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MINUTES FOR RESTORATION ADVISORY BOARD MEETING HELD 16 JUNE 2010 NAS JRB WILLOW GROVE PA
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August 2, 2010

Project Number 02014

Reference: Contract No. N62470-08-D-1001 (CLEAN)
Contract Task Order (CTO) No. WE05

Subject: Distribution of RAB Meeting Minutes, June 16, 2010
NAS JRB Willow Grove, Pennsylvania

Dear Restoration Advisory Board (RAB) Member:

At the request of Jeff Dale of the Navy's Base Realignment and Closure (BRAC), Program Management Office (PMO), Northeast, copies of the RAB meeting minutes for the RAB meeting held on June 16, 2010 are enclosed. Questions should be addressed to Bill Heil, the RAB Coordinator for the Naval Air Station Joint Reserve Base, Willow Grove, at (215) 443-6938.

Sincerely,

Russ Turner

Russell E. Turner, P.E.
Project Manager

RET/pg

Enclosure: RAB Meeting Minutes
Presentation Handouts
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June 16, 2010

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NAVAL AIR STATION JOINT RESERVE BASE (NAS JRB) WILLOW GROVE
Restoration Advisory Board (RAB) Meeting Minutes
RAB Meeting No. 42

Meeting Date: June 16, 2010
Meeting Time: 6:00 p.m.
Meeting Place: Horsham Township Public Library

	Name	Organization
Attendance:	Eric Lindhult (R)	RAB Member
	Liz Gemmill (R)	RAB Member
	Jim Vetrini (R)	RAB Member
	Bruce Amos	Clean Start, LLC
	Bob Lewandowski (R)	Navy, BRAC PMO
	Jeff Dale (R)	Navy, BRAC PMO
	Bill Heil (R)	Navy, Willow Grove
	Marty Schy	Navy, Willow Grove
	Hal Dusen (R)	Navy, Willow Grove
	Charles Clark (R)	PADEP
	Jessica Kasmari (R)	PADEP
	Kevin Kilmartin	Tetra Tech
	Russ Turner	Tetra Tech

(R) Designates RAB Member

Bob Lewandowski opened the meeting, thanking faithful community members for continuing to participate in our Restoration Advisory Board (RAB) meetings.

Mr. Lewandowski mentioned that the Navy is going to provide the main presentations tonight, although the Air Force did send us a presentation handout which will be distributed. This is our 42nd RAB meeting, and we have a full agenda. The Navy will be going over our major sites. The first site we will be looking at, Site 3, we just issued a draft of what we hope will be the complete, final Remedial Investigation (RI) Data report. So we will be giving a real good overview of everything about Site 3 for anyone that needs to be brought up to speed on Site 3.

Mr. Lewandowski introduced Russ Turner to give an update on the Site 3 RI. Referring to a projected slide, Mr. Turner explained that Site 3 - Ninth Street Landfill, is located in the south west area of the Base, alongside of Horsham Road and Dawes Road (also known as Privet Road) in the vicinity of the Federal Aviation Administration (FAA) radar that can be seen from off-Base on Horsham Road. Mr. Turner explained the route of surface water flow from rain falling on Site 3 and areas upgradient is across the site toward the west to exit Navy property into the golf course water hazards network via an NPDES (National Pollution Discharge Elimination System) permitted discharge point, along with storm water collected from the runways. Shallow groundwater beneath Site 3 acts similarly to surface water, flowing in that direction to the northwest. Ninth Street Landfill historical information from records and former employee

interviews, suggests that active landfill operations began in this area in approximately 1960 when the Site 2 landfill shut down. A wide variety of wastes were reported disposed here, including municipal-type wastes like plastic, paper, china plates and cups from the food service, as well as construction debris. Industrial and shop waste, including paint wastes solvents and treatment sludge from the water treatment plant were also reportedly buried here. The typical disposal method reported was burning and burying of the waste. This early information has largely been confirmed by the remedial investigation.

After landfill operations ended in approximately 1967, through the mid '70s or even late '70s, the Base operated a reclamation facility here. Scrap machinery, old PCB-containing transformers, things that were no longer needed for Base operations were placed there before disposal off-Base. To summarize, Site 3 history included landfill operations and scrap materials operations.

What does Site 3 look like now? It is mostly undeveloped forest, trees and scrub type land. There is a picnic pavilion, there's a child playground, a baseball field, and there is a seldom used small facility for rights of passage for the non-commissioned officers on Base. They have a little open-air club there.

Referring to a projected slide listing past investigations, Mr. Turner summarized the numerous steps of the investigation beginning in 1986. The preliminary assessment included a records review, interviews, and included a site walk-through. That first step concluded that, yes there had been a landfill there. The Phase I remedial investigation (RI) included well installation, soil samples, sediment, and surface water samples. The Phase 2 RI was similar, with wells, and additional soil samples.

In 1996, about the time this RAB began, some of you probably were here, the Agency for Toxic Substances and Disease Registry (ATSDR) came to do a preliminary investigation and a preliminary summary report that said there was no immediate exposure. However, that was not the final report. Based on the preliminary report, ATSDR was able to prioritize this base and those risks. ATSDR came back in 2002 and did the public health assessment, which found that although there were exposures and that there were issues on the Base, that the public wasn't exposed to hazardous substances at that time.

> Mr. Lewandowski clarified that the difference between what ATSDR and the environmental remedial teams do, is that instead of being environmental engineers and geologists, ATSDR is staffed by medical professionals and public health specialists. They're looking at the site situation from a different angle than what we're doing.

After the Base was placed on the BRAC (Base Realignment and Closure) list in 2005, the pace of work at Site 3 increased. The Navy was concerned that we were missing something at Site 3, and directed Tetra Tech to perform additional investigations, beginning with a program of test pit excavations, followed by an EM (electromagnetic) survey, more test pits, soil, surface water and sediment sampling, monitoring well installation, and groundwater sampling and analysis. When we finished with the landfill delineation investigation we had sufficient information to calculate human health and ecological risks from the site to prepare the draft RI report that was submitted for regulatory review in May. Mr. Turner continued to present slides to summarize the methods

and results from the remedial investigation, mentioning that many people here are familiar with the "site conceptual model" idea. The purpose of the site conceptual model (SCM) is that we're going to try to depict in a figure what happens at the site. Referring to the projected slide of the SCM, Mr. Turner continued. We know that the runway is east of Site 3. So if we wanted to orient ourselves, the runway is east and the golf course west of Site 3. Surface water generally flows west. Groundwater flows northwest. The SCM helps us to identify where potential receptors might come into contact with potential wastes that have been buried here over the years. According to our SCM, current potential receptors include anyone exposed to the surface of the site, like people playing baseball and families picnicking, so we have to consider those. Also, we have to consider the ecological receptors, the fish and anything else, and we have to consider all downgradient receptors, including potential groundwater exposures.

Mr. Turner mentioned that the Navy wanted to focus particular attention on groundwater, because the groundwater is the one component the Navy doesn't have complete control over since groundwater from beneath Site 3 flows underneath the golf course. Referring to a projected slide of PCE (perchloroethelyene) concentrations for all the wells at Site 3, Mr. Turner added that we have a few that exceed the MCL, the maximum drinking water standard allowable concentration. We have one at 5.7ug/L and another at 10.8 ug/L, while the MCL for PCE in water supplies is 5ug/L. So these concentrations of PCE are moderate but exceed the MCL. The golf course irrigation well, which is off Navy property to the west, is always flowing -- it's a well that's installed in the ground but flows constantly. The golf course irrigation well flows into the water hazards pointed out earlier. The most recent PCE analysis of the golf course irrigation well was 4.4 ug/L. Historically that well has been in that range, but if we go back to 1991, which is the earliest record we have for it, it was a bit higher. It's important to note that these VOCs (volatile organic compounds) like PCE have never been encountered in surface water either on the Base or off the Base. Any time we've taken these samples, we have assured from the beginning that these VOCs were not found in surface water. They weren't flowing on or off Base as a risk to Base or other receptors. These are the kind of things that ATSDR looked at. If you have a potential impact of groundwater surfacing where there can be receptors, that's something they will look at very carefully but there's been no measurable impact because we have not found VOCs in surface water.

The Site 3 RI report distributed to the regulatory agencies and the Navy in May included human health risk assessment (HHRA) and ecological risk screening. The HHRA calculated health risk to potential receptors based on concentrations of chemicals measured in the RI, from all those soil samples, test pits, surface water, sediment and groundwater samples that we took. The human health risk assessment is a process that's very well understood; clear guidance from EPA and the Navy is readily available. The conclusion of the HHRA is that there are four scenarios which cause concern. Three of them are the above-ground on the Base issues and one is the below-ground off-Base issue. Three of the scenarios of concern include the hypothetical future resident and future worker at the landfill and the Army Reserve Hangar exposed to soil. Because of the Army Reserve Hangar area is so far distant from the landfill, we ran the numbers separately. This means we found there is an issue here for future land use. If you were to allow the land to be used for unrestricted use, there would be an excess risk from exposure to soil. The excess risk calculated from the future resident exposure scenario consuming groundwater only exists because the concentration of PCE exceeds the MCL. There was also arsenic in the water,

which is a naturally occurring metal which accounts for the vast majority of the calculated risk above the guideline range. Without the risk contribution from arsenic, there would not be a calculated risk above the guideline range. However, since the PCE has an MCL, it will require some sort of remediation or land use control.

> Mr. Lindhult mentioned about groundwater concentrations, that it looks as though that one graph showed a decrease in the (PCE) concentrations. Is the mechanism for reduction pretty much dispersion and dissolution, natural attenuation? Mr. Turner agreed that is probably a reasonable explanation of what's going on. And that brings us back to something I really didn't cover very well is the issue of sources -- that's why we do so much field sampling work. We were looking for the source. Where is this PCE in groundwater coming from? Well, we looked long and hard and concluded that there was a source obviously because there's PCE in the groundwater. We were not able to find it, and we think we know why. In the landfill proper, there must have been some minor amounts of PCE disposed there. However, upgradient in the vicinity of the Army Reserve Hangar, there was an oil-water separator. Historically, as the Army did maintenance on helicopters and did degreasing operations, it used an oil water separator to ensure that oil wouldn't go out into the wastewater stream and treatment plant. That oil water separator very likely was defective in the vicinity of maybe the '80s, maybe even early '90s because it was replaced twice in that period. It was replaced in 1995 and maybe five or so years before that. So the fact that it was replaced twice and the fact that there's PCE in the groundwater at the Army Reserve Hangar leads us to believe there were two sources historically. However, all the sources seem to have been depleted over time. At the oil-water separator for example, they probably took the soil away when they changed the oil water separator there. Mr. Lewandowski added that some soil samples were taken in the vicinity of where the oil water separator was; right? Mr. Turner agreed, adding that no PCE was found in soil. The only PCE we found was in three test pits at the landfill but at minor concentrations. Mr. Lewandowski added that it basically has pretty much just flushed out over time as Mr. Lindhuldt says. Mr. Lindhuldt added that it looks like on the upgradient well there has 1,1-DCE. Kevin Kilmartin agreed that's an interesting story, and it actually will lead into the next presentation. At that location (referring to a projected slide), the shallow well is nondetect for VOCs. Those breakdown products are all in the deep well. That is actually the distal end or tail end (the far downgradient end) of the Site 5 plume. The Site 3 and Site 5 plumes are merging right in the area of the Army hangar. This is the downgradient end of Site 5 and the upgradient end of Site 3.

Mr. Turner continued, saying that brings us to the ecological risk assessment performed. The ecological risk assessment concludes that no further action is necessary. There was no significant risk to the limited populations exposed to Site 3.

What will be the next steps? As we've mentioned, we have a draft Site 3 RI report out for comment. We expect to get regulatory comments within a few weeks, and we'll have a final report before September. Then we'll work on the feasibility study right away and prepare a proposed plan in fiscal year 2011. Signing a Record of Decision in 2011 seems very doable right now. It seemed unlikely a little while ago, but we're moving forward so that's good.

Mr. Lewandowski introduced Kevin Kilmartin to give a summary of Site 5 bioremediation. Mr. Kilmartin began with a brief summary of the history and location of Site 5, as well as an overview of the injection and extraction process installed for the groundwater pilot bioremediation investigation the Navy is conducting. We're trying to have the naturally occurring bacteria that live in the groundwater here (we'll just call them DHB and DHC) to degrade the solvents in the groundwater naturally and break them down into harmless components. One of the big challenges here is to get the environment right to make bacteria grow to populations high enough that they can effectively reduce the solvents for us. The way we do that is to add amendments into the groundwater to get it to the right chemical environment. The Navy constructed a recirculation system where we can extract groundwater, add amendments to it, and then inject that fortified groundwater back into the aquifer. We have three wells, TW1, 2, and 3, that are plumbed to either extract water out of the ground or used to inject water back into the ground. The fourth location, 17S, we can only use as an injection point. Depending on the various pumping schemes that we're using, the groundwater will be extracted from either one or two of these locations then go into the treatment trailer to add amendments such as sodium bicarbonate and sodium lactate, which is an organic food source for the bacteria. From there the water is injected back into the aquifer through any of those four wells. By using different combinations we can change the groundwater flow conditions to get all of these amendments distributed as equally as best we can within the area that we're trying to make everything happen. About a year or so ago the Navy did the first injection of amendments into the aquifer. When we did that, we saw the aquifer begin to respond in a favorable way. The environment within that aquifer was getting to the point that we know the bacteria require. What we concluded from the first injection was that it needed more treatment in order to get to optimal conditions.

The Navy conducted a second round of amendment injection from about mid-February of this year until about late April. With this added sodium bicarbonate and sodium lactate, we really did create very favorable conditions for the bacteria that were needed for the bioremediation. Mr. Kilmartim showed a series of slides to demonstrate the encouraging results, including increased pH, favorable oxidation reduction potential (ORP) and a sharp decrease in the VOC concentrations. We found that the bacterial population very strongly increased within the circulation cell. The disappointing news is that the bacteria that we really need, the DHB and DHC, remain relatively low. We think most of the bacteria that we're seeing are different strains or different species of bacteria that naturally occur in the aquifer but are not the DHB and the DHC we are looking for. We found that when you look at the genetic makeup of those bacteria -- the labs we use do DNA analysis - there's a certain gene that the bacteria need called the VC or vinyl chloride reductase gene that the bacteria in our aquifer do not have. These bugs just do not have the right genes that are needed to break the vinyl chloride down. Now, the Navy, in consultation and agreement with the regulators, has decided to perform bioaugmentation. That involves going out and buying commercial supplies of these species. There are companies that actually grow these bacteria in labs and then ship them to you in containers. The bacteria are bred to contain that VC reductase gene. We will be purchasing these strains of DHB and DHC to introduce them into the aquifer.

Mr. Lindhult asked where are you introducing the bugs? Because I guess if they contact air it is pretty much just throwing money out the window. Mr. Kilmartin replied that the method of injection is being discussed with different vendors now. The bacteria will be protected from contact with air. They'll be introduced into the select monitoring wells. Then we'll give them a couple of days to acclimate as they diffuse into the aquifer. Then we will restart the recirculation system to get the bacteria distributed throughout the aquifer. Mr. Vetrini asked if there is any downside to this somewhere down the line, all these B and Cs running around, the population growing? I just want to make sure we aren't going to have monster quest crew come out here. Mr. Kilmartin replied that because the bacteria are naturally occurring in the groundwater right now anyway, once their job is done, once they've degraded the solvents down and the lactate has all been used up, the food source will be depleted. So the bacteria wouldn't have the food source anymore and the population will return back to what's just normally present. Mr. Lewandowski added that they'll eat themselves out of a job.

Mr. Lewandowski introduced Jeff Dale from the Navy to give a presentation on our Site 12 Phase 1 remedial investigation and where we go from here.

Mr. Dale used the projected slide to orient the group to the location of Site 12 – The South landfill, pointing out the location of Horsham Road, Site 5, and the relative positions of Site 2 and 12. Site 12 was recently discovered in this wooded area. At the last presentation, Don gave a pretty thorough review, including 15 test pits, 10 soil boring locations, and about 60 soil samples collected over the course of the investigation. Referring to a projected slide, Mr. Dale pointed out the outline of the site and all the samples that were taken. The busy appearance of the figure shows that we have pretty well characterized Site 12 in the Phase 1 RI. Features from the EM geophysical survey are overlain on the site features. The results from the test pits excavated for the Phase I RI confirmed the accuracy of the EM survey. At the last RAB meeting we promised we would have a data report to the regulators in April, and that's going to go out this month, June. In the Phase I RI Data Report, the Navy will recommend Phase 2 RI activities to close a few data gaps. As part of the Phase 1 RI, there were no groundwater wells installed. Groundwater is not really an issue at this site, but we do need to put in a few wells just to confirm that it's not an issue. Also, we have identified an area down in the southwest portion of the site where our EM geophysical work was incomplete. The Navy will be proposing a few additional soil samples across the site. That's the proposal we are getting to the EPA and PADEP in the next few weeks. Does anyone have questions on the progress at Site 12?

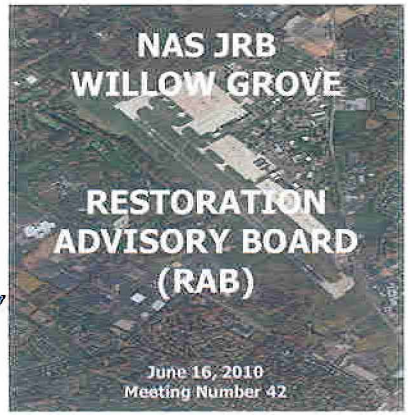
Mr. Lewandowski mentioned that Lisa Cunningham couldn't make it tonight. Someone else was supposed to be here from the EPA. I don't believe he's here, so we're going to have to skip this agenda item. It's going to be an update of the off-site work near the former Kellet Aircraft facility. The EPA is doing a follow-up investigation on that site. Hopefully, for our next meeting, we'll be able to have that for you. Mr. Clark added that unfortunately PADEP has not heard anything new with the EPA investigation either.

Mr. Lewandowski mentioned that the last thing that we have is that there's a new Air Force point of contact. His name is Carlton Crenshaw. I worked with Carlton years ago and others here, like Hal Dusen, know Carlton. Carlton is going to be taking over the Air Force sites from Bill

Downs. In my experience with Carlton I find him to be a very thorough and inquisitive person. We had a long conversation when he took over and he indicated to me that it was really his intent to make sure everything is right on track. He knows that there have been some bumps in the past, but he's set to get all that straightened out and do whatever it takes to get the Air Force's sites squared away. Carlton had just taken over about two weeks before this meeting was announced, so I'm sure he'll be here for the next one and be glad for all of you to meet him and ask questions.

That leaves us with our closing remarks. Any questions or comments, we'd be happy to entertain them now, and then set the date for our next meeting as well. I guess our next meeting is due in September. For myself, the 8th and 15th are not good dates. So I think we would be looking at the 1st or 22nd or 29th. I don't know if there's a preference among the group.

After discussion Mr. Lewandowski confirmed that the next RAB meeting will be held on September 29, 2010 and thanked everyone very much for coming out. The meeting adjourned.



BRAC PMO

Agenda

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- Welcome Community RAB Members/Announcements
- Site 3 – Ninth Street Landfill Summary of Investigations
- Site 5 – Fire Training Area Groundwater Pilot Investigation Amendment Reinjection
- Site 12 –South Landfill Remedial Investigation
- Site 1 Off-Base Groundwater Source Investigation
- Air Force Pipeline Effort Status Update
- Closing Remarks

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Site 3 - Ninth Street Landfill

BRAC PMO

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Site 3 - Ninth Street Landfill History

BRAC PMO

- In operation from 1960 through closure in 1967
- A wide range of wastes were reportedly disposed here
  - General refuse (municipal type waste)
  - Solvents/paint waste
  - Metal scrap
  - Wastewater treatment sludge
- Typical disposal method included burning refuse and burial of residues in trenches
- Salvage yard for empty drums, obsolete equipment and transformers after landfill operations ended

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Site 3 - Ninth Street Landfill Current Use

BRAC PMO

- Mostly undeveloped forest and scrub vegetation
- Recreation area for Base residents
  - Picnic pavilion and grove
  - Child playground area
  - Baseball field
- NCO training/initiation facility

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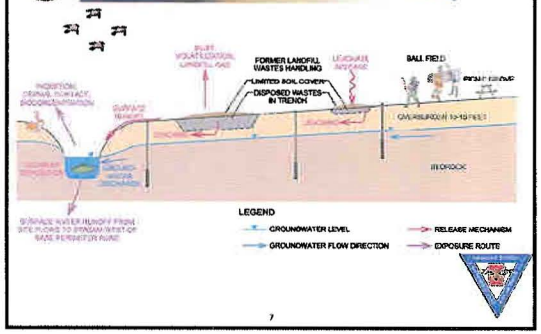
Site 3 - Ninth Street Landfill Investigation

BRAC PMO

- Discovery, Preliminary Assessment and Site Investigation inquiries 1986 through 1990
- Phase I Remedial Investigation 1991
- Phase II Remedial Investigation 1996
- ATSDR Assessment and Site Summary Report 1996
- ATSDR Final Public Health Assessment 2002
- Phase II Follow-On Activities
  - Test Pit Investigation 2007
  - Electromagnetic Geophysical Survey 2008
  - Interim Groundwater Monitoring 2008, 2009, 2010
  - Landfill Delineation 2009
  - Ecological Risk Assessment Samples 2009
  - 03MW09 Wells Installed January 2010
  - Human Health and Ecological Risk Assessments 2010

Site 3 - Ninth Street Landfill Conceptual Site Model

BRAC PMO



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Site 3 - Ninth Street Landfill Investigation Results

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Electromagnetic (EM) survey was performed in May 2008 to investigate buried features

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Site 3 - Ninth Street Landfill Investigation Results

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Site 3 Test Pits April 2007

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Site 3 Test Pit January 2009

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Site 3 Test Pit January 2009

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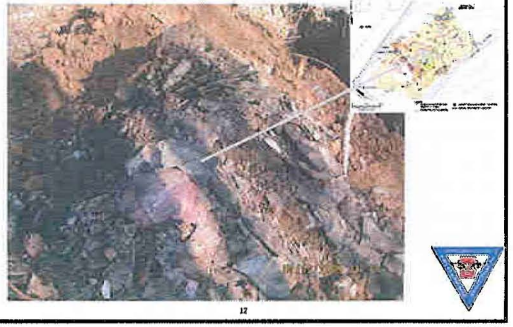

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Site 3 Test Pit January 2009

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Site 3 - Ninth Street Landfill Investigative Findings

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- Soil
  - Principal classes of contaminants include SVOC's, PCB's, Dioxins/Furans, and Metals.
  - VOC's, including PCE were encountered in three test pits, but only Ethyl Benzene exceeded screening concentration
  - Asbestos
- Surface Water and Sediment
  - PAH and Lead contaminants
- Groundwater
  - PCE found up gradient and beneath the Ninth Street Landfill has migrated off-Base

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Site 3 - Ninth Street Landfill Groundwater Focus

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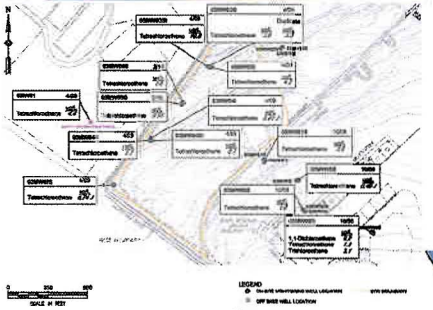

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Site 3 - Ninth Street Landfill Groundwater Focus

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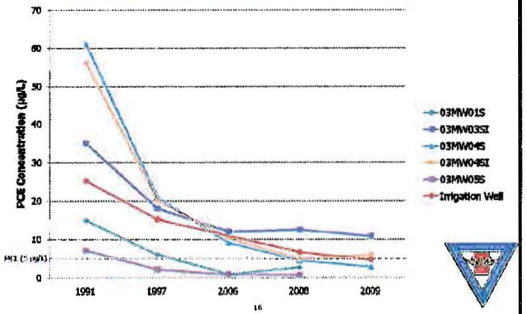

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Site 3 - Ninth Street Landfill Human Health Risk Assessment

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Based on the results of the comprehensive human health risk assessment performed, further action or remediation is deemed warranted for Site 3 soil and groundwater to be protective of certain potential future receptors:

- Lifetime resident exposure to Landfill area soil scenario
- Lifetime resident exposure to Hangar area soil scenario
- Lifetime recreational exposure to Landfill area soil scenario
- Lifetime resident exposure to groundwater scenario

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Site 3 - Ninth Street Landfill Ecological Risk Assessment

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Based on the results of the comprehensive ecological risk screening performed, no further action or remediation is deemed warranted or recommended for Site 3 to be protective of the environment

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Site 3 - Ninth Street Landfill Next Steps

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- Final Remedial Investigation Report Anticipated September 2010
- Feasibility Study Report 2010
- Proposed Plan 2011
- Record of Decision (ROD) 2011

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Site 5 – Fire Training Area Groundwater Pilot Investigation Update

BRAC PMO

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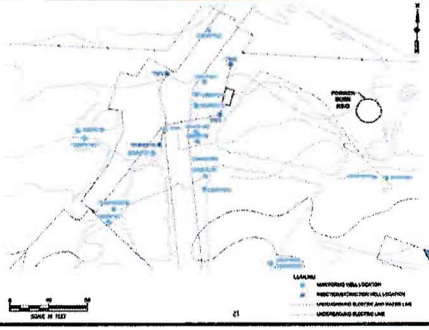
Site 5 – Fire Training Area Groundwater Pilot Investigation Update

BRAC PMO



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Site 5 – Fire Training Area Groundwater Pilot Investigation Update

BRAC PMO

- Second Round of Amendment Injection Feb. 17th – April 26th, 2010
  - Two recirculation schemes extracting from either TW1 or TW2
- Very Favorable Environment for Bioremediation was Created
  - Reducing Conditions
    - Neutral pH
    - Very Low Dissolved Oxygen
    - Negative ORP
- Evidence of Reductive Dechlorination
  - Decreases in Primary VOCs 1,1,1-TCA; PCE; TCE
  - Increases in Breakdown of VOCs 1,2-DCE; 1,1-DCA
- Bacterial Population Strongly Increasing, but:
  - Populations of Required Bacteria Dhb and Dhc remain Low
  - Absence of VC Reductase Gene
- Bioaugmentation

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Site 5 – Bioremediation Pilot Study Field Parameters

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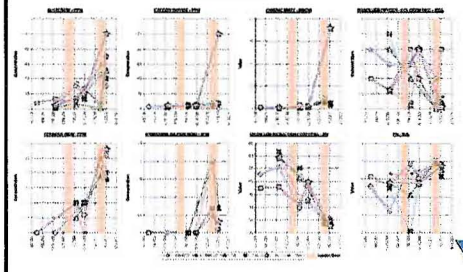

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Site 5 – Bioremediation Pilot Study Volatile Organics

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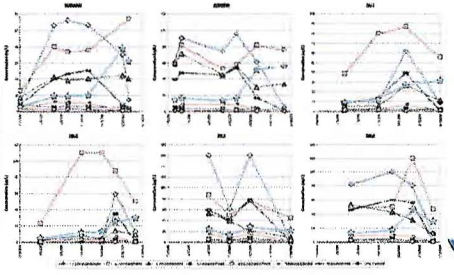

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Site 5 – Bioremediation Pilot Study Microorganisms

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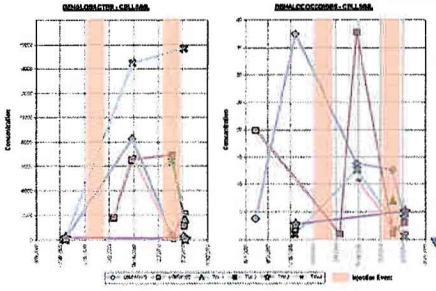

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Site 12 – South Landfill Phase I Remedial Investigation

BRAC PMO

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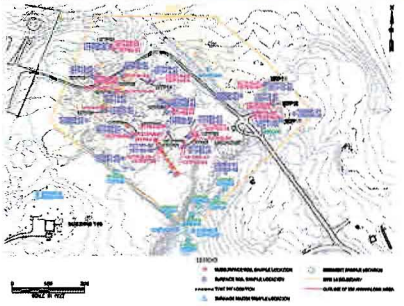
Site 12 – South Landfill Phase I Remedial Investigation

BRAC PMO



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Site 12 – South Landfill Phase I Remedial Investigation

BRAC PMO

- Field investigations test pits, soil borings, soil samples, surface water/sediment samples completed January 2010
- Phase I Remedial Investigation Data Report with recommendations for phase II RI June 2010

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Site 1 – Off-Base Groundwater

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US ENVIRONMENTAL PROTECTION AGENCY

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Air Force Reserve POL Site

BRAC PMO

POINT OF CONTACT

MR. CARLTON CRENSHAW
PHONE – (478) 327-1064
EMAIL – CARLTON.CRENSHAW@US.AF.MIL

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NAS JRB Willow Grove RAB Meeting 42

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- Closing Remarks
- Questions or Comments From The Community?
- Next Meeting Date (Proposed Date September __, 2010)

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THE END

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Site 3 - Ninth Street Landfill Human Health Risk Assessment

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- Soil
  - Guideline maximum risk range (1E-04) was exceeded under the lifetime resident exposure to Landfill area soil scenario (4.5E-04) and Hangar area soil (3.3E-04)
  - Guideline maximum risk range (1E-04) was exceeded under the lifetime recreational exposure to Landfill area soil scenario (1.3E-04)
- Surface Water and Sediment
  - Guideline maximum risk range was not exceeded under any scenario
- Groundwater
  - Guideline maximum risk range (1E-04) was exceeded under the lifetime resident exposure to groundwater scenario (1.3E-04)

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Willow Grove Air Reserve Station
POL Site (ST-01) Program Update

Restoration Advisory Board Meeting

Wednesday June 16, 2010

The United States Air Force (USAF) continues to work closely with the Pennsylvania Department of Environmental Protection (PADEP) to achieve closure of the POL Site (ST-01) under Act 2, the Land Recycling Program. The USAF point of contact is Mr. Carlton Crenshaw: Phone, (478) 327-1064; email, carlton.crenshaw@us.af.mil

Recent Project Milestones

Removal Action

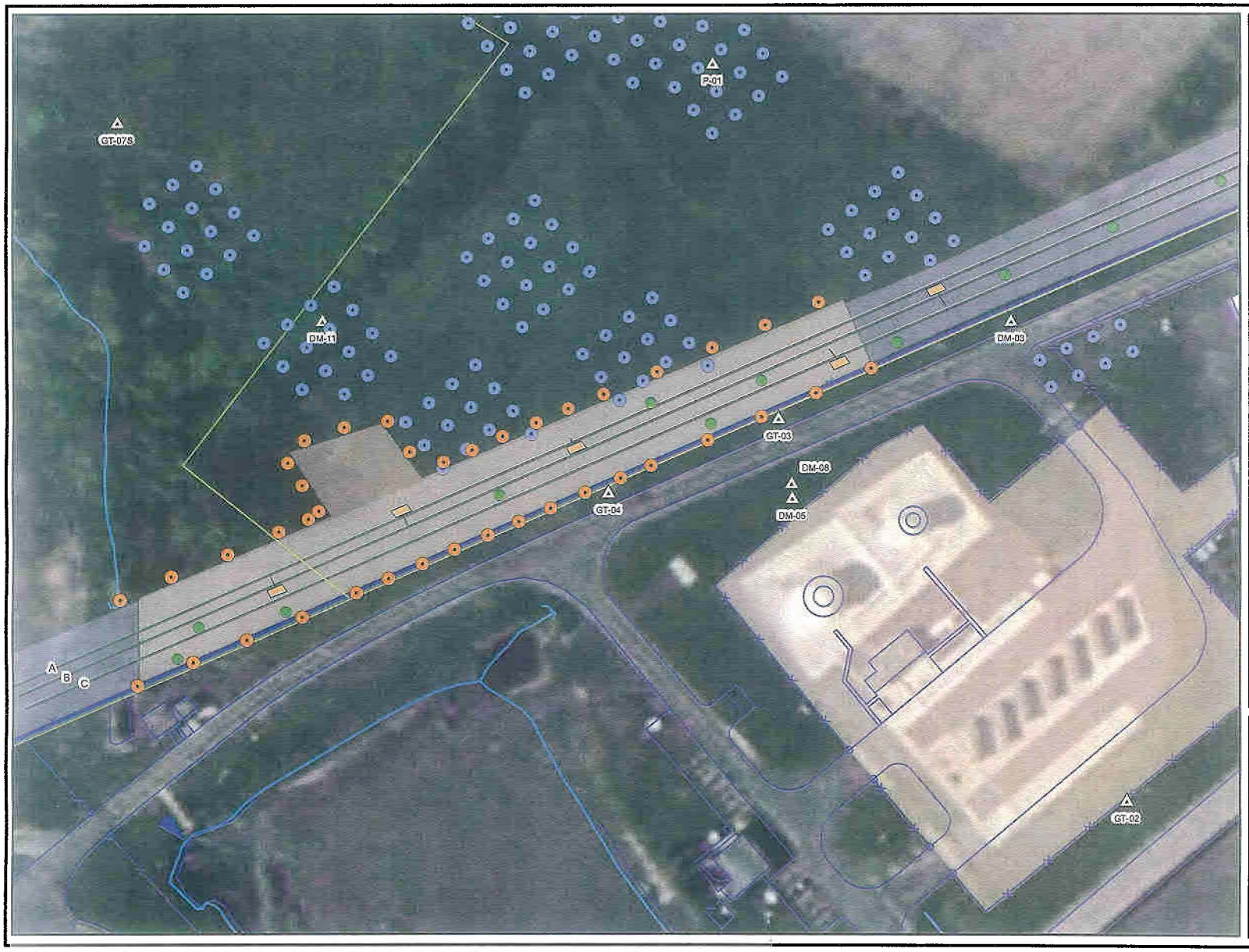
- Tetra Tech (on behalf of the USAF) submitted the *Right-of-Way Soil Remedial Action Report* to PADEP in March 2010.
- USAF received comments from PADEP about the results of the soil remedial action in May.
- USAF is identifying data gaps, preparing work plans, and scheduling contractors to acquire the necessary information to address PADEP's comments.
- Additional soil samples will be collected to assist in the attainment of closure. (See Attached Figure)

Compliance Monitoring

- Two rounds of quarterly groundwater sampling were completed in 2010 at the POL site compliance monitoring wells.
- Results of the January 2010 and April 2010 compliance monitoring events continue to show levels of petroleum contamination in groundwater below applicable State Wide Health Standards.
- The next round of quarterly compliance monitoring is scheduled for late June 2010.

Biosparge System Operation

- USAF is continuing operation of the biosparge system in treatment area D.
- The biosparge operations in treatment area D are scheduled to continue until August 2010. The Air Force will evaluate the need to operate the biosparge system in treatment area D following the August sampling event.
- A background performance monitoring sampling event was completed in treatment area E in early May.
- Biosparge system operation started in late May in treatment area E and is scheduled to continue for six months.



Legend

- Confirmation Sampling Location
- Biosparge Well Location
- Compliance Monitoring Well
- ROW Investigation Soil Borings
- Park Creek Tributary
- Local Property Lines
- Pipeline Centerline
- ROW Investigation Test Pit
- Excavation Area
- Pipeline ROW
- POL Area

0 40 80 Feet

1:960

WILLOW GROVE AIR RESERVE STATION
HORSHAM, MONTGOMERY COUNTY, PENNSYLVANIA
SOIL REMEDIAL ACTION REPORT

FIGURE 1
SOIL REMOVAL ACTION CONFIRMATION SAMPLING LOCATIONS

TETRA TECH