2013 and a follow-up excavation of 85.97 tons in September of 2013;
- After second excavation, no samples exceeded screening criteria;
- Remedial Action Completion Report submitted to the NJDEP on March 31, 2014;
- Site approved for No further Action UU/UE status.

12) In-Situ Chemical Oxidation Update at the Dix Taxi Stand Site:

Mr. Brewin provided a comprehensive update on Dix Site TU019A, the Taxi Stand Site. The update included a background summary of the In-Situ Chemical Oxidation (ISCO) injection approach, and the remedial action schedule. Key points included:

- May 2012 the BTEX plume was delineated and ISCO technology was chosen as the remedial approach;
- ISCO application is planned for up to 60 injection points across the source area;
- Performance monitoring sampling to be conducted bi-weekly and monthly for three months and then quarterly thereafter for BTEX, MTBE, and sulfate;
- Vapor intrusion assessment planned for Building 3137 as its within 30' of the benzene plume;
- Draft Remedial Action Work Plan approved by NJDEP who also provided a permit-by-rule for the March 26, 2014 injection event;
- Draft Remedial Action Completion Report scheduled for September 2014 submittal. This Report may be re-named Injection Completion Report.

13) Approval of Dix Basewide Groundwater Classification Exception Area (CEA) and Well Restriction Area (WRA):

Mr. Brewin provided a comprehensive update on the Dix base-wide CEA. The update included a review of the project's purpose statement and the work plan. Key points included:

- The Dix-wide CEA was effective starting April 3, 2014 and is calculated to expire on December 31, 2076;
- It was decided the CEA should be a comprehensive area for flexibility in future site inclusions and to reduce administrative requirements;
- The CEA requires biennial certifications;
- The draft work plan covers groundwater, surface water, and soil contaminations and was submitted to the NJDEP in May 2014;
- Anticipated approval of the work plan is the summer of 2014.

A question and answer discussion regarding the difference between CEAs and WRAs, and the scope of CEAs as they pertain to McGuire, Dix, Lakehurst, and the BOMARC facility. The following are salient points from this discussion:

CEAs and WRAs are concordant restrictions within a CEA. The area within a CEA is necessarily an area within which the NJDEP will not permit a monitoring well without special consideration. While JB MDL is one installation, CEAs are segregated by installation due to NJDEP's CEA-naming conventions. The Air Force is anticipating McGuire-wide and BOMARC-wide CEAs in the future. While chemicals listed within a CEA are selected based on the most prominent compound categories (i.e. VOC, SVOC, pesticides, inorganic), the CEA applications will list the specific compounds of concern which prompt the need for the CEA. As time progresses CEA boundaries are adjusted based on satisfaction of clean-up criteria.

14) Public Comments:

- Ms. Lettman inquired about the removal of 20 sampling wells from the Dix landfill. Mr Brewin clarified that the wells were not physically removed, they were just removed from the sampling plan: these wells were consistently clean for eight quarters, and the wells were removed from the sampling program as a result of the 2012 NPL delisting of the site.

15) Action Items for the next RAB Meeting:

Mr. Tamn, RAB Co-Chair asked if there were any suggested topics for next meeting agenda. Mr. Frye stated he was leaning toward a presentation on the MMRP sites that exist base-wide (i.e., McGuire, Dix, and Lakehurst) as this topic has not been discussed for some time.

16) Meeting Adjourned:

- Mr. Tamn asked for a motion to adjourn the meeting; Mr. Cole made the motion to adjourn; Mr. Storm seconded the motion. The meeting was adjourned at 7:45 PM.
- The next RAB is scheduled for August 7, 2014.
  - Mr. Frye stated that the next RAB would be used to provide a Basewide MMRP site update.







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**Joint Base McGuire-Dix-Lakehurst  
 Restoration Advisory Board  
 22 May 2014**

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**Outstanding Action Items**

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- RAB Handbook will be issued at this evening's RAB
  - RAB Charter (need signatures)
  - Community Involvement Plan (CIP) (draft)
  - Site Fact Sheets
  - RAB member and Stakeholder contact list
  - Acronym list


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**Outstanding Action Items from 20 March 2014 RAB  
 Meeting**  
**Mr. Curtis Frye, P.E.**  
**Chief, Environmental Restoration Program**  
**AFCEC/CZOE**



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**Questions?**

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**Outstanding Action Items**

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- Mr. Tamn had inquired about former Restoration Sites located within the boundary of the JB MDL 8000 Area (Former Site: TU019, Range Road UST Areas A, B, and C)
  - A copy of the No Further Action (NFA) Report stating that the site has been remediated to residential standards was provided to Mr. Tamn this evening
  - A copy of the Final BOMARC RW-01 Remedial Action Report and NJDEP approval letter documenting NFA was provided to Mr. Tamn this evening
- Mr. Tamn requested an update on the progress at BOMARC at the next RAB
  - Included in this evening's agenda

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**Performance Based Remediation (PBR) Contract Update**  
**Mr. Curtis Frye, P.E.**  
**Chief, Environmental Restoration Program**  
**AFCEC/CZOE**

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**Performance-Based Remediation Contract**

- JB MDL planning a 10 year, fixed-price performance-based remediation contract (PBR) for 104 sites
- Includes CERCLA and petroleum UST sites. No MMRP sites
- RFP will detail the Minimum Performance Objective (MPO) required for each site
  - Remedy in Place (RIP)
  - Response Complete (RC)
  - Site Closure (SC)
  - Optimized Exit Strategy (OES)

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**Performance-Based Remediation Contract**

- Award Schedule:
  - Solicitation W912BV-14-R-0007 was issued on 30 April Posted to FedBizOpps web and ww.fbo.gov
  - Pre-Proposal Conference / Site Visit May 28 & 29, 2014
    - Current Head Count: 48 people have notified USACE that they will be attending the Pre-Bid Site Visit
      - Meeting will take place at Falcon Court North
      - Recommend attendees pack a lunch
      - Wear appropriate field clothing
  - Proposal Period - ends June 26, 2014

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**Performance-Based Remediation Contract**

**JB MDL PBR Schedule**

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**Performance-Based Remediation Contract**

- Government Furnished Information (GFI)
  - IR/AR DVDs at Burlington and Ocean County Libraries
    - Ocean County Library only has the Lakehurst IR/AR
  - IR/AR also available via contractor-provided external hard drive (contact Tulsa USACE office)
  - Supplemental Information Repository
    - AFCEC PBR Share Google website:
      - [https://drive.google.com/folderview?id=0ByQK\\_Tqp86LwZ041MkktSIRwT3c&usp=share](https://drive.google.com/folderview?id=0ByQK_Tqp86LwZ041MkktSIRwT3c&usp=share)
      - Documents will continually be added to Google site as they become available – Index shows "date added to website" for each document

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**Performance Based Remediation Contract**

- Contract will be awarded through U.S. Army Corps of Engineers, Tulsa District
- Fixed Price "C" contract
- 10 year period of performance (PoP)
- Unrestricted Business Class
- Best Value Award Basis
- USACE Tulsa POC: Brenda Anderson


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**Questions?**

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**BOMARC OT-16 TCE Plume Pilot Study Status Update**

King Mak – Project Manager, JB MDL  
James Richman- Project Manager, CB&I

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**BOMARC OT-16 TCE Groundwater Plume**



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**Pilot Study Performance Objectives:**

- ✓ **Pre-injection**
  - ✓ Clear vegetation, install gravel road (as necessary)
  - ✓ Install 4 monitoring wells (MW) (2 shallow/2 deep) at permeable reactive barrier (PRB) edges
  - ✓ Complete baseline groundwater and surface water sampling
  - ✓ Complete baseline hydraulic conductivity testing
- ✓ **Pilot Test Injections**
  - ✓ Complete PRB injections
  - ✓ Perform geochemical monitoring of GW to evaluate aquifer conditions


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**BOMARC OT-16 TCE Groundwater Plume**



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**Current Status/Milestones:**

- Final Pilot Test work plan – 24 April 2013
- Pilot Test permeable reactive barrier (PRB) Injections – 16 May - 11 Oct 2013
- Final Remedial Investigation (RI) Report Group 4 Sites: WP-05, ST-15, OT-16 Hydraulic Oil (BOMARC Missile Sites) – 2 Oct 2013
  - NJDEP approved the RI Report, concurred with recommendation that "groundwater contamination for WP-05 and OT-16 be managed as one plume"
- Draft Focused Feasibility Study BOMARC OT-16 and WP-05 Source Areas and ST-15 Groundwater – 7 Feb 2014
- Pilot Test Injection for a zero valent iron (ZVI) PRB BOMARC Site OT-16 TCE Plume Interim Summary Letter Report – 31 Mar 2014


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**BOMARC OT-16 TCE Groundwater Plume**



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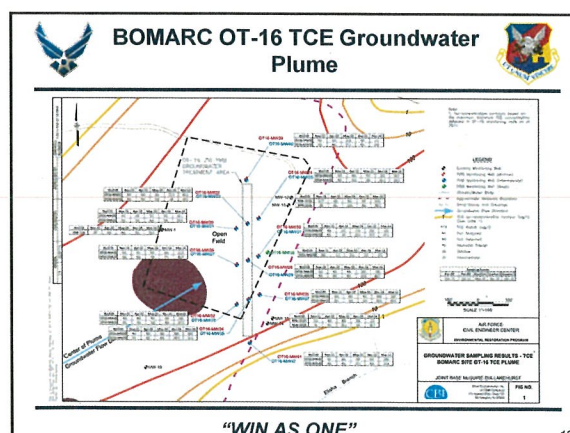
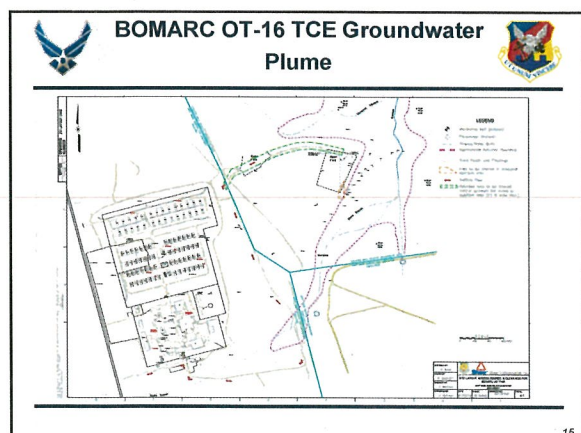
**Pilot Study Performance Objectives (cont'd):**

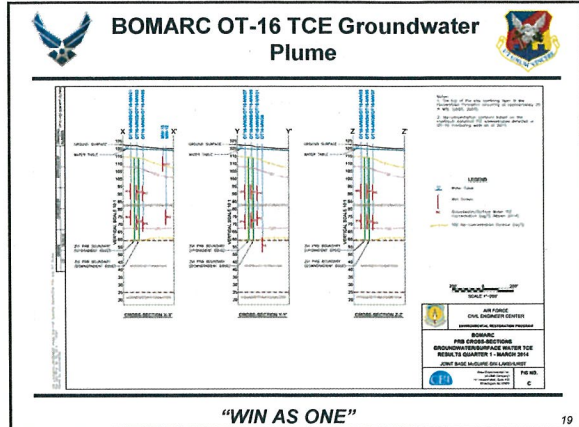
- **Post-injection**
  - ✓ Complete several synoptic GW gauging events, re-baseline of hydraulic conductivity test, and dye test to evaluate permeability of PRB – Oct 2013 – Mar 2014
  - ✓ Complete multi-level sampling of select wells to evaluate preferential flow through the well screens – Dec 2013
  - ✓ Complete re-baseline of PRB groundwater (Q0) – Dec 2013
- **Long-term Performance Monitoring (LTPM) / Long-term Monitoring of Site-wide GW and SW to Evaluate PRB and Establish CEA**
  - ✓ Q1 LTPM/LTM – Mar 2014
  - Q2 LTPM – Jun 2014
  - Q3 LTPM/LTM – Sept 2014
  - Q4 LTPM – Dec 2014

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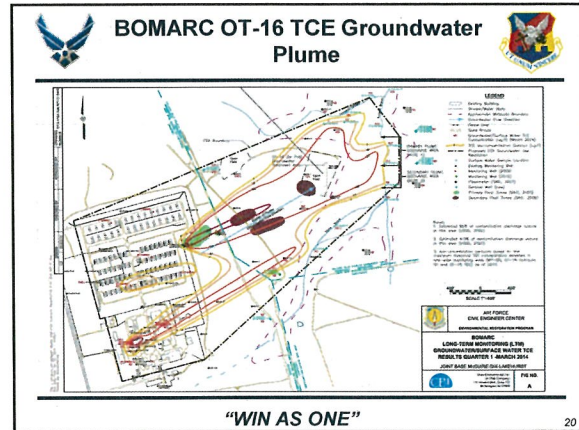
**BOMARC OT-16 TCE Groundwater Plume**

**LTPM Q1 Evaluation (cont.):**

- Change in permeability of aquifer after injection is insignificant based synoptic monitoring, hydraulic conductivity testing, and dye test
- Performance of the PRB is not ideal/not as expected
  - Injection of the PRB has changed the aquifer geochemically
    - Geochemical results are not consistent across the PRB
      - Increase in ferrous iron and pH
      - Decrease in DO and ORP
    - Best indicators are in the northern and central portion of PRB; however, the largest reduction TCE was observed in the southern portion
  - Contaminant reduction not as expected through Q1 (potentials)
    - Significant snow fall and rain between December and March may have affected shallow groundwater
    - Stabilization of the aquifer still occurring
- More LTPM needed to determine trends effectiveness/re-evaluate

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**BOMARC OT-16 TCE Groundwater Plume**

**LTM Evaluation:**

- Sentinel GW monitoring wells were non-detect; except couple OT16-MW14/-MW15 [all contaminants of concern (COCs) are below standards]
- Proposed CEA boundaries are valid as proposed
- Surface Water concentrations in discharge area are consistent (<20 ug/l)

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**BOMARC OT-16 TCE Groundwater Plume**

**LTPM Q1 Evaluation:**

- Geochemical in PRB treatment area (relative to upgradient and downgradient)
  - Increase in pH, ferrous iron
  - Decrease in dissolved oxygen (DO) and Oxidation Reduction Potential (ORP)
- TCE Concentration
  - Northern
    - Shallow: slight increase (84.3 ug/l)
    - Intermediate: relatively unchanged, slight decrease (45 ug/l)
  - Central
    - Shallow: increased (140 ug/l)
    - Intermediate: relatively unchanged, slight increase (88.7 ug/l)
  - Southern
    - Shallow: slight decrease (440 ug/l)
    - Intermediate: relatively unchanged, slight decrease (31.5 ug/l)

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**BOMARC OT-16 TCE Groundwater Plume**

**Focused Feasibility Study:**

- Alternative 1 - No Additional Action
  - Is the current interim remedy ZVI PRB, LTPM/LTM, LUCs
  - Also included in Alternatives 2 - 5
- Alternative 2 - In-situ Thermal Desorption (ISTD), Soil Vapor Extraction
  - Electrical Resistance Heating (ERH) (100 deg C) with vapor extraction and treatment
- Alternative 3 - Thermally Activated In-situ Chemical Oxidation (ISCO)
  - Sodium Persulfate with ERH (40 degC)
- Alternative 4 - Source Area ZVI PRBs
- Alternative 5 - LTM (ST-15)

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 **BOMARC OT-16 TCE Groundwater Plume** 

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**Next Steps:**

- **Pilot Study Performance Objectives (cont.):**
  - Continue LTPM/LTM
- **Reporting**
  - Prepare Remedial Action Report (RAR); establish Land Use Controls (LUCs)
    - Interim Summary Letter Report – Mar 2014
    - Draft RAR – est. Jun 2014
  - Annual GW Assessment Report – Feb 2015
- **Root Cause Analysis of PRB**
  - Soil cores to evaluate ZVI placement/distribution
  - Discrete soil and groundwater sampling to define VOC profile
  - Enhanced geochemical evaluation
  - Hydraulic evaluation for preferential flow regimes


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**Mr. Michael Wierman - Project Manager, CTR, JB MDL**

**Mr. Michael Brewin - Project Manager, Plexus**

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 **BOMARC OT-16 TCE Groundwater Plume** 

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**Next Steps (Cont.):**

- **Interim Record of Decision (ROD)**
- **Final ROD (fence to fence contract)**
  - Group 4 RI Report
  - Pilot Study PRB ZVI Injection
  - BOMARC FFS

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 **Dix Site SS035: Golf Course Pesticide Mixing and Storage Area** 

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**Background Summary:**

- Herbicides and pesticides stored and mixed onsite for application to the golf course up until 1985
- No data had been collected since Remedial Investigation (RI) in 1996
- Contaminants of concern (COCs) were dieldrin, heptachlor epoxide, and arsenic
- 2002 Decision Document (DD) selected the following remedy: no action with institutional and engineering controls (fenced off)
- Sufficient until Air Force determined to obtain Unlimited Use and Unrestricted Exposure (UU/UE)
- March 2013 Explanation of Significant Difference (ESD) recommended soil removal

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**Questions?**

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 **Dix Site SS035: Golf Course Pesticide Mixing and Storage Area** 

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**Dix Site SS035: Golf Course Pesticide Mixing and Storage Area**

**2013 Remedial Investigation Summary:**

- May 2013 – site monitoring well sampled to reconfirm absence of contaminants (required redevelopment)
- June 2013 – soil samples were collected from surface and subsurface in 25' by 25' grid to re-characterize site contamination
- Of the 20 shallow samples, 13 were above screening levels
- Heptachlor Epoxide exceedances ranged from 0.0378 mg/kg to 0.157 mg/kg
- One Arsenic exceedance of 26.2 mg/kg
- All of the deeper samples were clean

**Conclusion:** excavation required

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**Dix Site SS035: Golf Course Pesticide Mixing and Storage Area**

**2013 Remedial Action Summary:**

- July 2013 - Trees and fencing removed
- August 2013 – Initial excavation of 232.49 tons
- All contaminated grid sections excavated to 8 inches below ground surface (bgs)
- Upon excavation, each grid section and sidewall sampled for confirmation
- September 2013 – follow-up excavation of 85.97 tons, including new cumulative depths of 16 inches and two new grid spaces
- No follow-up confirmation samples exceeded screening criteria
- Site restored with clean backfill, top soil, tree/shrub replacement (arborvitae/rhododendron), mulch, and sod

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**Dix Site SS035: Golf Course Pesticide Mixing and Storage Area – Sampling Exceedences Map**

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**Dix Site SS035: Golf Course Pesticide Mixing and Storage Area – Present Site Conditions**

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**Dix Site SS035: Golf Course Pesticide Mixing and Storage Area - Tree Removal Photograph**

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**Dix Site SS035: Golf Course Pesticide Mixing and Storage Area**

**Site Closure Schedule:**

- Remedial Action Completion Report (RACR) submitted to NJDEP on March 31, 2014
- NJDEP concurred that all remedial activities for the site were complete and that JB MDL could move forward with site closure activities
- Single monitoring well, GTG-01, was abandoned on May 12, 2014
- Site approved for No Further Action - Unlimited Use/Unrestricted Exposure (NFA - UU/UE) Status

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**Dix Site TU019A: Taxi Stand Site**

**Background Summary:**

- Formerly a taxi stand pick-up area during World War II, but is now a warehouse and freight-storage area
- Four underground storage tanks (USTs) were removed in 1993
- A petroleum plume, including benzene, toluene, ethylbenzene, and total xylenes (BTEX) was delineated
- Fall 2010: BTEX of 37,940 µg/L in the source area
- Most recently, the BTEX plume was delineated vertically and horizontally in May 2012 using membrane interface probe (MIP) technology and soil sampling
- In Situ Chemical Oxidation (ISCO) technology chosen as remedial approach


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**Dix Site TU019A: Taxi Stand Site Injection Point Locations**



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**Dix Site TU019A: Taxi Stand Site Plume Map**



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**Dix Site TU019A: Taxi Stand Site**

**Remedial Action Schedule:**

- Draft Remedial Action Work Plan (RAWP) submitted to NJDEP on January 17, 2014
- NJDEP approved the RAWP and provided a permit-by-rule for the injection event on March 26, 2014
- Injection event and VI assessment were conducted the week of May 19, 2014
- Bi-weekly collection of groundwater parameters at (5) monitoring wells surrounding injection area for three months
- Monthly groundwater sampling at same (5) monitoring wells for three months
- Draft Remedial Action Completion Report (RACR) scheduled for submittal in September 2014

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**Dix Site TU019A: Taxi Stand Site**

**ISCO Injection Approach Summary:**

- ISCO application planned for up to 60 injection points across the source area - approximately 130 ft by 70 ft
- Injection points locations are based on the results of the MIP investigation
- PersulfOx solution will be injected at a flow rate of 4-6 gallons per minute (gpm) with up to 40 pounds per square inch (psi) of pressure
- Surrounding monitoring wells will be monitored prior to, during, and after injection for groundwater quality parameters
- Performance monitoring sampling will be conducted on a monthly basis for three months, and quarterly thereafter for BTEX, MTBE, and sulfate
- A vapor intrusion (VI) assessment will also be conducted at Building 3137 (currently a warehouse) because the edge of the benzene plume is within 30 feet of the building

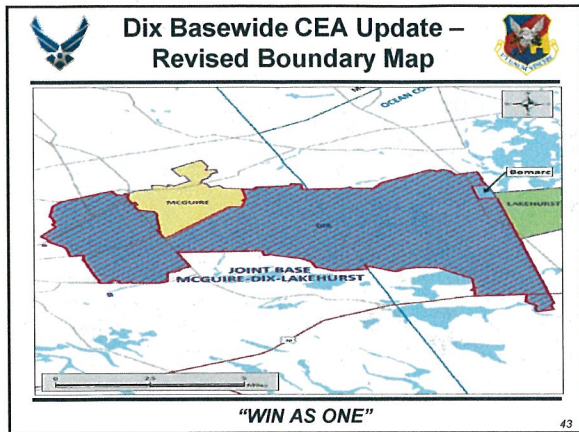
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**Dix Basewide Classification Exception Area Update**

**Purpose Statement:** To revise the groundwater Classification Exception Area (CEA) and Well Restriction Area (WRA) for the Dix Area of JB MDL as one, comprehensive area that encompasses all smaller sites with groundwater contamination, to provide for flexibility in future site inclusions and to reduce administrative requirements.

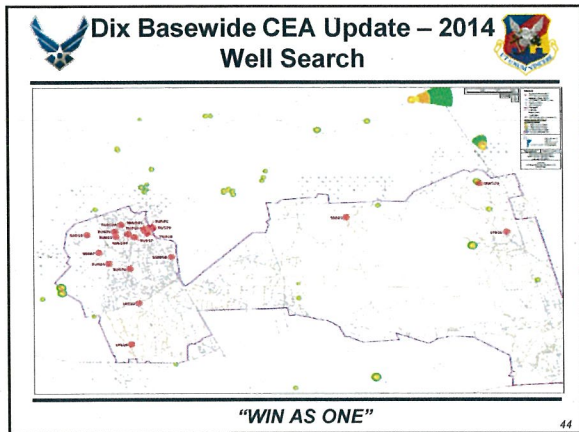
- Effective starting April 3, 2014
- The CEA/WRA is based upon site-specific modeling and is calculated to expire on December 31, 2076
- Requires biennial updating

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**87th Air Base Wing**

**Questions?**



**August RAB Agenda Ideas**

- Tentative RAB date: 7 August 2014
- Suggested agenda topics

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**Dix Basewide CEA Update – Upcoming Schedule**

**One All-inclusive Work Plan:**

- Would cover all Dix Area sites in monitored natural attenuation (MNA) or in the long-term management (LTM) phase
- Covers groundwater, surface water, and soil contaminations
- Includes direction on monitoring, sampling, inspecting, maintaining, and reporting on sites
- The Work Plan was submitted to the NJDEP for review/comment in May 2014. Anticipated approval date is Summer 2014
- Will be updated biennially

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**PUBLIC COMMENTS**

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