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NAS SOUTH WEYMOUTH
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MINUTES AND AGENDA FOR RESTORATION ADVISORY BOARD MEETING HELD 10
JANUARY 2008 NAS SOUTH WEYMOUTH MA
01/10/2008
NAVAL AIR STATION SOUTH WEYMOUTH



**Naval Air Station
South Weymouth, MA
Restoration Advisory Board
Summary of RAB Meeting – January 10, 2008**



NAS South Weymouth Website: <http://nas-southweymouth.navy-env.com>

1. INTRODUCTIONS/ APPROVAL OF PRIOR MEETING MINUTES

Mary Skelton Roberts opened the meeting at approximately 7:00 PM. She requested that all attendees, including RAB members, regulators, and audience members, introduce themselves. She noted that the meeting agenda, handouts, and the sign-in sheet were available on the back table. The sign-in sheet for the meeting is provided as Attachment A to this meeting summary. M. Skelton Roberts asked if everyone had time to read the minutes from the November 2007 RAB meeting and asked for comments. Two individuals had questions about the Rubble Disposal Area. M. Skelton Roberts said the questions would be tabled and discussed later in the meeting. There were no other comments or questions on the November meeting minutes.

M. Skelton Roberts then reviewed the ground rules for the meeting and reminded the meeting attendees that the focus of the meeting is cleanup issues; redevelopment issues will be placed on the 'parking lot.' She reviewed the guidelines for the meeting and reminded the participants when asking questions to wait to speak until they are acknowledged, to state their names and affiliations, and to speak into the microphone when they have questions.

M. Skelton Roberts then reviewed the agenda and presentation scheduled for the meeting. The Agenda for the meeting and the Action Item Tracking List are provided as Attachment B to this meeting summary. In accordance with the agenda, the presentation would be followed by the Updates and Action Items portion of the meeting.

2. PRESENTATIONS

M. Skelton Roberts introduced Phoebe Call, TtNUS, to begin the presentation on the Area of Concern (AOC) 55C Wetland Investigation. The following paragraphs summarize the presentation and include references to selected presentation slides in Attachment C. The complete presentation is available on the NAS South Weymouth web site: <http://nas-southweymouth.navy-env.com>.

P. Call stated that AOC 55 was divided into four parts. AOC 55A and AOC 55B were closed through a Record of Decision (ROD) signed in October 2003. The ROD for AOC 55D is finalized and is waiting concurrence from Mass DEP. AOC 55C is the only area still active in the CERCLA process.

The objectives of the presentation are shown on Slide 2 and include a review of site history, a description of the eco-screening field program, and a summary of the ecological risk assessment (ERA) and human health risk assessment (HHRA). The data collected during the field program were used in the risk assessments. Conclusions and next steps will also be presented.

AOC 55C is located almost entirely within a delineated wetland. The environmental investigation area is approximately 0.6 acres. There is evidence of historical dumping and filling of materials. The majority of the material is metallic debris, concentrated in three mounded areas, and also dispersed through the area. The site is a forested wetland, with a ponded area which was full of water in April but dry in November.

Previous investigations conducted at AOC 55C are summarized on Slide 3. Initial sampling at the site occurred in 2001, with additional sampling conducted in 2002-2003, as part of the EBS program. During these investigations soil, sediment, and surface water samples were collected; concentrations of metals, pesticides, PCBs, VOCs, and PAHs exceeded ecological screening benchmarks. Based on these results Navy planned a removal action. In June 2006, EPA sent a memorandum to the Navy suggesting that more testing be conducted, including lead analysis in the sediment and toxicity in both sediment and surface water, to determine whether a removal action was warranted. EPA also requested that a wetland functions and values assessment be performed.

Slide 4 presents the objectives of the wetland investigation. The investigation included collecting sediment to better characterize the concentration of lead and other chemicals. Sediment and surface water samples were tested to determine if there was acute toxicity to sediment invertebrates, fish and aquatic invertebrates. An evaluation of risk to small mammals and birds was conducted using a food chain model and the functions and values of the wetland were determined.

Based on the results of the EBS program sampling events, 19 sediment locations were chosen for quick turn around time analysis of lead only. Based on the results of these samples, sediment sampling locations were chosen for full chemical analysis and toxicity testing (Slide 5). Six site samples and three reference samples were collected for these analyses. At four of the sediment locations and one reference location, co-located surface water samples were collected in April for full chemical analysis and toxicity testing (Slide 6). The third element of the field program was a wetlands functions and values assessment. A certified professional wetland scientist on the TtNUS staff completed this assessment following the N.E. Army Corps of Engineers methodology. This method includes a qualitative assessment of a number of functions and values and an evaluation based on observations, experience, and scientific judgment.

A large volume of sediment was taken from each location, homogenized, and split between the labs. One lab was used for chemical analysis and another lab was used for toxicity testing. Slide 7 presents the tests performed on the sediment and surface water samples. Sediment sampling was conducted in February 2007; surface water sampling was conducted in April. A GPS unit was used to navigate to locations. The surface water was collected without disturbing the sediment.

The new data were combined with the EBS data sets from 2001 and 2003 to compile a comprehensive data set. The receptors and exposure pathways for the ERA were identified and a screening process used to select chemicals of potential concern (COPC). As the risk assessment process continued the toxicity tests results were used to refine the ERA. The ecological pathways evaluated for surface soils, sediment, and surface water were direct contact and/or ingestion. For surface soils, risks to plants, invertebrates, mammals, and birds were evaluated using only the chemical data. For the wetland sediment, the chemical and toxicity data were used to evaluate the invertebrates, and the food chain model was used to evaluate risks to mammals and birds. For the surface water, the chemical and toxicity data were used to evaluate the fish and aquatic invertebrates and the food chain model was used to evaluate risks to mammals and birds. P. Call introduced Aaron Bernhardt (TtNUS ecological risk assessor) to present the conclusions of the ERA.

A. Bernhardt stated that the ERA concluded that there are potential risks to terrestrial plants and invertebrates (Slide 8). The chemical concentrations in the surface soil were compared to conservative screening benchmarks. Several chemicals were detected at concentrations greater than the screening benchmarks. The primary risk drivers in the surface soil were determined to be copper, lead, and zinc. These chemicals were detected at concentrations greater than the Basewide background concentrations and also exceeded the screening benchmarks in many samples. The greatest concentrations were generally found in the eastern portion of the Site.

The ERA concluded that there was also potential risk to sediment invertebrates because some sediment samples were acutely toxic to the invertebrate organisms (Slide 9). The chemical concentrations in those samples were correlated to the toxicity test results and the “no observed effects concentrations” (NOECs) and the “lowest observed effects concentrations” (LOECs) were developed. The NOEC is the highest concentration at which no effect is observed; the LOEC is the lowest concentration at which there is an observed effect. The concentrations of PAHs, PCBs, copper and lead were greater than LOECs in several samples and determined to be final COPCs for sediment.

The ERA concluded that there was no significant risk to fish, aquatic invertebrates, or amphibians from chemicals in surface water (Slide 10). Some chemicals did exceed the benchmarks, but the toxicity samples showed no toxicity in any of the samples. There were no final COPCs for surface water.

It was determined that there is no significant risk for mammals and birds from the chemicals in the soil, sediment or surface water based on the food chain model. There were no final COPCs for mammals and birds.

P. Call stated that the next step was the HHRA, which was just completed and submitted yesterday (January 9, 2008). The presentation is based on Navy's work since the regulators have not had an opportunity to review the document. The media of concern again were sediment, soil, and surface water and the same data set was used as in the ERA. Navy always evaluates the future resident risk as the most conservative approach. The reasonable maximum exposure (RME) only was evaluated in the HHRA. The cancer risk, non-cancer risk, and lead exposure, which is the determined through the IEUBK model (integrated exposure uptake bio-kinetic model), were evaluated as well.

The HHRA concluded that there are no anticipated adverse non-cancer human health effects (Slide 11). The lead in soil and sediment is not anticipated to have an impact on human health. The HHRA identified a potential unacceptable cancer risk to residents exposed to soils and sediments; the risk was slightly over the unacceptable cancer risk level of 1 in 10,000. The contaminants of concern for soils are PAHs, arsenic, and PCBs. The contaminants of concern for sediments were PAH, arsenic, and dieldrin (pesticide).

The wetland functions and values evaluation includes 13 common functions and values that may be found in a wetland (Slide 12). Seven of the thirteen were identified at AOC 55C. The two key functions are sediment/toxicant retention (the sponge-like absorptive characteristics of wetland) and wildlife habitat. The five minor functions identified are groundwater recharge/discharge, floodflow alteration, nutrient removal, production export, and endangered species habitat. EPA had requested an evaluation of the potential use of the wetland by the spotted turtle and Mystic Valley amphipod since both species were listed by the state as 'species of special concern.' Both species were taken off the list later in 2006. The wetland habitat was found to be suitable for the Eastern box turtle which is still on the list, but the Eastern box turtle has not been found in this area of the Base.

An electromagnetic (EM) survey was also conducted separately from the environmental investigations. An EM survey can identify the concentration of metallic debris (both surficial and buried debris) and the extent of debris can be estimated. The boundaries of the investigation areas are not set in stone, they are best estimates based on the information available. Thus the EM survey boundary was slightly different than the boundary established for the AOC 55C environmental investigation. The highest toxicity and concentrations were generally on the east side of the Site; the EM survey showed metallic debris in that area as well.

In conclusion, there is a potential risk to terrestrial plants and invertebrates (soil) and sediment invertebrates (Slide 13). There is potential cancer risk to future residents exposed to soil and sediment. However there is no ecological or human health risk identified from exposure to surface water. The results of the functions and values assessment of the wetland concluded that the wetland has been compromised by filling and dumping with metallic debris.

The next steps for AOC 55C (Slide 14) include Navy's response to comments on the Draft ERA that was submitted in October. The regulators have provided comments on the ERA and Navy plans to submit responses to comments to the regulators next week. The draft functions and values assessment will be submitted with the response to comments, and will be included in the final ERA report as an appendix. The draft HHRA was submitted on January 9, 2008. The Navy will finalize the ERA and HHRA and then a decision will be made on whether a removal action at AOC 55C is warranted.

M. Bromberg asked how deep the EM signal will go. D. Barney stated that the signal would reach approximately 4 to 8 feet below ground surface, with a maximum of about 8 feet below ground surface. M. Bromberg asked for clarification on the location of AOC 55C. D. Barney stated that it was about half way between French Stream and Route 18. M. Bromberg asked why would there be debris buried out here, was it an old landfill? D. Barney stated that the limits of the disposal area are identified but he can't say why there is debris in this area. Is the debris building material? D. Barney stated that the material observed at the site includes drums, pipes, hydraulic tubing, and exhaust manifolds. The debris is not typical of other solid waste related to building materials.

J. Cunningham asked if this wetland area included vernal pools and are the animals exposed to the toxins. Is the Site close to the area that is currently being developed and will development impact the vernal pools? S. Ivas confirmed that the Site is near a vernal pool. He stated that he has found egg masses north and west of the Site. The egg masses (frogs and salamanders) are suspended in water, and the juveniles are free swimming in the water. Since there is no ecological risk in the surface water, the developing animals would not be exposed to the toxins from this Site (e.g. in the sediment). S. Ivas stated that the planned development is not close to the vernal pool locations and will not cause the vernal pools to dry up because the development is occurring on the other side of French Stream.

H. Welch asked how all these chemicals can be detected but there is no significant risk to mammals and birds in the ERA and no risk in the HHRA. Are animals caught from the Site and tested? A. Bernhardt stated that the chemicals can be detected but the concentrations may not be high enough to cause an effect. Different organisms have different thresholds, and are evaluated in different manners to determine the risk associated with the chemicals detected. Sediment invertebrates live in the sediment so they have a greater exposure than mammals or birds. The modeling for the ERA used small mammals and birds like the shrew, mole, robin, and wren. These may be surrogate receptors (they may not live in this area)

but they represent species that do live there. The animals are not caught and tested; the risk assessment is based on estimates only. For example, the ingestion rate for birds is known, and the concentration of chemicals in the soil is known. The model estimates the amount of chemical in an earthworm and how many earthworms the bird is eating. Based on these numbers, the amount of chemicals the bird is ingesting is then estimated.

H. Welch asked if this was just a theory and that it seems there is no real proof. A. Bernhardt stated that there are not a lot of data available for risk assessment based on chemicals in tissue. The available data are based on the estimation of a mammal or a bird consuming a certain amount of the chemical to determine how much is in the tissue. R. Suggat (EPA) stated that it would be more accurate to catch, trap, and kill to test the birds, but this is rarely done due to the expense. The models are a best estimate. The available data are compiled and related to animals, for example a bird tested in a lab is related to a bird in the wild. Field data for the food web is only from earthworms, and the rest is estimated based on laboratory results. The data are evaluated one chemical at a time. It is assumed that the toxicity is cumulative; all the chemicals are added together and the run through the model. Carcinogens in humans and animals are added up as well. Non-cancer data is much more complicated. He stated that it is a complicated process.

B. Olson (EPA) stated that at other sites field studies have been performed. There have been cases when the model suggests that there is an ecological risk, but the field studies show no risk. Generally the mathematical models are much more conservative than the actually field studies. Judgments are necessary to decide if field study is needed.

A. Malewicz (MADEP) stated that when the mathematical model is used, only earthworms are caught and killed. To make a field study accurate a large number of birds would need to be caught to demonstrate the affect on the population. However, the birds should be protected; although it is not concrete science, it is the best science available. The approach being used is the conservative (worst case scenario).

H. Welch asked if blood samples could be taken without killing the animal. A. Malewicz stated that an evaluation of the whole body mass is necessary. Tissue samples would be needed and therefore killing the bird is necessary to obtain accurate data. K. Keckler commented that we don't have knowledge of how long the birds have been present at the site. A conservative assumption is made in the model that the animal spends a lot of time on the site, which may not be the case with birds caught in the field.

A. Hilbert asked about the distribution of the HHRA. The standard distribution is to the RAB town members, four local libraries, and the regulators. The document is in the libraries now. After discussion it was determined that D. Barney would provide copies of the HHRA to A. Hilbert, J. Rakers, and H. Welch.

A. Hilbert asked when the final health study, conducted by the Department of Public Health, would be available. B. Olson (EPA) stated that he contacted DPH and Suzanne Condon indicated that the study is still in peer review and is likely to be out late winter, early spring.

A question was asked whether the Middleboro study been released. B. Olson stated that parts of the study have been released. Because of the nature of the report, there is significant peer review needed before the release occurs. M. Parsons mentioned that there is not enough information on how people get MS. The DPH study involves data collection only for ALS/MS based on a request for a cancer study 10 years ago. She noted that the DPH is actually collecting the data on who has what in the area for the study, but how people contracted diseases is not being evaluated at this time.

A. Malewicz stated that the DPH study is a separate study from the environmental work at the Base and suggested calling Suzanne Condon at the Department of Health for clarification or information. B. Olson stated that it is the first step of the study, determining if there is a problem in the area. This study will present this data and then recommend what they will do if a problem is identified. M. Parsons mentioned that the data collection process takes a long time.

A question was asked about what areas are included in the study. The study should include all south shore, but was initiated for the towns around the Base. B. Olson stated that none of the regulators at the table have any involvement with the DPH study. Suzanne Condon is in charge of the office but Dr. Bob Knorr is leading the study.

M. Skelton Roberts clarified that the DPH study M. Parsons is referring to is different than the HHRA for AOC 55C that was discussed at the meeting.

3. UPDATES AND ACTION ITEMS

M. Skelton Roberts reviewed the action items listed on the Action Item Tracking List (see Attachment B) for this RAB meeting:

Investigate issues with movement of peat during development; B. Olson, EPA: There is a lot of movement of material on the runways and the area where houses are to be built in the Phase 1A area. The peat is being moved from the northern portion of the base and being stored on the southern portion of the runway. EPA has suggested that the floc in French Stream could be influenced by the presence of peat and iron rich rocks. The question was asked: if the peat is moved, will the floc problem move from one location on the base to another. B. Olson volunteered to look into this issue and toured the area with others from EPA. He confirmed that peat and soil were removed above and below the water table from

the northern portion of the runway and moved to the southern portion, predominately above the water table. The initial conclusion is that it is not likely a potential problem because there is less peat going back into the excavations than was removed in the past. The activities are still being monitored and will continue to be watched. The peat is being moved because it is not suitable material for building. B. Olson suggested that it would be worthwhile, if possible, to schedule a tour for people to be able to see what exactly is going on with development.

J. Rakers asked if the dirt was tested prior to movement. B. Olson stated that everything being done is being done with State input but he is not familiar with all the testing.

M. Parsons asked if the peat would stay there permanently. B. Olson stated that in the areas it was used to fill excavated areas, it would stay there permanently. In some areas where the peat is being placed it is actually improving the habitat. There are huge piles of peat sitting on the runway that still need to be moved, or will be used in future development. There was further discussion regarding movement of the peat as it relates to the re-development.

Provide copies of EPA health risk requested by M. Bromberg; K. Keckler, EPA: K. Keckler stated M. Bromberg was provided with the EPA health risk on November 20, 2007, and copies were available at the meeting for those interested.

M. Skelton Roberts asked each of the Leads to provide updates to the list of Update Items.

RAB Administrative Actions: D. Barney stated that the Mass Criminal Justice Training Council has moved out of the RAB meeting facility. The facility will be available for the March meeting.

MassDEP Update: D. Chaffin stated that there was nothing new to report and no new submittals were received for the Small Landfill since the last meeting. For the FFTA the DEP is currently reviewing an update/status report.

Coast Guard Update: D. Barney received no update.

IR Program Site Update: D. Barney stated that the fourth quarter RDA long-term monitoring sampling event was completed in December 2007. M. Bromberg asked if the sampling results were good or if there were concerns. D. Barney stated that the results will be evaluated over the long term. If anything anomalous is discovered, Navy would go back out and re-sample. There is a lag time between collection and reporting that Navy is trying to shorten. The Navy is looking at the data over the four quarters before conclusions are made. D. Barney stated that an inspection of the landfill cap and a wetland inspection were also completed at RDA.

D. Barney stated that the draft pre-design investigation (Quality Assurance Project Plan) for West Gate Landfill will detail additional investigations that will be performed on that site in advance of designing the cap.

A recent trip was made to the former Sewage Treatment Plant site with regulatory agencies to confirm proposed pre-design investigation sampling locations. S. Ivas asked if there would be any sampling performed in the Cedar Swamp Area. D. Barney stated that if this is the area south of the Site, then there would a number of samples taken there.

J. Rakers asked about a hot spot that she thought was near RDA. D. Barney clarified that the hot spot was in the East Mat Ditch, which is not close to the RDA. Samples were taken from the East Mat Ditch in evenly spaced intervals, and when contaminants are found with an order of magnitude difference than the ones around it, this is considered a hot spot. To address this hot spot, sediments were excavated, and confirmatory samples were taken during the excavation. The confirmatory sample results were reviewed and some areas required re-excavation. The Navy is now waiting for the second round of confirmation data.

The draft Remedial Investigation Report for Building 81 is due in the middle of February. The Building 82 RI report has been submitted and it is in the comment period. Five wells at SRA were re-sampled in December. These wells were re-sampled to better assess the location of the source area.

MCP Update: The only site left is the FFTA and the Navy is trying to resolve lingering issues. Analytical data from the first round were rejected, and samples were recollected. The test pit data were submitted to the state; it was decided that the Navy will further excavate around an area with exceedances of the criteria.

EBS Update: RODs for four AOCs are nearly finalized. The work on AOC 55C has been ongoing and reports are being developed.

Information is being evaluated from data collected over the summer at the East Mat Ditch Hot Spot. Sediment samples were collected from additional ditches in support of a close out report for the TACAN removal report. Additional sediment samples were collected in French Stream at outfall locations that were identified during the assessment of RIA 111 and RIA 112. Subsurface soil samples have been collected from storm drainage piping throughout the East and West Mat areas and up into the main storm sewer system structures. The data are being evaluated and will be included in reports for the various RIAs and AOCs that they are associated with.

The Small Landfill design contractor worked with through design and construction issues with the Navy's construction contractor. A Final Design will be submitted to the DEP hopefully within the next month.

FOST Update: FOST 3 is on the shelf pending signatures. FOST 4 is being finalized incorporating the solid waste removal actions that were completed in October/ November. D. Barney stated that completion and signature of the FOST does not mean the property will be transferred. Three elements need to be in place for that to occur. The FOST needs to be completed and signed, the conveyance mechanism needs to be completed, and the MEPA documentation needs to be completed, as well.

SSTTDC Update: New legislation has been filed to assist with the infrastructure bonding of water and waste water. The land transfer and DEA negotiations continue. The zoning survey is complete and there will be a public hearing on January 14, 2008 at 7 pm. The meeting will take place at the Board of Directors meeting room at Tri-Town Development Corporation Offices. A. Hilbert asked if people will be able to vote on the new legislation. S. Ivas responded that they will not; this is entirely new legislation. He suggested calling Tri-Town and talking to the executive director, Mr. Fancher, for more information.

Topics for future RAB Meetings

The following action items and topics were suggested for future meetings:

- Review/present Building 81 RI report
- FOST process in general with concern to Navy land.

Conclusion/Next Meeting

The meeting concluded at approximately 9:00. The next RAB meeting will be on March 13, 2008.



**Naval Air Station South Weymouth
Weymouth, MA
Restoration Advisory Board
RAB Meeting Agenda**



January 10, 2008

Conference Center on Shea Memorial Drive

7:00 PM

<i>Agenda Items</i>	<i>Item Lead</i>	<i>Projected Time</i>
1. Introduction, Review of Meeting Notes	Facilitator	7:00 - 7:15
2. AOC 55C Wetland Investigation	Navy	7:15 - 7:45
3. Updates and Action Items	Navy	7:45 - 8:15
4. Questions, Agenda Items, Next Meeting	Facilitator	8:15 - 8:30

Facilitator: Massachusetts Office of Dispute Resolution: Mary Skelton-Roberts

Restoration Advisory Board (RAB) Members:

Abington: James Lavin, (Alternate: Steve Ivas); Phil Sortin (Alternate: Beth Sortin)

Hingham: no current representation

Rockland: no current representation

Weymouth: James Cunningham (Community Co-Chair); Ken Hayes; Dan McCormack; Steve White

Navy: Dave Barney (Navy Co-Chair)

EPA: Kymberlee Keckler (Alternate: Mark DeSouza)

MA DEP: David Chaffin (Alternate: Ann Malewicz)

BRAC Cleanup Team (BCT) Points of Contact:

Navy: Dave Barney, BRAC Environmental Coordinator, Base Realignment and Closure Office, Program Management Office, Northeast (617) 753-4656

Brian Helland, Remedial Project Manager, Base Realignment and Closure Office, Program Management Office, Northeast (215) 897-4912

Email: brian.helland@navy.mil

MA DEP: David Chaffin, Environmental Engineer, Federal Facilities (617) 348-4005

Email: david.chaffin@state.ma.us

EPA: Kymberlee Keckler, Remedial Project Manager, Federal Facilities Section

(617) 918-1385 Email: keckler.kymberlee@epa.gov

NAS South Weymouth Website: <http://nas-southweymouth.navy-env.com>



Naval Air Station South Weymouth Restoration Advisory Board Action Item Tracking List



January 10, 2008 – Next RAB Meeting

<i>Action Item</i>	<i>Item Lead</i>	<i>Deadline</i>
ACTION ITEMS		
Investigate issues with movement of peat during development.	B. Olsen	Next RAB
Provide copies of EPA health risk requested by M. Bromberg	K. Keckler	Next RAB
UPDATES		
RAB Administrative Actions	D. Barney	Each RAB
MA DEP Update	D. Chaffin	Each RAB
Coast Guard Buoy Facility Update	R. Marino	Each RAB
IR Program Sites Update	D. Barney	Each RAB
MCP Release Areas Update	D. Barney	Each RAB
EBS Review Item Areas/ Various Removal Action Update	D. Barney	Each RAB
FOST/FOSL/CDR Update	D. Barney	Each RAB
SSTTDC Update	J. Lavin/ S. Ivas	Each RAB
COMPLETED ITEMS		
Review routing of piping between STP Site and French Stream (11/07)		
Provide location of Basewide Assessment floc samples (10/07)		
Provide copies of parking lot response letter (10/07)		
Provide groundwater data for transferred land (10/07)		
MDPH MS Study update (8/07)		
List of AULs; what and where they are (4/07)		
Provide vernal pools map to J. Cunningham (4/07)		
Copies of figures from Old Swamp River Study by Beta Group, Inc (03/07)		
Provide Hydrogeologic Investigation Tech Memo to D. Galluzzo (03/07)		
Distribute monthly Navy program status/administrative items update (03/07)		
Provide blueprint of old STP to H. Welch (01/07)		
Distribute monthly Navy program status/administrative items update (01/07)		
Check status of NAS South Weymouth website (01/07)		
P. Scannell to provide the reference for the 1995 EPA study to D. Barney (11/06)		
Distribute monthly Navy program status/administrative items update (11/06)		
Were runways in the transferred land tested for fuel oil and PCBs? (11/06)		
1997 DEP letter re: non-potable drinking water source areas on the Base (11/06)		
Map showing sampling locations on the Base (11/06)		
Old Swamp River additional sample collection; data available? (11/06)		
Status of release of MDPH ALS/MS study (11/06)		
Contact Dr. Knorr regarding access to NAS South Weymouth EGIS (7/06)		
Distribute monthly Navy program status/administrative items update (7/06)		
Check availability of MDPH to give a presentation on MS/ALS data (5/06)		
Distribute monthly Navy program status/administrative items update (3/06; 4/06)		
Provide copies of SSTTDC and Mayor Madden letters re: Small Landfill CAAA to M. Parsons (2/06)		
Provide information on vernal pools to M. Byram (2/06)		
Distribute monthly Navy program status/administrative items update (2/06)		
Small Landfill CAAA Update (12/05)		

Area of Concern 55C Wetland Investigation

Phoebe Call

Tetra Tech NUS

January 10, 2008

Restoration Advisory Board Meeting



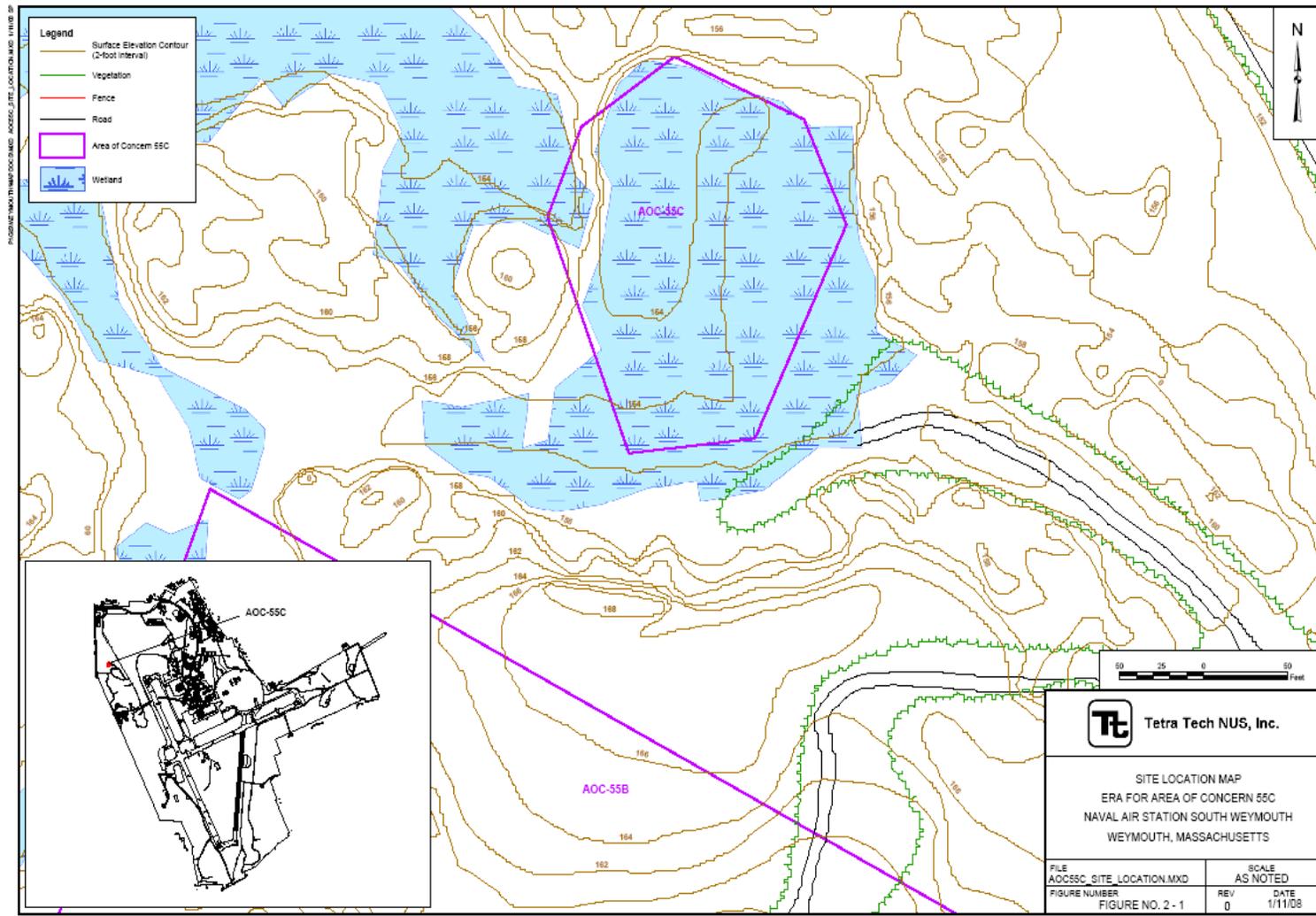
Objectives of Tonight's Presentation

- Review site history and investigations
- Describe the eco screening field program
- Summarize the 2007 results
- Summarize the Ecological and Human Health Risk Assessments
- Present Conclusions and Next Steps

AOC 55C Site Description

- Site is located in Weymouth, in northwest portion of Base.
- Most of Site is within a delineated wetland.
- Environmental investigation area approx. 0.6 acre.
- Evidence of historical disturbance by filling and dumping.
- Metallic debris observed, especially around the ponded area.
- Debris concentrated in 3 mounded areas.

AOC 55C Location



Wetland Area – April 2007



AOC 55C Ponded Area



April 25, 2007



November 15, 2007

Investigation History

- Site sampled during EBS mobilizations 2 (2001) and 3 (2002-2003).
- Surface/subsurface soil, sediment, and co-located surface water samples collected.
- Metals, pesticides, PCBs, VOCs, PAHs exceeded eco screening benchmarks.
- Navy planned a removal action.
- In June 2006, EPA suggested sediment lead analysis and sediment and surface water toxicity testing to aid in determining whether a removal action in a wetland was warranted.

Objectives of AOC 55C Wetland Investigation

- Collect sediment to better characterize concentrations of lead and other chemicals.
- Determine if sediment is acutely toxic to sediment invertebrates.
- Determine if surface water is acutely toxic to fish and aquatic invertebrates.
- Evaluate risk to small mammals and birds via a food chain pathway.
- Determine the functions and values of the wetland.

AOC 55C Field Program

Sediment sampling:

- 19 samples for quick-turn lead analysis to determine locations for full chemical analysis and toxicity testing.
- Sampled 0-2 in. below sediment surface.
- Collected 6 site and 3 reference samples; split samples for chemical and toxicity testing.
 - 6 site sample locations selected based on lead results.
 - Reference samples were collected from a nearby non-impacted wetland (between Trotter Road and AOC 55B).

AOC 55C Field Program – cont.

Surface Water sampling:

- 4 site and 1 reference grab samples; co-located with sediment samples for chemical and toxicity testing.
 - 4 site sample locations selected based on lead results in sediment samples.
 - Reference sample was collected from same nearby non-impacted wetland.

Functions and Values Assessment:

- Followed N.E. Army COE Methodology
- Qualitative assessment of 13 functions by a Professional Wetland Scientist based on field observations and scientific judgment.

AOC 55C Field Program – cont.

- Sediment sample analysis:
 - Chemical analysis: PCBs, PAHs, metals, TOC, grain size, AVS/SEM.
 - Toxicity testing: 10-day tests using amphipod (*Hylella azteca*) and midge (*Chironomus tentans*)
- Surface Water sample analysis:
 - Chemical analysis: metals (filtered/unfiltered).
 - Toxicity testing: 48-hr. tests using daphnia (*Ceriodaphnia dubia*) and fathead minnow (*Pimephales promelas*)

Sediment Sampling – Feb. 2007



Surface Water Sampling – April 2007



Ecological Risk Assessment

- Combined 2007 data with EBS datasets.
- Identified receptors and exposure pathways.
- Generally followed Streamlined Risk Assessment screening process to select chemicals of potential concern (COPCs).
- Used toxicity test results in ERA refinement step.

Eco Pathways Evaluated

Direct contact &/or ingestion of:

- Surface soil by plants, invertebrates, mammals, birds.
- Wetland sediment by invertebrates, mammals, birds.
- Surface water by fish, aquatic invertebrates, amphibians, mammals, birds.

Eco Risk Assessment Conclusions

Potential risks to terrestrial plants & invertebrates.

- Concentrations in surface soil were greater than screening benchmarks.
- Some chemicals were detected infrequently or at low concentrations, or concentrations were similar to Base background.
- Primary risk drivers were copper, lead and zinc.
 - Greater than Base background concentrations.
 - Exceeded screening benchmarks in several samples.
 - Greatest concentrations found in eastern portion of the site.

Eco Risk Assessment Conclusions (Cont.)

Potential risks to sediment invertebrates.

- Concentrations in sediment were greater than screening benchmarks.
- Some of the sediment samples were acutely toxic.
- The toxicity was correlated to chemical concentrations to develop:
 - No observed effects concentrations (NOECs).
 - Lowest observed effects concentrations (LOECs).
- Concentrations of PAHs, PCBs, copper and lead were greater than LOECs in several samples; these chemicals were retained as final COPCs.

Eco Risk Assessment Conclusions (cont.)

- No significant risks to fish, aquatic invertebrates, or amphibians from chemicals in surface water.
 - Surface water samples were not acutely toxic.
 - No final COPCs.
- No significant risks to mammals and birds from chemicals in soil, sediment, or surface water.
 - No final COPCs.

Human Health Risk Assessment

- Media of concern: sediment, soil, surface water
- Evaluated most conservative scenario:
 - Considered future residents only
 - Considered reasonable maximum exposure risks only
- Evaluated cancer risks, non-cancer health hazards, and lead exposures (IEUBK model)

Human Health Risk Assessment Conclusions

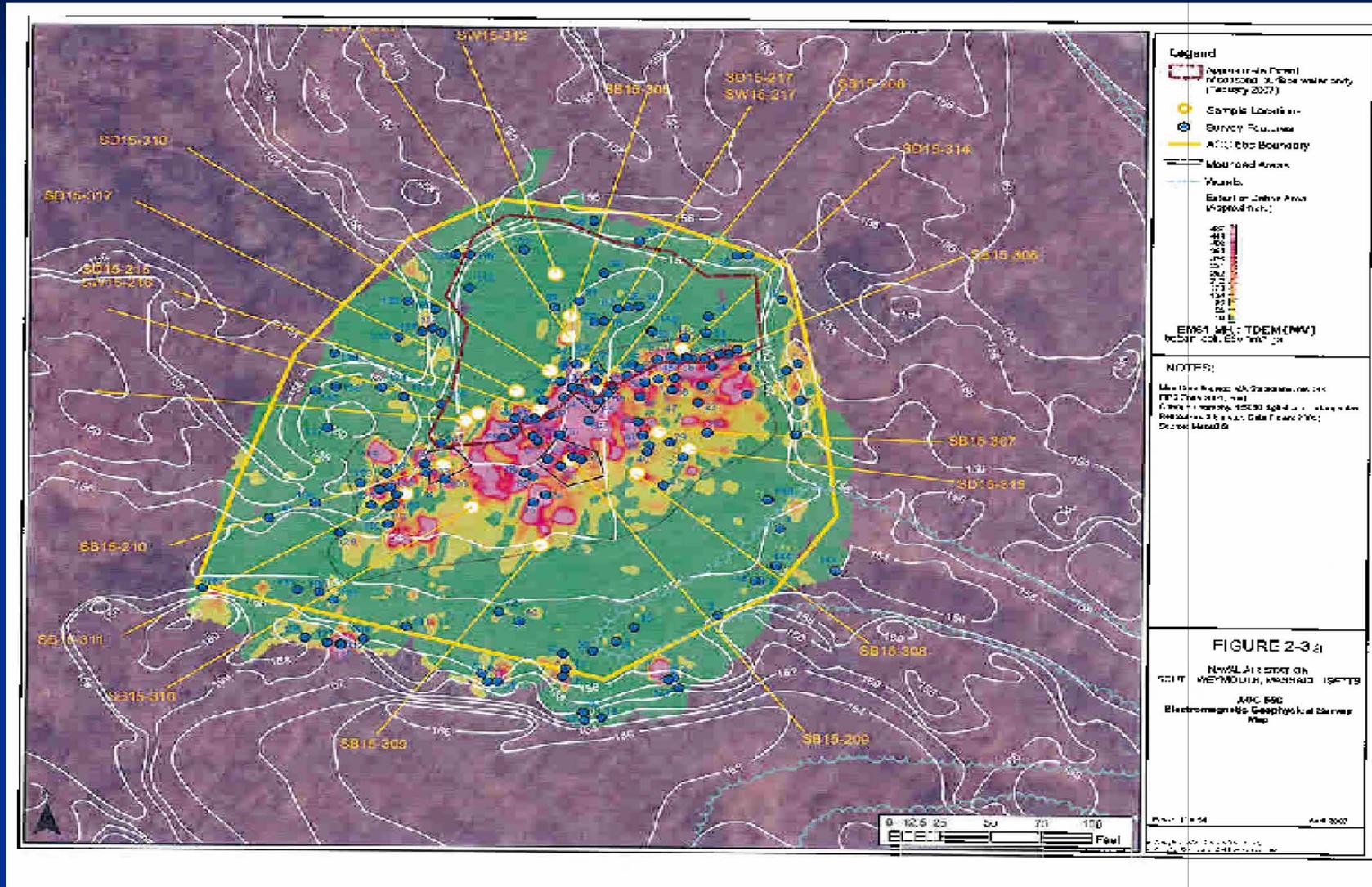
- No anticipated adverse non-cancer human health effects.
- Exposure to lead in soil and sediment did not exceed EPA's target blood-lead levels.
- Potential unacceptable cancer risk to residents exposed to soils and sediments.
- Contaminants of concern:
 - Soils - PAHs, arsenic, PCBs
 - Sediments - PAHs, arsenic, dieldrin

Wetland Functions and Values

Of the 13 common wetland functions and values, 7 were identified at AOC 55C. The results:

- Principal Functions:
 - Sediment/toxicant retention
 - Wildlife habitat
- Minor Functions:
 - Groundwater recharge/discharge
 - Floodflow alteration
 - Nutrient removal
 - Production export
 - Endangered species habitat

Electromagnetic Survey Results



Pink = greatest amount of metal debris

Conclusions

- Potential risks to terrestrial plants and invertebrates and sediment invertebrates.
- Potential cancer risks to future residents exposed to soil and sediment.
- No eco or human health risks from exposure to surface water.
- Functions and values of wetland compromised by filling and dumping.
- Metallic debris located within the wetland.

Next Steps

- Navy responding to comments on Draft ERA.
- Draft Functions and Values Assessment to be issued next week.
- Draft HHRA issued January 9, 2008.
- Navy will finalize the ERA and HHRA.
- Based on the ERA, HHRA, and electro-magnetic survey, Navy, with EPA and MassDEP input, will determine if removal action is warranted.