

D R A F T
MINUTES OF TECHNICAL REVIEW COMMITTEE (TRC)
AND PUBLIC MEETING
MAY 17, 1994

TO: NSB-NLON TRC Members

FROM: Barry Giroux and Paul Burgess
Atlantic Environmental Services, Inc.

DATE: June 7, 1994

RE: Technical Review Committee and Public Meeting - May 17, 1994
Installation Restoration Study
Naval Submarine Base - New London
Groton, Connecticut
N62472-88-C1294
Atlantic Project No.: 1256-33-01

ATTENDEES:

The following people attended the meeting.

Karen Smecker	(Halliburton, NUS)
Matt Cochran	(Halliburton, NUS)
Stan Conti	(Halliburton, NUS)
Susan Pezzullo	(Ledyard Resident)
Paul Burgess	(Atlantic Environmental Services, Inc.)
Barry Giroux	(Atlantic Environmental Services, Inc.)
Erik Ness	(Atlantic Environmental Services, Inc.)
Richard Conant	(Subbase NLON)
*Suzanne Berkman	(Subbase NLON)
Mark Leone	(CTDEP)
Christine Williams	(U.S. EPA)
Mark Leipert	(Northern Division Naval Facilities Engin. Command)
David Miu	(Northern Division Naval Facilities Engin. Command)
Mark Evans	(Northern Division Naval Facilities Engin. Command)
Simeon Hahn	(Northern Division Naval Facilities Engin. Command)
Charles Menzie	(Menzie-Cura & Associates, Inc.)
Deborah Jones	(Town of Groton)
Dale Weiss	(TRC Environmental Corporation)
Lieutenant Rios	(ROICC New London)
William Mansfield	(Subbase NLON)
Robert Jones	(Subbase NLON)
Lieutenant Jim Brooks	(Subbase NLON)
Stacy Gent	(Subbase NLON)
Ens. S.J. McKillop	(Subbase NLON)
Mary Jane Engle, MPH	(Ledge Light Health District)
Robert Fromer	(LEAF)

*Suzanne Berkman opened the meeting and welcomed all attendees.

Review of February 3, 1994 TRC Minutes

Ms. Berkman reviewed the minutes from the previous TRC meeting. The following is a list of points regarding Old Business that will be further discussed as part of this TRC meeting's agenda.

- She explained that Lt. Rios would give a presentation on the Building 31 Removal Action, which was discussed at the previous TRC meeting.
- She stated that, at the last meeting, a discussion of the Interim Remedial Actions (IRAs) was given and, for the present meeting, Barry Giroux (Atlantic) would give an update of the projects.
- She mentioned that a previous discussion of the ecological sampling used to design the IRAs was presented and that more data are now available and could be reviewed and further discussed.
- She asked if there were any questions regarding the minutes from the previous meeting.

There were no questions regarding the minutes.

Sue Pezzullo indicated that she did not receive an announcement regarding the date of the last TRC. However, she indicated that she had reviewed copies of the minutes.

Ms. Berkman indicated that she is on the mailing list and was unsure why the oversight occurred.

Ms. Berkman also announced that there would be two additional presentations which were not on the agenda. The first would be given by Lt. Rios regarding the Building 31 Removal Action, and the second would be given by Richard Conant regarding a new concept for the TRC which has been mandated by the Navy. She indicated that, after these presentations, the schedule would follow the agenda presented herein:

- 1) A presentation of the IRA projects (Atlantic).
- 2) An update on the Residential Wells Project (Atlantic).
- 3) Summary of analytical data from field investigation at IRA sites (Halliburton NUS).
- 4) Presentation on Ecological Sampling Project update (Menzie-Cura & Associates, Inc.).

Building 31 Presentation

Suzanne Berkman introduced Lt. Rios, who gave a presentation regarding the Building 31 project. He stated that the Building 31 contract was awarded on September 30, 1993 to National

Environmental Services Corporation of Bloomington, Indiana, for \$629,000. He indicated that the current contract value is \$685,000 due to contract changes.

He said that the scope of work is as follows:

- 1) exterior soil removal,
- 2) concrete debris to be disposed of, and
- 3) solidification of on-site soils.

Currently, the exterior excavation is complete and backfilled. The soils were sent to Mills Services Company of Pennsylvania for off-site stabilization and disposal.

The south and east end exterior excavation has also been completed; however, backfilling is "waiting" for confirmation sample results to confirm that the sidewalls and bottom of the excavation are clean.

Regarding the interior of the building, the original scope of the contract required the following:

- 1) the removal of debris; and
- 2) the decontamination of floor and removal as a "special waste."

The contractor indicated that, due to time constraints, it could not perform the decontamination. Therefore, the contractor provided a proposal for RCRA disposal of these materials.

Currently, the contractor has removed the debris and also performed some of the minor excavations inside the building.

Lt. Rios indicated that the original completion date for the project was April 8, 1994. However, there have been some delays due to:

- (1) problems with the treatability study;
- (2) unforeseen problems with removal of railroad tracks, which were supported by 4-inch, steel I beams enclosed in concrete, requiring extra time to remove them; and
- (3) the existence of a greater amount of cobbles in soils than was anticipated, which required extra cost for removal as RCRA hazardous waste.

The Treatability Study was completed on March 9, 1994.

In the study, the soil was to stabilize with Portland Type II Cement and with 2% water. Three mixture concentrations of cement were attempted as follows:

- (1) 15 % cement, 2% water with soils
- (2) 10% cement, 2% water with soils
- (3) 5% cement, 2% water with soils

The following results were noted:

- (1) 15 % mixture, solidified and could not be backfilled.
- (2) 10% mixture, due to ionic effects the sample, failed TCLP tests.
- (3) 5 % mixture passed TCLP; however, after tests using brackish water to simulate tidal flushing, the sample failed the TCLP test.

Therefore, the Treatability Study had to be revised.

Forester Environmental Services, Co., a subconsultant to National Environmental, suggested adding a 2-percent Mono-Ammonium Phosphate mixture. This approach worked and the soils passed the 5 mg/l TCLP cleanup standard for lead.

The pug mill used for the stabilization has just arrived on May 13, 1994, and stabilization will begin next week.

Halliburton NUS will perform confirmation sampling on every 20-yard batch for TCLP Lead. The goal is to complete this project by June 15, 1994 in order to begin the renovation contract for the building.

Lt. Rios asked if there were any questions. There were none regarding his presentation.

Restoration Advisory Board (RAB) presentation.

A presentation was given by Richard Conant of the Submarine Base NLON regarding the transition of the TRC to a RAB. He described what a RAB is, how the existing TRC will be converted to a RAB, responsibilities of the RAB and the implementation schedule for establishment of the RAB. It is proposed to convene the first RAB meeting on August 16, 1994. Included as Attachment 1 is a copy of the overheads used by Mr. Conant which explain in more detail the contents of his presentation.

The following is a summary of comments and responses made following the presentation.

Comment: Matt Cochran asked whether the existing community relations plan would need revisions due to the change of the TRC to a RAB.

Response: Richard Conant indicated that he didn't think any changes would be necessary.

Comment: Robert Fromer asked whether the meeting minutes had been reviewed from the last TRC meeting, as he arrived late and had some comments regarding the minutes.

Response: Suzanne Berkman indicated that they had.

Comment: Robert Fromer indicated that he didn't think that the community would be any more responsive with the change from TRC to RAB.

Response: Richard Conant indicated that the Navy has mandated the change with the intent of improving community relations.

There were no more questions regarding this presentation.

Interim Remedial Actions Presentation

Barry Giroux gave a presentation regarding the status of the Interim Remedial Actions including the project schedule and a brief summary of the new data. He reminded the TRC members to submit comments on the FFS in writing as soon as possible for review. These comments should go directly to Mr. Mark Evans, the Navy project manager for the site. A copy of Barry Giroux's overhead transparencies used for this presentation which show the project schedule for each site provided as Attachment 2.

Questions raised during the presentation are as follows:

Comment: Robert Fromer asked for definitions of the various acronyms being used in his presentation.

Response: Barry Giroux explained the definitions used in his presentation. A glossary of terms/acronyms is provided as Attachment 3.

Comment: Robert Fromer asked how much money the government has spent to date on the project for the entire study at the Subase.

Response: Paul Burgess indicated that Atlantic's contract, including drilling and laboratory subcontractors, was just over \$3 million from the start of the IR program in 1988.

Response: Matt Cochran (Halliburton NUS) indicated his project was \$1.8 million.

Comment: Robert Fromer indicated the total is roughly \$4.8 million, which is exclusive of the Navy effort, which he estimated to be double the cost of both contractors or roughly \$10 million.

Comment: Robert Fromer indicated that he felt that the minutes of the last TRC meeting were inaccurate; therefore, the following is a verbatim of his comments.

My major point is that I brought this up, and I hate to belabor the point, but I will. I brought this up at the last meeting, and the minutes of the meeting, for the last meeting, really, really detracted and didn't do justice to the comments I've made. In fact, the comments that were actually made in the minutes of the meeting, from what I actually said at the meeting one if they were at the meeting could never tell what those comments were because it is a complete fabrication and distortion of what I said. But, I'll say this again, the fact of the matter is that this entire process has not been based on a statistical master plan of how you are going to go about sampling and doing your study. It seems, and this has been acknowledged at the past meeting, that a lot of the study has gone about pretty much in a random statistical manner, it hasn't been based on a written plan of statistics, and I feel very strongly that that's the weak link of this entire process. And I've asked in a letter to the Committee, that my comments be accurately and correctly reflected in the minutes of the meeting. But you know this is the statement I'm going to make, I think that the \$10 million somewhere in that ballpark order of magnitude, that the government has spent approximately that amount of money and it's been based on what I do not consider a rational, and I'm not picking on any specific individual, but what I consider a rational approach, a rational scientific approach, to making scientific conclusions and remediation efforts. OK.

Response: Suzanne Berkman acknowledged that Robert Fromer had given her a letter stating that he disagreed with the minutes of the last meeting. She went on to indicate that the Committee members are given copies of the minutes and are counted on to provide written comments on specific topics they feel were not accurate.

Response: In response to some questions regarding the statistical design, Mr. Fromer responded as follows:

No, I'm talking about the inception of the TRC and if it goes back to 1980, then so be it. The fact of the matter is throughout this entire process from when this TRC was first formed and created, when information was presented to us in terms of what the study and investigation was going to be, that study was never based on a statistical sampling plan showing, for example, for a certain kind of constituent at a certain location, based on some type of statistical plan, so many samples were going to be taken, and were going to make a decision based on that number of samples and if that number of samples was inadequate, we were going to increase the size based on that type of statistical plan, whether it be a Gaussian plan or other type of plan. Whatever type plan, was going to be invoked, there was never a plan that was designed to

show how the study was going to go forward, and how sampling was going to be taken, the sampling has been taken pretty much based on the technical discretion without a written plan as to how they were going to do sampling. A kind of a random, gut technical, approach, a gut technical approach, "well as a professional engineer I think we should do this" which to me is not a very scientific approach.

Response: Matt Cochran stated that the IR program specifically targeted "hot spot" areas, based on professional judgement and our response to this concern stated at the last TRC meeting was that we are aware that there are statistical methods of determining numbers and methods for sampling this type of investigation; however, in order to reach the desired statistical confidence level, the number of samples necessary to do this would drive the cost up dramatically to as much as \$20 to \$30 million. That is why the program targets "hot spot" areas. The program was by no means random.

Comment: Robert Fromer:

That was not the kind of comment, that was not exactly, in fact that was not the comment you made, you in essence acknowledged and it should be in the minutes of the meeting, I mean the transcript of the minutes of the meeting, that you in essence acknowledged that there was a randomness to it, and what you're saying from a technical and scientific standpoint should be down in writing so that if a decision is made not to go forward with some kind of statistical plan or if that can't possibly occur because you just can't do it, and you have to use this professional management approach, then that should be identified in the plan, and that was never identified in any of these plans, and so you go forward with a plan that's random in orientation hoping that members of the public like myself and others are not sufficiently intelligent enough to pick up, because we don't have this technical scientific background to pick it up, when in fact, I have picked it up and it's quite obvious that we haven't marched forward according to some kind of plan that's in writing that says we do "A, we do "B," we do "C," according to some kind of procedure, never been identified, and so it makes everything that you do very suspect.

Response: Suzanne Berkman indicated that the meeting needs to proceed along and get back to the agenda. She also indicated that it is important to make comments before documents become final and therefore in the future comments need to be made before final plans are made.

Comment: Robert Fromer indicated that he has been making these same comments all along, since the very beginning of the TRC. He continued saying that his comments

have been ignored. But now that the ROD is coming along, he feels that for formality the Navy wants comments for the public record, but he has been making the same comments all along. He indicates that he will again identify his comments for the ROD in writing.

Response: Barry Giroux indicated that Mr. Fromer's comments regarding the statistical design of the field sampling plan had not been ignored, but rather were disagreed with by the Navy, the U.S. EPA, the CTDEP, and Atlantic on technical merits.

Residential Well Sampling Presentation

Barry Giroux gave his presentation regarding the status of the residential well sampling program. Overheads which were used during the presentation are provided as Attachment 4.

He explained that boron has not been detected in any residential wells above levels of concern during the last four sampling rounds, thereby providing verification that, as suspected, the boron concentration measured in earlier rounds were erroneous. He then presented the results for three constituents that have been detected above levels of concern: aluminum, lead, and sodium.

Comment: Robert Fromer questioned whether homeowners at the locations where well water was collected had undergone any medical examinations to establish correlations between their health and the aluminum found in their drinking water.

Response: Barry Giroux indicated that no, they haven't.

Comment: Matt Cochran questioned whether the majority of aluminum exceedance in groundwater is likely linked to background conditions.

Response: Barry Giroux indicated that the preliminary data definitely suggest that the aluminum is likely a background condition or is an artifact of the homeowner's plumbing system or fixtures.

Comment: Robert Fromer asked whether aluminum had been tested for and detected at the Subase.

Response: Barry Giroux indicated that aluminum had been tested for and detected in places, but was not considered a contaminant of concern for Subase NLON.

Comment: A question was raised as to how the sample was collected from the homeowner's well. More specifically, was the sample collected as first draw, or was the sample collected after the water had been run?

Response: Barry Giroux indicated that the samples were collected after the water had been run (a minimum of 20 minutes).

Comment: The question was asked, if any, what kind of information are the homeowners getting concerning elevated lead?

Response: Barry Giroux indicated that Subase NLON has passed out health advisory information packets, as well as the actual values of constituents found in their well water.

Response: Richard Conant added that any time there is an exceedance in residential well water, Subase NLON sends out a summary sheet of the element to the particular homeowner.

Comment: Charles Menzie indicated that there has been some recent discussion in the literature regarding the contribution of organics to drinking water related to submersible and other types of pumps typically used by homeowners.

Halliburton NUS Presentation Status of Phase II Investigation

Matt Cochran introduced himself and indicated that his company is investigating 13 sites, some of which are part of the Phase II investigation. This investigation is geared primarily toward the perimeter areas in order to define the extent of contamination at the sites. He indicated that the majority of field work for these sites has been completed and one of the two rounds of groundwater sampling has been completed. He also indicated that the 72-hour pumping test had been performed as well as several slug tests. A copy of the Halliburton NUS handout is provided as Attachment 5.

Comment: Robert Fromer questioned whether the hydraulic conductivity values were an average of two directions, or is it just in one direction?

Response: Matt Cochran indicated that the values he has calculated assume horizontal flow.

Comment: Robert Fromer asked if there had been any information regarding vertical flow or lateral flow?

Response: Matt Cochran indicated that only horizontal flow had been considered. However, they may be able to calculate vertical hydraulic conductivity within the overburden using the pumping test data.

Comment: Robert Fromer questioned how hydraulic conductivity values were arrived at, i.e., were the values obtained using the difference in total head between piezometers?

Response: Matt Cochran indicated: no, not for the slug tests, only for the pumping test.

Stan Conti of Halliburton NUS gave a presentation regarding the pump test performed at the Area A Landfill. He indicated that the 72-hour pump test was performed from April 28

to May 1, 1994. He indicated that four observation wells (2-inch PVC) and one 6-inch pumping well were installed for the test. It was also explained that one well was installed in the deeper water bearing zone located below the fine-grained dredge spoil materials in the landfill. This well was monitored during the pump test to determine if there was any hydraulic connection between the shallow overburden and the deeper aquifers. He also explained that 2LMW18S was monitored some distance away from the pump test area to determine any background effects during the test.

Comment: Dale Weiss questioned whether the pumping well and observation wells were installed in fill material.

Response: Stan Conti indicated that they were fully penetrating wells in the fill material.

Comment: Dale Weiss asked what the wells were fully penetrating.

Response: Stan Conti indicated that he means that the screen was through the entire length of the aquifer.

Comment: Dale Weiss questioned if the pump test discharge water was tested during the 72-hour test.

Response: Matt Cochran indicated that the water was tested but results have not yet come back.

Comment: Robert Fromer questioned whether seasonal changes might affect the pump test.

Response: Stan Conti indicated that there could possibly be some effects.

Comment: Robert Fromer then theorized that these seasonal changes may have an affect on measured concentrations of any contaminants.

Response: Stan Conti indicated that this could be true, yes.

Comment: Robert Fromer asked if this was the only time that the pump test was going to be performed.

Response: Stan Conti indicated that it was the only test that would be performed.

Response: Dale Weiss indicated that the reason for the test is to determine the conductivity of the material. He also indicated that the season in which the test was performed wouldn't really matter.

Comment: Dale Weiss indicated that he feels it may be important to know the vertical conductivity of the dredge spoil for design of the cap, due to the possible head

buildup on the dredge spoils.

Response: Barry Giroux indicates that the cap will have a clay mat with a conductivity of 10^{-9} cm/sec.

Comment: Robert Fromer indicated that he thinks that Halliburton NUS is making assumptions on vertical conductivity using the pump test data incorrectly. Given that vertical conductivity is more important due to the fact that eventual capping of the site may occur.

Response: Matt Cochran indicated that the intent of the pump test was to obtain data for possible groundwater remediation considerations.

Comment: Robert Fromer indicated that, if that is the only use of the data, then the test is OK. However he feels it is important that the data not be used to infer vertical conductivity.

Stan Conti continued his presentation indicating that a flow rate of 2 gallons per minute (gpm) was chosen for the pump test. This flow rate was maintained for approximately 3,500 minutes at which time the water level in the pumping well reached the pump intake and the flow rate fell to 1.14 gpm. He also noted that the well which was placed below the dredge spoils was monitored and indicated no change in water level, indicating that the aquifers are not connected.

Comment: Robert Fromer questioned if the transducers were calibrated before the test.

Response: Stan Conti indicated that the transducers were pre-calibrated and don't require any additional calibration. However, as a check for accuracy, the wells were also monitored with hand-tapes for comparison.

At this time, Karen Smecker of Halliburton NUS gave a presentation on analytical results, which have been validated to date. It was emphasized that the data are preliminary and incomplete.

Comment: Robert Fromer asked for a table comprising all of the Standards used for comparing data.

Response: Matt Cochran indicated that a table having all of this data will be included in the Risk Assessment section of their report.

Comment: A question was raised whether there is a standard for PCBs in soil for the site.

Response: Paul Burgess indicated that 10 ppm had been proposed for the DRMO site; however, CTDEP uses 2 ppm for soils, and an agreement has not been reached as of yet.

Comment: Dale Weiss asked whether there were more data on DRMO sampling locations not yet received by Halliburton NUS.

Response: Matt Cochran indicated that there were more data which would be received in the next two weeks; however, data validation would typically take an additional five weeks.

Comment: Robert Fromer questioned the use of TBC and ARAR values to determine if a detected level of a contaminant in a particular media presents a hazard as the TBC or ARAR values are derived for actual exposures different from those at the Subase.

Response: Karen Smecker agreed that the standards are based on risk-based values, based on different scenarios than those present at the Subase. Matt Cochran indicated that when the formal risk assessment is performed, the concerns brought up will be addressed. The formal risk assessment will only consider actual scenarios that exist at the Subase. The TBC/ARAR values are only used to screen the data to identify potential hazards.

At this time, Charles Menzie gave a presentation on Risk Assessment related to work performed for the focused feasibility studies, as well as some new work which will be performed in the future. A copy of the overheads used in the presentation are provided as Attachment 6.

His presentation detailed the chemicals of concern at the Subase as a whole and for three sites (DRMO, Area A Landfill, and Area A Downstream) provided a site description, list of chemicals of concern, human and ecological receptors of concern, and the current status of risk-based target remediation levels.

Comment: Robert Fromer questioned why Dr. Menzie was only concerned with PAHs and PCB to come up with risk target levels. While NUS had identified a large number of different chemicals, he asked if one could forget about those chemicals regarding human health and ecological standards.

Response: Dr. Menzie indicated that Halliburton NUS is at a different stage in their program. Their task at present is to provide a list of chemicals of concern (above some stand) then that list will be considered for human and ecological risk and the chemicals will be identified that pose a risk. Target levels will only be prepared for those constituents which pose a risk.

Comment: Robert Fromer asked if the values that Dr. Menzie comes up with for the specific site are the final cleanup values, regardless of any other federal or state agencies.

Response: Dr. Menzie indicated that the numbers he developed are for soils for which there are no ARARs.

Dr. Menzie closed his presentation. There were no other questions regarding his presentation.

Comment: Dale Weiss questioned when the Phase II RI report would be complete.

Response: Matt Cochran indicated that the preliminary draft report is due to the Navy by September. After the Navy's review, a draft of the report will be submitted to the TRC for review and comment.

Suzanne Berkman questioned if August 11 was a good date for the next TRC meeting. There were no objections. There were no additional questions. The meeting was adjourned.

ATTACHMENT 1

**RESTORATION ADVISORY BOARD (RAB)
PRESENTATION**

RESTORATION ADVISORY BOARD (RAB)

What is a RAB?

1. A RAB is a group established for the purpose of allowing individuals the opportunity to give advice to Naval Submarine Base New London (SUBASENLON) on the Installation Restoration Program.
2. The RAB will act as focal point for the exchange of information between SUBASENLON and the Community.
3. The RAB will work in partnership with SUBASENLON on clean-up issues and related matters, enabling the early and continued two-way flow of information, concerns, values, and needs between the community and the base.
4. The RAB will not make decisions on environmental restoration activities, but will provide information, suggestions and community input to be used by the Department of the Navy in the decision making process.

Establishment of a RAB

SUBASENLON will convert the current Technical Review Committee (TRC) to a RAB by taking the following actions:

1. Expand the existing TRC to include additional community representatives.
2. Establish Co-Chairs, one from the community members of the RAB and one from the Department of the Navy.
3. Ensure that meetings are fully open to the public and conveniently scheduled for maximum community participation.

Responsibilities of the RAB

1. Conduct regular public meetings.
2. Keep meeting minutes, make them available to interested parties, and publish an executive summary of the minutes in a local newspaper.
3. Update and expand the mailing list of interested parties who wish to receive information on the cleanup program.
4. Provide a forum for individual members to give advice and make recommendations on environmental restoration issues to the Department of the Navy.
5. Establish a procedure for public participation and responding to questions and comments from the public at RAB meetings.

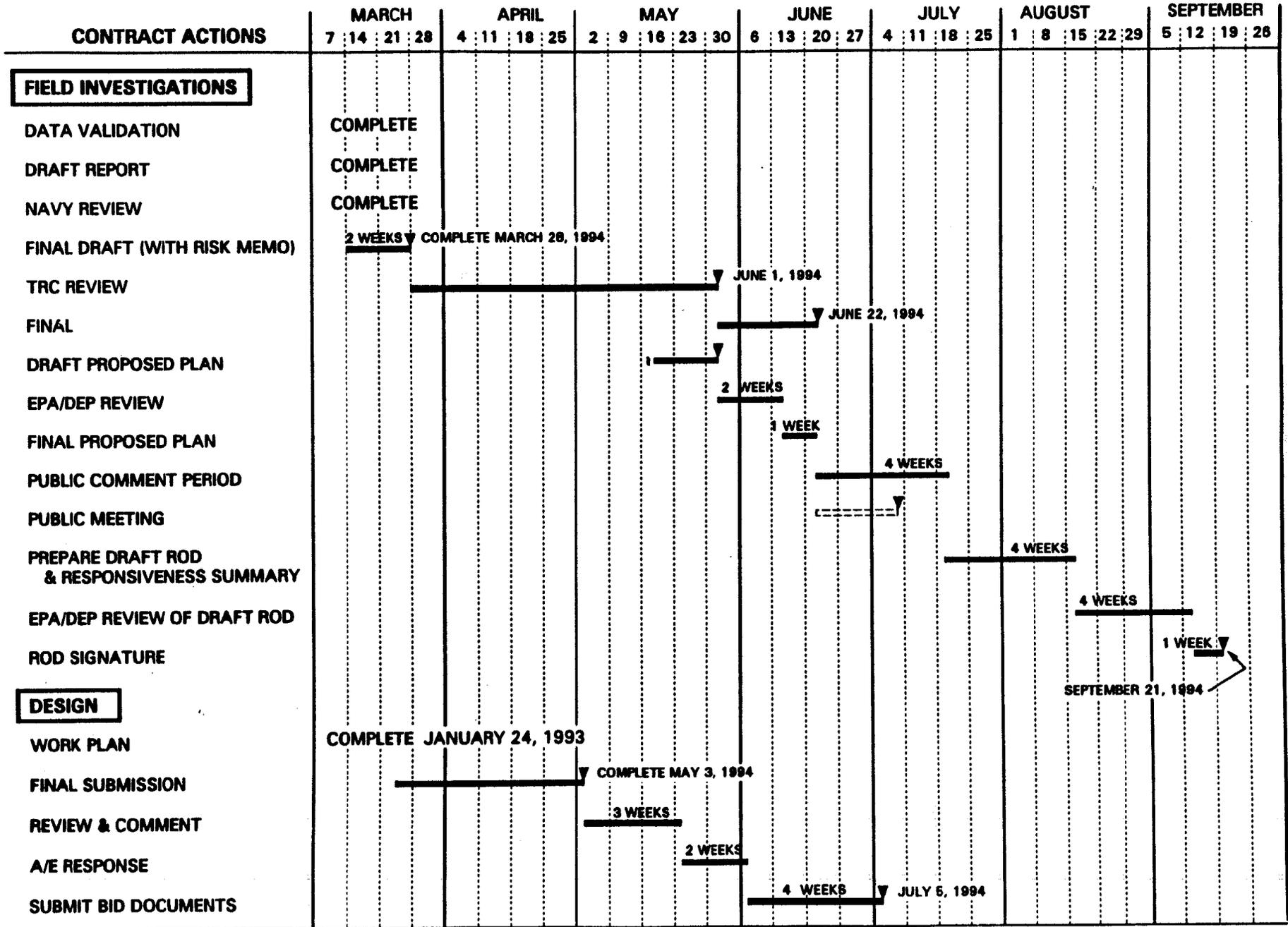
RAB Implementation Schedule

1. 17 May 94 - Present establishment of the RAB
2. 16 June 94 - Contact community members and other interested groups for potential RAB membership
3. 18 July 94 - Establish Co-Chairs and members of the RAB
4. 16 August 94 - Convene first RAB meeting

ATTACHMENT 2

**IRA OVERHEADS
PRESENTATION BY BARRY GIROUX**

**AREA A LANDFILL
MAY 5, 1994**



**NAVAL SUBMARINE BASE — NEW LONDON
REMEDIAL ACTION PROJECT STATUS**

DRMO

- **DRAFT FFS — COMPLETE MARCH 25, 1994**
- **ROD — PROPOSED END OF SEPTEMBER 1994
(BASED ON ALL COMMENTS RECEIVED BY JUNE 1, 1994)**
- **FINAL DESIGN SUBMISSION — COMPLETE JANUARY 31, 1993**
- **BID DOCUMENTS — COMPLETE MARCH 16, 1994**

**NAVAL SUBMARINE BASE – NEW LONDON
REMEDIAL ACTION PROJECT STATUS**

SPENT ACID

DRAFT FFS – COMPLETE MARCH 29, 1994

**ROD – PROPOSED END OF SEPTEMBER 1994
(BASED ON ALL COMMENTS RECEIVED BY JUNE 1, 1994)**

FINAL DESIGN SUBMISSION – COMPLETE MARCH, 15, 1994

BID DOCUMENTS – COMPLETE APRIL 29, 1994

**NAVAL SUBMARINE BASE — NEW LONDON
REMEDIAL ACTION PROJECT STATUS**

AREA DOWNSTREAM/OBDA

DRAFT FFS — COMPLETE APRIL 5, 1994

**ROD — PROPOSED END OF SEPTEMBER 1994
(BASED ON ALL COMMENTS RECEIVED BY JUNE 1, 1994)**

FINAL DESIGN SUBMISSION — COMPLETE MAY 23, 1994

BID DOCUMENTS — PROPOSED JUNE 30, 1994

**NAVAL SUBMARINE BASE — NEW LONDON
REMEDIAL ACTION PROJECT STATUS**

AREA A LANDFILL

DRAFT FFS — COMPLETE MARCH 28, 1994

**ROD — PROPOSED END OF SEPTEMBER 1994
(BASED ON ALL COMMENTS RECEIVED BY JUNE 1, 1994)**

FINAL DESIGN SUBMISSION — COMPLETE MAY 3, 1994

BID DOCUMENTS — PROPOSED JUNE 10, 1994

ATTACHMENT 3

GLOSSARY OF ACRONYMS

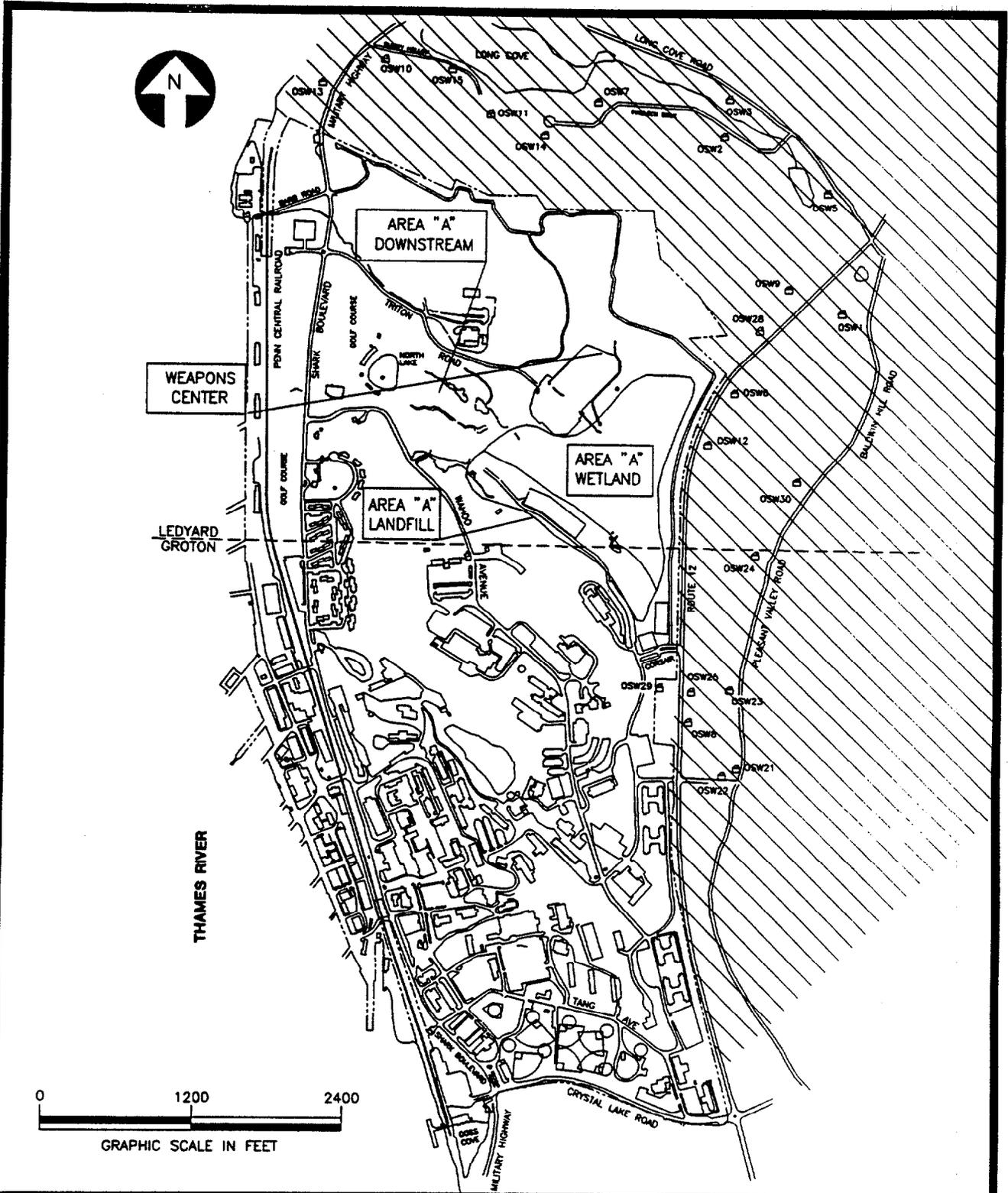
ACRONYMS

Selected List of Acronyms

AAQS	Ambient Air Quality Standard	OBDA	Over Bank Disposal Area
ACL	Alternative Concentration Limits	OSHA	Occupational Safety and Health Administration
ARARs	Applicable Relevant and Appropriate Requirements	PAHs	Polycyclic Aromatic Hydrocarbons
CEC	Cation Exchange Capacity	ppb	parts per billion
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PPE	Personnel Protective Equipment
CLP	Contract Laboratory Program	ppm	parts per million
CRDLs	Contract-Required Detection Limits	QA/QC	Quality Assurance/Quality Control
CRQLs	Contract-Required Quantitation Limits	RFI	RCRA Facility Investigation
CTDEP	CT Department of Environmental Protection	RI	Remedial Investigation
CTDOHS	CT Department of Health Services	ROD	Record of Decision
DDTR	DDT residues which include DDT and its breakdown products DDE and DDE	RPD	Relative Percent Difference
DQO	Data Quality Objectives	SARA	Superfund Amendments and Reauthorization Act of 1986
DRMO	Defense Reutilization Marketing Office	SOW	Statement of Work
FFS	Focused Feasibility Study	SVOC	Semivolatile Organic Compounds
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act	TAL	Target Analyte List
FS	Feasibility Study	TBC	to be considered
GC	Gas Chromatograph	TCL	Target Compound List
HWM	Hazardous Waste Management	TCLP	Toxicity Characteristic Leachate Procedure
MCL	Maximum Contaminant Level	TEF	Toxic Equivalent Factor
MCLG	Maximum Contaminant Level Goal	TIC	Tentatively Identified Compounds
NAAQS	National Ambient Air Quality Standards	TRC	Technical Review Committee
NCP	National Contingency Plan	TSCA	Toxic Substance Control Act
NEESA	Naval Energy and Environmental Support Activity	U.S. EPA	U.S. Environmental Protection Agency
NEPA	National Environmental Policy Act	USGS	U.S. Geographical Survey
NPDES	National Pollutant Discharge Elimination System	VOCs	Volatile Organic Compounds
NPL	National Priorities List	WQC	Water Quality Criteria
NSB-NLON	Navy Subbase - New London		

ATTACHMENT 4

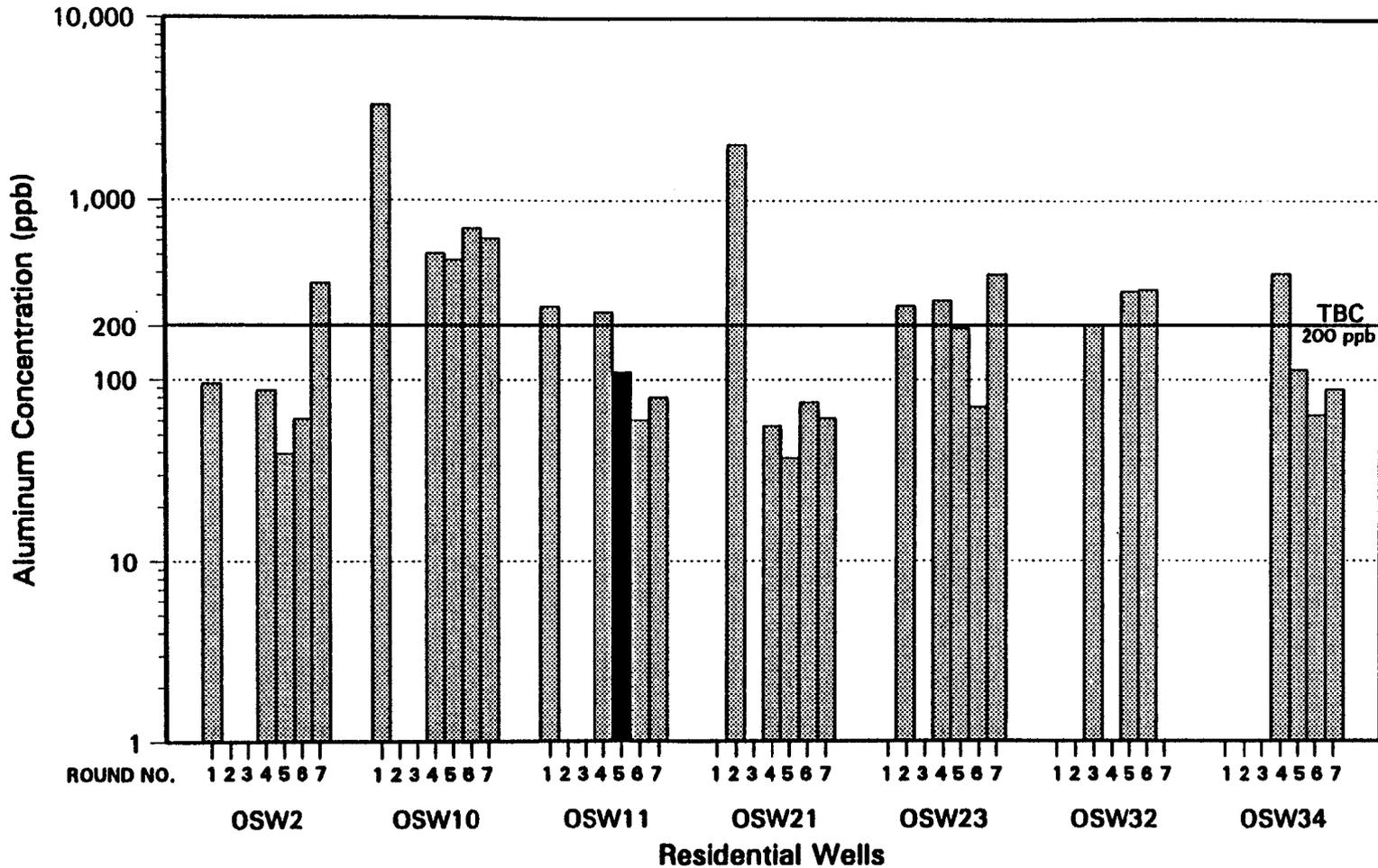
**RESIDENTIAL WELL OVERHEADS
PRESENTATION BY BARRY GIROUX**



**INSTALLATION RESTORATION STUDY
NAVAL SUBMARINE BASE - NEW LONDON
GROTON, CT**

LEGEND
 □ OSW30 OFF-SITE RESIDENTIAL WELL
 SOURCE: Naval Submarine Base
 Existing Conditions
 April 1985
 Loureiro Engineering Associates

**FIGURE 1-2
RESIDENTIAL WELLS
STUDY AREA**
 ATLANTIC ENVIRONMENTAL SERVICES, INC.



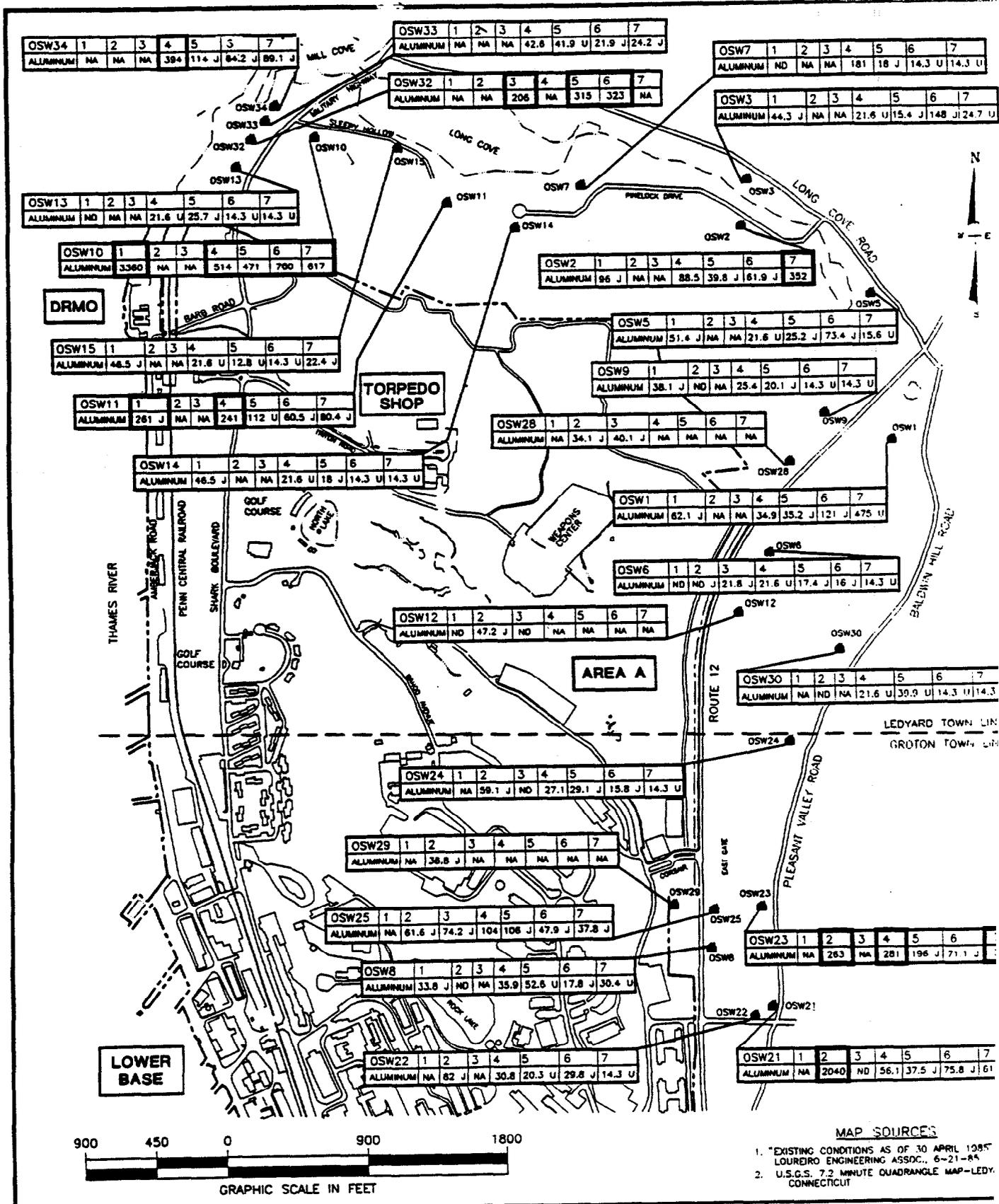
INSTALLATION RESTORATION STUDY
 NAVAL SUBMARINE BASE - NEW LONDON
 GROTON, CT

LEGEND
 ■ INDICATES NOT DETECTED
 — CONCENTRATION INDICATES DETECTION LIMIT
 BLANK SPACE INDICATES NO ANALYSIS PERFORMED

ROUND 1 - 12/90	ROUND 5 - 6/93
ROUND 2 - 2/91	ROUND 6 - 9/93
ROUND 3 - 7/91	ROUND 7 - 12/93
ROUND 4 - 3/93	

FIGURE 2-1
RESIDENTIAL WELLS WITH
ALUMINUM ABOVE TBC VALUE

ATLANTIC ENVIRONMENTAL SERVICES, INC.



INSTALLATION RESTORATION STUDY
NAVAL SUBMARINE BASE-NEW LONDON
GROTON, CONN.

LEGEND

--- PROPERTY LINE
 ● OSW30 OFF-SITE RESIDENTIAL WELL

AREA A INVESTIGATION SITE

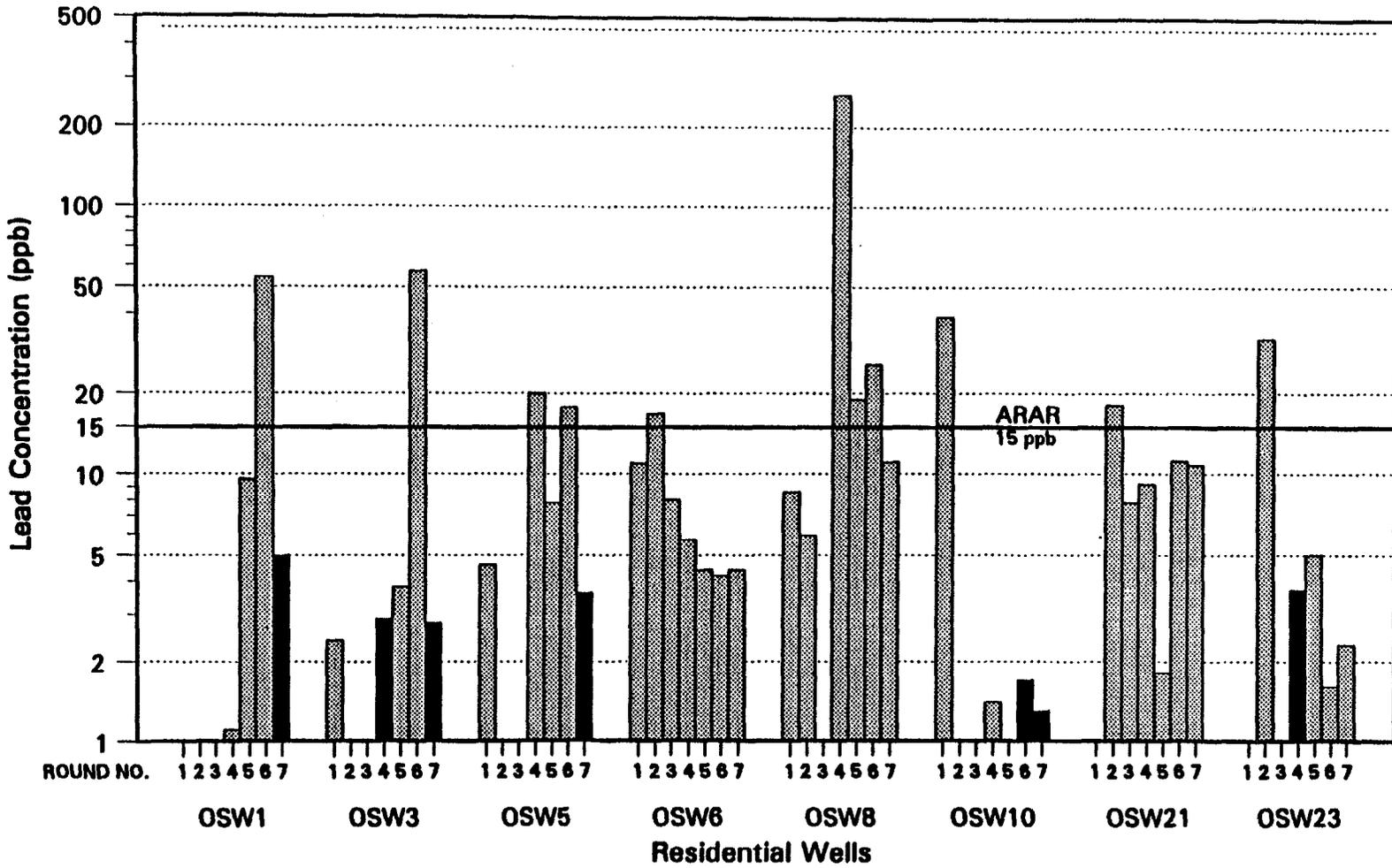
CONCENTRATIONS (ppb) FOR 7 ROUNDS OF TESTING

OSW2	1	2	3	4	5	6	7
ALUMINUM	96 J	NA	NA	88.5	39.8 J	61.9 J	352

NA = NOT ANALYZED
 ND = NOT DETECTED
 J = ESTIMATED VALUE
 U = LESS THAN DETECTION LIMIT
 VALUE EXCEEDS TBC VALUE (200 PPB)

FIGURE 2-2
DISTRIBUTION OF ALUMINUM
IN OFF-SITE RESIDENTIAL WELL

ATLANTIC ENVIRONMENTAL SERVICES.



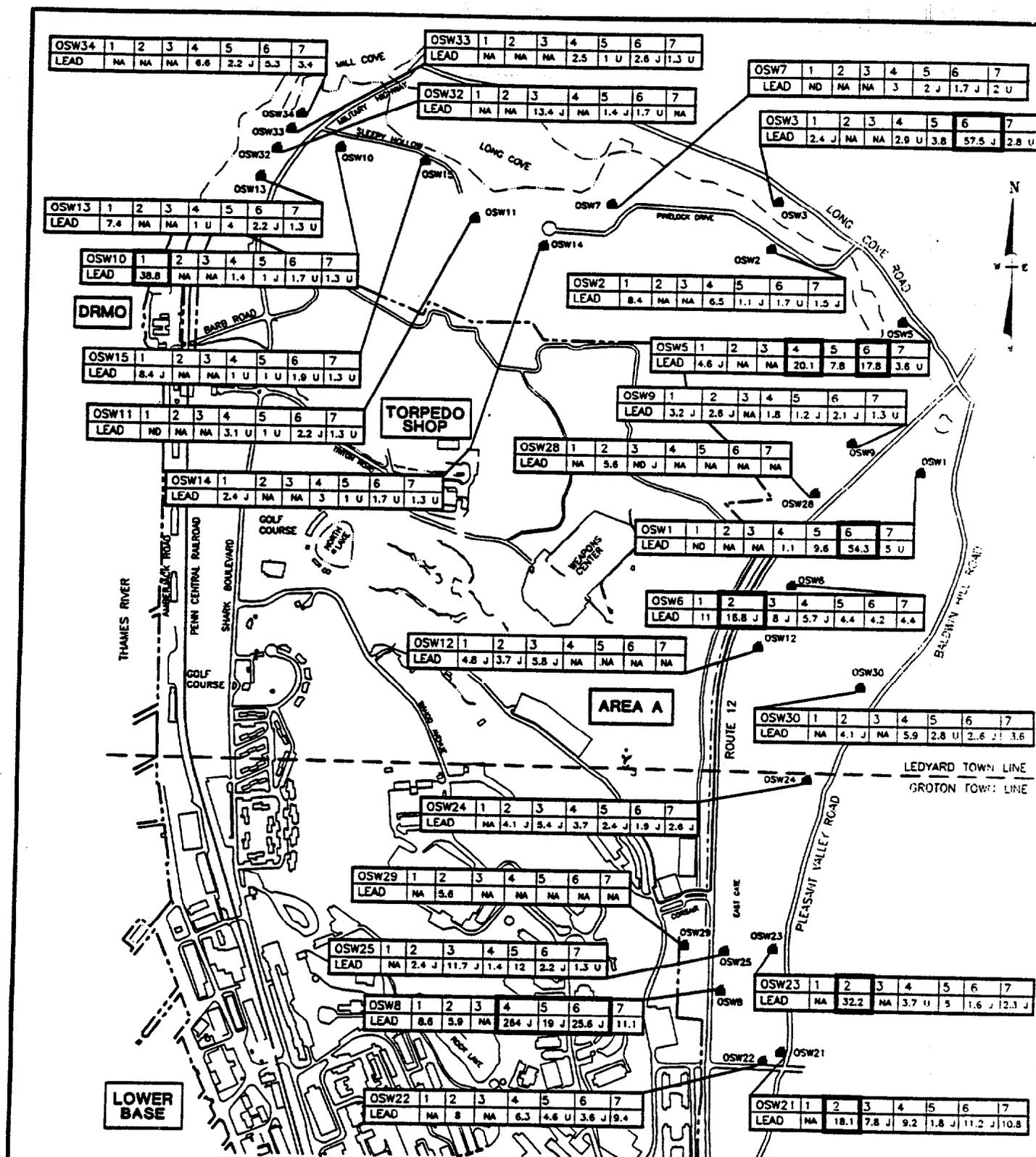
**INSTALLATION RESTORATION STUDY
NAVAL SUBMARINE BASE - NEW LONDON
GROTON, CT**

LEGEND
 ■ INDICATES NOT DETECTED
 CONCENTRATION INDICATES DETECTION LIMIT
 BLANK SPACE INDICATES NO ANALYSIS PERFORMED

ROUND 1 - 12/90	ROUND 5 - 6/93
ROUND 2 - 2/91	ROUND 6 - 9/93
ROUND 3 - 7/91	ROUND 7 - 12/93
ROUND 4 - 3/93	

**FIGURE 2-3
RESIDENTIAL WELLS WITH
LEAD ABOVE ARAR VALUE**

ATLANTIC ENVIRONMENTAL SERVICES, INC.



OSW34	1	2	3	4	5	6	7
LEAD	NA	NA	NA	6.6	2.2 J	5.3	3.4

OSW33	1	2	3	4	5	6	7
LEAD	NA	NA	NA	2.5	1 U	2.6 J	1.3 U

OSW7	1	2	3	4	5	6	7
LEAD	ND	NA	NA	3	2 J	1.7 J	2 U

OSW32	1	2	3	4	5	6	7
LEAD	NA	NA	13.4 J	NA	1.4 J	1.7 U	NA

OSW3	1	2	3	4	5	6	7
LEAD	2.4 J	NA	NA	2.9 U	3.8	57.5 J	2.8 U

OSW13	1	2	3	4	5	6	7
LEAD	7.4	NA	NA	1 U	4	2.2 J	1.3 U

DRMO

OSW10	1	2	3	4	5	6	7
LEAD	38.8	NA	NA	1.4	1 J	1.7 U	1.3 U

OSW2	1	2	3	4	5	6	7
LEAD	8.4	NA	NA	6.5	1.1 J	1.7 U	1.5 J

OSW15	1	2	3	4	5	6	7
LEAD	8.4 J	NA	NA	1 U	1 U	1.9 U	1.3 U

OSW5	1	2	3	4	5	6	7
LEAD	4.6 J	NA	NA	20.1	7.8	17.8	3.6 U

OSW11	1	2	3	4	5	6	7
LEAD	ND	NA	NA	3.1 U	1 U	2.2 J	1.3 U

OSW9	1	2	3	4	5	6	7
LEAD	3.2 J	2.6 J	NA	1.8	1.2 J	2.1 J	1.3 U

TORPEDO SHOP

OSW28	1	2	3	4	5	6	7
LEAD	NA	5.6	ND J	NA	NA	NA	NA

OSW1	1	2	3	4	5	6	7
LEAD	ND	NA	NA	1.1	9.6	54.3	5 U

OSW14	1	2	3	4	5	6	7
LEAD	2.4 J	NA	NA	3	1 U	1.7 U	1.3 U

OSW6	1	2	3	4	5	6	7
LEAD	11	16.8 J	8 J	5.7 J	4.4	4.2	4.4

OSW12	1	2	3	4	5	6	7
LEAD	4.8 J	3.7 J	5.8 J	NA	NA	NA	NA

AREA A

OSW30	1	2	3	4	5	6	7
LEAD	NA	4.1 J	NA	5.9	2.8 U	2.6 J	3.6

OSW24	1	2	3	4	5	6	7
LEAD	NA	4.1 J	5.4 J	3.7	2.4 J	1.9 J	2.6 J

OSW29	1	2	3	4	5	6	7
LEAD	NA	5.6	NA	NA	NA	NA	NA

OSW25	1	2	3	4	5	6	7
LEAD	NA	2.4 J	11.7 J	1.4	12	2.2 J	1.3 U

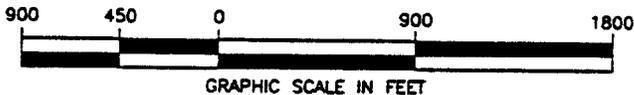
OSW8	1	2	3	4	5	6	7
LEAD	8.6	5.9	NA	284 J	19 J	25.6 J	11.1

OSW23	1	2	3	4	5	6	7
LEAD	NA	32.2	NA	3.7 U	5	1.6 J	12.3 J

LOWER BASE

OSW22	1	2	3	4	5	6	7
LEAD	NA	8	NA	6.3	4.6 U	3.6 J	9.4

OSW21	1	2	3	4	5	6	7
LEAD	NA	18.1	7.8 J	9.2	1.8 J	11.2 J	10.8



MAP SOURCES:

- EXISTING CONDITIONS AS OF 30 APRIL 1985. LOUREIRO ENGINEERING ASSOC., 6-21-85
- U.S.G.S. 7.2 MINUTE QUADRANGLE MAP-LEDYARD, CONNECTICUT

INSTALLATION RESTORATION STUDY
NAVAL SUBMARINE BASE-NEW LONDON
GROTON, CONN.

LEGEND

--- PROPERTY LINE

OSW30 OFF-SITE RESIDENTIAL WELL

AREA A INVESTIGATION SITE

CONCENTRATIONS (ppb) FOR 7 ROUNDS OF TESTING

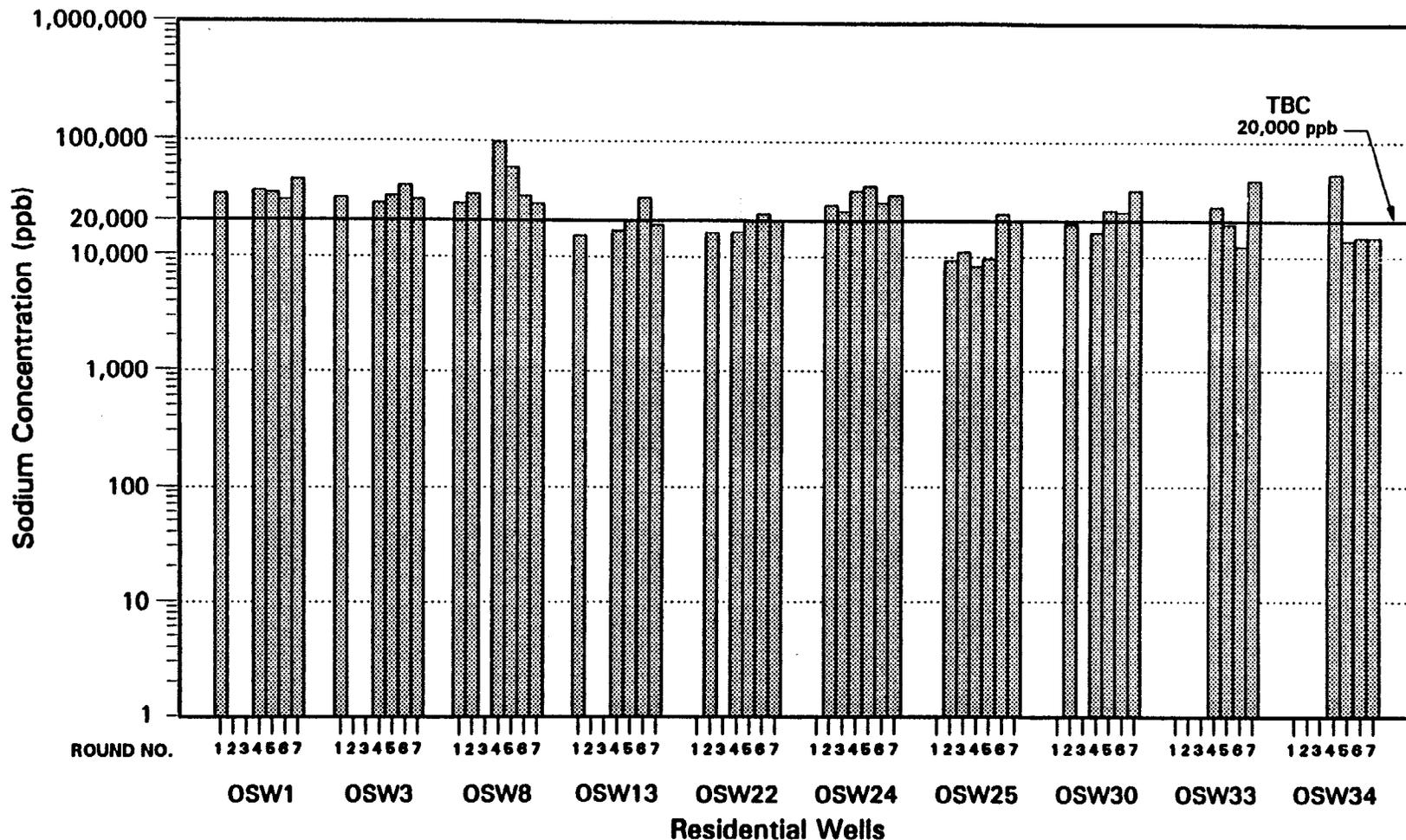
OSW3	1	2	3	4	5	6	7
LEAD	2.4 J	NA	NA	2.9 U	5.8	57.5 J	2.8 U

VALUE EXCEEDS ARAR VALUE (15 ppb)

NA = NOT ANALYZED
ND = NOT DETECTED
J = ESTIMATED VALUE
U = LESS THAN DETECTION LIMIT

FIGURE 2-4
DISTRIBUTION OF LEAD IN
OFF-SITE RESIDENTIAL WELLS

ATLANTIC ENVIRONMENTAL SERVICES, INC.



**INSTALLATION RESTORATION STUDY
NAVAL SUBMARINE BASE - NEW LONDON
GROTON, CT**

LEGEND
 ROUND 1 - 12/90 ROUND 5 - 6/93
 ROUND 2 - 2/91 ROUND 6 - 9/93
 ROUND 3 - 7/91 ROUND 7 - 12/93
 ROUND 4 - 3/93
 BLANK SPACE INDICATES NO ANALYSIS PERFORMED

**FIGURE 2-6
RESIDENTIAL WELLS WITH
SODIUM ABOVE TBC VALUE**

ATLANTIC ENVIRONMENTAL SERVICES, INC.

OSW34	1	2	3	4	5	6	7
SODIUM	NA	NA	NA	33000	13800	14500	14500

OSW33	1	2	3	4	5	6	7
SODIUM	NA	NA	NA	27100	19200	12300	46500

OSW7	1	2	3	4	5	6	7
SODIUM	4800	J	NA	4810	4190	J	4210
							4760

OSW32	1	2	3	4	5	6	7
SODIUM	NA	NA	8780	NA	11700	10500	NA

OSW3	1	2	3	4	5	6	17
SODIUM	32000	NA	NA	29100	33200	141600	31000

OSW13	1	2	3	4	5	6	7
SODIUM	15100	NA	NA	17000	20700	32100	18900

OSW10	1	2	3	4	5	6	7
SODIUM	7810	NA	NA	5300	5080	7790	10000

OSW2	1	2	3	4	5	6	7
SODIUM	3720	J	NA	3640	3790	J	3160
							J

DRMO

OSW15	1	2	3	4	5	6	7
SODIUM	3330	J	NA	8600	8580	9420	8450

OSW5	1	2	3	4	5	6	7
SODIUM	10300	NA	NA	9210	5880	6230	16000

OSW11	1	2	3	4	5	6	7
SODIUM	3530	J	NA	3370	3530	J	3640
							J

TORPEDO SHOP

OSW9	1	2	3	4	5	6	7
SODIUM	4210	J	3540	J	NA	3730	3780
							J
							4060

OSW14	1	2	3	4	5	6	7
SODIUM	5990	J	NA	6710	5660	6700	6070

OSW28	1	2	3	4	5	6	7
SODIUM	NA	11700	8740	NA	NA	NA	NA

OSW1	1	2	3	4	5	6	7
SODIUM	34600	NA	NA	37200	35400	30700	46900

OSW6	1	2	3	4	5	6	7
SODIUM	11000	8740	8820	9840	9210	9400	9450

OSW12	1	2	3	4	5	6	7
SODIUM	11800	8950	9170	NA	NA	NA	NA

OSW30	1	2	3	4	5	6	7
SODIUM	NA	19400	NA	16200	25500	24400	37800

THAMES RIVER

PENN CENTRAL RAILROAD

SHARK BOULEVARD

GOLF COURSE

GOLF COURSE

AREA A

OSW24	1	2	3	4	5	6	7
SODIUM	NA	28000	24900	37500	41700	29500	33900

OSW29	1	2	3	4	5	6	7
SODIUM	NA	11600	NA	NA	NA	NA	NA

OSW25	1	2	3	4	5	6	7
SODIUM	NA	9260	11000	8240	9580	23700	20400

OSW8	1	2	3	4	5	6	7
SODIUM	28600	34600	NA	97700	59000	33100	28600

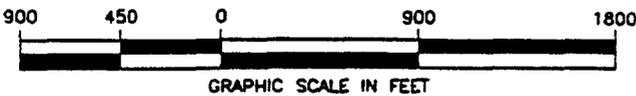
LEDYARD TOW. LINE
GROTON TOW. LINE

OSW23	1	2	3	4	5	6	7
SODIUM	NA	11800	NA	17900	11100	12300	13800

LOWER BASE

OSW22	1	2	3	4	5	6	7
SODIUM	NA	16200	NA	16300	21000	23500	20800

OSW21	1	2	3	4	5	6	7
SODIUM	NA	10200	8600	16100	10400	13700	14600



- MAP SOURCES
- EXISTING CONDITIONS AS OF 30 APRIL 1985, LOUREIRO ENGINEERING ASSOC., 6-21-85
 - U.S.G.S. 7.2 MINUTE QUADRANGLE MAP-LEDYARD, CONNECTICUT

INSTALLATION RESTORATION STUDY
NAVAL SUBMARINE BASE-NEW LONDON
GROTON, CONN.

LEGEND

--- PROPERTY LINE

● OSW30 OFF-SITE RESIDENTIAL WELL

AREA A INVESTIGATION SITE

CONCENTRATIONS (ppb) FOR 7 ROUNDS OF TESTING

OSW25	1	2	3	4	5	6	7
SODIUM	NA	9260	11000	8240	9580	23700	20400

VALUE EXCEEDS TRC VALUE (20,000 ppb)

NA = NOT ANALYZED
ND = NOT DETECTED
J = ESTIMATED VALUE
U = LESS THAN DETECTION LIMIT

FIGURE 2-6
DISTRIBUTION OF SODIUM IN
OFF-SITE RESIDENTIAL WELLS

ATLANTIC ENVIRONMENTAL SERVICES, INC.

ATTACHMENT 5

HALLIBURTON NUS HANDOUT

SUMMARY OF DISCUSSION

PUMPING AND SLUG TEST RESULTS

ANALYTICAL RESULTS

AREA A WETLAND

AREA A DOWNSTREAM / OBDA

AREA A LANDFILL

AREA A WEAPONS CENTER

DRMO

SPENT ACID STORAGE AND DISPOSAL AREA

FIELD WORK TO COMPLETE

ROUND 1 AIR SAMPLING

ROUND 2 GROUNDWATER SAMPLES

TEN SETS OF WATER LEVEL MEASUREMENTS

SURVEYING

DRILL CUTTINGS DISPOSAL

FIELD WORK COMPLETED TO DATE

MOST OF ROUND 1 ACTIVITIES

DRILLING

SOIL, SURFACE WATER, BIOTA, AND SEDIMENT SAMPLING

ROUND 1 GROUNDWATER SAMPLING

PUMPING AND SLUG TESTS

DISPOSAL OF WATER

TWO SETS OF WATER LEVEL MEASUREMENTS

Note: Ten pages of data relating to the pump test and 38 pages of analytical results have been omitted from this attachment. Copies of these data are available upon request.

ATTACHMENT 6

**MENZIE-CURA & ASSOCIATES, INC.
DATA**

**STATUS REPORT: RISK ASSESSMENT RELATED WORK
MENZIE-CURA & ASSOCIATES INC.**

NAVY GROTON TRC MEETING

May 17, 1994

MATERIAL TO BE COVERED

FOCUSED FEASIBILITY STUDIES:

DRMO

AREA A LANDFILL

AREA A DOWNSTREAM

ECOLOGICAL STUDIES IN THE THAMES RIVER

CHEMICALS OF CONCERN

Noncarcinogenic PAHs (All HSL Compounds Included)	Carcinogenic PAHs (All HSL Compounds Included)	PCBs (Arochlors 1260 and 1254)
Other Semi-Volatiles (12 compounds: primarily phthalates and phenols)	Pesticides (7 compounds: DDT residues, endrin, methoxychlor)	Metals (14 compounds: Al, Sb, As, Be, B, Cd, Cu, Fe, Pb, Mn, Hg, Ni, Se, Zn)
BTEX Compounds (All BTEX compounds)	Chlorinated Volatiles (13 compounds)	Other Volatiles (4 compounds)

SITE: DRMO

DESCRIPTION: A COLLECTION FACILITY FOR VARIOUS USED EQUIPMENT AND SUPPLIES. SALVAGEABLE ITEMS ARE SOLD AT PERIODIC AUCTIONS AND SALES.

CHEMICALS OF CONCERN: PCBs AND PAHs IN SOILS. LEAD CONTRIBUTES TO A LESSER EXTENT.

HUMAN RECEPTORS OF CONCERN: WORKERS SORTING SCRAP METAL. SMALLER RISKS TO CONSTRUCTION WORKERS AND CITIZENS ATTENDING AUCTIONS.

ECOLOGICAL RECEPTORS OF CONCERN: THE SITE IS ADJACENT TO THE THAMES RIVER. THE RIVER IS BEING EVALUATED AS PART OF A PARALLEL STUDY.

CURRENT STATUS: RISK-BASED TARGET LEVELS HAVE BEEN DEVELOPED FOR PCBs, PAHs, AND LEAD IN SOILS. THESE ARE UNDER REVIEW.

SITE: AREA A LANDFILL

DESCRIPTION: 9 ACRE OPEN AREA MOST OF WHICH IS UNPAVED. THE AREA IS CURRENTLY USED FOR STORAGE.

CHEMICALS OF CONCERN: PCBs IN SURFACE SOILS. PAHs AND LEAD CONTRIBUTE TO A LESSER EXTENT.

HUMAN RECEPTORS OF CONCERN: WORKERS INVOLVED IN ACTIVITIES IN THE AREA.

ECOLOGICAL RECEPTORS OF CONCERN: NONE ON THE OPEN AREA ITSELF

CURRENT STATUS: RISK-BASED TARGET LEVELS HAVE BEEN DEVELOPED FOR PCBs IN SURFACE SOILS. THESE ARE UNDER REVIEW. EPA HAS EXPRESSED CONCERN THAT ADEQUATE INFORMATION IS NOT AVAILABLE ON PCBs IN WETLANDS IMMEDIATELY ADJACENT TO THE LANDFILL. POTENTIAL ECOLOGICAL IMPACTS OF REMEDIATION ARE ALSO BEING REVIEWED.

SITE: AREA A DOWNSTREAM/OBDA

DESCRIPTION: THE SITE CONSISTS OF A WOODED AREA WITH THREE SMALL PONDS AND AN OPEN RECREATIONAL AREA (NORTH LAKE)

**CHEMICALS OF CONCERN: DDT RESIDUES IN SURFACE SOILS AND SEDIMENTS IN THE WOODED AREA;
NO SIGNIFICANT RISKS IN OPEN RECREATIONAL AREA**

HUMAN RECEPTORS OF CONCERN: THE WOODED AREA IS CURRENTLY FENCED. IN THE ABSENCE OF A FENCE, THE SITE COULD POSE SOME RISK TO CHILDREN THAT PLAY IN SOILS OR SEDIMENTS.

ECOLOGICAL RECEPTORS OF CONCERN: THE PRESENCE OF DDT RESIDUES IN THE PONDS AND IN SOME SOILS IS BEING EVALUATED. STUDIES WERE CONDUCTED IN THE FALL OF 1993 TO PROVIDE INFORMATION ON THESE RISKS. ADDITIONAL STUDIES ARE BEING PLANNED.

CURRENT STATUS: CONDITIONS AT THIS SITE ARE STILL BEING EVALUATED. ADDITIONAL ECOLOGICAL STUDIES ARE BEING CONTEMPLATED.