



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. 116

REFERENCE: CLEAN CTO NO. WE23

1. Meeting Date and Time: December 9, 2009, 9:40 AM to 10:45 AM.
2. Location: Warminster Municipal Authority Board Room.
3. Attendees: See Attachment 1 (attendance list).
4. Summary of Meeting Discussions: See below.

Administrative Update

Mr. Bob Lewandowski, the Navy's acting 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). Mr. Lewandowski introduced Mr. Jeff Dale (BRAC PMO) as the new Navy RPM for NAWC Warminster.

Comments were solicited on the September 9, 2009 RAB meeting minutes. No comments were offered by those in attendance and the meeting minutes were approved as-is.

Action items from the September 9, 2009 RAB meeting were reviewed. The action item review is summarized below:

1. PADEP is to send out copies of the CRC Industries RI Report.

Mr. Charles Clark (PADEP project manager) indicated that the copies had been sent out per the action item.



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- 2. Earth Data is to provide the Navy with an update of the treatment system upgrade status after the next Warminster Municipal Authority (WMA) board meeting.**

Mr. Dave Fennimore (Earth Data, consultant to WMA) provided the update as part of the action item review. Municipal water supply well WMA-26 is currently being pumped to waste at approximately 200 gpm while waiting on the new stripping unit, which is being shipped from Canada. It is expected that the new treatment system will be operational by the end of December. Mr. Tim Hagy [Warminster Municipal Authority (WMA)] added that the well should be back online some time in January after testing of the new treatment unit is completed.

- 3. The TEG is to reach a consensus regarding possible changes in pumping schemes for Areas A and D that were discussed in the RAB meeting.**

Mr. Lewandowski confirmed that the TEG had reached a consensus to shut down the extraction system in Area D and monitor for potential rebound. The extraction well in Area C that has been down for some time (EW-C21) will not be brought back online at this time as PCE concentrations in the well have been below the MCL for some time. The Navy is in the process of converting the Area C extraction system over to remote operation to avoid further issues with underground lines being inadvertently cut in the future.

- 4. ECOR is to generate an up-to-date listing of all remaining Navy monitoring wells.**

Ms. Jen Good (ECOR project manager) indicated that an updated listing of the remaining NAWC monitoring wells had recently been sent out.

- 5. The Navy is to obtain additional in-house support for completing lease agreements for monitoring well access.**

Mr. Lewandowski provided an update – additional in-house support has not yet been obtained, as



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the real estate support staff is limited and property transfer work is taking priority over obtaining easements. Mr. Lewandowski indicated that the BRAC PMO will continue to try to obtain additional support for this activity.

Off-Site Investigations

Mr. Clark stated that he had sent a letter to CRC Industries (CRC) on November 2 with comments on the CRC Remedial Investigation (RI) Report and conditional approval of the report pending resolution of the comments. Among other things, the letter directs CRC to work with the Navy and WMA for continued monitoring and treatment of WMA-26. He provided a copy of the letter to Mr. Jeff Orient (Tetra Tech NUS project manager) for inclusion in the RAB meeting minutes (see Attachment 3). Mr. Fennimore asked whether additional work would be done to address the comments, especially in regards to the conceptual site model and associated numerical groundwater model, and whether a schedule had been established for any additional work required – Mr. Clark suggested contacting Mr. Tom Buterbaugh (PADEP hydrogeologist) with any detailed questions that involve the Act 2 process and how it applies for the CRC investigation, as Mr. Buterbaugh (who was unable to attend the RAB meeting) is more familiar with the details of the investigation and the associated Act 2 implications. Mr. Clark also indicated that responding to the comments may require submittal of an addendum to the RI Report. Mr. Fennimore asked if PADEPs conditional approval of the RI Report would be rescinded if CRC did not complete the additional work recommended/requested in the November 2 letter – Mr. Clark was unsure whether the conditional approval would be pulled back or not, but thought that completion of additional work was probably necessary.

Mr. Fennimore expressed his concern with the pace of the investigation given the ongoing and increasing impacts to the WMA water supply well. Mr. Lewandowski asked if there had been any contact between WMA and CRC in regards to WMA's concerns and the impacts to WMA-26 – Mr. Fennimore indicated that WMA had contacted CRC and had recently performed a site visit at the CRC facility.



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Mr. Fennimore also asked Mr. Clark to convey his concerns to Mr. Buterbaugh, in particular the need for additional field work to address fate and transport modeling questions. Mr. Dale pointed out that under Act 2 the approval of an RI triggers a timeline for development and submittal of remediation plans. Mr. Lewandowski stated that the Navy is having internal technical and legal discussions about approaching CRC r.e. participation in remedial activities, and the Department of Justice will likely be contacting WMA about the CRC release at some point.

Ms. Kathy Davies (EPA hydrogeologist) asked whether contaminant concentrations had continued to increase at WMA-26. Mr. Fennimore indicated that the PCE concentration is still increasing (522 ug/l in November, 575 ug/l in October) while the concentrations of other contaminants (TCE, 1,2 DCE, 1,1-DCE) have remained relatively steady and at much lower concentrations than PCE (See Attachment 4 for October 2009 sampling results). Mr. Lewandowski asked what is currently being done at municipal well WMA-13 – Mr. Hagy indicated that they are doing periodic water quality monitoring, and that nothing has been detected.

Mr. Lewandowski then brought up the topic of Navy disposal of housing units located along Jacksonville Road and in the Shenandoah Woods housing area. The disposal of these units is being done through Naval Air Station Willow Grove, however Mr. Lewandowski would like to address any environmental issues that come up through the Warminster RAB since the historic knowledge of the properties resides within the Warminster RAB. The primary issues that are currently being looked at are lead-based paint and asbestos, given the expected future use as residential properties. Mr. Dale indicated that there has also been some interest in using some of the property for a school for special needs children. Mr. Toby Kessler (Gilmore and Associates; Warminster Township consultant) stated that there had been some public inquiries about possibly using some of the land for a park and a water feature of some sort.

Treatment Plant Operation/LTM

Ms. Good and Mr. Matt Lapp (ECOR) provided an update of various activities ECOR is implementing on behalf of the Navy. Topics covered included:



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- Groundwater treatment plant status.
- Future activities (remediation system modifications).
- LTM and reports update.
- Offsite well surveys and legal descriptions.
- NIRIS data conversion.
- Well abandonment – HN-20I.

The ECOR update is provided as Attachment 5 to the minutes. During and following the presentation, there was a general discussion of various related topics. Ms Davies brought up the operating status of new extraction well EW-A19 given the current pumping rate (10 gpm) and TCE concentration (130 ug/l). There was some discussion regarding whether the pumping rate should be reduced or the well shut down given the relatively low TCE concentration in the well. Mr. Lapp indicated that the pump currently in the well is sized to run at 10 gpm or higher. Mr. Orient pointed out that throttling back the pump significantly would create significant back pressure which is not desirable in terms of long term operation, and throttling back the pumping rate would not likely increase overall contaminant mass removal although the pumped concentrations would likely increase somewhat. After some general discussion it was decided to leave EW-A19 operating in its current mode for now and to revisit the discussion pending the results of the April 2010 round of sampling.

Miscellaneous Topics and Issues – Action Items

The following topics were briefly discussed:

The accidental abandonment of HN-20I was discussed among the RAB. This well had been mistaken for well HN-20D during ECORs recent well abandonment activities. HN-20I has been monitored for water levels only in the current monitoring program. Mr. Orient suggested that the well not be replaced as it monitors a hydrogeologic unit beneath the unit that is impacted in Area D, and that HN-20D be abandoned as originally planned. Ms. Davies concurred with the suggestion, and there were no objections from the rest of the RAB.



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Mr. Dale briefly discussed the status of the Conceptual Site Model (CSM) update that is underway. The update, being prepared by Tetra Tech NUS with support from Battelle, is in its final stages prior to undergoing internal Navy review. After the Navy review is completed, the document will be circulated for TEG review, then RAB review. Ms. Davies asked why the Navy decided to update the CSM – Mr. Lewandowski indicated that the confirmed presence of another source on CRC property was the primary reason for updating the CSM. Mr. Orient indicated that the CSM update focuses on Area A and the Louis Drive area, and on PCE/TCE.

Mr. Kessler brought up the housing transfer topic again, asking what the timeline is for property transfer. Mr. Lewandowski and Mr. Dale indicated that the process moving forward is to finalize the reuse plan, the NEPA assessment, then finalize the FOST. Regarding the potential lead based paint and asbestos issues, Mr. Lewandowski stated that the responsibility for any necessary actions may be retained by the Navy or possibly passed on to the new owner. Mr. Fennimore asked how any potential vapor intrusion issues would be handled. Mr. Lewandowski indicated that procedures for VI uses would be addressed if necessary in the FOST, and also pointed out that vapor sampling has been done in the past at the buildings near Site 5. Ms. Davies and Mr. Orient pointed out that there were minimal concentrations of volatile organics detected at the sites in the area in the past, so VI is not likely to be a significant issue. A general discussion of the reuse/transfer process and plans ensued.

Action Items identified through the course of the meeting include:

- PADEP is to provide an update r.e status of the CRC Industries investigation.
- Tetra Tech NUS is to submit the CSM update for Navy, then TEG review.
- WMA/Earth Data is to provide an update of the treatment system upgrade status.
- The Navy is to continue pursuing additional in-house support for completing lease agreements for monitoring well access.
- 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 March 10, 2009 at 9:30 AM in the WMA Board Room.

The meeting was adjourned at approximately 10:45 AM.



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**ATTACHMENT 1
ATTENDANCE LIST**



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Restoration Advisory Board (RAB) Meeting Minutes

**ATTACHMENT 2
MEETING AGENDA**



AGENDA

FORMER NAWC WARMINSTER

Technical Subcommittee/Restoration Advisory Board (RAB) Meeting

Date: 9 DEC 2009

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.

- **Treatment Plant Operation/LTM**
 - Plant operating status
 - Chromium removal
 - Remote communication configuration – Area C
 - LTM update
 - Status of quarterly monitoring reports

- **Other Activities**
 - ECOR presentation on current/upcoming work activities:
 - Extraction well EW-A19 pumping rate
 - Offsite well surveys and preparation of legal descriptions.
 - Conversion of monitoring data to suitable electronic formats for uploading into the Navy's NIRIS database, and maintenance of the NIRIS electronic database for the site.

- **Miscellaneous Topics and Issues – Action Items**
 - Abandonment of HN-20I
 - Conceptual Site Model Update

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

▪ **Action Items**

The following action items were identified as a result of the September 2009 meeting:

- PADEP is to send out copies of the CRC Industries RI Report.
- Earth Data is to provide the Navy with an update of the treatment system upgrade status after the next WMA board meeting.
- The TEG is to reach a consensus regarding possible changes in pumping schemes for Areas A and D that were discussed in the RAB meeting.
- ECOR is to generate an up-to-date listing of all remaining Navy monitoring wells.
- The Navy is to obtain additional in-house support for completing lease agreements for monitoring well access.

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
PADEP NOVEMBER 2, 2009 LETTER
CRC INDUSTRIES RI/SCR REPORT REVIEW COMMENTS**



Pennsylvania Department of Environmental Protection

2 East Main Street
Norristown, PA 19401
November 2, 2009

Southeast Regional Office

Phone: 484-250-5960
Fax: 484-250-5961

Ms. Michelle Rudnick
CRC Industries
885 Louis Drive
Warminster, PA 18974

Re: ECP - Land Recycling Program
CRC Industries
eFACTS No. 620230
885 Louis Drive
Warminster Township
Bucks County

Dear Ms. Rudnick:

The Department of Environmental Protection (Department) has received and reviewed the July 29, 2009, document titled "Remedial Investigation/Site Characterization Report (RI/SCR)," for the property located at 885 Louis Drive in Warminster Township. The report was prepared by Environmental Resources Management and submitted to the Department in accordance with the Land Recycling and Environmental Remediation Standards Act (Act 2) and constitutes a RI Report as defined in Chapter 3, Sections 303 and 304.

The Department hereby approves (with comments) the Remedial Investigation (RI) Report in accordance with the provisions of Act 2. Please keep the Department updated as the additional recommended data is collected. A Cleanup Plan, as per Chapter 250.410, should be submitted as soon as possible. The Department offers the following comments which are broken down by category:

General Comments:

1. CRC should continue to work with the United States Navy (Navy) and the Warminster Township Municipal Authority (WTMA) for continued monitoring and treatment of WTMA supply well No. 26. Pathway elimination is based on the performance and continued operation of well No. 26. If pumping rates are reduced or ceased, additional characterization may be necessary. Moving forward, a Risk Assessment should consider a scenario where well No. 26 is not in service.
2. MW-1 (and potentially other monitoring wells) should continue to be monitored for accumulating DNAPL, and recovered to the maximum extent practical. Ultimately, a Cleanup Plan should be submitted to address contamination in soil and groundwater both on and off the site.

3. CRC should keep contact with the Navy to ensure access to their off-site monitoring wells. Please add HN-65 to the CRC sampling network.
4. The Department requests that CRC collect a drinking water sample from the residential well at 857 Mearns Road.
5. The report indicates that the closest surface water body is 4,000 feet north of the site. However, surface water within an intermittent stream less than 1,000 feet north of the CRC property exists and should be evaluated.
6. The Department requests that CRC consider the installation and monitoring of a properly screened sentinel well(s) which would be located North/Northeast of well No. 26. The comments below indicate that a great deal of uncertainty is built into this groundwater modeling effort. Once this project reaches a post-remedial monitoring period, such a well network may be warranted to demonstrate attainment of the chosen standard.

Conceptual Site Model:

1. The report should characterize specific groundwater flow patterns and directions. It should also identify if flow is driven by primary porosity, secondary porosity, or some well characterized hybrid. A discussion of vertical flow and gradients should be expanded upon and should integrate an understanding of the relative conductivity of the aquitards. Groundwater flow should be based on a discussion of the regional and local fracture systems and anisotropy, especially as these fracture systems may change between the CRC site, the Naval Air Warfare Center (NAWC) site and the production well No. 26. This should include a better understanding of the construction details and prominent producing fractures/zones at well No. 26. The significance of seasonal variations in groundwater elevation should be discussed. Please provide maps and cross-sections to enhance the discussions.
2. Site-specific measurements of hydraulic conductivity (horizontal and vertical) for the different formations should be summarized and put into context with a regional interpretation of hydraulic conductivity.
3. Groundwater sources and sinks should be clearly identified and characterized. This includes expanding the discussion on rainfall recharge. Surface water bodies should be described especially how they interact with the groundwater system. Compare watershed divides to groundwater divides (i.e., no flow boundaries); justify that these are coincident.
4. Discuss the conceptual site model for the fate and transport processes in more detail. Identify which processes are most important and assign quantitative values/ranges to these.

Numerical Modeling:

1. Describe how the conceptual site model for geology (Figure 5-3) and hydrogeology was expanded to the limits of the model domain. On what basis was the bottom of the model selected? How was the anisotropy represented or evaluated in the model? Discuss the model layer thicknesses and how the layers were selected. Discuss how the model grid accounts for the calculations for Courant and Peclet numbers, and how it is designed to mitigate numerical dispersion.
2. Identify how the sources and sinks of groundwater are represented in the model. How is pumping simulated from the municipal water well and at the NAWC remediation area? How was recharge applied? How were the surface water bodies simulated (general head boundary, rivers) and what inputs were used?
3. Elaborate on the setup of the fate and transport model (i.e., Changes to the model grid, solution algorithms for the advection portion of the model).
4. Discuss the calibration approach for each the flow and numerical models. Why were CRC water level and water quality data not included in the calibration? Justify the use of porosity only to calibrate the fate and transport model. Discuss the implications of the approach.
5. Discuss calibration results. How do final calibrated values compare to site-specific values and regional data?
6. Complete a simple sensitivity evaluation on the model.
7. In the uncertainty section, the first paragraph appears to be describing an approach to the modeling that relies heavily on boundary conditions (i.e., recharge and discharge) and less on transmissivity. The approach should be introduced earlier and with more detail in the modeling document. Discuss the assumptions and implications on the uncertainty of the model.

The Department requests that an addendum document be prepared to address these comments. Once a sufficient document is submitted it will be combined with the RI as a complete package. Comments above should also be taken into consideration as field work and report preparation is planned in the future.

If at any time you wish to modify any part of this RI, you must prepare and submit a new or modified RI to include selection of a new remediation standard, if applicable.

Please note the Uniform Environmental Covenants Act (Act 68 of 2007), Title 27, Pa.C.S. Chapter 65 (UECA), became effective on February 19, 2008. This law provides a standardized process for creating, documenting, and assuring the enforceability of activity and use limitations on contaminated sites involving most engineering and institutional controls used to achieve Act 2 standards. For Act 2 cases meeting these conditions, the Department cannot approve a Final Report that does not include the appropriate environmental covenant(s) for the affected properties. The Department must approve the language in these covenants and strongly recommends that the draft covenant(s) be submitted for review prior to the submittal of the Final Report. Further information about UECA may be found on the Department's website at <http://www.depweb.state.pa.us> (under the keyword "Land Recycling").

Thank you for your cooperation in working with the Department in the remediation of this site. If you have any questions or need further information regarding this matter, please contact the Environmental Cleanup Program.

Sincerely,



Thomas D. Buterbaugh
Geologic Specialist
Environmental Cleanup



Walter J. Payne, P.G.
Professional Geologist Manager
Environmental Cleanup

cc: Mr. Selisker - CRC Industries
Mr. Beyer, P.G. - Environmental Resource Management
Bucks County Conservation District
Bucks County Health Department
Warminster Township
Mr. Hagey - Warminster Municipal Authority
Ms. Bass
Mr. Buterbaugh
Mr. Payne, P.G.
Mr. Gallagher
Mr. Sinding
Ms. Wnukowski
Mr. Blasberg
Mr. Clark
Regional File
30 (GJE09302-10)



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**ATTACHMENT 4
OCTOBER 2009 SAMPLING RESULTS – WMA 26**

ANALYTICAL LABORATORIES, INC.

P.O. Box 319
 CHALFONTE, PA 18914
 (215) 723-6466

SAMPLE ANALYSIS REPORT

Customer: Warminster Twp. Municipal Authority
 415 Gibson Ave.
 P. O. Box 2279
 Warminster, PA 18974
 Attn: Phil 215-675-3301
 FAX: 215-674-9991

Sample number: 6944-09B
 Date sampled: 10/01/09
 Time sampled: 1000
 Date received: 10/01/09
 Sampled By: Customer
 PWS ID #: 1090069

Sample source: WPS #26, Entry Pt. 114 (Raw Water)

ANALYTICAL RESULTS

Parameter VOC's	MCL (mg/l)	Result (mg/l)
Benzene	0.005	< 0.00050
Carbon Tetrachloride	0.005	< 0.00050
1,2-Dichloroethane	0.005	< 0.00050
o-Dichlorobenzene	0.6	< 0.00050
para-Dichlorobenzene	0.075	< 0.00050
1,1-Dichloroethylene	0.007	**0.0115**
cis-1,2-Dichloroethylene	0.07	0.0280
trans-1,2-Dichloroethylene	0.1	< 0.00050
Methylene Chloride	0.005	< 0.00050
1,2-Dichloropropane	0.005	< 0.00050
Ethylbenzene	0.7	< 0.00050
Monochlorobenzene	0.1	< 0.00050
Styrene	0.1	< 0.00050
Tetrachloroethylene	0.005	**0.575**
Toluene	1.0	0.00056
1,2,4-Trichlorobenzene	0.07	< 0.00050
1,1,1-Trichloroethane	0.2	0.00200
1,1,2-Trichloroethane	0.005	< 0.00050
Trichloroethylene	0.005	**0.0448**
Vinyl Chloride	0.002	< 0.00050
Total Xylenes	10.0	< 0.00150

All results that exceed the Maximum Contaminant Level* (MCL) established under the "Safe Drinking Water Act" are marked with asterisks (**). asterisks (**).

Symbol key:
 mg/l - milligrams/liter
 < - less than
 PA DEP #09332

AW KJ
 Geoff W. Kinka

ANALYTICAL LABORATORIES, INC.
P.O. Box 319
CHALFOOT, PA 18914
(215) 723-6466

SAMPLE ANALYSIS REPORT

Customer: Warminster Tw. Municipal Authority
415 Gibbon Ave.
P. O. Box 2279
Warminster, PA 18974
Attn: Phil 215-675-3301
FAX: 215-674-9991

Sample number: 6944-09C
Date sampled : 10/01/09
Time sampled : 1004
Date received: 10/01/09
Sampled By : Customer
PWS ID # : 1090069

Sample source: WPS #26, Entry Pt. 114(Finished Water)

ANALYTICAL RESULTS

<u>Parameter</u>	<u>Result(mg/l)</u>
1,4-Dioxane	< 0.0040

Symbol key:
mg/l - milligrams/liter
< - less than
PA DEP #09332

AW. Ki

Geoff W. Kinka



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**ATTACHMENT 5
ECOR PRESENTATION**



NAWC WARMINSTER

9 DECEMBER 2009

Presented by



Presentation Agenda



- **GWTP Status**
 - Plant Operation
 - Mass Removal
 - Area A Extraction Well - EW-A19

- **Future Activities**
 - Hexavalent Chromium (Cr^{+6}) Removal
 - Area C Wireless Communication
 - Changes to Pumping in Area D

Presentation Agenda (Con't)



- LTM and Reports Update
- Offsite Well Surveys and Legal Descriptions
- NIRIS Data Conversion
- Well Abandonment – HN-201

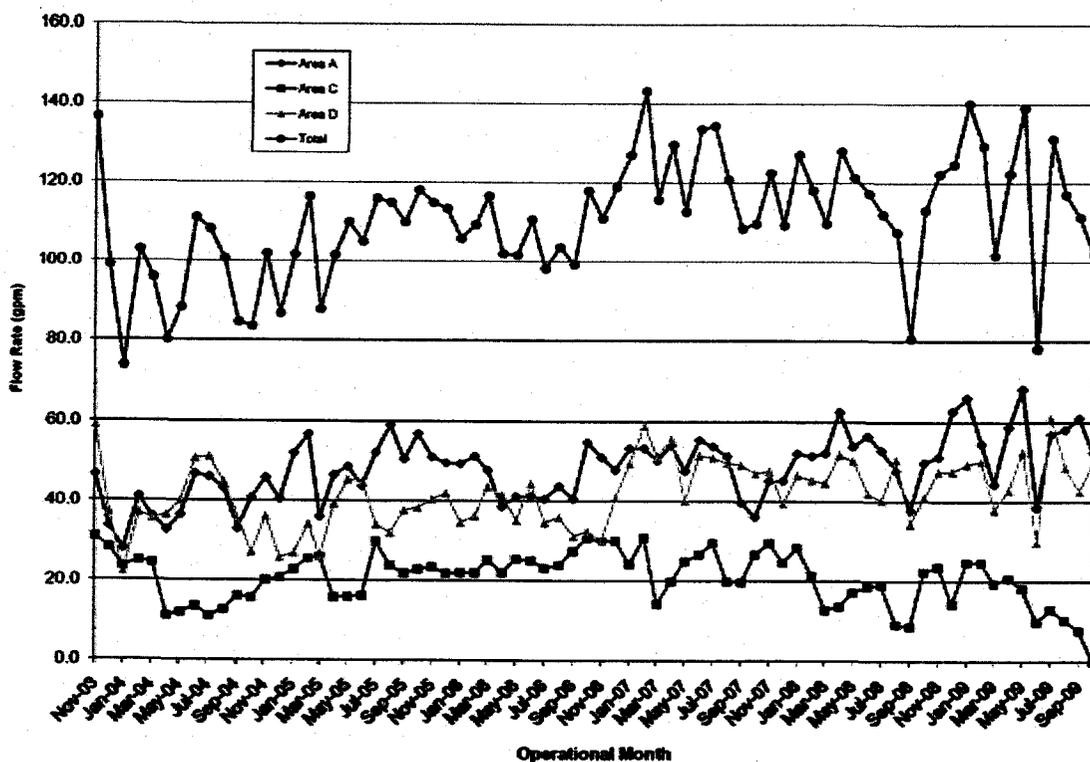
Groundwater Treatment Plant Operating Status

Plant Operation



- Average flowrates in 2009:
 - 56 gpm from Area A
 - 14 gpm from Area C
 - 42 gpm from Area D
 - 117 gpm overall
- 643,813,738 gallons treated through 10/09
- Area C currently off due to damaged subsurface communication wiring
- As decided by TEG, extraction well EW-C21 to remain off

Groundwater Treatment Plant Recovery Flow Rates

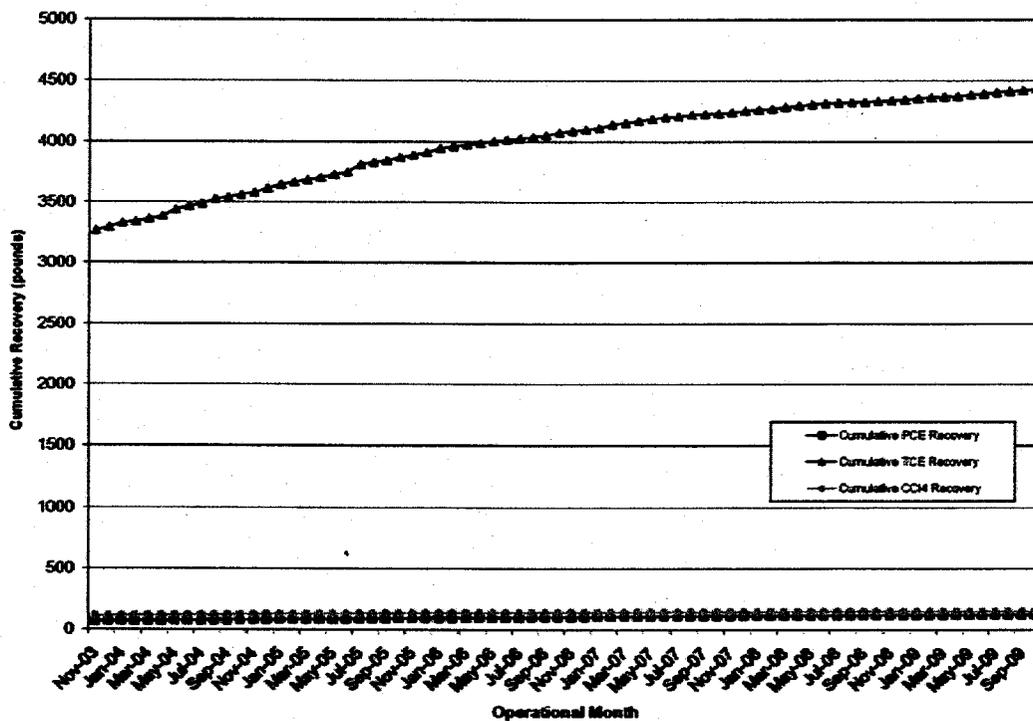


Mass Removal

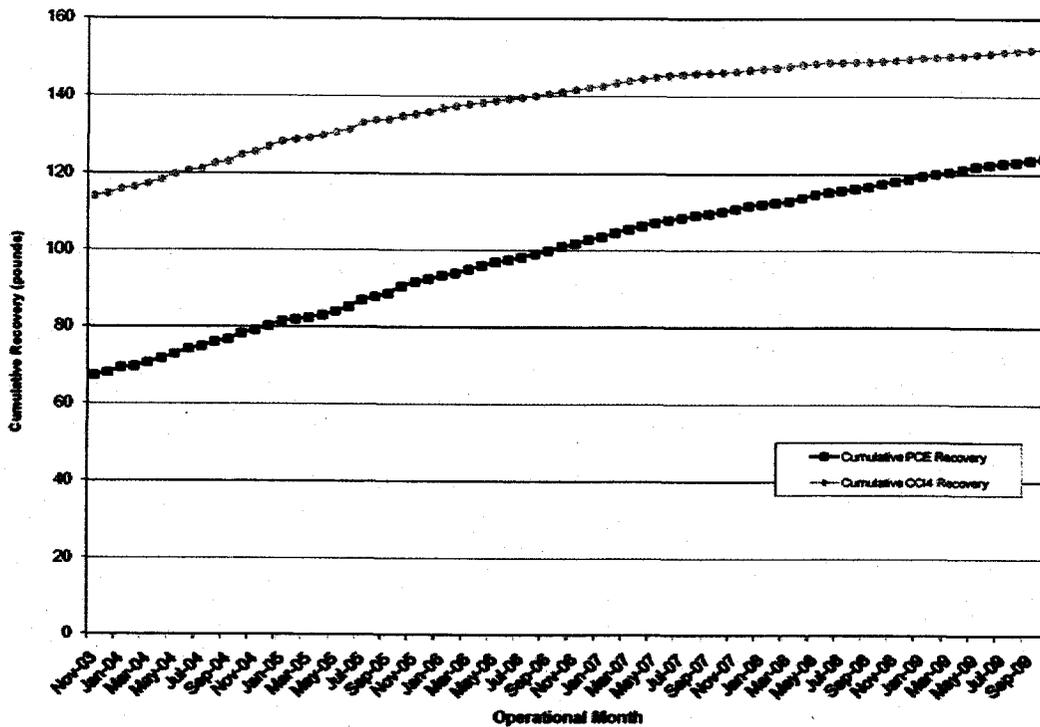


- Cumulative dissolved-phase VOC recovery through October 2009 reporting period:
 - Tetrachloroethene (PCE) – 124 pounds (0.4lbs in Oct)
 - Trichloroethene (TCE) – 4,430 pounds (10.7 lbs in Oct)
 - Carbon Tetrachloride (CCl₄) – 152 pounds (0.25 lbs in Oct)
- Currently most of TCE recovered is from Area A with the remainder from Area D

Dissolved-phase Cumulative Mass Recovery



Dissolved-phase Cummulative Mass Recovery



Area A Extraction Well - EW-A19



- Current pumping rate ~ 10 gpm
- Sampled in October 2009
 - TCE – 130 ppb
 - PCE – ND (10)
 - cis-1,2-DCE – ND (10)
 - CCl4 – ND (10)

Future Activities



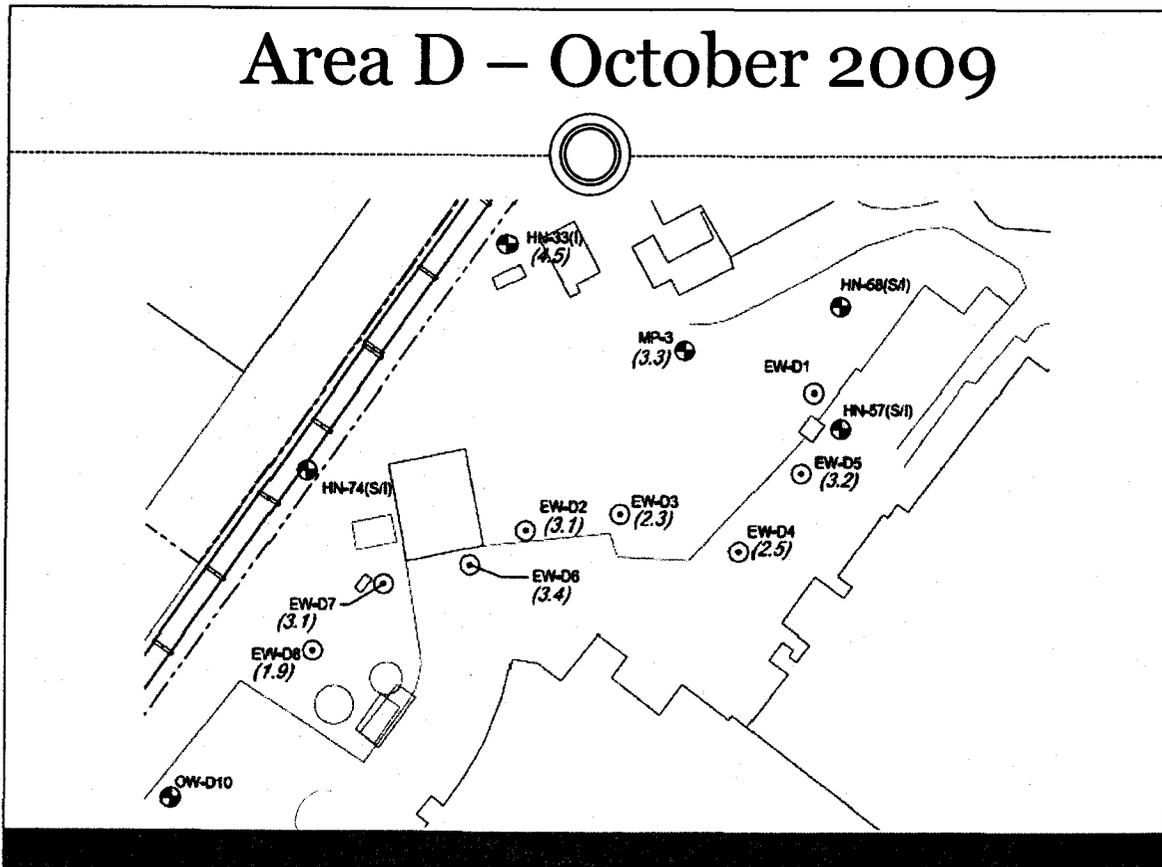
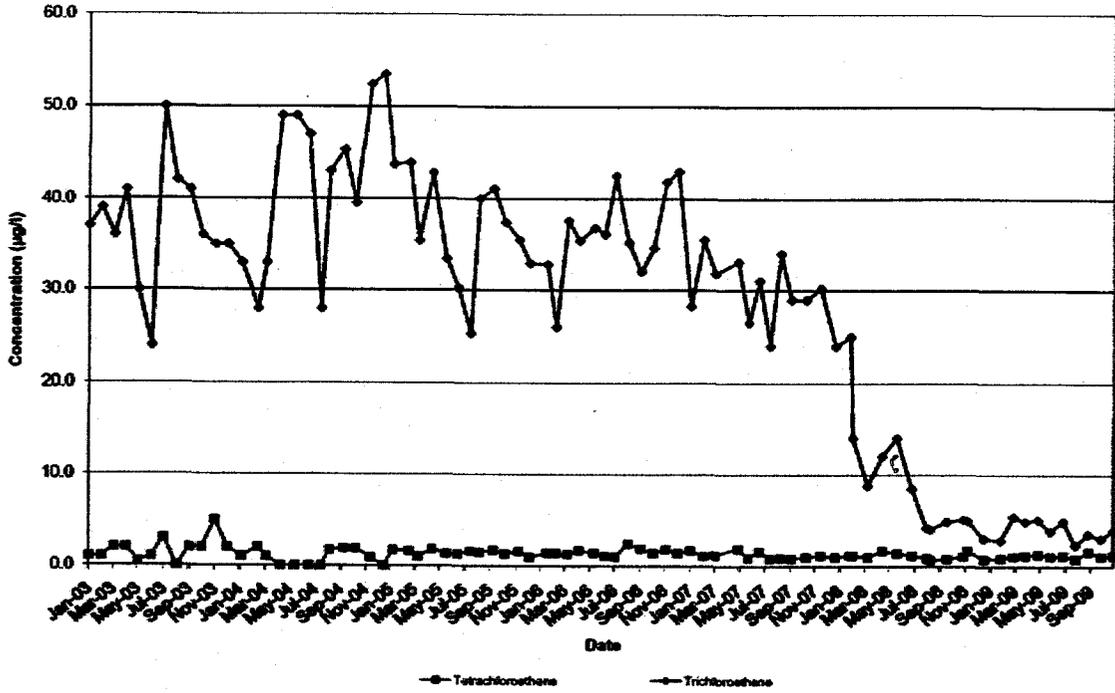
- Hexavalent Chromium (Cr⁺⁶) Removal
 - Sample individual Area A wells for Cr⁺⁶
 - Design/install pH adjustment system for improved Cr⁺⁶ removal and increased resin life
- Repair Area C communication
 - Repair of existing subsurface wiring not practical
 - Pre-engineering has begun on a two-way radio system
 - Lead-time for the equipment – 30 days

Future Activities (con't)

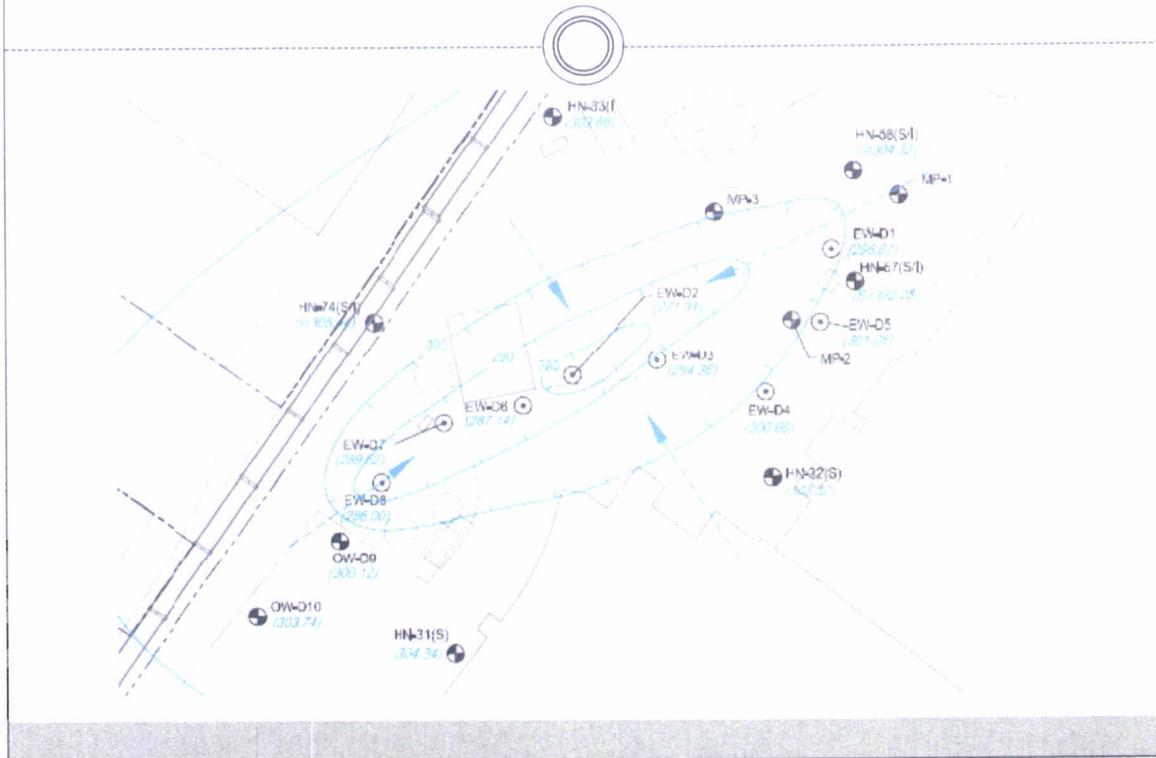


- Once Area C is back online, shutdown Area D wells and monitor concentrations
 - Analytical data shows all extraction wells in Area D remain below MCLs as of October 2009
 - TEG decided GW extraction could cease
 - Timetable for turning off pumps – after pumping in Area C resumes
 - Future GW monitoring schedule to determine if rebound occurs

NAWC, Warminster - Groundwater Treatment Plant
 Area D
 Concentration of Tetrachloroethene and Trichloroethene vs. Time



Area D – October 2009



Future Activities (con't)

- 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

Long-Term Monitoring Status

Report Status



- Recent reports submitted:

- 3rd Quarter FY 2009 (Annual) – Final – Sept 2009
- Copies of LUCIP, Well Decommissioning, Shenandoah Woods Reports sent out – Nov 2009

- Reports in progress:

- 1st Quarter FY 200~~9~~ (Semi-Annual) – Internal Draft

Well Surveys and Legal Descriptions



- Provide Surveys
- Provide Legal Descriptions
- 9 wells on non-Navy property
 - HN-16, HN-19, HN-52, HN-53, HN-54, HN-100, OB-13, R4, R9

NIRIS Monitoring Data



- Convert and migrate Warminster groundwater data in electronic format to NEDD
- Working with TtNUS to create database forms
- Convert geospatial data to the ESRI format
- Coordinate data will be in State Plane Coordinate System NAD 83
- Upload data to NIRIS through March 2010
- Currently in process of sending NIRIS formatted pdf deliverables to TtNUS

Well Abandonment – HN20I



- **Timeline:**

- TEG recommended decommissioning of HN-20D
- Decommissioning activities occurred in May/June 2009
- Oct 2009 synoptic event realized HN-20I abandoned instead

- **Details:**

- HN-20I – monitored interval 123-143' bgs – HGU C
- HN-20D – monitored interval 200-221' bgs – HGU C
- Extraction system targets HGU B, not C and HN-20I only used for monitoring water levels, not collecting GW samples

Well Abandonment – HN20I

