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NAS SOUTH WEYMOUTH
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MINUTES AND AGENDA FOR RESTORATION ADVISORY BOARD MEETING HELD 8 NOVEMBER 2007 NAS SOUTH WEYMOUTH MA

11/08/2007

NAVAL AIR STATION SOUTH WEYMOUTH

Naval Air Station
South Weymouth, MA
Restoration Advisory Board
Summary of RAB Meeting – November 8, 2007

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 October 2007 RAB meeting and asked for comments. M. Bromberg commented that in the discussion of the east branch of French Stream on page six it is not noted that DEP/EPA would investigate the problems related to taking peat from one area and moving it to another. B. Olsen stated that EPA would look into this.

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 Dave Barney to begin the presentation. D. Barney stated that field work started at the Building 82 Site in May 2006 which led to the draft Remedial Investigation (RI) Report, tonight's presentation topic. The RI Report was issued earlier in the week for review and comment; there are copies at the four local libraries. The agencies have not had an opportunity to review the document. The information presented tonight reflects the Navy's conclusions from the RI. D. Barney introduced Diane Baxter to give the presentation on the Building 82 RI Report. 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**.

D. Baxter stated the objectives of the presentation are to review the components of the RI field program, describe the nature and extent of contamination, identify potential source areas, summarize the Human Health and Ecological Risk Assessments, and present conclusions and next steps. Building 82 is located in the center of the Base, in Weymouth. The Site was a former aircraft hanger, used for airplane maintenance and storage from 1956 to base closure. Various fuels, lubricants, and solvents were used and stored in the building. The site is approximately 10 acres, which is mostly covered by the building (1.5 acres) and a concrete apron. Along the north, west, and south sides of the Site there are grass areas and drainage ditches. The drain systems built into the floor of the building were designed to carry any spills, oil, and water to storm sewers and eventually the drainage ditches.

The objectives of the RI were to collect, compile, and evaluate the data needed to fully characterize the Site. The contamination sources were identified and the nature and extent of contamination determined. In addition, a baseline HHRA and ERA were performed to identify whether the contaminants present at the Site pose a risk to human health or the environment (Slide 2). The next step following completion of the RI Report will be the Feasibility Study to evaluate remedial alternatives based on the RI risk assessments.

Four removal actions have been conducted at the Site since Base closure (Slide 3). In 1998 the floor drain systems were cleaned and plugged up so they were no longer connected to the storm sewer. Soil samples were taken from surrounding soil borings and the sludge in the drain system was sampled. Contaminants were found in both the soil and sludge. In 2000 and 2006 the floor drain systems were removed and soil samples were collected below the removed pipes. Contaminants were detected beneath the pipes. In 2002 the drainage ditch to the west and south of Building 82 was excavated to remove contaminants. This was part of the Basewide storm drain cleaning (e.g. AOC 61). The information from these removal actions was used in planning the RI field program and in the evaluations presented in the RI report.

Four investigations were conducted prior to the 2006 RI field program (Slide 4). During these investigations approximately 30 soil borings and 13 monitoring wells were installed. Soil, groundwater, surface water, and sediment samples were collected and analyzed with some contaminants found in all media. The data from these previous investigations were determined to be insufficient to fully characterize the Site, so additional sampling was required for the RI. These data were used in planning the RI field program and in writing the RI report.

The RI field program included three main components: soil, groundwater, and surface water/sediment investigations. The investigations were conducted to evaluate the presence and extent of contamination and also the migration of contamination. The soil investigation was also used to evaluate the site geology because contaminants behave differently in different types of soils. Another purpose of the groundwater

investigation was to evaluate groundwater flow. The surface water/sediment investigation helped determine if there was an interaction between groundwater and surface water at the Site.

The soil investigation consisted of surface soil sampling (manual collection) to evaluate contamination that is currently accessible to humans and animals. The subsurface investigation was divided into two parts. The initial investigation was conducted using direct push technology (DPT) drilling, which allows for collection of a high volume of samples. The DPT data were used to plan the subsequent phases of the RI and determine locations for monitoring wells. The second phase of the soil investigation included advancement of soil borings for monitoring well installation. Soil samples from both phases were collected for chemical analysis and evaluation of site geology. During monitoring well installation, the borings were advanced 5 feet into bedrock, to confirm top of bedrock and characterize the top of bedrock. Test pits were also excavated on the south side of the building to evaluate the former roadway/utility corridor. One large 100 foot trench and one smaller one to the south were excavated and samples were collected for chemical analysis.

The groundwater investigation was also conducted in two phases. During the first, or groundwater profiling, phase the same DPT equipment was used to advance borings; groundwater samples for volatile organic compounds (VOCs) analysis only were collected at different intervals in the same boring. DPT boring locations, monitoring well locations, and additional groundwater profiling locations were based on quick turn around VOC results. The second phase of the investigation was installation of monitoring wells. Eight deep overburden monitoring wells (depth to bedrock is approximately 40 feet) were installed and five shallow overburden monitoring wells were installed. Groundwater samples were collected from all previously installed and new monitoring wells, a total of 26 wells. Hydraulic conductivity testing was performed on all wells. This is used to help evaluate how readily groundwater flows in an aquifer. Groundwater levels were also collected for all monitoring wells onsite and additional offsite wells. This information helps to determine the direction of groundwater flow.

The surface water investigation included collection of samples from the drainage ditch and storm drains. Sediment samples were collected at corresponding surface water locations in the drainage ditch. Staff gauges and stream piezometers were installed in the drainage ditch. The staff gauge is a measuring device to determine the level of surface water. The stream piezometer is small PVC well that is pushed into the stream bed. The water levels between the staff gauge and the piezometer are compared to determine whether water is moving upward into the streambed or surface water is moving downward into the groundwater.

All soil, groundwater, surface water, and sediment samples were analyzed for VOCs, semi-volatile organic compounds (SVOCs), pesticides & PCBs, and metals. The laboratory results were then

validated. The data were evaluated and screened against risk-based criteria, Base background values, and drinking water standards.

The conclusions of the evaluations are presented in Slide 5. All the different categories of contaminants for the analyses listed above were detected. VOCs were detected infrequently at generally low concentrations. The majority of SVOCs detected were polycyclic aromatic hydrocarbons (PAHs) (found in heavier fuels and products of incomplete combustion of fuels). PAHs were widely detected, with their highest concentrations in exposed surface soil and sediment. PAHs were detected in lower concentrations and with fewer detections in all other media. Pesticides were detected infrequently and at low concentrations in all media. PCBs were detected infrequently in all media. The highest concentrations were in deep groundwater. Metals, which are a naturally occurring substance or a result of industrial operations, were detected frequently in all media. Some metal concentrations exceeded risk-based criteria, but the majority were below established Base background values.

The contaminants detected, their distribution, and groundwater flow direction were used to identify potential on-site, off-site, and background sources (Slide 6). On-site sources for VOCs and SVOCs are due to small releases of fuels and solvents from the floor drain system. PAHs are due to exhaust from the aircraft operating at the Site. PCBs present in groundwater are due to past leaching from the drainage ditch. PCBs were one of the contaminants that led to the removal action in the drainage ditch.

There were contaminants detected frequently in groundwater (methyl tert-butyl ether (MTBE) & PCBs) that were not found in any other media. These contaminants were also detected in upgradient wells so it was concluded that MTBE and PCBs were coming from an off-site source toward the northeast. An off – site source is suspected when there is no evidence of a source within the site boundary. TCE was detected in groundwater south of the building. Based on groundwater flow direction (from the east-southeast), it was concluded that the source of TCE was likely Building 81. The Building 81 Site is about 450 east of the Building 82 Site and TCE is a known contaminant at the Building 81 Site.

Pesticides are not naturally occurring but do have a long lifetime, and tend to be ubiquitous due to previous regular pesticide use. Since the pesticides were detected frequently and at low levels it is thought their presence is due to regular use of pesticides on and off the Base. The distribution and concentrations of metals show no evidence of an on-site source, so it is believed they are naturally occurring.

The human health risk assessment evaluates the RI data to determine if these contaminants pose a risk. The first step is to identify contaminants of potential concern (COPC) based on screening of all the data against risk screening criteria. After the screening step, COPCs were identified in all media and each category of contaminants was present in at least one media. The greatest number of COPCs was

identified in groundwater. The HHRA concluded that for the current site use scenarios there was no identified cancer or non-cancer risk above regulatory thresholds (Slide 7). For the future on-site resident potential cancer and non-cancer risk was identified. This risk was primarily based on use of groundwater for drinking water. The developer does not propose to use groundwater as drinking water, but the scenario is evaluated by Navy as the most conservative possibility for the Site. There was also an identified non-cancer risk to future construction workers, based on exposure to air and soil in a construction trench.

The results of the risk assessment are used to determine which COPCs are the primarily contributors to the risk, and are therefore contaminants of concern (COC) (Slide 8). For the future residential risk, the only media that posed a risk above regulatory thresholds was groundwater being used as drinking water. A range of contaminants, VOCs, SVOCs, pesticides, and metals, were identified as possible risk drivers. For the future construction worker in the construction trench scenario, the risk drivers were VOCs volatilizing from the groundwater into the air and metals in the soils.

The ecological risk assessment follows a similar screening process from identifying COPCs and evaluating the information to determine COCs. Contaminants from all groups were determined as potential concerns in surface soil, sediment, and surface water (only the current exposed areas are evaluated in the ERA). The conclusions from the ERA were that there was no identified terrestrial or aquatic risk (Slide 9).

The Navy's overall conclusions are that contaminants were detected in all media, but they were generally detected at low concentrations and infrequently. There was a more widespread presence of PAHs, especially in exposed surface soil and sediment, and metals in all media. Potential risks to human health were identified, which means that remedial alternatives need to be evaluated. No ecological risks were identified. Due to the fact that human health risks were identified, a feasibility study is needed to evaluate an appropriate range of remedial alternatives so that people are not at risk from the Site (Slide 10).

The next steps include comments within the next month from EPA and DEP. Then the document will be revised to address comments. The final RI report is expected in April 2008. Following that a draft feasibility study is expected to be available for review in May 2008.

P. Scannell asked a question about the lack of definite sources, and could there possibly be sources that are materials that were buried. D. Baxter stated this was not believed to be the case since concentrations are not that high, and they do not indicate an obvious source. The investigation was thorough, and the samples were located with the intent of providing a full characterization of the Site. B. Olsen stated that he agreed that the Building 82 field program did a good job at determining if sources are present.

M. Bromberg asked about TCE and the source being 450 feet east of Building 82. D. Baxter stated that TCE could move 450 feet from Building 81. TCE is a known contaminant at Building 81 and groundwater flow is toward Building 82 from that direction. There is no current data from the wells located between Building 81 and Building 82, but TCE was not detected further west of Building 82.

M. Parsons asked if Building 81 was where In-Situ Chemical Oxidation (ISCO) was performed. D. Baxter stated that ISCO treatments at Building 81 ended in 2001; they were effective on BTEX compounds but did not have the same effect on chlorinated VOCs, so there are still high levels of chlorinated VOCs at that Site.

M. Bromberg asked if there would be an extraction system at Building 81. D. Baxter stated that remedial alternatives would be looked at in the feasibility study.

M. Byram asked about potential source areas, how PCBs got into the ditch. D. Baxter stated that the floor drains on the Base discharged ultimately into the basewide storm drainage system. The source of PCBs and other contaminants is due to the different materials that were spilled and discharged into the system over time.

M. Byram asked about pesticides being a background source on and off the Base. D. Baxter stated that background levels of pesticides are not naturally occurring. Due to the fact that pesticides have been so widely used and the fact they take a long time to break down, pesticides are present in soils everywhere.

M. Byram asked how the pesticide data was evaluated to determine the levels were a background source. D. Baxter stated that the data were evaluated and there was no pattern to the detections. Low concentrations of different pesticides were detected in different locations on the Base. The data were screened against EPA risk screening levels and the concentrations were lower then these screening levels.

D. Galluzzo asked about the design of the floor drainage system. D. Baxter explained how the gas trap manholes (chambered manhole) worked. Water was washed through the drainage system but Navy did not want oil to be included in the drainage to the sewer. The oil would float on the water/liquid. The discharge pipe was placed within the water, below the floating contaminants. So any contaminants dissolved in the water would be discharged to the storm sewer but any separate phase fluids would be excluded. The soluble contaminants that remained in the water and were discharged into the drainage system are not contaminants of concern on this Site, due to previous removal actions.

D. Galluzzo asked about the 2004 DEP and EPA concerns about the Base. Why does there seem to be less contamination now then implied in previously studies? B. Olson recalled saying within the last few

years that the Base was not a very contaminated site in comparison to other New England Superfund sites and that the EPA does not consider the Base a really bad site.

K. Keckler reminded everyone to keep in mind that a number of removal actions have been done prior to the RI, so contamination levels should be lower than previously stated.

P. Scannell asked about records on mosquito management. D. Barney stated that pesticides were used. Aerial application was used and different pesticides were applied over the years. D. Baxter noted that the pesticides were used as intended but resulted in residual pesticides. The levels of pesticides at the Site are within acceptable risk criteria.

T. Pries asked if there are records of how materials used in Building 82 were disposed. D. Barney stated that there were no records of the amount of materials used from approximately the 1950's (when the hanger was built) to the 1980's. She then asked if there could have been errant disposal areas around the Site. D. Baxter stated that the building is surrounded by a large concrete apron, 250-300 feet wide. The building apron was inspected and found to be in good condition. There is very little exposed area where materials could be spilled or buried on the Site. There is some documentation of spills on the apron but the data does not show contamination related to these events. B. Olsen stated that the best way to find undocumented spills or burial is in groundwater and you would be able to trace the contamination back to a source.

S. White asked about what happens if something is found in the future. This question was added to the parking lot.

M. Byram asked if the characteristics of bedrock (fractures, depth to bedrock, etc.) where looked at in relation to groundwater movement. D. Baxter stated the bedrock was cored so that the information gathered could be used to map the bedrock surface to help understand how groundwater flows in the overburden, as well as the bedrock. Since there is no significant contamination in deep overburden, contamination is not expected in the bedrock. Shallow groundwater at the Site was defined as groundwater to a depth of approximately 20 feet. Deep groundwater at the Site was defined as the zone at a depth of approximately 20 to 40 feet. PCBs were found in the deep groundwater. Groundwater flow on the Site is complex and influenced by the storm drains on the Site. PCBs in the groundwater were located in two wells on the west side of the storm drains and two wells on the east side of the storm drains. Since groundwater flow is converging from both the east and west sides it was determined that there were two different sources.

P. Scannell asked about communication with the site manager/developer and letting them know the findings of the investigation. D. Baxter stated that copies of the RI Report were provided to Navy's standard distribution list, which includes the developer.

M. Parsons asked about if "sinkers" (poly-chlorinated hydrocarbons, i.e. TCE) were found. D. Baxter stated that the highest concentration of TCE was in deep groundwater, once again most likely due to Building 81. It is thought that TCE is moving into shallow groundwater at the southwest end of Building 82, due to an upward gradient caused by the drainage ditches. There is no evidence of DNAPL, or dense non-aqueous phase liquids, on the Site.

S. White asked if all storm sewers were interconnected. D. Baxter stated that all were connected that discharged out near the TACAN area. S. White asked if concentrations were higher at gas trap manholes (GTM) and could contaminants have migrated from there? D. Baxter stated that the highest concentrations were at GTM-2. When the sludge from the GTM was analyzed, one of the main constituents from GTM-2 was 1,1,1, TCA. The only detections of 1,1,1, TCA on the Site were in the soils and groundwater immediately surrounding GTM-2. There were several other contaminants found in GTM-2 and several groundwater and soil samples were collected from this area. There was very little remaining contamination in this area, though. It is thought that instead of migrating widely across the Site, the contaminants got into the bedding material of the storm sewer or went directly into the storm sewer and were discharged into the drainage ditch.

3. UPDATES AND ACTION ITEMS

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

Review routing of piping between STP Site and French Stream: D. Barney checked the drawings and found that from 1941 to 1953 the STP drained down through an old line under Building 82 and discharged to the TACAN area. When Building 82 was constructed the STP discharge was rerouted to the end of the runway and ultimately into French Stream. There are samples from the outfall to French Stream and the samples will be used in RIA 62.

Provide copies of EPA health risk requested by M. Bromberg: K. Keckler stated that the risk evaluation is delayed and that EPA hopes to send it to M. Bromberg this month and will have copies at the next RAB.

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

RAB Administrative Actions: D. Barney stated he had a card for people to sign that would be sent to Patty Whittemore.

MassDEP Update: D. Chaffin stated there was no update on the FFTA or the Small Landfill.

Coast Guard Update: D. Barney received no update.

IR Program Site Update: D. Barney stated the West Gate Landfill pre-design work plan is being developed, and this could be a January RAB topic.

The pre-design investigation for the STP is being finalized and the ROD for that Site is also under review. The ROD is in line with the PDI which suggests removal and off-site recycling and disposal of contaminated material.

The Building 81 draft report is expected in the January/February time frame.

The SRA RI data are being evaluated and discussions are being held to determine a need for more work to complete the RI.

The Small Landfill corrective action design (CAD) is in internal review; Navy hopes to have it submitted to the DEP by Thanksgiving. The CAD is for the closure and cap of the Small Landfill
MCP Update: The RAM Completion Report and a RAO for the FFTA are both expected soon. Additional information has been collected to support closure of the FFTA.

EBS Update: The East Mat Ditch hotspot removal was based on results of 28-30 additional samples taken from around the East Mat Ditch. These samples indicated one area that required remediation. About 125 linear feet of sediment was excavated down to approximately 1 foot. Confirmatory samples were collected and Navy is waiting for the results.

RODs for four AOCs are being completed.

A wetland inspection for AOC 8 and the RDA will be conducted during the week of November 12.

The Navy is anticipating a report from their consultant with respect to additional data that was collected in the areas of RIA 111/112.

FOST Update: No update.

SSTTDC Update: The negotiations continue between LNR and the Navy. The final punch list has been completed on the Shea entrance. Construction on Memorial Drive is ongoing. There is a new business center behind the SSTTDC building.

Other questions/comments:

M. Bromberg asked that Building 82 could be discussed again at a RAB meeting once DEP and EPA had a chance to review the information.

Topics for future RAB Meetings

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

- Review of Building 82 once DEP and EPA have reviewed the report.

Conclusion/Next Meeting

The meeting concluded at approximately 9:15. The next RAB meeting will be on January 10, 2008.

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

November 8, 2007 **Conference Center on Shea Memorial Drive** **7:00 PM**

Agenda Items	*Item Lead*	*Projected Time*
1. Introduction, Review of Meeting Notes	**Facilitator**	**7:00 - 7:15**
2. Building 82 Remedial 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

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

November 8, 2007 – Next RAB Meeting

Action Item	Item Lead	Deadline
ACTION ITEMS		
Review routing of piping between STP Site and French Stream	D. Barney	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		
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)		
Distribute monthly Navy program status/administrative items update (12/05)		

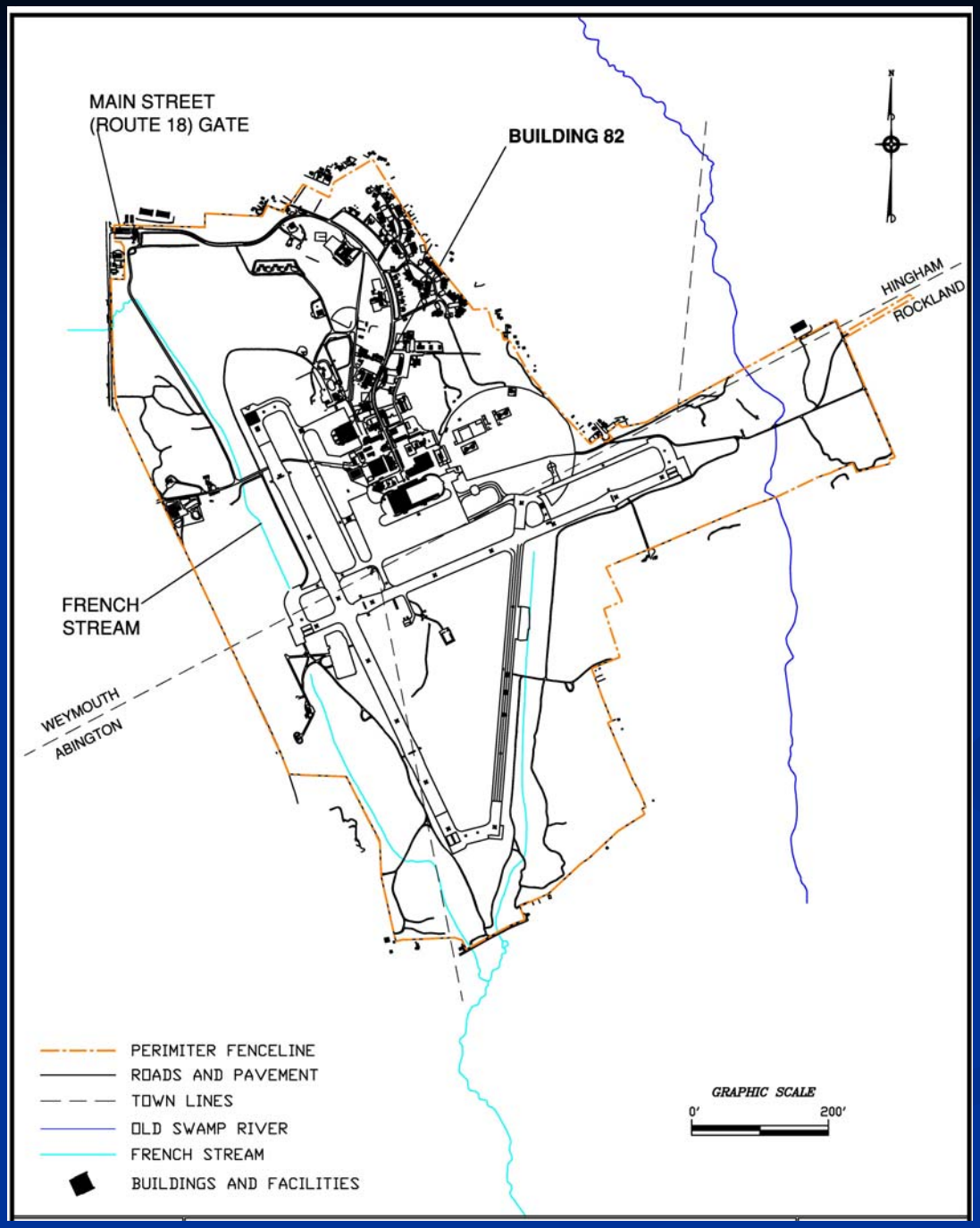
Building 82
Remedial Investigation

Diane Baxter
Tetra Tech NUS

November 8, 2007
Restoration Advisory Board Meeting

Objectives of Tonight's Presentation

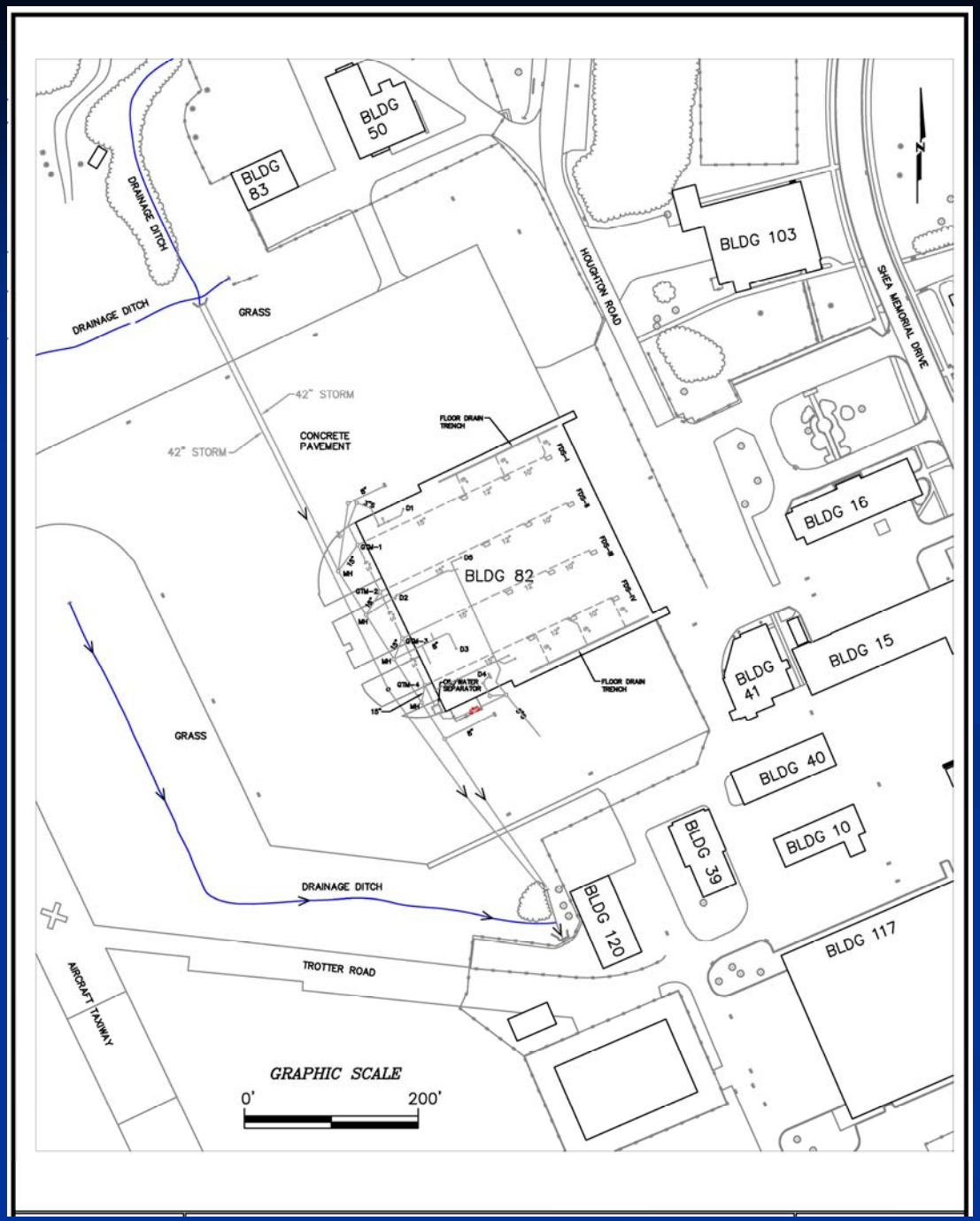
- Review the components of the RI field program
- Describe the nature and extent of contamination
- Identify potential source areas
- Summarize the Human Health and Ecological Risk Assessments
- Present Conclusions and Next Steps



Location of Building 82

Building 82 Background

- Former Aircraft Hanger
  - Used for airplane maintenance and storage
- 10 Acre Site – mostly building & concrete; grass and drainage ditches on N, W, S sides
- Large building (~1.5 Acre) – Hangar area & shop areas for industrial operations
- Floor Drain System in building carried waste fluids to storm sewer that discharged to drainage ditch south of building



Building 82 Site Schematic

Objectives of Remedial Investigation

- Collect, compile, and evaluate data needed to fully characterize the Site
- Identify the source(s) of contamination
- Determine the nature and extent of contamination
- Evaluate contaminant migration on Site
- Identify potential human health and ecological risks posed by Site-related contaminants

Removal Actions

- 1998 - Cleaning and decommissioning of floor drain systems and structures, soil and sludge sampling.
  - VOCs, metals and PAHs in sludge from gas trap manholes.
- 2000 & 2006 – Removal of floor drain systems; soil sampling below removed drainage pipes.
  - Metals and PAHs in soil beneath the drains.
- 2002 – Excavation of sediment from drainage ditch west and south of Building 82 (part of TACAN work).
  - Post-excavation samples showed ditch was clean.

Information and data from these removal actions were used in planning the RI field program and also used in the RI Report.

Previous Investigations

- Four limited investigations conducted at Site from 1999 through 2003
  - Soil borings and monitoring wells installed
  - Soil, groundwater, surface water, and sediment samples collected and analyzed
- Evaluated data from previous investigations
  - ➔ Additional data were needed to completely characterize the Site, so RI field investigations were needed.
  - ➔ Information and data from these previous investigations were used in planning the RI field program and used in the RI Report.

Building 82 RI Field Program

- Soil Investigation - to define contaminant nature, extent & migration and evaluate geology
- Groundwater Investigation - to define the contaminant nature, extent & migration; and evaluate groundwater flow
- Surface Water/Sediment Investigation - to define contaminant nature and extent and assess migration pathways to surface water/sediment

Soil Investigation

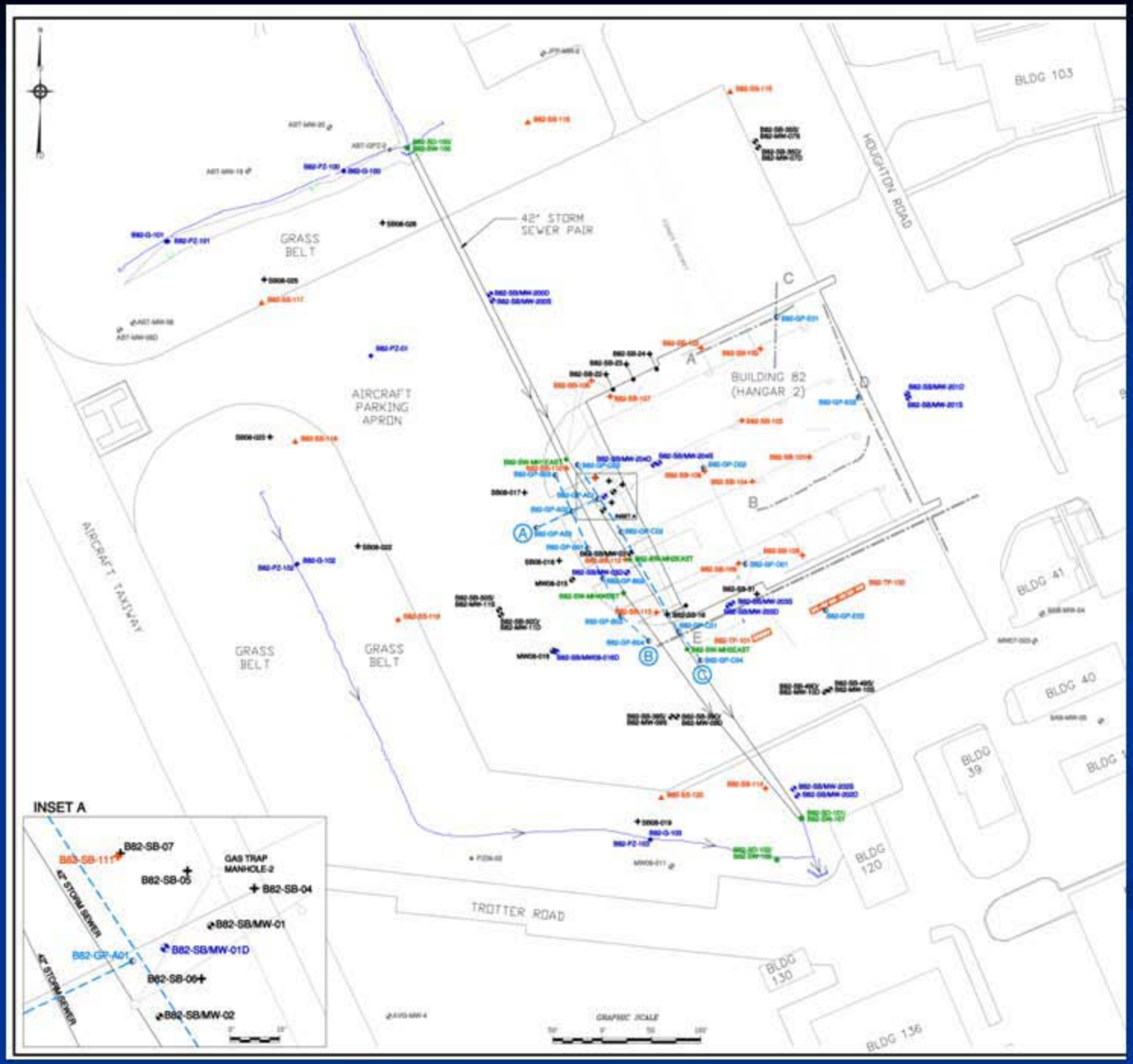
- Surface Soil Sampling and Analysis
- Subsurface Soil Borings
  - Initial DPT borings to evaluate potential source areas and determine locations for groundwater investigation
  - Borings for monitoring well installation
  - Samples for chemical analysis & evaluation of geology
  - Coring to confirm bedrock depth and characteristics
- Test Pits
  - Evaluate former roadway/utility corridor
  - Samples for chemical analysis

Groundwater Investigation

- Groundwater Profiling
  - Rapid sampling and analysis of gw from many points to find contamination and determine best locations for permanent wells
- Well Installation and Development
- Groundwater Sampling and Analysis
- Hydraulic Conductivity Testing
- Water Level Measurements

Surface Water/Sediment Investigation

- Surface Water Sampling and Analysis
  - Drainage ditches
  - Storm drains that cross the Site
- Sediment Sampling And Analysis
  - Drainage ditches
- Staff gauge/stream piezometer installation
  - To evaluate groundwater/surface water interaction


BLDG 103
HOUGHTON ROAD
42" STORM SEWER PAIR
GRASS BELT
AIRCRAFT PARKING APRON
BUILDING 82 (HANGAR 2)
AIRCRAFT TAXIWAY
GRASS BELT
GRASS BELT
BLDG 41
BLDG 40
BLDG 39
BLDG 120
BLDG 130
BLDG 136
TROTTER ROAD
INSET A
B82-SB-07
B82-SB-111
B82-SB-05
GAS TRAP MANHOLE-2
B82-SB-04
B82-SB/MW-01
B82-GP-A01
B82-SB/MW-01D
B82-SB-06
B82-SB/MW-02
42" STORM SEWER
42" STORM SEWER
GRAPHIC SCALE

DPT Soil Boring on Apron

DPT Soil Boring in Hangar

Overburden Drilling on Apron

Drilling in Hangar

Test Pit Excavation

Test Pit Excavation

Data Analyses and Evaluation

- Analyzed surface and subsurface soil, groundwater, surface water, sediment samples for: VOCs, SVOCs, pesticides & PCBs & metals.
- Validated all data.
- Evaluated and screened data against risk-based screening criteria, Base background values, drinking water MCLs.

Contaminant Presence

- VOCS – Infrequent detections at generally low concentrations in soil and groundwater, even fewer detections in surface water.
- SVOCs (mainly PAHs) – Widely detected and at highest concentrations in exposed surface soil and sediment, fewer detections in surface water and groundwater.
- Pesticides – Generally infrequent detections at low concentrations in all media.
- PCBs – Infrequent detections in all media, highest concentrations in deep groundwater.
- Metals – Frequent detections in all media, most below Base background values.

Potential Source Areas

- On-Site Sources
  - VOCs, SVOCs – release of fuels and solvents from floor drain system (GTM-2 & Drain D5)
  - PAHs – exhaust from aircraft operating at Site
  - PCBs in GW – past leaching from drainage ditch
- Off-Site Sources
  - Northeast of Site – MTBE & PCBs in groundwater
  - East-Southeast of Site (Building 81?) – TCE in groundwater
- Background Sources
  - Pesticides – regular use of pesticides on & off Base
  - Metals – naturally occurring

Human Health Risk Assessment COPCs

- Surface Soil: 5 SVOCs, 3 metals
- Subsurface Soil: 6 SVOCs, 1 PCB, 5 metals
- Groundwater: 8 VOCs, 4 SVOCs, 2 pesticides, 2 PCBs, 3 metals
- Surface Water: 2 metals
- Sediment: 3 metals, 5 SVOCs, 1 PCB
- Indoor air: 4 VOCs, 1 SVOC, 1 metal

Human Health Risk Assessment Conclusions

Receptors Evaluated	Did risks exceed regulatory thresholds?	
	Cancer Risks	Non-Cancer Risks
Current Site Use Scenarios		
Maintenance Worker	No	No
Trespasser	No	No
Future Site Use Scenarios		
On-site Resident	Yes	Yes
Trespasser	No	No
Recreational Visitors	No	No
Construction Worker	No	Yes
Commercial/Industrial Worker	No	No

Human Health Risk Assessment COCs

Future Resident - Groundwater as drinking water

- VOCs: TCE, benzene
- SVOCs: n-nitroso-di-n-propylamine
- Pesticides/PCBs: heptachlor epoxide, gamma chlordane, total PCBs
- Metals: arsenic, manganese, vanadium

Future Construction Worker – Trench air and soil

- SVOCs: naphthalene (volatilizing into air from groundwater in trench)
- Metals: manganese

Ecological Risk Assessment COPCs

- Surface Soil: 2 VOCs, 21 SVOCs, 8 pesticides, 1 PCB, 8 metals
- Sediment : 1 VOC, 22 SVOCs, 4 pesticides, 1 PCB, 6 metals
- Surface Water : 3 VOCs, 2 SVOCs, 6 metals

Ecological Risk Assessment Conclusions

Receptors Evaluated	Did risks exceed regulatory thresholds?
Terrestrial Receptors	
Invertebrates	No
Plants	No
Wildlife	No
Aquatic Receptors (in sediment)	
Invertebrates	No
Aquatic Organisms	No

Conclusions

- Contaminants detected in all media, but generally detected infrequently and at low concentrations
- More widespread presence of PAHs in exposed surface soil and sediment and metals in all media
- Potential risks to human health mainly from
  - Residential use of groundwater as drinking water
  - Future construction worker exposure during excavation
- No ecological impacts.
- Feasibility study needed to evaluate remedial alternatives.

Next Steps

- Draft RI Report issued November 6, 2007
- EPA and MassDEP beginning review of the document
- Final RI Report scheduled for April 2008
- Draft Feasibility Study expected in May 2008