Naval Air Station South Weymouth, MA
Restoration Advisory Board (RAB) Meeting Minutes
May 9, 2013

1. INTRODUCTIONS/ APPROVAL OF PRIOR MEETING MINUTES

John Goodrich, RAB facilitator, opened the meeting at approximately 7:00 PM. He requested that all attendees, including RAB members, regulators, and audience members, sign in. He noted that the meeting agenda, handouts, and the sign-in sheet were available on the table at the back of the room. The sign-in sheet for the meeting is provided as Attachment A. J. Goodrich asked if everyone had time to read the minutes from the February 2013 RAB meeting and if there were any comments. There were no comments.

J. Goodrich reviewed the guidelines for the meeting and reminded the attendees that the focus of the meeting is cleanup issues. Any issues and/or comments not related to base cleanup will be noted and referred to the appropriate agency or organization. He asked the audience to hold questions until the presentation has been completed.

J. Goodrich reviewed the agenda for the meeting. The meeting agenda and the action item tracking list are provided as Attachment B. In accordance with the agenda, the presentation and discussion would be followed by the updates and action items portion of the meeting. The minutes, agenda, and action items for the meeting are posted on the BRAC PMO website: http://www.bracpmo.navy.mil/.

2. PRESENTATION

J. Goodrich introduced Dave Barney to give a presentation on Long-Term Monitoring (LTM) at former Naval Air Station South Weymouth. D. Barney thanked the audience for coming to the RAB meeting, recognized the value of their time, and appreciated attendance to learn about the cleanup at the former naval air station. Pertinent slides are included in Attachment C.

D. Barney stated that tonight's discussion on LTM represents a transitional period for the base cleanup. It's the next phase of work following investigation and remedial action and lasts a long time. At the base, there are three sites (all landfills) in an active LTM program: the Rubble Disposal Area (RDA), the West Gate Landfill (WGL), and Small Landfill (SL). The location of each site was shown on a separate poster. These sites have been closed out from a remedial action perspective. The selected remedy for each site involved several components including closing and capping the landfills (i.e. managing the waste in place

[(primary component]), implementing institutional controls and engineering controls (i.e. deed restrictions and fencing site perimeters), and long-term monitoring. LTM is but one component of the remedies for all three sites.

D. Barney explained that groundwater monitoring is being performed at all three of the closed landfills. Surface water and sediment monitoring is also being performed at WGL and RDA to assess surface water and sediment quality in the vicinity of the landfills. Another component of LTM at landfills involves the monitoring of landfill gas. The Navy regularly monitors landfill gas within the landfills and also checks to see if gases are migrating beyond site boundaries, where it could be problematic.

Slides 6 and 7

The Navy performs LTM and facility inspections on a regular basis to evaluate the condition of each landfill. At the RDA, LTM was initiated in March 2007 and continues on a semi-annual basis. LTM began in November 2010 at the SL and also continues on a semi-annual basis. At WGL, LTM began in December 2011. LTM sampling at WGL is being performed on a quarterly basis for the first two years, after which semi-annual sampling will commence. LTM activities will continue for 30 (+/-) years. Duration of monitoring depends on what the Navy sees, the information that's collected, and how the data is interpreted. The selected remedy is reviewed every 5 years per CERCLA.

D. Barney identified typical analyses performed on groundwater, surface water, and sediment samples collected at each of the landfills and clarified analytical abbreviations at the top of the chart. The landfills have different analyte lists based on results of monitoring to date.

Rubble Disposal Area

Slides 8 through 11

D. Barney reviewed the number of monitoring features for each media at the RDA and described that groundwater samples are collected from a total of 10 monitoring wells installed in three geologic units: shallow overburden, the interface between overburden and bedrock, and in bedrock. Surface water sampling is performed at three locations along the eastern edge of the landfill. In addition, surface water is collected from two locations in Old Swamp River, upstream and downstream of the landfill. Sediment sampling is co-located with the three surface water locations in the wetland abutting the eastern side of the landfill. Landfill gas measurements are collected from eight gas vents within the landfill as well as seven gas probes outside the boundary of the landfill.

In the ROD for the RDA, remedial goals or cleanup levels were identified for three constituents in groundwater, including arsenic (10 micrograms per liter [µg/L], benzo(a)pyrene (0.2 µg/L), and manganese (313 µg/L). D. Barney explained that surface water and sediment at the RDA do not have

remedial goals because no unacceptable risks were identified for these media during the Remedial Investigation. However, surface water and sediment samples are still collected and analytical results are compared to generic National Recommended Water Quality Criteria (NRWQC) standards as well as to the constituents within the landfill to identify whether migration of contaminants of concern is occurring.

Arsenic was detected in several groundwater samples during the semi-annual sampling events in 2012 at the RDA. Arsenic is a naturally occurring mineral, so it is not an uncommon finding in groundwater. However, none of the detected concentrations in 2012 exceeded the remedial goal (RG), which is 10 µg/L. In fact, arsenic concentrations have not exceeded the remedial goal since September 2010. Benzo(a)pyrene was not detected in 2012 and there have been no exceedances since March 2007. The results from the LTM program at RDA are generally good for all parameters with the exception of manganese. There is a lot of manganese in groundwater at the RDA, particularly at monitoring well TT-04. Manganese was detected in every sample in 2012 and all of the detected concentrations, except those in TT-06, exceeded the remedial goal (313 µg/L). Low concentrations of other metals and organic compounds were also detected in groundwater in 2012 but all of the concentrations were less than federal and state standards (MCL/MMCL), where established, and there is no significant risk associated with any of them.

Slides 12 through 14

As previously described, analytical results for arsenic, benzo(a)pyrene and manganese in groundwater at RDA have been monitored since March 2007. Thus far, graphs have been prepared through September 2012 documenting concentrations in each well over time. Results are interpreted to identify whether trends are present.

Slide 15

Surface water sample results are compared to a generic water quality standard referred to as the National Recommended Water Quality Criteria (NRWQC). While some dissolved metal concentrations have exceeded this standard, VOC and PAH concentrations have been detected infrequently and may be related to background or other influences. Concentrations for the most part have been consistent from year to year. Similarly with sediment, VOCs, PAHs, and metals have been detected but none of the detected concentrations suggest there is a significant risk associated with this media or a link toward migration of contaminants of concern from the landfill.

Slide 16

Elevated methane concentrations exterior to the footprint of the landfill have been detected since the start of the LTM program and they have been monitored ever since. The Navy was not certain that the elevated methane concentrations outside the landfill originated from within the landfill because methane concentrations within the landfill were not that high (a condition still true in 2012). The Navy then

voluntarily performed an advanced study to evaluate the forensics of the landfill gas and determine the origin of the methane exterior to the landfill. Based on the results of the study, the Navy accepted responsibility to address the elevated methane concentrations at the RDA.

The gas monitoring system at the RDA is a passive system dependent on atmospheric pressure. The Navy is planning to establish a perimeter pressure relief system (wick drain system) to help the gas migrate up and away from the edges of the landfill. The Navy anticipates installing this system in the summer of 2013 before the parkway is opened.

Slide 17

Facility and LUC inspections are currently performed semi-annually at the RDA. If problems are found, they're noted and recommendations are made for corrective action. The Navy also performs an annual settlement survey to see if any differential settling has occurred in the past year. Thus far, settlement measurements are within acceptable limits. During construction of the new east-west parkway, some of the upgradient monitoring features (wells, gas probes, and piezometers) were damaged or destroyed. The Navy is working with South Shore Tri-Town Development Corporation (SSTTDC) to ensure these features are repaired or replaced.

D Barney described several photographs taken of RDA during facility inspections. The photographs showed typical growth on the landfill cap, the crushed stone in the northern drainage swale, landfill gas features, and the various types of fencing between RDA and the new east-west parkway.

West Gate Landfill

Slides 21 through 24

WGL is very similar to the RDA in terms of media sampled (groundwater, surface water, sediment), monitored (landfill gas), and the types of inspections (facility and LUC) that are routinely performed. Groundwater is collected from a total of 17 overburden and bedrock monitoring wells; surface water is collected from four locations in French Stream and four locations in the bordering wetlands. Sediment sample locations are co-located with the eight surface water samples. Landfill gas measurements are collected from two gas vents within the interior of the landfill cap and ten gas monitoring wells outside of the landfill. The LTM program at the WGL began in December 2011; only one year of monitoring data has been collected and published thus far.

Eight constituents of concern have been identified in groundwater at WGL including 1,4 dioxane, arsenic, chromium, hexachlorobenzene, and four PAHs. No cleanup goals were specified for surface water and sediment because no unacceptable risks were identified for these media during the Remedial

Investigation. However, the Navy will continue to collect surface water and sediment data during the monitoring effort to ensure that what is in the landfill stays in the landfill and does not migrate.

LTM events were completed in December 2011, and March, July, and September 2012. Arsenic was detected in 43 percent of the samples collected but only three of the detected concentrations marginally exceeded the groundwater RG. PAHs were detected infrequently; few concentrations exceeded the RGs. Chromium and 1,4 dioxane were detected but all of the concentrations were less than their respective RGs. D. Barney emphasized that these results only represent a short snapshot (1 year of data collection). If a persistent trend is identified in the future or more frequent detections or exceedances are documented for a particular constituent in a particular location the Navy will evaluate and address them accordingly.

Slides 25 through 29

Data graphs were presented for arsenic, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene, but with only four quarters of data for WGL, trends cannot be established.

Surface water and sediment results are compared to generic standards to determine if any constituents of concern are migrating from the landfill. VOCs, PAHs, SVOCs, and pesticides were detected infrequently in surface water. Concentrations of a few dissolved metals were greater than generic standards. Most exceedances were in French Stream, including one elevated concentration upstream of WGL. Similar compounds have been detected in sediment. Landfill gas measurements do not indicate methane is migrating beyond the landfill boundary.

Facility and LUC inspections were conducted at the WGL in December 2011, and May, July, and September 2012. Based on the first year of inspection results, the Navy filled cavities around fence posts and ruts along the side slope off the perimeter roadway. They also repaired storm water retention structures after two significant washout events so that they continue to function as intended.

Small Landfill

Slide 34 through 37

Small Landfill was initially investigated under Superfund. No significant CERCLA contamination was found during the investigation so it was concluded that there was no significant risk associated with the landfill. The Navy chose to close the landfill in accordance with MassDEP regulations. No cleanup goals were specified for groundwater in the ROD primarily because no risk was associated with groundwater. However, the Navy continues to monitor groundwater to ensure there is no residual contamination in the landfill or something that was not initially identified that could be problematic in the future. Groundwater

monitoring may continue, or if nothing is found, the Navy may petition the state to stop monitoring. The ultimate decision to end long-term monitoring rests with the state.

Five semi-annual sampling events have been conducted since November 2010. There have been few detections in groundwater and no landfill gas issues have been identified. Facility inspections indicate the landfill cap is in good shape.

Summary

Cleanup at former NAS South Weymouth is in a transition phase. There are a variety of sites where the Navy is actively engaged in an aggressive approach to cleanup and then there are sites, such as the landfills (RDA, WGL, and SL) which require only long-term monitoring. Recommendations for changes to LTM programs are included in annual reports. At sites where waste is left in place, federal laws mandate that these sites are evaluated no less than every five years. During the five year review process, comprehensive evaluations are performed as to how each site is progressing over time. Recommendations for changes are made based on review of the LTM data and other components of the five year review process.

Questions

M. Parsons asked if iron, manganese, or a combination of both metals causes the reddish-colored water on the east side of at the RDA, next to Old Swamp River. D. Barney stated the red color is likely due to excessive iron and the presence of "iron bacteria", a bacterial growth that occurs naturally when high concentrations of iron exist. The Navy has looked at this occurrence over a number of sampling events and concluded there is no risk. It is more of a visual nuisance than a health hazard. S. LaMott asked if the iron is an iron oxide and whether it is soluble or insoluble. D. Barney responded that iron in groundwater is normally in a ferrous form, which is soluble. As groundwater expresses itself as surface water, the water is in contact with the air and no longer depleted of oxygen. The oxygen in the air oxidizes the iron in the surface water to a ferric state where it is insoluble and precipitates out. Iron bacteria are microorganisms that feed on the iron and turn it into a gelatinous slime or product sometimes creating an aesthetic problem. It seems that wherever there is oxygen, water, and iron in streams there is a potential for the iron bacteria to form. S. Ivas added that iron under anaerobic conditions is soluble in water. So when the groundwater comes in contact with air, iron precipitates out. He thinks the bacteria use the energy change from the anaerobic to aerobic version of iron.

D. Galluzzo asked D. Barney to show the location of the wells previously discussed relative to where people are living. D. Barney responded that his question is applicable to WGL because no one lives in

the immediate area around RDA and SL at this time. People live within a 1/2 mile radius of the WGL. D. Barney pointed to the fence line and said you have to go beyond it to find residential property. D. Barney continued to point to the map and said he does not know if anyone lives in this part of Rockland but thinks the area is open space. M. Parsons confirmed that it is open space; there may be a few streets behind it but in between it is open space in Rockland. D. Barney followed by pointing to another side, stating it is fairly open and points to the Swamp River marsh area. There is not a lot of housing in this downgradient area where discharge flows. The nearest residential property is off of Union Street. For WGL, D. Barney showed the area of new construction. He pointed to the general direction of groundwater flow and states that discharge is flowing away from WGL, towards Rockland. M. Parsons mentioned the RDA and stated that groundwater flows north at this site. D. Barney responded yes, and says WGL and RDA are in two different drainage basins: French Stream and Old Swamp River. Most of the base drains into French Stream but near the RDA, drainage flows into Old Swamp River.

D. Galluzzo asked if the iron flocculent that is now being observed in Old Swamp River close to the east-west parkway is different than what it used to be like before roadway construction. He asked if it is possible that the compaction performed in support of road construction could have exacerbated this situation. D. Barney responded it is possible but thinks a lot of things can affect the amount of iron flocculent, including the amount of excavation work that was performed. M. Parsons mentioned she has observed new pockets where groundwater is coming up bright orange. D. Barney added that if you have a spot where groundwater bubbles up and there is dissolved iron present, it will turn orange as soon as the water comes in contact with the air. M. Parsons added that in all the years she has watched this area, she has not seen this much flocculent in Old Swamp River so she considers this a sudden change. D. Barney mentioned that the construction of the parkway may have affected the change but added that it is not possible to parse out the degree of any potential impact based on these observations. There could be other factors involved such as the amount of precipitation. Precipitation may be in a deficit right now and perhaps this is having an impact on the amount of flocculent observed. M. Parsons questioned this idea based on the amount of snow and snowmelt from this past winter. She also recently noticed a new area of flocculent downgradient of the Small Landfill that has suddenly appeared. However, she said, none of these observations compare to the amount, color, and thickness of flocculent observed in French Stream during the spring.

M. Bromberg asked for an explanation of indeno(1,2,3-cd)pyrene. Is it a fuel related compound? D. Barney asked the audience and members responded that it's a PAH. D. Barney said like other PAHs, it's a byproduct of incomplete combustion of carbon containing fuel. Indeno(1,2,3-cd)pyrene is commonly found near hazardous waste sites, and in exhaust from gasoline engines. It's very persistent in the environment.

M. Bromberg asked questions regarding exceedances detected during the LTM program. If an exceedance of arsenic is detected in one quarter but not the next, where does it go? Is it still present? It doesn't appear to be going away. What do you do with arsenic concentrations that periodically exceed your goals? M. Bromberg stated understanding that long-term trends are monitored but asks if the Navy will actually do anything about the elevated arsenic when it is detected. D. Barney summarized his question to what do you do with an exceedance during a LTM program? He said the Navy looks at exceedances from many perspectives to find out as much information as possible. Questions such as the following are asked:

- Which contaminant is elevated?
- How high is the concentration relative to standards?
- Where is it being detected?
- How frequently it is being detected at an elevated level?
- Has this exceedance been observed in the past?
- Could the exceedance be related to a seasonal change?

Responses are made if risk of exposure significantly changes. D. Barney emphasized that none of the concentrations discussed tonight are likely to create an exposure. D. Barney reminded the audience that there are restrictions on groundwater use at each of these sites.

S. LaMott asked if the arsenic in groundwater at these sites is soluble. D. Barney stated the arsenic is soluble and insoluble. The Navy measures total concentrations of arsenic in groundwater. The form of arsenic can affect its toxicity and mobility. However, the arsenic detections in groundwater are not speciated. D. Chaffin added that arsenic behaves a lot like iron and manganese. It can be solubilized by reducing conditions. At the RDA, all arsenic concentrations detected since September 2010 have been less than the remedial goal and the drinking water standard, which is 10 micrograms per liter (µg/L). At WGL, the highest arsenic concentration discussed this evening is about 10.4 µg/L, barely more than the drinking water standard and right at the landfill. In this situation, one would expect that as arsenic migrates from the landfill it will encounter less reducing conditions and be more or less adsorbed back into the aquifer. It will not be mobilized and transported far from the site. D. Chaffin indicated that he would not expect to see a practical impact on the aquifer. The marginal exceedance will likely be confined to the site. At former NAS South Weymouth, specifically at the RDA, manganese is really the problem. It is being released at much higher concentrations than arsenic and there is greater potential for migration. However, as the landfill matures and the carbon within is consumed over time, reducing conditions will abate and you'll eventually see lower levels of iron and manganese in groundwater.

D. Galluzzo stated that monitoring trends are showing less and less contamination, and asked where the contamination is going? D. Chaffin explained that less contamination is being released over time because the reducing condition is going to abate over time. S. LaMott asked if releasing means

dissolved. D. Chaffin replied yes, less will be dissolved in groundwater over time. S. LaMott asked what happens if it dissolves and goes downstream into the ocean. D. Chaffin and D. Barney responded that the Navy is also monitoring nearby surface water. Metals such as manganese will precipitate so the amount of contamination that moves in the surface water in a dissolved fashion will likely decrease as you move away from the landfill. S. LaMott asked if metals get adsorbed back into the wetland sediments. D. Barney replied that they would.

D. Galluzzo referred back to the beginning of the LTM program when the Navy discussed contaminant levels in terms of their considerable half-life and now only 5 years later the Navy is showing examples of decreasing arsenic and manganese concentrations because of deterioration. D. Chaffin explained contaminants are going from being mobile in water and migrating with the water to being attached to the aquifer and staying in place close to the site. Contaminants are being immobilized by this process, not destroyed.

M. Bromberg commented that there are no cleanup goals for surface water and sediment at these sites but wants to know if there have been any exceedances in either medium. D. Barney confirmed some concentrations have exceeded the generic National Recommended Water Quality Standard. He followed by saying that not all rivers and streams everywhere meet these generic standards for every parameter. D. Barney told the audience that the Navy reviews exceedances, such as those for arsenic or other metals in surface water and sediment, to see if detected concentrations are related to elevated levels of similar constituents of concern from the landfill. Even though the Navy determined there was no risk associated with these media, they will continue to monitor surface water and sediment because detections could indicate that contaminants are migrating from the landfill. M. Bromberg asked if the Navy has seen any evidence of migration to surface water and sediment from the three landfills to date. D. Barney replied no, they have not seen anything in these media that appears to be site-specific and related to the constituents of concern in each of the landfills.

M. Bromberg asked the Navy if they will be mowing the RDA at the end of May. D. Barney said no, but the Navy will be cutting and removing the woody species on the landfill cap with portable equipment before the end of May. They will mow in the fall. M. Bromberg asked if there is a set schedule for when these activities are supposed to occur. The Navy said they have to be cognizant of the nesting species, activities of the turtles, and performing these tasks when it is viable and functional. M. Bromberg commented that the removal of the woody species could have been conducted over the winter or in March and D. Barney agreed. M. Bromberg asked if the Navy is putting any wildlife at risk by removing the woody growth in May. D. Barney does not think wildlife will be put at risk with folks walking around the RDA with hand tools. He emphasized that motorized equipment such as a tractor will not be used for this task.

M. Parsons asked about ticks. D. Barney said the Navy contractor's health and safety plan dictates what they should do about ticks. P. Call added that field personnel often wear white Tyvek® as personal protective equipment for ticks. D. Barney added that folks should not be alarmed if they see personnel in white suits working at the landfill.

M. Brennan asked the Navy if they have a standard operating procedure in place to check their own data. S. Parker responded that several quality control samples including trip blanks, equipment rinsate blanks, and field duplicates are collected to check the data. Trip blanks are used to assess the potential for contamination of VOC and any volatile petroleum hydrocarbon samples due to contaminant migration during sample shipment and storage. These are usually required at a frequency of one set per cooler in which volatile samples are shipped. Rinsate blanks are used to assess the effectiveness of decontamination procedures. Rinsate blanks are obtained by running analyte-free deionized/distilled water from the laboratory through sample collection equipment after decontamination and prior to use, and placing it in appropriate sample containers for analysis. Samples are collected at varying frequencies, mostly 1 per 20 investigative samples but sometimes less frequently based on a lot or batch of equipment requiring testing. Field duplicates are used to assess the combined field and laboratory precision and provide precision information regarding sample homogeneity, handling, shipping, preparation, and analysis.

P. Call added that extra sample volume is also collected in the field for the laboratory so that they can perform their own quality control/quality assurance checks. All of this information is taken into account when the chemists validate the data. D. Barney added a lot of rigorous quality control is performed. S. LaMott asked if the standard errors on the trend graphs are so small that one might not be able to see them. S. Parker replied that when the chemists and data validators report the data back to the project team, the range of error is published in a data validation memo that is usually appended to the project report.

S. LaMott asked follow-up questions regarding well depths, artesian flow, and springs. Is there any communication between groundwater from 30 or 40 feet below ground with water above ground? Does the Navy only look for contamination down to 40 feet? Are there any springs in this area that could disrupt mixing? D. Barney responded that situations like that are investigated. The Navy makes comparisons of well against well. The Navy installs wells where they will do the most good. Some are installed to monitor upgradient, cross-gradient, and downgradient conditions at these sites. They're screened in overburden, the interface between overburden and bedrock, and in bedrock, but not always just in the top 30 or 40 feet below ground surface. The Navy chooses to monitor a variety of groundwater zones. In terms of communication between groundwater zones, contaminants can move up and down in a well depending on vertical gradients and other influences. The rate at which a contaminant will move through an aquifer varies not only with the characteristics of the aquifer but with the characteristics (chemical properties) of

the contaminant. Some contaminants are heavier and will continue to sink until they reach an impervious surface. Other contaminants are lighter than water and float near the water table.

M. Parsons commented on the clarity of the water in the North Feeder Stream by the RDA. It doesn't appear to have the iron and manganese content that the rest of the streams seem to have. D. Barney confirmed this stream drains the East Mat and areas north. He hasn't evaluated the dynamics of this stream other than to collect samples from it but groundwater probably enters this stream form the north side. The geochemistry upgradient of this area is likely different than at the RDA; probably less impacted with less organic material.

M. Parsons asked about the Land Use Controls at the RDA. D. Barney responded that there is no access to groundwater within the landfill footprint. The Navy extended this restriction into the wetland via an Explanation of Significant Difference (ESD), essentially restricting all access to groundwater. She asked if the same is true for SL. D. Barney and D. Chaffin replied while there is no specific restriction to groundwater at SL, disturbing the cap for well installation would violate the institutional control on no digging and drilling at the landfill so that would preclude access to groundwater under the cap.

S. Ivas commented on a previous question regarding artesian flow. An artesian aquifer is a confined aquifer (one between impervious strata) containing groundwater under positive pressure. If a well is installed in this formation, groundwater from depth will rise to the surface. Artesian flow represents water under pressure that ends up above the existing surface. M. Parsons commented that there are several places on the base where artesian flow has been observed. S. Ivas followed that sometimes this flow comes from an area of higher altitude than that of the well so that there is sufficient pressure to force the water upward. Other times, aquicludes may cause the redirection of groundwater flow because water can't penetrate these formations so it may travel along the top of the aquiclude and express itself along the side of a hillslope. Aquitards are semi-permeable, semi-confining geologic formations adjacent to or between aquifers that partially restrict the movement of water. Should this aquitard contain layers of sand, groundwater may travel through the permeable material within the aquitard and express itself in another area at the surface.

3. UPDATES AND ACTION ITEMS

Action Items:

1) RAB Administrative Actions – D. Barney indicated that he was considering moving the RAB meeting back to the Caretaker's Site Office at NAS South Weymouth. He's looking for ways to reduce federal spending and asked the audience if this was a good idea. There were no objections. This change will be implemented for the next RAB meeting. J. Cunningham asked when the next RAB meeting will be held.

D. Barney stated the next meeting would normally be the second week in August under the current schedule but he will be on vacation. He considered having a guest Navy speaker but stated there may be travel restrictions in place precluding this idea. D. Barney suggested having a RAB meeting on September 12, 2013 given that a public meeting for the remedy proposal for the B81 site will take place in mid to late July. There were no objections. J. Cunningham asked when the public meeting will be held in July. D. Barney said the date has not yet been decided but he thinks it will be towards the latter part of July and mentioned this meeting will also be held at the Caretaker Site Office at NAS South Weymouth.

2) Application for RAB Membership – D. Barney received an application for RAB membership from Mr. Stephen LaMott, a resident of Southfield. The audience welcomed Mr. LaMott. D. Barney is hopeful that more residents will attend RAB meetings once the meetings resume at the Base. He wants new residents to feel comfortable enough to stop by the Caretaker Site Office to find out what the Navy has done over the past 20 years, see what information is available, and ask questions to take away the mystery and eliminate any misconceptions.

D. Barney discussed the format of the RAB meeting and stated that the format has evolved over the years becoming less structured and more informal to encourage more dialogue with the audience. He considers these meetings opportunities to share information with the public, exchange ideas, answer questions, and hear feedback and concerns. In the past, meetings were more structured but he got the sense that not everyone felt they could participate or have their questions heard so he revised the structure. J. Goodrich commented that this informal structure has been working quite well.

P. Call added that minutes are prepared for every RAB meeting. This information and the agenda for the next meeting are distributed via a mailing list to about 100 individuals. P Call asked new attendees to provide their addresses if they would like to be added to the mailing list to receive this information. S. LaMott asked if information is also posted on the internet and D. Barney replied yes.

M. Bromberg asked what became of the Fire Fighting Training Area (FFTA) and use of groundwater for irrigation water. D. Barney replied that the Navy is close to implementing a broader groundwater restriction across the FFTA site. The last time this was discussed, the Navy considered a groundwater restriction solely for drinking water purposes, and irrigation use was fine but since then they have expanded the groundwater restriction at the FFTA to include groundwater used for irrigation. M. Parsons mentioned land use controls, specifically institutional controls, have been established for this site. M. Bromberg asked if the community can engage in the final decision or is it only between the Navy and the regulators. D. Barney asked M. Bromberg in what way does he want to engage and then followed by reiterating the Navy will implement a broader restriction on extraction of groundwater at this site. M. Parsons added that some folks previously submitted written comments pertaining to the use of

groundwater for irrigation from the FFTA. J. Goodrich thanked M. Bromberg for his question but stated that he would like to go through the updates in order before addressing questions.

Massachusetts Contingency Plan (MCP) sites:

An Immediate Response Action (IRA) completion report for the new RTN 4-0024136 has been submitted to the MassDEP Southeast Regional Office. D. Barney stated there has been no action over the last few months on this. The Navy is in a 1-year time period to classify or take immediate action.

Environmental Baseline Survey (EBS) sites:

- Area of Concern (AOC) 55C – This is part of Finding of Suitability to Transfer (FOST) 6A. The Navy will be replanting some vegetation and woody species, including Red Maple and other wetland plants that did not survive the first couple of years after the Non-Time Critical Removal Action (NTCRA). The Navy will replant and will water after planting.
- Review Item Area (RIA) 11 (Aqueous Film Forming Foam [AFFF]) – The Navy will come to an agreement on the language in the Explanation of Significant Differences (ESD) for the FFTA site and will execute it. J. Goodrich asked if there are any questions regarding this matter. M. Bromberg asked if the community can get final details on the ESD to feel involved. P. Call asked if there was a public comment period on the ESD. M. Bromberg replied yes, he did submit comments. He would like to follow-up on the outcome. D. Barney replied that he can email the community the responses to their comments. P. Call stated that like so many other documents (e.g. ROD and FOSTs) there is a responsiveness summary (RS) at the back of the ESD. M. Bromberg asked when the RS will be made available. D. Barney replied that the Navy has the communities' responses to comments that they saw in the public review. M. Parsons mentioned there are several certified vernal pools in the vicinity of the FFTA. Groundwater extraction could dry out the wetlands and any vernal pools. D. Barney said there are definitely other potential considerations for not extracting groundwater from the FFTA area. He added there are also physical restrictions and physical considerations to the area that make groundwater extraction impractical. For new members in the audience, S. Ivas asked D. Barney to point to the FFTA area on the map. A. Malewicz added that the FFTA covers approximately 8.8 acres. M. Parsons added that the vernal pool covers at least 23 acres.
- Industrial Operations Area (IOA) – The IOA was discussed at the RAB meeting on February 14, 2013. The Navy has issued the final IOA Project Report. There are a number of locations in surface soil that the Navy will address via excavation and offsite disposal. The Navy will develop a work plan and tighten up the areas where they expect removal actions will occur.
- Review Item Area (RIA) 111 (Old Hangar 2) – D. Barney stated work at this site is a low priority for the Navy, action-wise. Additional site characterization and a geophysical study are required to

evaluate the extent of the former hangar and possible presence of voids under the north end of runway.

Finding of Suitability to Transfer (FOST):

FOST 5C

FOST 5C has been completed. This includes the French Stream watercourse and the south side of Spruce Street. The area covers about 30 acres. The Navy has been able to address all outstanding comments. D. Barney reminded the audience that this area was offered as part of the broader transfer in 2011 but then withheld because of a concern with perfluorinated compounds (PFCs) identified in the stream at the FFTA. It was one cohesive geographic area that was pulled out entirely and held back. The Navy has since determined there is no unacceptable risk with these compounds in the stream so the area is now suitable for transfer. The transfer may take some time because the new signatory is in Washington DC. After signatures have been acquired the Navy will transfer this corridor by deed to South Shore Tri Town Development Corporation. The public benefit conveyance (PBC) and economic development conveyance (EDC) portions of the land will be assigned to the National Park Service and transferred at some future date. The Spruce Street extension will go to the Town of Rockland.

FOST 6A

FOST 6A is a conglomeration of various parcels of land including AOC 55C, West Gate Landfill, Main Gate, and Small Landfill. The Navy said all are ready to be transferred but added there are ongoing discussions over the appropriate vehicle to record Land Use Controls (LUCs) for this area. M. Parsons asked, what is the issue? D. Barney stated the issue is a concern regarding the provision of deed restriction. Basically it says you won't do "X" on the property in the deed. The other mechanism or vehicle for recording these restrictions is via a state method and grant an easement and right to the State of Massachusetts. M. Parsons asked for what purpose? D. Barney replied to inspect and enforce the controls. A. Malewicz explained Grant of Environmental Restriction and Easement (GERE), Activity Use Limitations (AUL), and deed restriction differences.

Miscellaneous

P. Call introduced S. Parker as the new Tetra Tech project manager for NAS South Weymouth. She is retiring and this will be her last RAB meeting. P. Call has completed FOST 5C and 5B and is trying to finish the ESD for FFTA prior to her departure. She thanked the audience for all of their support over the last 8½ years. D. Barney thanked P. Call for all of her efforts and said the Navy looks forward to working with S. Parker.

Conclusion/Next Meeting

J. Goodrich wrapped up the meeting. The next RAB meeting will be the second Thursday in September (September 12, 2013). The meeting will be held at former NAS South Weymouth in the Caretaker Site Office (Building 11). Potential topics include an expanded discussion of the Sewage Treatment Plant (based on work that will be performed over the summer) or review an update (interim status report) that the Navy would like to distribute in July regarding the status of all of the sites. According to D. Barney, several sites have planned activities and in this current funding environment it is difficult to accurately predict which activity will be executed first. If activities have not started by September, he would like to present an all-site update, including two or three slides and the current status of each site with an emphasis on the sites with imminent actions. He wants to keep the public informed.

Goodrich mentioned the public hearing in July. D. Barney stated the announcement for the public hearing will be posted in the newspaper and on the website. The Proposed Plan for the B81 site remedy will be sent out to the individuals on the mailing list when ready.

ATTACHMENT A

SIGN IN SHEET

FORMER NAVAL AIR STATION SOUTH WEYMOUTH
RESTORATION ADVISORY BOARD MEETING

May 9, 2013

NAME	TOWN/AFFILIATION	TELEPHONE NO.
Anne M Hiebert	Weymouth	781.337.3743
Jeanne Marques	Weymouth	781-337-9535
Matthew Brennan	Weymouth	781-340-5008
John Goodrich	M.O.P.E.	413.477.0328
D. Chaffin	Mass DEP	617 348 4005
K. Jalkut	Tetra Tech	978 474 8417
MARY PARSONS	ROCKLAND	781-871-3350
Dom Gallizzo	Weymouth	781-337-8908
Steve Lucas	IE/SSTTDC	781.659.1690
STEVEN LEMOTT	So Weymouth	781-803-6165
James Cunningham	WEY/RAB	781-331-0545
ROBERTA ZINAN	S. WEYMOUTH	(w) 617-788-0573
Pam Harting-Barrett	EPA	(w) 617 918 1518
Phoebe Call	Tetra Tech	978-474-8403
Mike Brandon	Rockland	
Stephen S. Parker	TetraTech	978-474-8434

ATTACHMENT B1

AGENDA
Former Naval Air Station South Weymouth, MA
Restoration Advisory Board (RAB) Meeting Agenda

May 9, 2013 **New England Wildlife Center, Weymouth, MA** **7:00 PM**

Agenda Items	*Item Lead*	*Projected Time*
1. Introduction, Review of Meeting Notes	Facilitator	7:00 – 7:15
2. Long-Term Monitoring Update	Navy	7:15 – 8:15
3. Updates and Action Items	Navy	8:15 – 8:30
4. Questions, Agenda Items, Next Meeting	Facilitator	8:30 – 9:00

Facilitator: John Goodrich, Massachusetts Office of Public Collaboration

Restoration Advisory Board (RAB) Members:

Abington: James Lavin, (Alternate: Steve Ivas); Phil Sortin (Alternate: Beth Sortin)
Hingham: no current representation
Rockland: no current representation
Weymouth: James Cunningham (Community Co-Chair); Dan McCormack; Steve White
Navy: Dave Barney (Navy Co-Chair)
EPA: Carol Keating (Alternate: Bryan Olson)
MA DEP: David Chaffin (Alternate: Anne Malewicz)

BRAC Cleanup Team (BCT) Points of Contact:

Navy: Dave Barney, BRAC Environmental Coordinator, NAVFAC Base Realignment and Closure (BRAC), Program Management Office, Northeast (617) 753-4656
Email: david.a.barney@navy.mil

Brian Helland, Remedial Project Manager, NAVFAC BRAC Office, Program Management Office, Northeast (215) 897-4912
Email: brian.helland@navy.mil

EPA: Carol Keating, Remedial Project Manager, Federal Facilities Section
(617) 918-1393
Email: keating.carol@epa.gov

MassDEP: David Chaffin, Environmental Engineer, Federal Facilities (617) 348-4005
Email: david.chaffin@state.ma.us

MassDEP Ombudsman: David DeLorenzo (617) 292-5774, Email: david.delorenzo@state.ma.us

ATTACHMENT B2

ACTION ITEMS
Former Naval Air Station South Weymouth, MA
Restoration Advisory Board (RAB) Meeting

May 9, 2013 – Next RAB Meeting

Action Item	*Item Lead*	*Deadline*
ACTION ITEMS		
None		
UPDATES		
RAB Administrative Actions	D. Barney	Each RAB
MassDEP Update	D. Chaffin	Each RAB
IR Program Sites Update	D. Barney	Each RAB
EBS Review Item Areas/ Various Removal Action Update	D. Barney	Each RAB
FOST/FOSL Update	D. Barney	Each RAB
SSTTDC Update	J. Young	Each RAB
RECENTLY COMPLETED ITEMS		
Landfill LTM exceedances (2/13)		
Is the RDA design adequate for the measured methane concentrations? (2/13)		
Designation of ‘no salt zones’ as part of the development (4/12)		
Review WGL facility inspection observations/recommendations (4/12)		

ATTACHMENT C

LTM Activities

- RDA: LTM wells installed February 2007, first LTM event in March 2007. LTM and facility inspections continue on a semi-annual basis.
- WGL: LTM began in December 2011. Quarterly sampling and facility inspections planned for 2 years, then semi-annual. Semi-annual post-restoration wetland inspections.
- Small Landfill: LTM began in November 2010. LTM and facility inspections continue on a semi-annual basis.

LTM to continue for 30 years (+/-); remedy to be reviewed every 5 years per CERCLA

LTM Analytical Parameters by Media

Landfill	VOCs	SVOCs/ PAHs	Pest.	Herb.	PCBs	TAL Metals	Dissolved Metals	CN	Misc. Para-meters	Ferrous Iron
GROUNDWATER										
RDA	X	X		(1)	X	X			X	X
WGL	X	X	X	X	X	X		X	X	X
SL	X					X		X	X	
SURFACE WATER										
RDA	X	X	X	(2)	(2)		X		X	X
WGL	X	X	X	X	X	X	X	X	X	X
SL	NA									
SEDIMENT										
RDA	X	X			(3)	X				
WGL	X	X	X		X	X				
SL	NA									

(1) samples collected from TT02, TT06 fall event

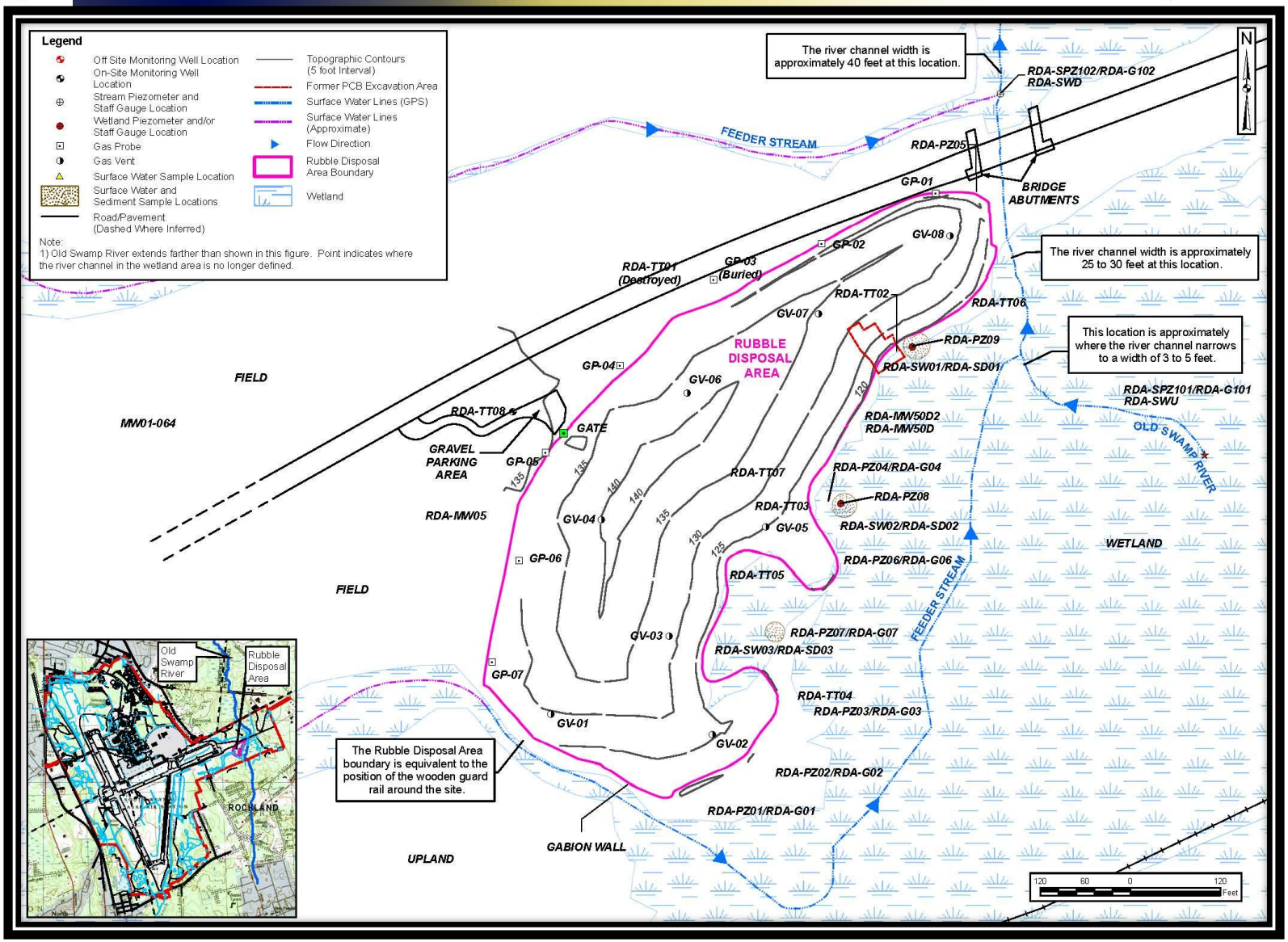
(2) samples collected from SWD fall event

(3) samples collected prior to each 5-year review

RDA LTM Components

- Groundwater sampling from 10 monitoring wells
  - 8 shallow overburden wells; 1 bedrock well; 1 overburden/weathered bedrock interface well
- Surface water sampling and staff gauges at:
  - 3 locations along eastern edge of the RDA
  - 2 locations in Old Swamp River (upstream & downstream)
- Sediment sampling collocated with the 3 surface water locations along the eastern edge of the RDA
- Landfill gas measurements from 8 gas vents and 7 gas probes
- Semi-annual facility inspections; annual LUC compliance inspections

RDA – LTM Sample Locations



RDA ROD-Specified Cleanup Goals

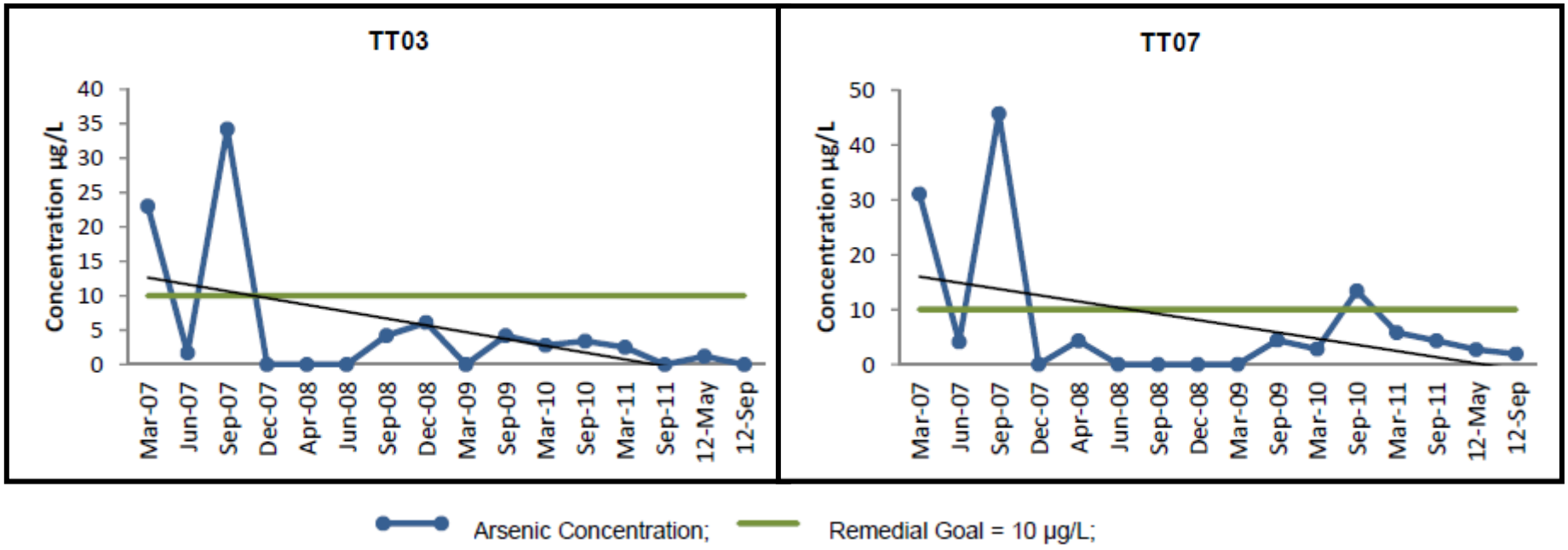
- Groundwater RGs:
  - Arsenic – 10 µg/L
  - Benzo(a)pyrene – 0.2 µg/L
  - Manganese – 313 µg/L
- Groundwater data also compared to MCLs/MMCLs
- No cleanup goals specified for surface water and sediment
- Surface water results compared to applicable National Recommended Water Quality Criteria (NRWQC)

RDA Sampling Results - 2012

Groundwater:

- Arsenic – detected in 17 of 22 samples; all < RG
  - No RG exceedances since Sept. 2010
- Benzo(a)pyrene – not detected
  - No RG exceedances since March 2007
- Manganese – detected in all samples; all > RG, except TT-06
- Other compounds (VOCs, VPH, PAHs, metals) were detected but all concentrations less than MCL/MMCL, where established

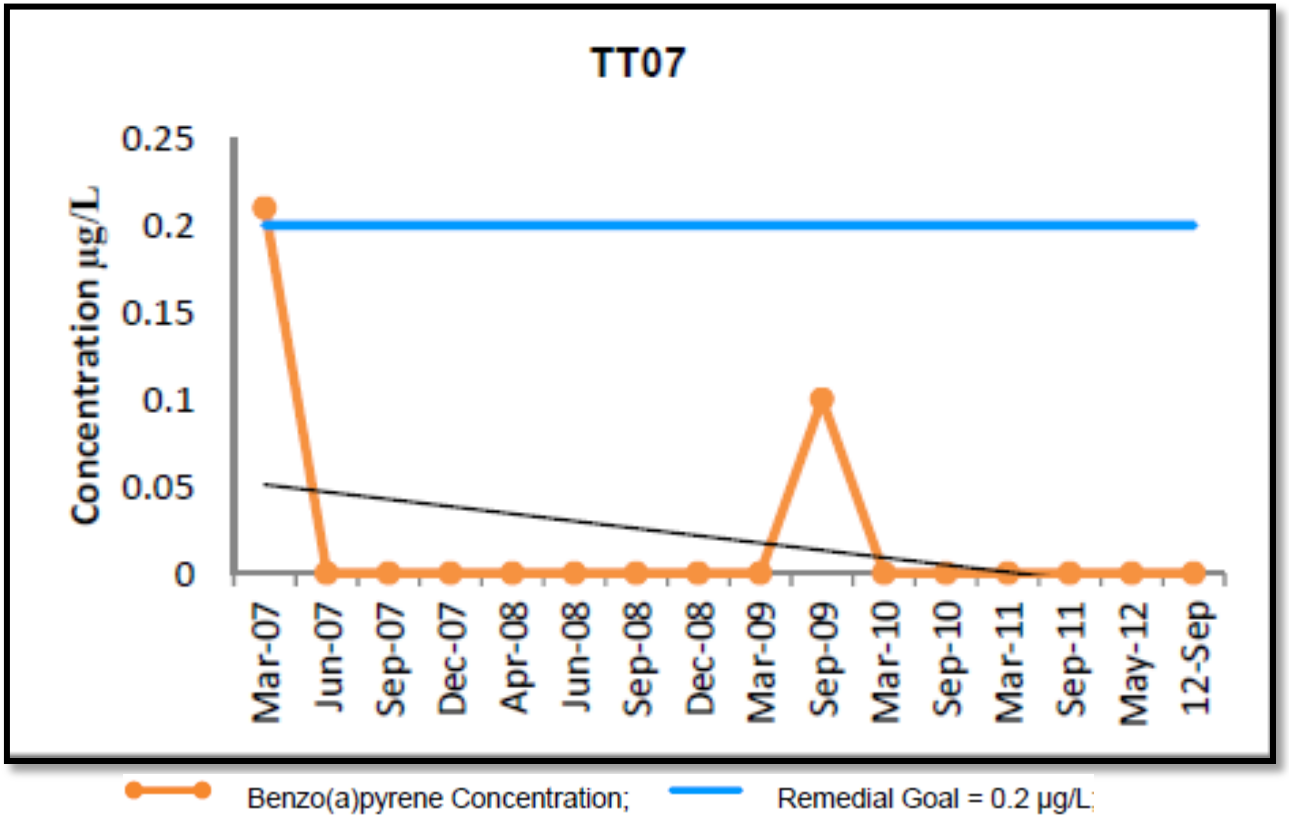
Arsenic Trend Graphs



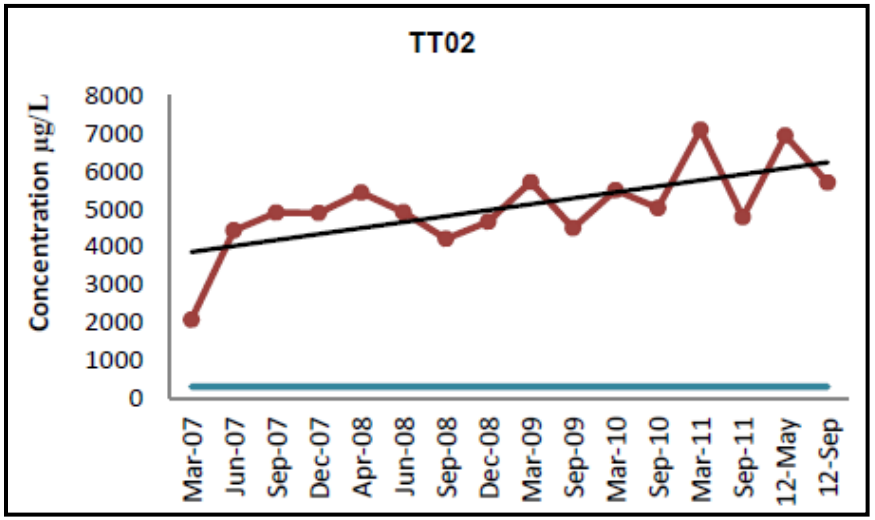
RG also exceeded at TT02, TT05, MW-50D, and MW-50D2 in 2007; downward trend in these wells since then.

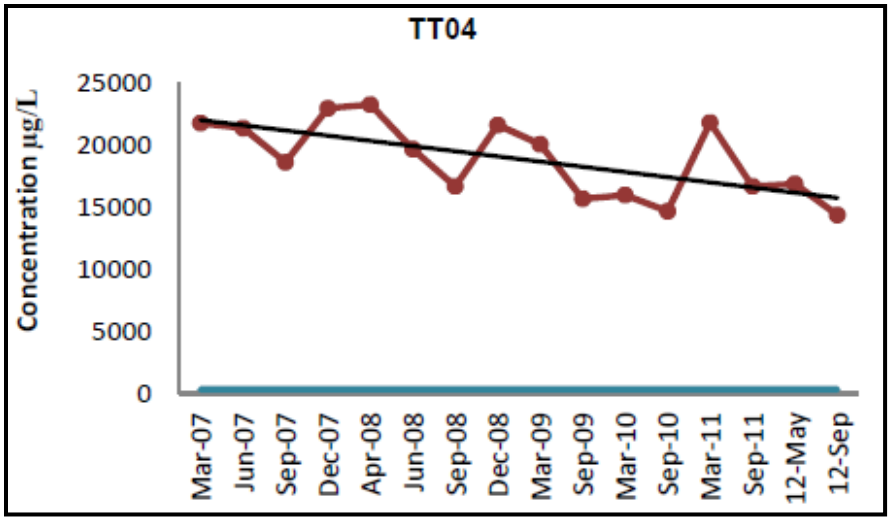
Benzo(a)pyrene Trend Graph

Only RG exceedance to date



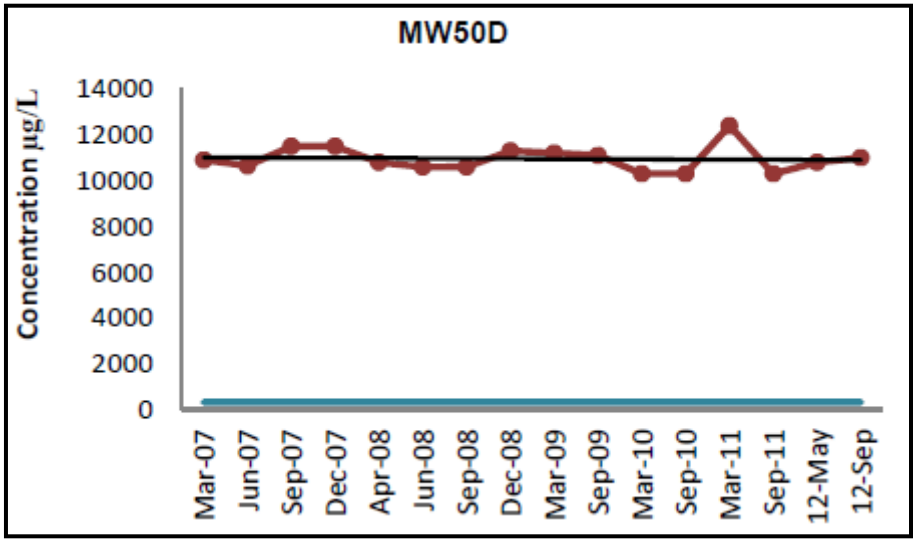
Manganese Trend Graphs





Manganese Concentration; Remedial Goal = 313 µg/L

RG exceedances at all monitoring wells. Increasing trends also at TT05, TT06; decreasing trend also at TT07; stable trend also at TT03



RDA Sampling Results - 2012

- Surface Water:
  - NRWQC exceeded for aluminum (4 of 11 samples); iron (5 of 11 samples); lead (2 of 11 samples); alkalinity (all samples)
  - VOCs, PAHs detected infrequently, metals detected in most samples
  - Results generally consistent with prior years
- Sediment:
  - VOCs detected infrequently, metals, and PAHs detected in most samples
  - Results generally consistent with prior years

RDA Gas Monitoring

- Landfill gas:
  - In 2012, no methane measured within the landfill footprint; high methane percentages measured at GP01, GP02, GP04
  - 2012 results generally consistent with prior years
  - Cowl vents installed on gas vents GV04, GV06, GV07, GV08 to help extract landfill gas
  - Landfill gas mitigation project work plan under review by the regulators; Navy anticipates installing the wick drain system in summer 2013

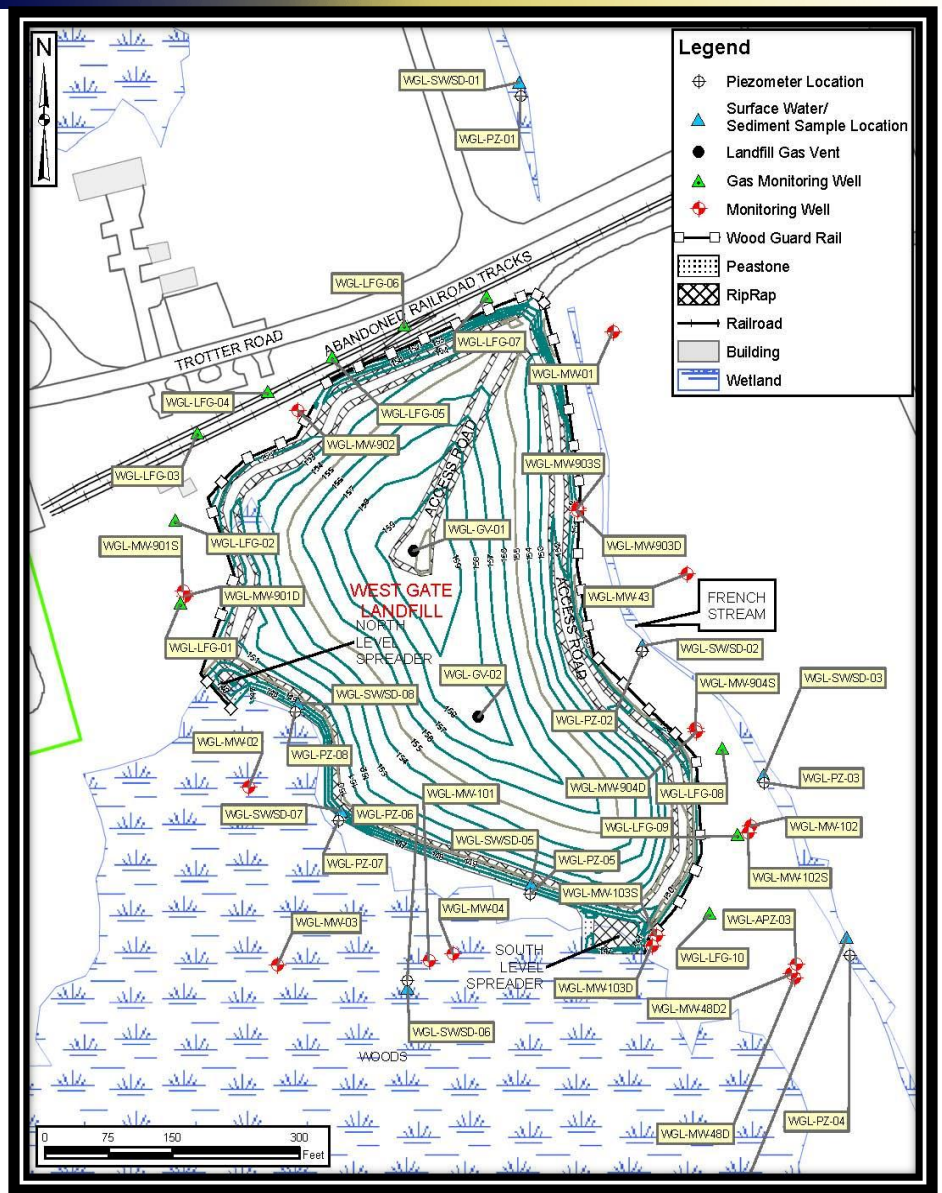
RDA Facility/LUC Inspection Results

- Inspections completed in May and September 2012
- Landfill cap, vegetation coverage, storm water drainage system, gas vents and probes, perimeter fence, gate, and signage all in good condition
- No erosion or settling on the cap; some erosion on the access road related to construction activities
- Upland piezometer PZ05 was damaged but has been repaired; TT01 and GP-03 were destroyed
- Annual settlement surveys indicate minimal settlement and within acceptable limits
- Annual LUC compliance inspection performed in September 2012; LUCs in place, are protective, and operating effectively

WGL LTM Components

- Groundwater sampling from 17 monitoring wells
  - 10 overburden wells; 7 bedrock wells
- Surface water sampling and staff gauges at:
  - 4 locations along French Stream
  - 4 locations in wetlands
- Sediment sampling collocated with the 8 surface water locations
- Landfill gas measurements from 2 gas vents and 10 gas monitoring wells
- Semi-annual facility inspections; annual LUC compliance inspections
- Semi-annual post-restoration wetland inspections

WGL LTM Sample Locations



WGL ROD-Specified Cleanup Goals

- Groundwater RGs:
  - 1,4 Dioxane – 6 µg/L
  - Arsenic – 10 µg/L
  - Benzo(a)anthracene – 0.09 µg/L
  - Benzo(b)fluoranthene – 0.09 µg/L
  - Dibenzo(a,h)anthracene – 0.09 µg/L
  - Hexachlorobenzene – 1 µg/L
  - Indeno(1,2,3-cd)pyrene – 0.09 µg/L
  - Chromium – 47 µg/L
- No cleanup goals specified for surface water and sediment
- Surface water results compared to applicable NRWQC

WGL Groundwater Results

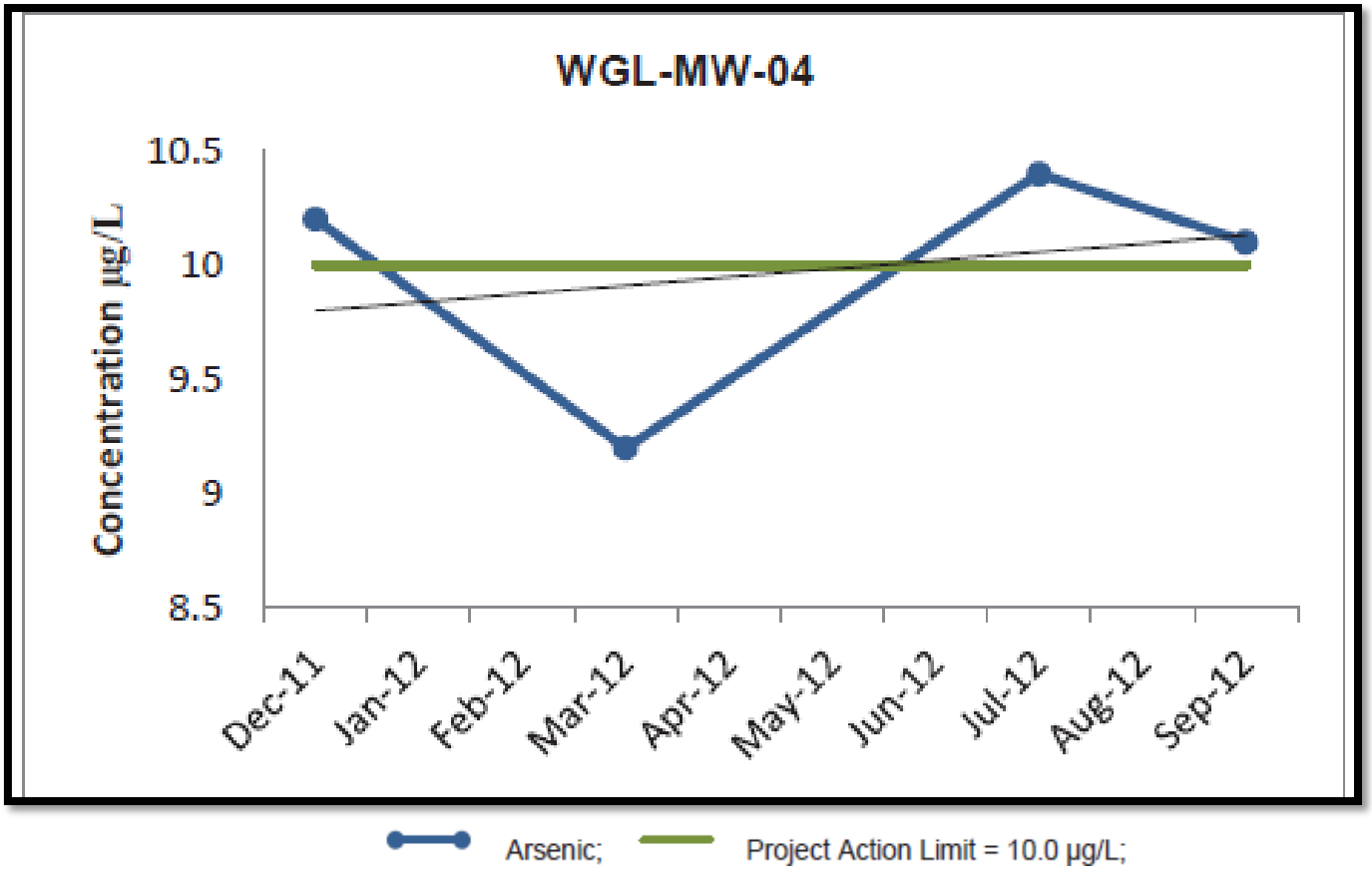
LTM events completed in Dec. 2011 and March, July, and Sept. 2012

- Arsenic – detected in 29 of 68 samples; 3 > RG
  - max. concentration 10.4 µg/L vs RG of 10 µg/L
- Dibenzo(a,h)anthracene – detected in 1 of 68 samples; 1 > RG
  - max. concentration 0.19 µg/L vs RG of 0.009 µg/L
- Indeno(1,2,3-cd)pyrene – detected in 9 of 68 samples; 4 > RG
  - max. concentration 0.1 µg/L vs RG of 0.09 µg/L
- Benzo(a)anthracene – detected in 1 of 68 samples; < RG
- 1,4 Dioxane – detected in 14 of 68 samples; all < RG
- Chromium – detected in 27 of 68 samples; all < RG
- Hexachlorobenzene – not detected in any of the 4 events
- Benzo(b)fluoranthene – not detected in any of the 4 events

Other compounds (VOCs, SVOCs, PAHs, pesticides, PCBs) were detected infrequently, at low concentrations; 24 metals detected, 7 at concentrations greater than Base background

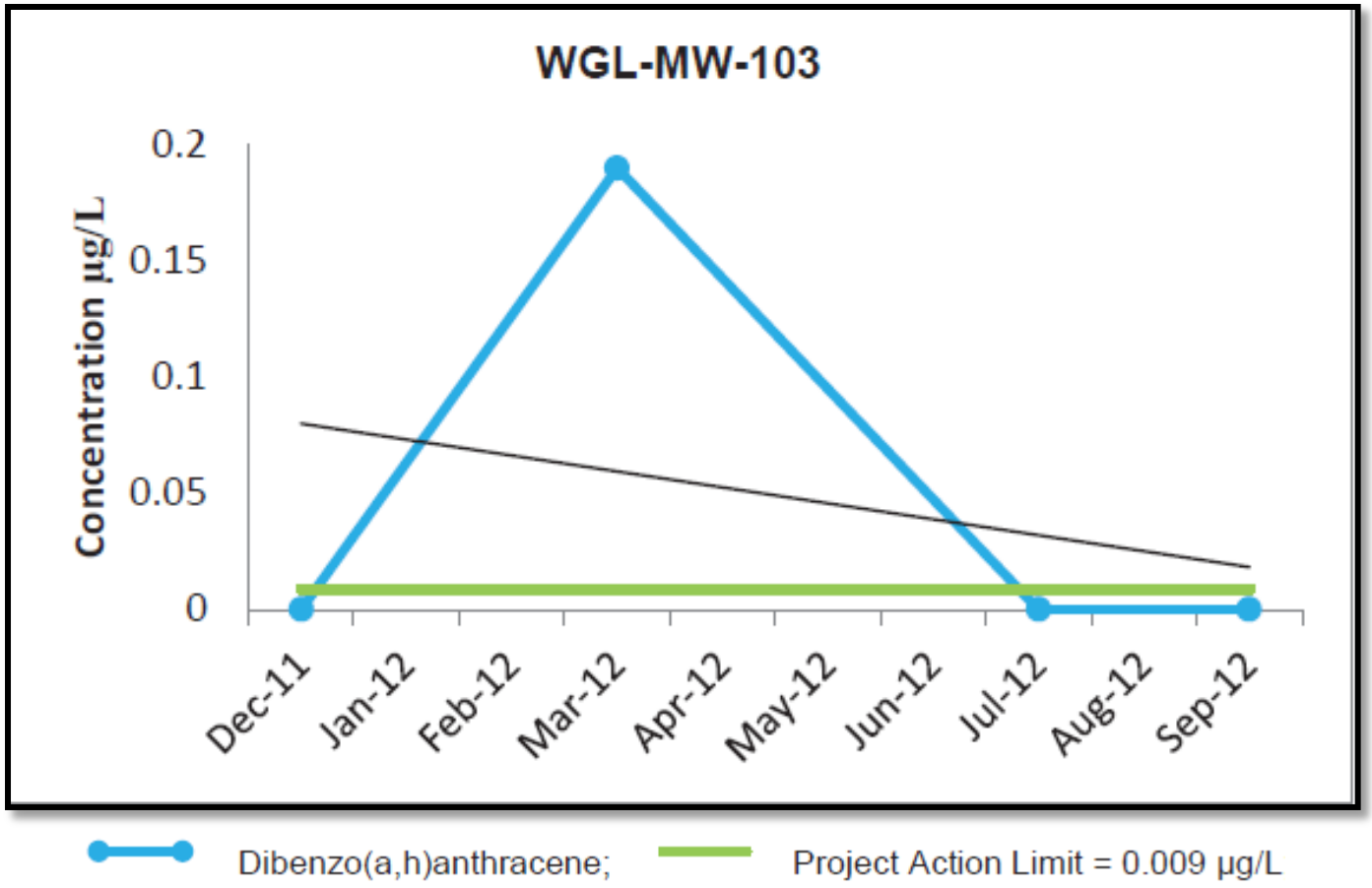
Arsenic Trend Graph

Only RG exceedance to date

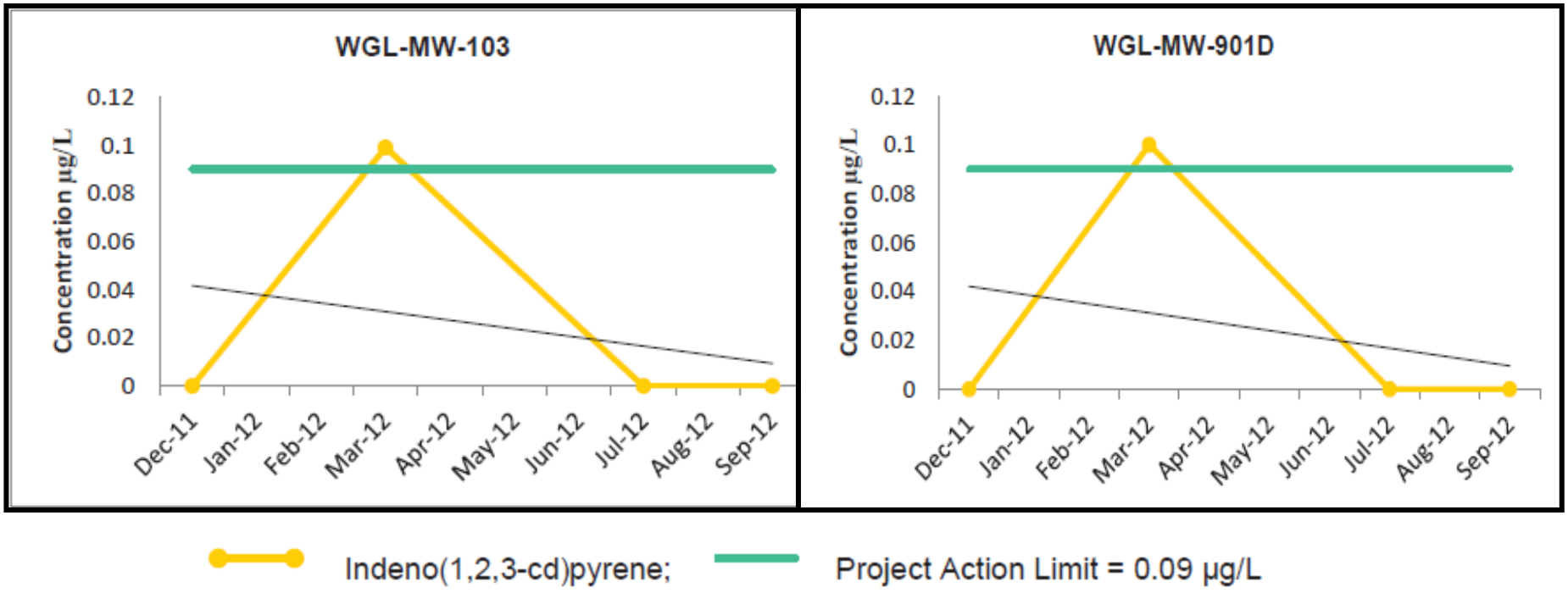


Dibenzo(a,h)anthracene Trend Graph

Only RG exceedance to date; no other detections in any monitoring wells



Indeno(1,2,3-cd)pyrene Trend Graphs



WGL-MW-902 and –MW-903S show similar trends with slight exceedances in March 2012 but downward trend since then.

WGL Surface Water & Sediment Results

- Surface Water:
  - VOCs, PAHs, SVOCs, pesticides were detected infrequently. No detections of herbicides, cyanide, and PCBs.
  - Concentrations of 4 of 11 dissolved metals with NRWQC were greater than the NRWQC; most exceedances in French Steam, including the location upstream of the WGL.
- Sediment:
  - VOCs detected infrequently; 1 PCB detected
  - PAHs and pesticides were detected with varying frequencies
  - Metals were detected in the majority of samples
- Similar compounds were detected in surface water and sediment samples
- Methane measured in gas vents but not gas probes. Landfill gas measurements indicate no gases are migrating beyond the Site boundary.

WGL Facility/LUC Inspection Results

- Inspections completed in December 2011 and May, July, and September 2012
- Landfill cap; vegetation coverage, storm water drainage system, gas vents and probes, perimeter fence, gate, and signage all in good condition
- Some erosion on cap and access road
- Repairs and maintenance performed on the cap and landfill features in 2011 and 2012
- Annual settlement surveys indicate minimal settlement and within acceptable limits
- Annual LUC compliance inspections performed in November 2011 and 2012; LUCs in place, are protective, and operating effectively

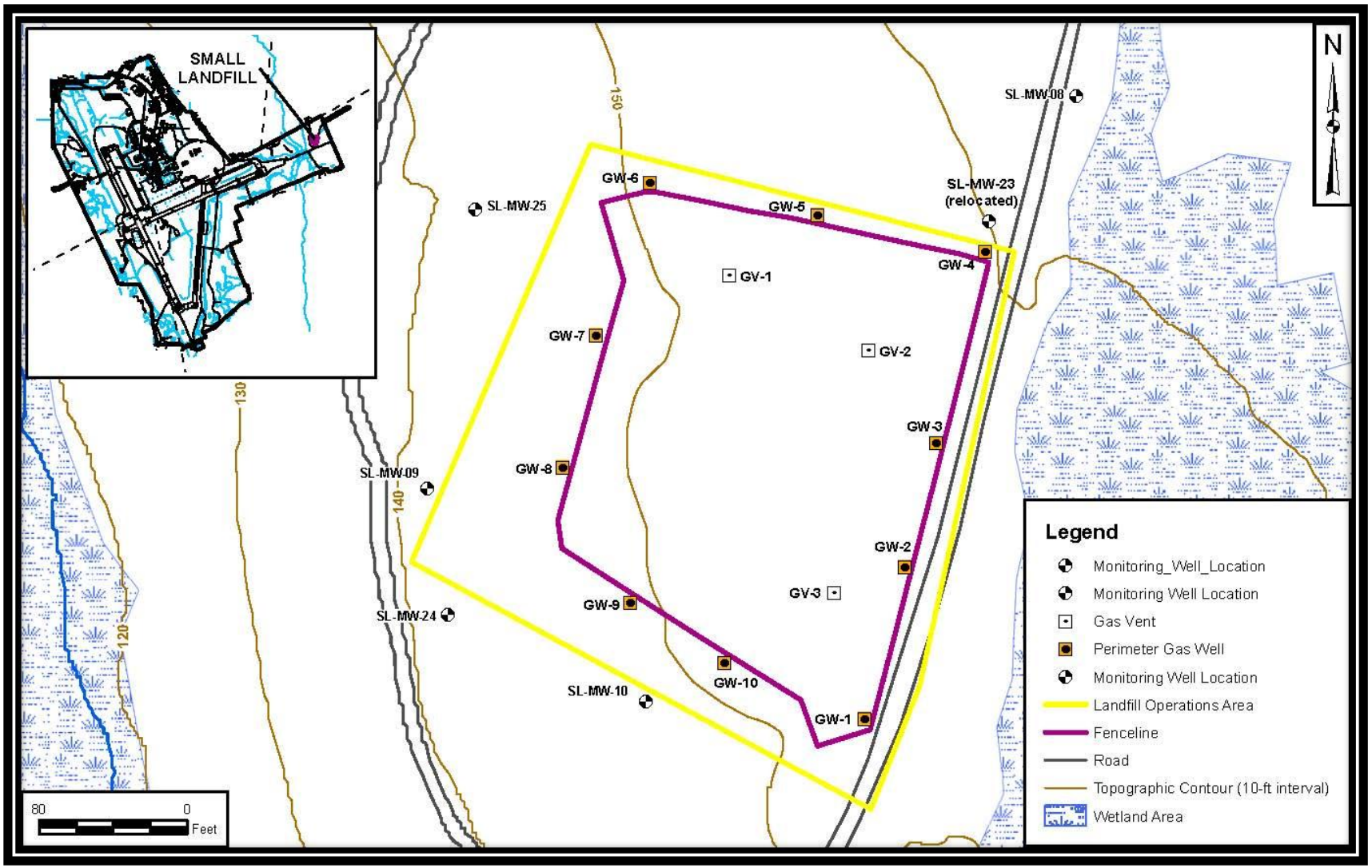
SL ROD Requirements

- ROD required no further action under CERCLA but closure under MassDEP regulations
- Post-closure monitoring per MassDEP environmental monitoring requirements for landfills, 310 CMR 19.132
- No cleanup goals specified for groundwater
- Groundwater project action levels (PALs) = lowest of the federal and state drinking water standards (MCLs & MMCLs) or MA Office of Research and Standards Guidelines (ORSG)
- LUCs implemented via a Record Notice of Landfill Operation (310 CMR 19.141), recorded at Plymouth County Registry of Deeds

SL LTM Components

- Groundwater samples collected from 6 overburden monitoring wells
- Landfill gas measurements from 3 gas vents and 10 gas probes
- No surface water monitoring since no nearby surface water bodies
- Semi-annual facility inspections (landfill cap; storm water drainage system; gas vents and probes; access road; perimeter fence, gate, and signage; vegetation; and groundwater monitoring system)
- Annual settlement survey

SL LTM Sample Locations



SL LTM Results 2010 - 2012

- 5 semi-annual events: Nov. 2010, March & Sept. 2011, April & Sept. 2012
- No VOCs detected except March 2011 (1 well, 2 VOCs at concentrations < PALs)
- Metals detected in all events; all concentrations < PALs
- No cyanide/thallium detections
- Detections of misc. parameters all < PALs
- Landfill gas measurements indicate no gases are migrating beyond the Site boundary.
- Facility inspections indicate: no large areas of erosion on the cap; storm water drainage system, gas vents and probes, access road, perimeter fence, gate, and signage all in good condition; grass coverage is increasing
- Annual settlement surveys indicate minimal settlement and within acceptable limits