



Brown & Root Environmental

A Division of Halliburton NUS Corporation

Foster Plaza VII
661 Andersen Drive
Pittsburgh, PA 15220-2745

(412) 921-7090
FAX: (412) 921-4040

C-49-5-6-078

**MINUTES OF RESTORATION ADVISORY BOARD (RAB)
MEETING
FEBRUARY 21, 1996**

To: NSB-NLON Public Meeting Attendees and RAB Members (See attached Distribution list)

From: Matt Cochran of Brown and Root Environmental *MC*

Subject: RAB and Public Meeting Minutes - February 21, 1996
Installation Restoration Program
Naval Subbase - New London (NSB-NLON)
Groton, Connecticut

Attendees of the meeting

| | |
|---------------------|---------------------|
| - Andy Stackpole | NSB-NLON |
| - Robert Jones | COMSUBGRUTWO |
| - Patti Lynne Tyler | USEPA |
| - Mark Lewis | CTDEP |
| - Susan Orrill | RAB Co-Chair Member |
| - Felix Prokop III | RAB Member Designee |
| - Norman Richards | RAB Member |
| - Harry Watson | RAB Member |
| - Deborah Downie | RAB Member |
| - Bert Pearson | Groton Resident |
| - Matt Cochran | B&R |

*MARK EVANS
JEFF DALL
KIMBERLEE KECKLER
DICK CONANT*

The attendance sheet is included as Attachment 1.

Agenda

The agenda for the meeting was as follows.

1. Welcome and Introduction
2. Review of November 8, 1995 Meeting Minutes
3. Lower Subbase RI
4. Newly Installed Above Ground Storage Tanks



5. Phase II RI Update
6. Groundwater Flow Determinations
7. Community Participation/RAB Selection
8. Future Meeting Date/Time

Welcome and Introduction

Andy Stackpole opened the meeting at 7:15 and welcomed all attendees.

Review of November 8, 1995, Meeting Minutes

The November meeting minutes were reviewed and accepted with no comments or revisions.

Lower Subbase RI

Andy indicated that a RI is planned for the Lower Subbase for this year. The RI will focus on an identification of the Lower Subbase Sites and will focus on chemicals of concern such as lead and semivolatile organic compounds.

Question from Susan Orrill: What is the purpose of the sorbent booms present near the Nautilus Museum?

Response from Andy Stackpole: The booms were placed around a storm outfall to capture an oil sheen noticed in the discharge.

Newly Installed Above Ground Storage Tanks

Andy indicated that 2 above ground oil storage tanks have been recently installed at the east end of the Ball Fields to replace the recently removed underground oil storage tanks.

Phase II RI Update

Matt Cochran provided an update on the Phase II RI. The update focused on the Ecological Risk Assessment performed on the Thames River and the Area A Downstream/OBDA. A copy of the presentation materials are included in Attachment 2.

Question from Harry Watson: Were the deployed mussels suspended in the water column or were the cages allowed to rest on the sediment?



Response from Matt Cochran: I do not know at this time but will check on this. NOTE: After discussion with of the project biologist, it was determined that the cages were suspended in the water column during the deployed mussel investigation.

Question from Norm Richards: Where were the reference mussels obtained?

Response from Matt Cochran: I do not know at this time but will check on this. NOTE: After discussion with the project biologist, it was determined that reference mussels were obtained from Great Bay, New Hampshire.

Question from Norm Richards: Was it determined that the Raccoon is at risk to contaminants present in the Area A Downstream water courses?

Response from Matt Cochran: The risk assessment concluded that the Raccoon could potentially be at risk.

Question from Harry Watson: Are freshwater mussels present in the Area A Downstream water courses?

Response from Matt Cochran: No freshwater mussels have been observed in the Area A Downstream water courses.

Groundwater Flow Determinations

Matt Cochran provided an overview of the approach for determining groundwater flow directions. A copy of the presentation materials are included in Attachment 3.

Community Participation/RAB Selection

There was a motion to keep Susan Orrill as the Co - Chair member. Andy Stackpole indicated that he was sending out questionnaires to other individuals to solicit potential interest in additional RAB members.

Future Meeting Date/Time

The date for the next RAB meeting was scheduled for May 15, 1996 at 7:00 in the Shepard of the Sea Chapel.

Meeting Adjourned

The meeting was adjourned at 8:30.

ATTACHMENT 1

ATTACHMENT 2

RESTORATION ADVISORY BOARD MEETING

INSTALLATION RESTORATION PROGRAM

**NAVAL SUBMARINE BASE - NEW LONDON
GROTON, CONNECTICUT**

FEBRUARY 21, 1996

**PHASE II RI BASEWIDE ECOLOGICAL RISK
ASSESSMENT
DOWNSTREAM / OBDA AND THAMES RIVER**

OBJECTIVE

APPROACH / ASSUMPTIONS

TYPES OF DATA COLLECTED / EVALUATED

RESULTS / CONCLUSIONS

OBJECTIVE

DOWNSTREAM / OBDA

- **IMPACTS TO AQUATIC BIOTA (FISH, AQUATIC INSECTS), TERRESTRIAL VEGETATION (HARDWOODS, SHRUBS) AND TERRESTRIAL VERTEBRATES (RACCOON, OWL), AND TERRESTRIAL INVERTEBRATES (EARTHWORMS, BEETLES)**

THAMES RIVER

- **IMPACTS TO AQUATIC BIOTA (FISH, SHELLFISH) AND WATERFOWL (COMORANTS, HERRING GULL)**
-

APPROACH / ASSUMPTIONS

GENERAL APPROACH

- **LINK ECOLOGICAL IMPACTS TO KNOWN CHEMICAL CONCENTRATIONS AT THE SITE (DETERMINED VIA CALCULATIONS / COMPARISONS)**

ASSUMPTIONS (DELIBERATELY CONSERVATIVE)

- **BIOLOGICAL ENDPOINTS TO PROTECT SENSITIVE SPECIES**
 - **MAXIMUM EXPOSURE POINT CONCENTRATIONS**
 - **INPUT PARAMETERS CONSERVATIVE IN CALCULATIONS**
 - **RECEPTORS FEED EXCLUSIVELY AT SITE**
 - **RECEPTORS ALWAYS IN CONTACT WITH CONTAMINATED MEDIA**
 - **ALL CONTAMINANTS ABSORBED**
-

TYPES OF DATA COLLECTED / EVALUATED

AREA A DOWNSTREAM WATERCOURSES / OBDA

- **SURFACE WATER / SEDIMENT / SOIL CHEMICAL ANALYSES**
- **MACROINVERTEBRATE TAXONOMY**
- **EARTHWORM BIOACCUMULATION STUDIES IN SOIL**
- **FROG AND CATBIRD TISSUE ANALYSES**
- **SEDIMENT TOXICITY TESTS**
- **SOIL INVERTEBRATE SURVEYS**

THAMES RIVER

- **SURFACE WATER / SEDIMENT CHEMICAL ANALYSES AND SEM/AVS**
 - **MACRO INVERTEBRATE TAXONOMY**
 - **BIOACCUMULATION SHELLFISH STUDIES**
 - **SHELLFISH TISSUE ANALYSES**
 - **SEDIMENT TOXICITY TESTS**
-

AREA A DOWNSTREAM WATERCOURSES / OBDA RESULTS AND CONCLUSIONS

RESULTS

- **SURFACE WATER / SEDIMENT CONTAMINATED**
- **MACROINVERTEBRATE POPULATIONS DEPRESSED**
- **SEDIMENT POSE RISK TO BENTHIC MACROINVERTEBRATES**
- **EARTHWORMS BIOACCUMULATE CONTAMINANTS**
- **CATBIRDS UNAFFECTED**
- **SEDIMENTS TOXIC TO FROG EMBRYO (2 LOCS)**
- **TERRESTRIAL VEGETATION AND SOIL INVERTEBRATES NOT IMPACTED**
- **TERESTRIAL VERTEBRATES INDIRECTLY AT RISK THROUGH FOOD CHAIN**

CONCLUSIONS

- **AQUATIC BIOTA (BENTHIC MACROINVERTEBRATES) IMPACTED**
 - **TERRESTRIAL VERTEBRATES AT RISK**
-

THAMES RIVER RESULTS AND CONCLUSIONS

RESULTS

- **ELEVATED SEDIMENT CONCENTRATIONS**
- **SEM/AVS INDICATE METALS NOT BIO AVAILABLE**
- **NO RELATIONSHIP BETWEEN SEDIMENTS AND MACROINVERTEBRATE COMMUNITY**
- **NO RELATIONSHIP BETWEEN SEDIMENTS AND SHELLFISH COMMUNITY**
- **SEDIMENT TOXICITY AT ONE LOCATION**

CONCLUSIONS

- **LITTLE RISK ASSOCIATED WITH RIVER FROM NSB-NLON**
-

ATTACHMENT 3

Figure 1

| | | | | |
|--------------------------|----------|--------------------------------|----------|----------------------|
| C | = | A | - | B |
| Gr undwater El vation | = | Gr und Surface Elevation | - | Depth To Water |
| 80 | = | 100 | - | 20 |

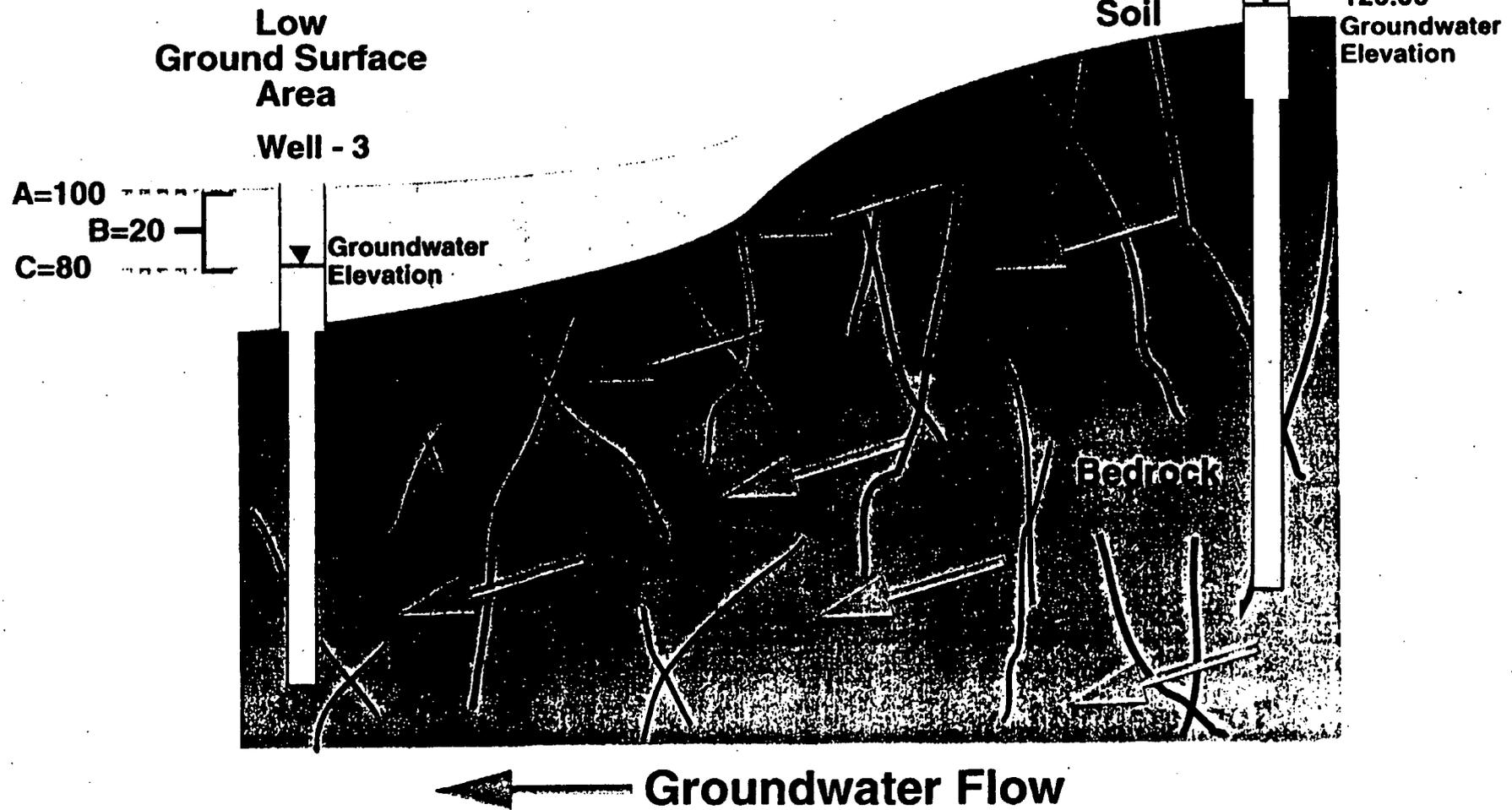


Figure 2

