TETRA TECH

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Contract Task Order No. WE08

Subject: RAB Meeting Notification and Meeting Minutes
NWIRP Calverton, New York

On behalf of the U.S. Navy, Tetra Tech NUS, Inc. is pleased to provide notice that a ***Restoration Advisory Board (RAB)*** meeting has been scheduled for Thursday, November 5, 2009. Also attached for review are minutes from the August 6, 2009 meeting. This meeting is open to the general public and will begin at 7:00 PM. The location of the meeting is the ***Calverton Community Center, Grumman Boulevard, Calverton, New York.***

Items that will be discussed during this meeting will include:

- Site 6A and 10B Remedial Activities
- 2009 Groundwater Investigations
- Site 7 Remedial Activities
- Technical Meetings

If you have any questions, please call Ms. Lora Fly at (757) 444-0781 or lora.fly@navy.mil or the RAB Community Co-Chair, Mr. Bill Gunther.

Sincerely,

David D. Brayack, P.E.
Project Manager

DISTRIBUTION:
NAVFAC Mid-Atlantic, Lora Fly
NAVAIR, Richard Smith
NYSDEC (Albany), Larry Rosenmann
NYSDEC (Albany), Henry Wilkie
NYSDEC (Stony Brook), Walter Parrish
NYSDOH, Jacqueline Nealon
SCDHS, Andrew Rapiejko
USEPA Region II, Ellen Stein
USEPA Region II, Carla Struble
Town of Riverhead, Chris Kempner
Tetra Tech NUS, David Brayack
ECOR Solutions, Al Taormina
ECOR Solutions, Patrick Schauble
Community Co-Chair, Bill Gunther
Community RAB Member, Sidney Bail
Community RAB Member, Bob Conklin
Community RAB Member, Louis Cork
Community RAB Member, Harry Histand
Community RAB Member, Jean Mannhaupt
Community RAB Member, Ann Miloski
Community RAB Member, Vincent Racaniello
Frank Anastasi (SCA Associates)
John Armentano (PRSC)
Public Repository
Administrative Record

RESTORATION ADVISORY BOARD MEETING
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT (NWIRP), CALVERTON
CALVERTON COMMUNITY CENTER, CALVERTON, NEW YORK
THURSDAY, AUGUST 6, 2009

The thirtieth meeting of the Restoration Advisory Board (RAB) was held at the Calverton Community Center. Meeting attendees included representatives from the Navy (Lora Fly, Jim Brantley), New York State Department of Environmental Conservation (NYSDEC) (Larry Rosenmann, Henry Wilkie, and Bill Spitz), RAB Community Members (Sid Bail, Bob Conklin, Bill Gunther, John Hall, Harry Histand, Ann Miloski, and Vincent Racaniello), Suffolk County Department of Health Services (SCDHS) (Andrew Rapiejko), Town of Riverhead (Chris Kempner and Dawn Thomas), Tetra Tech NUS, Inc. (David Brayack, Debbie Cohen, and Robert Sok), ECOR Solutions, Inc. (Bob Ingram, Matt Lapp, and Al Taormina), H&S Environmental (Ed King), and Peconic River Sportsman Club (PRSC) (John Armentano and Tony Muratore). Approximately 10 guests attended the meeting. The meeting sign-in sheet is provided as Attachment 1.

WELCOME AND AGENDA REVIEW

The Navy representative, Ms. Lora Fly, welcomed everyone to the RAB meeting and introduced the meeting agenda. The agenda for the meeting is included as Attachment 2.

DISTRIBUTION AND APPROVAL OF MINUTES

Ms. Fly asked whether the RAB members received the March 2009 RAB minutes, which were distributed in May 2009, and asked whether there were questions or comments on the minutes. There were no questions or comments, and the minutes for the March 2009 RAB meeting were approved.

COMMUNITY UPDATE

Mr. Bill Gunther, RAB Community Co-chair, discussed changes in RAB Community membership. Mr. John Hall, RAB Community Member and representative from PRSC, was resigning from the RAB, and Mr. John Armentano will be replacing Mr. Hall. Ms. Fly will provide Mr. Armentano with the appropriate RAB Community membership information and include him on the RAB Community distribution list.

JULY 2009 INTERAGENCY MEETING

Mr. Larry Rosenmann, NYSDEC, talked about the results of the July 2009 Interagency meeting held via video teleconferencing with NYSDEC, SCDHS, and Navy personnel. The meeting was held to review concerns with delineation of NWIRP Calverton on-site and off-site groundwater contamination plumes. The concerns relate to whether sources of groundwater contamination, extent of contamination, and potential impacts to human health and the environment have been sufficiently characterized to support evaluation of remedial actions to address groundwater contamination. In particular, SCDHS and RAB Community Members expressed concern that contaminated groundwater discharging to the Peconic River may be adversely impacting the river.

Mr. Rosenmann indicated that during the meeting NYSDEC, SCDHS, and Navy reviewed the issues, investigation conducted, and the current understanding of the nature and extent of groundwater contamination at NWIRP Calverton. The Navy discussed planned investigations to further define the extent of groundwater contamination. The main outcome of the meeting was the agreement to have several technical meetings to review technical information and historical data to determine the appropriate next steps for each site. Mr. Rosenmann explained that review of the historical data as part of these technical meetings is important because there were many temporary wells installed in the past to guide location of permanent wells, and the results from the temporary wells may not be represented on maps showing permanent well results. The results from the historical temporary wells may help to address some of the groundwater concerns. Mr. Rosenmann indicated that a site visit with NYSDEC, Navy, and SCDHS was held today and that the first technical meeting is scheduled for September 15, 2009.

In follow-up to the discussion at the March 2009 RAB meeting related to evaluation of Peconic River standards for groundwater discharge to the river, Mr. Rosenmann requested Mr. Gunther to provide a letter discussing the RAB Community Members' concern. Mr. Rosenmann provided the letter, dated March 17, 2009, to the appropriate departments of NYSDEC to obtain input so that a comprehensive response could be given to the RAB. The response was provided in a letter from NYSDEC dated July 15, 2009. Mr. Rosenmann provided a copy of the letter at the RAB meeting (see Attachment 3) and summarized the information in the letter. The letter explains NYSDEC's evaluation of NYS regulatory standards for the decision-making process for corrective measures and provides standards for protection of aquatic and benthic organisms in the river for the volatile organic compounds (VOCs) detected in groundwater in the

southern area plume. The letter indicates that the NYSDEC's goal will be to ensure that the plume will not impair the best usage of the Peconic River or have a detrimental impact to human health and the environment. The letter also provides information on the process for making remedial decisions at the Calverton site.

Mr. Rosenmann explained that groundwater discharge does not fit the regulatory definition of a point source; therefore, regulations for point source discharges do no strictly apply. However, there are two requirements for point source discharges to scenic rivers (such as the Peconic River) that are useful guidelines for evaluating remedial options for the off-site southern area plume. These are that discharges should not have a detrimental impact on the river area resources and should be minimized or eliminated. These requirements and the other regulatory standards discussed in the July 15, 2009 letter will be used as part of the evaluation and selection of remedial options in the Corrective Measures Study (CMS) for the off-site southern area plume. Ms. Fly explained that further discussion among the Navy and regulators will be held to determine the appropriate standards that the remedial action will need to meet to be protective of human health and the environment.

Mr. Rosenmann explained the process for selection of remedial action and public participation as part of the process. NYSDEC works with the Navy to ensure investigations are conducted to collect information necessary to identify and select remedial action for a site. The Navy then prepares an evaluation of possible remedial alternatives (in the CMS) so that the best alternative can be identified that will be protective of human health and the environment. The Navy proposes a remedial alternative and then NYSDEC agrees or proposes a different alternative and discusses modification to the proposed remedy with the Navy. NYSDEC then holds a 45-day public comment period on the proposed alternative, during which the public can provide comments. A public hearing can be held if requested. NYSDEC addresses public comments received, and if necessary will modify or change the selected alternative based on public comments. As an example of how the process has worked for NWIRP Calverton, Ms. Fly indicated during the public comment period on the CMS for groundwater, the Navy received one comment. The comment was received from SCDHS and based on the comment the Navy is conducting additional groundwater investigation.

There were several questions regarding the interagency meeting, surface water standards evaluation, and remedy selection process. The following summarizes the questions and answers:

- Will the technical meetings between the Navy and regulators be open to the public or will minutes be made available to the public? Mr. Rosenmann indicated that public participation in the technical meetings was not planned because technical meetings are sessions for the technical participants to have open discussion to work out solutions to the issues. Ms. Fly indicated that information on progress during the technical meetings can be provided to the public.
- The regulations have specific statements about no new point source discharges to the river. Why do these not apply to groundwater discharge from the southern area plume? Mr. Rosenmann indicated that groundwater discharge is not a point source discharge, so the regulations do not strictly apply. The portion of the regulation that does apply is that evidence needs to be provided that the selected remedial action will ensure that groundwater discharge will not degrade the quality of the river.
- Does NYSDEC make the final decision on selection of the remedial action and what happens if the Navy disagrees with NYSDEC's final decision? Mr. Rosenmann explained that NYSDEC makes the final decision; however, NYSDEC works with the Navy throughout the process and typically resolves issues before getting to the public comment period. Mr. Rosenmann indicated that NYSDEC works with the Navy and other concerned parties and solicits public input to facilitate selecting the best solution.

TECHNICAL PROGRESS – SITE 7 REMEDIAL ACTIVITIES

Mr. Matt Lapp (ECOR Solutions, Inc.) provided a presentation on the status of remedial activities at Site 7. The presentation is included as Attachment 4. Mr. Lapp explained that as of July 2009, H&S Environmental is the contractor for Site 7 remedial activities. H&S Environmental is subcontracting ECOR Solutions, Inc., to provide operation and maintenance (O&M) because of ECOR's experience with the treatment system.

The treatment system is an Air Sparge (AS)/Soil Vapor Extraction (SVE) System to remove BTEX, naphthalene, and Freon from shallow-zone groundwater at Site 7. Groundwater contamination has not been found in deeper-zone groundwater at Site 7. The treatment system was constructed in 2004. The system was designed to remove VOCs from groundwater

through soil vapor extraction and promote natural attenuation through air sparging. O&M for the AS/SVE system will continue until the remediation goals are attained.

As discussed during RAB meetings in 2008 and in March 2009, the system was effective in treating groundwater contamination at most of the site, but was not meeting treatment goals in the eastern and southern portion of the site. The Navy conducted additional sampling to determine the cause and identify modifications to the treatment system. The Navy determined that the treatment system needed to be expanded in the east and south to include AS wells near areas that require additional treatment.

Mr. Lapp reviewed the operational activities since the winter shutdown in December 2008. Groundwater samples were collected in March 2009, before restarting the system in April 2009. Mr. Lapp indicated that groundwater sampling will also be conducted after the system is shut down for the winter in December 2009. In addition to the weekly O&M activities, in June 2009, one SVE well, one monitoring well, and seven AS wells were installed to provide additional treatment and monitoring in the eastern and southern portion of the groundwater plume. The SVE and AS wells were tied into the treatment system in July 2009.

Mr. Lapp reviewed the system runtimes and mass removals, and indicated that most of the system shutdowns were to conduct sampling. Future activities include evaluating data from the new wells to determine whether the system modifications are effective. In answer to a question of whether the new wells have been sampled, Mr. Lapp replied that the wells were sampled when they were installed; however, the results are not available yet. In answer to a question of whether the treatment system is addressing Freon contamination, Mr. Brayack replied that Freon contamination in groundwater (localized around SV-11) is still being treated by the system.

TECHNICAL PROGRESS – SITE 2 REMOVAL ACTION

Mr. David Brayack, Tetra Tech, provided a presentation on the status of the Site 2 soil removal action. The presentation is included in Attachment 5.

Mr. Brayack reviewed the map showing site locations at NWIRP Calverton, which are the parcels of the NWIRP property that the Navy is currently retaining for investigation and remedial action. The majority of the property has been transferred to the Town of Riverhead or to

NYSDEC as a conservation area. Mr. Brayack explained that his presentations will provide the status of the source cleanup actions at Site 2, Site 6A, and Site 10B. These source cleanup actions are being conducted to remove contamination in the source areas to reduce continued contaminant migration from soil to groundwater.

As discussed at the July and November 2008 and March 2009 RAB meetings, the Navy is conducting a source area (soil) removal action at Site 2 to remove accessible contaminated soil that is acting as a continuing source of groundwater contamination. The removal was conducted from September 2008 to April 2009. Mr. Brayack reviewed slides, provided at the March 2009 RAB meeting, showing the excavation plan and photographs of the removal action activities. Since the last RAB, backfilling with clean fill material and final site restoration were completed. The area was hydroseeded, and grass is starting to grow over the remediated area. Mr. Brayack explained that information on the amount of soil removed will be provided in the construction completion report, which is being prepared.

TECHNICAL PROGRESS – SITES 6A AND 10B REMEDIAL ACTIONS

Mr. David Brayack, Tetra Tech, provided presentations on the status of the Sites 6A and 10B remedial actions. The presentations are included in Attachment 5.

Site 6A is the Fuel Calibration Area. This area was used from the 1950s to mid-1990s to test jet aircraft systems. Previous actions at the site included removal of an underground fuel storage tank, removal of petroleum-contaminated soil, and fuel recovery from soil and groundwater. The fuel was found to be mixed with chlorinated solvents. Between 1987 and 1992, a groundwater extraction system was used to enhance free product removal. Groundwater was discharged to an unlined ditch that ultimately entered the area where groundwater contamination has been identified (Southern Area). A CMS for soil contamination was prepared in May 2006, and a remedy was selected in 2008. The remedy consists of excavation and off-site disposal of contaminated soil (16,000 cubic yards) and enhanced bioremediation of residual soil contamination. Down gradient groundwater monitoring will be conducted to evaluate the effects of soil remediation. Construction activities began in June 2009 and are expected to be completed by December 2009. As of July 28, 2009, approximately 4,000 cubic yards of soil have been excavated. Mr. Brayack reviewed photographs of the excavation work.

Site 10B is the Engine Test House. The test house was used from the 1950s to mid-1990s for testing jet engines prior to placement in aircrafts. Previous actions at the site included removal of an underground fuel storage tank and petroleum-contaminated soil. Fuel-related VOCs were detected in groundwater. A CMS for soil contamination was prepared in May 2006, and a remedy was selected in 2008. The remedy consists of excavation and off-site disposal of contaminated soil and enhanced bioremediation of residual soil contamination. The Engine Test House building was removed as part of the remedial action. Construction was conducted from March to May 2009. Confirmation samples were used to determine the endpoint of excavation, and additional excavation was required to the southeast based on the confirmation sample results. Down gradient groundwater monitoring will continue to evaluate the effects of soil remediation. Mr. Brayack reviewed photographs of the remediation work.

At the end of the presentation, Mr. Gunther mentioned that December 2009, when the source area removal/remedial actions will be complete, will be a great milestone. After removal of the source contamination, the Navy will be able to focus more resources on addressing the groundwater contamination plumes.

There were several questions regarding the Sites 6A and 10B removal actions. The following summarizes the questions and answers:

- Based on the site being active from the 1950s, the groundwater contaminant plume could be large. What is the Navy doing to determine the down gradient extent of the plume? Technical meetings will be held to determine whether the river is the down gradient edge of the plume. Mr. Rosenmann mentioned that historical data will be reviewed as part of the technical meetings to identify what is known about each of the source areas and the groundwater contaminant plume, and to identify where there are data gaps. The next steps will then be determined for each site and the off-site groundwater contaminant plume.
- Is the excavation for Site 6A going to the bottom of the petroleum-contaminated zone? Mr. Brayack explained that soil is being excavated to the water table, approximately 8 feet below ground surface and then adding ORC to treat residual contamination in the soil that cannot be effectively excavated. Test pits are being excavated below the water table to see whether free product is forming on top of the water in the test pits. In the test pits completed, only a sheen on the water has been observed; no free product was

found. After construction activities are completed, groundwater monitoring will be conducted to determine the effectiveness of the remedial activities.

- Is there still a concern with funding for the remedial activities for Site 6A because of the unexpected complication with excavation around a high-power line? Ms Fly indicated that the funding concerns have been addressed and work is expected to proceed in this area in the near future.
- What does the down gradient monitoring program consist of for Site 10B? There are three down gradient monitoring wells; these wells are included in the general groundwater monitoring program for NWIRP Calverton. The wells are monitored annually. The wells monitor shallow groundwater consistent with where contamination was found at Site 10B. Two rounds of samples are available for these wells and the results showed trace concentrations of VOCs that were less than groundwater standards. Groundwater will be monitored for 5 years as part of the remedy. If the monitoring results show contaminant movement, then additional remedial action may be needed. Otherwise, monitoring will be discontinued and the site closed out.

TECHNICAL PROGRESS –SOUTHERN AREA GROUNDWATER

Mr. Rob Sok, Tetra Tech, provided a presentation on the status of Southern Area groundwater investigation and monitoring. The presentation is included in Attachment 5.

Mr. Sok explained that a source area investigation was conducted in March 2009. Temporary wells were installed in the on-site portion of the Southern Area where there are several potential source areas. Three grab samples, above the clay confining unit, were collected from each temporary well location. The samples did not go below the confining unit because groundwater contamination was not found below this unit. The preliminary groundwater results from the temporary wells do not show these areas are sources of contamination.

A round of semi-annual surface water and sediment sampling was also conducted in March 2009. Sampling was conducted at four locations along the Peconic River. The results show one questionable VOC detection (1,2,4-trichlorobenzene) in surface water and two VOC detections (1,1-dichloroethane and toluene) in sediment. The VOC detection in surface water is being evaluated further to determine whether it is a false positive result from the analytical method. Also, the detection in surface water is not consistent with detections in groundwater (which were around 1 ug/L). SCDHS indicated that 1,2,4-trichlorobenzene was around 4 ug/L in

the wells SCDHS installed. In answer to whether NYSDEC has any standards for 1,2,4-trichlorobenzene, Mr. Rosenmann said he was not sure. Mr. Brayack indicated that 1,2,4-trichlorobenzene is commonly used in herbicides so that it would be difficult to determine whether it was from the Navy site or general use of herbicides.

Mr. Sok explained upcoming field activities, including additional groundwater grab sampling north of River Road and south of the railroad tracks, permanent monitoring well installation, staff gauge installation, slug testing, and groundwater, surface water, and sediment sampling. The groundwater sampling will include sampling of another potential source area and collection of data to assist in better understanding groundwater flow patterns. Two staff gauges to measure water levels in the river will also be installed. After the data are evaluated, the Navy will be able to identify data gaps in delineating the contaminant plume. Mr. Sok explained that sampling south of the river was not planned because previous investigations showed that contamination was not flowing under the river.

Mr. Sok reviewed a figure showing the proposed locations for the temporary and permanent wells and staff gauges. A site walk was held before the RAB meeting with Navy, NYSDEC, and SCDHS personnel to finalize the locations.

There were several questions regarding the Southern Area groundwater investigation. The following summarizes the questions and answers:

- Is the Navy investigating soil vapor intrusion at the PRSC property? Ms. Fly said that the need for a vapor gas intrusion investigation will be determined during the technical meetings with the regulators.
- Can the Navy use track-mounted rigs to access areas in the pine barren or wetlands? Mr. Sok explained that most well locations need to be along a road because drill rigs (including track-mounted) cannot be used in the wetlands area and the pine barren is too heavily vegetated for the drill to get through the trees. Because it is a protected habitat, the Navy cannot easily remove trees or add fill to access these areas.
- When will the results from the temporary wells be available? Mr. Brayack indicated that the results from the September sampling should be available within a few months after sampling (after laboratory analysis and data validation are complete).

- If the data show high concentrations does the Navy have funding to quickly conduct more tests? Ms Fly indicated that the Navy is committed to completing the investigations in a timely manner.
- Is SCDHS planning to conduct additional sampling? Mr. Rapiejko said SCDHS collected two surface water samples from the river on August 5, 2009 and expects to conduct additional surface water sampling.
- How is the Navy collecting sediment samples? Mr. Brayack indicated that grab samples are collected by dipping the sample jar about 4 inches into the sediment. Water is decanted from the sample jar before sealing the lid.
- During the pump and treat operated by Grumman in the late 1980s to early 1990s at Site 6A where was the groundwater discharged, and is this area a continued source of contamination? Mr. Brayack explained that the discharge went to an unlined ditch that ran north to south. Some of the water infiltrated into the ground and may have been a source of contamination to the Southern Area plume. Operation of the system was discontinued in 1992 and there have been 16 years of clean water running through the ditch.

CLOSING REMARKS

Ms. Fly thanked everyone for coming to the meeting and asked whether the RAB members had any other questions or comments. Mr. Gunther mentioned he would at least like to be provided with the results of the technical meetings. Ms. Fly said that information on the progress during the technical meeting could be provided to the public.

Ms. Fly asked whether anyone else had any questions or comments. The following provides a summary of the questions and answers:

- What are the treatment goals for groundwater? The goal is to reduce contaminant levels in the groundwater plume to drinking water standards. Within the groundwater plume, there is one drinking water well (at PRSC) that has been impacted and there is a treatment system on the well that the Navy is monitoring concentrations.
- There were several questions related to the unlined ditch as a source of contamination to the Southern Area plume. The Navy explained that the unlined ditch may have been a major source of contamination in the Southern Area plume. Investigation of other

potential sources is being conducted to ensure that the Navy does not overlook other potential contaminant sources. The Navy is targeting to clean up the main source, but may need to clean up other sources, if found. Pumping of groundwater to the unlined ditch was discontinued when chlorinated contamination was found in the groundwater (in the early 1990s). The contaminants in the pumped groundwater matched the fingerprint for what is being detected in the Southern Area plume.

- There was some discussion of a pond constructed by PRSC on their property and whether construction of the pond may have impacted groundwater flow. Mr. Brayack indicated that the soil is sandy and topographic alterations would not likely have a significant impact on groundwater flow. However, if the alterations included excavation into the clay unit, there could be more significant impact to groundwater flow. Although, construction on an artificial impoundment in a flowing stream can have a significant effect on groundwater flow.

Ms. Fly discussed a date for the next RAB meeting for the first Thursday in November. The RAB indicated that the first Thursday in November was good, and the next RAB meeting was set for November 5, 2009. The meeting was then adjourned.

ATTACHMENT 1

AUGUST 6, 2009 RAB MEETING SIGN-IN SHEET

30th RAB Meeting for NWIRP Calverton
August 6, 2009
Sign-In List

Name	Address (if interested in being on mailing list)	Organization	How Did You Hear of Meeting?
Bill Gunther		RAB	
Andrew Radietsko		SCDHS	
Joe Pinciaro		Northfork.com	
Bob Ingram		ECOR	
Chris Kempner		TOR	
Dawn Thomas		TOR	
Sid Bail		Wading River Civic	
[illegible] Rosen		NYSDEC	
Matt Lapp		ECOR	
John Armentano		PRSC	
[illegible]		NYSDEC	
[illegible] M. Mileski		Calverton Civic	zone resident

30th RAB Meeting for NWIRP Calverton
August 6, 2009
Sign-In List

Name	Address (if interested in being on mailing list)	Organization	How Did You Hear of Meeting?
Bill Spitz		NYSDEC	
Amy Jucketz	P.O. Box 6100 Hauppauge, NY	SC Dept. Env. & Energy	
Robert Sok		TENUS	
Al Tadema		ECOR	
Ed King		HLC	
Bob Conklin		RRB	
John H Hull		PRSC.	
Jen Skilbred	PO Box 1792 Southold NY 11972	Group for the East End	
GARY PENDRICK	RWD 1035 PULASKI ST. RHD, N.Y., 11901	R.W.D.	WORK
Tony Muratore		PRSC	
Jennifer Smith		Newsday	
David Brayock		Tetra Tech.	

30th RAB Meeting for NWIRP Calverton
August 6, 2009
Sign-In List

Name	Address (if interested in being on mailing list)	Organization	How Did You Hear of Meeting?
Debbie Cohen		Tetra Tech	
Gerry Petrella		Sen. Schumer	
Kristen Walsh		Sen Gillibrand	
Vincent Ravanello		RAB	
[signature]		RAB	
Beth Mashenballer		Long Island Pine Barrens Society	
Michael White		Riverhead News-Review	
Jim Brantley		NAVFAC ATLANTIC	
Lora Fly		NAVFAC Midlant	

ATTACHMENT 2

AUGUST 6, 2009 RAB MEETING AGENDA

Agenda

Restoration Advisory Board
Naval Weapons Industrial Reserve Plant Calverton

August 6, 2009
Calverton Community Center, Calverton NY
7:00 p.m.

Welcome and Agenda Review
Lora Fly, NAVFAC Mid-Atlantic

Distribution of Minutes
All Members

Community Update
Bill Gunther, RAB Co-chair

July 2009 Interagency Meeting
Larry Rosenmann, NYSDEC

Technical Progress

Site 7 Remedial Activities
David Streetsmith, ECOR

Site 2 Removal Action
David Brayack, Tetra Tech

Sites 6A and 10B Remedial Actions
David Brayack, Tetra Tech

Southern Area Groundwater
Rob Sok, Tetra Tech

Closing Remarks
Lora Fly

Presenters will be available after the program for questions.

ATTACHMENT 3

JULY 15, 2009 NYSDEC LETTER

New York State Department of Environmental Conservation
Division of Solid & Hazardous Materials
Bureau of Hazardous Waste and Radiation Management, 9th Floor
625 Broadway, Albany, NY 12233-7258
Phone: (518) 402-8594 • **Fax:** (518) 402-9024
Website: www.dec.ny.gov

Alexander B. Grannis
Commissioner

July 15, 2009

Mr. William E. Gunther, P.E.
Co-Chair, Calverton RAB
24 Frost Lane
Wading River, NY 11792-1502

Dear Mr. Gunther:

Re: Request for Evaluation of the Peconic River Water Quality Standards

In your March 17 letter you requested that the New York State Department of Environmental Conservation (Department) consider the requirements for preservation of water quality in the 6 NYCRR Chapter X Part 666.12 regulations when evaluating the contaminated groundwater plume that is moving towards, and may be discharging into, the Peconic River in Suffolk County.

The Peconic River, southeast of NWIRP Calverton, is a scenic river subject to the Part 666 regulations. However, discharges from the groundwater plume do not quite fit the definition of a point source used in these regulations. Even so, the Department will use the applicable Part 666 requirements, as well as those that apply to ground and surface waters (Part 701 and Part 703), to select appropriate remedial measures for the plume. Our goal will be to ensure that the plume will not impair the best usage of the River or have a detrimental impact to human health and the environment. The specifics of these regulations are discussed in the enclosed review of the applicable standards.

In addition to this review, I would like to provide you with information on the process that will be used to make remedial decisions at the Calverton site. This process is based on the requirements of the Resource Conservation and Recovery Act (RCRA) and includes a high level of public involvement. Past practice in all areas of the State, including Long Island, has shown this process to be well suited to selecting fully protective remedial measures, tailored to the potential risks and environmental impacts from remedial sites like NWIRP Calverton.

Steps to be taken to design and select appropriate remedial measures at NWIRP Calverton under the RCRA program will include:

- The Navy will be required to continue investigations to develop a thorough understanding of the nature and extent of site related contamination.

- When adequate information has been gathered, the Navy will prepare a Corrective Measures Study (CMS) that evaluates the feasibility and potential benefits of various remedial alternatives for the plume. The various involved agencies and the RAB, will be asked to review the CMS.

- When this review is completed, the Department will develop a Draft Statement of Basis to propose remedial measures that the Department believes appropriate to protect human health and the environment. The Department will then solicit public comments on the proposed final remedies during a public comment period of 45 days.

- After the public comment period ends, all comments will be reviewed and appropriate changes will be made. After this is done, the Department will issue a final Statement of Basis that selects the final remedies that the Navy must implement at the Calverton site.

Please be assured that the Department is strongly committed to enforcing all applicable State and federal regulatory requirements, standards or guidance values when making remedial decisions. But please also remember, these are not absolute triggers that automatically jump to aggressive remedial options unless they are necessary to protect human health and the environment from significant risks. Instead, these are the foundation for the RCRA process to select the most appropriate Final Corrective Measures based upon site conditions and potential risks to human health and the environment.

If you have any further questions, please contact me at the address above, or bring your questions forward at the next RAB meeting.

Sincerely,

Larry A. Rosenmann
Engineering Geologist II
Engineering Geology Section
Bureau of Hazardous Waste & Radiation Management
Division of Solid & Hazardous Materials

Enclosure

cc: w/enc.
J. Reidy, EPA Region II
P. Cardinale, Supervisor, Town of Riverhead
V. Minei, Suffolk County Department of Health Services
J. Nealon, NYSDOH

Naval Weapons Industrial Reserve Plant (NWIRP) - Calverton, NY
Summary of Applicable Regulatory Standards
and Decision-making Processes for Corrective Measures

Applicable NYS Regulatory Standards

1. 6 NYCRR Chapter X Part 666.12 *Wild and Scenic Rivers*

As shown in Attachment 1 *Peconic River Stream Classification*, the Peconic River southeast of NWIRP Calverton is designated as a Scenic River under Article 16 of TITLE 6, Chapter X, Subchapter B. *Classes and Standards of Quality and Purity assigned to Fresh Surface and Tidal Salt Waters.* As a Scenic River this area is subject to the Part 666 regulations.

A groundwater plume does not fit neatly into the general understanding of either point source or a non point source. Even so, there are two requirements for point source discharges into scenic rivers that will be a useful guide to evaluate remedial options for the off-site southern area plume from the Calverton facility:

- 6 NYCRR Part 666.12 (b) (1) requires that new point source discharges will not have a detrimental impact on river area resources. While the Calverton plume is not a new discharge, the Navy will be required to provide evidence that, after remedial measures have been implemented, the plume will not have such an impact.

- 6 NYCRR Part 666.12 (c) requires that "existing discharges from point sources will be minimized or eliminated." In the same way, the Navy will be required to provide evidence that the existing and proposed remedial measures will minimize or eliminate discharges from the plume into the river.

2. 6 NYCRR Part 701.1 *General conditions applying to all water classifications*

These general conditions require that "The discharge of sewage, industrial waste or other wastes shall not cause impairment of the best usages of the receiving water as specified by the water classifications at

the location of discharge and at other locations that may be affected by such discharge." This requirement is very similar to the protective requirement described above for Wild and Scenic Rivers and should be applied to potential impacts to the Peconic River from a groundwater plume.

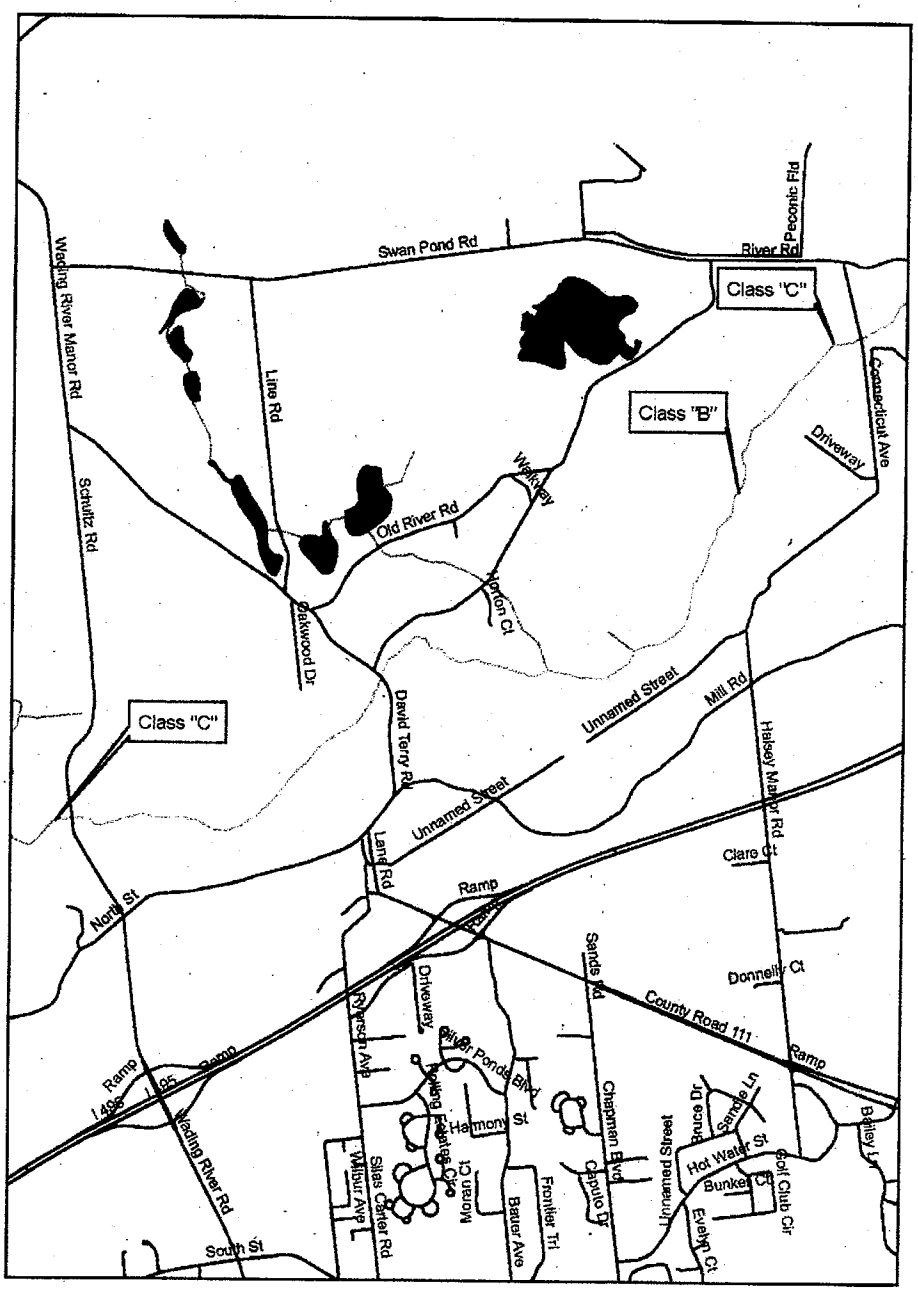
3. 6 NYCRR Part 703 Groundwater Quality Standards

Class GA groundwater standards are established to protect human health and sources of drinking water. These standards apply to all fresh groundwaters of the state including the groundwater on and surrounding NWIRP Calverton.

4. Standards for protection of Aquatic or Benthic Organisms.

In response to your letter, the Division of Solid and Hazardous Materials (DSHM) requested that the Division of Fish, Wildlife and Marine Resources prepare the attached table of Water Column and Sediment Quality Values for VOC Contaminants for the Protection of Aquatic or Benthic Organisms. (Attachment 2) This table shows Surface Water and Sediment Values for the VOCs detected within the Calverton plume. Some of these are existing standards and guidance values already found in TOGS 1.1.1. Some of the numbers are that have been calculated using the procedures described in 6NYCRR Part 706.1, (for surface water) or Technical Guidance for Screening Contaminated Sediments, Jan. 1999 (for Sediment). These numbers will help the Department determine if the plume is impairing the best usage of the Peconic River or any other potential receptors further downstream.

(This table also includes Class GA groundwater Standards. As stated in #3 above, these are intended to protect human health and sources of drinking water; and are not directly applicable to evaluating impacts to benthic organisms a stream.)



Attachment 1 – Peconic River Stream Classification

Attachment 2

Water Column and Sediment Risk Thresholds for VOC Contaminants for the Protection of Aquatic or Benthic Organisms

Compound	CAS	log K_{ow}	Ground water * µg/L	Source/ Status	Surface Water µg/L	Source/ Status	Sediment value µg/gOC	Bulk sediment value mg/kg @ 1.5% TOC
1,1,1-trichloroethane	71-55-6	2.48	5	S1	690	FWRT	208	3.10
1,1,2-trichlorotrifluoroethane AKA freon	76-13-1		5	S1	No aquatic toxicity data available			
1,1-dichloroethane	75-34-3	1.47	5	S1	Insufficient toxicity data, use values for 1,2-dichloroethane			
1,2-dichloroethane	107-06-2	1.48	0.6	S	3,000	FWRT	Pore water	
1,1-dichloroethene	75-35-4	2.13	5	S1	210	FWRT	28	0.43
1,2-dichlorobenzene	95-50-1	3.46	3	S	5	S	14	0.22
2-butanone (AKA methyl ethyl ketone)	78-93-3	0.29	50	T	22,000	ID	Pore water	
Acetone	67-64-1	-0.24	50	T	50,000	ID	Pore water	
Chloroethane (AKA ethyl chloride)	75-00-3	1.43	5	S1	No aquatic toxicity data available			
Benzene	71-43-2	2.138	1	S	210	T	29	0.43
Ethylbenzene	100-41-4	3.14	5	S1	17	T	23	0.35
Toluene	100-88-3	2.713	5	S1	100	T	52	0.78
Ortho-xylene (2-xylene)	95-47-6	3.12	5	S1	65	T	86	1.3
Meta-xylene (3-xylene)	108-38-3	3.20	5	S1	65	T	103	1.6
Para-xylene (4-xylene)	106-42-3	3.15	5	S1	65	T	92	1.4
Xylene, isomer unknown or unspecified	N/A	3.20	5	S1	65	T	103	1.6
Tetrachloroethene **	127-18-4	2.67	5	S1	370	FWRT	173	2.60

ID – Risk threshold based in limited data. Insufficient data to derive a value in accordance with 6NYCRR Part 706.1
S – Existing standard in 6NYCRR Part 703
S1 – Existing standard in 6NYCRR Part 703; compound defined as a Principal Organic Compound (POC)
T – Existing guidance value in TOGS 1.1.1
FWRT - Risk Threshold derived by the Division of Fish, Wildlife & Marine Resources (DFWMR) in accordance with the procedures described in 6NYCRR Part 706.1; no standard or guidance value available.
* These are human health values
** There is an existing guidance value of 1 µg/L in TOGS 1.1.1 for the protection of human health (fish consumption).
Pore water – Apply the chronic freshwater value (µg/L) to sediment pore water samples

ATTACHMENT 4

ECOR SOLUTIONS, INC. PRESENTATION

Site 7: Former Fuel Depot

Air Sparge/Soil Vapor Extraction System
Former Naval Weapons Industrial Reserve Plant
Calverton, NY

Restoration Advisory Board Meeting
August 6, 2009

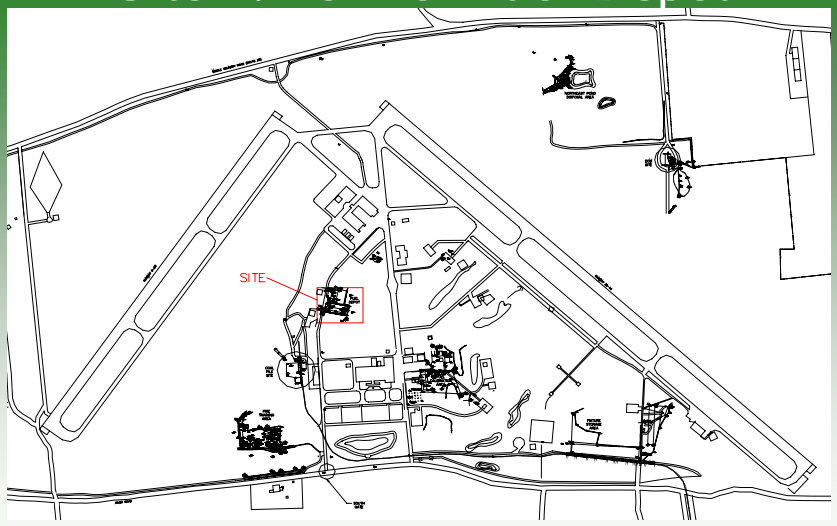
Contract Transition

- On July 1, 2009 the contract for site remediation activities at Site 7 was awarded to H&S Environmental
- Due to ECOR's experience at the site, H&S subcontracted O&M services back to ECOR

Project Overview

- Constituents of Concern:
  - BTEX, Naphthalene, and Freon in groundwater
- AS/SVE System constructed 2004
- Goal:
  - Mass removal of groundwater VOC constituents via soil vapor extraction
  - Promote natural attenuation via air sparging
  - Operate and maintain AS/SVE system until remediation goals are attained

Site 7: Former Fuel Depot

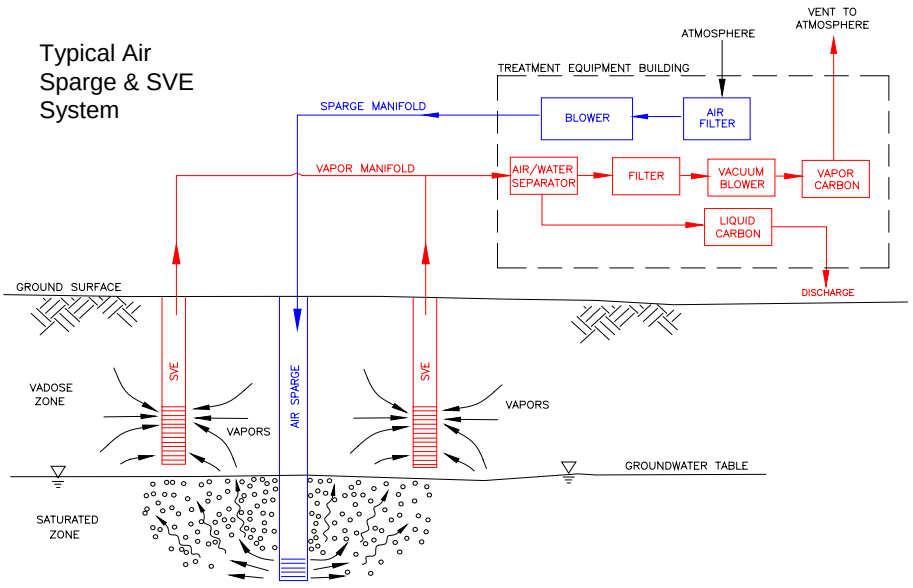


Source: TtEC, Inc.

Area Map

The Site

Typical Air Sparge & SVE System



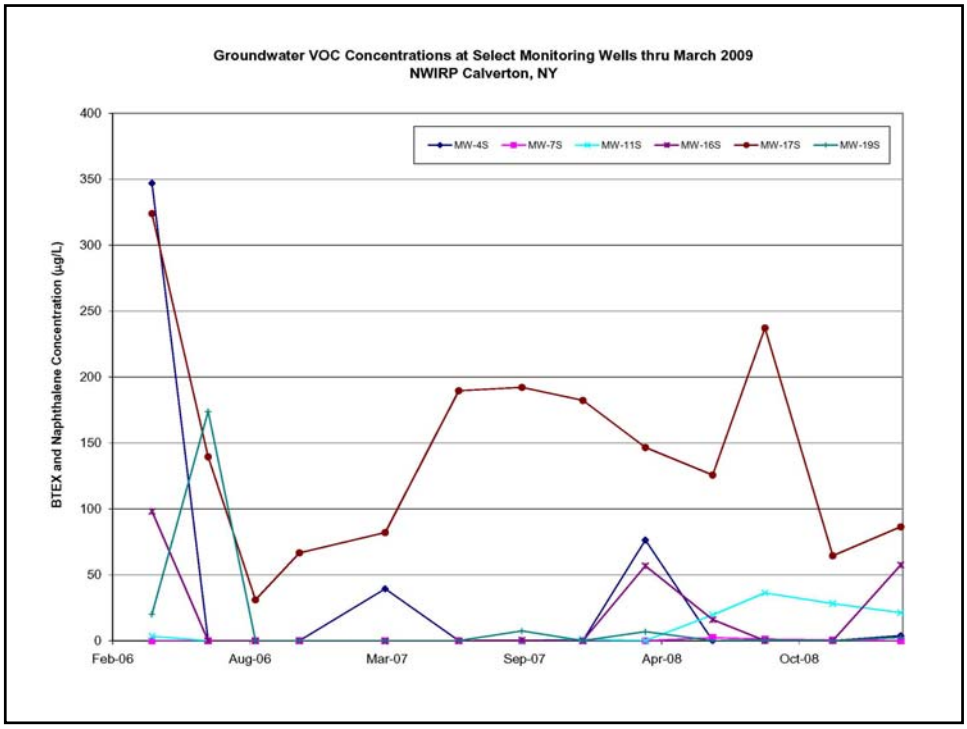
Source: TtEC, Inc.

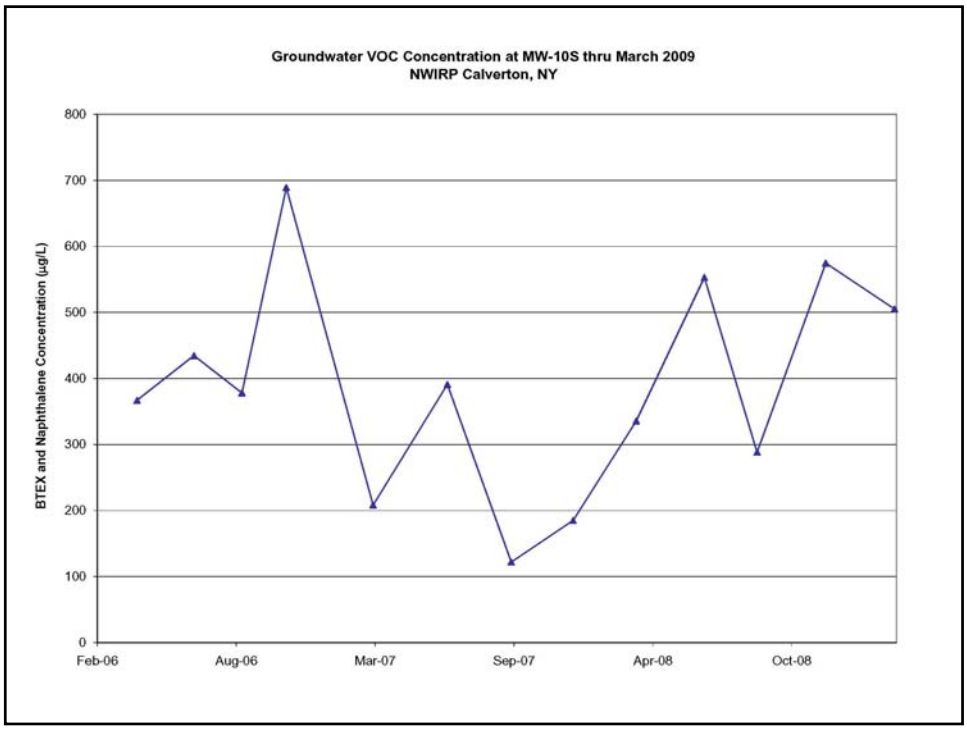
Operational Activities

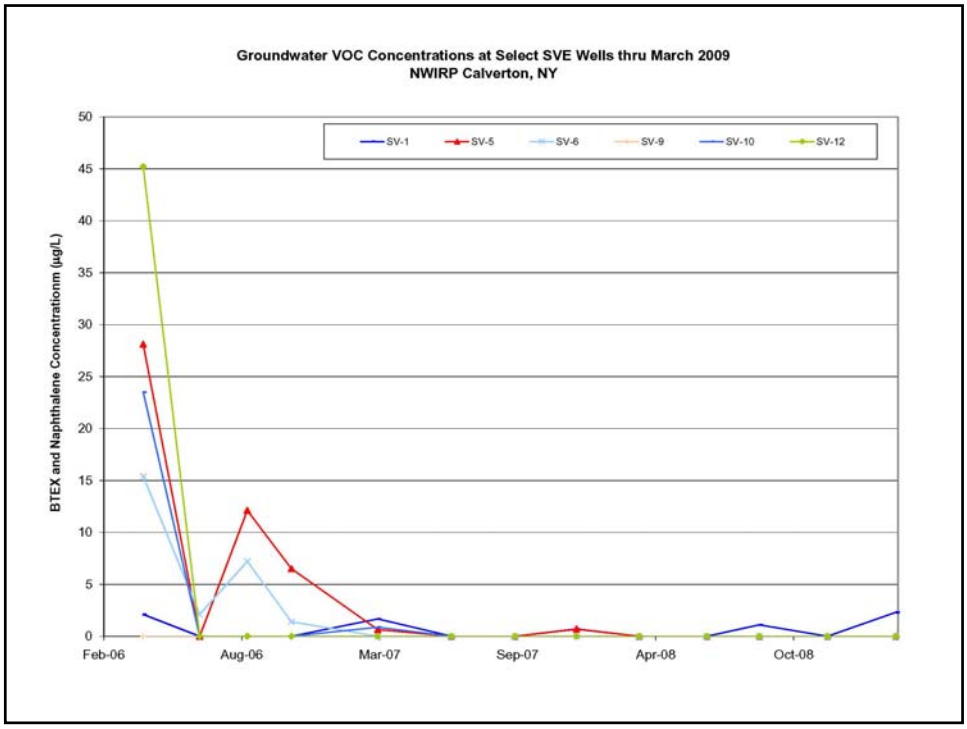
- December 15, 2008 - System was shutdown for the winter
- March 23-25, 2009 - Latest groundwater samples collected
- April 3, 2009 – System restarted following winter shutdown
- Groundwater sampling event scheduled for December following shutdown

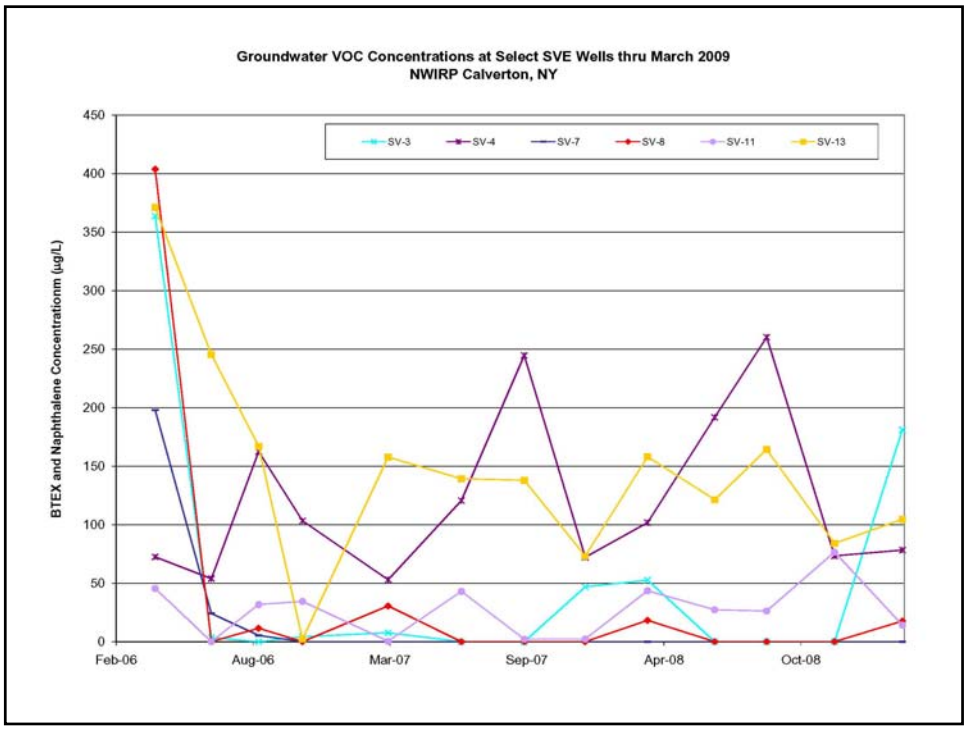
Operational Activities (con't)

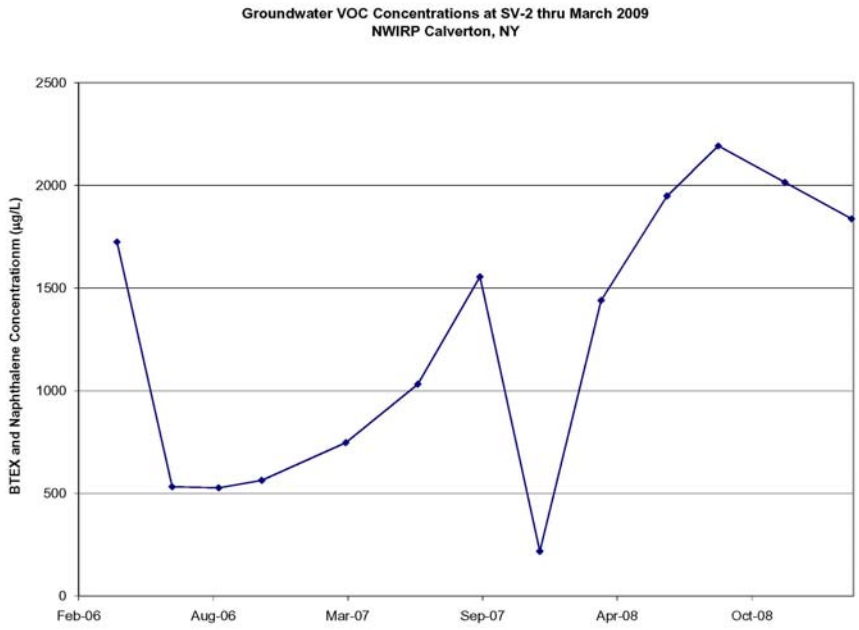
- Performed weekly O&M visits following start-up:
  - Monitored vapor-phase carbon adsorbers
  - Obtained instrument measurements
  - Insured proper system operation
  - Performed general site inspections
- On June 15-19, 2009 additional wells installed:
  - 1 – SVE well
  - 1 – Monitoring well
  - 7 – AS wells
- On July 28-31 wells tied in to the piping system


Groundwater VOC Concentrations at Select Monitoring Wells thru March 2009
NWIRP Calverton, NY
BTEX and Naphthalene Concentration (µg/L)
MW-4S
MW-7S
MW-11S
MW-16S
MW-17S
MW-19S
400
350
300
250
200
150
100
50
0
Feb-06
Aug-06
Mar-07
Sep-07
Apr-08
Oct-08


Groundwater VOC Concentration at MW-10S thru March 2009
NWIRP Calverton, NY
BTEX and Naphthalene Concentration (µg/L)
800
700
600
500
400
300
200
100
0
Feb-06
Aug-06
Mar-07
Sep-07
Apr-08
Oct-08


Groundwater VOC Concentrations at Select SVE Wells thru March 2009
NWIRP Calverton, NY
BTEX and Naphthalene Concentrationm (µg/L)
SV-1
SV-5
SV-6
SV-9
SV-10
SV-12
50
45
40
35
30
25
20
15
10
5
0
Feb-06
Aug-06
Mar-07
Sep-07
Apr-08
Oct-08


Groundwater VOC Concentrations at Select SVE Wells thru March 2009
NWIRP Calverton, NY
BTEX and Naphthalene Concentrationm (µg/L)
SV-3
SV-4
SV-7
SV-8
SV-11
SV-13
450
400
350
300
250
200
150
100
50
0
Feb-06
Aug-06
Mar-07
Sep-07
Apr-08
Oct-08



System Runtime

Yearly runtimes*:

2007 – 6066 hrs (95.0%)

2008 – 5799 hrs (94.6%)

Monthly runtimes (2009):

April – 648 hrs (100%)

May – 728 hrs (97.8%)

June – 712 hrs (98.9%)

July – 672 hrs (90.3%)

*Downtime includes shutdowns for sampling

H&S

ECOR Solutions, Inc.

Mass Removal

Mass Removal is calculated from:

- the concentration of contaminants in vapor samples collected monthly at a location immediately prior to carbon adsorption.
- The flowrate of the vapor through the adsorbers
- And the operational time of the system for the month.

$$\left(\frac{\text{mass}}{\text{volume}}\right) \times \left(\frac{\text{volume}}{\text{time}}\right) \times \text{time} = \text{mass}$$

Concentration Flowrate

Mass Removal Statistics

Cumulative Mass Removals:

2007 – 24.72 lbs

2008 – 11.54 lbs

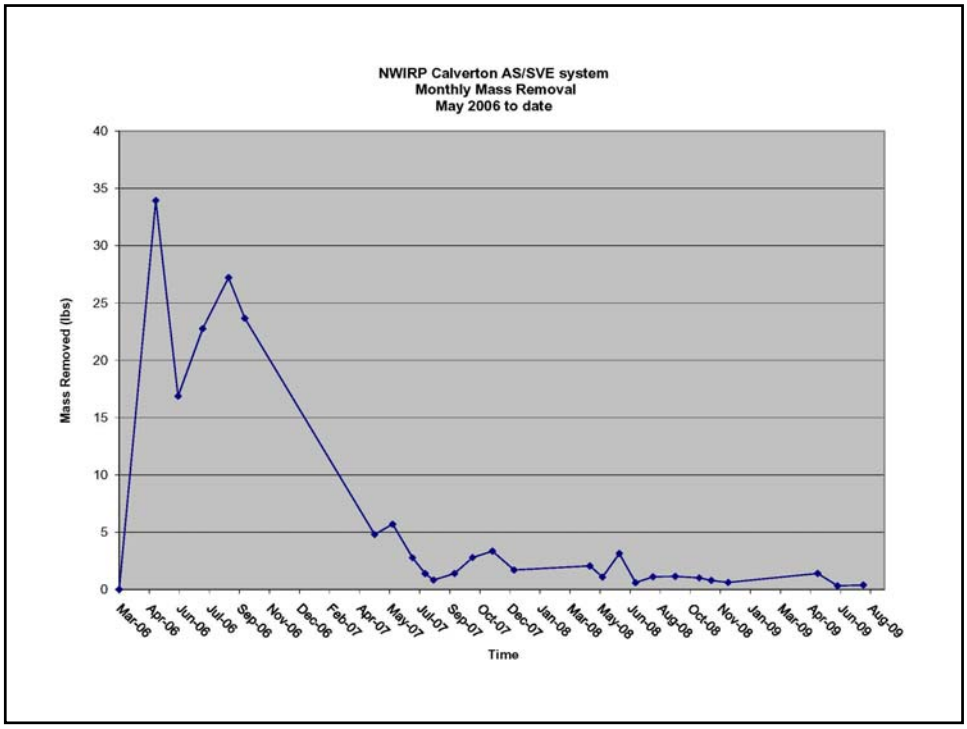
Monthly Mass Removals (2009):

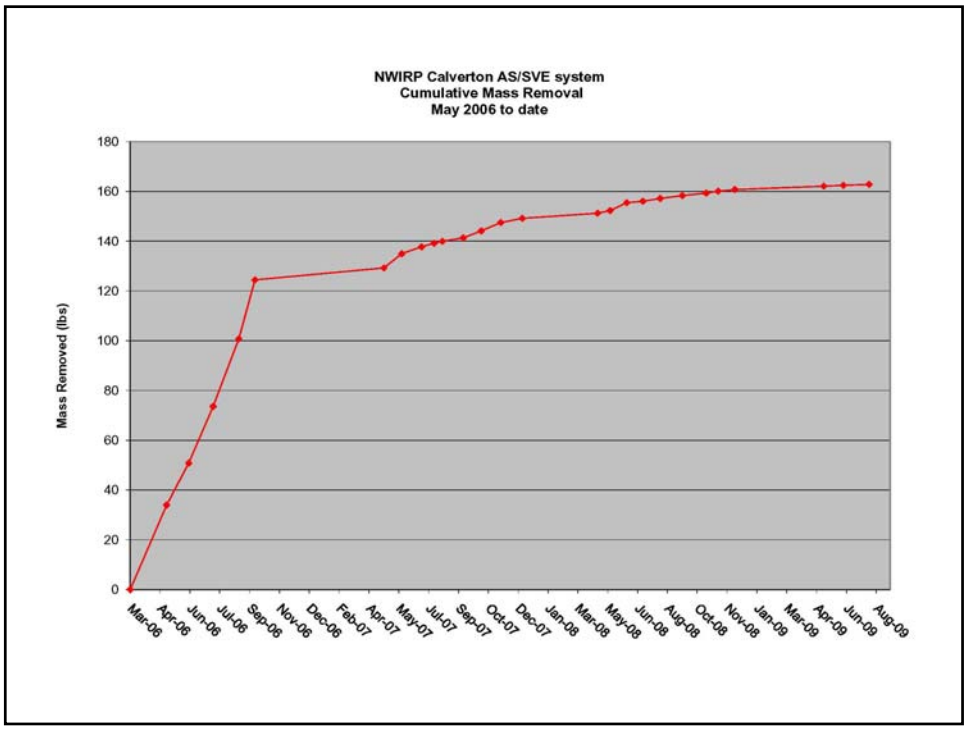
April/May – 1.4 lbs

June – 0.32 lbs

July – 0.39 lbs

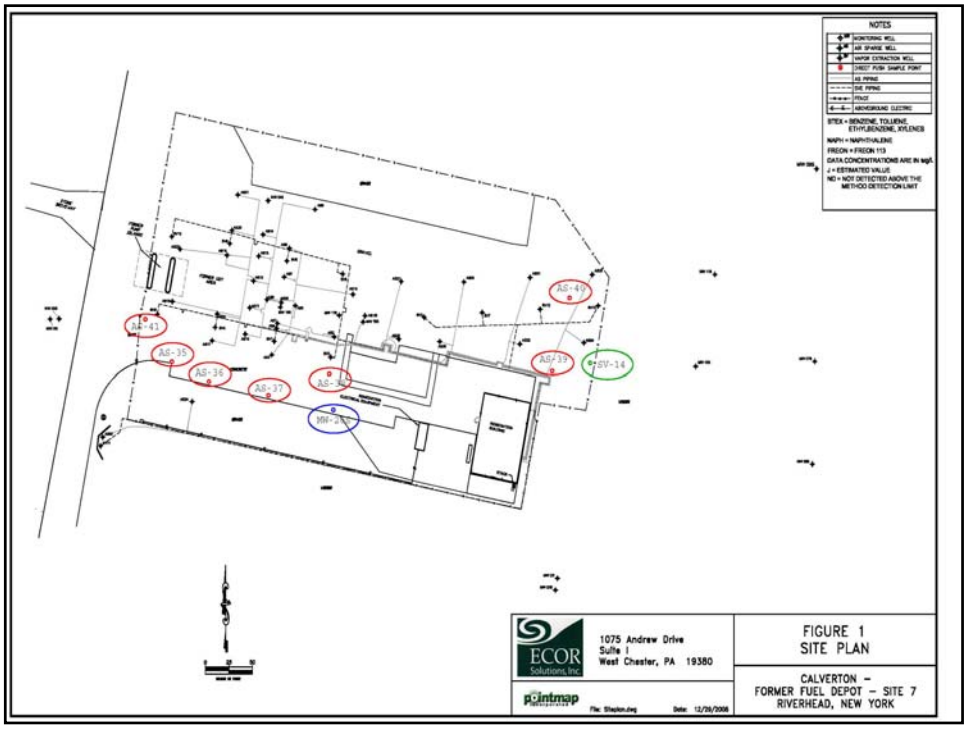
Mass removed since system inception– 162.8 lbs


NWIRP Calverton AS/SVE system
Monthly Mass Removal
May 2006 to date
Mass Removed (lbs)
0
5
10
15
20
25
30
35
40
Mar-06
Apr-06
Jun-06
Jul-06
Sep-06
Nov-06
Dec-06
Feb-07
Apr-07
May-07
Jul-07
Sep-07
Oct-07
Dec-07
Jan-08
Mar-08
May-08
Jun-08
Aug-08
Oct-08
Nov-08
Jan-09
Mar-09
Apr-09
Jun-09
Aug-09
Time


NWIRP Calverton AS/SVE system
Cumulative Mass Removal
May 2006 to date
Mass Removed (lbs)
0
20
40
60
80
100
120
140
160
180
Mar-06
Apr-06
Jun-06
Jul-06
Sep-06
Nov-06
Dec-06
Feb-07
Apr-07
May-07
Jul-07
Sep-07
Oct-07
Dec-07
Jan-08
Mar-08
May-08
Jun-08
Aug-08
Oct-08
Nov-08
Jan-09
Mar-09
Apr-09
Jun-09
Aug-09

Drilling/Installation of New Wells

- Installed the following wells:
  - MW-20S (Monitoring well) to provide better monitoring of the southern part of the contaminant plume
  - SV-14 (SVE well) to provide increased vapor recovery at the eastern part of the site
  - AS-35 thru AS-41 (Air Sparge wells) to promote volatilization/attenuation in the southern boundary of plume
- SVE and AS wells tied into the current system during the last week of July 2009



Future Activities

- Collect groundwater samples following winter shutdown.
- Restart the system following sampling in late March or early April
- Continue to evaluate data collected from the new SVE and Monitoring wells to determine if elevated concentrations in SV-2, SV-4, SV-13 and MW-10S are being effected.

Questions?

ATTACHMENT 5

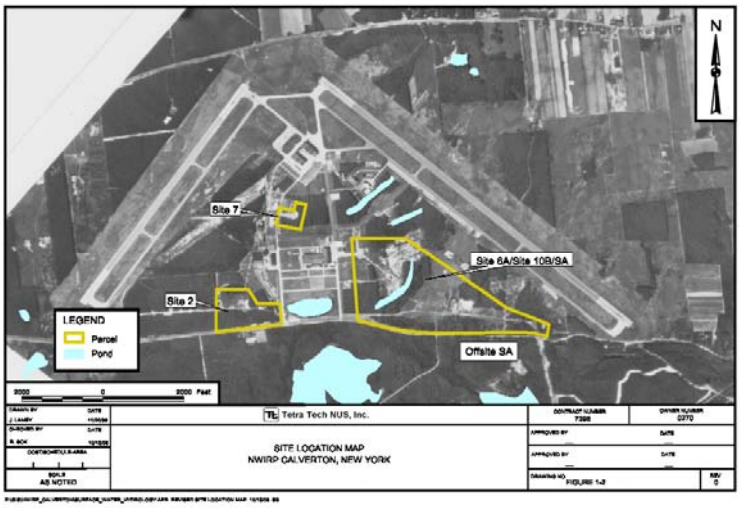
TETRA TECH PRESENTATIONS

NAVFAC
Naval Facilities Engineering Command
NAVFAC MID-ATLANTIC

Restoration Advisory Board
(RAB Meeting)

Site 2 – Removal Action
Naval Weapons Industrial Reserve Plant
(NWIRP) Calverton, New York
August 6, 2009

FACILITY LAYOUT



SITE 2 GROUNDWATER INVESTIGATION

- **Fire Training Activities were conducted 1950s to mid-1990s.**
- **Free product recovery from late 1980s to mid-1990s.**
- **Free product and limited solvents were present in soil and groundwater at site.**
- **An air sparging/soil vapor extraction system with biodegradation was used to treat petroleum and solvents (volatile organic compounds) in soils 1995 to 2001.**
- **Good success on groundwater, but did not address a continuing source of groundwater contamination above the groundwater.**

SITE 2 GROUNDWATER INVESTIGATION

- **A removal action was conducted between September 2008 and April 2009.**
- **Removal action completed in April 2009.**

SITE 2 REMOVAL ACTION – EXCAVATION PLAN

SITE 2 REMOVAL ACTION

SITE 2 REMOVAL ACTION

SITE 2 REMOVAL ACTION

SITE 2 REMOVAL ACTION

SITE 2 REMOVAL ACTION

SITE 2 REMOVAL ACTION

SITE 2 REMOVAL ACTION

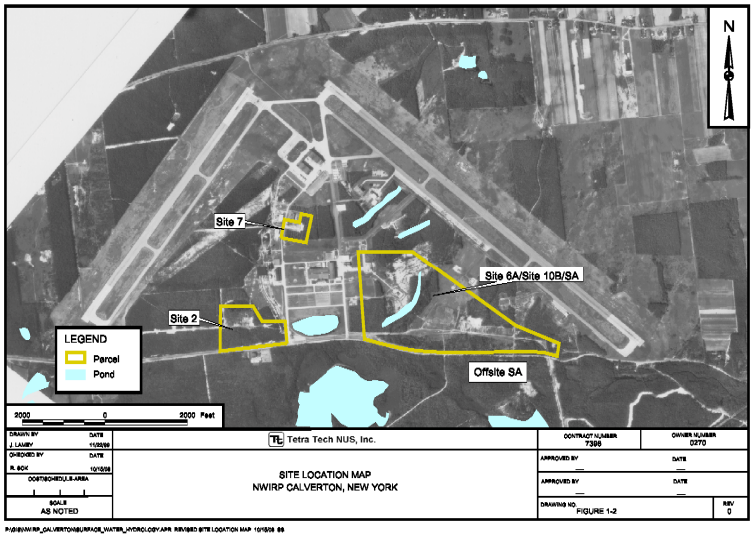
SITE 2 REMOVAL ACTION

NAVFAC
Naval Facilities Engineering Command
NAVFAC MID-ATLANTIC

Site 6A – Fuel Calibration Area
Remedial Action

Naval Weapons Industrial Reserve Plant (NWIRP)
Calverton, New York
August 6, 2009

NWIRP Calverton –Site Location Map



NWIRP Calverton –Site 6A Summary

•Site 6A – Fuel Calibration Area was used for the testing of jet aircraft systems from the 1950s to mid-1990s.

•An underground fuel storage tank was removed in the early 1990s, petroleum-contaminated soil was also removed.

•Between 1987 and 1996, approximately 1,300 gallons of fuel was recovered from the soil and groundwater.

•In 1991, the fuel was found to be mixed with chlorinated solvents.

NWIRP Calverton –Site 6A Summary

•Between 1987 and 1992, a groundwater extraction system was used to enhance the removal of free product. Groundwater was discharged to an unlined ditch that ultimately entered the area where groundwater contamination has been identified (Southern Area).

•May 2006, a Corrective Measures Study was prepared to evaluate options for addressing soil contamination.

NWIRP Calverton –Site 6A Summary

•Remedy selection occurred in 2008.

•Remedy consisted of:

-excavation (16,000 cubic yards) and off-site disposal of contaminated soil and enhanced bioremediation of residuals.

-Construction started in June 2009 and should be completed by December 2009.

•As of July 28, 2009, approximately 4,000 cubic yards of soil have been excavated.

NWIRP Calverton Site 6A – Remedial Action

NWIRP Calverton Site 6A – Remedial Action

NWIRP Calverton Site 6A – Remedial Action

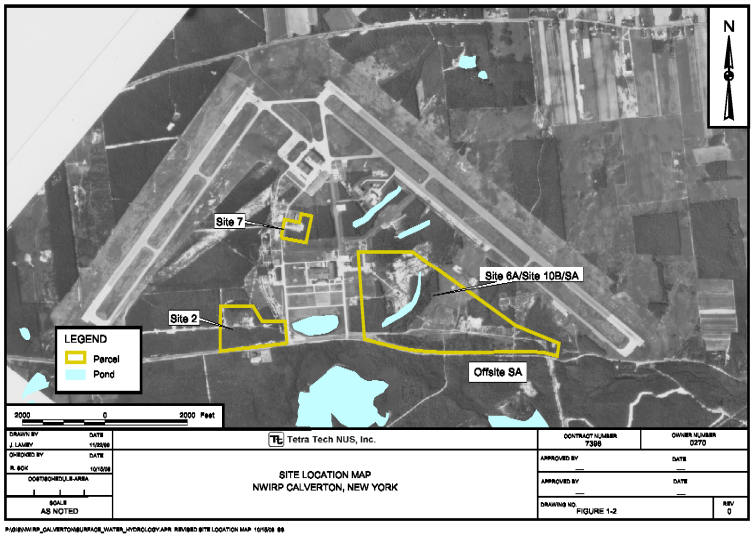
NWIRP Calverton Site 6A – Remedial Action

NAVFAC
Naval Facilities Engineering Command
NAVFAC MID-ATLANTIC

Site 10B – Engine Test House Remedial Action

Naval Weapons Industrial Reserve Plant (NWIRP)
Calverton, New York
August 6, 2009

NWIRP Calverton –Site Location Map



NWIRP Calverton –Site 10B Summary

•Site 10B – Engine Test House from 1950s to mid-1990s, was used for the testing of jet engines prior to placement in aircraft.

•An underground fuel storage tank was removed in the early 1990s, petroleum-contaminated soil was also removed.

•In the late 1990s, fuel-related volatile organic compounds were detected in groundwater underneath the concrete slab and building and there was limited evidence of petroleum contaminated soil.

NWIRP Calverton – Site 10B Summary

•Exact extent of soil contamination was uncertain, but suspected to be present near former under storage tank and fuel pump house.

•May 2006 Corrective Measures Study evaluated options for addressing soil contamination.

•Remedy selection occurred in 2008.

NWIRP Calverton –Site 10B Summary

•Remedy consisted of:
-excavation and off-site disposal of contaminated soil and enhanced bioremediation of residuals
-started in March 2009 and was completed in May 2009.

•80 tons of metal and 1,000 tons of concrete recycled off site.

•Approximately 73 tons of waste disposed off site, including asbestos, lead-based paint, and petroleum.

NWIRP Calverton –Site 10B Summary

•Confirmation samples used to determine endpoint of excavation, additional excavation was required to the southeast.

•4,000 cubic yards of soil were excavated, petroleum-contaminated soil was segregated for off site disposal, and the balance was reused on site.

•Less contaminated soil was found than had been expected.

NWIRP Calverton –Site 10B Summary

•1,600 pounds of calcium peroxide applied to enhanced biodegradation.

•Down gradient groundwater monitoring is continuing to evaluate effects of the remediation.

NWIRP Calverton - Site 10B Summary

Photo Date: January 21, 2009

NWIRP Calverton - Site 10B Summary

NWIRP Calverton - Site 10B Summary

NWIRP Calverton - Site 10B Summary

NWIRP Calverton - Site 10B Summary

NAVFAC
Naval Facilities Engineering Command
NAVFAC MID-ATLANTIC

Southern Area Groundwater Investigation and Monitoring Update RAB Presentation

Naval Weapons Industrial Reserve Plant (NWIRP)
Calverton, New York
August 6, 2009

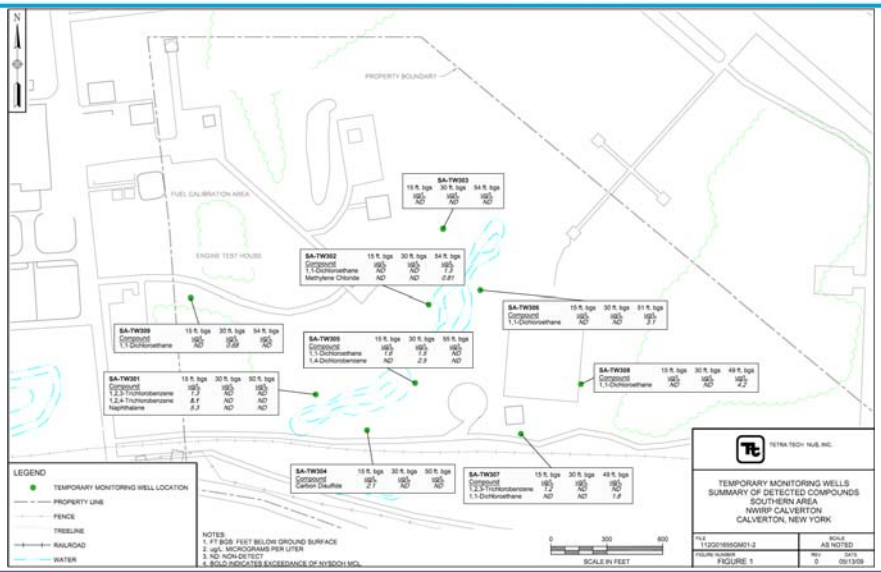
NWIRP Calverton –Site Location Map

Southern Area

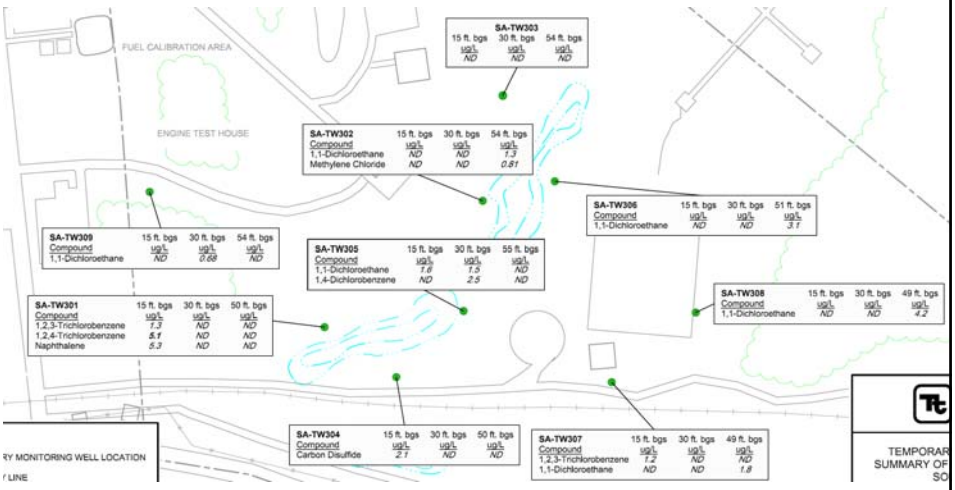
Groundwater – Source Area Investigation March 2009

- Groundwater grab sampling was conducted at nine locations via Direct-Push Technology to investigate potential source areas.
- Three groundwater grab samples were collected at approximate depths of 15, 30, and 50 feet below ground surface. Deepest sample collected above the clay formation.
- Analytical results indicated 1,1-dichloroethane concentrations of 0.68 to 4.2 µg/L. Highest detections were observed just above the clay unit.

Southern Area – Groundwater Grab Results



Southern Area – Groundwater Grab Results

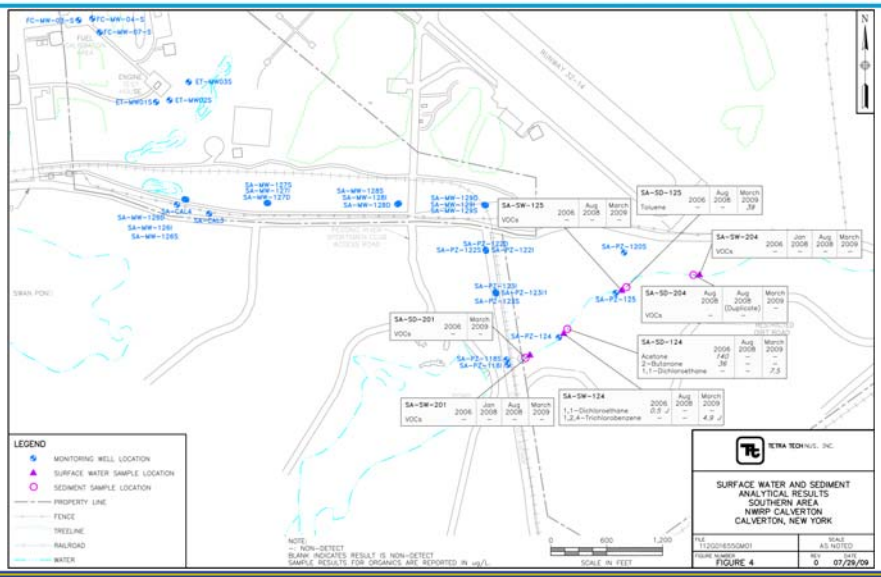


Peconic River – Surface Water and Sediment Sampling Results

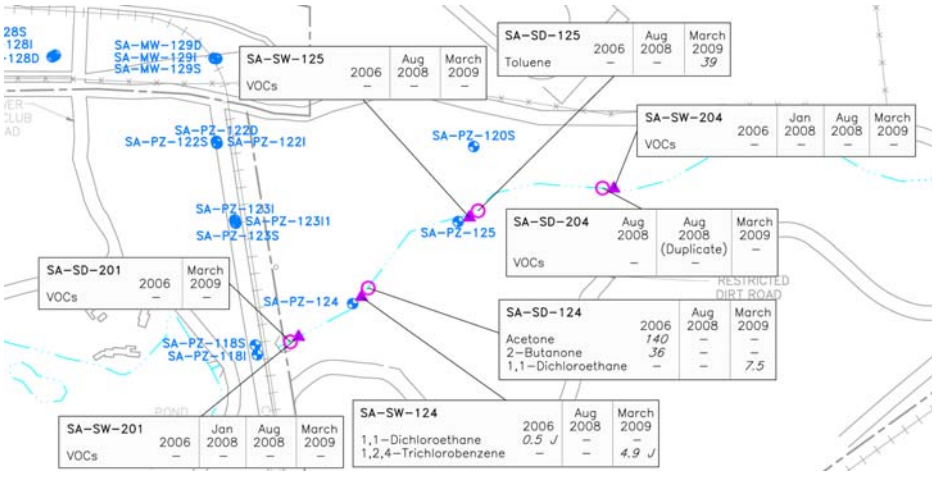
Sampling results from semi-annual event in March 2009

- Surface water and sediment sampling was conducted at four locations along the river.
- One VOC detection in surface water sample SA-SW-124 (1,2,4-trichlorobenzene at 4.9 J µg/L) **Detection is being evaluated*
- Two VOC detections in sediment, SA-SD-124 (1,1-dichloroethane at 7.5 µg/kg) and SA-SD-125 (toluene at 39 µg/kg).

Peconic River – Surface Water and Sediment Sampling Results



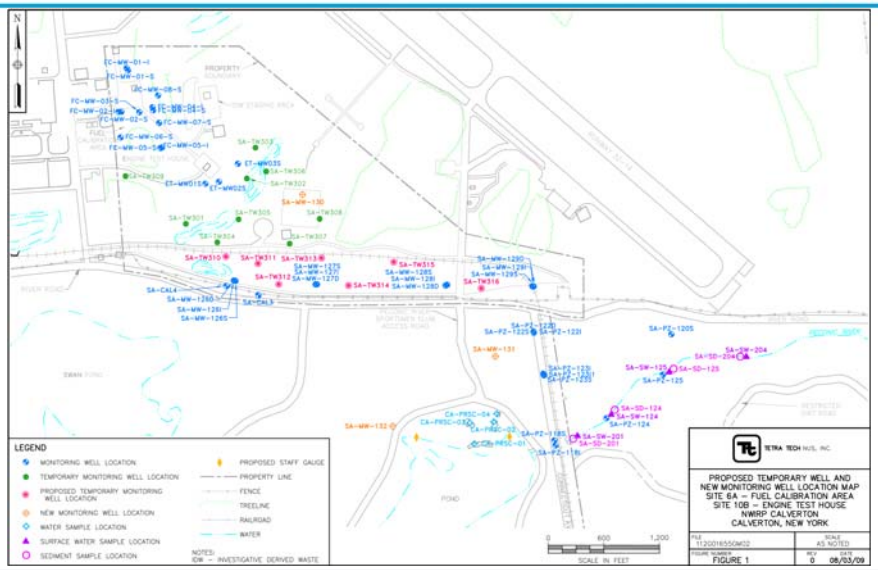
Peconic River – Surface Water and Sediment Sampling Results



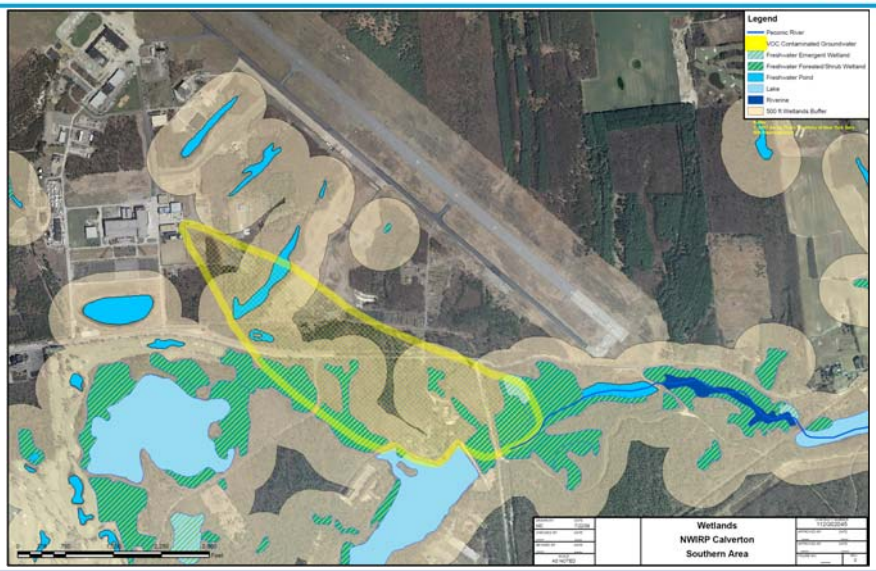
Upcoming Field Activities

- Groundwater Investigation/Monitoring
  - –Additional groundwater grab sampling north of River Road and south of railroad tracks
  - –Permanent monitoring well installation (3 shallow, 3 intermediate, and 1 deep well)
  - –Staff gauge installation (2 located on PRSC)
  - –Slug Testing – to determine groundwater flow rates at depth
  - –Annual groundwater sampling
  - –Quarterly PRSC sampling
  - –Semi-annual surface water and sediment sampling

Southern Area – Additional Temporary Wells and New Monitoring Well Locations



Southern Area – Groundwater Plume Map



Southern Area Aerial Photo

Anticipated Schedule

- Groundwater Investigation/Monitoring
  - –Additional groundwater grab sampling, August and September, 2009
  - –Permanent monitoring well installation and staff gauge installation, August and September, 2009
  - –September 2009, annual groundwater sampling event, quarterly PRSC sampling and semi-annual surface water sediment sampling
  - –December 2009, quarterly sampling at PRSC
  - –2010 sampling schedule (TBD) - quarterly sampling at PRSC, semi-annual surface water sediment sampling, and annual groundwater sampling.