



FORMER NAVAL AIR WARFARE CENTER WARMINSTER

Restoration Advisory Board (RAB) Meeting Minutes

. MEETING MINUTES

RESTORATION ADVISORY BOARD (RAB) MEETING NO. 115

REFERENCE: CLEAN CTO NO. WE23

1. Meeting Date and Time: September 9, 2009, 9:35 AM to 10:40 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 indicated that Mr. Jeff Dale would be taking over the project by the end of September as the new Navy RPM.

Comments were solicited on the May 6, 2009 RAB meeting minutes. No comments were offered by those in attendance and the meeting minutes were approved as-is.

Action items from the May 6, 2009 RAB meeting were reviewed. The action item review is summarized below:

1. **PADEP is to send out any new CRC data ASAP.**

Mr. Tom Buterbaugh (PADEP hydrogeologist) indicated that any new data received had been sent out. Mr. Jeff Orient (Tetra Tech NUS) asked if the new RI Report had been issued yet –



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Mr. Buterbaugh indicated that the report had been received by PADEP and offered to send copies to interested RAB members

2. PADEP is to invite CRC to the next RAB meeting.

The invitation was extended, and two CRC representatives (Mr. Adam Selisker and Ms. Michelle Rudnick) were in attendance and were introduced.

3. WMA is to copy PADEP and the Navy on the letter they are planning to send to CRC.

Mr. Dave Fennimore (Earth Data, representing Warminster Municipal Authority) indicated that the letter had been sent, and the Navy and DEP were copied on it. Navy and DEP representatives indicated that they had not received the letter, so Mr. Fennimore stated that he would resend it.

4. WMA is to provide WMA 26 stripper upgrade design and cost information to the Navy.

The information was provided by WMA as requested.

5. ECOR is to reduce the pumping rate for extraction well A-19 and resample it.

The work was executed by ECOR as per the action item.

6. ECOR is to provide a map showing all wells sampled during the most recent sampling round along with a listing of the wells that were split with CRC.

The map requested is included in the most recent monitoring report.

7. ECOR is to schedule a conference call to discuss sampling schedule changes.

The conference call was set up by ECOR and executed per the action item.

8. ECOR is to provide a letter report detailing the Shenandoah Woods investigation work recently performed.

A letter report was submitted by ECOR per the action item



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9. The Navy and TtNUS are to pull together a Data Quality Objectives (DQO) session agenda.

An agenda has been prepared and the DQO scoping meeting will be held following completion of the RAB meeting.

Off-Site Investigations

Mr. Buterbaugh indicated that PADEP had received the RI Report approximately 10 days ago. Mr. Selisker stated that CRC would be attending RAB meetings on a regular basis for awhile and indicated that once the RI Report was approved a risk assessment and remediation plan would be prepared and submitted. Mr. Lewandowski asked how many offsite wells were installed/sampled as part of CRC's investigation. Mr. Selisker indicated that all the wells installed by CRC were on the CRC property, but some offsite Navy wells were sampled also as part of the investigation. Mr. Lewandowski asked whether any source areas were found. Mr. Selisker indicated that a hot spot was found near and under an above-ground storage tank. He also indicated that a historic source was a holding area where wastes were temporarily stored before disposal. The area was in use until 1994, then was closed down. Mr. Buterbaugh asked who wanted copies of the RI Report – the Navy, EPA, and TtNUS requested copies. Mr. Orient asked Mr. Selisker if he would like to be included on the distribution list for RAB minutes and agendas – Mr. Selisker indicated that he would like to be included.

WMA Update

Mr. Fennimore reiterated that he had sent the Navy the requested information r.e. the new air stripper design and costs – beyond that, there is no new information to provide as an update. Mr. Lewandowski asked where the project stood in terms of procuring a contractor to execute the upgrades. Mr. Fennimore indicated that the bid documents have been prepared but have not been sent out for bid yet. He also indicated that he would provide Mr. Lewandowski with a status update after the upcoming WMA meeting.

Treatment Plant Operation/LTM

Mr. David Streetsmith (ECOR) provided an update of various activities assigned to ECOR by the Navy. Topics covered included:



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- Groundwater treatment plant status.
- LTM reports update.
- Area A extraction well update – EW-A19.
- Potential changes to pumping in Areas C and D.
- Land Use Control Implementation Plan (LUCIP) and inspections.
- Well decommissioning work.
- Offsite well surveys and legal descriptions.
- NIRIS data conversion.

The ECOR update is provided as Attachment 3 to the minutes.

During and following the presentation, there was a general discussion of various related topics. Mr. Streetsmith suggested increasing the pumping rate of extraction well EW-19 from 6 to around 10 gpm, as the recent reduction in pumping rate did not increase the pumped concentrations to a significant degree. The pump currently in the well is sized to pump 20 gpm, so increasing the pumping rate would reduce the amount of backpressure and stress on the pump/discharge piping. Ms Kathy Davies (EPA hydrogeologist) asked what the change in concentration was when the pumping rate was reduced from 10 gpm to 6 gpm. Mr. Streetsmith stated that the concentration went up some, but not a lot. Mr. Orient pointed out that the TCE concentration had increased from 290 ug/l to 460 ug/l following the reduction in pumping rate.

For Area D, Mr. Streetsmith brought up the possibility of shutting down all the extraction wells, as there is currently only one well (HN-74I) with a TCE concentration above the MCL. Mr. Lewandowski asked if the concentration in HN-74I has dropped over time – Mr. Streetsmith indicated that it has. One issue that was mentioned in the event of a shutdown of the Area D extraction wells was that the treatment plant effectiveness would need to be re-evaluated, as influent concentrations would increase since water from the Area D wells contains very little contamination and is currently diluting the influent stream.

Area C, Mr. Streetsmith stated that the operation of extraction well EW-C21 has been very sporadic over the past year due to operational issues. PCE concentrations in the well are below the MCL and have



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been for awhile. The well would require significant repair work to get it running properly again and given the low PCE concentration the well may not be needed any longer. After some discussion, a consensus was reached that the well should not be repaired and restarted at this time.

For the Land Use Control (LUC) inspections, Mr. Streetsmith indicated that all inspections have been completed and everything is satisfactory. A total of 52 wells have been permanently closed in accordance with PADEP guidelines during well decommissioning activities. Seven wells could not be located (destroyed or buried during past construction activities in the area). A report was submitted in August detailing the well abandonment work performed. Mr. Charles Clark (PADEP project manager) stated that not finding the 7 wells was acceptable as long as a reasonable effort was made to find them. Mr. Orient asked if there was an up-to-date list of all Navy wells remaining at the former base. Mr. Streetsmith replied that the wells abandoned are in the abandonment report, and the wells currently being monitored are in the monitoring reports. Ms. Davies pointed out that there may be other wells that still exist that aren't currently being monitored, and suggested that a comprehensive, updated list of all remaining wells be prepared.

For the well surveys and legal descriptions, Mr. Streetsmith stated that the information generated to support obtaining long term easements for 10 offsite wells is in Navy real estate staff hands for execution. Mr. Lewandowski indicated that this effort is not a priority for the BRAC real estate staff, and he is trying to get additional support. Appraisals will be required as part of the process. Mr. Orient pointed out that the 10 wells under discussion are actually 10 well clusters – multiple wells are present at most of these locations.

For the NIRIS update, Mr. Lewandowski indicated that the site upload to NIRIS will be completed this year. The Administrative Record is in already, but no data. A LUC Tracker will be included in the NIRIS uploads.

Miscellaneous Topics and Issues – Action Items

The following topics were briefly discussed:



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Municipal well treatment system upgrade status – Mr. Fennimore clarified the current status – for WMA 26, the construction bid has been awarded but construction has not yet started. For WMA 13, the treatment system upgrade is still in the design stage.

Long Term Performance Monitoring Plan (LTPMP) update – Mr. Orient indicated that the update of the LTPMP will be kicked off with the DQO scoping meeting that will be held following the conclusion of the RAB meeting.

Operation and Maintenance (O&M) Manual update - Mr. Orient indicated that a draft version of the O&M manual for the OU-1A treatment plant was submitted to the Navy in early July.

Conceptual Site Model (CSM) update – Mr. Orient indicated that some block diagrams are currently under preparation by Battelle. Most work on the CSM has been temporarily put on hold waiting for the recently-submitted CRC Industries RI Report so that the CSM can incorporate the new data. Mr. Drew Barton (Battelle) handed out preliminary block diagram figures.

Action Items identified through the course of the meeting include:

- 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.



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Next Meeting Date

The next RAB meeting date was set for December 9, 2009 at 9:30 AM in the WMA Board Room.

The meeting was adjourned at approximately 10:40 AM.



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ATTACHMENT 1 ATTENDANCE LIST

NAWC WARMINSTER
 TECHNICAL SUBCOMMITTEE/RAB MEETING
 DATE: 9/9/09

NAME	AFFILIATION	PHONE	EMAIL
JEFF ORIENT	TETRA TECH	412-921-8778	jeff.orient@tetratech.com
Ron Sloto	U.S. Geological Survey	610-321-2434 X212	rsloto@usgs.gov
Bob Lewandowski	NAVY	215 897 4908	robert.f.lewandowski@navy.mil
Kathy Davies	US EPA	215-814-3315	davies.kathy@epa.gov
Len Good	ECOR	610-431-8731	good@ecor-solutions.com
Matt Lopp	ECOR	610-840-9200 x111	lopp@ecor-solutions.com
Dave Streetsmith	ECOR	610-840-9200	streetsmith@ecor-solutions.com
DENNIS OREN SHAW	US EPA	215-814-3366	ORENSHAW.DENNIS@EPA.GOV
Dave Fennimore	Earth Data N.E./WMA	610 524-9466	dfennimore@earthdatane.com
ADAM SELISKER	CRC Industries Inc.	(215) 442-6223	aselisker@crcindustries.com
Michelle Rudnick	CRC Industries, Inc.	215-442-6224	mrudnick@crcindustries.com
Carolyn Scala	Battelle	215-504-5003	scalac@battelle.org
ANDREW BARTON	BATTELLE	412-427-7030	bartona@battelle.org
Jim Krueger	Township of Warminster	215 443 5414	jkrueger@warminster.org
Toby Kessler	Gilmore/Warm.Twp.	215 3454330	tkessler@gilmore-assoc.com
Chris Candela	ATC / ERICUSON	610-313-3100 x495	Chris.Candela@atcassociates.com
Tom BUTERBAUGH	PA DEP	484-250-5790	tbuterbaugh@state.pa.us
Charles Clark	PA DEP	484-250-5731	cha.clark@state.pa.us
Mark Traxler	Tetra Tech	610-382-1171	marktraxler@tetratech.com



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**ATTACHMENT 2
MEETING AGENDA**



AGENDA

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Technical Subcommittee/Restoration Advisory Board (RAB) Meeting

Date: 9 SEPT 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
 - LTM update
 - Status of Quarterly Monitoring Reports
- **Other Activities**
 - ECOR presentation on current/upcoming work activities:
 - New extraction well EW-A19
 - Potential changes to pumping in Areas C and D
 - Land Use Control Plan and inspections
 - Well decommissioning status
 - 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**
 - Long Term Performance Monitoring Sampling and Analysis Plan update
 - Operable Unit 1A Treatment System Operation and Maintenance Manual update
 - Conceptual Site Model Update
 - Administrative Record upload to NIRIS

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

Note: A Data Quality Objectives meeting will be held in the Board Room after the RAB meeting to solicit technical input r.e. the upcoming LTPM-SAP – interested parties are welcome to attend.

▪ **Action Items**

The following action items were identified at the wrap-up of the May 2009 meeting:

- PADEP is to send out any new CRC data ASAP.
- PADEP is to invite CRC to the next RAB meeting.
- WMA is to copy PADEP and the Navy on the letter they are planning to send to CRC.
- WMA is to provide WMA 26 stripper upgrade design and cost information to the Navy.
- ECOR is to reduce the pumping rate for extraction well A-19 and resample it.
- ECOR is to provide a map showing all wells sampled during the most recent sampling round along with a listing of the wells that were split with CRC.
- ECOR is to schedule a conference call to discuss sampling schedule changes.
- ECOR is to provide a letter report detailing the Shenandoah Woods investigation work recently performed.
- The Navy and TtNUS are to pull together a DQO session agenda.

Directions to the WMA Board Room:

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.

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.



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**ATTACHMENT 3
ECOR PRESENTATION**



ECOR Solutions, Inc.

Restoration Advisory Board Meeting for NAWC Warminster

9 September 2009

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Presentation Agenda

- **GWTP Status**
- **LTM and Reports Update**
- **Area A Extraction Well – EW-A19**
- **Potential Changes to Pumping in Areas C and D**
- **Land Use Control Plan and Inspections**

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Presentation Agenda (Continued)

- Well Decommissioning Work
- Offsite Well Surveys and Legal Descriptions
- NIRIS Data Conversion

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Groundwater Treatment Plant Operating Status

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- Average Flow rates in 2009:

- 55 gpm from Area A
- 18 gpm from Area C
- 40 gpm from Area D
- 120 gpm overall

- 630,824,029 gallons recovered and treated (1999 start up through July 2009)

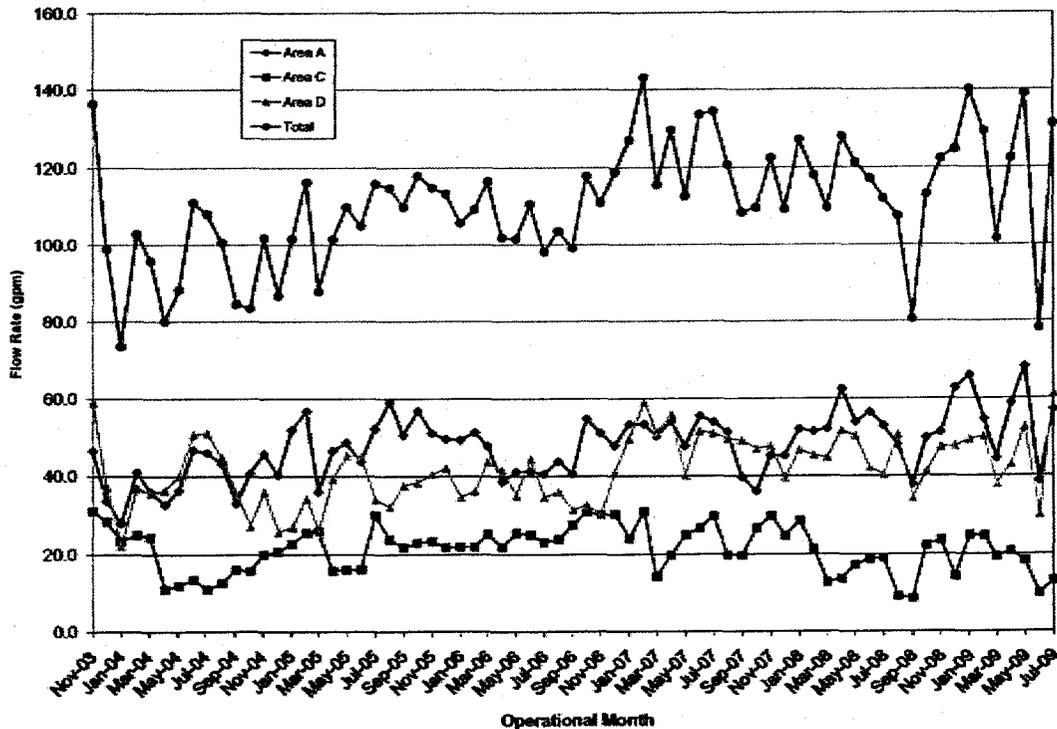
- System up-time >95%

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Groundwater Treatment Plant Recovery Flow Rates



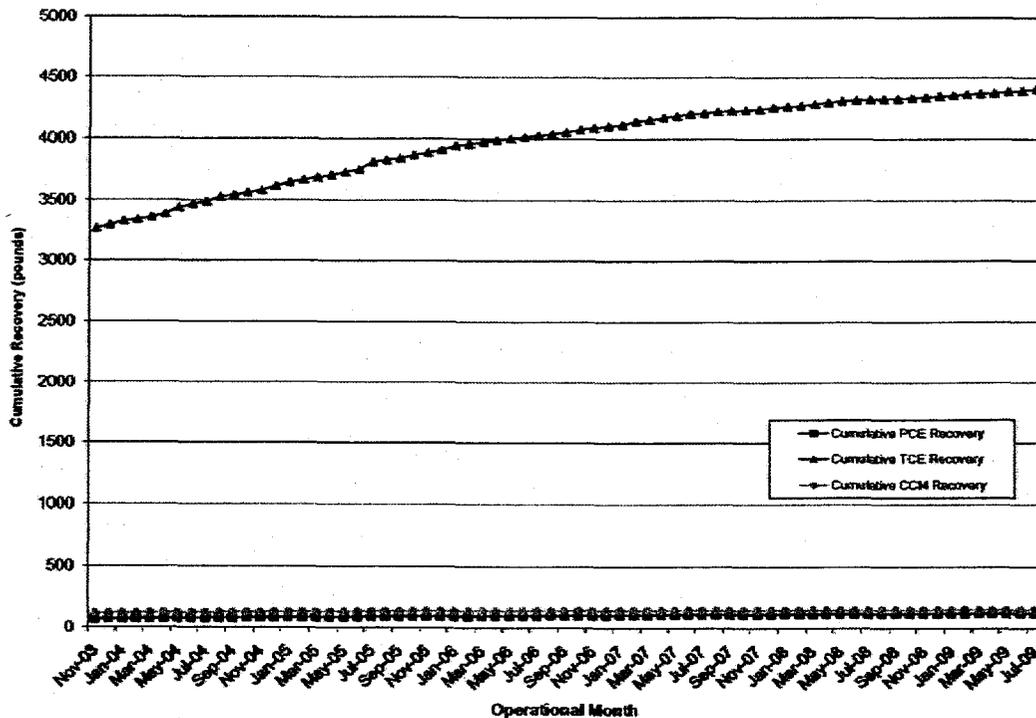
- Cumulative dissolved-phase VOC recovery through July 2009 reporting period:
 - Tetrachloroethene (PCE) – 123 pounds
 - Trichloroethene (TCE) – 4,405 pounds
 - Carbon Tetrachloride (CCl₄) – 152 pounds
- Currently most of TCE recovered is from Area A with the remainder from Area D

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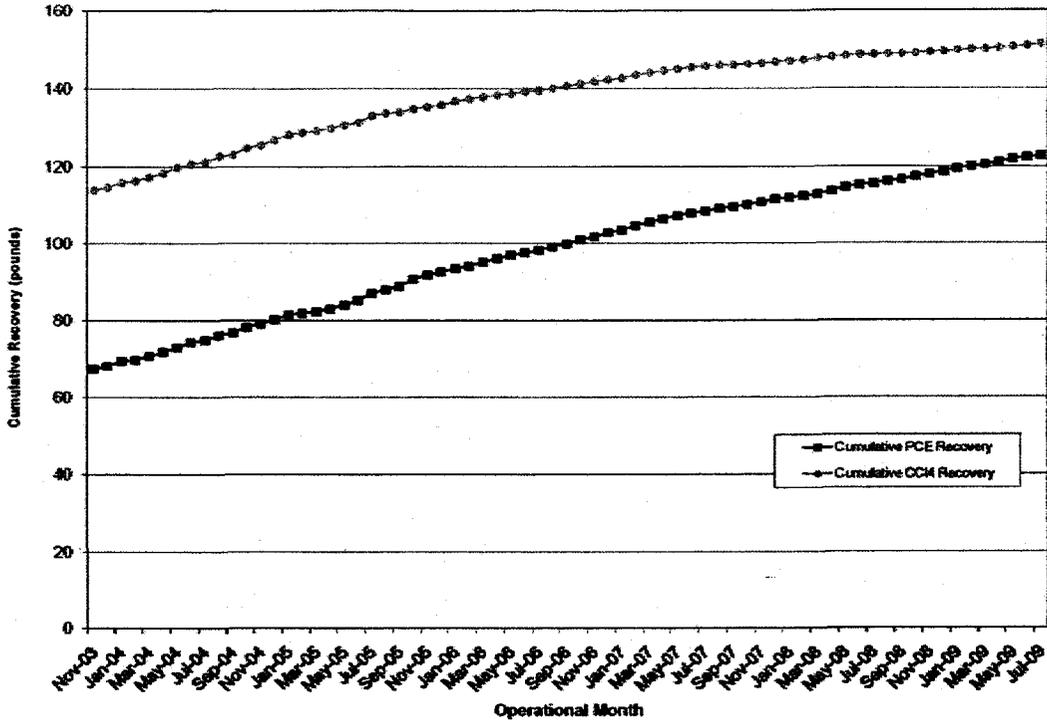
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Dissolved-phase Cumulative Mass Recovery



Dissolved-phase Cumulative Mass Recovery



Long-Term Monitoring Status

• **Recent reports submitted:**

- 2nd Quarter FY 2009 (Quarterly) – Final – May 2009
- 3rd Quarter FY 2009 (Annual) – Draft – August 2009

• **Reports in progress:**

- 3rd Quarter FY 2009 (Annual) - Final

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Area A Extraction Well - EW-A19

- Current pumping rate ~ 6 gpm
- Sampled in April 2009
- TCE – 290 ppb
- PCE – 1.2 ppb
- Cis 1,2 DCE – 1.5 ppb
- CCl₄ - ND

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Potential Changes to Pumping Rates in Areas C and D

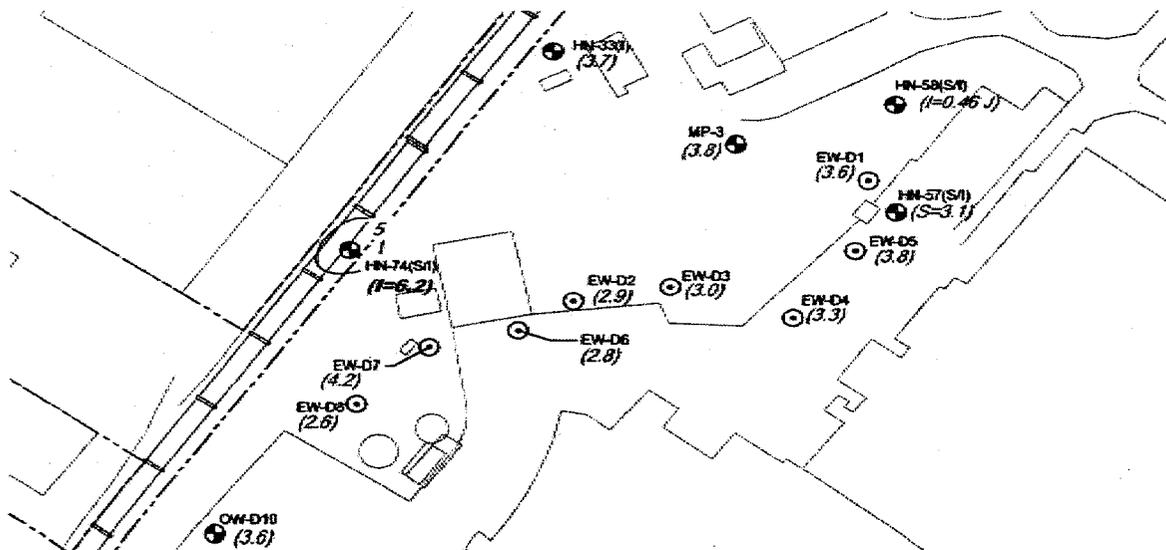
- Analytical data shows all extraction wells in Area D are below MCLs
- Only one monitoring well (HN-74I) is above MCLs, but it is on the edge of the zone of influence
- Analytical data shows extraction well EW-C21 is below MCLs

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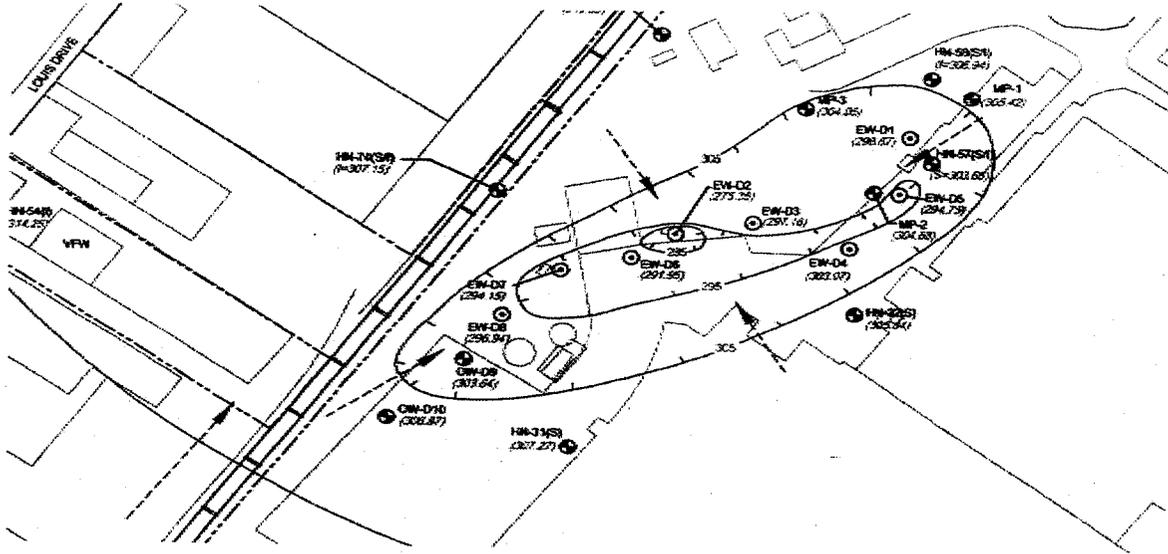
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Area D - April 2009

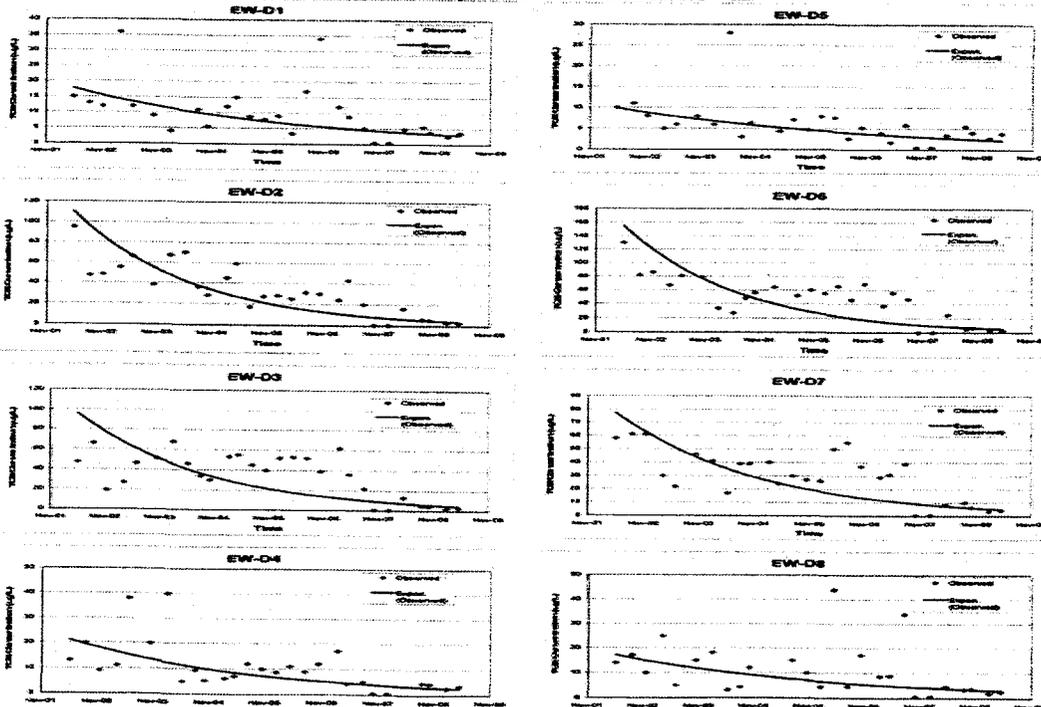


Area D - April 2009



Area D - Trend Lines

Exponential Trend Analysis Plots for Area D Extraction Wells



Land Use Control Plan and Inspections

- Draft Final LUCIP submitted – August 2009
- Final LUC Report for 2008 submitted – August 2009

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Well Decommissioning

- Permanently closed 52 wells in accordance with PADEP guidelines
- Added two wells – HN-66I and Overburden
- Could not find seven wells - HN-12D, HN-81S, HN-41S, HN-41I, HN-41D, HN-18S, and HN-18I
- Report Submitted – August 2009

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Well Surveys and Legal Descriptions

- Provide Surveys
- Provide Legal Descriptions
- 10 wells on non-Navy property
 - HN-5, HN-16, HN-19, HN-52, HN-53, HN-54, HN-100, OB-13, R4, R9

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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
- Maintain NIRIS through March 2010 (Includes uploading new data on a quarterly basis)

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