



FORMER NAVAL AIR WARFARE CENTER WARMINSTER

Technical Review Committee (TRC) Meeting Minutes

FORMER NAVAL AIR WARFARE CENTER (NAWC) WARMINSTER

TECHNICAL REVIEW COMMITTEE (TRC) MEETING MINUTES

OCTOBER 17, 2012 MEETING

REFERENCE: CLEAN CTO NO. WE23

1. Meeting Date and Time: October 17, 2012, 9:30 AM to 10:50 AM
2. Location: Warminster Municipal Authority Board Room
3. Attendees: See Attachment 1 (attendance list)
4. Summary of Meeting Discussions: See below.

Administrative Update

Willie Lin, the BRAC Environmental Coordinator (BEC) 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). This is the first TRC meeting for the former NAWC Warminster following adjournment of the Restoration Advisory Board (RAB). Mr. Lin indicated that all RAB adjournment activities have been completed, including the public notice.

Comments were solicited on the April 2012 RAB meeting minutes. No comments were offered by those in attendance and the meeting minutes were approved as-is. Kathy Davies (EPA Region III hydrogeologist) asked that the BRAC PMO website address be provided to facilitate access to anyone wanting to view information on the site. Mr. Lin indicated that it would be added to the meeting minutes and future agendas. The web address is:

<http://www.bracpmo.navy.mil/basepage.aspx?baseid=81&state=Pennsylvania&name=warminster>



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Action items from the April 2012 RAB meeting were addressed as meeting agenda topics were brought up for discussion. The action items from the previous RAB meeting are summarized below:

- The Navy is to provide an update on activities related to adjournment of the RAB (memorandum/public notice).
- PADEP/CRC is to provide an update r.e. the status of the CRC Industries investigation.
- The Navy is to provide an update on groundwater extraction/treatment/monitoring activities.
- 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.
- The Technical Evaluation Group (TEG) is to provide a recommendation for an exit strategy to reduce or terminate long term monitoring (LTM) for Area D.

Off-Site Investigations

Mike Penzone (PADEP) stated that CRC is planning to install the remaining 4 recovery wells at their facility next week. Michelle Rudnick (CRC Industries) indicated that a total of 6 recovery wells will be installed. The schedule for completion of the extraction/treatment system is as follows:

- Specific capacity testing the week following well installations
- System piping construction by mid-November
- Air stripper/carbon treatment system installation over the winter
- System startup in late March/early April

Ms. Rudnick also indicated that all required permitting associated with the system has been completed.

WMA Update

Tim Hagey (Warminster Municipal Authority, WMA) stated that there is no change in status for the municipal wells since the last meeting. Jeff Orient (Tetra Tech, Navy contractor) asked what



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the current PCE concentrations are in well WMA-26 – Dave Fennimore (Earth Data, representing Warminster Municipal Authority) replied that they are averaging around 350 ug/l. Ms. Davies asked what the current TCE concentrations are – Mr. Fennimore indicated that they have been in the 40-50 ug/l range recently [subsequent to the discussion Mr. Fennimore retrieved the most recent (September 2012) sampling results; PCE was at 465 ug/l and TCE at 69 ug/l].

Navy Housing Transfer Update

Mr. Lin indicated that there is no change in status for the Navy housing areas along Jacksonville Road and in Shenandoah Woods, the Navy still owns the properties. The Navy is still completing the National Environmental Policy Act (NEPA) review of the reuse plans. Ms. Davies asked if all of the Area B monitoring wells have now been abandoned. Jen Good (H&S Environmental, Navy contractor) indicated that the remaining wells had been abandoned in May.

Groundwater Extraction and Treatment Update

Ms. Good provided an update on groundwater extraction and treatment activities (see handout in Attachment 3). Some notable points covered include:

- The treatment plant operated at an average rate of 68 gpm in September, with most flow coming from Area A and the remainder from Area C.
- Routine activated carbon change-outs were performed in August, and a Request for Determination to discontinue use of the vapor phase carbon treatment was approved by PADEP in April and implemented in May.
- VOC removal via pumping totaled approximately 6.3 lbs in September, with 5.6 lbs of TCE the primary VOC removed. Almost all the mass removal was from Area A wells.
- VOC recovery rates have stabilized and have been at similar levels for ~5 years.



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- The DRBC and NPDES permits for the treatment system discharge expire in April and May 2013, respectively and are currently in the process of being renewed.

Monitoring Activities Update

Ms. Good provided an update on LTM activities (see handout in Attachment 3). Some notable points covered include:

- The Spring 2012 round of groundwater sampling was performed in May (draft report due out in October).
- The Fall 2012 round of sampling will be performed in November, in addition some Area C wells will be sampled for perfluorinated compounds (PFCs) as part of a research effort by Oregon State University.
- Seven monitoring wells were abandoned in May 2012.
- Profiling of Area A and Area C wells (heat pulse flowmeter, sampling) will be performed in support of source treatment optimization activities being performed by Battelle for the Navy.
- The 2012 annual land use control inspection process is underway.

Ms. Davies asked about the timeframe for source area treatment field work – Ms. Good indicated that the well profiling would likely be done in the November 2012 timeframe. Ms. Davies asked if H&S would wait for comments on the work plan, as she only received it a couple days ago - Mr. Lin stated that the Navy would wait for TEG comments. Ms. Davies then asked if the PDB sampling approach would be revised per the heat pulse flowmeter results – Carolyn Scala (Battelle, Navy contractor) replied that they would be. Mr. Fennimore asked if the extraction wells would be shut down for the November testing – Mr. Lin indicated that they would be. Mr. Fennimore observed that the shutdown may occur over the same timeframe as



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the CRC well testing, and asked for a combined schedule for the Navy and CRC work so they could monitor the effects on WMA 26. Mr. Lin stated that the Navy would provide a schedule and he'd pass the request on to Jeff Dale (Navy RPM). Mr. Lin also mentioned that Mr. Dale is looking for comments on the optimization work plan as soon as possible.

Mr. Fennimore also asked if the plan is to target specific fracture zones or do overall injections for the chemical oxidant treatment in the Area A source area – Ms. Scala indicated that specific fracture zones would likely be targeted, and also that bench-scale testing would be done prior to implementation to evaluate the effectiveness of potential oxidants.

Ms. Davies asked where the focus of the VI-related work would be in Area C – Ms. Scala indicated that the downgradient area would be the primary focus. Mr. Fennimore asked when EPA would be releasing their new risk numbers for TCE/vapor intrusion – Ms. Davies stated that an updated EPA vapor intrusion guidance document is targeted for release in December.

Mr. Fennimore asked for some information about the PFC groundwater sampling. Mr. Orient and Ms. Davies provided some general information about PFCs [associated with aqueous fire-fighting foam (AFFF) used by the DoD and other fire-fighting organizations; PFOA and PFOS are components typically used as indicator compounds]. Mr. Fennimore mentioned that WMA 13 is located downgradient of Area C and offered that the Navy could sample it for PFCs if desired. Mr. Dennis Orenshaw (EPA RPM) asked whether PFCs had been sampled for during the 5-Year Review, Mr. Orient indicated that a couple wells had been analyzed for PFOA and the data is available in the report (PFOA was detected at concentrations <2 ug/l).

For the 2012 annual land use control inspections, Mr. Penzone pointed out that Area A, C, and/or D property transfers may require environmental covenants regarding land use restrictions based on the 2008 UECA for Pennsylvania. Margaret Pollich (PADEP project



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manager) indicated that it is not PADEP's intent to revisit work completed before 2008, however that determination has not yet been finalized.

Miscellaneous Topics and Issues – Action Items

Mr. Lin stated that the Third 5-Year Review for the former base has been finalized with PADEP and EPA concurrence and the document is available on the BRAC PMO website. There are some actions required from the review that the Navy is in the process of addressing.

Action Items that will be carried through to the upcoming TRC meeting include:

- The Navy is to provide an update on groundwater extraction, treatment, and source area testing activities.
- PADEP/CRC is to provide an update regarding the status of the CRC Industries remedial activities.
- The Navy is to update the TRC on the progress of property transfers for the remaining Navy properties along Jacksonville Road and the Shenandoah Woods housing area.
- The Navy is to provide an update on LTM activities (sampling, LUC inspections).

Next Meeting Date

The next TRC meeting date was set for April 10, 2013 at 9:30 AM in the WMA Board Room, with the following meeting date also set for October 9, 2013. The meeting was adjourned at approximately 10:50 AM.



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ATTACHMENT 1 ATTENDANCE LIST



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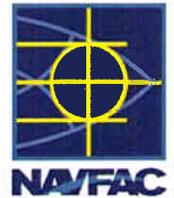
ATTACHMENT 2 MEETING AGENDA



AGENDA

FORMER NAWC WARMINSTER

Technical Review Committee (TRC) Meeting



Date: 17 OCTOBER 2012

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)
 - RAB adjournment discussion
- **Off-Site Investigations**
 - PADEP update on CRC Chemicals
- **WMA Update**
 - Status of Well #26
- **Navy Housing Transfer Update**
 - Status of property transfer activities along Jacksonville Road and Shenandoah Woods
- **Groundwater Extraction and Treatment Update**
 - Plant operating status
 - VOC removal evaluation
 - Permit renewal status update
- **Monitoring Activities Update**
 - Spring 2012 sampling round status
 - Plans for Fall 2012 performance monitoring
 - Additional well closures
- **Miscellaneous Topics and Issues – Action Items**
 - Five-Year Review status
 - Annual Land Use Control Inspections status
 - Area D LTM TEG recommendations status

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

- **Action Items**

The following action items have been identified as a result of the April 2012 meeting:

- PADEP/CRC 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 status.
- The Navy will provide updates r.e. groundwater extraction, treatment, and monitoring activities.
- The Navy is to update the progress of property transfers for the remaining Navy properties along Jacksonville Road and the Shenandoah Woods housing area.
- The Navy is to provide an update r.e. the Five Year Review and Annual Land Use Control Inspections.
- The TEG is to provide a recommendation for an exit strategy to reduce or terminate LTM for Area D.

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

Technical Review Committee Meeting



**NAWC Warminster
17 October 2012**

Presented by



Presentation Agenda

- Treatment Plant Operation
 - Plant Operating Status
 - VOC Removal Evaluation
 - Permit Renewal Status Update

- LTM Update
 - Spring 2012 Sampling Round Status
 - Plans for Fall 2012 Performance Monitoring
 - Recent well closures
 - 2012 LUC Inspections



GWTP Operation

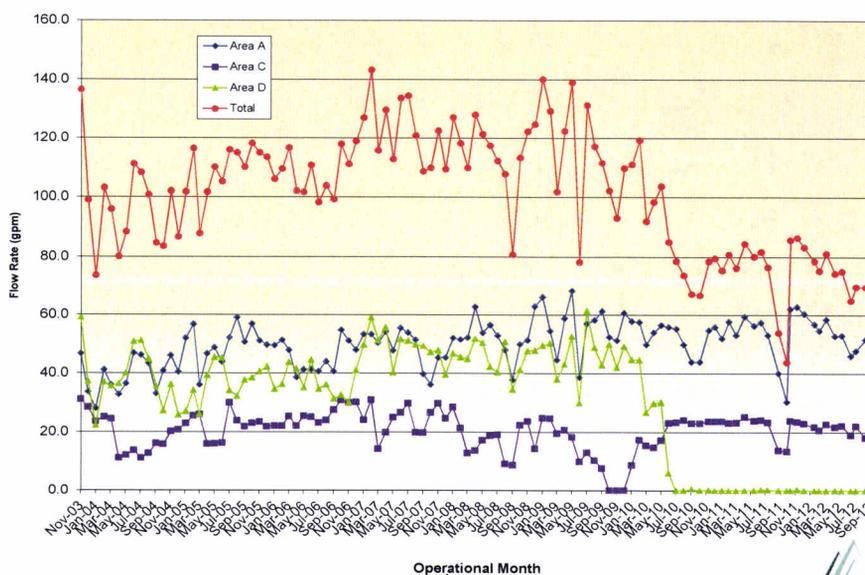
- Average flowrates for September 2012:
 - 48.8 gpm from Area A
 - 18.8 gpm from Area C
 - 0.0 gpm from Area D
 - 67.6 gpm overall

- 766,366,721 gallons treated through September 2012.

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Groundwater Treatment Plant Recovery Flow Rates



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GWTP Operation (cont'd)

- Recent operational and maintenance activities:
 - Request for Determination (RFD) approved by PADEP 4/18/12 for discontinued use of vapor phase carbon treatment.
 - System modifications performed 5/2/12 - rerouted air stripper exhaust line to vent directly to the stack, bypassing the VGAC system.
 - Carbon change-out activities performed 8/1/12:
 - Carbon change out of 18,000-lb primary liquid phase granular activated carbon (LGAC) unit.
 - Carbon (4,000 lb) installed in secondary LGAC unit – units then piped in series.

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GWTP Operation (cont'd)

- Recent operational and maintenance activities (cont'd):
 - Carbon removed from decommissioned vapor phase granular activated carbon (VGAC) units (two 1,500-lb and one 5,000-lb).
 - Obtained concurrence from PADEP and EPA for implementation of pH adjustment system pilot study
 - Objective: To improve the removal efficiency of Cr+6 from the Area A process stream using the existing ion exchange treatment system.
 - System implementation underway, scheduled for completion in Oct 2012.

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GWTP Operation (cont'd) – System Modifications



Before (AS->VGAC->Stack)



After (AS->Stack)

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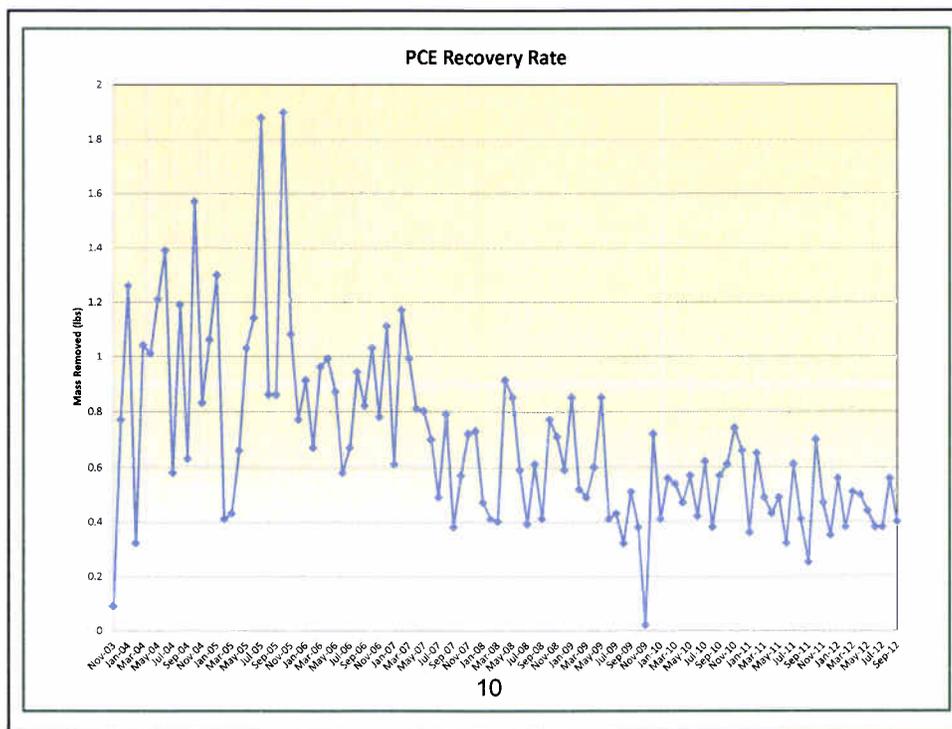
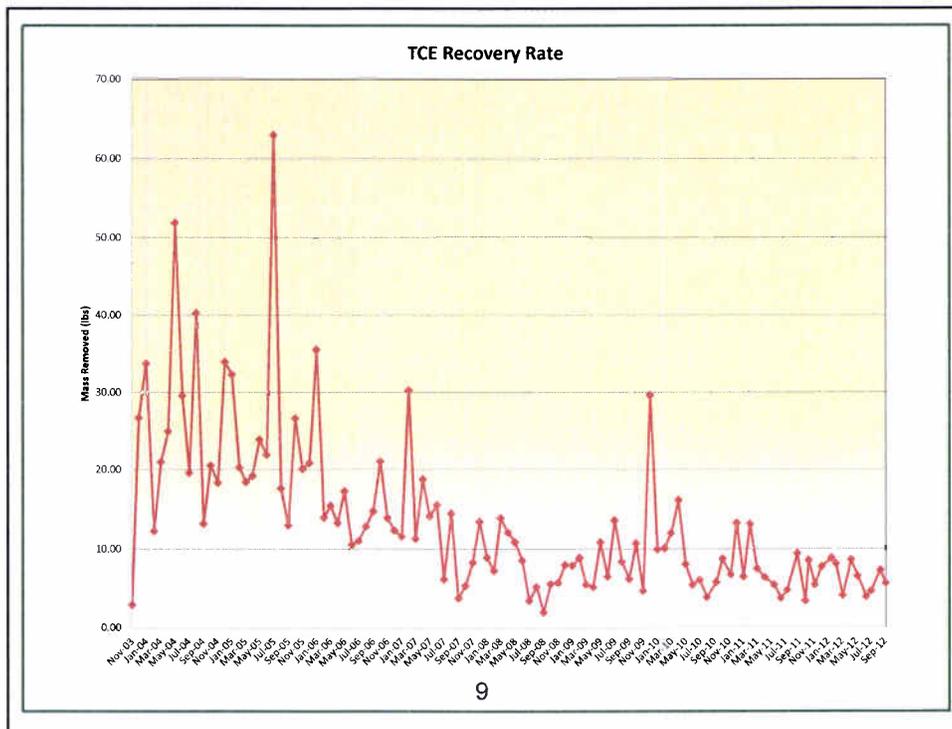


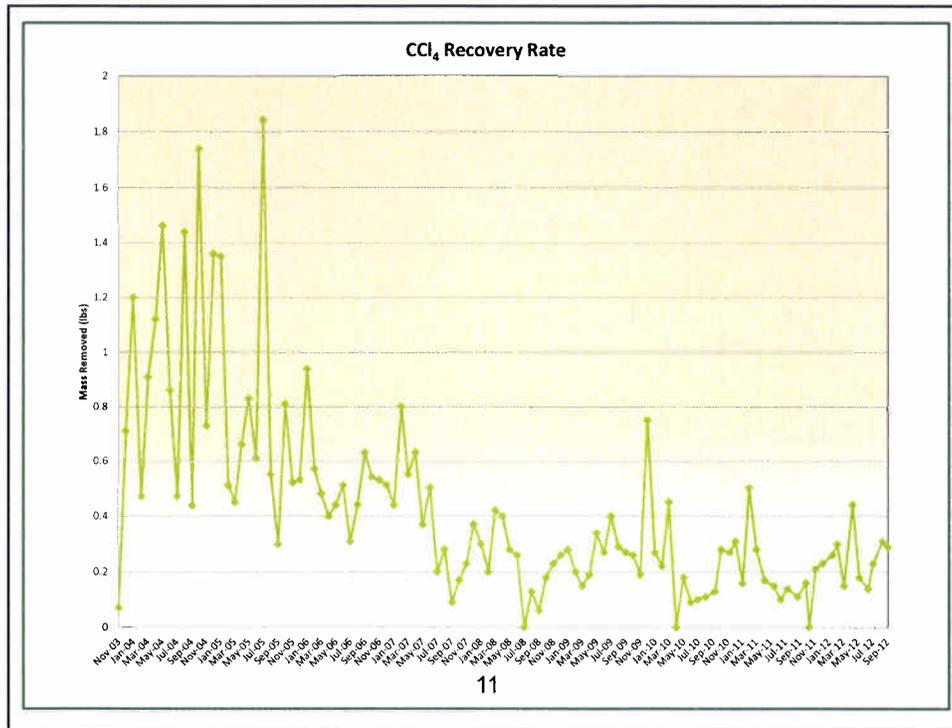
Mass Removal

- Cumulative dissolved-phase VOC recovery through September 2012 reporting period:
 - Trichloroethene (TCE) – 4,710.3 pounds (5.63 lbs in 9/12)
 - Tetrachloroethene (PCE) – 141.0 pounds (0.40 lbs in 9/12)
 - Carbon Tetrachloride (CCl₄) – 159.9 pounds (0.29 lbs in 9/12)
- Majority of VOC recovery is from Area A (5.63 lbs TCE, 0.32 lbs PCE, and 0.29 lbs CCl₄ in 9/12), with remainder of PCE recovery from Area C (0.08 lbs in 9/12).
- No recovery from Area D, as Area D extraction system is no longer in operation.

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GWTP Permit Renewal Status

- NPDES Permit:
 - Current permit expires 30 April 2013. Renewal application due 180 days prior to expiration. To be submitted by end of October 2012.

- DRBC Renewal:
 - Current docket expires 30 April 2013.
 - Renewal application submitted 27 April 2012.

LTM Update

- Spring 2012 annual groundwater sampling performed in May 2012 (5/21/12 – 5/24/12):
 - Area A – 45 wells sampled, GW elevations from 66 wells.
 - Area C – 12 wells sampled, GW elevations from 25 wells.
 - Area D – 16 wells sampled, GW elevations from 37 wells.
 - Draft LTM Report scheduled for submission October 2012.

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LTM Update

- Fall 2012 annual groundwater sampling event scheduled for mid-November 2012.
 - Routine LTM :
 - Area A – sample 24 wells (VOCs), GW elevations from 66 wells.
 - Area C – sample 11 wells (VOCs), GW elevations from 25 wells.
 - Area D – sample 9 wells (VOCs), GW elevations from 37 wells.
 - LTM Report to follow.

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Additional Work Planned

- Conducted after Fall 2012 LTM event
- In support of Area A Source Treatment design and Area C VI eval
 - Conduct vertical profiling of 9 Area A and 6 Area C wells:
 - Heat pulse flow meter (HPFM) testing by USGS
 - PDB profiling for VOC analysis
- Additional Work in support of SERDP Project ER-2128 (analytical methods for perfluorinated compounds)
 - Identifying fluorochemicals and refining analytical methods in real world samples.
 - Collect samples from Area C wells, analysis for perfluorinated compounds by Oregon State University
 - At former fire training area (DG-14) and distant from FTA (HN-23A, HN-28S, EW-C19)

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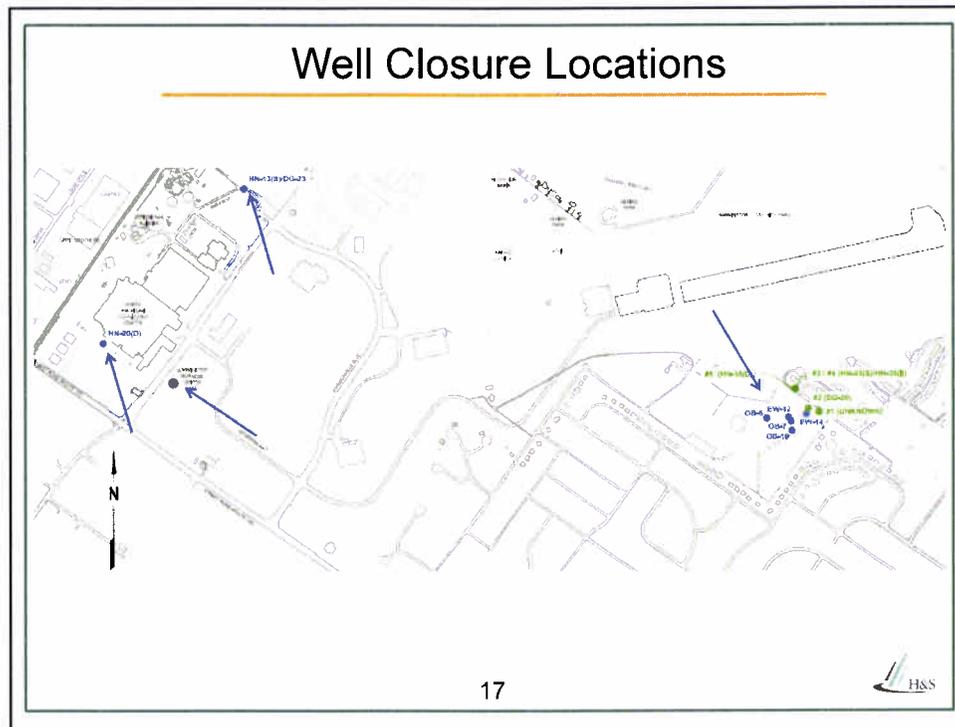


LTM Update – Well Closures

- Decommissioning of seven monitoring wells performed 21-23 May 2012 in conjunction with Spring 2012 LTM event.
 - Monitoring wells EW-12, EW-14, and OB-7 located in Shenandoah Woods housing area (Area B).
 - Monitoring wells OB-6 and OB-10 located on property previously transferred to Penn State University (Area B).
 - Monitoring wells DG-23 / HN-13S located in Area A and HN-20 located in Area D.
- Finished to grade five previously decommissioned monitoring wells located in Shenandoah Woods housing area (Area B).
- Well decommissioning report summarizing well closure activities issued July 2012.
- HN-60S apparently destroyed – monitored water level only.

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2012 Annual LUC Inspection

- Objective: To document the compliance status of the land use controls and deed restrictions for the various land parcels of the former NAWC (and adjacent areas as appropriate).
- Inspection of four general Areas
 - Area A (Sites 1, 2, and 3)
 - Area B (Sites 5, 6, and 7)
 - Area C (Sites 4, 8)
 - Area D (Site 9)
- Inspections include field inspection and documentation research / contact with local authorities to assess LUC compliance and identify and correct any breaches / deficiencies.

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2012 Annual LUC Inspection

➤ Area A Restrictions:

- Non-industrial use prohibited without Navy/EPA approval.
- No groundwater wells/withdrawals without Navy/EPA approval.
- Maintenance of erosion controls.
- No excavation at Sites 2 or 3 without Navy/EPA approval.

➤ Area B Restrictions:

- Residential and commercial/industrial use prohibited without Navy/EPA approval – reserved for recreational (park) use.
- No disturbance of the 2-ft soil cover or excavation of subsurface soils without NAVY/EPA approval.

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2012 Annual LUC Inspection

➤ Area C Restrictions:

- No groundwater wells/withdrawals without Navy/EPA approval.

➤ Area D Restrictions:

- No groundwater wells/withdrawals without Navy/EPA approval.

➤ Schedule:

- 2012 Annual Inspection to be performed in mid-November in conjunction with semi-annual LTM event. Inspection report to follow.

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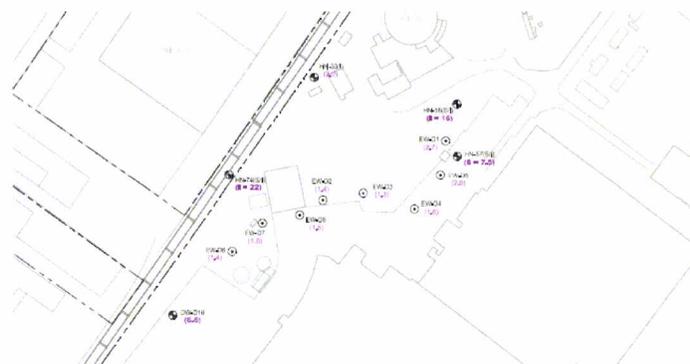
Area D LTM TEG Recommendation Status

- Spring 2012 sampling results indicate there may be some slight TCE concentration rebound in several wells (HN-58I, HN-74I, OW-D10).
- Based on the increases in these wells, the Navy decided to postpone considering changes to the Area D LTM program.
- TCE levels in all extraction wells remain <3 ug/L (MCL is 5 ug/L).
- Based on the increases in these wells, the Navy decided to postpone considering changes to the Area D LTM program.

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Area D LTM TEG Recommendation Status



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