



FORMER NAVAL AIR WARFARE CENTER WARMINSTER

Restoration Advisory Board (RAB) Meeting Minutes

FORMER NAVAL AIR WARFARE CENTER (NAWC) WARMINSTER MEETING MINUTES

RESTORATION ADVISORY BOARD (RAB) MEETING NO. 120 REFERENCE: CLEAN CTO NO. WE23

1. Meeting Date and Time: January 5, 2011, 9:35 AM to 10:30 AM
2. Location: Warminster Municipal Authority Board Room
3. Attendees: See Attachment 1 (attendance list)
4. Summary of Meeting Discussions: See below.

Administrative Update

Jeff Dale, the Navy's Remedial Project Manager (RPM) for the project working out of the Navy's Base Realignment and Closure Program Management Office (BRAC PMO) in Philadelphia, opened the meeting by welcoming the attendees and providing an agenda for the meeting (Attachment 2).

Comments were solicited on the September 15, 2010 RAB meeting minutes. No comments were offered by those in attendance and the meeting minutes were approved as-is.

Action items from the September 15, 2010 RAB meeting were addressed as topics were brought up for discussion. The action items from the previous RAB meeting are summarized below:



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- The Navy is to provide an update on groundwater extraction/treatment/monitoring activities.
- PADEP is to provide an update r.e. the status of the CRC Industries investigation.
- WMA/Earth Data is to provide an update of the municipal wells treatment systems status.
- The Navy will provide an update on the annual land use control inspections.
- The Navy is to update the RAB on the progress of property transfers for the remaining Navy properties along Jacksonville Road and the Shenandoah Woods housing area.

Off-Site Investigations

Mr. Tom Buterbaugh (PADEP) provided an update regarding recent developments in the CRC Industries site investigation. PADEP recently received a Cleanup Plan from CRC Industries which is currently in PADEP review. The Cleanup Plan recommends a pump and treat approach to site remediation. Ms. Michelle Rudnick (CRC Industries) indicated that a copy of the plan had also been provided to Warminster Municipal Authority. Mr. Bob Lewandowski (BRAC PMO) asked whether the design had been started for the pump and treat system yet – Ms. Rudnick indicated that at this point it is just a conceptual approach submitted for review/approval. Mr. Lewandowski asked about the proposed extent of the system, i.e. whether it would extend offsite. Ms. Rudnick stated that the current approach is to install wells near (within) the perimeter of the property to contain the plume onsite. Mr. Dale asked for a copy of the Cleanup Plan; Ms. Rudnick agreed to provide one to the Navy.



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Mr. Toby Kessler (Gilmore and Associates, representing Warminster Township) asked whether vapor intrusion (VI) issues are being factored into the Cleanup Plan. Ms. Rudnick indicated that there are no current plans to address VI. Mr. Buterbaugh then indicated that CRC would be required to look into vapor intrusion concerns as part of the final report and address them with deed restrictions if needed. Mr. Jeff Orient (Tetra Tech, representing the Navy) asked when the final report would be submitted – Mr. Buterbaugh indicated that the final report is due after cleanup goals have been attained.

Mr. Dave Fennimore [Earth Data, representing Warminster Municipal Authority (WMA)] stated that the plan calls for aquifer testing but there is no monitoring of WMA-26 included as part of the monitoring. He recommended that water levels be monitored and samples collected from WMA-26 during the aquifer testing. Mr. Kessler asked about potential impacts from CRC to the residential well at 57 Mearns Road if WMA 26 was eventually shut down. Ms. Rudnick indicated that CRC would address it as necessary. Mr. Fennimore asked what was planned for disposal of the pumped/treated water – Ms. Rudnick indicated that discharge to the storm sewer was the current plan. There was some general discussion about water disposal, including the likelihood that CRC would need township approval to discharge to the storm sewers. Mr. Orient asked what the preliminary planned pumping rate is for the extraction system. Ms. Rudnick indicated that the conceptual design is for 60 gpm (6 wells at 10 gpm). Mr. Buterbaugh stated that the actual pumping rate would be established through pre-design studies.

WMA Update

Mr. Fennimore stated that there are no new updates regarding the status for water



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supply wells WMA-26 or WMA-13. From the previous RAB meeting, WMA-26 is fully operational and on line, while there have been no new activities relative to a treatment system installation for WMA-13.

Navy Housing Transfer Update

Mr. Lewandowski updated the RAB on the status of the Navy housing areas along Jacksonville Road and in Shenandoah Woods. The housing is still partially occupied. A Reuse Plan was submitted by the Land Reuse Authority (LRA) but has been rejected by the Housing and Urban Development Authority (HUD), as the plan called for selling of the properties then use of all of the proceeds for addressing homeless needs, while HUD allows only a maximum of 30% of the proceeds to be used in this manner. The LRA has 90 days from the original submission deadline of February 17, 2011 to revise and resubmit the plan.

Mr. Lewandowski also indicated that the NAS Willow Grove public works staff have initiated resurveys of the housing for asbestos and lead-based paint. The contracts were awarded in November 2010, with final reports anticipated by September 2011. The information will be included in the NEPA and FOST documentation required for property transfer. Transfer of the properties is not anticipated any time soon.

Treatment Plant Operations

Ms. Jill Parrett (H&S Environmental, Navy contractor) provided an update on treatment plant operations (see handout in Attachment 3). Some notable points covered include:



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- The treatment plant operated at 79 gpm in December, with most flow coming from Area A and the remainder from Area C.
- VOC removal via pumping totaled approximately 14 lbs in December, with over 13 lbs of TCE. Almost all the mass removal was from Area A wells.
- VOC recovery rates have stabilized and have been at similar levels for 3+ years.

Mr. Kessler asked if the issue regarding elevated levels of Cr^{+6} in treatment plant influent had been resolved. Mr. Dale replied that the Cr^{+6} concentration is not an issue at this time, as the pumping rate of extraction well A19 (the well contributing a large percentage of the Cr^{+6}) had been reduced due to low VOC concentrations. Mr. Pat Schauble (H&S Environmental, Navy contractor) indicated that recent effluent concentrations were less than $\frac{1}{2}$ the permit limit. Mr. Lewandowski asked how the telemetry system for the Area C extraction wells was working – Mr. Schauble indicated that the system was working well.

LTM Update

Mr. Orient gave a brief update of recent LTM activities (see handout in Attachment 4). Some notable points covered include:

- The Annual Performance Monitoring Report for FY 2011 was submitted in October.
- The final Long Term Performance Monitoring Plan was submitted in November.
- The fall 2010 round of LTM sampling was completed in November.

Ms. Kathy Davies (U.S. EPA) asked whether the installation/operation of geothermal wells is controlled



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within the township. Mr. Kessler and Mr. Fennimore indicated that permits are required for the wells. Mr. Buterbaugh stated that the State does not have any requirements for geothermal wells.

Miscellaneous Topics and Issues – Action Items

Mr. Orient provided an overview of the annual land use control (LUC) inspection findings (see Attachment 4). All land use controls and deed restrictions are being complied with, soil caps/covers are in good condition, and no corrective actions are required. The Annual LUC Inspection Report was submitted in December.

The RAB also agreed that following the April 2011 meeting the frequency of RAB meetings would be reduced to every 6 months.

Action Items that will be carried through to the next RAB meeting include:

- The Navy is to provide an update on groundwater extraction/treatment/monitoring activities.
- PADEP is to provide an update r.e. the status of the CRC Industries investigation.
- WMA/Earth Data is to provide an update of the municipal wells treatment systems status.
- The Navy is to update the RAB on the progress of property transfers for the remaining Navy properties along Jacksonville Road and the Shenandoah Woods housing area.



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Next Meeting Date

The next RAB meeting date was set for April 6, 2011 at 9:30 AM in the WMA Board Room. The meeting was adjourned at approximately 10:30 AM.



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**ATTACHMENT 1
ATTENDANCE LIST**

NAWC WARMINSTER
 TECHNICAL SUBCOMMITTEE/RAB MEETING

DATE: Jan 5, 2011

NAME	AFFILIATION	PHONE	EMAIL
JEFF ORIENT	TETRA TECH	412-921-8778	JEFF.ORIENT@tetratech.com
RON SKOTO	U.S. Geological Survey	610-321-2434 X212	RA5LOTO@USGS.GOV
JEFF DACE	NAVY	215-897-4914	JEFFREYOM.dace@navy.mil
Bob Lewandowski	Navy	215-897-4908	robert.f.lewandowski@navy.mil
RONALD KOTUN	TETRA TECH	412-921-8291	ronald.kotun@tetratech.com
DENNIS ORENSHAW	U.S. EPA	215-814-3361	DRENSHAW.DENNIS@EPA.GOV
Carolyn Scala	Battelle	215-504-5003	scalac@battelle.org
Toby Kessler	Gilmore/warm.twp.	215-345-4320	TKessler@gilmore-assoc.com
Dave Ferraro	EPA/PA	610-524-9466	dferraro@epa.gov
Kathy Davies	EPA/PA	215-814-3315	davies.kathy@epa.gov
TOM BURBACH	PA DEP	484 250 5790	tburbach@state.pa.us
Jill Ann Parrett	H&S Environmental	508-366-7442	jparrett@hsenv.com
Patrick Schmitt	'	'	pschmitt@hsenv.com
Michelle Rudnick	CRC Industries	215-442-6224	mrudnick@crcindustries.com
TIM SHEEHAN	PA DEP	814-250-5726	TSHEEHAN@STATE.PA.US



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ATTACHMENT 2 MEETING AGENDA



AGENDA

FORMER NAWC WARMINSTER

Technical Subcommittee/Restoration Advisory Board (RAB)

Meeting

Date: 05 JANUARY 2011

Time: 9:30 AM

Location: WMA Board Room, 415 Gibson Ave., Warminster, PA

- **Administrative Update**
 - Minutes of the Last Meeting
 - Review Action Items (see below)

- **Off-Site Investigations**
 - PADEP update on CRC Chemicals

- **WMA Update**
 - Status of Wells #13 and #26 treatment upgrades

- **Navy Housing Transfer Update**
 - Status of property transfer activities along Jacksonville Road and Shenandoah Woods

- **Treatment Plant Operation**
 - Plant operating status
 - VOC removal evaluation

- **LTM Update**
 - FY 2010 Annual Performance Monitoring Report comments status
 - Fall 2010 sampling round status
 - Plans for Spring 2011 performance monitoring

- **Miscellaneous Topics and Issues – Action Items**
 - Annual Land Use Control Inspection findings

Time and Location of Next Meeting: - Date to be determined

- **Action Items**

The following action items were identified as a result of the September 2010 meeting:

- PADEP is to provide an update r.e. the status of the CRC Industries investigation.
- WMA/Earth Data is to provide an update of the municipal wells treatment systems status.
- The Navy will update the RAB on the status of the annual land use control inspections.
- The Navy is to update the RAB on the progress of property transfers for the remaining Navy properties along Jacksonville Road and the Shenandoah Woods housing area.

Directions to the WMA Board Room:

From the former NAWC - Proceed to the intersection of Street and Jacksonville Rd. Turn west (right) onto Street Rd. Continue west to York Rd. Turn south (left) onto York Rd. Continue to Henry Ave. Turn west (right) onto Henry Ave. Follow directions as above to the WMA building.

From County Line Rd - Instead of turning north (right) onto Jacksonville, continue west on County Line to York Rd. Turn north (right) onto York Rd. Continue to Henry Ave. Turn west (left) onto Henry Ave. Continue to Gibson Ave. Turn right into the parking lot shared by the Warminster Township and WMA. The WMA building is located towards the rear.



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ATTACHMENT 3
H & S PRESENTATION



Restoration Advisory Board Meeting

NAWC Warminster
5 January 2011



Presented by



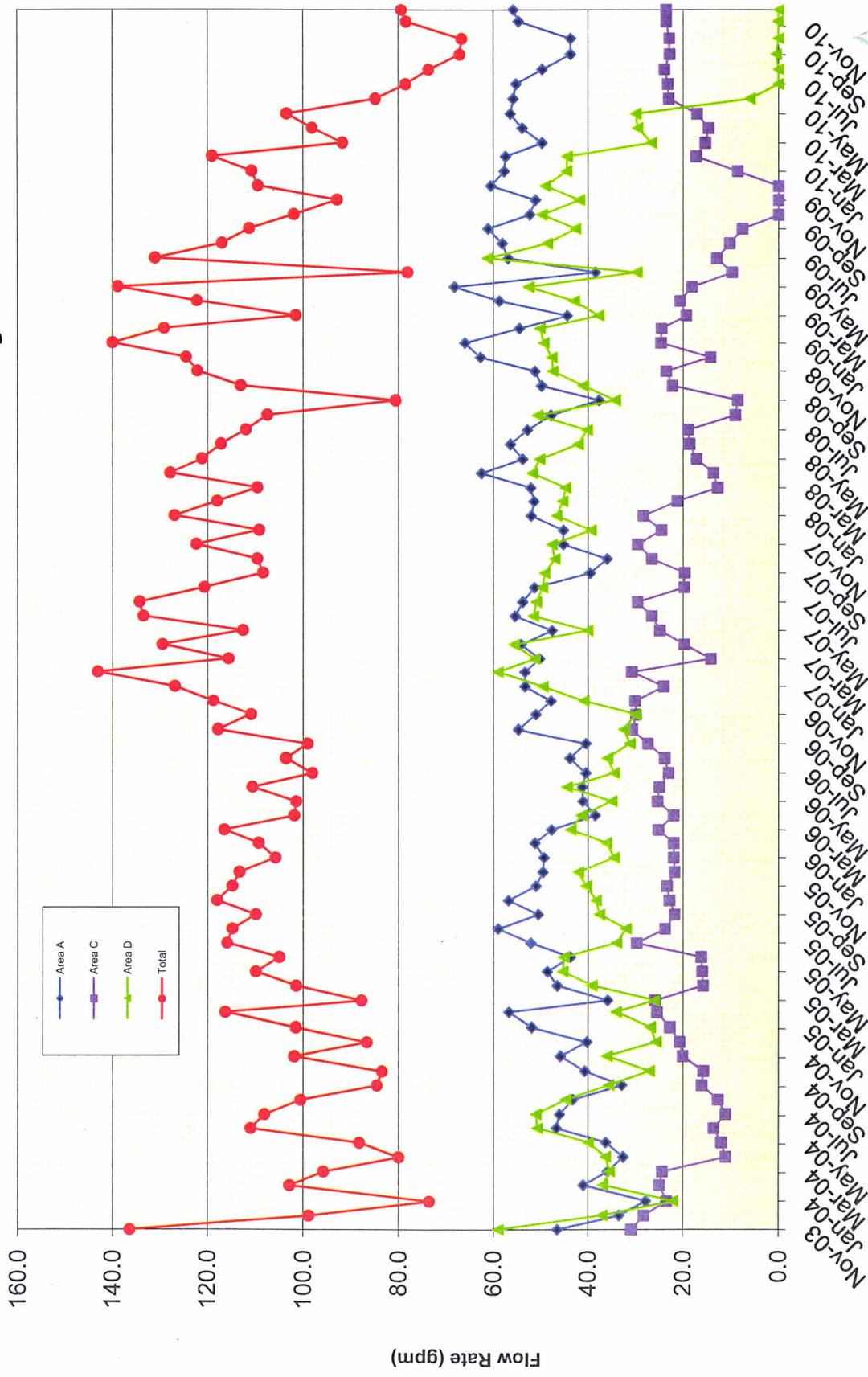
Presentation Agenda

- GWTP Status
- Plant Operation
- VOC Removal Evaluation

GWTP Operation

- Average flowrates for December 2010:
 - 55.8 gpm from Area A
 - 23.6 gpm from Area C
 - 0.0 gpm from Area D
 - 79.4 gpm overall
- 698,944,787 gallons treated through December 2010
- Previously operating Area D wells were turned off in March 2010 (D6, D7, and D8) and June 2010 (D1, D2, and D3 [delayed until C18 was repaired and back on-line]) and remain off per the TEG's recommendation.

Groundwater Treatment Plant Recovery Flow Rates



Operational Month

GWTP Operation (cont'd)

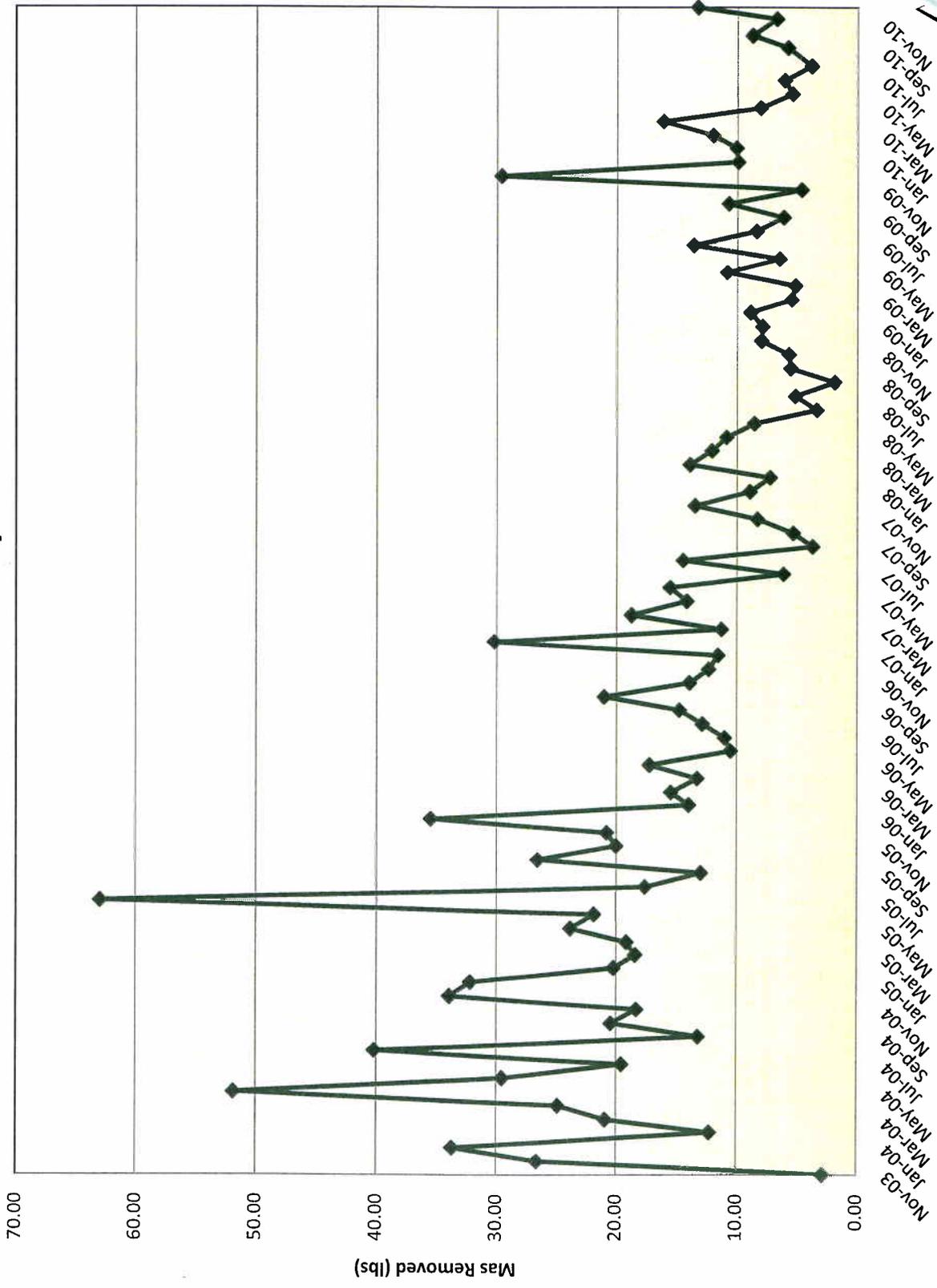
- Area D extraction wells were operated temporarily in the beginning of November in order to obtain groundwater samples during the semi-annual LTM event.
- Extraction well pumps and motors were replaced in EW-A5 and EW-A10 in November 2010 and EW-A6 in December 2010. No other maintenance of note was performed during this quarter.

Mass Removal

- Cumulative dissolved-phase VOC recovery through December 2010 reporting period:
 - Trichloroethene (TCE) – 4,570.6 pounds (13.3 lbs in 12/10)
 - Tetrachloroethene (PCE) – 131.4 pounds (0.66 lbs in 12/10)
 - Carbon Tetrachloride (CCl₄) – 155.4 pounds (0.31 lbs in 12/10)
- Majority of VOC recovery is from Area A (13.3 lbs TCE, 0.54 lbs PCE, and 0.31 lbs CCl₄ in 12/10), with remainder of PCE recovery from Area C (0.12 lbs in 12/10).
- No recovery from Area D, as Area D extraction system is no longer in operation.

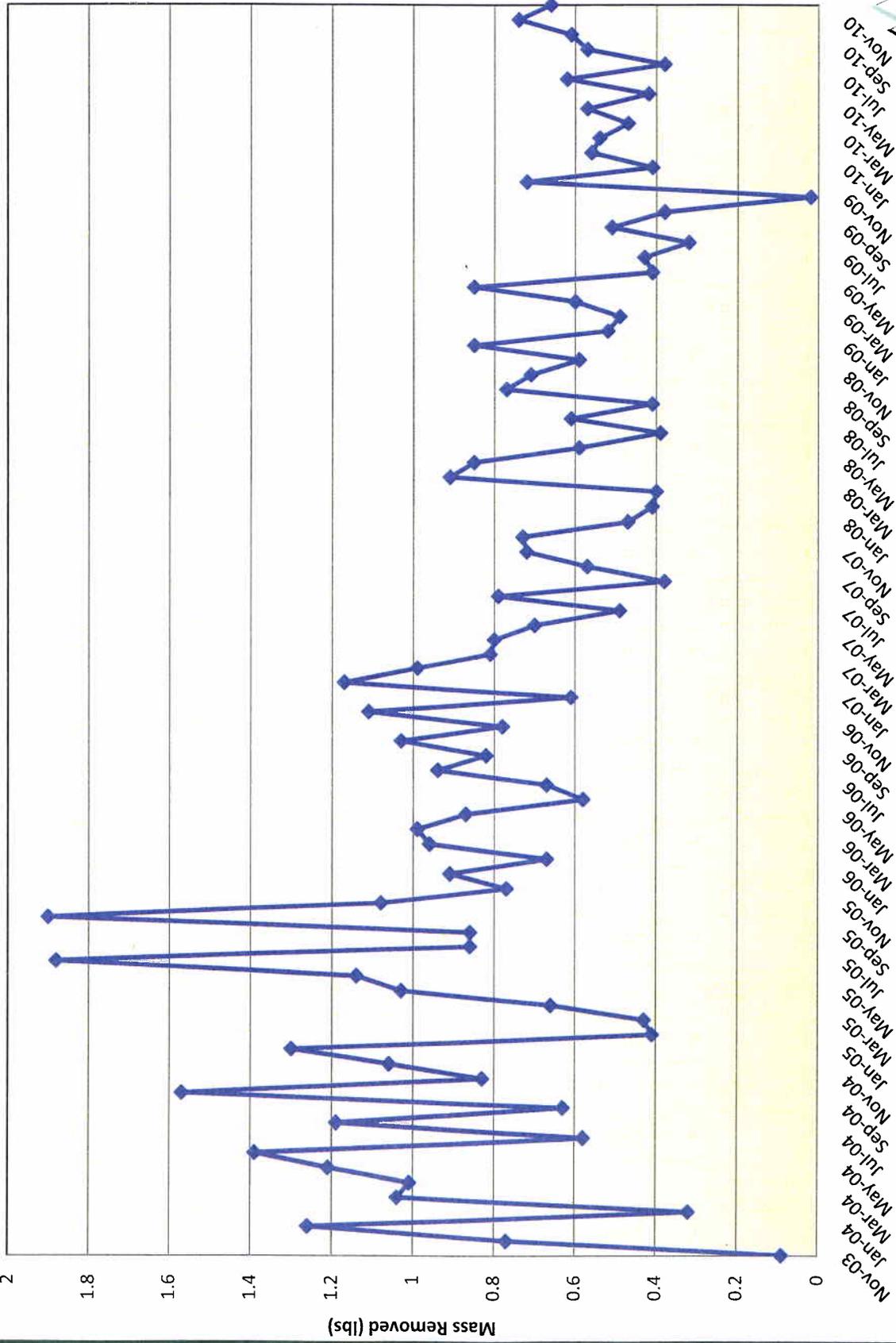


TCE Recovery Rate



Operational Month

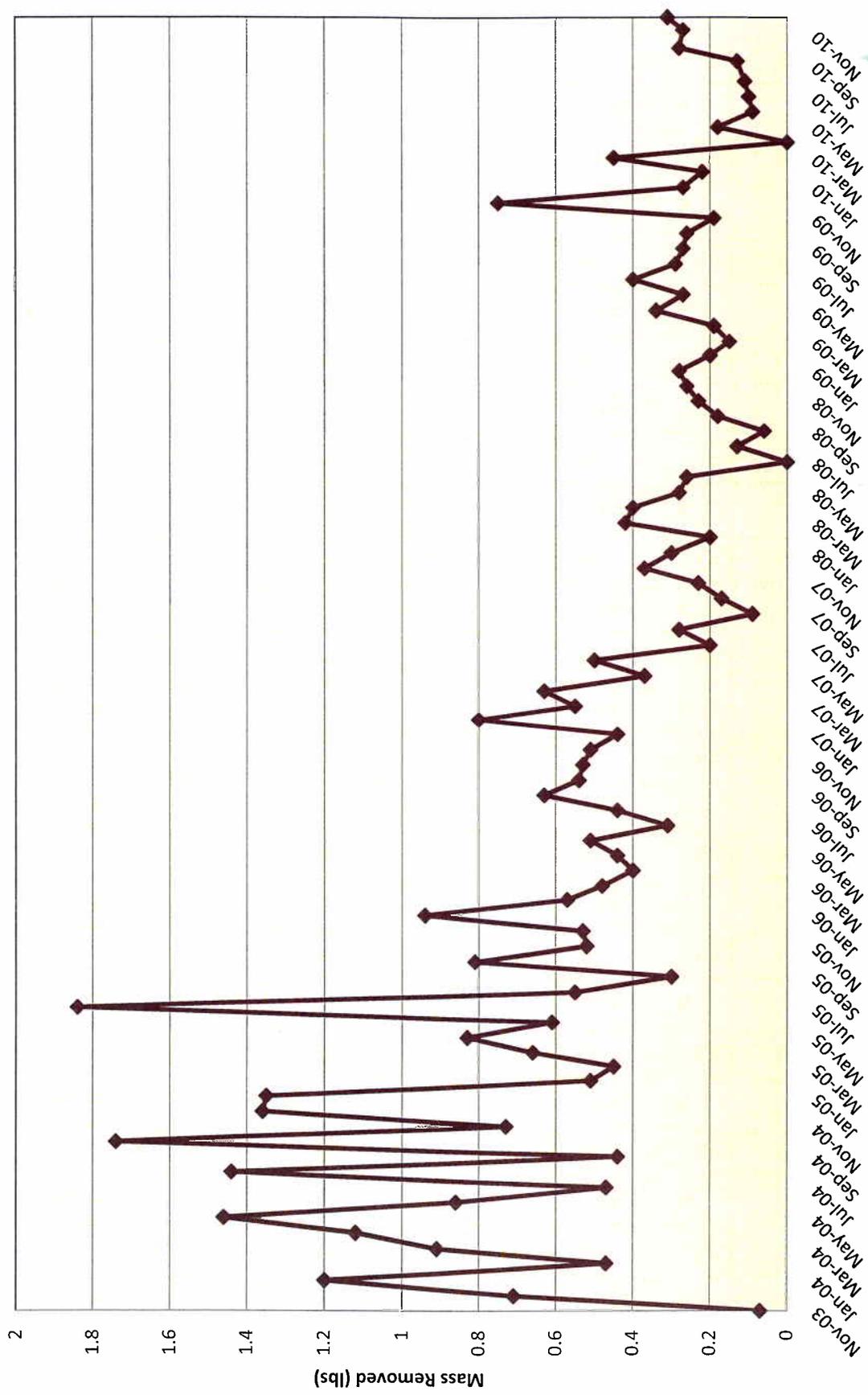
PCE Recovery Rate



Operational Month



CCl₄ Recovery Rate



Operational Month

Possible Future Activities

- Evaluate removing air stripper and using liquid phase carbon.
- With the reduction in flow and decrease in concentrations at the site, carbon may be a more efficient and cost effective remediation technology.
- Modify NPDES permit as necessary to accommodate any changes to GWTP.



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ATTACHMENT 4
TETRA TECH PRESENTATION

***NAWC Warminster
LTM Notes***

**Annual Performance Monitoring Report
for FY 2011 submitted October 15**

- Comprehensive report, includes trend analysis, performance monitoring objectives evaluations
- Cutoff date for review comments January 19

**Final Sampling and Analysis Plan for
Long-Term Groundwater Monitoring
submitted November 19**

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***NAWC Warminster
2010 LTM Notes***

**Fall 2010 semiannual round of
groundwater sampling completed in
November**

- **Area A:**
 - 24 wells sampled
- **Area C:**
 - 11 wells sampled
- **Area D:**
 - 9 wells sampled

Draft LTM Report scheduled for Spring 2011

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NAWC Warminster Annual Land Use Control Inspections

- **2010 Inspections performed in October (Areas A, B, C, D)**
 - **Site visits**
 - **Interviews**
 - **Records reviews**

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NAWC Warminster Annual Land Use Control Inspections

- **Area A (Sites 1, 2, 3) LUCs**
 - **Non-industrial land use prohibited w/out Navy/EPA approval**
 - **Water supply well installations prohibited w/out Navy/EPA approval**
 - **Erosion control for unnamed tributary**
 - **No excavation at Sites 2 or 3 w/out Navy/EPA approval**

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***NAWC Warminster
Annual Land Use Control Inspections***

- **Area B (Sites 5, 6, 7) LUCs**
 - Non-industrial land use prohibited w/out Navy/EPA approval (except recreational use)
 - Supply well installations/GW withdrawal prohibited w/out Navy/EPA approval
 - Soil cover for Sites 6 and 7
 - No excavation at Sites 6 or 7 w/out Navy/EPA approval

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***NAWC Warminster
Annual Land Use Control Inspections***

- **Area C (Sites 4, 8) LUCs**
 - Water supply well installations prohibited w/out Navy/EPA approval
- **Area D (Site 9) LUCs**
 - Water supply well installations prohibited w/out Navy/EPA approval

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***NAWC Warminster
Annual Land Use Control Inspections***

- **Annual report submitted December 22**
 - Land use controls and deed restrictions are being complied with
 - Existing engineering controls/soil caps are in good condition
 - No corrective actions are needed