Technical Meeting Agenda
Naval Air Station Brunswick
Parkwood Inn
Brunswick, Maine
Tuesday, 20 March 2007
11:00 AM - 6:00 PM

11:00 – 11:15 **Meeting Logistics/Administrative**

11:15 – 12:15 **Site 9 Update**

- **Ash Land Fill Removal**
- **Ash Land Fill Direct Push Workplan overview and status**
- **Bldg 201 Direct Push Workplan over view and status**
- **Site 9 SW Corner Monitoring Well Installation status**

12:15 – 1:00 ***Lunch***

1:00 – 2:45 **Eastern Plume**

- **Mere Brook Investigation Update**
- **Eastern Plume GW Model/Base-wide G/W Considerations**
- **Over view of 2005/2006 Monitoring Data**
- **LTMP April 2007 Review**
- **LTMP status update**
- **1, 4 Dioxane Status/Update**

2:45 – 3:00 ***Break***

3:00 – 3:45 **Eastern Plume (continued)**

3:45 – 4:15 **Site Management Plan**

4:15 – 4:30 ***Break***

4:30 – 5:00 **Admin Record Demonstration**

5:00 – 5:45 **Meeting Notes Review**

5:45-6:00 **Action Items**

6:00 **Adjourn**

Technical Meeting Agenda
Naval Air Station Brunswick
Parkwood Inn
Brunswick, Maine
Wednesday, 21 March 2007
9:00 AM - 5:00 PM

9:00 – 9:45 **Building 95 RI Scoping Document**

9:45 – 10:15 **Sites 1 & 3**

- **Overview of 2005/2006 data**
- **2007 Spring Monitoring Event**

10:15-10:45 **Site 2**

- **Overview of Workplan**
- **Overview of 2005/2006 data**
- **2007 Spring Monitoring Event**

10:45 – 11:00 ***Break***

11:00 – 11:30 **Site 7**

- **Status of Monitoring Wells**
- **Overview of 2006 Data**
- **2007 Spring Monitoring Event**

11:30 – 12:30 **Newsletter/Community Relations Plan**

12:30 – 12:45 **Meeting Notes Review**

12:45 – 1:30 ***Lunch***

1:30 – 2:15 **Website Demonstration (TtNUS)**

2:15 – 2:45 **MMRP (Malcolm-Pirnie)**

2:45 – 3:00 ***Break***

3:00 – 4:00 **CERFA/LUC Tracker (TtNUS)**

4:00 – 4:45 **Meeting Notes Review**

4:45 – 5:00 **Action Items**

5:00 **Adjourn**

Technical Meeting Agenda
Naval Air Station Brunswick
Parkwood Inn
Brunswick, Maine
Thursday, 22 March 2007
9:00 AM – 3:00 PM

9:00 – 9:45 **RAB Review**

9:45 – 10:30 **NEX (TtNUS)**

- **Overview**
- **Impact to Site 9**
- **What's Next**

10:30 - 10:45 ***Break***

10:45 - 11:15 **ONFF**

- **Overview**
- **What's Next**

11:15 – 11:30 **Action Items**

11:30 – 12:00 **Meeting Notes Review**

12:00 – 1:00 ***Lunch***

1:00 – 3:00 **Topsham**

- **Overview of 2006 Soil Remediation & Investigation**
- **What's Next**

3:00 **Adjourn**

TECHNICAL MEETINGS
NAVAL AIR STATION BRUNSWICK, MAINE
PARKWOOD INN
20, 21, 22 MARCH 2007
MEETING NOTES

MEETING ATTENDEES

Tuesday March 21- Thursday March 22 Attendees

Al Easterday, Senior Project Manager	ECC
Gina Calderone, Project Manager	ECC
Catherine Guido, Environmental Scientist	ECC
James Gatherer, Modeler	EA Science & Engineering
Lonnie Monaco, Remedial Project Manager	US Navy, NAVFAC Mid Atlantic
Dawn Kincaid, BRAC Environmental Coordinator	US Navy BRAC, PMO NE
Jennifer Wright, Biologist	US Navy, NAVFAC Atlantic
Ed Benedikt	Brunswick Area Citizens for a Safe Environment
Dale Mosher, IR Coordinator	NASB
Carolyn Lepage, BACSE TAG Consultant	Lepage Environmental Services
Claudia Sait, Remedial Project Manager	Maine Department of Environmental Protection
Chris Evans, Project Geologist	Maine Department of Environmental Protection
Christine Williams, Remedial Project Manager	US Environmental Protection Agency
Carol Warren	Brunswick Local Redevelopment Authority
Lisa Joy, Environmental Director	NASB
John James, Public Affairs	NASB
Doug Heely	H&S Environmental

Wednesday, March 21 Additional Attendees

Dan Waddill	US Navy, NAVFAC Atlantic
Jonathan Sperka	Malcolm Pirnie
Dave McTigue	Gannett Fleming
Chuck Race	TTNUS
Victor Ciminera	TTNUS
Lawson Anderson	TTNUS

Thursday, March 22 Additional Attendees

Eric Nelson	TTNUS
Brian Helland	US Navy, NAVFAC Mid Atlantic

20 MARCH 2007

Meeting start time - 1130 hours.

1. SITE 9/ASH LANDFILL AREA

General Update
Oak work plan for ash area is in progress. This work plan needs to be completed – work plan, Health and Safety Plan (HASP), etc. and is due today to Navy with anticipated release to Maine Department of Environmental Protection (MEDEP)/Environmental Protection Agency (EPA) by end of next week. Work should commence hopefully in May. This winter, subcontractors have been visiting to check covers. Ponds are frozen, frac tanks were emptied of water last fall in coordination with sewer district. Sediment still needs to be cleaned out of one tank. All but one of the frac tanks are off site. Extensions for storage of hazardous waste have been submitted to MEDEP. Removal of the ash piles is the first thing to be done. ECC has sent the contract to the Navy to reestablish the monitoring wells destroyed during the removal project once the removal is completed. The monitoring wells will be placed in the same locations with the same construction.

Site 9/South of Neptune Drive
Work plan and proposal for delineation of ash dump area beyond existing excavation site. If ash is observed, proceed east and west. If no ash going toward road, may jump over road to confirm. There are concerns with the underground utilities North of Neptune Drive. Total of 15 borings proposed, but could be fewer. For the investigation, visual observations will be used to determine if ash is present. Request to push to top of clay for vertical delineation at points where no ash is seen.

Building 201
South of Building 201 – Diesel Range Organics (DRO) detected. Work includes sediment and pore water samples from upper impoundment pond. The purpose is to see if DRO impact is widespread. Former "pig roasts" in this area, is DRO from lighter fluid? Volatile Organic Compound (VOC) sampling in this area needed to check on historic MEK (methyl ethyl ketones), acetone and BTEX (benzene, toluene, ethylbenzene, xylene) detections (direct push and pore water). DEP will comment on pore water sampling – 8 inch minimum into sediment. They will also comment on need for VOC sampling. Collect samples in sand underlying organics to minimize surface water in samples. MEDEP states that pore water sampling must target sand lenses specifically, not just sediment. DEP will propose more sample points to the east. EPA also stated that pore water sampler should target sand lenses.

Irrigated Playing Field
Four direct push points needed to investigate past irrigation from treatment plant (possible 1, 4 dioxane). Past irrigation included watering primarily down center, with minimal on the edges. DEP suggests moving west points closer to center. Mark out locations in field with DEP concurrence. Objective to determine if 1, 4 dioxane is present. Irrigation was conducted during three seasons, or only when really needed.

South West Corner Monitoring Well
DEP commented on need for additional well. Possibly complete this summer/early fall with other well replacement work in Site 9.

Work north of Neptune Drive is separate from south of Neptune (Building 201) – south is not part of Oak's work. ECC recalls installing a direct push point (Nov 04 draft final report) in parking lot south of Building 29. This is the general location of proposed permanent well.

The group discussed to identify direct-push locations by making a visit field and staking out the locations for project stakeholders to agree on, followed by use of a GPS to locate point. It was decided not to leave stakes in the ground at this location since it is used as a ball field.

Reminder was stated that MEDEP and EPA require 14 days notice prior to any field work.

2. EASTERN PLUME

Mere Brook

The stakeholder group walked site in December to mark out transects A, B and C. In the last few weeks, Jeff Donovan of ECC completed all points proposed, as well as the optional points 01 and 02. Optional point 03 could not be done due to stream not being frozen at that time. Soil and groundwater sampling, and a mobile lab were used. The first two holes split samples with fixed laboratory. The EPA Method 8260B was used for the mobile lab was not exactly same as used at the fixed lab. However, the data for 1, 4 dioxane/VOC split samples exhibited a good correlation. The on-site mobile laboratory was used exclusively after that and the field data sheets were reviewed each day.

The sand interval was targeted for analysis, especially deeper samples. Sample B-4 at confluence – highest detections of 1, 4 dioxane. Point B-3, detections of 1, 4 dioxane but decreases with depth. Vinyl chloride and TCE (trichloroethene) were also detected. Point B-5 – vinyl chloride detected. At Point C-3, between streams, vinyl chloride was also detected in several depth zones. Follow up work for nested piezometers, installed last week. Additional data for 01 and 02 will be distributed and is waiting for lab.

Overall the field work went smoothly. Next phase is soil borings. Rig access may be difficult. Work scheduled for April, but depends on snow cover. April is also sampling month, may make coordination of soil borings difficult. Six to seven points proposed. Possible cross sections for June technical meeting, depends on April work outcome. Data will be ready on draft figures by June meeting.

Base boundary fence line as shown on transect figure will be removed from the figure for the RAB meeting as the placement of it's location on the map is questionable. The physical fence must stay in place as per JAG (Judge Advocate General). Survey of piezometers will be done after next phase of drilling. Transects established to line up data points for cross sections, including data from pore water sampling.

Good effort by all for quick turn around to get this work done. There is a small window of time to get work done. The stakeholder indicated that this was a very good Triad project example of Navy, field team and Regulator coordination.

Groundwater Model

The model was presented by James Gatherer, EA. Two objectives – groundwater flow simulation, and assess the effects of the cap and slurry wall at Sites 1 and 3. Model inputs - boring log data, geophysical data, pumping data, precipitation and geologic info. Currently in calibration/verification phase. Approach – work plan, comments, and modeling/calibration. The domain is within Mere Brook basin to

west, Merriconeag to east. Boundaries are no-flow zones. Upper sand, transition, lower sand, transition and clay. Clay is lower boundary (clay bowls).

Progress – work plan 9/05, currently at calibration stage. Model split in grid cells ranging from 60x60 ft to 250x250 ft. There is more definition to east (Eastern Plume). Cross sections – generally follows streams and shows each zone, including clay "bowls". Slug test data was used in each zone, as well as recharge information and river stage/recharge. The model is 70% complete. The domain of the model was extended to the east and broken into 7 layers instead of 6 (including the clay layer).

Consider deactivating extraction system and monitor rebound. Data would characterize larger area to calibrate model, much better than slug tests (single point). Deactivate for up to a week, monitor about 12 points and extraction wells. Use transducers to measure rebound/recharge. Will present this plan at Restoration Advisory Board (RAB) meeting and solicit comments. Will deactivation have deleterious effects on nearby wells? No, all data suggests there will be no substantial migration (low ft/day). No significant changes after 9/11 shut down (about 6 weeks). Also should not effect surface water pathway. Prepare revision to work plan outlining shut down and which wells would be monitored. Well 2A would be one of the most important areas to study. Private wells near this area are uphill.

Calibration – compare observed water levels (steady state and pumping conditions) to model predictions. Continue with model development if comparison is good. Results – R squared = 0.96 (generally good but room for improvement). R squared of 1.0 means perfect predictions by model.

Estimated hydraulic conductivity (ft/d):

60/40 upper sand – slug tests from various intervals
15 – 0.18 transition
100 lower sand – not much data available
15 transition
0.4 clay

Recharge – four areas - Built up, Stream, Land fill (cap) and Upland areas. Recharge rates are as follows: 17 feet/year for upland areas, 4 feet/year for streams, 0.3 feet/year for landfill cap and 0.4 feet/year for built up areas. The model is very sensitive to river conductance (0.6-10 feet/year).

Conclusions – agreement good, can be improved. It can be used to simulate steady state flow. Particle analysis can be used to simulate capture by extraction system in eastern plume. Water budget includes input from precipitation, output via streams.

Next steps are to complete calibration, sensitivity analysis, particle tracking and report. A copy of the groundwater model presentation slides is attached.

Base-wide Groundwater Considerations

Groundwater boundaries in various areas not defined well enough to show "clean" areas. Previously this was discussed in December meeting. Navy discussed internally how to draw boundaries around the various areas. Outside those boundaries would be clean. Many considerations – background, extraction wells, etc. ECC mapped existing data and identified gaps where additional information is needed. Tetra Tech will take data and model boundaries (not around each IR site, because many sites are close together). May come up with 2 – 3 boundaries, within which groundwater use would be restricted. May

allow for the Records of Decision (RODs) to be tightened up, better transfer of land in the future. Ultimately for specific institutional controls (IC) of groundwater – right now IC needed across entire base due to lack of detail.

First step – gather existing data, and get DEP/EPA agreement on this approach. This appears to be a good first step to eventually make ICs more specific. MEDEP is concerned with the lateness of the Monitoring Event report because the lack of current data is affecting its review of work plans. Next phase may include more sentinel wells (and beyond) to prove boundaries and extent of contamination. This may also include buffer zones beyond boundaries, based on hydraulic conductivity estimates. Groundwater model could play role in this. Groundwater pumping outside of boundaries needs to be considered. Who does this; Navy or future land owners? EPA requested consideration to assume in the ICs certain future pumping rates that would be allowed. If future users want to do something different, they would need to prove otherwise.

Currently the Navy is responsible for known groundwater contamination base wide. RODs would need to be revised to incorporate new specific boundaries.

Consider burden on future developers who may need to use groundwater. Deeds in future may restrict use of property and use of water. Future developers may need to get approval for wells. Let them demonstrate that new groundwater use would not adversely impact remediation. The group may consider inviting Brunswick water department to discuss this. Base maintains and owns the water and sewer infrastructure on base. Not sure who will take over in the future. Developers would need to decide on cost of extending municipal water lines vs. modeling for groundwater use. Still need to see more detail on where municipal and base water systems are. Navy needs to find out if information on the water supply system is restricted information.

1, 4 Dioxane Status/Update

The presented figure shows all sampling points in eastern plume for 1, 4 dioxane monitoring. Extraction wells and two other nested pairs (1300 series) will be added. Need to add criteria of why each well was selected. Include these wells in April 07 monitoring event. Questions on well MW-337 were raised. 60 ug/L detected in 9/05, but not sampled since. Update letter next week to include all revisions. Include justification for dropping well MW-337 (or add back in). Sampling will occur week of 4/12. Decided to wait to sample the Mere Brook test borings until the fall 2007 monitoring event.

EPA asked why the Navy did not plan to discuss the 2005/2006 Long-Term Monitoring data package sent out by the Navy via email prior to the meeting and requested to be printed out and brought to the meeting. The Navy answered that it would be discussed during the April conference call as there was much else on the agenda that needed to be discussed in the time available. It was agreed upon that the overview of Eastern Plume Long-Term Monitoring Plan for April 2007 be moved to later in the day.

3. SITE MANAGEMENT PLAN (SMP)

Comments on work plan: DEP – no further discussion of DEP comments needed. EPA – question on #6, add information on well field and # of people on drinking water system. OK to use information in RI (Remedial Investigation), base will help answer questions. Brunswick Area Citizens for a Safe Environment (BACSE) - question #5 relates to dioxin, not 1, 4 dioxane. Consider dioxin testing where incineration took place. Should the site management plan address dioxin testing? This appears to be common concern of citizens group. Incineration areas and ash disposal areas with cap should mitigate

risk. Site 9 dioxin testing was done, but results were below standards. What other sites could have dioxin and not capped? Should area north of Site 2 include dioxin testing? Limited investigation of this area performed, which includes a former incinerator site. Dioxin testing is expensive, and is typically analyzed for only if believed to be present. Further comments should be included in specific Site 2 work plan review. Records of Decision (ROD) assumptions were that base would remain active, this assumption eased concerns over these types of issues. Things are different now with base closing. SMP should address dioxin at incineration sites. Question 18 – possible new dump site. Mattresses and boots allegedly buried c. 1974 in long shallow trench near golf course, pine trees grown over. The question was asked whether other information is available. Navy would want to speak with person who made this claim. May be numerous reports that are similar, Navy will follow up on each claim. Establish a standard form to interview people with such claims to get all pertinent information. Navy, DEP and EPA will check to see if standard interview forms are available.

4. ADMINISTRATIVE RECORD DEMONSTRATION

Last update was 2003 (2 CDs). Recently updated to go through 2006 (6 CDs). Over 330 new documents were added to the record. Many search options and excel format with tabs to access reports. It is available at the library now. Discard old versions of database - this one includes everything (all previous reports plus new reports since 2003). Deleted a few old drafts but everything else stayed. Navigation tips – what documents are on which disk. Frequently requested Records of Decision (RODs) and other documents were added. Browse options, including by Site. Future updates will need Optical Character Recognition (OCR) capabilities in accordance with NAVFAC (Naval Facilities Engineering Command) guidance. The Navy guidance is coming out in May.

5. EASTERN PLUME (CONTINUED)

Eastern Plume Video
Video shows Volatile Organic Compounds (VOCs) changes in eastern plume over time from 1998. Northern portion of plume starts red, decreases to yellow/blue over time. Does not include 1, 4 dioxane concentrations. Consider a separate presentation of 1, 4 dioxane once there is sufficient database.

Long Term Monitoring Program (LTMP) Status Update
ECC is working on final DEP comments. Sites 1 and 3, and the Eastern Plume will be split into two individual plans. Reissue as draft final end of May (Navy reviews mid May, DEP/EPA end May). Show groundwater map (iso-concentration) for Sites 1 and 3.

6. ACTION ITEM REVIEW

The action item list from the February conference call was reviewed. Each action item was addressed by the respective ‘owners’. The status of each item was noted.

7. MEETING NOTES REVIEW

The group reviewed and performed a live edit of the notes taken during the day.

Meeting adjourn time - 1830 hours.

21 MARCH 2007

Meeting start time - 0900 hours.

There was a discussion of Triad. Navy would like to follow up with this to document the success of the Mere Brook sampling project.

1. BUILDING 95 REMEDIAL INVESTIGATION (RI) SCOPING DOCUMENT

Site 17/Building 95 RI scope is to reconfirm data that was already available. Prepare scoping document – existing data for Site Investigation (SI), what is needed for RI. ECC prepared revised document. Figure depicting Installation Restoration Program (IRP) sites, Site 17/Bldg 95 scoping area was shown. Initially a Resource Conservation and Recovery Act (RCRA) site, never made it to Comprehensive Environmental Response, Compensation and Recovery Act (CERCLA) process, noted in second 5 year review. ECC prepared RI scoping document, RI work plan to continue down CERCLA road. Lots of background information available: two five year reviews, significant monitoring data. Groundwater concentrations have steadily declined, two pesticides remain but at/near standards. Concern: remedial action plan shows that surface and subsurface standards are very different. Concern was expressed of future excavation that could bring subsurface soil near surface, increase risk. Draft closure report never accepted by DEP, several years of negotiation if additional sampling was needed to document clean closure. Three distinct removal actions in the past near Building 95 – last phase not enough money to complete. Trench dug to re-bury soil and cover with clean soil. Navy had signed order for clean closure to start process; however it did not have adequate funds to complete. Human health and Ecological risk assessments are done.

Comments on work plan report – called Building 95, did not reference Site 17. Need to clarify and be specific. This site should be called Site 17. Is Figure 3 in work plan? No, needs to be included. ECC will forward to group. Is dog kennel in Site 17? It is adjacent. Need to find out how far north contamination/sample points go. There are some data gaps, part of RI process to identify data gaps. Current risk is in soil – no pathways to surface/surface water bodies. EPA has minor comments, will be submitted next week. DEP will comment soon after Site 9 review (more time critical). BACSE comments will follow regulatory comments. Second five year review has good background summary on this area.

Sidebar - Site 9 work plan is with Navy. Work to begin in April, existing soil piles removed mid May, done by September.

2. SITES 1 AND 3

Sites 1 and 3 landfill located west of Eastern Plume, north of weapons compound and Mere Brook. Mostly surrounded by slurry wall and capped. Opening of slurry wall below MW-202A, extends to east. Opening because of weapons compound, could not cut through this area of the base. Weapons area located downgradient of landfill. Currently Navy is monitoring several wells near slurry wall. The slurry wall is effective despite opening. Nested wells were installed to better monitor effects of opening. Long Term Monitoring Program (LTMP) will continue monitoring these wells. Cap was designed to stop infiltration of rainwater, reduce outflow of leachate and through groundwater. Monitoring program includes shallow deep wells, leachate wells, and surface water/sediment. Monitor for Volatile Organic

Compounds (VOCs) and metals – not pesticides. EPA had asked for it in the nested wells. Currently the Navy is monitoring pesticides in leachate only. This summer, pesticides in fish tissue sampling program will commence. EPA interested in pesticides from landfill in groundwater. Evaluate relative to Ambient Water Quality Criteria (AWQC). [Note by EPA to clarify why AWQC is mentioned during a discussion of groundwater when it normally concerns surface water conditions: If there are pesticides found in the groundwater at the landfill, they may impact the stream. The proper standard would then be the AWQC for the possible ecological impacts. There were pesticides found in the fish tissue during the first Mere Brook fish tissue evaluation. If CERCLA is going to be used to clean up the fish tissue pesticide residue, I need to know the source area for these pesticides. If the CERCLA remedy is not protective, it would be from the groundwater leaking out of the landfill and seeping into the brook.] Previous discussions on pesticides to start with the leachate, possibly add as sampling criteria for groundwater. ECC to follow up next week with sampling tables to clarify what parameters would be sampled for in each well – April sampling event. Conference call scheduled for April 5, 10:00 a.m. to discuss sampling protocol and any additions. The question was asked: What type of pesticides would be included? Compound list at Sites 1 and 3 may be similar to Site 17. Also check original RI to see what compounds were detected. Goal is to see of either site is connected to surface water impact, fish tissue work.

Six pesticides detected in 1995 fish tissue study – higher near landfill sites. Need to find out if pesticide list includes the compounds detected in 1995. Fish and wildlife did last study, labs will be different. Human health standards are different from eco based standards. Navy may have access to eco-based screening levels from Region 3, need to forward to EPA. DEP concern – relying on ECC to review data to ensure complete list of analytes included in the monitoring program. Questions were asked: Has 2006 data been included in database? Database will be updated in next 2 months. Are there any other changes to the monitoring program? The answer is no; only the possible addition of pesticides.

3. SITE 2

Site is located southwest of the weapons area. Earthen cover installed in past. 2002/2003 new access gate. Minimal action Record of Decision (ROD) site in 1998, monitor twice per year – groundwater from 5 wells, sediment, leachate and leachate seeps. Monitor VOCs and Target Analyte List (TAL) metals, pesticides in leachate seeps. Low concentrations of acetone and MEK (methyl ethyl ketones) detected. Sediment/leachate and some inorganics, fluctuate over time. Leachate seep samples includes sediment at that location, leachate is just aqueous (ug/L). Long Term Monitoring Program (LTMP) includes better definition of sampling program. Pesticide results in spring and fall events. Leachate seep samples are taken from shallow piezometers. Monitoring indicates concentrations in leachate/seeps fluctuate. This presents questions about earthen cover and possible need for further investigation/action. Proposed investigation north of Site 2 is to see if Site 2 has been fully delineated or if there are other source areas. DEP suggests removal of landfill (beyond upper debris) as a means to end long term monitoring and institutional controls (ICs). Full investigation of what is in landfill was never performed.

Initial decision in ROD prior to Base Realignment and Closure (BRAC) assumed base would stay open, and access to Site 2 would be restricted. Discussion on possible future uses with land as-is. Are boundaries of landfill known? Initial work used metal detectors and soil gas to define boundary of Site 2. Formerly a gravel pit with grown in scrub vegetation. Old Remedial Investigation (RI) should be reviewed for more detail. Historic plans (and air photos) indicate former incinerator with large pit. This should be a logical place for ash burial. Also question about whether dioxin was tested for in this

location. Initial work was done when site was an active base, so details of initial sampling should be reviewed to see if work should be updated in light of base closing. Also review air photos from 60's and 70's may indicate past activities. Navy wants to review this site to address unanswered questions.

Review current work plan and how that may address some of these questions. Work locations now are not particularly close to actual landfill. One of the push points is near the embankment of the landfill. Well MW-241 is screened shallow. There is 10 feet of sand below the screen (but above clay) from intermittent stream. Proposed locations are next to MW-241 (deeper screen) and along Mere Brook in flood plain.

Boring logs for wells 242 and 243 have not been found. EPA needs well logs to evaluate work plan. Plan is to evaluate impact to Mere Brook, down/cross gradient from landfill. Work includes electromagnetic (EM) survey first, possibly test pits. EPA suggests looking for ash, polycyclic aromatic hydrocarbons (PAH) and maybe dioxin. EC Jordan RI report discusses why dioxin not likely present in Site 2 – chlorinated plastics not around at that time. Review history of plastics to better document that dioxins should not be present. Lack of dioxin testing also based on active base scenario, needs more certainty now under BRAC. Large burden of proof if no testing is conducted. Good land use controls will likely be needed.

The dioxin issue is beyond the current work plan. Work plan needed based on metals in leachate north of where Site 2 waste should be. These reported results necessitated the need for additional work – EM, soil borings – north of Site 2. It was found that metal protruding through the cover material. It was suggested to review the Remedial Investigation (RI) to better clarify cover area and sample database. There were questions about wetlands and how they would limit future development (75 ft buffer). Arial photos of Site 2 - trees across landfill area.

Work plan – area north. Work plan proposed several tasks for north area. Gather/review air photos, conduct EM survey and conduct test pits in anomaly areas. Follow up with direct push soil borings, mostly near Mere Brook. The stakeholders requested to extend to clay in boring next to MW-241. Results will be presented in report. DEP/EPA has work plan dated 3/07 for review. TTNUS will perform work when approved.

DEP/EPA requested that test pits be done whether, or not EM anomalies are detected to look for ash. Also increase analyte lists to include PAH and dioxin. Some of the flood plain borings should be done up slope. DEP suggests waiting on soil borings until after air photos are reviewed. Previous review of aerial stereo pair photos have this area blacked out. Air photos may be declassified now, or perhaps someone with clearance can review them. Look at photos stereoscopically.

What level of sampling would give confidence that impact is present or absent. Implement this program – stakeholders requested the addition of PAH and dioxin tests. Further review of RI in addition to air photos would help focus future investigations. This change would affect schedule. TTNUS is implementing, they need to comment on overall direction of project – they will be writing report. TTNUS will evaluate air photos, group would like to discuss placement of borings after that review. Some of the air photos are already available. DEP will look for additional air photos. Navy may need to help if areas are blacked out of the 1968 picture. Navy has photos from approximately every 10 years since about 1958 - ECC has scanned these already. DEP can overlay facilities on air photos, forward these to ECC. ECC to include air photos in work plan.

Objective of work plan will change slightly if test pits are completed without electromagnetic (EM) survey anomalies. Currently work plan should be revised to include test pits, move some of the soil borings up slope. 1990 RI (document 120, CD 1 of administrative record) indicated some ash was observed, with associated metals.

TTNUS asked for clarification on work scope – basis for number of borings, etc. Target is down-gradient areas at toe of slope. Objective is looking for metals in groundwater discharging to stream. Sediment samples 202 and 203 indicate need for further investigation. Points are at bottom of slope because very steep, not possible to drill on slope. Groundwater flow toward stream is the reason for borings right along Mere Brook.

Can pore water samples help define were leachate is entering stream? Work would likely need to be done right near existing leachate monitoring points. Will groundwater monitoring include filtered and unfiltered samples? Only total metals are scoped. Temporary piezometers will be installed in the direct push holes. EPA asked for dissolved metals, perhaps based on turbidity results during low flow sampling. Consider dissolved metals on some % of samples. Work plan should include data quality objectives (DQOs) to steer sampling decisions. TTNUS will review recent monitoring as well as RI.

Has leachate impacted Mere Brook? Metals fluctuate in leachate seep samples. This is why investigation north of Site 2 is being undertaken. Spacing of borings may also investigate potential preferred pathways to brook. The goal of the work plan has changes slightly to include investigation of ash in the area north of Site 2; testing for polycyclic aromatic hydrocarbons (PAH) and dioxin.

Site visit for Site 2 scheduled for April 4.

4. SITE 7

Record of Decision (ROD) in Sept 2004, has long term monitoring with institutional controls (ICs). Previously, there were test pits/removal actions. Currently the site is in 5th round of monitoring. Seven current wells, 3 new wells will be installed spring/summer; HSA (hollow-stem auger). Previously, there were drilling problems in this area due to soft ground. Target is April/May for well installation.

[Note: Combine the installation of these wells with southwest corner well for Site 9 to reduce drilling mobilization. May also need deeper screened interval for well 76 (Site 9). Consider expanding April site visit to review these drill locations.]

Analyte list includes inorganics, primary contaminant of concern (COCs) are cadmium (Cd) and manganese. Cadmium exceeds Maximum Exposure Guidelines (MEG) in well 99. Overall trend of Cd is down. Several rounds of data collected before the ROD. Collect filtered groundwater samples if turbidity above 10 Ntu. Currently all points surveyed. EPA discussed 2005 health advisory for manganese – lowered to 300 ppb in groundwater. Cadmium, manganese and vanadium detected in sentinel wells.

5. COMMUNITY RELATIONS PLAN/NEWSLETTER

Update to original community plan drafted 1983/84, issued 1988. The plan needs updating in light of Base Realignment and Closure (BRAC) status. Draft will be issued in September, needs to include 3rd party interviews of people involved, and not involved, in Installation Restoration Program (IRP). This

will be appendix to the Plan. Table of contents (TOC) is currently up for comment, follows available guidance. EPA reviewed, looks fine. DEP will not comment of draft table of contents. BACSE is fine with TOC. ECC is proceeding with the Plan.

Copy of newsletter passed out, will be distributed tonight as draft. Seek input from citizens to finalize (April). Comment on using "clean" in title of newsletter. BACSE (Brunswick Area Citizens for a Safe Environment) does not believe site will ever be clean. Title of "Clean-up" may be appropriate, which does not necessarily mean it will be clean or pristine, but may mean site will be suitable for some future reuse. BACSE will comment further. This newsletter will not include all BRAC activities, only environmental cleanup. Intent was to use simple language. BACSE thought this newsletter would include more than just IRP. Newsletter will cover environmental restoration topics. BACSE wants to include Military Munitions Response Program (MMRP) and petroleum issues as well. Navy agrees with this. Perhaps 'Environmental' should be in title, change font to make it fit. Newsletter won't be dealing with wildlife, trees/vegetation, etc. unless associated with IRP activities.

White board was used to list possible alternate names to present at RAB (Restoration Advisory Board) meeting. Most of the group preferred "Environmental Restoration News". Increase font on overview tables. Community relations plan needs to specify where newsletters will be distributed. On page 2, BACSE comments on use of acronyms. Concerning the table on page 3, Site 9 – removal action should include solid and hazardous waste. Descriptions are summary of Site Management Plan (SMP) and 5 year review. Large map with descriptions on back discussed in November meeting, did not work. ECC tried to rearrange, text took up more than 2 pages. Site 9 discusses using Explanation of Significant Differences (ESD) for changes (rather than ROD amendment), now out of date. This needs to be updated.

6. WEBSITE DEMONSTRATION

Victor Ciminera, TTNUS demonstrated two websites that TTNUS developed and maintained (Quantico, S. Weymouth). They are tasked to develop environmental restoration website for NAS Brunswick. The NASB website will be very focused on RAB activities. Keep the focus of this website simple. BACSE has website, hosted by Curtis library. BACSE offered to host this RAB information. NASB could have a link to BACSE's website. NASB website will likely have similar look to Quantico, with additional information appropriate to NASB.

7. MILITARY MUNITIONS RESPONSE PROGRAM (MMRP) UPDATE

Jon Sperka of Malcolm Pirnie presented work for six MMRP areas of concern (AOCs). Slides from this presentation are attached. This program is for former sites, not for current munitions areas. The next step is to respond to comments on work plan. DEP requested additional detail before commenting on initial work plan. There will likely be another round of work plan comments. Quarry site is 4 acres, the 1990/1991 supplemental Remedial Investigation (RI) report stated that the area was used as munitions disposal area. Malcolm Pirnie conducted survey and no evidence was found. However, Navy Base environmental staff has information to indicate it was. This site will be recommended for Site Investigation (SI) and further testing. Future activities will be for TTNUS to conduct SI activities. Site 12 will include surface sweep before soil and groundwater testing. MEDEP noted that pieces of concrete were observed and bulldozing activity was evident west of Building 55 which was the former Machine Gun Boresight Range. Concerning Topsham Annex Skeet Range – the Navy noted that it will

need rights of access. It may take up to two months to get access. There may be a written access agreement but it would need updating.

8. COMMUNITY ENVIRONMENTAL RESPONSE FACILITATION ACT (CERFA)/LAND USE CONTROL (LUC) TRACKER (TTNUS)

LUC tracker is a tool to help manage land use restrictions, may benefit Brunswick Local Redevelopment Authority (BLRA). The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) is the legal framework for restoration – otherwise know as Superfund. CERFA presentation is attached.

Initial comments from regulators do not agree with category ratings due to groundwater concerns and lack of detailed groundwater information. With the Navy closure date of 2011, no CERFA transfers will occur until then. This will allows more time to fill data gaps with ongoing investigations. Parcels other than category 1 can be transferred in the future. Place paper and electronic copy in library as draft. Good exercise even though transfers are several years away. Overall, more groundwater information is needed to define clear Institutional Controls (ICs), which may effect CERFA parcels.

BACSE group has additional information about other dump sites. Navy may want to solicit information to bolster the CERFA process sooner rather than later. Need form to gather information in standard format and keep in one location. If public does not want to go to Navy, they can go to BASCE and they can forward the information to Navy. There is lots of history at this site and it is important to consider comments from people with information prior to 1980.

9. BASEWIDE INSTITUTIONAL CONTROL (IC) DISCUSSION

Considering soil depth interval where work could commence with minimal regulatory involvement and coordination. Map generated by ECC – used groundwater contours from different monitoring events at various sites. Next version will include depth below ground surface to estimate depth to groundwater at various locations. Consider using highest groundwater level over time. One of the goals was also to show overall groundwater flow direction. Currently there is insufficient data to contour water table across base. This was first step in process to develop ICs for groundwater.

Maine Geological Survey may have regional information to help evaluate depth to groundwater. Will help Navy short term to complete construction projects, consolidate approvals. DEP/EPA does not want to get involved in every project that involves soil movement. This does not apply to the sites where Records of Decision (RODs) may dictate soil management. EPA did spot check based on map, asked if Navy had plans to expand current investigations to provide base wide groundwater flow direction and depth. Navy stated majority of projects were utility-related, limited to 3-5 feet. Groundwater at most places is deeper. Focus of work in developed areas of base where it is mostly sand, involving utilities. Vapor intrusion was mentioned by MEDEP as another issue of concern.

Tentative agreement on 5 feet in developed areas. Base Environmental would be contacted if groundwater encountered during construction project. The Navy proposes regulator involvement on construction projects greater than 5 feet in developed areas where there are no restrictions in the current draft base instruction.

Navy will add information on groundwater depth with upcoming work. The outdated base instruction needs improvement. Example of new instruction would indicate that the Military Munitions Response Program (MMRP) sites under investigations, no work without review in these areas. All excavation permits go through environmental office. Ultimately the base instruction will address this issue. Comments and revisions are underway, finish in March.

10. MEETING NOTES REVIEW

The group reviewed and performed a live edit of the notes taken during the day.

Meeting adjourn time – 1700 hours.

22 MARCH 2007

Meeting start time - 0900 hours.

There was a brief review of the Restoration Advisory Board (RAB) meeting. Eight community members attended. It was pointed out that the 2007 RAB meeting schedule is set for the year.

1. NAVAL EXCHANGE SERVICE STATION (NEX) REVIEW

A NEX site presentation was presented by Chuck Race, TTNUS. Presentation is attached. There was a description of the biodegradation pilot test. Objective – evaluate if denitrification can meet gasoline range organics (GRO) remediation goal of 500 mg/kg. The test program was divided into 2 phases. Phase 2 is this spring. Phase 1 started 2004 - installed injection wells in overburden aquifer, monitoring. Baseline monitoring, N-Blend application and groundwater sampling were discussed. The radius of influence from the N-Blend is about 10 feet. Low flow used for sampling for petroleum, also Mass DEP EPH (extractable petroleum hydrocarbons) method used for analysis. Future includes more Phase 1 work, Phase 2 will be conducted in NEX secondary source – primary source was (partially) removed. Some soil removed, but additional releases since tanks removed. Previously tried Fenton's injection program but it did not work. Once NEX closes, additional remedial actions are planned. Originally thought NEX would be moved, MEDEP asked for near term remedial action. Current thought to keep NEX where it is in light of base closure.

Current work is to address contamination below water table. Vapor intrusion studies have not shown indoor air impact to Building 27 (family services building). The excavation of soil is trying to be avoided. Groundwater flow is north to south. Up-gradient points are north of Burbank Ave. Contaminant is primarily gasoline. Current underground storage tanks (USTs) are where old USTs were. Monitoring wells both sides of Burbank Ave, no impact at well MW-302. EA was the contractor prior monitoring of 4 sentinel wells near Site 9 (shallow wells) had non-detects in those wells for Gasoline Range Organics (GRO), Diesel Range Organics (DRO) or benzene, toluene, ethyl benzene, xylene (BTEX).

Fenton's injection program, follow up direct push points. More adsorbed phase was then found – Fenton's would not be effective with these levels of adsorbed. This lead to feasibility study that identified need for current work. Some soil was removed when tanks replace. Later realized leaks in

lines between tanks and island. An SVE/AS (soil vapor extraction and air sparging) system was installed, but was not entirely effective – SVE helped unsaturated zone but not saturated zone. DBB (denitrification-based biodegradation) application points located south of Burbank Ave. Circles on figure are estimated ROI (return on investment) which approximated 10 feet.

The scope of Phase I included 11 major applications starting 11/04 to 4/06, 320 gal/event and 3 smaller applications. Treatment monitoring biased towards higher residual adsorbed. N-blend concentrations increased over time. DBB technology uses nitrate based nutrient, promotes nitrate reduction. Geovation® is the subcontractor. It's an alternative to aerobic bio or chemical oxidation. It's more practical and cost effective. N-blend is primary electron acceptor, includes other nutrients. High solubility = better dispersion. Application is low pressure or gravity feed into screened zone (fully screened in sat/unsaturated zones). All application wells receive N-blend. Minor application events included all wells, lower volumes.

Results – significant declines in concentrations and spatial extent. In July 2006, results were not consistent – increase GRO, but BTEX still low. This could be due to possible biological false positives. There were significant increases in bacterial cell counts. Stable isotope probing showed stimulated degradation capacity of aromatics. Verbal reports were received that odors are diminished in Building 27 bathrooms.

Graphics showing concentration changes in saturated soil over time – baseline to 1.5 years after treatment. Initially there was a steep concentration gradient, then decreased area over time. 1.5 year map showed expansion of middle area. Focus of Phase 1 was down-gradient, may indicate re-impact from up-gradient source area. Graphic showing declining cell counts. Continuation of Phase 1 – additional N-blend applications started last fall. The plan is to apply same mass in major events, more in minor events.

The Phase 2 Scope includes fill data gaps, and installation of more application and monitoring wells. Additional contamination also found near pump islands. Locations of application points not determined yet. Twelve major applications planned, start this spring through 2008; 8 minor events. Treatment monitoring will be expanded as well. Monitoring will be conducted before and during for both soil and groundwater sampling.

Soil target levels are 500 mg/kg of GRO, no specific groundwater target. Not risk-based, no surface water receptors. Not expected to reach Site 9. Eventually need Institutional Controls (ICs) for soil and groundwater in this area to stay industrial. Need to consider if target levels are protective of vapor intrusion – depth to groundwater is about 7-8 feet. Saturated zone is up to 30 feet near tanks. There was a question about the 500 mg/kg level and whether this is protective of Jordan Ave drinking water wells. Maps show there is a flow divide, Naval Exchange Service Station is south of line and flows towards south. Well field is well up-gradient. It was noted that Naval Exchange Service Station (NEX) is located immediately south of the Naval Exchange store.

History – reports of 10,000 gallon release from NEX in 1980's, other releases from piping system. Questions about how far down-gradient release has migrated. Perhaps additional work is needed to be sure down-gradient extent is defined. The Phase 2 Work Plan is still in draft form. DEP interested in Fenton's and this pilot test. Some sites where typical approaches have not worked required drastic measures needed to demolish buildings, remove soil.

ECC and MEDEP also provided information regarding the NEX site.

2. OLD NAVY FUEL FARM

Nine above-ground storage tanks (ASTs) storing petroleum sludge, gasoline jet fuel and aviation gas. It is located in the northeast area of the Base. It is believed that lead was not a contaminant of concern (COC), but may need to be revisited. ASTs were decommissioned in 1993; the tanks and piping were moved then. This was the first bulk storage farm on the base. The 100,000 gallon tanks were original, expanded after that. An early 1990's site assessment was performed as part of decommissioning. Significant dissolved phase contamination was discovered and more investigation was required. There was a biosparge system in 1995/1996 that operated through December 1998. The following year modified to operate as SVE/AS (soil vapor extraction and air sparging) system – 600 lbs petroleum removed. It operated until 1999. More investigations revealed still high concentrations. In 2000, RAC contractor removed 15,000 tons of impacted soil. Confirmatory sampling indicated ND (non-detect) up to 840 ppm (parts per million) Diesel Range Organics (DRO) in soil.

The LTM (long term monitoring) program implemented to show natural attenuation. The 2003 model showing attenuation over 12-13 years to meet MEG (maximum exposure guidelines) of 50 ug/L (micrograms per liter). Navy monitors semi-annually. Continued down trends observed but in October 2006 there was a slight increase at down-gradient wells. Data is still being reviewed to understand why this happened. Wells 207 and 58 showed increases. Many wells were getting close to 50 ug/L or were below. Current levels range from ND (DRO) to a high of 210 ppb at MW-701. There are a total of five wells out of 15 that are over the criteria. There are no current institutional controls (ICs) in this area, only a site boundary. May need to move ICs out when the time comes.

There has been significant progress from removal action and SVE/AS systems. Up-gradient well is clean, along with cross gradient wells. May need wells down-gradient of existing wells. These concentration fluctuations may be the result of higher water levels, normal changes. Navy originally approached DEP to clean up this area. Originally wanted to clean up to 2500, DEP asked them to come back. This prompted excavation program, clean up to lower number, and then the Navy did bio screen modeling. Monitor to see if attenuation predictions are accurate. This is a different program from IR (Installation Restoration)/CERCLA (Comprehensive Environmental Response, Compensation and Liability Act) work. DEP typically does not do long term oversight of these projects.

Is vapor intrusion an issue here, and are the standards related to intrusion? Risk based numbers not accepted by DEP. Will DRO numbers help to evaluate intrusion, or will individual constituents be needed? Nothing promulgated for DRO. Currently monitoring for BTEX (benzene, toluene, ethyl benzene, xylene), levels have been ND for several years. The fuels involved in this are primarily in the kerosene range. Need further investigation to define down-gradient extent, and review of which buildings are in the plume area. Reserve center, ball field, open space and parking lots may be part of the area. New housing sections located north and east of plume area. Well 206 not in monitoring program (as well as others), dropped because levels were ND (non-detect). Well 207 shows BTEX non-detected, gasoline range organics (GRO) dropped because ND. Diesel range organics (DRO) is currently 80. Historic levels were 25-30 ppb for several years. Review if other wells are available down-gradient to include in monitoring program. Continue with 2006 data report.

This area of the base will have high interest for Local Redevelopment Authority (LRA) for redevelopment. Possible future use of groundwater in this general area should be considered.

Institutional Controls (IC's) would not preclude all development, would need to consider vapor controls or collect data to show intrusion will not be a future issue. Procedures to redevelop contaminated sites do not necessarily mean clean up to pristine. It depends on uses and potential risk. This area will be gateway to base in future, likely commercial uses.

Monitor for compounds with highest potential for intrusion – no BTEX (benzene, toluene, ethyl benzene, xylene) reported. Monitor groundwater, potentially sample soil gas. Naphthalene is a risk driver in California, but not considered carcinogen anywhere else. Discussion of ICs needed – needs further review with DEP. Soil IC would likely be smaller (in source area) than groundwater IC.

3. MEETING NOTES REVIEW

The group reviewed and edited notes taken during the day.

Meeting adjourn time – 1310 hours.

TECHNICAL MEETINGS
NAVAL AIR STATION BRUNSWICK, MAINE
PARKWOOD INN
22 MARCH 2007
MEETING NOTES

MEETING ATTENDEES

Al Easterday, Senior Project Manager	ECC
Gina Calderone, Project Manager	ECC
Catherine Guido, Environmental Scientist	ECC
Lonnie Monaco, Remedial Project Manager	US Navy, NAVFAC Mid Atlantic
Dawn Kincaid, BRAC Environmental Coordinator	US Navy, BRAC, PMO NE
Jennifer Wright, Biologist	US Navy, NAVFAC Atlantic
Dan Waddill	US Navy, NAVFAC Atlantic
Ed Benedikt	Brunswick Area Citizens for a Safe Environment
Dale Mosher, IR Coordinator	NASB
Claudia Sait, Remedial Project Manager	Maine Department of Environmental Protection
Chris Evans, Project Geologist	Maine Department of Environmental Protection
Carol Warren	Brunswick Local Redevelopment Authority
Lisa Joy, Environmental Director	NASB
Doug Heely	H&S Environmental
Lawson Anderson	TTNUS
Chuck Race	TTNUS
Richard Roedner	Topsham Local Redevelopment Authority
Eric Nelson	TTNUS
Brian Helland	US Navy, NAVFAC Mid Atlantic

Meeting start time – 1330 hours

This site is located outside of the main base boundary. It is not part of the main base (National Priorities List) site, IR (Installation Restoration) program and therefore, by law, US EPA (Environmental Protection Agency) and BACSE (Brunswick Area Citizens for a Safe Environment) technical advisor can not justify participating in this portion of the meeting. They were not present for this discussion.

1. TOPSHAM ANNEX

Excavated petroleum-contaminated soil from five locations and installed soil borings/monitoring wells. The fuel oil excavation goal of 10 ppm (parts per million) was established. One area had 260 ppm under foundation of building (former auto repair shop). The other area over 10 ppm was located at the fire station. Three residential units found above standards. Also the Building 369 near school which was found to have low level VOCs (volatile organic compounds) but no source can be found. This area is complete, no on-going source. Initial focus thought impact was from petroleum only.

Fill area 4 borings/wells, all non-detect except few metals and low levels of Diesel Range Organics (DRO). One well location was moved, resulted in no down-gradient groundwater info. MEDEP would like to see groundwater data. Area called Top 1, within former skeet range. New well needs to be in southwest corner of Top 1 box, install permanent well. This well may be used for skeet range investigation also. Make well flush mount to prevent vandalism. Navy stated that if one of the wells was not in an agreed to location, Navy will need to redo that well.

Navy asked for information on housing area. Current leases go to 2040, housing for sailors. Housing in Topsham was going to be demolished pre-BRAC (Base Realignment and Closure), now there is a hold. Land will be transferred eventually. Topsham is talking with GMH housing authority to understand what their goals are. Eventually, as sailor population declines, Topsham will be emptied. Once sailors are gone, units could rent on open market. Topsham had vision session with community such as that they want recreational uses. For the lower part of the site, the goal is to maintain housing on the larger parcel. Suggestions were made to raise buildings for light industrial uses. Updates can be on Topsham website. The TopshamLRA.org site could be linked to new NASB environmental restoration website.

Impacted soil left in place due to structures. What is next step? Top 1 will undergo further investigation. Annex has public water supply. Navy Base environmental staff is tracking activities at Annex. Houses likely have lead paint and other issues. This area could be pushed to transfer before 2011. Navy has interest in working towards closure sooner rather than later. Topsham is not likely to act much before 2011.

There is a waiting list for housing now. Additional clean up in residential area is pending status of housing. Deed restriction for soil around houses needs to consider protection of groundwater. 400 ppm TPH (total petroleum hydrocarbons) is rough target for soil to make sure no significant impact to groundwater. Consider site-specific issues such as surface water bodies. There are 12 underground storage tanks (USTs) abandoned in place, rest have been removed. Three existing houses have issues.

The question was asked as to what MEDEP would require if site assessment information was not available. Test pits or direct push at all locations where USTs were located would be required. Trying to avoid Cutler situation – MEDEP needs to be more cautious on military property transfers (private wells were unexpectedly installed). MEDEP will have to see if deed restrictions would be acceptable. Topsham would rather not see deed restriction on soil. Former site assessments found pockets of petroleum not associated with removed USTs. PCB (polychlorinated biphenyls) transformers need to be checked – former release at transformer near commissary. Need to check other transformers. There are no PCB transformers on Navy property. Historic uses are the issue. Annex constructed in 1956, Air Force had it before Navy. Annex had not had any hazardous material permits, not subject to RCRA (Resource Conservation and Recovery Act). Due diligence may indicate need for some type of closure.

Clean up plan for auto repair facility – Navy will request NFA (no further action). Is anything known about under the building? Can property be transferred, while acknowledging that future remediation would be conducted by Navy? Need to spell out assumptions. Skeet range portion on Navy property is still not investigated. The skeet area was always pointed towards private property, shot fall area not on Navy property. Are there vapor intrusion issues related to home heating oil releases? MEDEP is just starting to understand these issues and working towards better guidance.

Action Items from 13 February 2007 Conference Call - Draft
(Reviewed at March Tech Meeting; March 20-22, 2007)

1. CRP TOC and schedule to group (ECC/Navy) **Complete**
2. Neptune Drive work plan to group (ECC/Navy) **Complete**
3. Ensure extraction driller is scheduled for EW install (ECC – Al) **In Progress**
4. Area north of Site 2 work plan to group (ECC) **Complete**
5. Submit December Tech meeting notes to Navy (ECC) **In Progress**
6. Provide draft letter proposal for 1,4 dioxane sampling with data (Navy/ECC) **In Progress**
7. Compare field crew sample freq table with LTMP/QAPP (MW-218, MW-240) and provide LTMP list of wells for Eastern Plume for April 2007 (ECC – Al) **Overcome By Circumstances**
8. Coordinate access from private land owners for Mere Brook field work (Lisa) **Complete**
9. Find out where P4 pile originated from in Site 9 excavation (Lisa) **Pending**
10. Provide EPA with QA/QC data for Site 9 RA pile sampling (Lonnie) **In Progress**
11. Bldg 201 DRO well sampling this Fall 2006 (ECC – Al) **In Progress**
12. Include agenda item for Mar 07 mgt if potential impact to Site 9 from NEX (Lonnie) **Complete**
13. Edit Base Instruction to include GWETS drawing and piping runs (Lisa) **In Progress**
14. Review annual IC certification requirements (Lisa) **Pending**
15. Edit temporary BI to include MEDEP and EPA involvement (technical basis) (Lisa) **In Progress**
16. Find specs on GWETS and retro fit of plant for UVOX (ECC – Al) **In Progress**
17. Provide design spec for infiltration gallery capacity (ECC – Al) **In Progress**
18. Provide letter to MEDEP regarding trigger for treatment of 1,4-Dioxane at GWETS (Lonnie) **In Progress**
19. Check on Dyers gate well sampling for Feb conf call (ECC – Al/Jackson) **Complete**
20. Memo from Lonnie to EPA / MEDEP regarding the sampling of Dyers gate well to provide documentation for 5-yr review milestone table (Lonnie) **Complete**
21. Check on result for MW-209 during the Fall 2002 ME (ECC – Al) **In Progress**
22. Letter from Lonnie to MEDEP for TtNUS draft DBB report, to go final (Lonnie) **Pending**
23. Determine path forward for addressing the Site 7 Soil spreading (Lonnie) **In Progress**
24. Submit RTCs for Sites 1 & 3 O&M Plan (ECC) **In Progress**
25. Follow up on pending edits of Conceptual Model of EP (ECC-Gina) **Pending**
26. Submit final Mere Brook WP by 23 Feb 07 (ECC) **In Progress**
27. Look for QAPP/fish tissue documents (Jen) **In Progress**
28. Ask Steve for previous fish tissue study work plan (Christine) **Completed**
29. HASP and field forms (Cornell/Steve) **In Progress**
30. Newsletter input from Navy week ending 23 Feb 07 (Navy) **In Progress**
31. Check with Malcom Pirnie on why Site 9 included in PA (Lonnie) **In Progress**
32. Trenching WP by end of Feb to group (Navy) **In Progress**
33. Bldg 95 RI scope to Navy 13 Feb 07 (Al) **Complete**
34. Send remaining data summary tables of 2006 data to group 13 Feb 07 (Al) **Completed**
35. March tech meeting agenda to Navy 13 Feb 07 (Catherine) **Completed**
36. Review 2006 data in March tech meeting (Group) **In Progress**

Action Items from March Technical Meetings

20 March 2007

1. Add VOC analysis to DP WP for Site 9 at Bldg 201 AOC – GW and Porewater (ECC)
2. Add to DP WP for Site 9 South of Neptune Drive to tag clay in the initial DPs (ECC)
3. Locate soccer field DPs with Chris Evans (ECC)
4. Distribute Mere Brook Investigation O1 & O2 logs & data to group (ECC)
5. Base water/sewer system details, can this information be released to public (Navy/Lisa)
6. Extra copy of admin record CD for Dawn Kincaid (ECC – Catherine)
7. Interview form(s) for CERCLA/RCRA site information (All)

21 March 2007

1. Site 17 Figure 3, distribute to group via email and hard copy (ECC)
2. Find and distribute boring logs for MW-242 and MW-243 at Site 2 (ECC)
3. Site 9 utility map PDF for the MW in SW corner (Navy/Lisa/Dale)
4. Send 2 copies of the AR to Ed B. (ECC/Catherine)
5. Send 1 copy of AR to David Chipman (ECC/Catherine)
6. Send newsletter table file from newsletter to Carol W. (ECC)
7. Send the NASB rainbow file to Navy (ECC/Al)
8. Distribute NASB rainbow file to project stakeholders (Navy/Lisa)
9. Send TtNUS (Chuck) Site 2 documents (ME, RI rpts, air photos) (ECC/Catherine)
10. Add ECC to EPA email distribution for MB Fishing Task (EPA)
11. MEDEP to see if Site 2 stereo aerial photos available (MEDEP/Claudia)
12. Submit Site 2 access requests to Lisa by 29 March 07 (TtNUS, ECC, MEDEP)
13. Distribute Maine Geological Survey figure of Brunswick area to group (Navy/Lisa)

Sign In Sheet
Brunswick Naval Air Station (BNAS) Technical Meeting
Parkwood Inn
Brunswick, Maine
Tuesday, 20 March 2007
11:00 AM – 6:00 PM

NAME		ORG
Carol Warren	carl@wacubu.com	Brunswick LRA
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Sign In Sheet
Brunswick Naval Air Station (BNAS) Technical Meeting
Parkwood Inn
Brunswick, Maine
Wednesday, 21 March 2007
9:00 AM – 5:00 PM

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Sign In Sheet
Brunswick Naval Air Station (BNAS) Technical Meeting
Parkwood Inn
Brunswick, Maine
Thursday, 22 March 2007
9:00 AM – 3:00 PM

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Richard Roedner	rroedner@topshamLRA.org	Topsham LRA

Naval Air Station Brunswick Restoration Advisory Board Meeting
28 October 2004

Parkwood Inn, Brunswick, Maine
7:00 PM

Introductions

- ***Engineering Field Activity Northeast Representatives***
  - **Mr. Lonnie Monaco, P.E., Remedial Project Manager**
  - **Mr. Frank Cellucci, P.E., Technical Remedial Manager**
- ***Naval Air Station Brunswick Representatives:***
  - **Captain Robert S. Winneg, Commanding Officer**
  - **Mr. John James, Public Affairs Officer**
  - **Mr. Greg Apraham, Environmental Director**
- ***EA Engineering, Science, and Technology Representatives:***
  - **Mr. Alexander Easterday, P.G., Project Manager**
  - **Mr. Peter Nimmer, P.G., Senior Geologist**
- ***Environmental Chemical Corporation Representatives:***
  - **Mr. Darren Gainer, P.G., Project Manager**
  - **Mr. Mark Carver, Site Manager**

Introductions *(continued)*

- ***U.S. Environmental Protection Agency Representatives:***
  - **Ms. Christine Williams, Remedial Project Manager**
  - **Mr. Brian Olson, Remedial Project Manager**
- ***Maine Department of Environmental Protection Representatives:***
  - **Ms. Claudia Sait, Remedial Project Manager**
  - **Mr. Larry Dearborn, P.G., Project Geologist**
- ***Brunswick Area Citizens for a Save Environment Consultant:***
  - **Ms. Carolyn Lepage, P.G., Lepage Environmental**

Meeting Agenda

- Welcome, Introductions, and Administrative
- Five-Year Review Status of Active Installation Restoration Program (IRP) Sites at Naval Air Station (NAS) Brunswick
  - Site 1 – Orion Street Landfill (North) and Site 3 – Hazardous Waste Burial Area
  - Site 2 – Orion Street Landfill (South)
  - Site 7 – Old Acid Caustic Pit
  - Site 9 – Neptune Drive Disposal Area
  - Site 12 – Explosive Ordnance Disposal
  - Site 17 – Building 95, Former Pesticide Shop
  - Eastern Plume Operable Unit

Overview of IRP Sites at NAS Brunswick

- An IRP site is an area where past disposal of toxic material has impacted the environment.
- The Navy's IRP has identified these locations on the base, and cleaned up the sites or cleanup is ongoing.
- The Navy's IRP has been active for more than 10 years at Brunswick, and will continue until a threat is no longer present to human health or the environment.

Overview of IRP Sites at NAS Brunswick *(continued)*

- As “Lead Agency” for this cleanup work, the Navy has partnered with the Maine Department of Environmental Protection and the U.S. Environmental Protection Agency.
- These agencies provide oversight to ensure that these areas of the base are cleaned up effectively and in a timely manner.
- Oversight is also provided by the Brunswick Area Citizens for a Safe Environment.
- Public input during this process is welcomed. Questions are encouraged during or after this meeting.

Overview of IRP Sites at NAS Brunswick *(continued)*

- Cleanup has been completed, or is in the process of being completed, at all IRP sites.
- The time required for the remaining cleanup is unknown, although monitoring of the environment is likely to continue for 20 years or more.
- Legal agreements are in place with Maine Department of Environmental Protection/U.S. Environmental Protection Agency, and monitoring of the environment is being completed to ensure the protection of human health and the environment.

The Five-Year Review

- A review of active sites is required by Federal law to ensure that active sites are protective of human health and the environment.
- The first five-year review was completed in 1999. The second is currently being conducted, and will be completed in early December 2004.
- The five-year review document is prepared by the Navy and reviewed by the U.S. Environmental Protection Agency and Maine Department of Environmental Protection.
- Copies of the five-year review document will be placed in the Administrative Record, located in the Brunswick Library, for public use.

Description and Five-Year Review Status of IRP Sites at NAS Brunswick

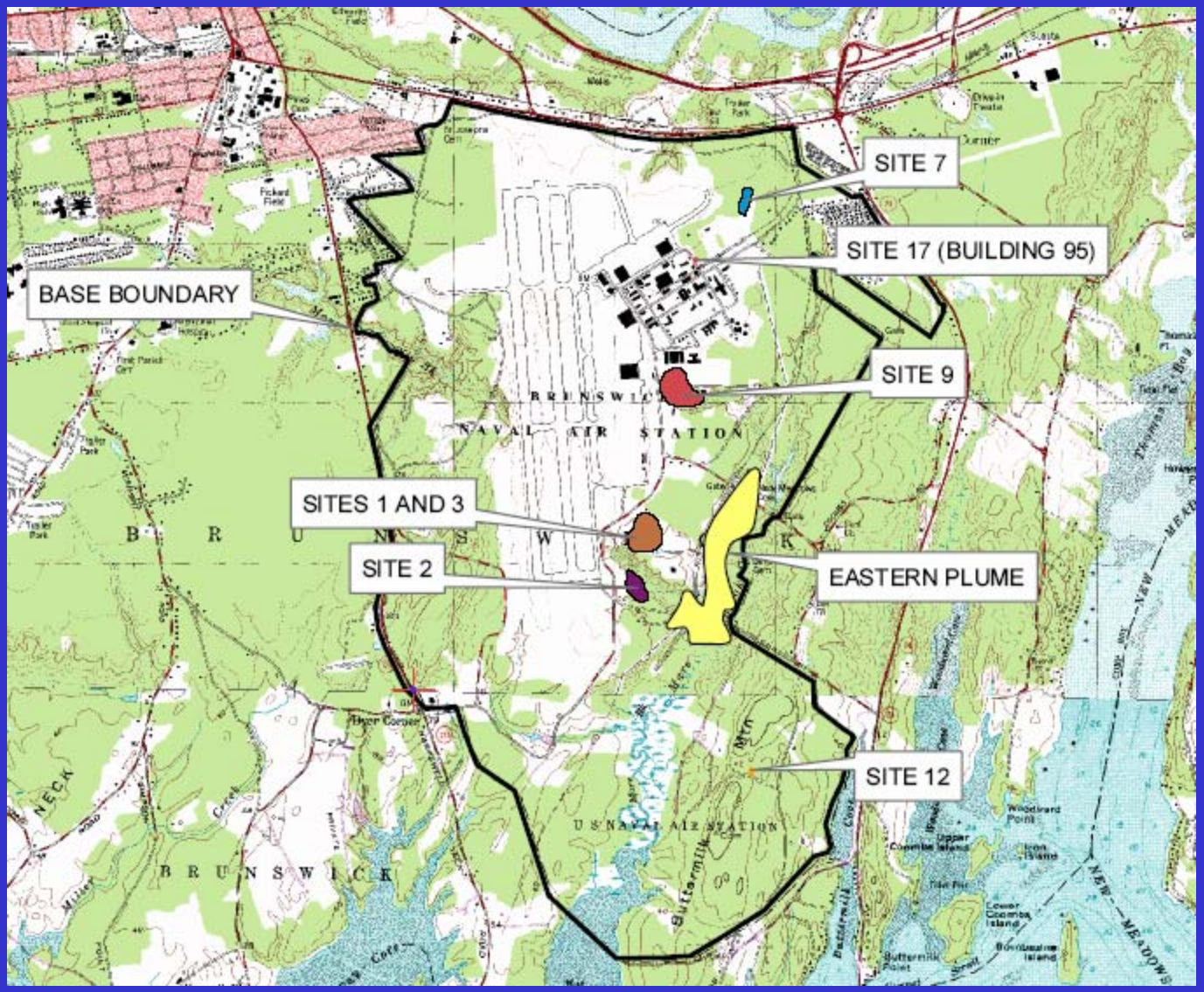
Overview of Inactive IRP Sites

- Many sites have been successfully cleaned up.
- Sites which have completed this process are called “inactive” sites as no further actions are required.
- There are 7 inactive sites on NAS Brunswick, which have been removed from the Program.

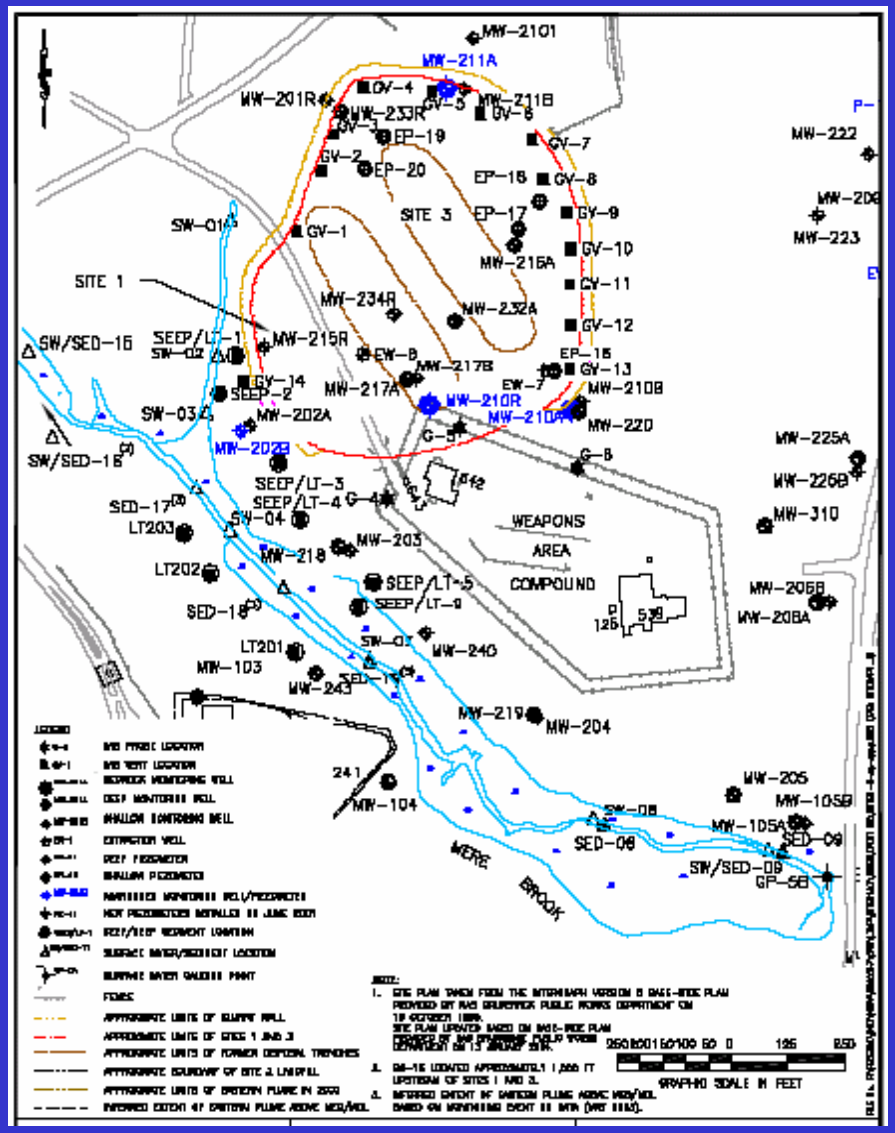
Overview of Active IRP Sites

- Eight “active” sites remain that are in the process of being remediated and completed.
- Active IRP Sites include:
  - Site 1 – Orion Street Landfill (North)
  - Site 3 – Hazardous Waste Burial Area
  - Site 2 – Orion Street Landfill (South)
  - Site 7 – Old Acid Caustic Pit
  - Site 9 – Neptune Drive Disposal Area
  - Site 12 – Explosive Ordnance Disposal
  - Site 17 – Building 95, Former Pesticide Shop
  - Eastern Plume Operable Unit

Active IRP Sites



Sites 1 and 3 Landfill – Hazardous Waste Burial Area



Sites 1 and 3 Landfill – Hazardous Waste Burial Area *(continued)*

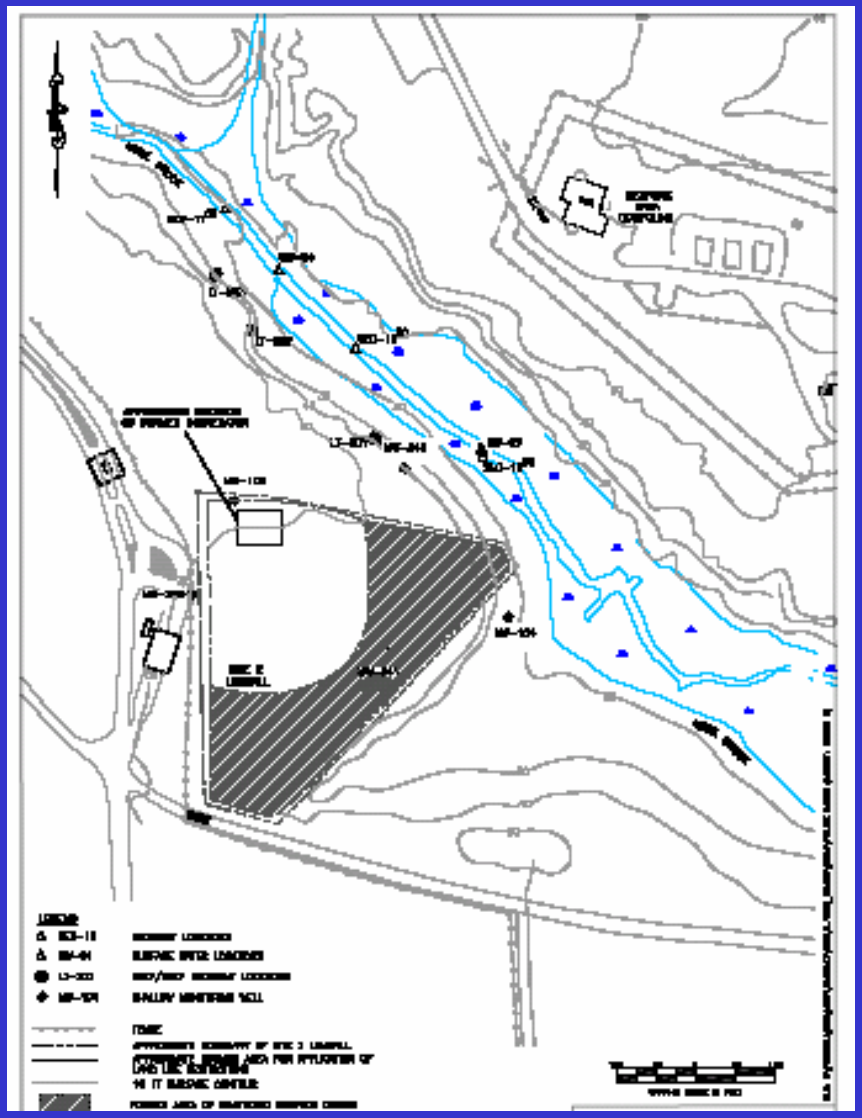
- Sites 1 and 3 are two separate sites that were combined into one landfill.
- Remediation is complete, including a landfill cap, slurry wall, and two extraction wells.
- Monitoring at these sites continues to ensure protection of human health and the environment.
- A total of 24 rounds of monitoring data has been collected. Data are summarized twice per year.
- The most recent sampling event was completed in October 2004.

Sites 1 and 3 Landfill – Hazardous Waste Burial Area *(continued)*

Sites 1 and 3 Landfill – Hazardous Waste Burial Area *(continued)*

- Five-Year Review Status:
  - Site remedy continues to be protective of human health and the environment.
  - Water elevations inside the landfill are stable below the elevation of waste.
  - Complete an Operations and Maintenance Plan.
  - Establish appropriate standards for sediment and leachate sediment sample data.

Site 2 – Orion Street Landfill (South)



Site 2 – Orion Street Landfill (South) *(continued)*

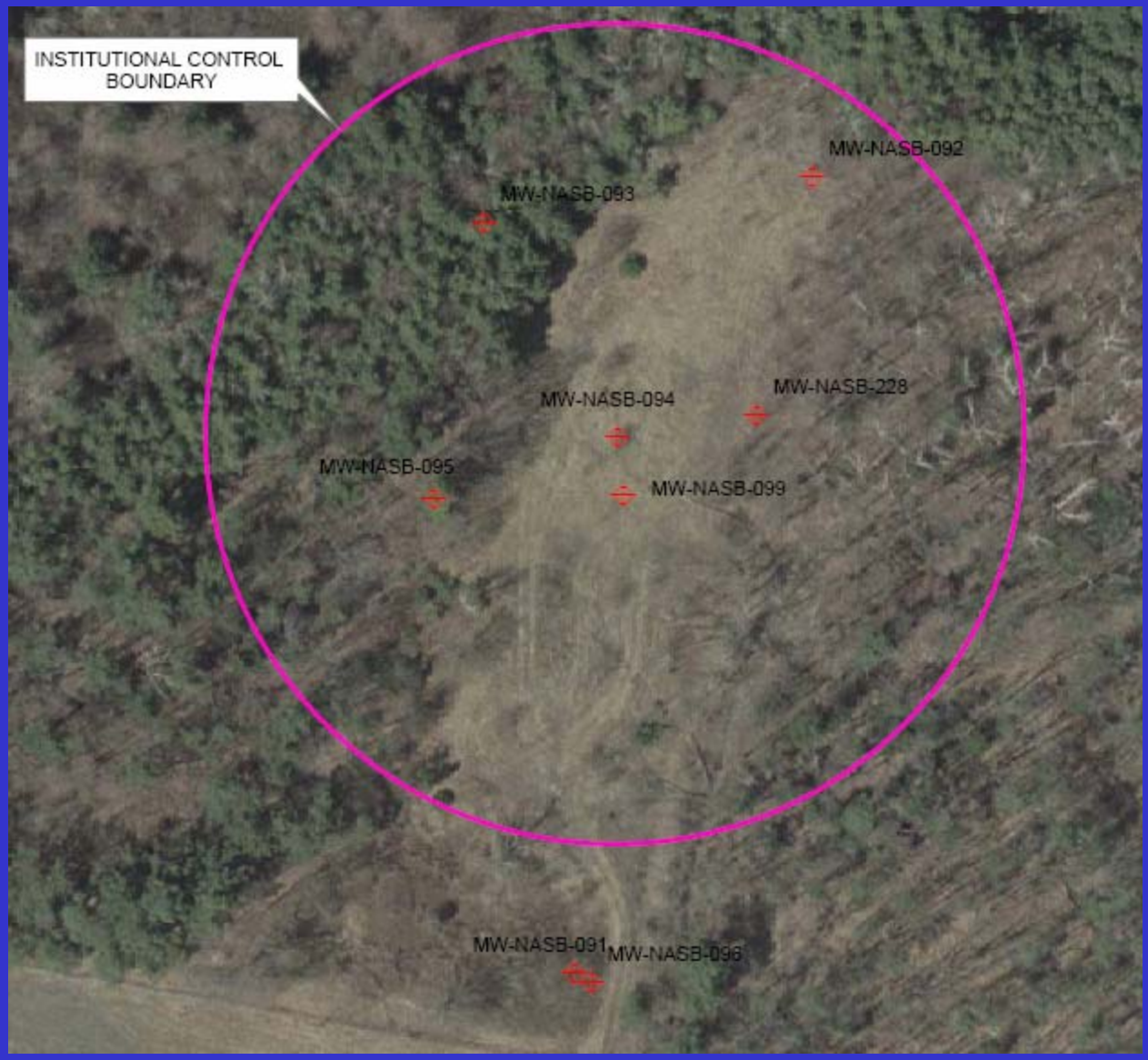
- Site 2 is a landfill and former incinerator.
- Remediation has been completed at the site.
  - Landfill stabilization and debris removal.
- Monitoring continues to ensure protection of human health and the environment.
- A total of 24 rounds of monitoring data has been collected. Data are summarized twice per year.
- The most recent sampling was completed in October 2004.
- Additional sampling is planned to investigate potential source metals; other compounds detected in site groundwater.

Site 2 – Orion Street Landfill (South) *(continued)*

Site 2 – Orion Street Landfill (South) *(continued)*

- Five-Year Review Status:
  - Site remedy continues to be protective of human health and the environment.
  - Landfill does not appear to be significantly affecting groundwater or nearby surface water.
  - Investigate area to the north of landfill in Spring–Summer 2005.
  - Complete and issue final Long-Term Monitoring Plan and Quality Assurance Project Plan.
  - Establish project action limits for sediment and leachate sediment sample data.

Site 7 – Old Caustic Acid Pit



Site 7 – Old Caustic Acid Pit *(continued)*

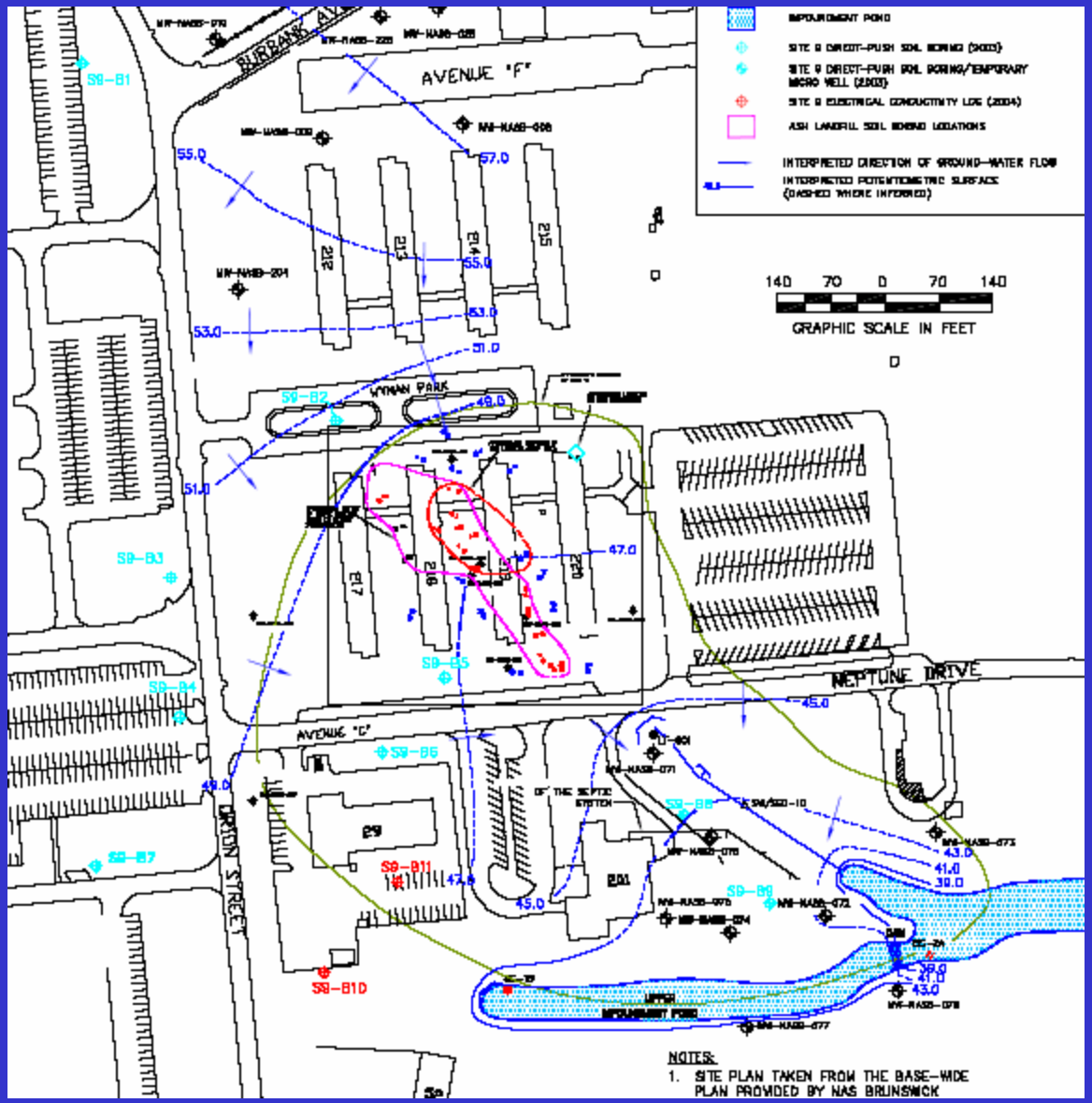
- Site 7 is a former caustic/acid disposal location.
- A small amount of residual cadmium remains in groundwater.
- Remediation has been completed at the site
  - Soil removal of likely source area.
- Monitoring continues to ensure protection of human health and the environment.
- Groundwater flow direction is being refined by installing 2 piezometers to the well network.
- After 1 year of gauging piezometers, new well(s) will be installed.

Site 7 – Old Caustic Acid Pit *(continued)*

Site 7 – Old Caustic Acid Pit *(continued)*

- Five-Year Review Status:
  - Site remedy continues to be protective of human health and the environment.
  - Environmental impacts appear to be limited to the immediate area surrounding the site.
  - Install piezometers and conduct quarterly groundwater elevation monitoring for 1 year.
  - Install groundwater well(s) based on gauging data.
  - Initiate Long-Term Monitoring Program sampling in Spring 2005.

Site 9 – Neptune Drive Disposal Area



Site 9 – Neptune Drive Disposal Area *(continued)*

- Site 9 is a landfill and former incinerator.
- Low-concentration groundwater plume is present at the site.
- Remediation has not been completed at the site.
  - Landfill was located under active barracks.
- Monitoring continues to ensure protection of human health and the environment.
- A total of 24 rounds of monitoring data has been collected. Data are summarized twice per year.

Site 9 – Neptune Drive Disposal Area

kklj;l

Site 9 – Neptune Drive Disposal Area *(continued)*

- Additional soil and groundwater sampling was competed at Site 9 in 2003 and 2004
  - Establish extent of groundwater impacts
  - Determine the edge of the landfill
  - Report has been issued to regulators, and is being revised.
- Navy issued a draft Land Use Control Instruction Plan in January 2004
  - Establishes how land may be used at this site.

Site 9 – Neptune Drive Disposal Area *(continued)*

- Five-Year Review Status:
  - Site remedy continues to be protective of human health and the environment.
  - Plume of groundwater contamination has shown a decreasing trend over the past 2 years.
  - Finalize Long-Term Monitoring Plan and Quality Assurance Project Plan.
  - Finalize Land Use Control Implementation Plan.
  - Complete Engineering Evaluation/Cost Analysis.

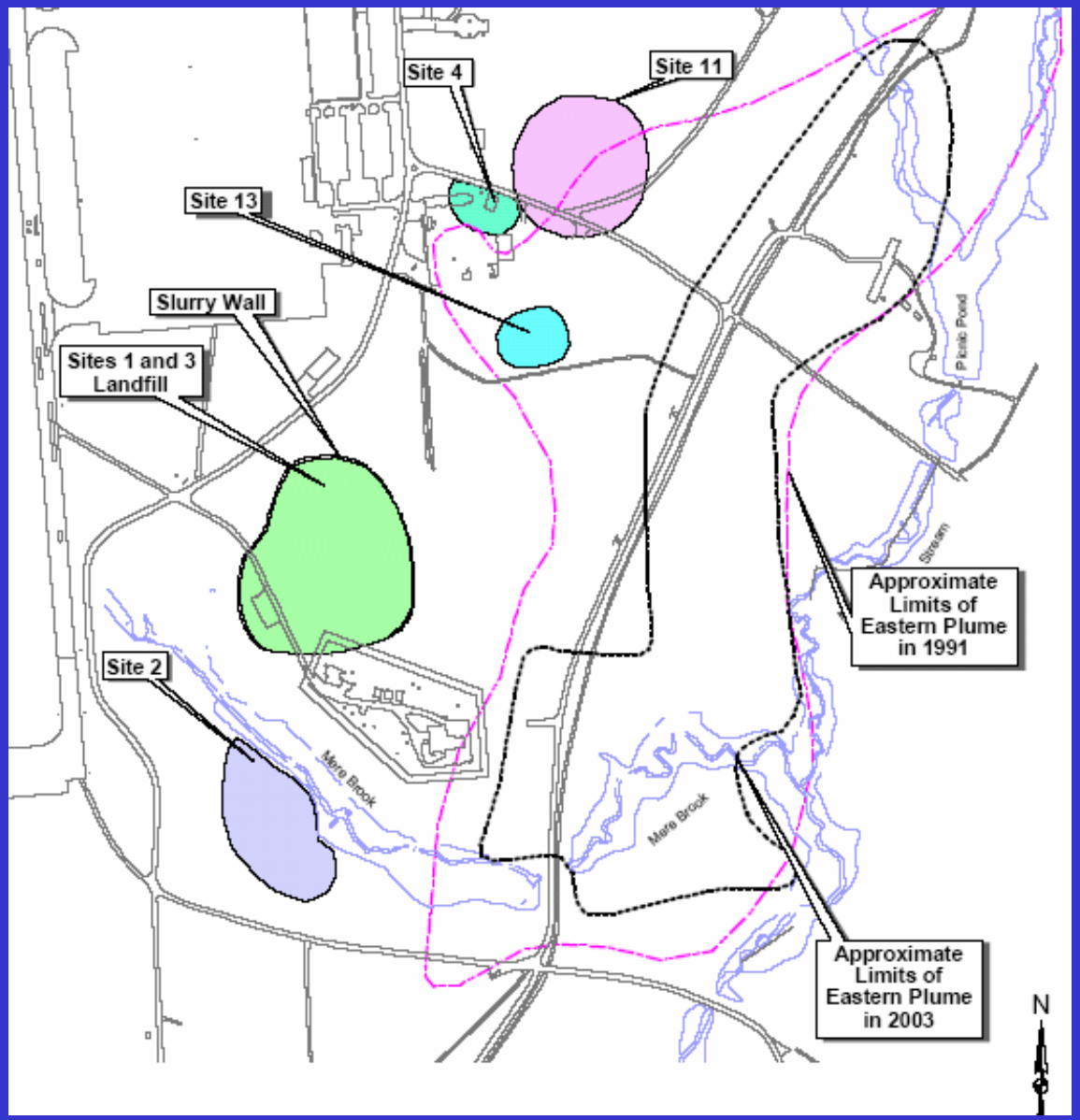
Site 12 – Explosive Ordnance Disposal Area

Site 12 – Explosive Ordnance Disposal Area *(continued)*

Site 12 – Explosive Ordnance Disposal Area *(continued)*

- Site 12 is an active explosive ordnance disposal facility.
- Former sand and gravel pit.
- Consists of bermed area, open fields, control bunker, and upland areas.
- Disposal of small quantities of ordnance, pyrotechnics, explosive devices, and war souvenirs.
- Site has been active since 1981, no activity (explosive ordnance disposal) prior to 1981.

Eastern Plume Operable Unit

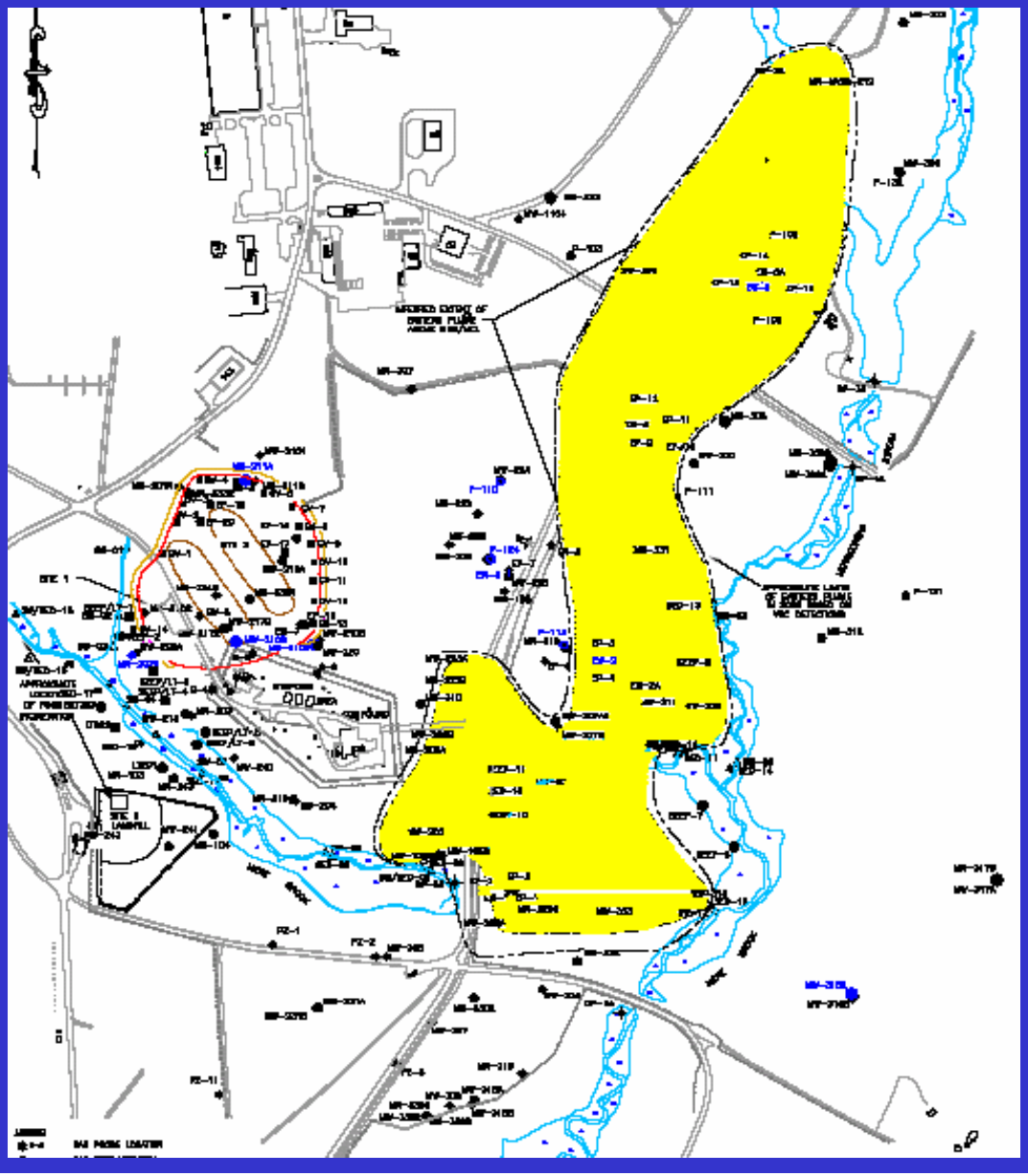


Eastern Plume Operable Unit

Eastern Plume Operable Unit *(continued)*

- The Eastern Plume is the largest site on NAS Brunswick.
- Contains chlorinated solvents in groundwater.
- Remediation is being completed using a network of extraction wells and treatment plant
  - Remediation is effective in removing contaminants.
- Monitoring is being completed to ensure protection of human health and the environment.
- A total of 24 rounds of monitoring data has been collected. Data are summarized twice per year.

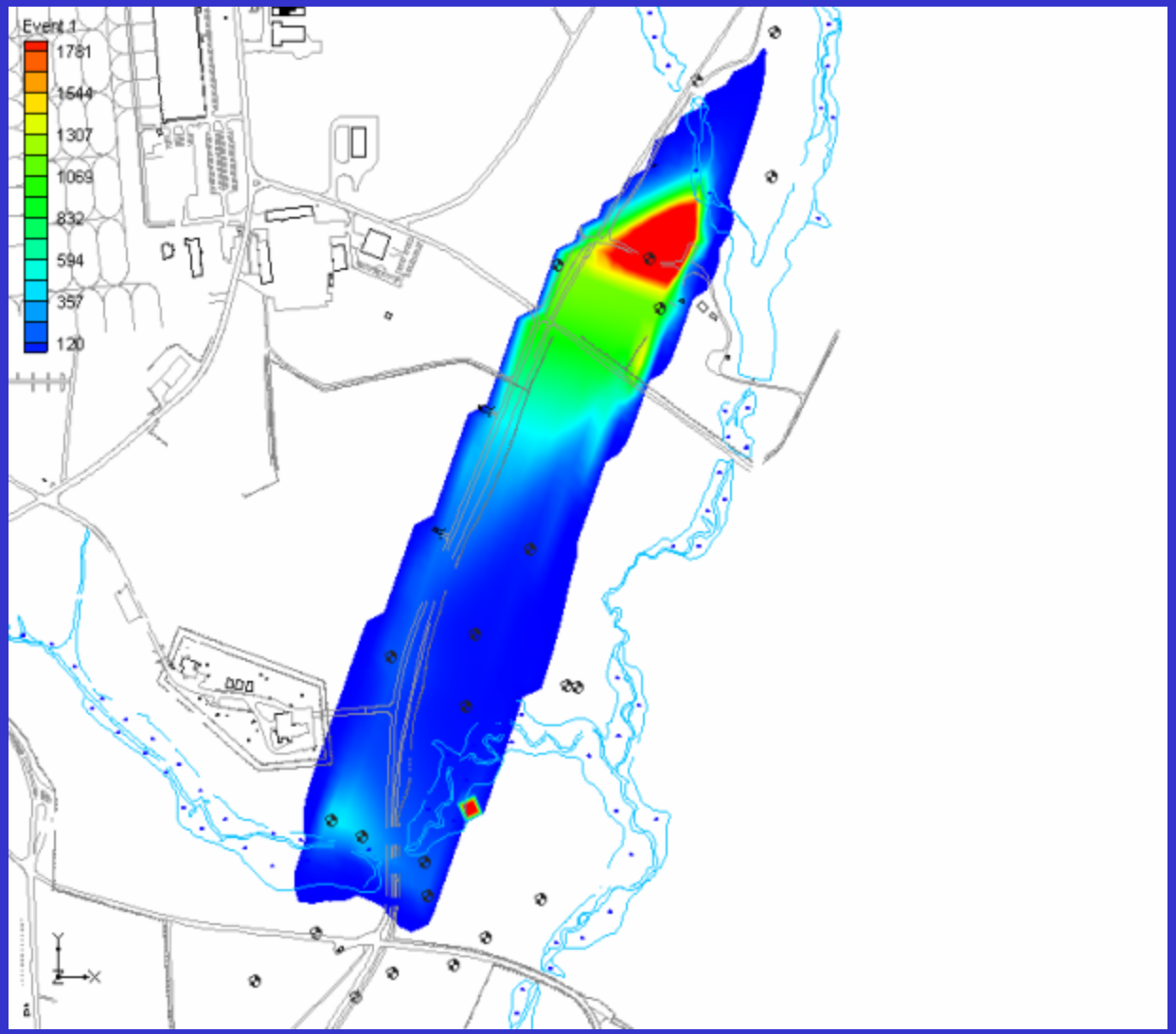
Eastern Plume Operable Unit *(continued)*



Eastern Plume Operable Unit *(continued)*

- The most recent sampling event occurred in October 2004.
- Recently, 7 new monitoring wells were installed to establish the southern boundary of the plume.
- In early 2004, the U.S. Environmental Protection Agency requested that the Navy consider sampling for a new compound called 1,4-dioxane.
- This compound was detected in some site monitoring wells, and additional sampling was completed in October 2004.

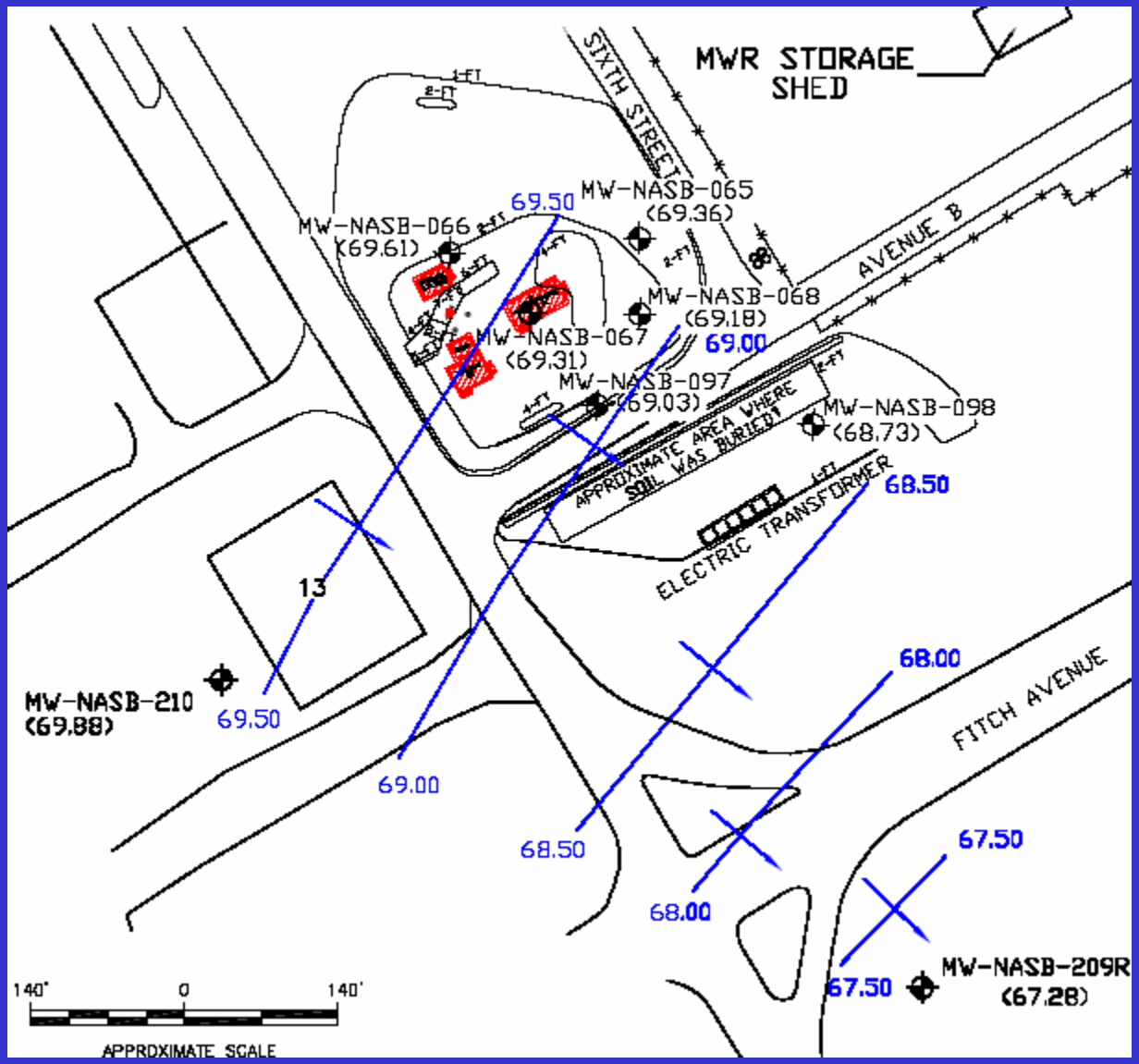
Eastern Plume Operable Unit *(continued)*



Eastern Plume Operable Unit *(continued)*

- Five-Year Review Status:
  - Site remedy continues to be protective of human health and the environment.
  - The pump-and-treat remedy has been effective in reducing concentrations of contaminants in groundwater.
  - 10 years of groundwater sampling show significant concentration decreases within the plume.

Site 17 – Building 95, Former Pesticide Shop



Site 17 – Building 95, Former Pesticide Shop *(continued)*

- Building 95 is the location of the former NAS Brunswick pesticide shop.
- Low concentrations of pesticides are present in groundwater and soil.
- Remediation has been completed at the site
  - Buildings removed, pesticide-impacted soil was removed.
- Monitoring continues to ensure protection of human health and the environment.
- A total of 19 rounds of monitoring data has been collected. Data are summarized twice per year.

Site 17 – Building 95, Former Pesticide Shop *(continued)*

Site 17 – Building 95, Former Pesticide Shop *(continued)*

- Five-Year Review Status:
  - Site remedy continues to be protective of human health and the environment.
  - Generating a Consensus Statement for the site.
  - Finalizing the Long-Term Monitoring Plan and Quality Assurance Project Plan.

Questions

Naval Air Station Brunswick
Brunswick, ME

MRP Status
Malcolm Pirnie, Inc.

March 21, 2007

Preliminary Assessment Sites

- Naval Air Station Brunswick
  - Former Munitions Bunker West Area
  - Machine Gun Boresight Range
  - Skeet Range
- Topsham Annex
  - Topsham Annex Skeet Range

Former Munitions Bunker West Area

- Soil samples should focus on the presence and extent of MC.
- Samples collected should be analyzed for metals and explosives.
- Magnetometer-assisted visual survey of the area for MEC.
- If no MEC are identified and no MC are found above regulatory limits in soil samples NFA should be pursued.

	MEC	MC
NFA		
SI	X	X

Machine Gun Boresight Range

- Soil samples should focus on the presence and extent of MC.
- Samples collected should be analyzed for metals.
- If no MC are found above regulatory limits in the soils samples NFA should be pursued.

	MEC	MC
NFA	X	
SI		X

Skeet Range

- Soil, sediment, and surface water samples should focus on the presence and extent of MC in the maximum shot fall zone.
- Groundwater sample should be collected from the existing on-site monitoring well.
- Samples collected should be analyzed for metals and PAHs.
- If no MC are found above regulatory limits in the soil or groundwater samples NFA should be pursued.

	MEC	MC
NFA	X	
SI		X

Topsham Annex Skeet Range

- Sediment and soil samples should focus on the presence and extent of MC in the maximum shot fall zone.
- Samples collected should be analyzed for metals and PAHs.
- If no MC are found above regulatory limits in the soil or sediment samples NFA should be pursued.

	MEC	MC
NFA	X	
SI		X

Preliminary Assessment Addendum

- Naval Air Station Brunswick
  - Site 12 Explosive Ordnance Disposal Open Burn Open Detonation Area
  - Quarry

Site 12 EOD (OB/OD) Area

- Soil, sediment, surface water, and groundwater samples should focus on the presence or absence of MC.
- Samples collected should be analyzed for metals, explosives, and perchlorate.
- Magnetometer-assisted visual survey of the area for MEC.
- If no MEC are identified and no MC are found above regulatory limits in samples MRP NFA should be pursued.
- This site will proceed to RI under CERCLA once all munitions issues are addressed.

	MEC	MC
NFA		
SI	X	X

Quarry

- 1991 Supplemental FS (E.C. Jordan) notes that Quarry was used as a munitions disposal site.
- Malcolm Pirnie has conducted a site survey and there was no evidence to indicate that the Quarry was used for EOD activities.
- EPA feels that the Quarry should be screened to make certain that the land has no previous munitions use. Screening should include soil, groundwater, and surface water.

	MEC	MC
NFA	X Preliminary Assessment Addendum Recommendation	X Preliminary Assessment Addendum Recommendation
SI	X EPA Recommendation	X EPA Recommendation

Future Activities

- TetraTech to conduct SI activities.
  - Site 12 EOD OB/OD Area – An ESS and surface sweep will be conducted before proceeding to soil/groundwater investigation

Naval Air Station Brunswick

Community Environmental Response Facilitation Act (CERFA)

March 2007

CERCLA

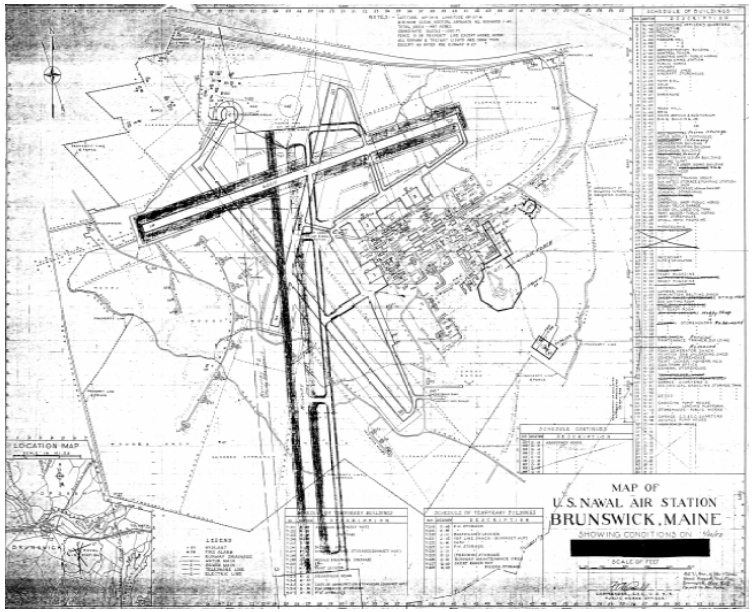
- Comprehensive Environmental Response, Compensation and Liability Act of 1980
- “Superfund”
- Legal framework for identification and restoration of contaminated property
- Section 120(h) – transfer of federal property where hazardous substances stored, released or disposed
- Section 120(h)(4) – CERFA added in 1992

CERFA

- What – Identify and document “uncontaminated” property at closing DoD bases
- Why – Make property available for reuse in a timely manner
- Who – Navy with EPA (NPL site) and MEDEP (non-NPL remote parcels) and community involvement
- When – Goal is for Regulatory concurrence within18 months of enactment of BRAC 2005 (May 9, 2007)

CERFA Research

- Federal government records
- Past real estate ownership
- Historical aerial photographs
- Visual inspection
- Adjacent properties - visual
- Adjacent properties – government records
- Interviews – current or former employees

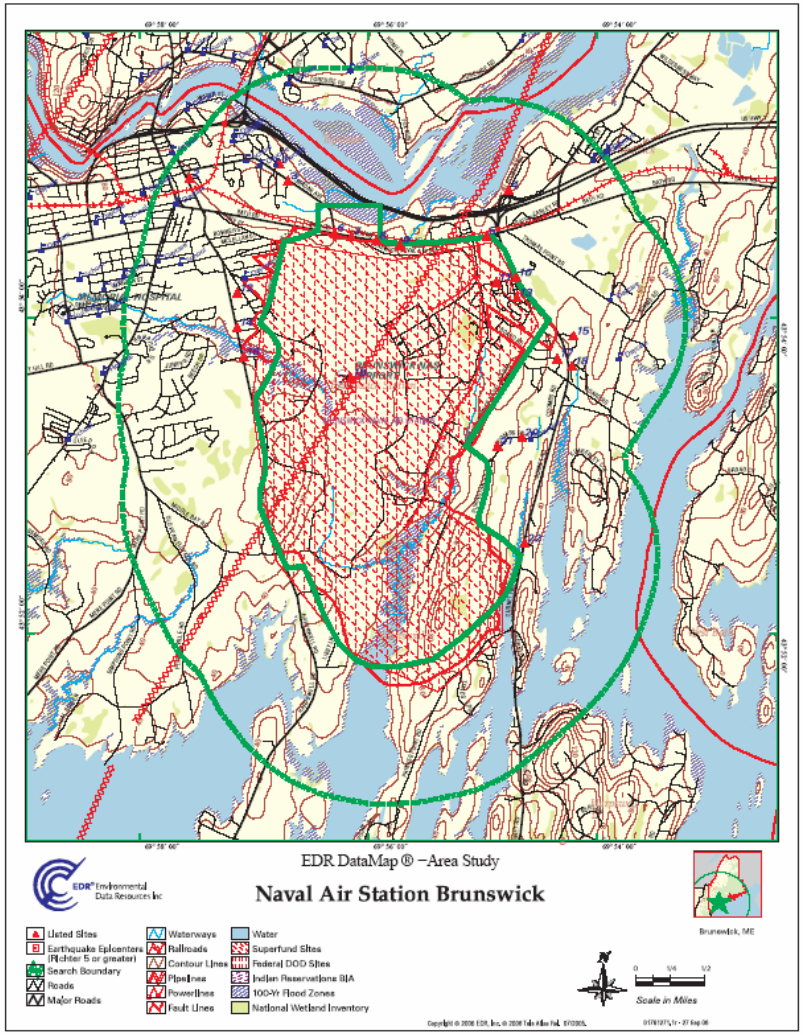


NASB Approach

- Assemble team onsite – NASB, BRAC PMO, Contractor
- Review NASB files, documents, maps, aerial photos
- Initial interviews – NASB ENV & PW Depts.
- Subdivide Main Base based on current and past uses
- Focus on certain parcels
- EPA and MEDEP on site during visual inspections
- Visual recon – Main Base, remote & adjacent properties
- Ongoing follow-up interviews

NASB Approach

- Review information compiled during visit
- Review government databases
- Compile Navy real estate records
- Categorize each parcel and remote property
- Draft Report

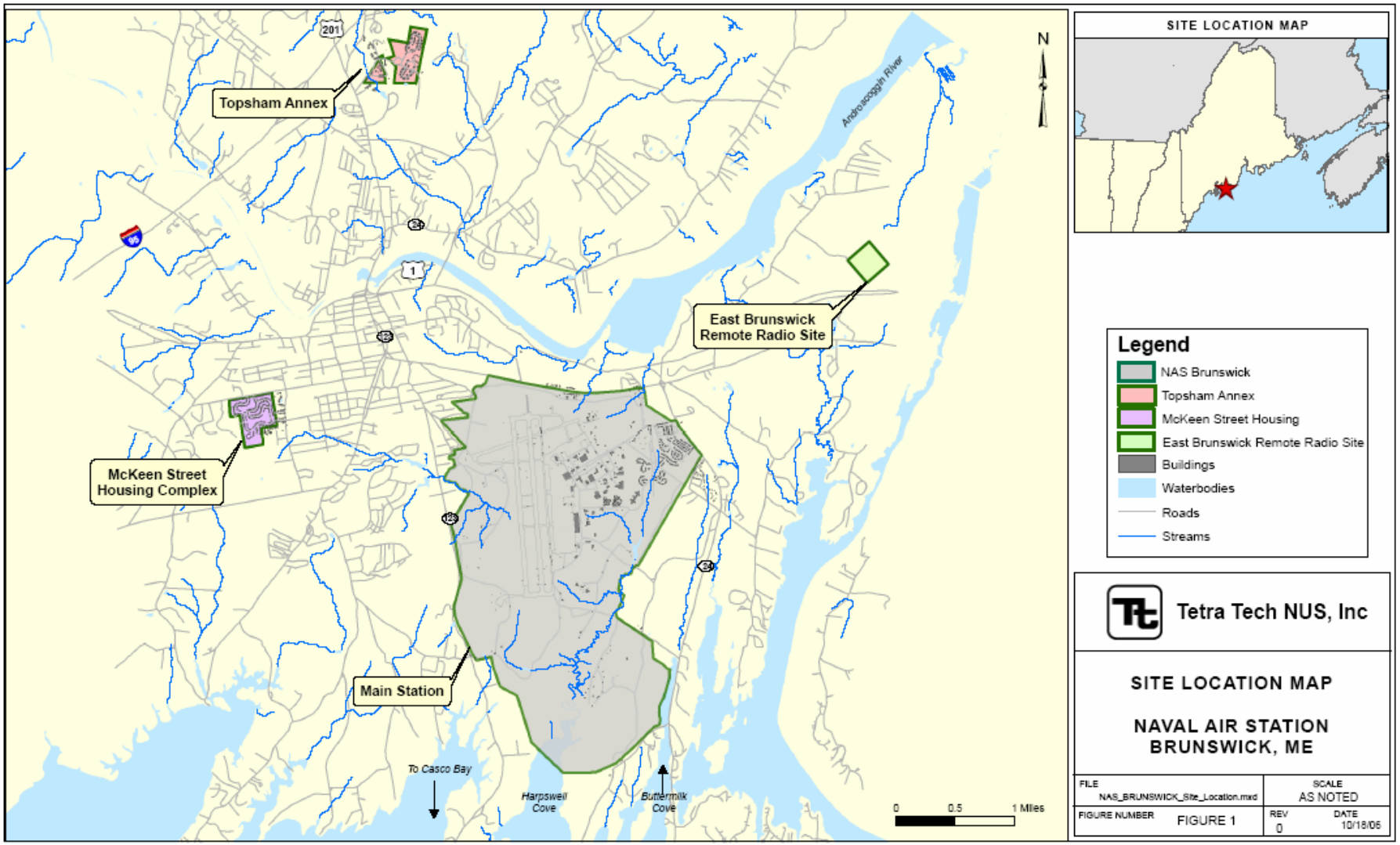


Property Categories for CERFA

- Category 1 – CERFA Uncontaminated
- Category 2 – Past Release and/or Disposal
  ("Clean-up" ongoing or complete)
- Category 3 – Potential Release/Disposal
  (or not enough information)

Considerations

- Main Base dates back to 1943
- Environmental awareness and regulations – 1970s
- Environmental recordkeeping – early 1980s
- Investigation/cleanup known sites – since 1980s
- Remedies for continued Navy land use assumptions
- Conservative approach to ID of CERFA Parcels


Topsham Annex
East Brunswick Remote Radio Site
McKeen Street Housing Complex
Main Station
Androscoggin River
To Casco Bay
Harpswell Cove
Buttermilk Cove
N
0 0.5 1 Miles
SITE LOCATION MAP
Legend
NAS Brunswick
Topsham Annex
McKeen Street Housing
East Brunswick Remote Radio Site
Buildings
Waterbodies
Roads
Streams
Tetra Tech NUS, Inc
SITE LOCATION MAP
NAVAL AIR STATION
BRUNSWICK, ME
FILE
NAS_BRUNSWICK_Site_Location.mxd
SCALE
AS NOTED
FIGURE NUMBER
FIGURE 1
REV
0
DATE
10/18/05

SOURCE: Google Earth, 2006

SITE LOCATION

Tetra Tech NUS, Inc

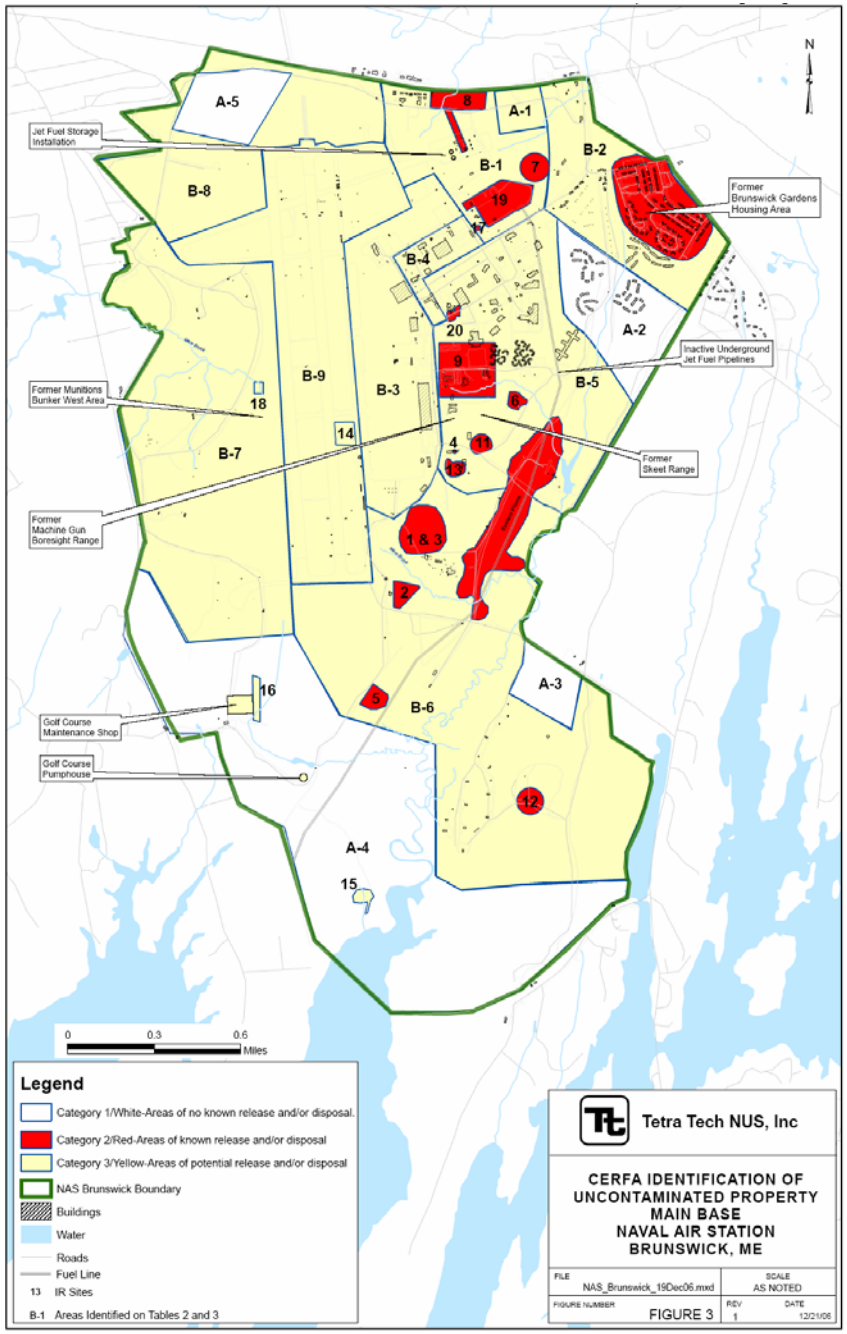
RAKE STATIONS
SITE LOCATION MAP
NAVAL AIR STATION
BRUNSWICK, ME

FILE	SCALE
Rake_2.mxd	1 inch = 0.8 miles
FIGURE NUMBER	REV / DATE
FIGURE 2	0 / 10/25/06

Initial Findings – Main Base

- Four areas identified as CERFA "uncontaminated" (Category 1) in Draft Report dated Dec 2006

- 648 acres as shown on map
- Navy currently reviewing EPA and State comments dated March 1, 2007
- Outstanding issues will be addressed


N
A-5
A-1
A-2
A-3
A-4
B-1
B-2
B-3
B-4
B-5
B-6
B-7
B-8
B-9
Jet Fuel Storage Installation
Former Brunswick Gardens Housing Area
Inactive Underground Jet Fuel Pipelines
Former Munitions Bunker West Area
Former Skeet Range
Former Machine Gun Boresight Range
Golf Course Maintenance Shop
Golf Course Pumphouse
1 & 3
2
4
5
6
7
8
9
10
11
12
13
14
15
16
18
19
20
0
0.3
0.6
Miles
Legend
Category 1/White-Areas of no known release and/or disposal.
Category 2/Red-Areas of known release and/or disposal
Category 3/Yellow-Areas of potential release and/or disposal
NAS Brunswick Boundary
Buildings
Water
Roads
Fuel Line
13 IR Sites
B-1 Areas Identified on Tables 2 and 3
Tetra Tech NUS, Inc
CERFA IDENTIFICATION OF UNCONTAMINATED PROPERTY
MAIN BASE
NAVAL AIR STATION
BRUNSWICK, ME
FILE
NAS_Brunswick_19Dec06.mxd
SCALE
AS NOTED
FIGURE NUMBER
FIGURE 3
REV
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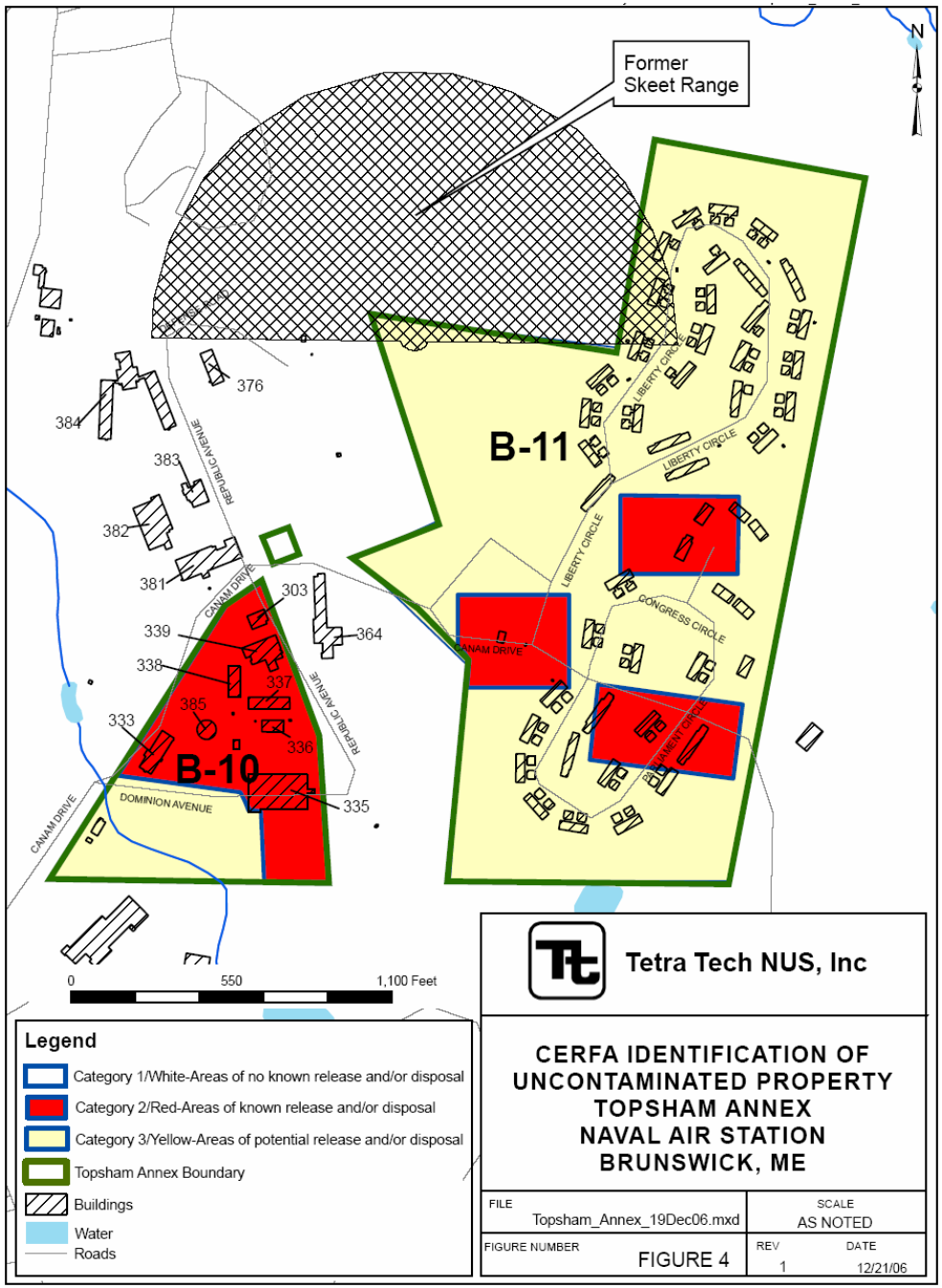
DATE
12/21/06

Initial Findings – Topsham Annex

- 2 Areas - Category 2 and 3
- Housing Area
  - Pre-1960s – potential lead-based paint
  - Skeet range
  - Past residential heating oil tank releases

- Industrial-Commercial Area
  - Soil investigation was ongoing
  - UST, AST, automotive maintenance/repair
  - Adjacent properties – concrete plant; possible leaking USTs; former Navy steam plant (demolished), now school property


Former
Skeet Range
N
B-11
B-10
LIBERTY CIRCLE
CONGRESS CIRCLE
PARLIAMENT CIRCLE
CANAM DRIVE
DOMINION AVENUE
REPUBLIC AVENUE
376
384
383
382
381
303
364
339
338
337
385
333
336
335
0
550
1,100 Feet
Legend
Category 1/White-Areas of no known release and/or disposal
Category 2/Red-Areas of known release and/or disposal
Category 3/Yellow-Areas of potential release and/or disposal
Topsham Annex Boundary
Buildings
Water
Roads
Tetra Tech NUS, Inc
CERFA IDENTIFICATION OF
UNCONTAMINATED PROPERTY
TOPSHAM ANNEX
NAVAL AIR STATION
BRUNSWICK, ME
FILE
Topsham_Annex_19Dec06.mxd
SCALE
AS NOTED
FIGURE NUMBER
FIGURE 4
REV
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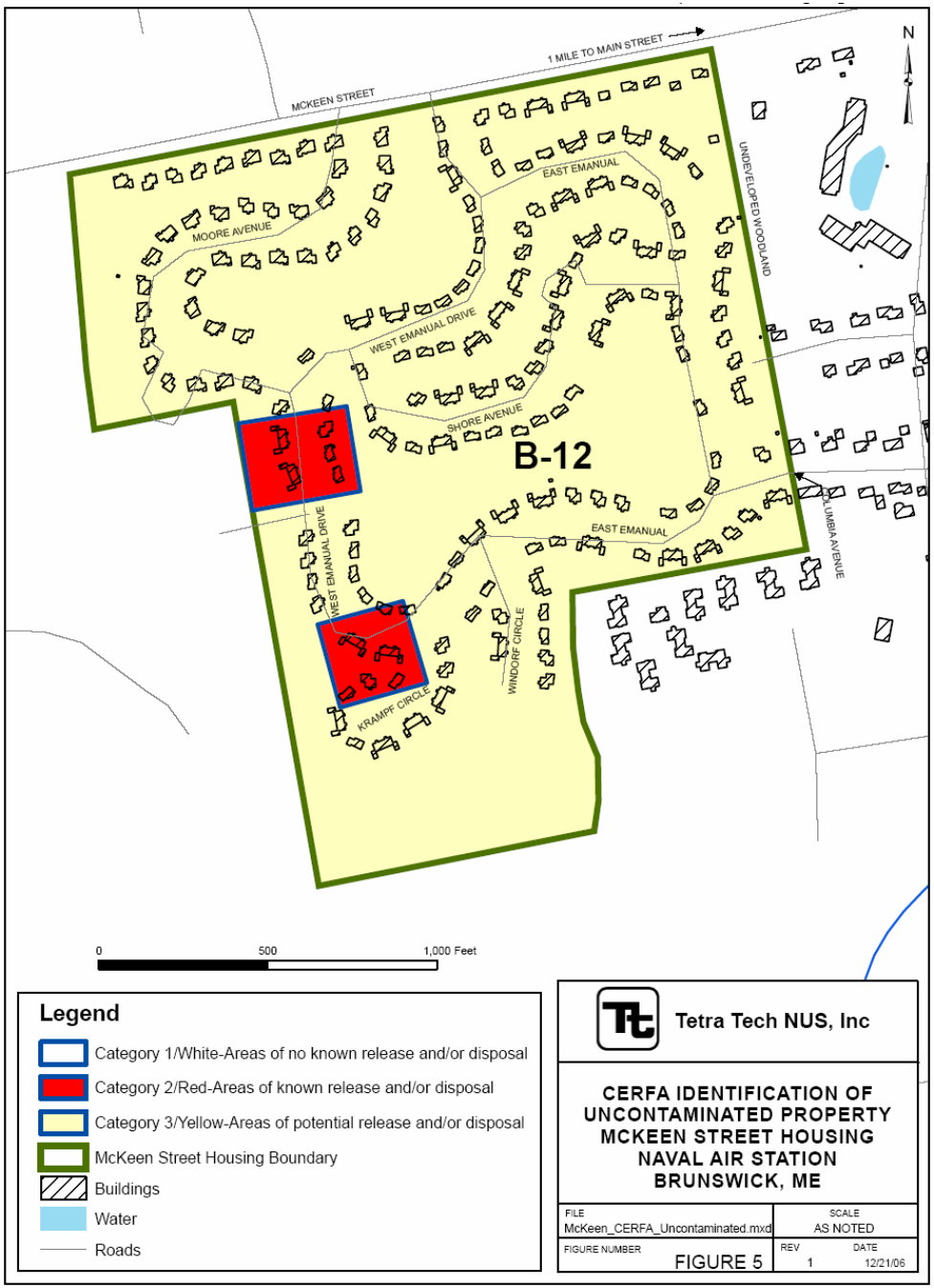
DATE
12/21/06

Initial Findings
McKeen Street Housing

- Area includes Categories 2 and 3
- Past residential heating oil tank releases

- Units built pre-1960s - potential lead-based paint


1 MILE TO MAIN STREET
MCKEEN STREET
N
EAST EMANUAL
MOORE AVENUE
UNDEVELOPED WOODLAND
WEST EMANUAL DRIVE
SHORE AVENUE
B-12
EAST EMANUAL
COLUMBIA AVENUE
WEST EMANUAL DRIVE
WINDORF CIRCLE
KRAMPF CIRCLE
0
500
1,000 Feet
Legend
Category 1/White-Areas of no known release and/or disposal
Category 2/Red-Areas of known release and/or disposal
Category 3/Yellow-Areas of potential release and/or disposal
McKeen Street Housing Boundary
Buildings
Water
Roads
Tetra Tech NUS, Inc
CERFA IDENTIFICATION OF UNCONTAMINATED PROPERTY
MCKEEN STREET HOUSING
NAVAL AIR STATION
BRUNSWICK, ME
FILE
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SCALE
AS NOTED
FIGURE NUMBER
FIGURE 5
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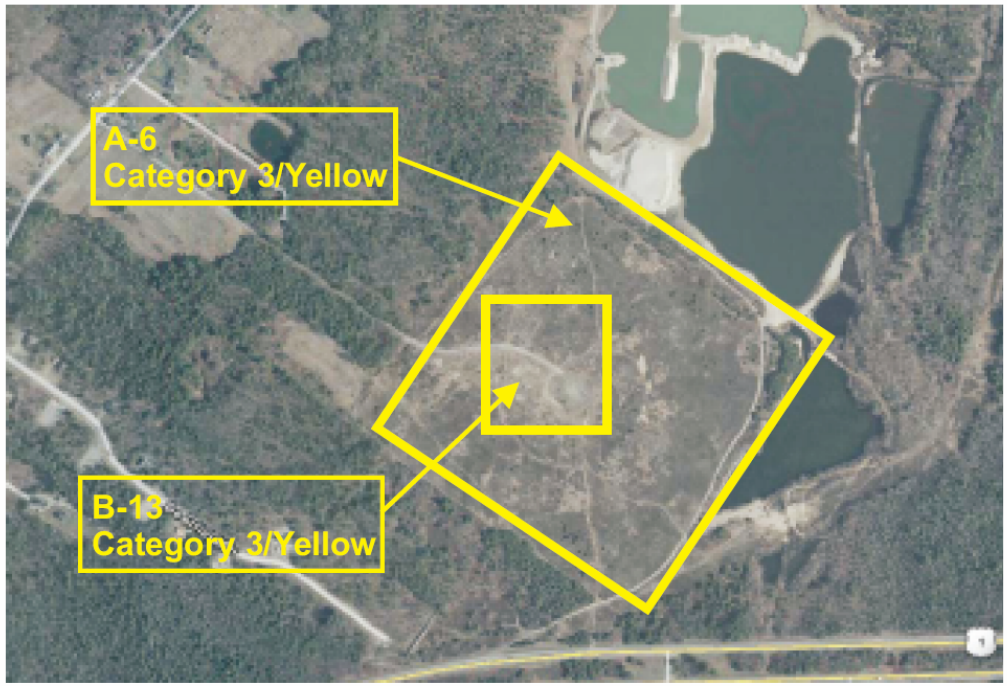
DATE
12/21/06

Initial Findings – East Brunswick Radio Transmitter Site

- Category 3 Area
- No sampling ever performed
- Concerns to be addressed
  - Burn area
  - Stained soil
  - Septic system
  - Trash and debris
  - Potential lead-based paint (former antenna towers)
  - Adjacent property debris piles, dumping, drums



SOURCE: Google Earth, 2006

Boundary location is approximate

LEGEND

- Category 1/White-Areas of no known release and/or disposal
- Category 2/Red-Areas of known release and/or disposal
- Category 3/Yellow-Areas of potential release and/or disposal

Tetra Tech NUS

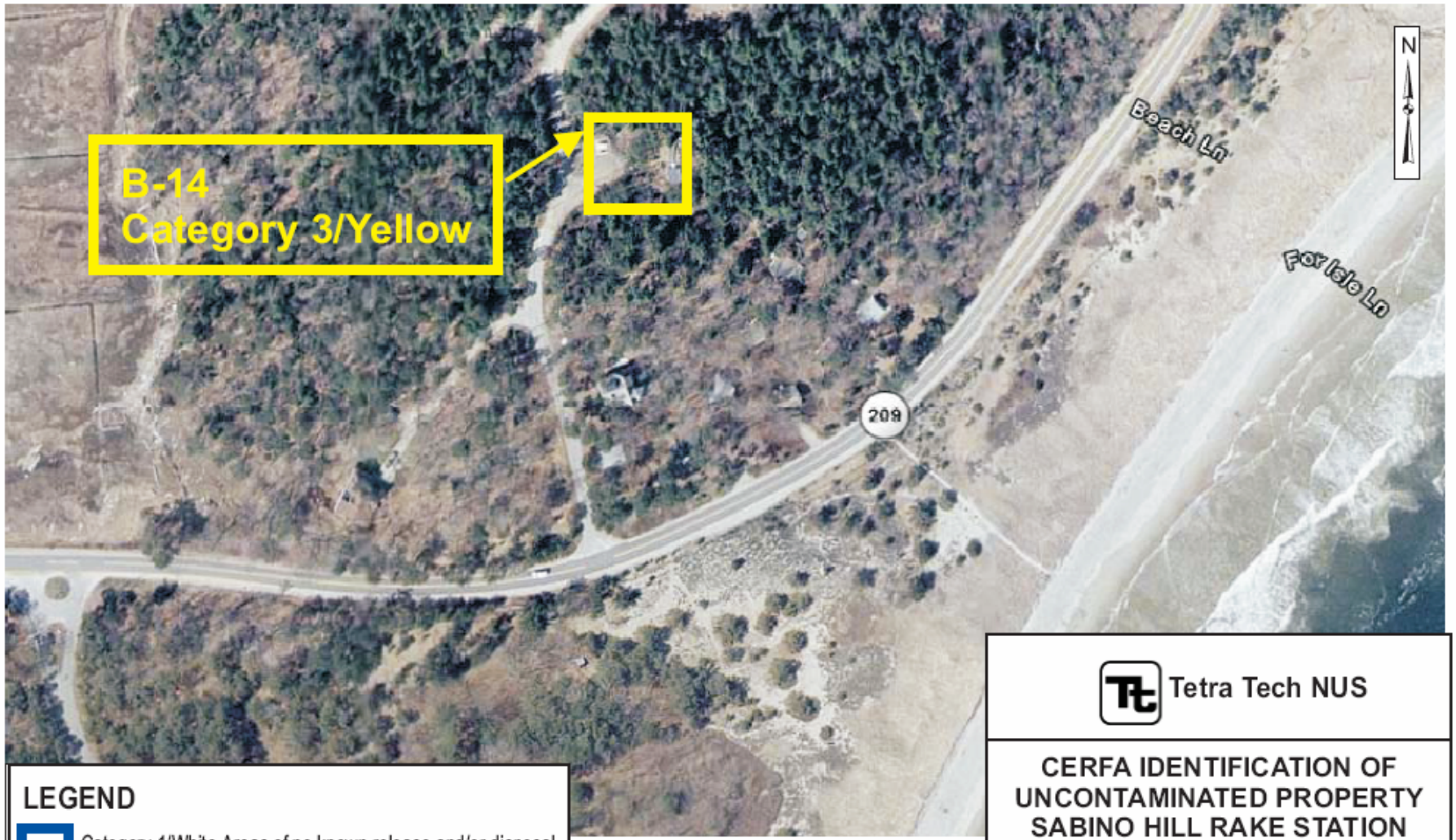
CERFA IDENTIFICATION OF UNCONTAMINATED PROPERTY EAST BRUNSWICK REMOTE RADIO TRANSMITTER SITE NAVAL AIR STATION BRUNSWICK, ME

FILE	SCALE
East Brunswick Radio Site Map.cdr	1" = 750 FEET
FIGURE NUMBER	REV / DATE
FIGURE 6	1 / 12/21/06

Initial Findings – Rake Stations (Observation Towers)

- Sabino Hill
  - Category 3 (¼-acre parcel)
  - Peeling lead-based paint on metal tower
  - Limited soil sampling (one)

- Small Point
  - Category 3 (¼-acre parcel)
  - Concrete tower - paint chips found
  - Limited soil sampling (one)



LEGEND

- Category 1/White-Areas of no known release and/or disposal
- Category 2/Red-Areas of known release and/or disposal
- Category 3/Yellow-Areas of potential release and/or disposal

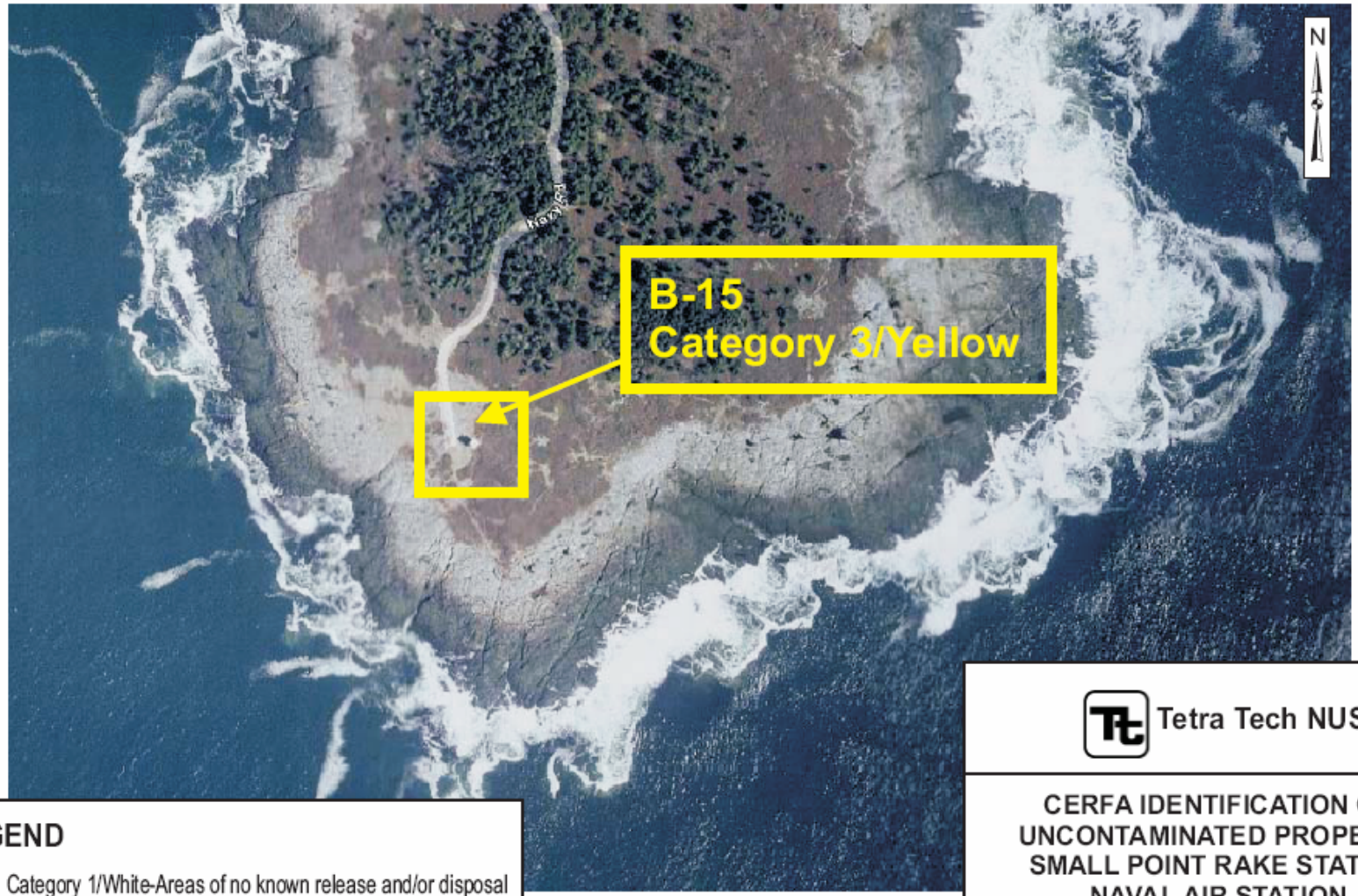
SOURCE: Google Earth, 2006

Boundary location is approximate

Tetra Tech NUS

CERFA IDENTIFICATION OF UNCONTAMINATED PROPERTY
SABINO HILL RAKE STATION
NAVAL AIR STATION
BRUNSWICK, ME

FILE	SCALE
Sabino Hill Rake Stn.cdr	1" = 150 FEET
FIGURE NUMBER	**REV / DATE**
FIGURE 7	1 / 12/21/06



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SOURCE: Google Earth, 2006

Boundary location is approximate

Tetra Tech NUS

CERFA IDENTIFICATION OF UNCONTAMINATED PROPERTY SMALL POINT RAKE STATION NAVAL AIR STATION BRUNSWICK, ME

FILE	SCALE
Small Point Rake Stn.cdr	1" = 150 FEET
FIGURE NUMBER	REV / DATE
FIGURE 8	1 / 12/21/06

What This Means

- Operational closure date – NLT September 2011
- Ongoing investigations – issues will be addressed
- May result in identification of Category 1 parcels
- Properties can be transferred even if not Category 1

Community Environmental Response Facilitation Act (CERFA)

What is CERFA?

Section 120(h) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also known as the Superfund Act) sets requirements for the sale or transfer of property owned by the United States on which certain hazardous substances were stored, released or disposed of. CERFA, enacted by Congress in 1992, adds a new subsection (4) to Section 120(h) that, among other things, requires the Department of Defense to identify and document "uncontaminated" real property (land along with anything attached to it such as buildings) at military installations being closed or realigned under base closure laws.

Why does CERFA require identification of "uncontaminated" property?

Transferring federal property to the private sector is often a lengthy process due to concerns over the potential for hazardous substance contamination. CERFA was passed to require identification of uncontaminated property soon after a base closure decision is made so the property can be transferred and put back into productive reuse to stimulate or revitalize the local economy. Concurrence with this identification by the appropriate regulatory agency must be completed within 18 months of the base closure law. For BRAC 2005 bases, this concurrence date is May 9, 2007.

What is CERFA uncontaminated property?

CERFA defines uncontaminated property as "….real property on which no hazardous substances and no petroleum products or their derivatives were known to have been released, or disposed of."

What is a hazardous substance?

The hazardous substances referred to in CERFA are those hazardous substances, pollutants, and contaminants defined in CERCLA Sections 101(14) and 101(33). In general, CERCLA hazardous substances include hundreds of individual chemical elements, compounds and mixtures that can cause harm to humans or the environment when they are not handled or disposed of properly. At military installations, hazardous substances are associated with products used and wastes generated during a variety of activities which could include:

- Aircraft and vehicle maintenance and repair
- Painting
- Landfilling
- Fueling operations
- Facilities maintenance and repair
- Utilities operation and maintenance
- Pest control
- Fire fighting training
- Munitions usage/disposal

How is the identification made?

At a minimum, the identification must be based on a review of the following sources of information concerning current and previous uses of the property:

- Search of federal government records
- Real estate ownership records
- Historical aerial photographs
- Visual site inspection
- Visual reconnaissance of adjacent properties
- Detailed search of government records on adjacent properties
- Interviews with current or former employees
- Sampling, if appropriate

Who performs the identification?

CERFA requires "….the department, agency or instrumentality of the United States with jurisdiction over the property…." to perform the identification, in this case, the U.S. Navy. The U.S. Environmental Protection Agency (EPA) must concur with the results for property at facilities on the CERCLA National Priorities List (NPL).

Can property that does not meet the definition of "uncontaminated" be transferred?

Yes, Section 120(h)(3) contains provisions and requirements that allow transfer if the federal agency transferring the property has satisfied EPA (NPL sites) or the State (non-NPL sites) that all environmental cleanup actions necessary to protect human health and the environment have been taken. There are also provisions that allow EPA (with concurrence of the Governor for NPL sites) or the Governor (non-NPL sites) to approve the "early transfer" of property before the cleanup is completed so long as certain requirements are met and assurances made to protect human health and the environment while the cleanup continues.

For more information, contact:

Naval Air Station Brunswick, Maine
Public Affairs Officer
(207) 921-2000

NEX SERVICE STATION SITE

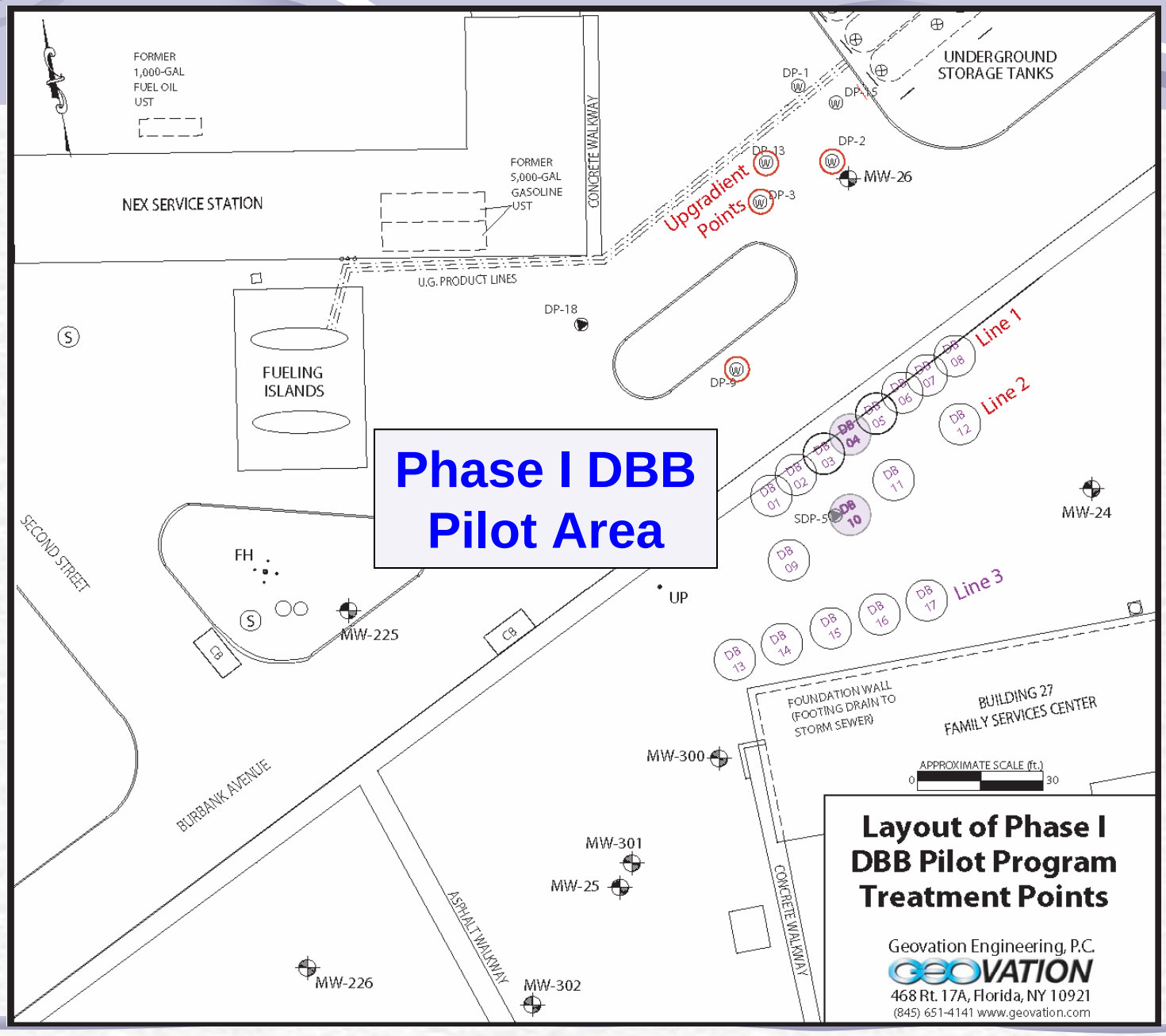
BIODEGRADATION PILOT STUDY
STATUS
MARCH 22, 2007

OBJECTIVE

- EVALUATE WHETHER A DENITRIFICATION-BASED BIODEGRADATION (DBB) PROCESS IS CAPABLE OF MEETING THE SITE-SPECIFIC 500 MG/KG GRO REMEDIATION GOAL

PILOT TEST PROGRAM

- Phase I – Vicinity of Bldg 27
  - Installation of injection wells & monitoring wells – Sept 2004
  - Baseline monitoring – March 2004
  - Nblend applications
  - 3 Rounds Groundwater Sampling
    - March 2005
    - October 2005
    - July 2006
- Future
  - Phase I – Continue
  - Phase II – Initiate in NEX Station vicinity


Phase I DBB Pilot Area
FORMER 1,000-GAL FUEL OIL UST
FORMER 5,000-GAL GASOLINE UST
NEX SERVICE STATION
CONCRETE WALKWAY
U.G. PRODUCT LINES
UNDERGROUND STORAGE TANKS
Upgradient Points
DP-1
DP-1S
DP-2
DP-3
DP-13
DP-18
DP-9
MW-26
FUELING ISLANDS
Line 1
Line 2
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SDP-5
MW-24
FH
MW-225
UP
SECOND STREET
BURBANK AVENUE
ASPHALT WALKWAY
CONCRETE WALKWAY
FOUNDATION WALL (FOOTING DRAIN TO STORM SEWER)
BUILDING 27 FAMILY SERVICES CENTER
MW-300
MW-301
MW-25
MW-226
MW-302
APPROXIMATE SCALE (ft.)
0
30
Layout of Phase I DBB Pilot Program Treatment Points
Geovation Engineering, P.C.
GEOVATION
468 Rt. 17A, Florida, NY 10921
(845) 651-4141 www.geovation.com

GEOVATION

DBB™ Program: Gasoline Plume, NEX Service Station, Brunswick ME

- **Scope of Phase I DBB Pilot Program**:
  - 11 major N-Blend treatment events conducted by Geovation from 11/04 - 4/06 (up to 320-Gal / event)
  - 3 Minor treatment events by TtNUS (± 50-75 Gal ea.)
  - Treatment/monitoring biased towards zone of high residual sorbed-phase GRO mass within and downgradient of source area
  - N-Blend concentrations / volumes increased over time
- Chemical (gasoline), biogeochemical and microbiological monitoring conducted before and during DBB program

Denitrification-Based Bioremediation ("DBB™") Technology

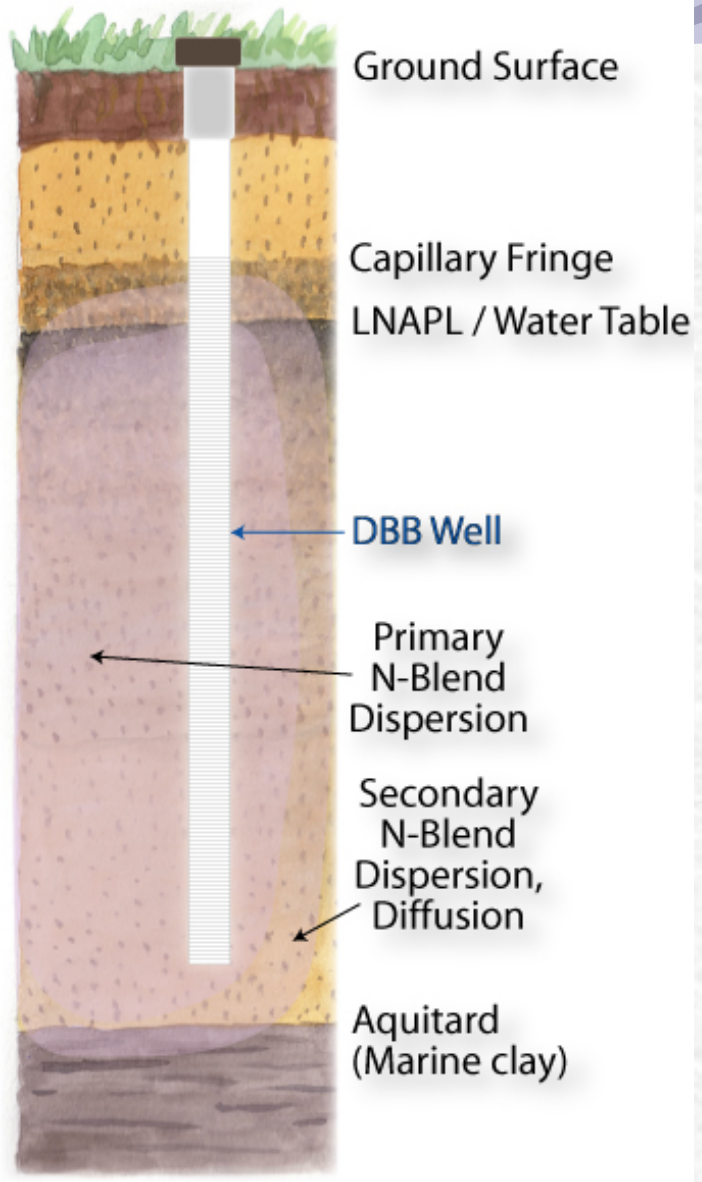
- DBB is an alternative to aerobic bioremediation, chemical oxidation for treatment of hydrocarbon source-areas
- DBB uses nitrate reduction as the primary driver for microbial respiration and bioremediation processes
- DBB™ biogeochemistry, microbial ecology are advantageous for subsurface bioremediation
  - More practical, cost-effective means to deliver stoichiometrically meaningful amounts of N-Blend relative to active oxygen, oxidants
  - N-blend diffusion rates / efficiency several orders of magnitude greater than for active oxygen, most oxidants
  - Can treat residual NAPLs, aquifer media with high sorbed-phase mass / concentrations

N-Blend™ – Fundamental Tool for DBB™

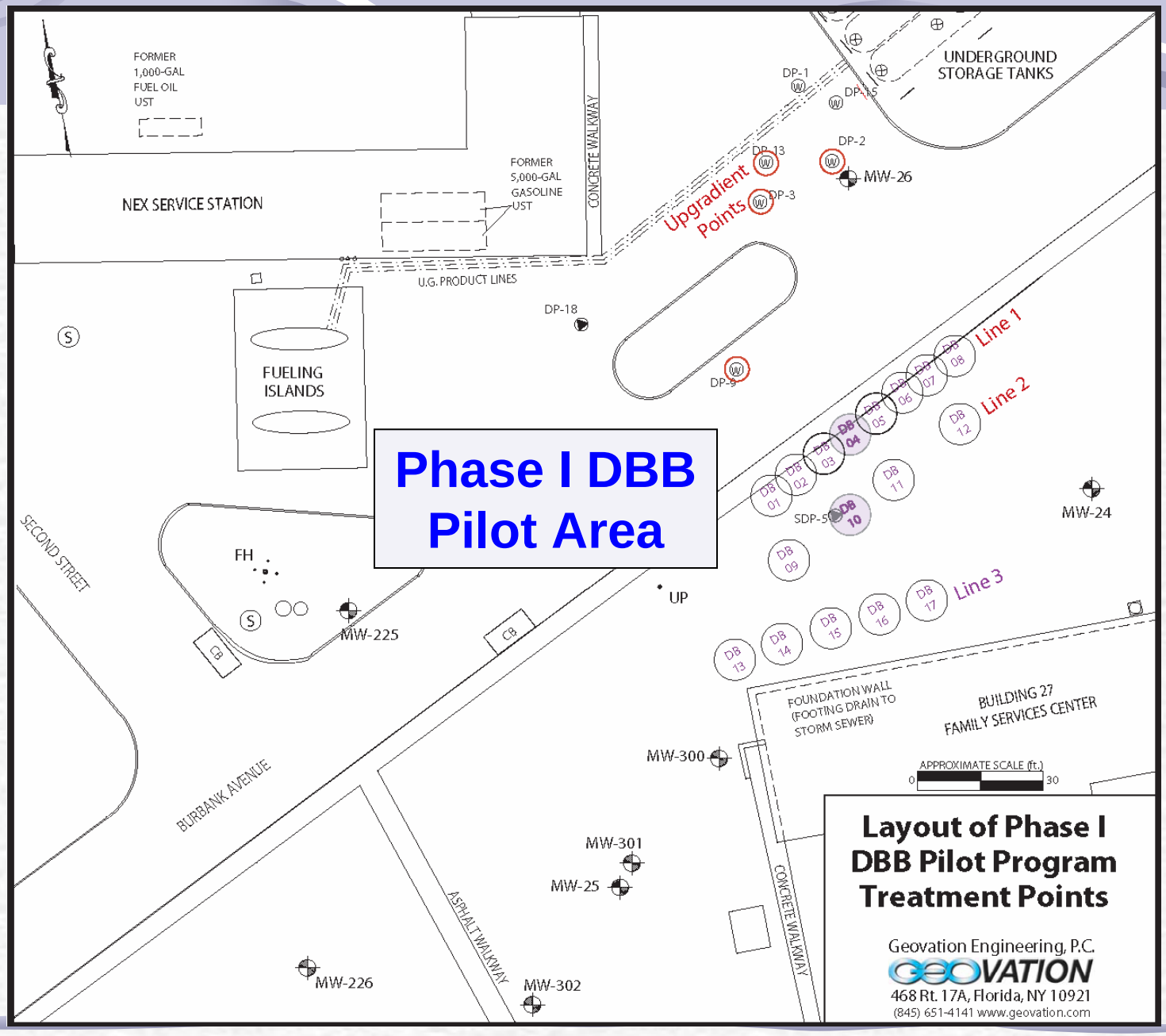
- Patented injectable solution of nitrates, complex phosphates, micronutrients and wetting agents
- N-Blend™ uses nitrates as
  - The primary electron acceptor
  - The sole form of nutrient nitrogen
- The high concentration and solubility of N-Blend™allows for rapid dispersion and diffusion into media to treat sorbed-phase hydrocarbons

DBB™ Implementation

- Goal: optimize N-blend (nitrate + nutrient) addition to meet biological demand created by sorbed-phase hydrocarbon mass
- Target treatment of residual product and sorbed-phase hydrocarbon mass in the smear zone and saturated zone
- Aggressive treatment in spring (during high water table) designed to treat capillary ("smear zone") mass



GEOVATION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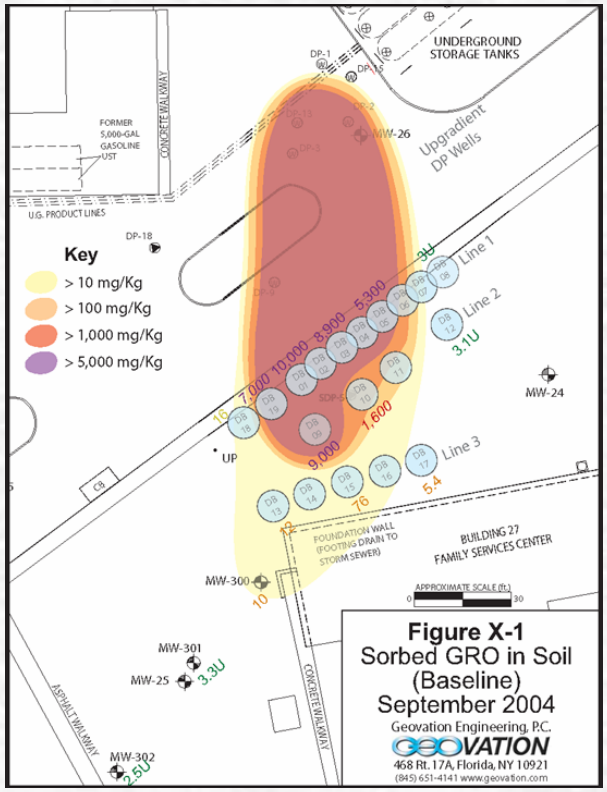
DBB™ Program: Gasoline Plume, NEX Service Station, Brunswick ME

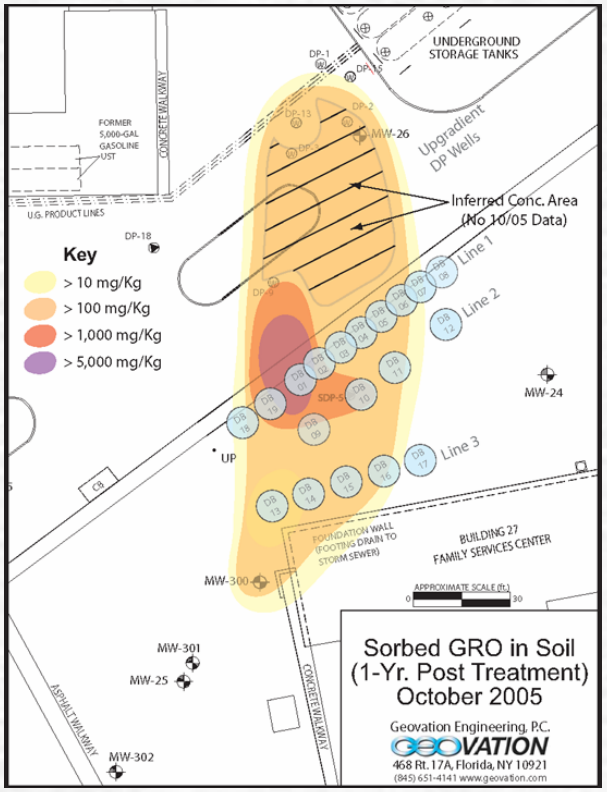
- **Results of Phase I DBB Pilot Program**:
  - October 2005 TtNUS sampling showed significant declines in concentrations and spatial extent of sorbed phase and groundwater GRO/BTEX
  - July 2006 TtNUS sampling results not consistent; GRO higher but BTEX low by comparison; suspect biological false positives in GC-based analyses
  - Biogeochemical and microbiological monitoring showed significant increases in bacterial cell counts and denitrification activity
  - Stable isotope probing ("SIP") in late 2005 showed DBB stimulated *in-situ* degradation capacity of aromatics
  - Verbal – Odors diminished at Building 27 bathrooms

Declining than Increasing GRO? Evidence of Biological Interference?

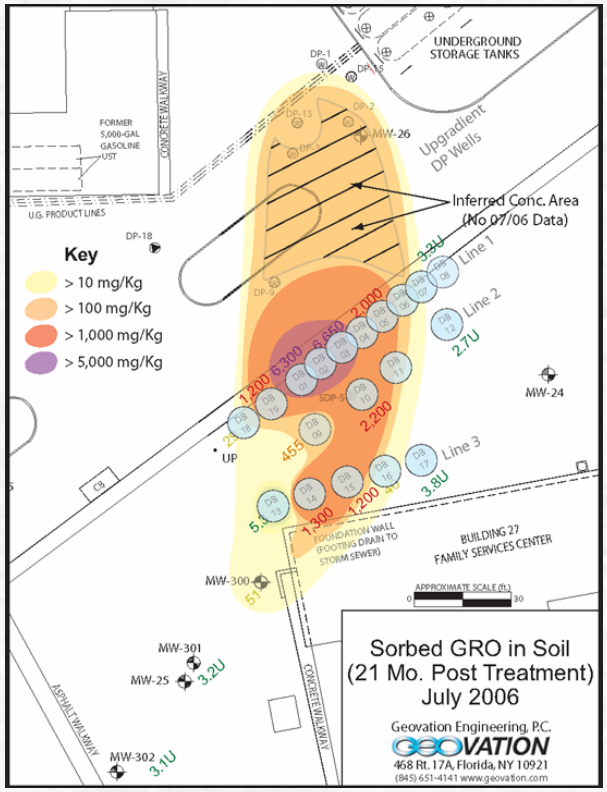
Sept 2004



Oct. 2005



July 2006



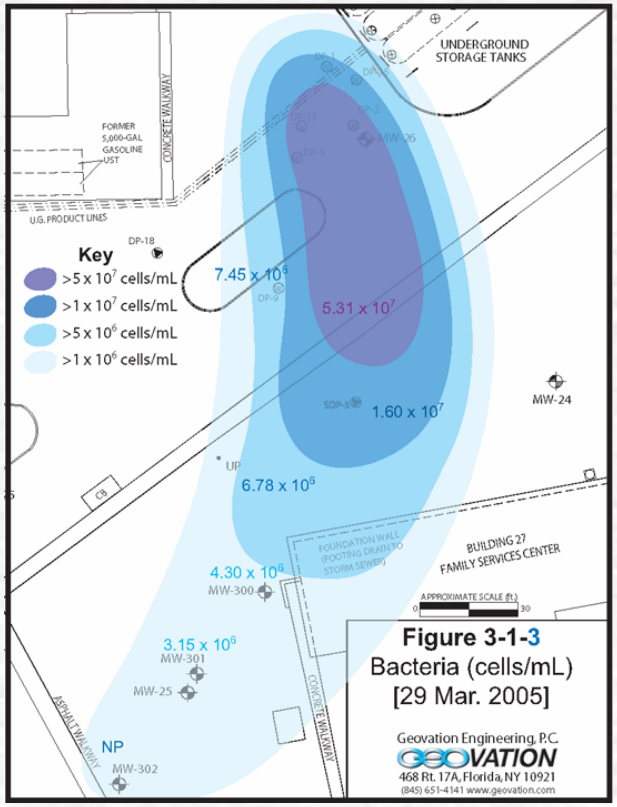
Baseline

1 Year Post Treatment

1.5 Year Post Treatment

Declining Cell Counts: Evidence of Declining Carbon (Gasoline) Mass?

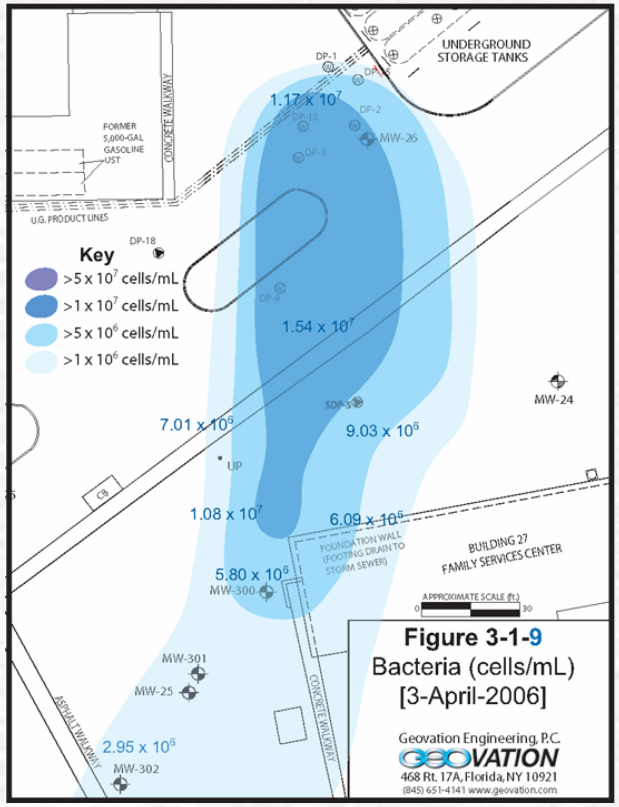
3/29/05



Peak Cell Counts Mar-05

(5 Mo. Post Treatment)

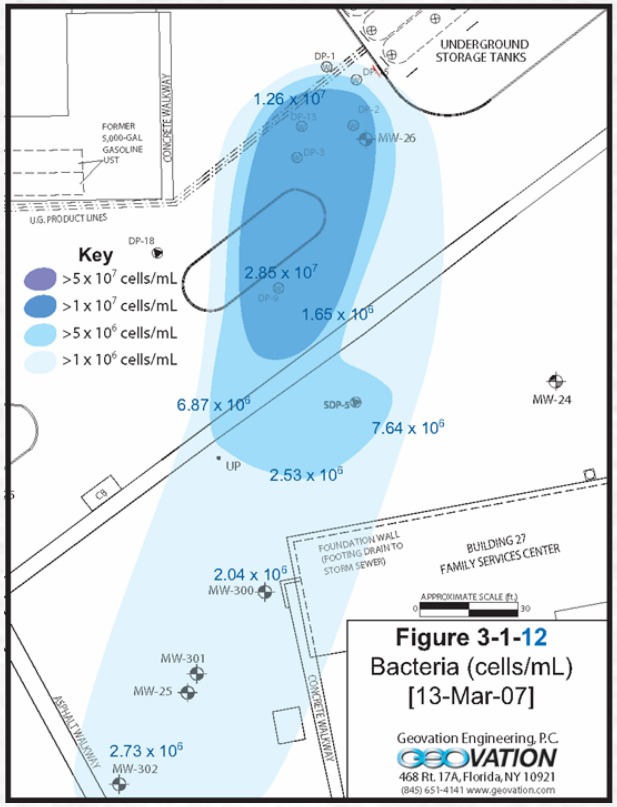
4/3/06



April 2006

(18 Mo. Post Treatment)

3/13/07



March 2007

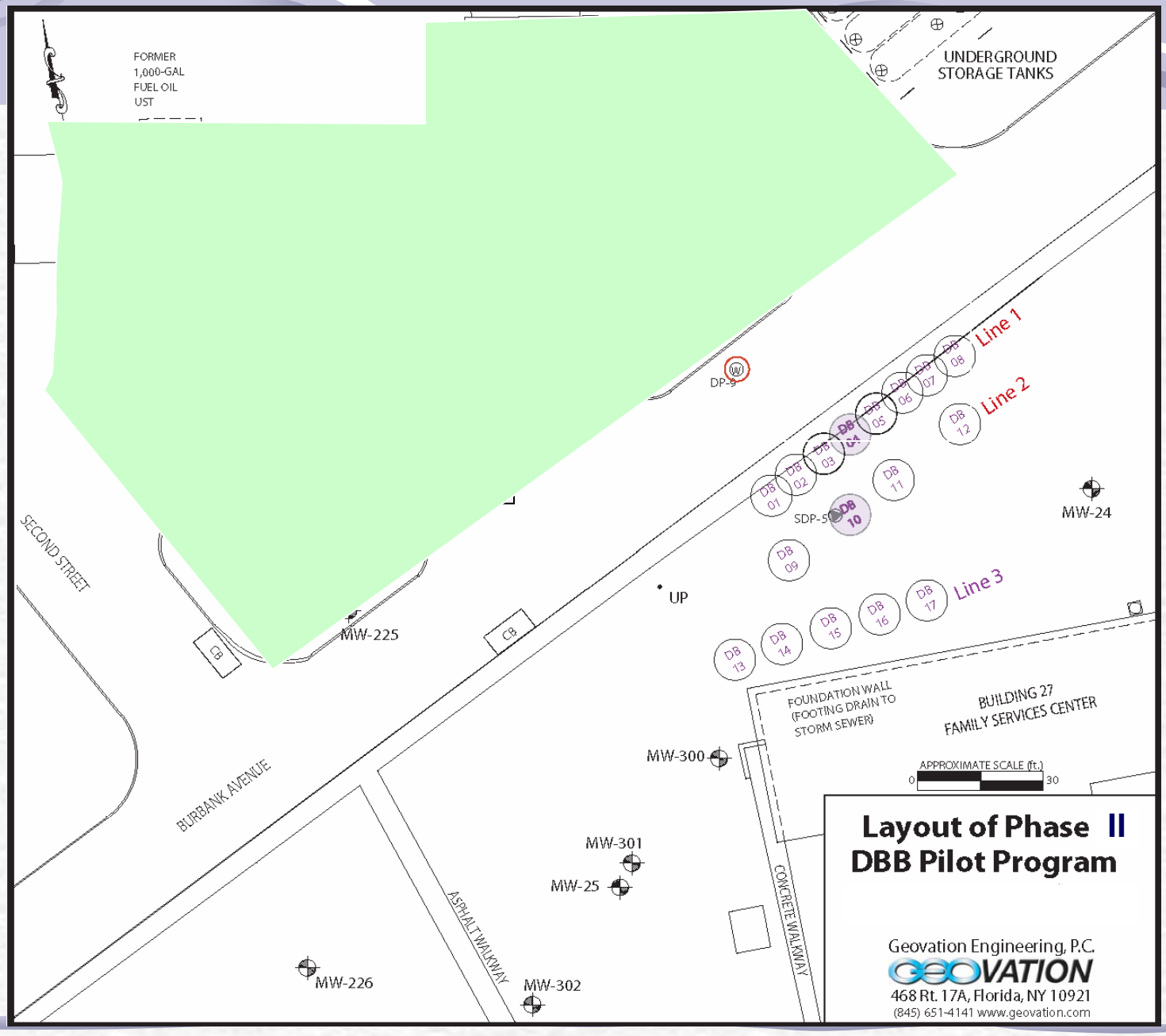
(29 Mo. Post Treatment)

DBB™ Program: Gasoline Plume, NEX Service Station, Brunswick ME

- **Phase I DBB Continuation Scope**:
  - 5 Major N-Blend treatment events conducted by Geovation from 10/06 – spring ’07 (± 320 Gal ea.)
  - 3 Minor treatment events by TtNUS (± 50-100 Gal ea.)
  - Continue to target treatment/monitoring efforts to residual sorbed-phase GRO mass within western edge of pilot area (between Burbank Ave and Bldg 27) and in NEX source area
  - Phase I continuation to merge into expanded Phase II treatment program

DBB™ Program: Gasoline Plume, NEX Service Station, Brunswick ME

- **Phase II DBB Program Scope**:
  - Fill data gaps, Install Application & Monitor Wells
  - 12 Major N-Blend treatment events to be conducted by Geovation from Spring 2007 through 2008 (± 320 Gal of N-blend ea. event)
  - 8 Minor treatment events by TtNUS (± 50-100 Gal ea.)
  - Treatment/monitoring to be expanded to address residual sorbed-phase GRO mass in NEX source area, pump islands. TtNUS to conduct sampling / fill data gaps before Phase II implementation
  - Chemical (gasoline), biogeochemical and microbiological monitoring conducted before and during DBB program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