

Joint Base McGuire-Dix-Lakehurst (JB MDL)  
Restoration Advisory Board (RAB) Draft Meeting Minutes  
Meeting No. 48 – 13 November 2014

SUBJECT: Restoration Advisory Board (RAB) Meeting No. 48 – Meeting Minutes

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

2) Date/Time: Thursday, 13 November 2014; 6:30 PM

3) Co-Chairs: Lt Col Ivory Carter, Deputy MSG Commander, JB MDL  
Mr. Michael Tamn, Resident, Pemberton Township, New Jersey

4) Attendees:

Ms. Carla Struble	US Environmental Protection Agency, Region II
Mr. Doug Pocze	US Environmental Protection Agency, Region II
Mr. Haiyesh Shah	NJDEP
Mr. Joseph Marchesani	NJDEP
Ms. Lisa MacCarrigan	NJ Pinelands Commission
Ms. Nancy Wittenberg	NJ Pinelands Commission
Mr. Richard Bizub	Pinelands Preservation Alliance
Mr. Chris Archer	JB MDL, 87th CES, Deputy Base Civil Engineer
Mr. Curtis Frye	JB MDL, AFCEC/CZO, Chief, Environmental Restoration Program
Mr. Michael Figura	JB MDL, AFCEC/CZO, Environmental Restoration Program
Ms. Susan Trussell	US Army Corps of Engineers, Tulsa
Mr. King Mak	JB MDL, AFCEC/CZO, Environmental Restoration Program
Mr. Brian Hughes	87th AMDS/SGPB, Bioenvironmental
Mr. Tim Llewellyn	ARCADIS
Mr. Tom Crone	ARCADIS
Ms. Katrina Harris	Bridge Consulting Corporation/ARCADIS
Ms. Stephanie Davis	FPM
Mr. Bruce Danenmus	Local Citizen
Mr. Constantine Tsentas	PARS
Mr. Michael Bolen	Leidos

5) Handouts:

- JB MDL Restoration Advisory Board, Meeting No. 47, 18 September 2014, Draft Meeting Minutes.
- JB MDL Restoration Advisory Board, Meeting No. 48, 13 November 2014, Agenda.
- JB MDL Restoration Advisory Board, Meeting No. 48, 13 November 2014, Presentation Slides.
- JB MDL Restoration Advisory Board Member Information Handout, List of Documents Provided to Mr. Tamn as of 13 November 2014.

6) Call to Order:

The meeting was called to order by Mr. Curtis Frye, Chief, Joint Base McGuire-Dix-Lakehurst Environmental Restoration Program. Lt Col Ivory Carter, the JB MDL RAB Co-Chair, welcomed everyone to the meeting. Mr. Frye reminded the Board the meeting was being recorded and introduced Ms. Katrina Harris, the new meeting recorder working under the ARCADIS contract.

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

Mr. Tamn, RAB Co-Chair, asked for a motion to approve the draft minutes from the 18 September 2014 RAB meeting. There was a motion made to approve the minutes which was seconded and unanimously approved.

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

Mr. Frye addressed the first action item from the September 2014 meeting where Mr. Tamn had inquired about a plane crash along Texas Avenue in 1975. Mr. Frye stated Mr. King Mak had distributed a handout he had compiled based on his research. He noted the article referred to a crash that occurred in 1980. He referenced another handout compiled by Mr. Michael Figura titled "Interviews Concerning Potential Munitions Dropped Off-Base" which documents interviews with the Navy Lakehurst Historical Society and the Civil Air Patrol concerning potential historical munitions dropped off-base. Mr. Frye suggested Mr. Tamn review the information and determine if it addresses his question.

Mr. Frye next addressed the second action item where Ms. Lettman had inquired about monitoring well LTM-40, which is associated with Dix site LF010, Sanitary Landfill, and near the base property line bordering the Pemberton Municipal Facility. He stated a package of information was e-mailed to Ms. Lettman and a copy had been provided that evening to Mr. Tamn.

Mr. Frye briefly reviewed the history of well LTM-40, noting it had been installed in 2009 to evaluate the manganese issue as part of the process of de-listing the site from the National Priorities List. He noted JB MDL - Dix had been working with EPA and NJDEP to find locations for sentinel wells downgradient of the site, and while this well was installed and evaluated as a potential sentinel well, it was decided this well was not needed as part of the long-term monitoring network. Mr. Frye said 8 or 9 wells upgradient of LTM-40 are being monitored.

Mr. Richard Bizub asked if the intention is to maintain and not abandon the well. Mr. Frye said there are no current plans to abandon the well; however, every other year all wells are surveyed and repaired as needed so if repairs are needed at this well they would be performed. Mr. Frye said it was also possible future plans might include abandoning this well.

Mr. Frye stated he would be interested in knowing whether Ms. Lettman had a reason for wanting to keep this well active. Mr. Bizub said he believed Ms. Lettman's concern was the exceedance of a sodium standard, and knowing the municipal building nearby had salt piles, and she was wondering whether that was the source. Mr. Frye said he would look at the data more closely. Mr.

Frye advised that the well is upgradient of the municipal building based on previously recorded groundwater flow direction. Mr. Haiyesh Shah explained that sodium is an essential nutrient and not a compound included for this type of landfill compliance monitoring; therefore, there is no standard for sodium. Mr. Shah continued explaining that a reason for not abandoning this well is that upgradient wells are being used at sentinel wells where no contaminants in excess of the standards have been detected; however, if in the future contamination exceeding the standards was detected, LTM-40 could be used as a sentinel well. Mr. Tamn asked if contamination had ever been detected in LTM-40, and Mr. Frye responded contamination had not been detected.

9) Joint Base McGuire-Dix-Lakehurst Fence Performance Based Remediation Contract (PBR)/Introduction to ARCADIS:

Mr. Frye stated he had been discussing over the past year the PBR contract solicited through the Tulsa Corps of Engineers. He said since the last RAB meeting Tulsa had awarded the contract and the new contractor, ARCADIS, would be introducing themselves and presenting their plans to the RAB this evening. Mr. Frye introduced Mr. Tim Llewellyn, Project Manager for ARCADIS; Mr. Tom Crone, Deputy Project Manager for ARCADIS; and Ms. Susan Trussell, Tulsa Corps of Engineers.

Mr. Llewellyn began his presentation by stating how pleased ARCADIS is to be working on this contract. He noted ARCADIS had worked on its proposal for about a year, and as a result, feels they have a good handle on the sites and can hit the ground running.

Mr. Llewellyn gave an introduction to ARCADIS and the ARCADIS team. Key points included:

- The ARCADIS Team includes three companies with ARCADIS as the prime contractor, Leidos (represented by Mr. Mike Bolen), and FPM, a small business (represented by Ms. Stephanie Davis).
- ARCADIS is a global consulting company, publicly-traded, headquartered in Amsterdam, with major U.S. operations headquartered in Denver, Colorado. ARCADIS has 28,000 employees worldwide with 6,800 in the U.S. Annual revenue last year was \$3.2 billion. ARCADIS began U.S. operations in 1990s with the purchase of Geraghty and Miller; later acquisitions included BB&L and Malcolm Pirnie.
- ARCADIS has been involved with performance-based contracts since the 1990s with total active performance-based contracts amounting to \$890 million, with 13 Department of Defense performance-based contracts totaling \$450 million. One very successful performance-based project has been Reese Air Force Base; Mr. Llewellyn showed a brief video highlighting the successful cleanup of groundwater at Reese Air Force Base. Mr. Llewellyn advised several of the ARCADIS staff involved with the Reese project are from the Newtown, Pennsylvania office and will be involved with the work at JB MDL.
- ARCADIS has been active in New Jersey for more than 50 years, including work on a

PBR contract at Picatinny Arsenal since 2006.

- ARCADIS' project execution plan and planned project management includes an assigned project management team and a technical specialist team.
- ARCADIS 10-year PBR includes 104 sites across JB MDL, with Military Munitions Response Program sites being excluded. Request for Proposals required achievement of Minimum Performance Objectives and encouraged bidders to propose Stretch Goals to exceed the minimum objectives.
- ARCADIS' approach to evaluating and developing Stretch Goals was to ensure human health and the environment are protected, to evaluate the potential for the long-term costs to the government to be reduced, to determine if there is justification for remediation to residential standards versus industrial standards, and to conduct a cost-benefit analysis.
- ARCADIS' analysis resulted in 58 sites selected for Site Closeout (complete cleanup to residential standards), 32 sites selected for Response Complete (some restrictions on future land use), 13 sites that will not be taken to Site Closeout during the contract period and will require an Optimized Exit Strategy (a roadmap for the government to get the site to closure after the end of the contract), and 1 site (Dix EPIC-8 Landfill) that will have long-term management only.
- Mr. Shah asked Mr. Llewellyn to discuss the mechanism for land use restrictions. Mr. Llewellyn responded that the government's General Plan and land use control plan would restrict how the land could be used under any future development plans. Mr. Shah added that any proposed change to the future land use would need approval from NJDEP and EPA.
- Mr. Llewellyn reviewed the sites included in the PBR contract and the transition plan, starting with the sites at McGuire. There are 34 Comprehensive Environmental Restoration, Compensation and Liability Act (CERCLA) National Priorities List (NPL) sites included in the PBR with EPA being the lead regulator. These sites include groundwater plumes, landfills, and former fire training areas. There are 3 CERCLA non-NPL sites (BOMARC sites) with NJDEP as the lead regulator. There are 25 petroleum sites with NJDEP as the lead regulator. ARCADIS will be transitioning the sites over from the current contractors according to a timetable displayed by Mr. Llewellyn.
- Mr. Llewellyn gave an example of ARCADIS' approach by discussing Site SS-36 (OU-2) at McGuire. He emphasized the proposed approaches have not been discussed yet with the regulators nor the public, so there is no final decision nor will there be until everyone has reviewed. Former repair operations at Site SS-36 have impacted the groundwater, primarily with trichloroethene (TCE). Dense Non-Aqueous Phase Liquid (DNAPL) has been observed, and the groundwater dissolved phase plume is about 1,500 feet in length. The Air Force's minimum performance objective was to have a remedy in place within six years of contract award. ARCADIS' Stretch Goal is to have

a remedy in place within five years. ARCADIS will be conducting some additional sampling in the DNAPL area and a pilot test of a multi-phase extraction system. The Air Force required a contingency plan, and for this site, the contingency plan would be triggered in 2021 if the source concentrations have not been reduced 35% and the site is not on track for Site Closeout by 2040. The contingency plan would use in-situ chemical oxidation. Mr. Llewellyn noted a mistake on the chart which shows the remedy starting in 2014; it would not start for about five years.

- Mr. Shah asked if the contingency plan implementation would be automatic or if it would be discussed with the Air Force first. Mr. Llewellyn said the plan is to incorporate the contingency plans into the Records of Decision or Decision Documents and thus pre-negotiated. He reiterated input from the regulators and the public will be sought before any final decisions are made.
- Mr. Llewellyn next reviewed the sites included in the PBR for Dix. There are 9 CERCLA non-NPL sites with NJDEP as the lead regulator, and 11 petroleum sites where NJDEP is also the lead regulator. ARCADIS will be transitioning the sites over from the current contractors according to a timetable displayed by Mr. Llewellyn.
- Mr. Llewellyn used the Former Taxi Stand site as an example of ARCADIS' approach. The site is a former underground storage tank used for refueling during WWII. Tanks and contaminated soil were removed in 1993; a groundwater plume of about 500 feet in length has been impacted with petroleum constituents. The current contractor is implementing an in-situ chemical oxidation remedy. The government anticipated Site Closeout occurring beyond the 10-year contract. ARCADIS' analysis found running an air sparging system for three years followed by several years of natural attenuation will reach Site Closeout by 2023 and proposed the remedy change as a Stretch Goal. The contingency plan, if necessary, would be triggered two years after implementation of the air sparging system, and directed groundwater recirculation would be added to the remedy.
- Mr. Llewellyn next review the sites included in the PBR for Lakehurst and ARCADIS' transition plan. All Lakehurst sites are CERCLA NPL sites with signed Records of Decisions and remedies in place. The remedies have been successful and have shrunk the size and concentrations of the groundwater plumes. Mr. Llewellyn discussed the Stretch Goal for the Area A/B Monitored Natural Attenuation Study which involved turning off the treatment systems for a period of two years to see if monitored natural attenuation would get the site to Site Closeout; the study is in the first year The Air Force anticipated Site Closeout occurring beyond the 10-year contract. ARCADIS' Stretch Goal is to achieve Site Closeout by 2021 and includes two options for achieving that goal.
- ARCADIS has held kick-off meetings with the Air Force and regulators and will be participating in initial technical/partnering meetings for all sites over the next 2-3 months.
- ARCADIS is responsible for supporting the RAB and Katrina Harris will be ARCADIS'

coordinator and another resource for the RAB. Mr. Tamn asked who should be contacted between meetings for questions or actions items. Mr. Frye responded that he and Nicole could still be contacted, as well as Katrina Harris.

- Mr. Doug Pocze asked Mr. Llewellyn if ARCADIS' timelines would be folded into the Site Management Plan to be provided to the regulators toward the end of the month. Mr. Llewellyn said indicated that they would; the information has been provided to the Air Force and will provided to the regulators with submittal of the draft Site management Plan Update in the next few weeks.
- Major Brian Hughes asked how ARCADIS protected human health. Mr. Llewellyn responded that integral to both the EPA and NJDEP processes was determining any immediate dangers to human health and if so, taking immediate actions. Mr. Llewellyn said at JB MDL no immediate danger has been identified as no one is drinking the contaminated water nor is the water surfacing anywhere and causing a health risk. He said another aspect is looking at short-term human health risk when remedies are proposed and implemented to see if there are exposures to workers at JB MDL or workers constructing the remedy which would be addressed in a health and safety plan. Mr. Llewellyn said the endpoint of the remedy is the need to protect human health and the environment.

10) Public Comments:

Mr. Tamn invited public comments and none were offered.

11) Action Items for the next RAB Meeting:

Mr. Tamn asked if there were any suggested topics for next meeting agenda. Mr. Frye stated he would be following up with Mr. Tamn and Ms. Lettman to see if there were any further questions about the two action items discussed earlier and if so, they would be discussed at the next meeting.

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 7:47 PM.
- The next RAB is tentatively scheduled for 12 February 2015.

**87th Air Base Wing**

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**Joint Base McGuire-Dix-Lakehurst  
Restoration Advisory Board  
13 November 2014**

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**87th Air Base Wing**

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**Outstanding Action Items from 18 September 2014 RAB  
Meeting**

**Mr. Curtis Frye, P.E.  
Chief, Environmental Restoration Program  
AFCEC/CZOE**

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**Outstanding Action Items**



- Mr. Tamn had inquired about a plane crash, along Texas avenue in 1975
  - Mr. King Mak has provided a handout with details of an incident fitting that description
- Ms. Lettman inquired about monitoring well LTM-40 at the Dix Sanitary Landfill. Was the well removed and is it still sampled?
  - LTM-40 is still at the Site, however it is no longer sampled. Ms. Brestle provided Ms. Lettman with the sampling rationale via email on November 3, 2014

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**Questions?**

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**87th Air Base Wing**

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**PBR Contract Overview and Introductory Presentation  
to the Restoration Advisory Board  
Mr. Tim Llewellyn  
Project Manager, ARCADIS**

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**ARCADIS TEAM**




- Who is ARCADIS and the ARCADIS Team?
- What is ARCADIS' experience with DoD Installations and PBR contracts?
- What is included in the PBR and what approach will the ARCADIS Team be taking to perform the work?

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## ARCADIS TEAM




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- Introduction to the Arcadis Team
  - Arcadis global
  - Arcadis US and PBR experience
  - Arcadis in New Jersey
- Overview of the PBR contract
  - How it works
  - Scope of the contract
  - End point objectives
- Planned Activities at JB MDL
  - Transition plan and example sites
- Open discussion/requested topics

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## THE ARCADIS TEAM

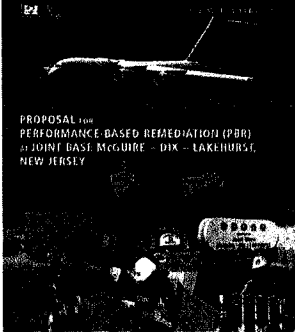
- Prime contractor with 30 years of PBR experience with total contract value of \$90M
- 53 year history of environmental work in New Jersey
- Responsible for overall contract execution and management providing key personnel, technical advisors, and key technical disciplines to the in-house staff






- Established from SARG in September 2013 employing almost 2,000 of the nation's leading assemble, technicians, and world-renowned business owner experts. Located in multiple offices in Princeton, NJ
- Responsible for site closures at several sites and brings 10 years of JB MDL experience to the team

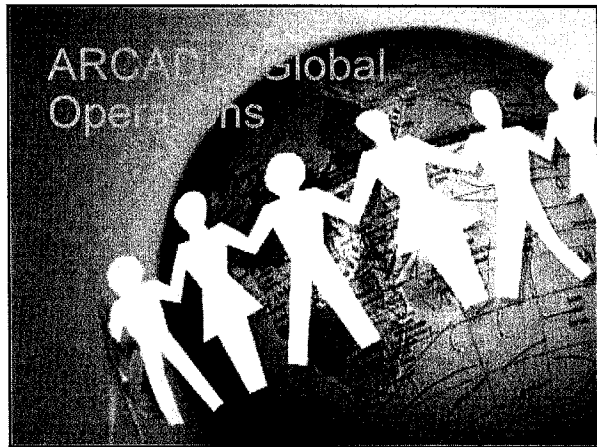



- Experienced AFCEC 5B HDB Zone contractor with 55 staff, specific air force experience and history in the Region 2 and 4 year history of partnering with AFCEC
- Responsible for facility closures at 0123 and required to provide support to the entire project team




PROPOSAL FOR  
PERFORMANCE-BASED REMEDIATION (PBR)  
AT JOINT BASE MCCUIRE - DIX - LAKEHURST,  
NEW JERSEY






## Who is ARCADIS?



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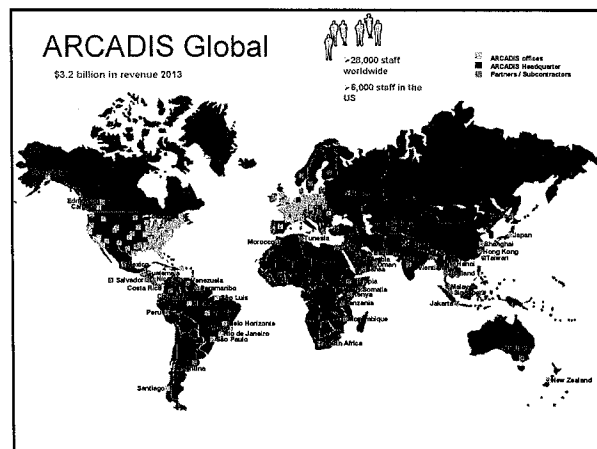
- ARCADIS is an international company providing consulting services:
  - Environment (33%)
  - Infrastructure (24%)
  - Water (15%)
  - Buildings (28%)
- Publicly-traded company
- Headquartered in Amsterdam
- Major US Operations



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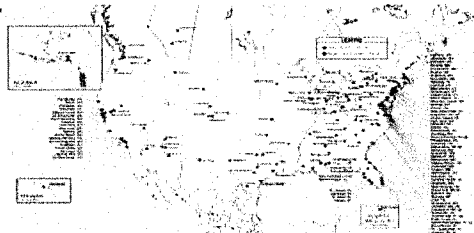
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## ARCADIS North American Operations



- 6,000 employees with more than \$1.2 Billion in annual revenue
- Headquartered in Denver CO
- Environmental, Infrastructure, Water, Buildings
- Engineering News Record (ENR) rated #2 Hazardous Waste Firm in the US

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## US Environmental Division

- US Operations initiated in 1990's from the Geraghty and Miller consultancy (1993)
- Additional major former environmental firms:
  - BB&L added (2005)
  - Malcolm Pirnie (2009)

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## ARCADIS AND PBRs

- Performing Performance Based work since the 1990's
- Total active contracts \$890M
  - 13 DoD PBRs (\$450M)
- Air Force PBRs
 

▪ Reese AFB TX	\$ 43M
▪ Tyndall AFB FL	\$ 32M
▪ Moody AFB GA	\$ 18M
▪ Vandenberg AFB CA	\$125M
▪ JB MDL	\$ 82M

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## Reese AFB Video

- [Reese AFB Video](#)

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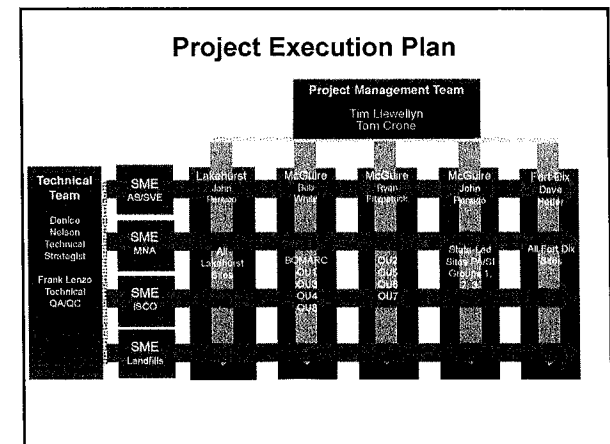
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## ARCADIS IN NJ

- Over 50 years of presence in New Jersey
  - Established NJ operations since 1957
  - Conducted thousands of projects in New Jersey
- Over 350 professional staff locally
  - Cranbury NJ
  - Edison NJ
  - Fair Field NJ
  - Newtown PA
  - Baltimore MD
- ARCADIS Team on JB MDL
  - Picatinny Arsenal PBR since 2006
  - JB MDL through Leidos since 2003

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## PBR Contract Overview

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## Big Picture



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- 104 sites across JB MDL
  - MMRP sites are excluded
- 10 year period of performance
- Contract is with Army Corps of Engineers, Tulsa
- Air Force required achievement of Minimum Performance Objectives
- Air Force encouraged bidders to propose site-by-site stretch goals to close sites within the contract period

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## Evaluating/Developing Stretch Goals



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- Human health and the environment must be protected
- Would capital expenditures remediating to clean closure now save long term costs to the Government in the future?
- Based on the future planned land-use is the cost of remediation to residential standards justified?
  - Runway areas
  - Industrial use areas
- What is the most effective technology for clean up including a cost-benefit analysis?

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## Overall Approach



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- Business case/technical analysis used to select Proposed Performance Objectives
  - 58 sites selected for Site Closeout (SC)
  - 32 sites selected for Response Complete (RC)
  - 13 sites go to SC after the contract period and require Optimized Exit Strategy (OES) plan
  - 1 site with goal of LTM only (EPIC-8 Landfill at JB MDL - Dix)

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## Key Terms



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- Site Closeout (SC): Response actions have been complete to allow for unrestricted use and unlimited exposure, with approval by both Air Force and lead regulatory agency. No additional funds will be expended, all infrastructure removed
- Response Complete (RC): Air Force has determined that the Remedial Action Objectives have been met, documented the determination, and sought regulatory agreement. Future use may still be restricted in some way
  - Restricted use to industrial (industrial soil standards used and residential use not permitted)
  - Former landfills with large volumes of waste-in-place

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## Key Terms



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- Remedy in Place (RIP): Air Force approval that the remedial system has been constructed, is functional and operating as planned in the remedial design, and would be expected to meet the remedial action objectives detailed in the decision document (or equivalent)
- Optimized Exit Strategy (OES) Plan: Provides a road map to achieve Site Closeout for sites not achieving SC in the contract period of 10 years.
  - Applies to landfill sites
  - Complex groundwater sites

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## PBR Sites and Example Approaches

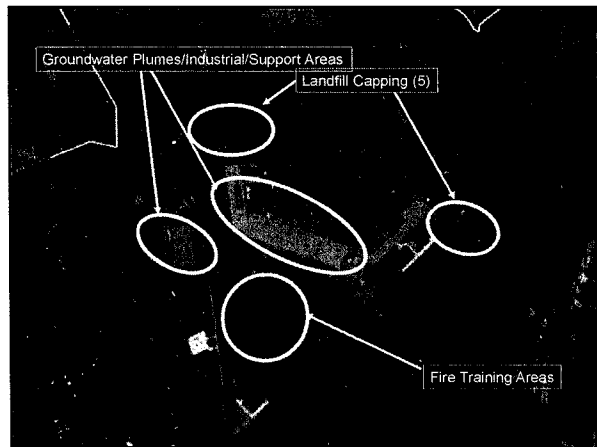
### JB MDL - McGuire






## JB MDL - McGuire PBR Sites

- 34 CERCLA NPL Sites (EPA lead regulator)
  - Groundwater plumes
  - Landfills
  - Former Fire Training Areas
- 3 CERCLA non-NPL Sites at BOMARC (NJDEP lead regulator)
  - Groundwater plumes
- 25 Petroleum sites (NJDEP lead regulator)
  - Oil water separators
  - Former underground storage tanks

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## TRANSITION PLANNING JB MDL - McGUIRE

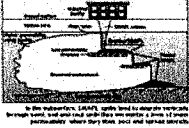
JB MDL - McGuire	Status	Previous Contractor	Transition Plan	First Arcadis Action	Comments
<b>NPL Sites (EPA Led)</b>					
OU-1, 2, 3, 4, 5 (20 sites)	Draft FS	CB&I	Contract complete except OU-3	Draft Final FS	CB&I will complete the OU-3 FS
OU-6, 7, 8 (15 sites)	Draft RI Report	Leidos	None, contract complete	Draft Final RI	Leidos on Arcadis team
<b>Petroleum Sites (State Led)</b>					
PA/SI sites (6 sites)	New sites	None	None	SI Workplan (WP)	Oil Water Separators
Group 1 (9 sites)	Draft Final RI	TetraTech (TT)	Yes, TT will complete the Final RI	Remedial Action WP	Former UST sites
Group 2 (4 sites)	Final RI	JRS	None, contract complete	Remedial Action WP	Former UST sites
Group 3 (6 Sites)	Under MNA	Plexus/PARs	Plexus/PARs will complete sampling through Spring 2015	Fall 2015 sampling and reporting	Former UST sites at Falcon Court
<b>Non NPL Sites (State Led)</b>					
BOMARC (3 sites)	Draft FS/Pilot Test for PRB	CB&I	Yes, CB&I to complete pilot test report (summer 2015)	Re-assess FS alternatives	May develop alternative remedy (negotiating with NJDEP)

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## JB MDL - McGUIRE Example: Site SS-36 (OU-2)

- Former structural repair operations areas handling substantial quantities of solvents, oils, etc.
- Underground waste water structures (removed) are the apparent source of solvent contamination in GW
- Groundwater impacted with solvents (primarily TCE) at concentrations up to 223,000 ppb (standard for TCE is 1 ppb)
- Dense Non Aqueous Phase Liquid (DNAPL) has been observed
- Groundwater plume is approximately 1,500 feet in length



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## SS-36 (OU-2) PLUME MAP

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### Site SS-36 (OU2) SELECTION OF STRETCH GOAL


- Minimum Performance Objective requested by the Air Force was Remedy in Place (RIP) within 6 years of contract award
- Due to the presence of the DNAPL a long duration to meet standards (Response Complete/Site Closeout) is expected
- Business case analysis considered cost and technology limitations of remediating the DNAPL and plume aggressively to accelerate Site Closeout
- The cost, and ability, of a technology to accelerate this site to meet standards in the contract period was several orders of magnitude greater than achieving Remedy in Place and may not be technically viable
- However, a stretch goal of achieving Remedy in Place in 5 years was proposed and is now the contract objective

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### SS036 (2300 and 3200 Bldgs) REMEDIAL APPROACH

- Conduct additional delineation work in the source area (DNAPL)
- Pilot test to demonstrate the effectiveness of Multi-Phase Extraction (MPE)
- Finalize the CERCLA documents proposing/selecting MPE to address the DNAPL area, and AS/SVE and MNA to address the dissolved phase plume
- Site Closeout anticipated by 2040



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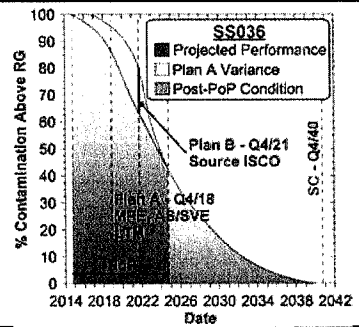
### SS-36 (OU-2) CONTINGENCY PLAN

- Air Force required a "Plan B" to be proposed should "Plan A" fail
- The Record of Decision would include a contingent remedy and the OES plan a Performance Model and trigger point for "Plan B"
- Plan B triggered in 2021 if source concentrations have not been reduced 35% and are not on track for Site Closeout by 2040 (based on performance model)
- Plan B would use In Situ Chemical Oxidation (ISCO) to address groundwater where concentrations are not trending in accordance with the performance model

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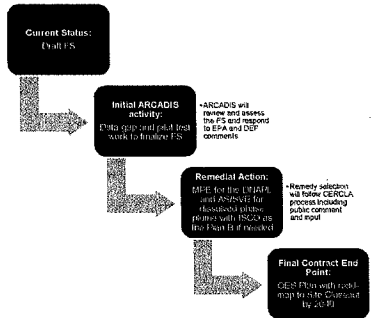
### SS-36 (OU-2) Example Performance Model



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### SS-36 (OU-2) Anticipated Actions



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## PBR Sites and Example Approaches

### JB MDL - DIX

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## JB MDL - Dix PBR Sites

- 9 CERCLA Non-NPL Sites (NJDEP is lead regulator)
  - Groundwater plumes
  - Landfills
- 10 Petroleum sites (NJDEP is lead regulator)
  - Oil water separators
  - Former underground storage tanks

**"WIN AS ONE"**

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## TRANSITION PLANNING JB MDL - DIX CERCLA, NON-NPL

JB MDL - Dlx	Current Remedy/Status	Previous Contractor	Transition Plan	First Annual Action	Comments
NW024 (2000 Area - Former Kennedy Court Housing)	Final RI Report	C&I	None, previous contract complete	Develop and submit FS	Plan to removal of pesticide contaminated soils
TU578 (POL Site) TU579 (Pesticide Site)	Final RI and soils removal action complete	PAIS	None, Final RI/RA Report complete	Submit Remedial Action WP	Anticipate MMA for groundwater and NFA for soils
131624 (Mills (Mobile Landscaping Dump Site))	Final RI	BGL	None, RI/RA to complete Final RI Report	Work with HSDOP to develop RI/RA	Anticipate LU/CA or NFA
LF010 (Sanitary landfill) LF017 (EPIC 8 Landfill)	Post ROD - LTM	Pecon (Regional LTM Group)	Plans to complete 2014 LTM and annual report	2015 LTM and reporting	Continued LTM. Solar farm planned for LF010
LF033 (POC Landfill II) SW01 (BARC)	Post ROD - Semi-annual monitoring	CA	New bridge contract will conduct monitoring through Spring 2015	Full 2015 monitoring and reporting	Continued monitoring
SW07 (MAG 1 Site)	Post ROD - Semi-annual monitoring and O&M	C&I	C&I will operate remedial systems through September 2015	Operate systems starting October 2015. Work with C&I prior to end of their contract	Continued remedial operation
NW041 (Bld 5335) TU024 (Bld 6109)	NONA - Semi-annual monitoring	CA	New bridge contract will conduct monitoring through Spring 2015	Full 2015 monitoring and reporting	Continued monitoring

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## TRANSITION PLANNING JB MDL-DIX PETROLEUM SITES

JB MDL - Dlx	Current Remedy/Status	Previous Contractor	Transition Plan	First Annual Action	Comments
DW576 (Bld 5435 UST)	New LRS	None	None	SI Workplan (NFA)	Former UST site
TU013 (Off-Course UST) TU068 (Bld 5300) TU068 (Bld 5348) TU070 (Bld 6045)	Sites are in the monitoring phase	Pecon	Plans: Complete 2014 LTM and annual report at TU013/TU068/TU068/TU070	Continued monitoring starting Spring 2015	Continued monitoring/possible additional remedial action at TU013
NW034 (Bld 5136)	Final RI Report	C&I	None	Remedial Action WP	Remedy required at this site for groundwater and soil
TU016a (Former Stand), NW044 (Bld 5136)	In remedial action phase	Pecon	Pecon will complete report on recent ISCO injection	RAWP	Revised remedy (A2/SVT over ISCO)

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## JB MDL - DIX TU019a FORMER TAXI STAND

- Former UST site used for taxi refueling during WWII
- Tanks and contaminated soils removed in 1993
- Groundwater remains impacted with petroleum constituents—primarily benzene, toluene, xylenes
- Benzene concentrations at approximately 3,000 ppb relative to a standard of 1 ppb
- Groundwater plume is approximately 500 feet in length
- Current remedy is In-Situ Chemical Oxidation (ISCO)

**"WIN AS ONE"**

## TU019a FORMER TAXI STAND PLUME MAP

**"WIN AS ONE"**

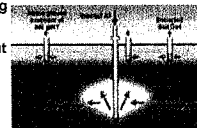
### TU019a FORMER TAXI STAND SELECTION OF STRETCH GOAL

- Minimum Performance Objective required by the Air Force was development of an OES plan with Site Closeout expected beyond the 10 year period of performance
- Without further treatment of groundwater and source area concentrations would not reach standards under natural attenuation for 20 to 30 years
- Residual petroleum contamination in soils at the water table interface may be acting as a continuing source and limiting the effectiveness of ISCO

**"WIN AS ONE"**

### TU019a FORMER TAXI STAND SELECTION OF STRETCH GOAL

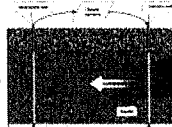
- Business case analysis considered cost of monitoring and LUCs for the 20 to 30 year MNA duration relative to cost of active remediation
- Running an AS/SVE system for 3 years followed by several years of natural attenuation is anticipated to be more effective than ISCO and will drive plume to Site Closeout by 2023
- Costs for AS/SVE remedy and Site Closeout by 2023 are substantially cheaper than the costs for protracted monitoring
- Arcadis proposed a stretch goal of Site Closeout the contract period, which is now the contract required Performance Objective



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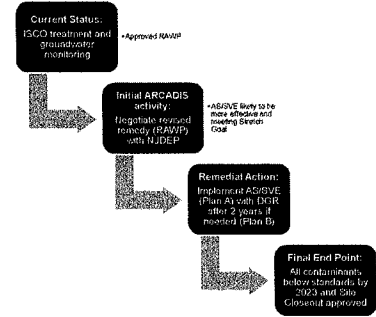
### TU019a FORMER TAXI STAND CONTINGENCY PLAN

- Air Force required a "Plan B" to be proposed should "Plan A" fail
- The Remedial Action Workplan (RAWP) would include a Performance Model and trigger point for "Plan B"
- Plan B triggered 2 years after implementation of the AS/SVE remedy if concentrations are not on track for Site Closeout by 2023 (based on the performance model)
- Directed Groundwater Recirculation (DGR) would be added to the remedy to accelerate clean water flushing of the plume



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### TU019a FORMER TAXI STAND Anticipated Actions



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## PBR Sites and Example Approaches

### JB MDL - LAKEHURST

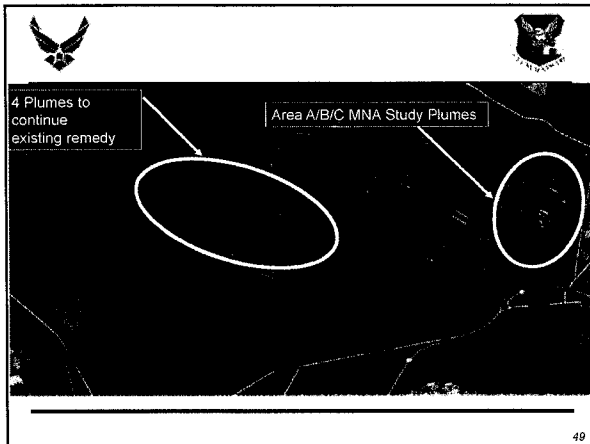
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### PBR SITES AND TRANSITION PLANNING AT JB MDL-LAKEHURST

JB MDL - Lakehurst	Current Remedy/Status	Previous Contractor	Transition Plan	First Arcadis Action	Comments
D008 (Area E Arresting End of Test Track 2)	MNA with spray prevention (soils)	EA and PARS	EA Sampling and reporting through Spring 2015. PARS System operation through April 2015	July 2015 sampling and OES Plan	OES plan will lay out a plan to achieve Site Closeout (beyond contract period)
L701 (Area D Former Sanitary Landfill)	MNA with spray prevention (soils)	EA and PARS	EA Sampling and reporting through Spring 2015. PARS System operation through April 2015	Fall 2015 sampling and OES Plan	OES plan will lay out a plan to achieve Site Closeout (beyond contract period)
DW08 (Area G1 Grapple Test Facility)	MNA	EA	EA Sampling through Spring 2015 and MNA assessment report	July 2015 sampling and OES Plan	OES plan will lay out a plan to achieve Site Closeout (beyond contract period)
D002 (Area H Launch End of Test Track)	NAPL recovery and MNA	PARS	PARS System operation through April 2015	System Operation beginning May 2015, sampling and OES Plan	OES plan will lay out a plan to achieve Site Closeout (beyond contract period) and assess additional actions for MNA recovery
Area A10 (A site)	Plume stability/MNA study	PARS	PARS Sampling through April 2015	Year 1 Plume Stability/MNA Assessment Report - Summer 2015	Arcadis will conduct Year 2 of the plume stability study and assess remedy modification
Area C (2 sites)	Plume stability/MNA study for uppermost portion of Area C (TSP), full active PACT for AT016	PARS	PARS Sampling and system operation through April 2015	System Operation beginning May 2015, sampling and OES Plan. Year 1 Plume Stability/MNA Assessment Report - Summer 2015	Arcadis will conduct Year 2 of the plume stability study and assess remedy modification. Will discuss with EPA/DEP if the system at AT016 can be shut off as part of the Year 2 study.

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### JB MDL - LAKEHURST AREA A/B MNA STUDY

- Solvent plumes at four sites within Area A/B at Lakehurst have been under remediation since the 1990's (groundwater extraction and re-injection with AS/SVE systems)
- Plumes have declined in concentration and size with maximum detections now at 48 ppb TCE (standard is 1 ppb). Mass recovery from the remediation systems has been very low in recent years
- Systems shut down and MNA/Plume Stability Study in progress to assess if further active remediation is required (with modified systems) or if treatment conducted to date is sufficient to allow MNA to achieve Site Closeout within a reasonable period

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### AREA A/B SELECTION OF STRETCH GOAL

- Minimum Performance Objective requested by the Air Force was Development of an OES plan with Site Closeout expected beyond the 10 year period of performance
- Business case analysis considered long term monitoring costs relative to the short term cost of remediating these relatively small plumes to standards within the contract period (Site Closeout)
- The cost to achieve Site Closeout by 2021 is less than the cost for long term monitoring costs beyond the contract period
- A stretch goal of Site Closeout within the contract was proposed and is now the contract required Performance Objective (RC proposed at two former landfill sites where the waste remaining in-place precludes Site Closeout. Not economically viable to remove the former landfills)

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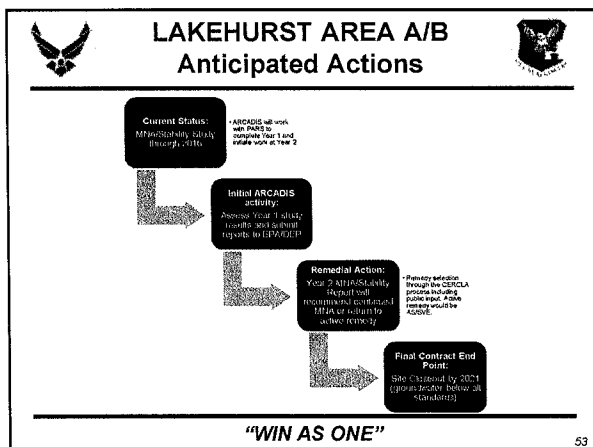
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### AREA A/B CONTRACT STRUCTURE

- Air Force required two optional paths to be proposed
- Option 1: The plume stability/MNA study concludes MNA will meet the contract objectives (Site Closeout)
- Option 2: The study indicates active remediation is required to meet the contract objectives (plumes are not stable and/or MNA will not achieve goals in a reasonable time)
- Under option 1 MNA will be used to achieve SC by 2021
- Under option 2 focused AS/SVE will be used to achieve SC by 2021

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### OVERALL PATH FORWARD

- Kick off meetings with Air Force, EPA, and DEP conducted
- Partnering meetings with EPA and DEP scheduled to start working through status and approaches site-by-site to achieve the contract objectives
  - 58 sites for Site Closeout (SC)
  - 32 sites Response Complete (RC)
  - 13 sites go to SC after the contract period and require Optimized Exit Strategy (OES) plan
  - 1 site LTM only (EPIC-8 Landfill at Dix)

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**RAB Logistics**

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**RAB Logistics**



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- ARCADIS responsible for supporting the RAB
- Katrina Harris is Arcadis RAB meeting recorder and coordinator
- Resource for you regarding questions, meeting dates/formats, and other materials
- Requests for future RAB topics of interest

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**Questions?**

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**November RAB Agenda Ideas**

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- Tentative RAB date: 12 February 2015
- Suggested agenda topics

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**PUBLIC COMMENTS**

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