

**MINUTES  
RESTORATION ADVISORY BOARD  
JUNE 26, 1996 MEETING MINUTES**

1. Attendance:

Government RAB Members Present:

Stephen M. Absolom, BRAC Environmental Coordinator, SEDA  
Carla Struble, U.S. Environmental Protection Agency  
Dan Geraghty, NYS Department of Health

Government RAB Members Absent:

Kamal Gupta, NYS Department of Environmental Conservation (excused)

Community RAB Members Present:

Diane DeMuth, Dick Durst, Anne Herman, Frank Ives, Mary Ann Krupsak,  
Al Legasse, Richard Lewis, Harold Kugelmass, Henry Van Ness,  
Russell Miller, Carmen Serrett, Richard Sisson, David Wagner

Community RAB Member Absent:

Lucinda Sangree Estelle Coleman, Brian Dombrowski

Government and Technical Support Personnel Present:

Thomas Enroth, SEDA Environmental Engineer  
Janet Fallo, SEDA Environmental Engineer  
Jerry Whitaker, SEDA Base Transition Coordinator  
Beverly Lombardo, SEDA Public Affairs Officer  
Susan Cooper, SEDA Secretary  
Robert Scott, NYS Department of Conservation  
Keith Hoddinott, U.S. Army Center for Health Promotion and Preventive Medicine  
Randy Battaglia, U.S. Army Corps of Engineers, NY District, SEDA Resident Office  
Dorothy Richards, U.S. Army Corps of Engineers, Huntsville Division  
Michael Duchesneau, Parsons Engineering Science, Inc.  
Barry O'Melia, Woodward-Clyde  
Rick Newill, Woodward-Clyde

Others Present:

Chris Raddell, Community/Contractor  
Joanne Howard, Community/Contractor  
Brian Howard, Community Member  
Nellie Legasse, Community Member

2. The June Restoration Advisory Board meeting was called to order at 7:00 p.m. by Stephen Absolom, BRAC Environmental Coordinator for SEDA, who welcomed all members and support staff to the NCO Club and outlined the evening's agenda. Draft minutes from the May RAB meeting were then approved and accepted into record.

3. Mike Duchesneau from Parsons Engineering Science, Inc. provided an overview on the Environmental Cleanup Process. His briefing included governing regulations, milestones, and the process under which solid waste management units are listed, classified, and remediated. Copies of Mr. Duchesneau's briefing will be included in the next mailing along with the minutes of this meeting.

4. A discussion was held between Mike Duchesneau of Parsons Engineering Science, Inc. and Dr. Dick Durst who asked if Parsons was aware of the newly developed application of iron to reduce the contamination level in a groundwater plume such as the plume at the Ash Landfill. Mr. Duchesneau responded that he was aware of this technology and it was currently being implemented in a full scale application model through another office of Parsons located in North Carolina. The process uses a media, such as iron in the form of iron filings, placed such that the contaminated groundwater passes through the iron and is changed in the process. The iron would oxidize similar to rust forming on iron exposed to air and water. This section of iron can be thought of as a gate in a underground wall so all water would be stopped by the wall except for a section where the gate is installed as part of the wall. The water can pass through the gate of iron. This gate can be removed and replaced with new iron when the media needs to be changed. Mr. Duchesneau then discussed with Dr. Durst reasons this technology may not be applicable for the Ash Landfill. He commented that this innovative technology has been successfully demonstrated in the laboratory or in limited pilot scale applications. However, he has not yet seen results from the full scale demonstration studies. In addition, the iron may prematurely oxidize as the depth to groundwater at the Ash Landfill varies considerably during the year. This may render the treatment useless. An application of this type of technology at the Ash Landfill would require an extensive pilot study if it were to be considered.

5. A brief overview of the BRAC Cleanup Plan and its goals was given by Mr. Absolom. After introductions of all present, the responsibilities of the Community Co-Chair position were reviewed. Presentations were given by Richard Durst, David Wagner, and Anne Herman, RAB members interested in filling this position. Written ballots were collected from the 15 community RAB members present with majority vote electing Richard Durst as Community Co-Chair.

6. Discussion of Draft Charter followed. Each section was examined and commented on with changes identified and agreed upon for inclusion in the final charter to be approved for adoption at the August RAB meeting.

7. General discussion indicated possible topics for future presentations. Suggestions should be made to Mr. Absolom within the next week for preparation of an August agenda.

8. The next Restoration Advisory Board meeting will be held on Tuesday, August 20, 1996 at 7:00 p.m. at the SEDA NCO Club.
9. The meeting was adjourned at 9:25 p.m.

Respectfully submitted,



SUSAN R. COOPER  
Secretary

APPROVED AS SUBMITTED:

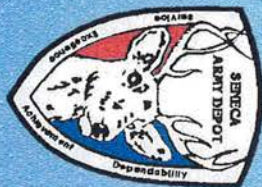


STEPHEN M. ABSOLOM  
U.S. Army Co-Chair



RICHARD A. DURST  
Community Co-Chair





# **PRESENTATION TO THE RESTORATION ADVISORY BOARD**

**JUNE 26, 1996**

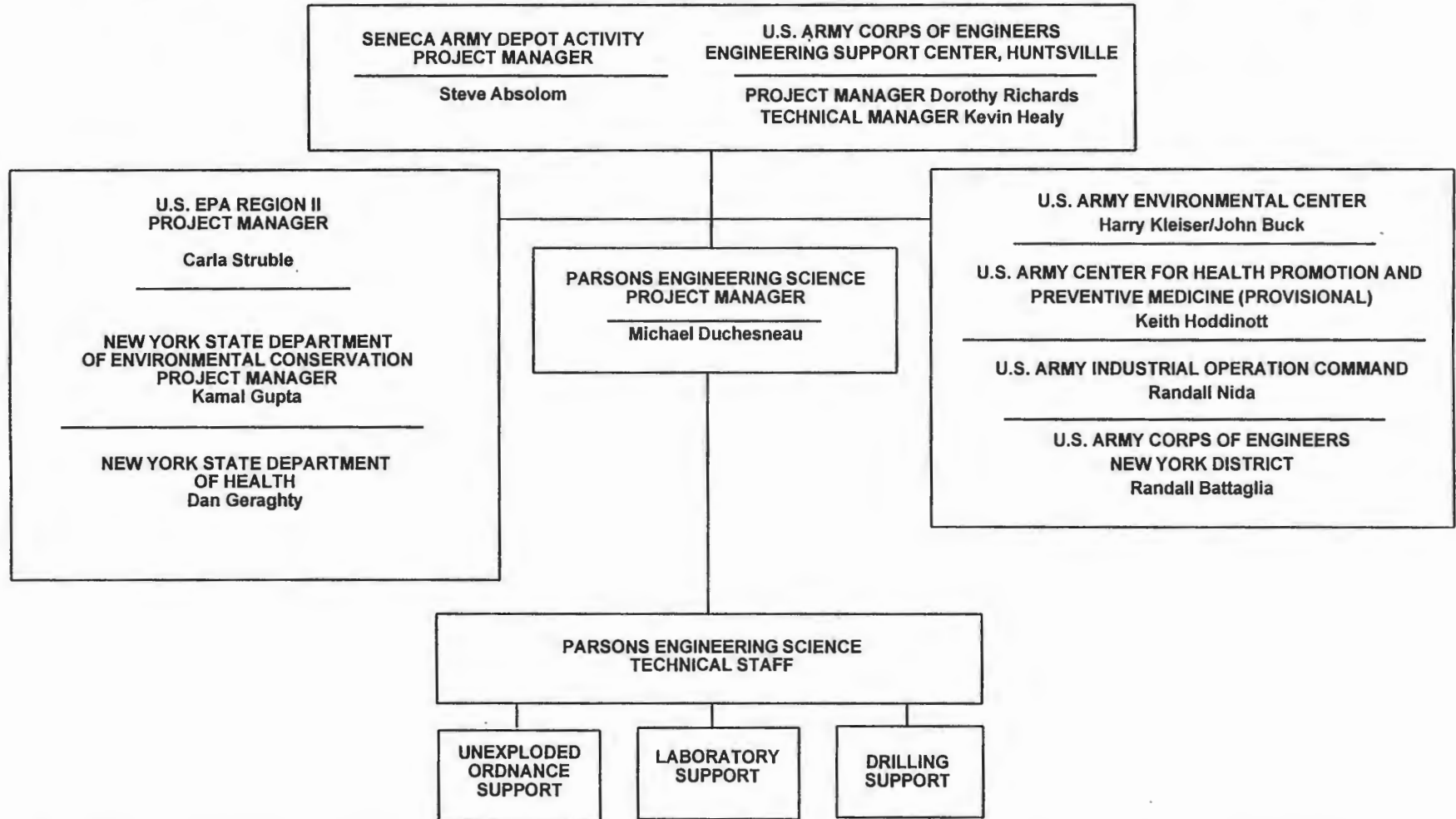
**PARSONS ENGINEERING SCIENCE, INC**



**PARSONS**



# SENECA ARMY DEPOT ACTIVITY PROJECT ORGANIZATION



## **UPDATE ON THE CLEAN-UP PROCESS**



**The Clean-up Process**



**SWMU Investigation/Classification Status Update**



**RI/FS's Status Update**



**Completed Remedial or Removal Actions**

# ***THE CLEAN-UP PROCESS***



## **GOVERNING REGULATIONS**



**Comprehensive Environmental Response,  
Compensation and Liability Act of 1980  
(CERCLA) or Superfund**



**Superfund Amendments and Reauthorization Act  
of 1986 (SARA)**



**New York Rules for Inactive Hazardous Waste  
Disposal Sites**



**Resource Recovery and Conservation Act (RCRA)**

## **INITIAL MILESTONES OF CLEANUP PROCESS**



**Listed on the National Priority List (NPL)**

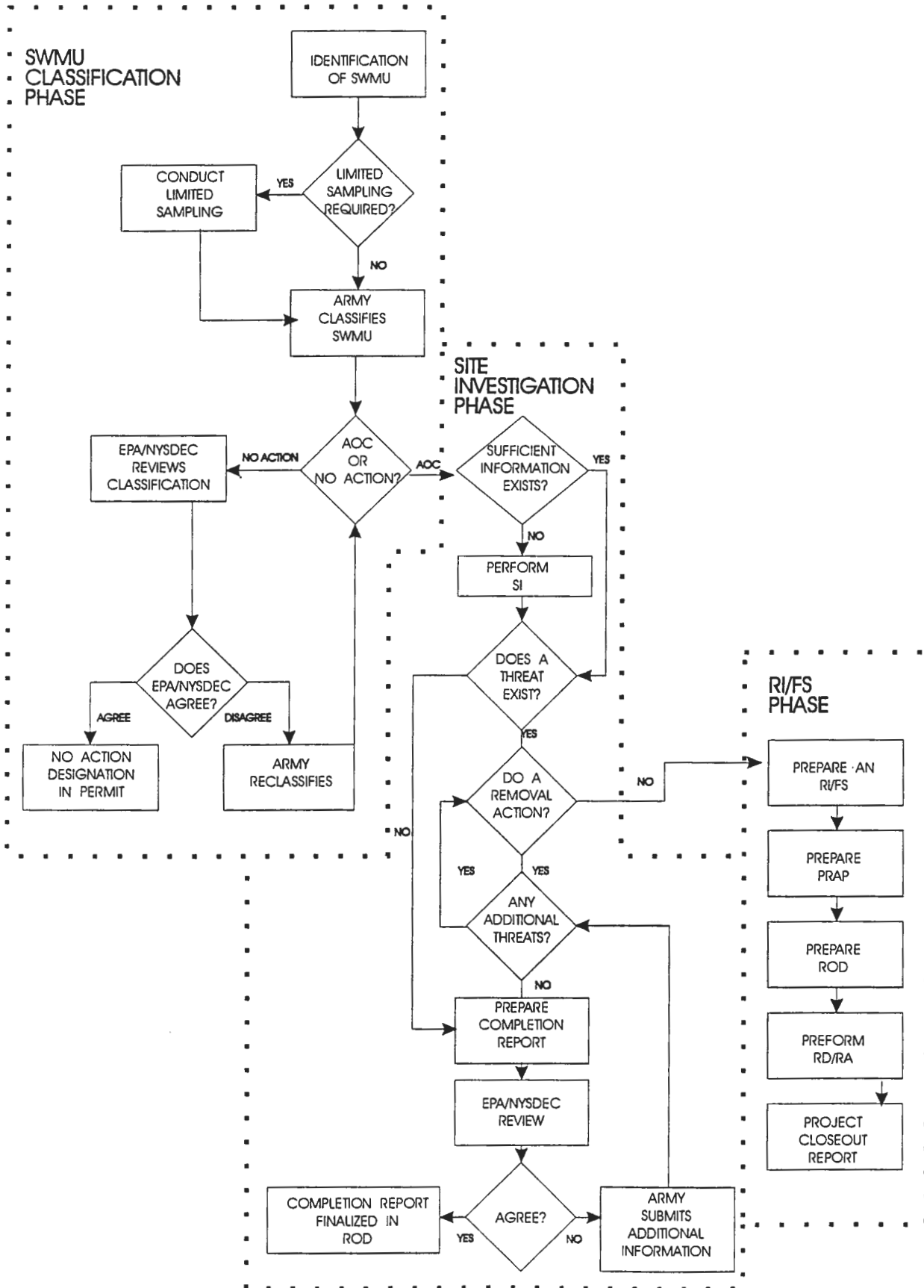
- **Hazard Ranking System(HRS)**
- **August 1990, Seneca Army Depot Activity Listed on NPL**



**Interagency Agreement (IAG) or Federal Facility Agreement (FFA)**

- **Agreement between EPA, NYSDEC and the Army**
- **Signed by all parties on Jan, 21 1993**

# SWMU CLASSIFICATION FLOWCHART





## **THE CERCLA PROCESS at SEDA**

| <b>PHASE</b>    | <b>ACTIVITIES</b>   |
|-----------------|---|
| IDENTIFICATION  | SWMU Clasification  |
| DELINEATION     | Expanded Site Inspection (ESI)<br>Remedial Investigation (RI)                             |
| EVALUATION      | Risk Assessment   |
| PRE-DESIGN      | Feasibility Study (FS)<br>Project Remedial Action Plan (PRAP)<br>Record of Decision (ROD) |
| DESIGN          | Plans and Specifications  |
| REMEDIAL ACTION | Construction / Operation  |
| MONITORING      | Long Term Monitoring  |




# ***SWMU INVESTIGATION/CLASSIFICATION PROCESS STATUS REPORT***

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PARSONS ENGINEERING SCIENCE



## ***SWMU CLASSIFICATION REPORT***

-  **All 75 SWMUs Have Been Classified as Either No Action or Area or Area of Concern (AOC)**
-  **Final SWMU Classification Report Issued on September 16, 1994**
-  **First Primary Document Finalized Under IAG**



## **SWMU CLASSIFICATION SUMMARY**

| <b>Federal Facilities Agreement<br/>(FFA) Status</b> | <b>Number of<br/>SWMUs or AOCs</b> |
|--|------------------------------------|
| <b>No Action</b>                                     | <b>24</b>                          |
| <b>Completion Report/ROD</b>                         | <b>14</b>                          |
| <b>Removal Action/Completion<br/>Report/ROD</b>      | <b>8</b>                           |
| <b>RI/FS/PRAP/ROD</b>                                | <b>29</b>                          |
| <b>TOTAL</b>   | <b>75</b>                          |

**ROD - Record of Decision**

**RI/FS - Remedial Investigation/Feasibility Study**

**PRAP - Proposed Remedial Action Plan**

**SWMU - Solid Waste Management Unit**

**AOC - Area of Concern**

## **7 HIGH PRIORITY ESI MILESTONES**

- Draft Report (for EPA/NYSDEC Review) issued July 8, 1994**
- Draft-Final Report Issued on May 11, 1985**
- No Additional NYSDEC Comments will be Provided**
- EPA Comments Received on October 18, 1995**
- Final Report Issued on December 11, 1995**
- Army Recommends RI/FS/PRAP/ROD at SEADs-4, 16, 17  
25, 26, and 45 and Removal Action/Completion Report/ROD  
at SEAD-24**

## **3 MODERATE PRIORITY ESI MILESTONES**

- Draft Submitted on August 5, 1994**
- Draft-Final Report Issued on June 9, 1995**
- No Additional NYSDEC Comments will be Provided**
- EPA Comments Received on October 18, 1995**
- Final Report Issued on December 11, 1995**
- Army Recommends:  
RI/FS/PRAP/ROD for SEADs-11, 13, 57**



## **8 MODERATELY LOW PRIORITY ESI MILESTONES**

- Field Work Completed in July 1994**
- Draft Report Submitted on April 14, 1995**
- Draft -Final Issued on January 11, 1996**
- Army Recommends:**
  - RI/FS/PRAP/ROD at SEADs-5, 12, 59**
  - Completion Report/ROD for SEADs-9, (43,56,69), 44, and 58**
  - Removal Action/Completion Report/ROD for SEAD-50**

## **7 LOW PRIORITY ESI MILESTONES**



**Fieldwork Completed in July 1994**



**Draft Report Submitted on April 6, 1995**



**Draft -Final Report Submitted on May 3, 1996**



**Army Recommends:**

- RI/FS/PRAP/ROD at SEADs-60, 63, 64 and 71**
- Completion Report/ROD for SEADs-62, and 70**
- Removal Action/Completion Report/ROD for SEAD-67**

**REMEDIAL INVESTIGATION/FEASIBILITY  
STUDY (RI/FS) STATUS REPORT**

## **REMEDIAL INVESTIGATION (RI) AND FEASIBILITY STUDY (FS) OF THE FORMER OPEN BURNING GROUND (MILESTONES)**



### **Remedial Investigation**

- **Final Submitted on September 9, 1994**
- **Accepted as Final**



### **Feasibility Study**

- **Submitted Draft for Regulatory Review on March 10, 1994 with EPA and NYSDEC**
- **Received NYSDEC Comments on May 5, 1994.**
- **Received EPA Comments on September 30, 1994**
- **Formal Consultation with EPA and NYSDEC Occured until January 1996**
- **Draft-final FS Submitted on March 19, 1996**
- **EPA and NYSDEC comments Received on May 2, 1996**

## ***CLEAN-UP GOALS FOR OB GROUNDS***

- 500 mg/Kg max. for Lead in Soils On-site**
- 16 mg/Kg max. for Copper in Sediments in Reeder Creek**
- 31 mg.Kg max. for Lead in Sediments in Reeder Creek**
- No Runoff Without Sedimentation**
- Unexploded Ordnance Clearance, as Required**

## **REMEDIAL INVESTIGATION (RI) AND FEASIBILITY STUDY (FS) OF THE ASH LANDFILL (MILESTONES)**



### **Remedial Investigation**

- **Final Submitted on October 3, 1994**



### **Source Removal Action Completed in June 1995**



### **Feasibility Study**

- **Draft Submitted on September 19, 1994**
- **Groundwater Modeling Report Submitted on January 4, 1996**
- **Draft-final FS Submitted on December 15, 1995**
- **EPA and NYSDEC comments Received in March 1996**
- **Final FS due on June 21, 1996**







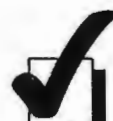

**REMEDIAL INVESTIGATION (RI) AND FEASIBILITY  
STUDY (FS) OF THE FIRE TRAINING AREAS  
(SEAD-25 and SEAD-26)**

- Remedial Investigation
  - Fieldwork Completed in December, 1995
  - Second Round of GW Sampling Completed April, 1996
- Pre-Draft (for Army Review) Submitted in April, 1996
- Draft due on June 28, 1996



# ***COMPLETED REMEDIAL ACTIONS STATUS***

## **COMPLETED REMOVAL ACTION HIGHLIGHTS**

-  **Performed at the Ash Landfill at a Cost of \$6 million**
-  **Objectives:**
  - **Remove Existing Threat to Human Health and the Environment**
  - **Eliminate Source of Groundwater Plume**
  - **Streamline RI/FS Process**
-  **Treatment Goals (NYSDEC TAGM Values)**
  - **700 ug/Kg TCE**
  - **300 ug/Kg DCE**
-  **Approximately 23,000 Cubic Yards (35,000 Tons) Processed and Returned to the Site**
-  **Selected Remedial Alternative**
  - **Excavation, Low Temperature Thermal Desorption**
  - **Thermal Oxidation of Off-Gas**
-  **Remedial Activities Completed, June 1995**

**MINUTES  
RESTORATION ADVISORY BOARD  
AUGUST 20, 1996 MEETING MINUTES**

1. Attendance:

Government RAB Members Present:

Stephen M. Absolom, BRAC Environmental Coordinator, SEDA/Army Co-Chair  
Carla Struble, U.S. Environmental Protection Agency  
Kamal Gupta, NYS Department of Environmental Conservation

Government RAB Members Not Present:

Dan Geraghty, NYS Department of Health

Community RAB Members Present:

Dick Durst/Community Co-Chair, Anne Herman, Henry Van Ness,  
Carmen Serrett, Brian Dombrowski, Richard Sisson, Al Legasse,  
David Wagner, Harold Kugelmass, Estelle Coleman

Community RAB Member Not Present:

Lucinda Sangree, Frank Ives, Mary Ann Krupsak,  
Richard Lewis, Russell Miller, Diane Demuth

Government and Technical Support Personnel Present:

LTC Stephen Brooks, SEDA Commander  
Thomas Enroth, SEDA Environmental Engineer  
Janet Fallo, SEDA Environmental Engineer  
Jerry Whitaker, SEDA Base Transition Coordinator  
Beverly Lombardo, SEDA Public Affairs Officer  
Susan Cooper, SEDA Secretary  
Randy Battaglia, U.S. Army Corps of Engineers, NY District, SEDA Resident Office  
Dorothy Richards, U.S. Army Corps of Engineers, Huntsville Division  
Eliza Schacht, Parsons Engineering Science, Inc.  
Robert Mutaw, Woodward-Clyde  
Rick Newill, Woodward-Clyde  
Marsden Chen, New York State Department of Environmental Conservation  
Bruce Nelson, Malcom Pirnie

Others Present (from sign-in sheet):

Chris Raddell, Community Member/Contractor  
Nellie Legasse, Community Member  
Karl Bechler, Community Member  
Bob Gagnon, Community Member/Contractor  
Patricia Jones, LRA  
M. Zackowski, Community Member

2. LTC Stephen Brooks welcomed members and support staff to the August Restoration Advisory Board in the NCO Club and delivered opening remarks.
3. Stephen Absolom outlined the evening's agenda and asked for introductions. Al Legasse expressed concerns about water, a valuable resource to the community. Minutes from the May RAB meeting were then approved and accepted into record. June minutes were discussed and corrections noted with final minutes to be provided by September's meeting.
4. Bob Mutaw of Woodward-Clyde provided a briefing on locating environmental sites as it applies to BRAC. The overview consisted of the Environmental Baseline Survey's category definitions, parcel qualifiers, methods used to research sites, and findings.
5. Eliza Schacht, Parsons Engineering Science, Inc. then gave a presentation on the Proposed Remedial Action Plan for the Open Burning (OB) Grounds at Seneca. After discussing the background of the 30-acre site, field sampling was explained and residual compounds identified. Remediation objectives were listed and remedial alternatives shown with their evaluating criteria and cost estimates. The Preferred Alternative, Alternative 4, suggests Off-Site Disposal to a licensed, permitted facility as the most cost effective for \$2.9 to \$4.5 million with a proposed start date for remediation of October 1997.
6. Execution of the Final Charter ensued. All comments from the last meeting were incorporated into the draft final and sent to RAB members prior to the meeting. The Charter was signed by the Army and Community Co-Chairs.
7. General discussion items follow:
  - a. A request was made to provide RAB members with maps better illustrating the OB/OD Grounds' contamination sites identified in para 5 above. These documents will be provided before the September meeting.
  - b. A question on cost difference for off-site disposal was raised. Costs for landfilling off-site is presently very competitive compared to costs incurred from on-site disposal and construction. Concerns for off-site disposal as a means of "passing our problem to someone else" were discussed. The current known methods of safe disposal were fully explained by Marsden Chen of the New York State Department of Environmental Conservation. He also stated that he would provide permitted landfill specifications to Steve Absolom for distribution to RAB members.
  - c. Reuse efforts at the OB Grounds was questioned. Before offered for reuse, the area would be checked for unexploded conventional ordnance by individuals trained in that area.
  - d. Radon testing on the installation was brought up. It was reported that all buildings were tested with only two being above the levels established as safe.

e. Possible topics for future presentations generated several viable options.

(1) A presentation by the Local Redevelopment Authority (LRA) to include future uses of the depot as well as the correlation between the RAB and LRA's activities and their impacts.

(2) Risk Assessment for residential and/or industrial scenarios and how it's developed in accordance with USEPA and State guidance.

(3) Radiological contamination--it's impact, extent, future impact, and findings.

(4) Ongoing activity and status/milestones of Ash Landfill, Remedial Investigation for the Fire Training Areas and Deactivation Furnaces and what was found.

8. The next Restoration Advisory Board meeting will be held on September 17, 1996 at 7:00 p.m. at the SEDA NCO Club.

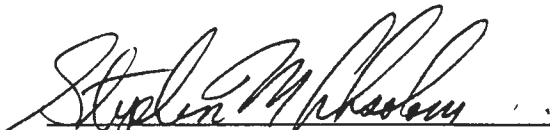
9. The meeting was adjourned at 9:25 p.m.

Respectfully submitted,

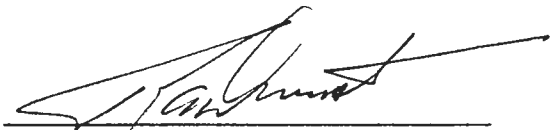


SUSAN R. COOPER  
Secretary

APPROVED AS SUBMITTED:



STEPHEN M. ABSOLOM  
U.S. Army Co-Chair



RICHARD A. DURST  
Community Co-Chair

# **SENECA ARMY DEPOT ACTIVITY, NY RESTORATION ADVISORY BOARD CHARTER**

## **I. Purpose of the Restoration Advisory Board (RAB)**

The primary purpose of the Seneca Army Depot Activity (SEDA) RAB is to improve public participation in the environmental restoration process taking place at SEDA.

## **II. Functions of the RAB**

1. The RAB will: function as a forum for open and interactive dialogue between government agencies and the public regarding environmental cleanup information; conduct regular meetings open to the public at convenient times and locations; keep meeting minutes; and make meeting minutes available to the public. The RAB brings together members who reflect diverse community interests to facilitate the flow of information, concerns, and needs between the local community, U.S. Army, N.Y. state regulators, and federal regulators.
2. The RAB will review issues related to cleanup, review cleanup strategies, track current and future activities and provide perspectives on cleanup priorities. The RAB and its members will communicate with community members and interest groups, serve as direct and reliable conduits of information to and from the community, and review and comment on various technical reports and cleanup plans.

## **III. Basis and Authority for the RAB Charter**

The basis and authority for this charter are contained in the National Defense Authorization Act for Fiscal Year 1995 (Public Law 103-337), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendment and Reauthorization Act (SARA) of 1986, particularly section 120(a), 120(f), and 10 USC 2705, enacted by Section 211 of SARA, and DoD and United States Environmental Protection Agency RAB Implementation Guidelines of September 1994, plus subsequent acts of United States Congress that here-in apply.

## **IV. Structure of the RAB**

1. The RAB will be co-chaired by the BRAC Environmental Coordinator (BEC) for Seneca Army Depot Activity (or his/her alternate) and a community member. The co-chairs will have responsibility for managing the meetings.
2. Government RAB members include representatives from the installation (the BEC), U.S. Environmental Protection Agency, and N.Y. State. Other representatives from

government agencies attend the RAB meetings as technical support staff but will not be named as RAB members. All other RAB members will be part of the Finger Lakes communities that are affected by Seneca Army Depot Activity.

3. The community co-chair is selected by secret ballot and majority vote of community RAB members present as established by the RAB. The term of office for the community co-chair position is indefinite.
4. The RAB community members are responsible for terminating a co-chair who is ineffective or detrimental to the progress of the RAB. Co-chair removal will be determined by the RAB community members in the future if necessary.
5. The RAB will meet at least quarterly at a location agreed upon by a consensus of the RAB members. Additional meetings or special focus meetings may be scheduled as the need arises.
6. Agenda items will be compiled by the co-chairs. Suggested topics should be given to the Army co-chair not later than 3 weeks prior to each meeting. The Army co-chair will be responsible for providing written notification to all RAB members of the upcoming agenda, date, time, and place of scheduled RAB meetings at least 2 weeks prior to each meeting.
7. The Army co-chair will be responsible for coordinating the recording and distributing of meeting minutes including a written list of attendees within 2 weeks after the meeting. Any comments on the minutes will be addressed at the next meeting. After the minutes are reviewed and revised, they will be available in the Information Repository at the Romulus Town Hall in Willard.
8. A draft copy of the minutes will be available to local newspapers and other media. This will reach members of the public interested in RAB activities who did not attend the meeting.

## **V. Roles and Responsibilities**

### **1. The Army co-chairperson will:**

Coordinate with the community co-chairperson to prepare and distribute an agenda prior to each RAB public meeting.

Ensure that Department of Defense employees participate in an open and constructive manner.

Ensure that the RAB has the opportunity to participate in the SEDA environmental



restoration process.

Ensure that community issues and concerns related to restoration are addressed when raised.

Ensure that an accurate mailing list of interested parties is developed and maintained.

Provide relevant policies and guidance documents to RAB members in order to enhance the RAB operation.

Ensure that adequate administrative support is provided for meeting agendas and minutes, meeting locations, necessary document reproduction and mailings, and distribution of public notices in local newspapers.

Refer issues not related to restoration to an appropriate installation official.

Report RAB activities to the appropriate installation officials.

Ensure documents distributed to the RAB are also made available to the general public, as deemed appropriate in compliance with applicable laws and regulations.

**2. The Community Co-chairperson will:**

Coordinate with the Army co-chairperson and RAB members to prepare and distribute an agenda prior to each RAB public meeting.

Ensure that community members participate in an open and constructive manner.

Ensure that the RAB has the opportunity to participate in the SEDA environmental restoration process.

Ensure that community issues and concerns related to restoration are raised.

Ensure documents distributed to the RAB are also made available to the general public.

**3. The RAB Community Members will:**

Attend all RAB meetings.

Provide advice and comment on environmental restoration issues to appropriate governmental agencies.

Be responsible for representing and communicating community interests and concerns to

the RAB.

Members will serve as a direct and reliable conduit for information exchange between the community and restoration process decision makers.

Members will be available to review the various technical documents generated by the environmental restoration process at SEDA.

**4. The N.Y. State Regulatory Agency Member(s) will:**

Attend all RAB meetings.

Serve as an information, referral resource bank for communities, installations and agencies regarding installation restoration.

Review documents and other materials related to restoration.

Ensure that state environmental standards and regulations are identified and addressed by SEDA.

Facilitate flexible and innovative resolutions of environmental issues and concerns.

Assist in education and training for the RAB members.

**5. The U.S. Environmental Protection Agency (EPA) Member will:**

Attend all RAB meetings.

Serve as an information, referral and resource bank for communities, installations and agencies regarding installation restoration.

Review documents and other materials related to restoration.

Ensure that federal environmental standards and regulations are identified and addressed by SEDA.

Facilitate flexible and innovative resolutions of environmental issues and concerns.

Assist in education and training for the RAB members.

**VI. RAB Attendance Requirements**

RAB members are expected to attend all meetings. If a conflict occurs, the member

should notify one of the co-chairpersons that they will not be in attendance. Members unable to continue to fully participate may submit or be asked to submit their resignation in writing to the RAB.

## **VII. RAB Meeting Structure**

1. The regular RAB meetings will be conducted monthly or as needed on the third Tuesday of the month at the Seneca Army Depot NCO Club or a location determined at the previous meeting.
2. Meetings will begin at 7:00 p.m. and end when RAB business has been completed, normally not lasting more than 2 hours. Special focus meetings will be held, when necessary, in addition to the regular meetings.
3. Each meeting will begin with a review of the previous meetings minutes. There will be time allotted on each agenda for public comments and an open discussion.

## **VIII. Procedure and Time Period for Review of Technical Documents**

Technical documents will be reviewed by the RAB in the same time period as the regulatory staff, normally at least 30 days, so that the environmental restoration efforts at SEDA are not impeded. RAB members may provide written comments on documents which will be consolidated by the Army co-chairperson. An executive summary of large documents may be provided to RAB members and full documents will be available at the Information Repository. RAB members will be furnished a copy of documents in review at request.

## **IX. Amendments to this Charter**

This charter may be amended by a simple majority vote of RAB members in attendance at a RAB meeting, if the amendment is consistent with the laws and regulations governing its existence.

## **X. Termination of this Charter**

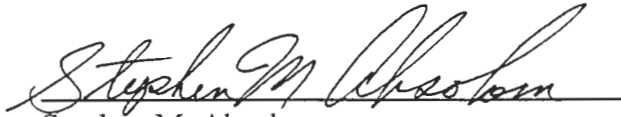
This charter will be terminated upon completion of the environmental restoration process at SEDA or as determined by the RAB.

## **XI. Effective Date of this Charter**

The effective date of this charter shall be when it is accepted by a majority vote of RAB members and both co-chairs have signed the charter.

**XII. Signatories to the RAB Charter**

IN WITNESS WHEREOF, this charter was approved by the following members of the SEDA Restoration Advisory Board on the 20 day of Aug, 1996.



Stephen M. Absolom  
Army Co-chair



Dick Durst  
Community Co-chair

# **Restoration Advisory Board Meeting Agenda**

**September 17, 1996**

- 7:00**            **Welcome**  
LTC Stephen W. Brooks  
Commander, Seneca Army Depot Activity
- 7:05**            **Acceptance of Minutes**  
Mr. Stephen M. Absolom/Dr. Dick Durst  
Army Co-chair/Community Co-chair
- 7:15**            **Fire Training Areas Remedial Investigation Status**  
Mr. Michael Duchesneau  
Parsons Engineering Science, Inc.
- 7:45**            **Break**
- 8:00**            **Risk Assessment for Environmental Sites**  
Mr. Keith Hoddinott  
U.S. Army Center for Health Promotion and Preventive Medicine
- 8:30**            **Open Discussion**
- 9:00**            **Adjourn**

**MINUTES  
RESTORATION ADVISORY BOARD  
SEPTEMBER 17, 1996 MEETING MINUTES**

1. Attendance:

Government RAB Members Present:

Stephen M. Absolom, BRAC Environmental Coordinator, SEDA/Army Co-Chair  
Carla Struble, U.S. Environmental Protection Agency  
Kamal Gupta, NYS Department of Environmental Conservation  
Dan Geraghty, NYS Department of Health

Community RAB Members Present:

Dick Durst/Community Co-Chair, Anne Herman, David Wagner,  
Brian Dombrowski, Richard Sisson, Al Legasse, Lucinda Sangree,  
Mary Ann Krupsak, Russell Miller, Estelle Coleman, Frank Ives

*Attended*  
Community RAB Member Not Present:

Henry Van Ness, Richard Lewis, Diane DeMuth, Carmen Serrett

Government and Technical Support Personnel Present:

Jerry Whitaker, SEDA Base Transition Coordinator  
Beverly Lombardo, SEDA Public Affairs Officer  
Susan Cooper, SEDA Secretary  
Randy Battaglia, U.S. Army Corps of Engineers, NY District, SEDA Resident Office  
Mike Duchesneau, Parsons Engineering Science, Inc.  
Keith Hoddinott, U.S. Army Environmental Center for Health Promotion and  
Preventive Medicine  
Jim Ridenour, NYS Department of Health  
Robert Scott, NYS Department of Environmental Conservation  
Mark Maddaloni, U.S. Environmental Protection Agency, Region II  
Bruce Nelson, Malcolm Pirnie  
Kevin Healy, U.S. Army Corps of Engineers, Huntsville District

Others Present (from sign-in sheet):

Joanne Howard, Community Member  
Nellie Legasse, Community Member  
Karl Bechler, Community Member  
Patricia Jones, LRA

2. Stephen Absolom welcomed members and support staff to the September Restoration Advisory Board in the NCO Club, delivered opening remarks, outlined the evening's agenda, and asked for introductions.

3. Minutes from the June and August RAB meetings were then approved, signed, and accepted into record. The June minutes required a change to show Lucinda Sangree present.

4. Mike Duchesneau gave a presentation on the Fire Training Areas Remedial Investigation Status. The presentation covered the Fire Demonstration Pad used by firefighters to demonstrate their proficiency in fighting fires. Compounds were found to exceed EPA ranges in soil and groundwater at this site. The Fire Training Area was also explained as an area where firefighters practiced their skills in a variety of situations. Compounds detected there also exceeded EPA ranges in soils and subsurface soils. Possible remedial action alternatives were identified for soil and groundwater. Questions fielded during the presentation follow:

a. An inquiry was made as to whether compounds used for firefighting could be contributing to the contamination. Response was that it was possible, but there is little info on what was used at the site.

b. A question on how the site was constructed was asked. This response was in conjunction with the discussion of why the groundwater was mounding at the site.

c. A discussion took place on the reuse scenario and the impact on remediation efforts if the reuse was a continuation of the area for fire training. The discussion indicated some remediation may be required for hot spot removal, but that would have to be determined. It was stated that any new activity would be required to be performed in an environmentally friendly procedure that would involve some construction which might also require some remediation effort.

5. Keith Hoddinott then briefed the RAB on Risk Assessment for Environmental Sites. What was normally a 5-day class was successfully compressed into a 30-minute presentation to include objectives, Superfund Remediation Process, and Risk Assessment Process. Assessing risks in humans entailed data collection and evaluation, exposure assessment, toxicity assessment, and risk characterization. The following additional issues were discussed regarding this process:

a. When determining toxicity, the significance of 1 in 10,000 is a common number used. Assumptions used in risk assessments are widely accepted throughout the U.S., but not by the World Health Association.

b. A residential scenario was provided to lend perspective to the risk assessment process.



6. General discussion enumerated several topics for future meetings:

- a. Ecological risk assessment as opposed to human risk assessment as was discussed during this meeting.
- b. Feasibility Study process.
- c. Treatment processes for remediation.
- d. Radiological contamination--it's impact, extent, future impact, and findings.
- e. A presentation by the Local Redevelopment Authority (LRA) to include future uses of the depot as well as the correlation between the RAB and LRA's activities and their impacts.
- f. Records of Decision.
- g. National Environmental Policy Act (NEPA) and Environmental Impact Statement.

7. The next Restoration Advisory Board meeting will be held on October 15, 1996 at 7:00 p.m. at the SEDA NCO Club.

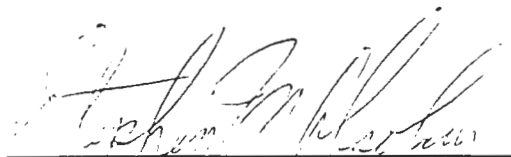
8. The meeting was adjourned at 9:25 p.m.

Respectfully submitted,




SUSAN R. COOPER  
Secretary

APPROVED AS SUBMITTED:



STEPHEN M. ABSOLOM  
U.S. Army Co-Chair



RICHARD A. DURST  
Community Co-Chair

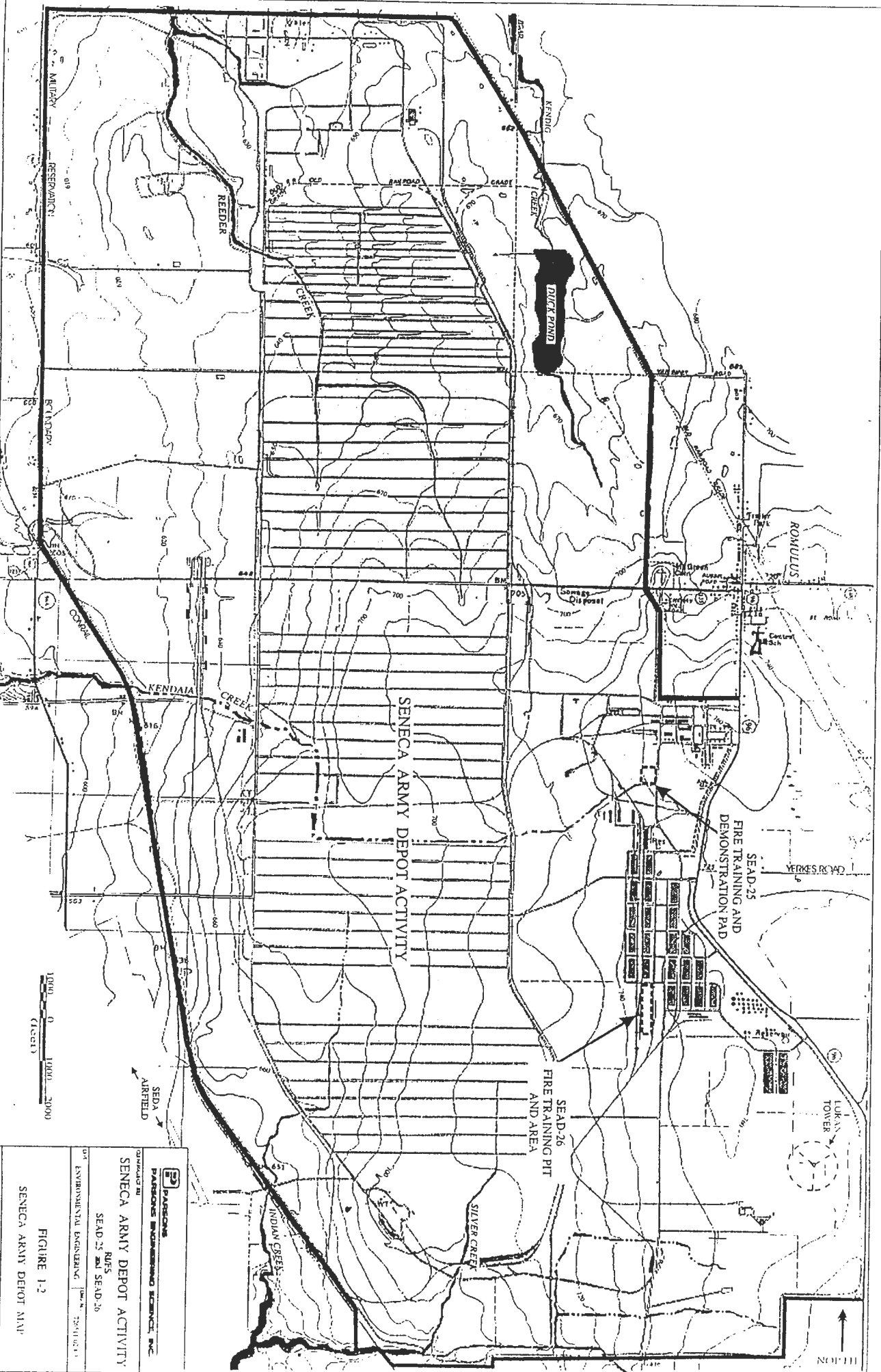
# Presentation to the Restoration Advisory Board (RAB)

September 17, 1996

# **REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) STATUS REPORT**

Summary of Activities at SEAD-25( The Fire  
Demonstration Pad) and SEAD-26 ( The Fire  
Training Area)

- Remedial Investigation
  - Fieldwork Completed in December, 1995
  - Second Round of GW Sampling Completed in April, 1996
- Pre-Draft Report Submitted to the Army in April, 1996
- Draft Report Submitted to Regulators on June 27, 1996

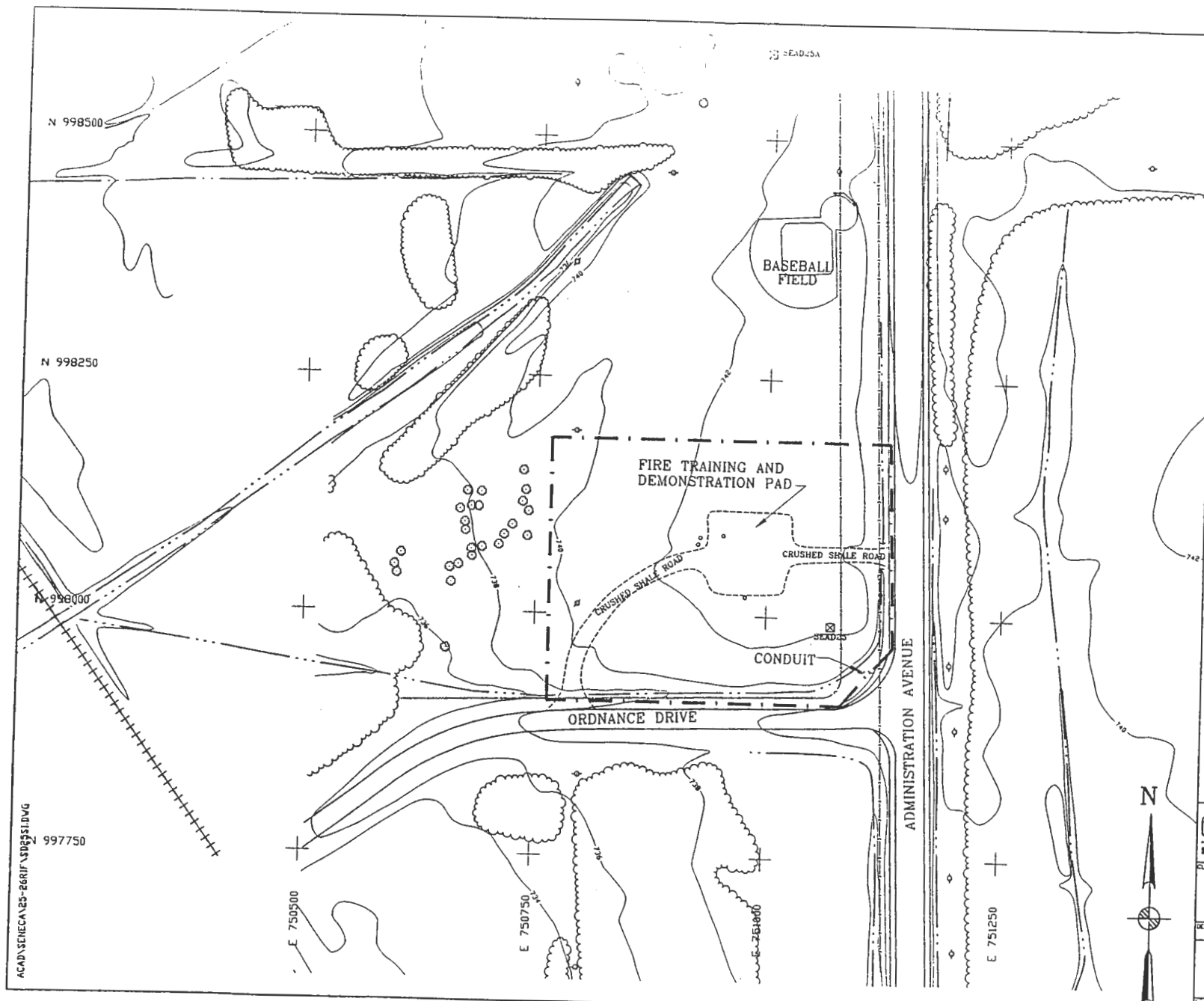


|   |   |
|---|---|
| <br><b>PARSONS</b><br>PARSONS ENGINEERING SCIENCE INC.<br>1000 AVENUE OF THE STARS<br>SUITE 1000<br>ARLINGTON, VA 22202-4302<br>TEL: 703/261-1000<br>FAX: 703/261-1001<br>WWW.PARSONS.COM | SENECA ARMY DEPOT ACTIVITY<br>RUF5<br>SEAD-25 AND SEAD-26 |
|   | ENVIRONMENTAL ENGINEERING<br>DATE: 7/20/11 02:11          |
|   | FIGURE 1-2<br>SENECA ARMY DEPOT MAP                       |



# Summary of Remedial Investigation (RI) at SEAD-25

- Volatile Aromatic Compounds Detected in Soil and Groundwater
- Volatile Chlorinated Organics Detected in Soil and Groundwater
- Groundwater Plume Limited to Site Boundaries
- Risk Exceeds EPA Target Ranges for Residential Exposure



**LEGEND**

|  |                                   |
|--|-----------------------------------|
|  | MINOR WATERWAY                    |
|  | MAJOR WATERWAY                    |
|  | FENCE                             |
|  | UNPAVED ROAD                      |
|  | BRUSH LINE                        |
|  | LANDFILL EXTENT                   |
|  | RAILROAD                          |
|  | GROUND SURFACE ELEVATION CONTOUR  |
|  | UNDERGROUND ELECTRIC UTILITY LINE |
|  | UNDERGROUND WATER UTILITY LINE    |
|  | ROAD SIGN                         |
|  | DECIDUOUS TREE                    |
|  | GUIDE POST                        |
|  | FIRE HYDRANT                      |
|  | MANHOLE                           |
|  | COORDINATE GRID (250' GRID)       |
|  | POLE                              |
|  | UTILITY BOX                       |
|  | MAILBOX/RR SIGNAL                 |
|  | SEAD-25 SURVEY MONUMENT           |
|  | OVERHEAD UTILITY POLE             |

(NOT ALL SYMBOLS MAY APPEAR ON MAP)

APPROXIMATE EXTENT OF SEAD-25



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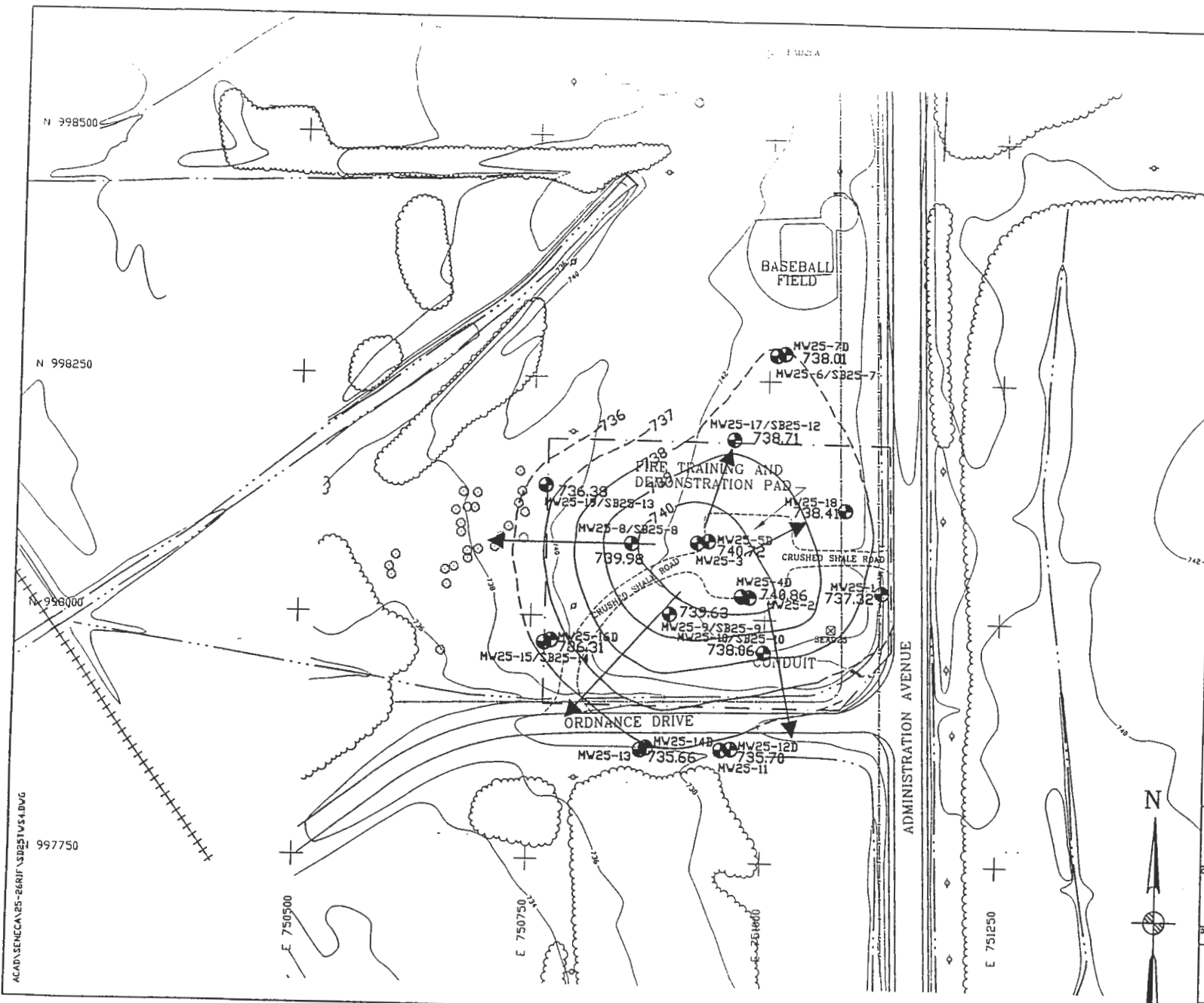
CLIENT/PROJECT TITLE  
**SENECA ARMY DEPOT ACTIVITY**  
 RI/FS  
 SEAD-25 FIRE TRAINING AND DEMONSTRATION PAD

DEPT. ENVIRONMENTAL ENGINEERING      Div. No. 720068-02003

**FIGURE 1-3**  
**SEAD-25**  
**SITE PLAN**

SCALE 1" = 100'      DATE MARCH 1998

ACAD\SENECA\25-26RIP\AD0851.DWG  
 997750



**LEGEND**

|  |                                    |
|--|------------------------------------|
|  | MINOR WATERWAY                     |
|  | MAJOR WATERWAY                     |
|  | FENCE                              |
|  | UNPAVED ROAD                       |
|  | BRUSH LINE                         |
|  | LANDFILL EXTENT                    |
|  | RAILROAD                           |
|  | GROUND SURFACE ELEVATION CONTOUR   |
|  | UNDERGROUND ELECTRIC UTILITY LINE  |
|  | UNDERGROUND WATER UTILITY LINE     |
|  | ROAD SIGN                          |
|  | DECIDUOUS TREE                     |
|  | GUIDE POST                         |
|  | FIRE HYDRANT                       |
|  | MANHOLE                            |
|  | COORDINATE GRD (250' GRD)          |
|  | POLE                               |
|  | UTILITY BOX                        |
|  | MAILBOX/RR SIGNAL                  |
|  | SEAD-25 SURVEY MONUMENT WITH LABEL |
|  | OVERHEAD UTILITY POLE              |

(NOT ALL SYMBOLS MAY APPEAR ON MAP)

APPROXIMATE EXTENT OF SEAD-25

738.01 MONITORING WELL LOCATION AND ELEVATION OF WATER TABLE

730 GROUNDWATER CONTOUR LINE (DASHED WHERE INFERRED)

ARROW INDICATES PREDOMINANT GROUNDWATER FLOW DIRECTION

50 0 50 100  
(Feet)

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CLIENT/PROJECT TITLE  
**SENECA ARMY DEPOT ACTIVITY**  
 RI/FS  
 SEAD-25 FIRE TRAINING AND DEMONSTRATION PAD

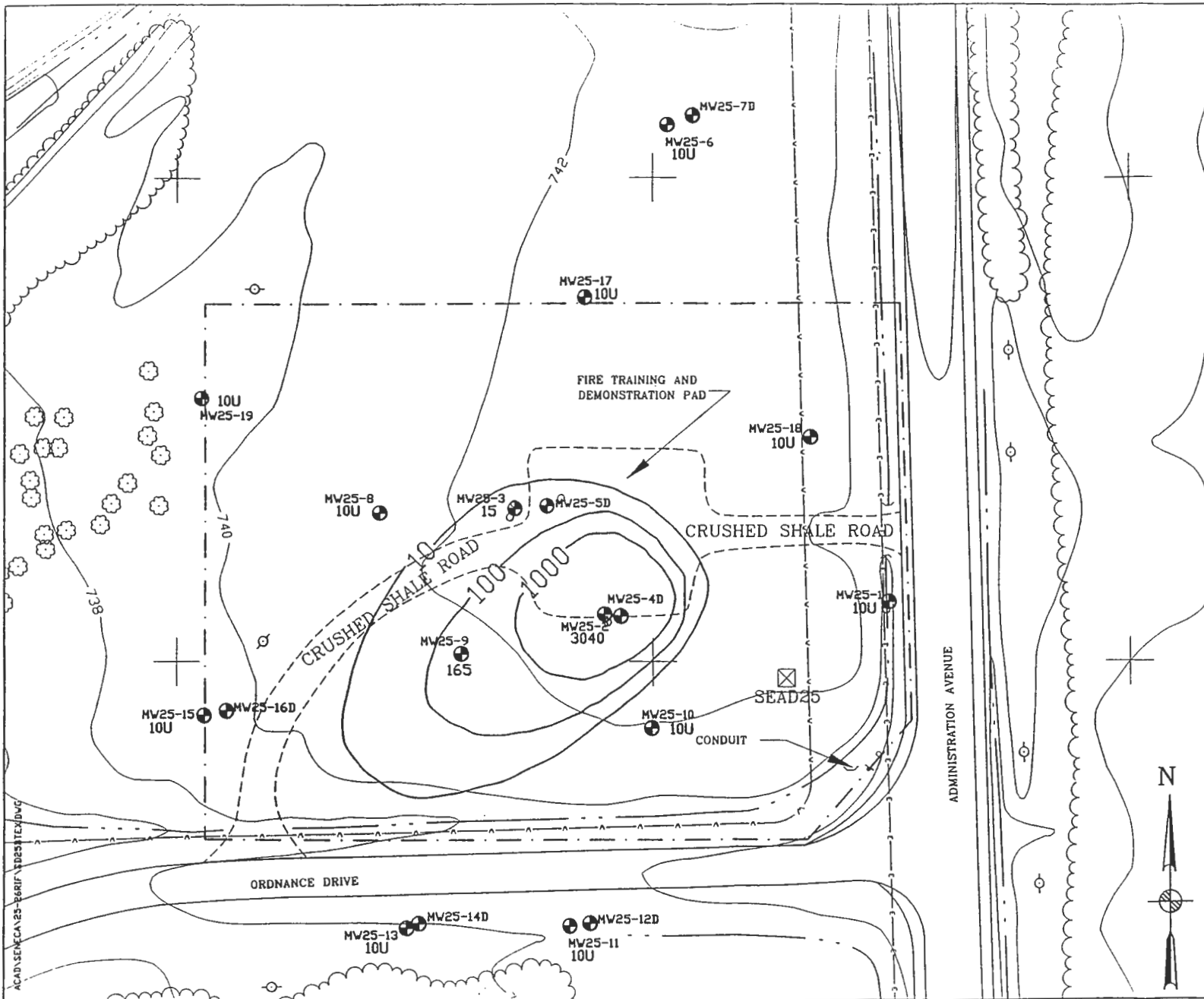
DEPT. ENVIRONMENTAL ENGINEERING      Dwg. No. 728060-02003

FIGURE 3-6  
 SEAD-25 GROUNDWATER TOPOGRAPHY FOR THE  
 TILL/WEATHERED SHALE AQUIFER-NOVEMBER 4, 1995

SCALE 1" = 100'      DATE MARCH 1996

ACAD:SENECA:25-26:RI/FS:0251V54.DWG  
 997750





**LEGEND**

|  |                                    |
|--|------------------------------------|
|  | MINOR WATERWAY                     |
|  | MAJOR WATERWAY                     |
|  | FENCE                              |
|  | UNPAVED ROAD                       |
|  | BRUSH LINE                         |
|  | LANDFILL EXTENT                    |
|  | RAILROAD                           |
|  | GROUND SURFACE ELEVATION CONTOUR   |
|  | UNDERGROUND ELECTRIC UTILITY LINE  |
|  | UNDERGROUND WATER UTILITY LINE     |
|  | ROAD SIGN                          |
|  | DECIDUOUS TREE                     |
|  | GUIDE POST                         |
|  | FIRE HYDRANT                       |
|  | MANHOLE                            |
|  | COORDINATE GRID (250' GRID)        |
|  | POLE                               |
|  | UTILITY BOX                        |
|  | MAILBOX/RR SIGNAL                  |
|  | SEAD-25 SURVEY MONUMENT WITH LABEL |

(NOT ALL SYMBOLS MAY APPEAR ON MAP)

APPROXIMATE EXTENT OF SEAD-25

10U

MONITORING WELL LOCATION WITH TOTAL BTEX CONCENTRATION IN  $\mu\text{g/L}$

100 BTEX CONCENTRATION CONTOUR ( $\mu\text{g/L}$ )

25 0 25 50  
(Feet)

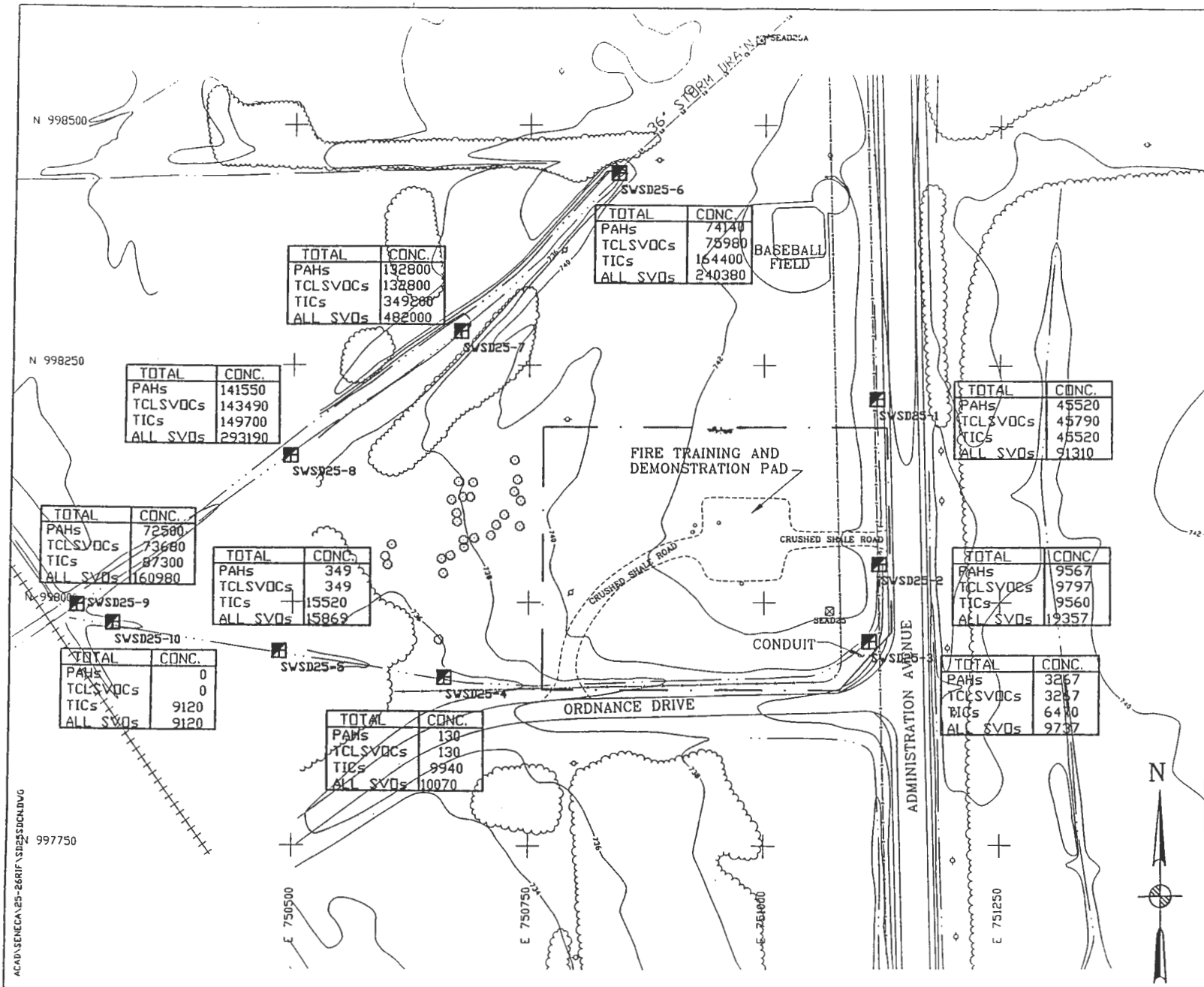
**P** PARSONS  
**PARSONS ENGINEERING SCIENCE, INC.**  
 CLIENT/PROJECT TITLE  
**SENECA ARMY DEPOT ACTIVITY**  
 RI/FS  
 SEAD-25 FIRE TRAINING AND DEMONSTRATION PAD

SECT ENVIRONMENTAL ENGINEERING      Proj. No. 728006-02003

**FIGURE 4-3**  
**SEAD-25 BTEX PLUME**  
**IN SHALLOW AQUIFER**

SCALE 1" = 60'      DATE MARCH 1996

ACAD:SENECA25-BARF VDSBTEX.DWG



| TOTAL     | CONC.  |
|-----------|--------|
| PAHs      | 132800 |
| TCLSVOCs  | 132800 |
| TICs      | 349200 |
| ALL SVOCs | 482000 |

| TOTAL     | CONC.  |
|-----------|--------|
| PAHs      | 74140  |
| TCLSVOCs  | 75980  |
| TICs      | 164400 |
| ALL SVOCs | 240380 |

| TOTAL     | CONC.  |
|-----------|--------|
| PAHs      | 141550 |
| TCLSVOCs  | 143490 |
| TICs      | 149700 |
| ALL SVOCs | 293190 |

| TOTAL     | CONC. |
|-----------|-------|
| PAHs      | 45520 |
| TCLSVOCs  | 45790 |
| TICs      | 45520 |
| ALL SVOCs | 91310 |

| TOTAL     | CONC.   |
|-----------|---------|
| PAHs      | 72500   |
| TCLSVOCs  | 73680   |
| TICs      | 87300   |
| ALL SVOCs | 1160980 |

| TOTAL     | CONC. |
|-----------|-------|
| PAHs      | 349   |
| TCLSVOCs  | 349   |
| TICs      | 15520 |
| ALL SVOCs | 15869 |

| TOTAL     | CONC. |
|-----------|-------|
| PAHs      | 9567  |
| TCLSVOCs  | 9797  |
| TICs      | 9560  |
| ALL SVOCs | 19357 |

| TOTAL     | CONC. |
|-----------|-------|
| PAHs      | 0     |
| TCLSVOCs  | 0     |
| TICs      | 9120  |
| ALL SVOCs | 9120  |

| TOTAL     | CONC. |
|-----------|-------|
| PAHs      | 130   |
| TCLSVOCs  | 130   |
| TICs      | 9940  |
| ALL SVOCs | 10070 |

| TOTAL     | CONC. |
|-----------|-------|
| PAHs      | 3267  |
| TCLSVOCs  | 3267  |
| TICs      | 6400  |
| ALL SVOCs | 9737  |

**LEGEND**

- MINOR WATERWAY
- MAJOR WATERWAY
- FENCE
- UNPAVED ROAD
- BRUSH LINE
- LANDFILL EXTENT
- RAILROAD
- 748 --- GROUND SURFACE
- ELEVATION CONTOUR
- UNDERGROUND ELECTRIC UTILITY LINE
- UNDERGROUND WATER UTILITY LINE
- UNDERGROUND STORM DRAIN

ROAD SIGN    DECIDUOUS TREE    GUIDE POST  
 FIRE HYDRANT    MANHOLE    COORDINATE GRID (250' GRID)  
 POLE    UTILITY BOX    MAILBOX/RR SIGNAL

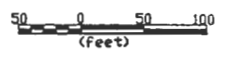
SEAD-25 SURVEY MONUMENT WITH LABEL  
 (NOT ALL SYMBOLS MAY APPEAR ON MAP)

APPROXIMATE EXTENT OF SEAD-25

LOCATION OF SURFACE WATER AND SEDIMENT SAMPLE SV/SD25-2

| TOTAL     | CONC. |
|-----------|-------|
| PAHs      | 9567  |
| TCLSVOCs  | 9797  |
| TICs      | 9560  |
| ALL SVOCs | 19357 |

CONCENTRATIONS IN ug/kg



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**PARSONS ENGINEERING SCIENCE, INC.**

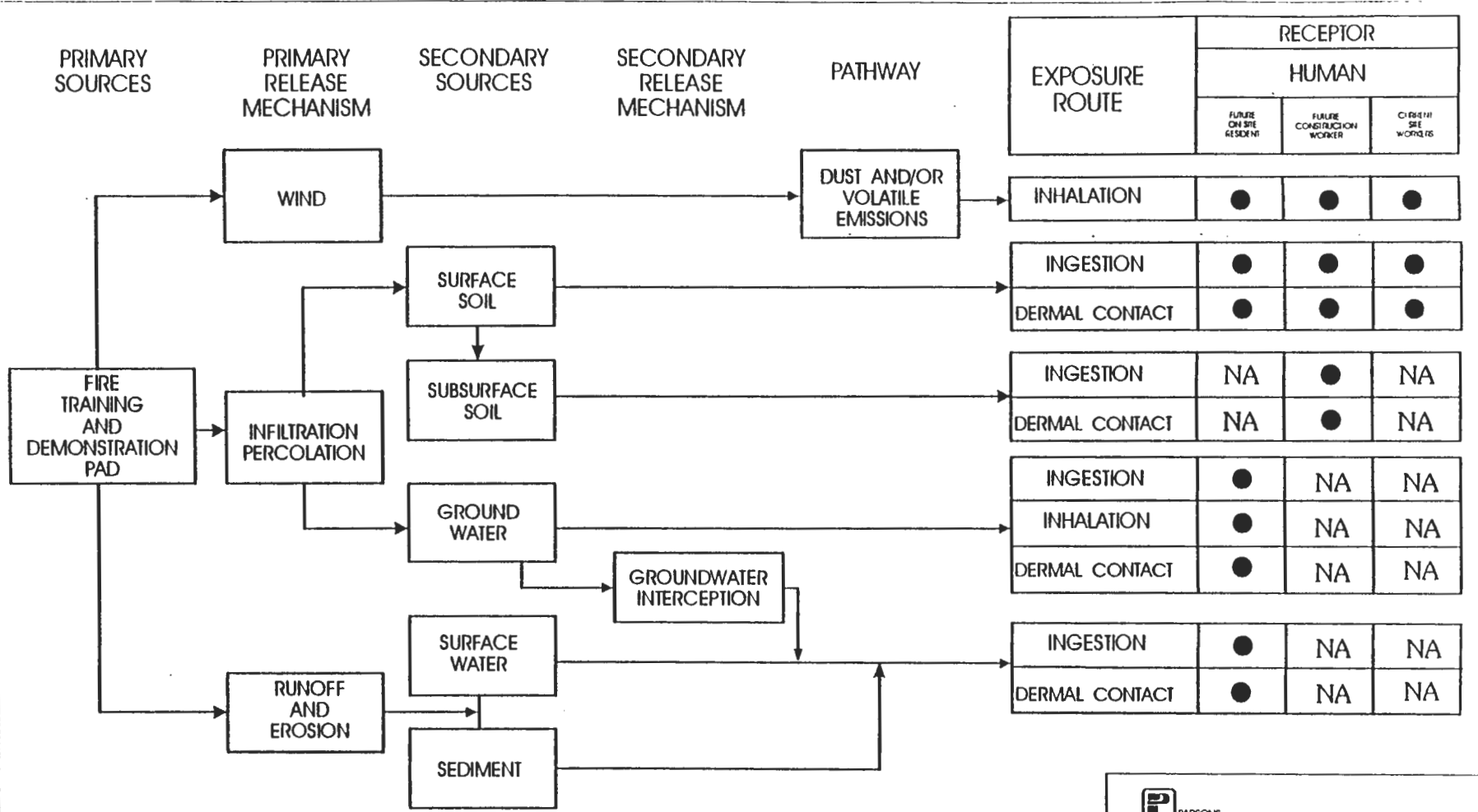
CLIENT/PROJECT TITLE  
**SENECA ARMY DEPOT ACTIVITY  
 RI/FS  
 SEAD-25 FIRE TRAINING AND DEMONSTRATION PAD**

DEPT. ENVIRONMENTAL ENGINEERING    Proj. No. 728069-02003


**FIGURE 4-5**  
**SEAD-25 SVOCs IN  
 SEDIMENT SAMPLES**

SCALE 1" = 100'    DATE MARCH 1998

ACAD\SENECA\25-268RIF\SD25\BCK\DUVG

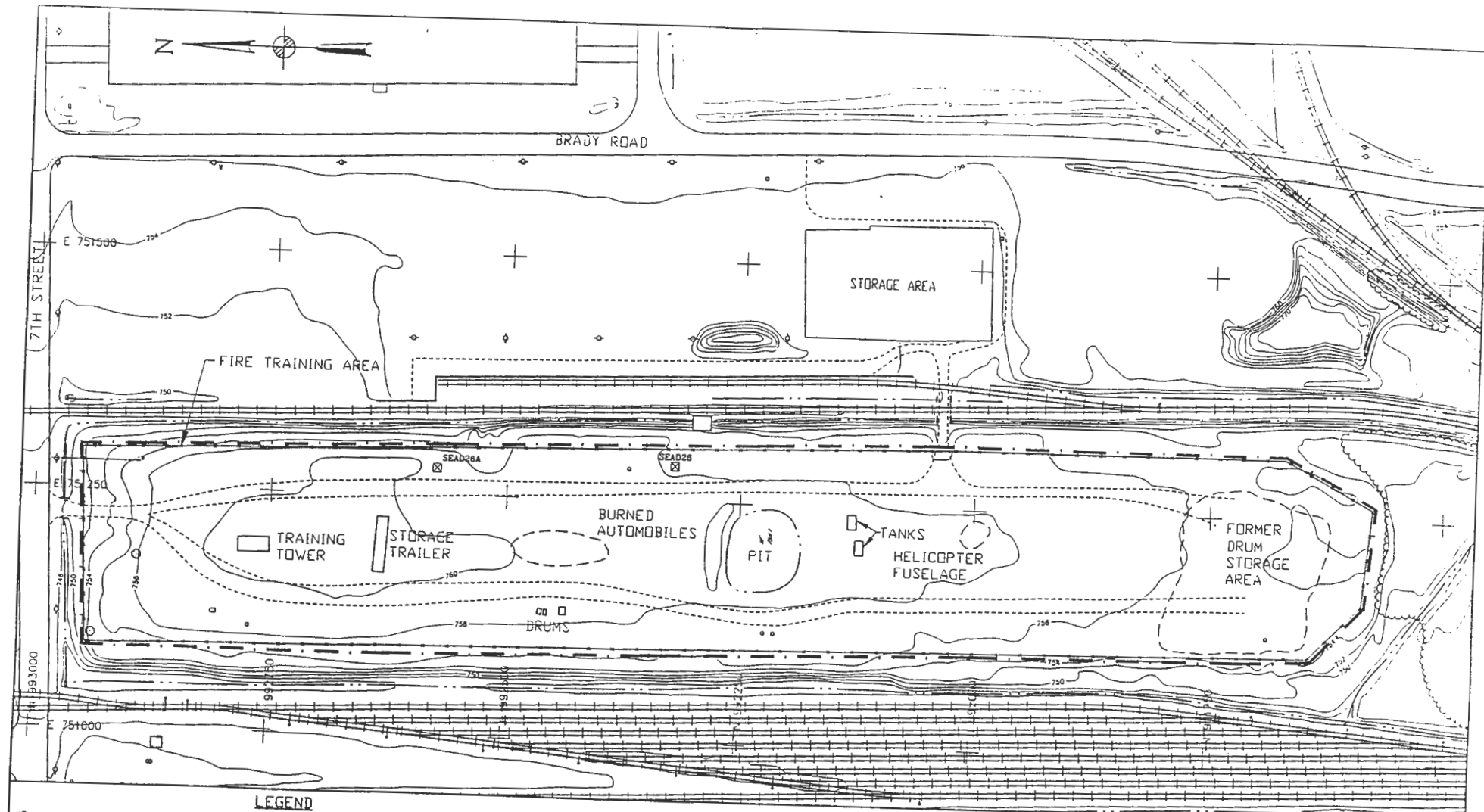


● PATHWAY CONSIDERED TO POSE POTENTIAL RISK  
 NA NOT APPLICABLE RECEPTOR

|   |                        |
|---|------------------------|
|  <b>PARSONS</b><br>PARSONS ENGINEERING SCIENCE, INC.     |                        |
| CLIENT/PROJECT FILE<br><b>SENECA ARMY DEPOT ACTIVITY</b><br>RISK ASSESSMENT EXPOSURE PATHWAYS<br>SEAD-25 FIRE TRAINING AND DEMONSTRATION AREA |                        |
| DEPT<br>ENVIRONMENTAL ENGINEERING   | DWG NO<br>728059 02002 |
| <b>FIGURE 6-11</b><br><b>EXPOSURE PATHWAY SUMMARY</b>   |                        |
| SCALE<br>NA   | DATE<br>MAY 1996       |

# Summary of Remedial Investigation (RI) at SEAD-26

- Semi Volatile Organic Compounds (SVOC) Detected in Surface and Subsurface Soils
- Highest Concentrations Detected in Surface Soils Around Fire Training Pit
- Low Conc. of Aromatic Compounds Detected in One Well, MW-26-7, Located Near the Pit
- Risk Exceeds EPA Target Range for Residential Exposure



**LEGEND**

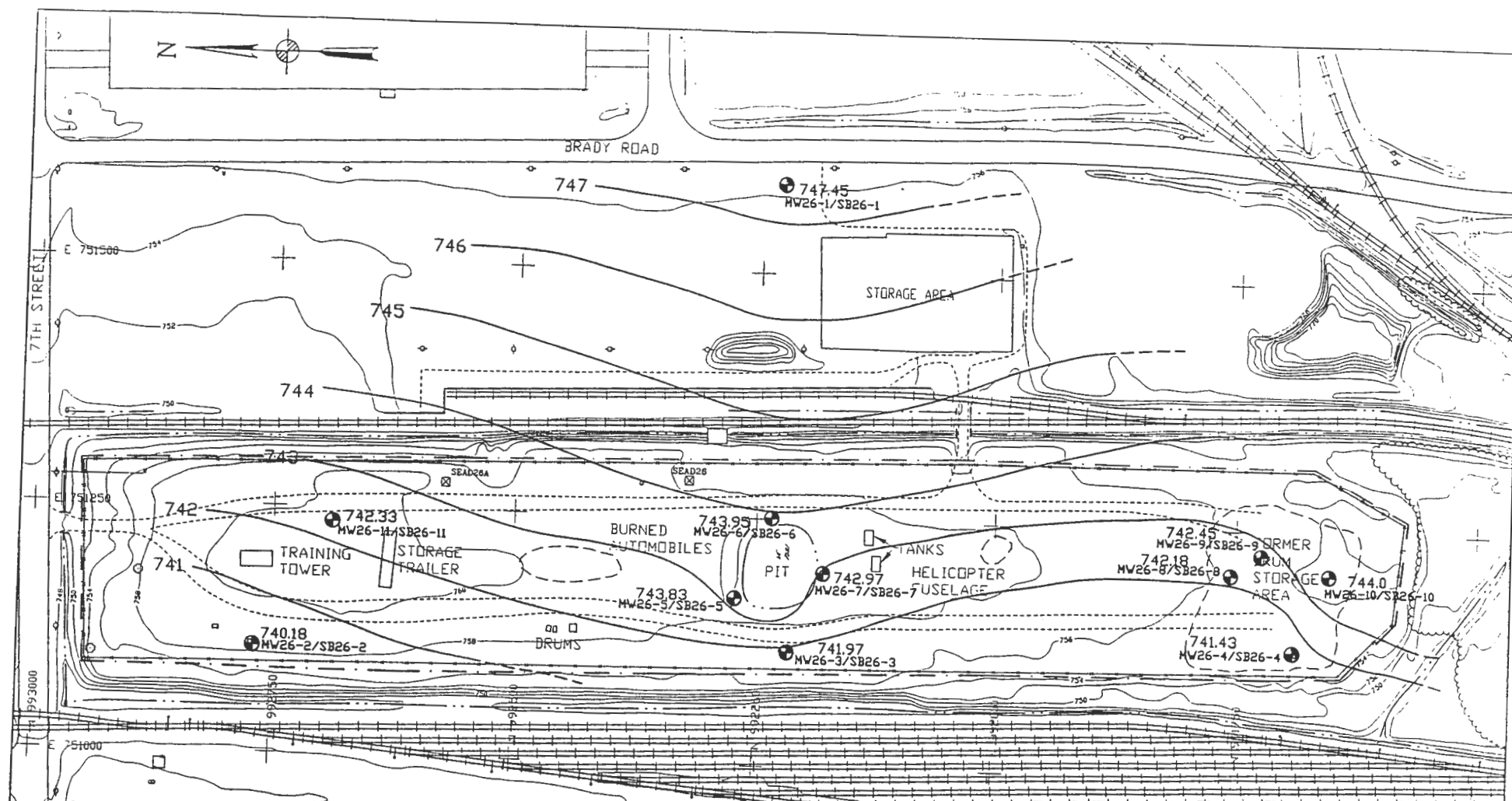
- MINOR WATERWAY
- MAJOR WATERWAY
- FENCE
- UNPAVED ROAD
- BRUSH LINE
- LANDFILL EXTENT
- RAILROAD
- GROUND SURFACE ELEVATION CONTOUR
- UNDERGROUND ELECTRIC UTILITY LINE
- UNDERGROUND WATER UTILITY LINE
- SEAD-26 SURVEY MONUMENT WITH LABEL
- ROAD SIGN
- DECIDUOUS TREE
- FIRE HYDRANT
- MANHOLE
- GUIDE POST
- POLE
- UTILITY BOX
- COORDINATE GRID (250' GRID)
- OVERHEAD UTILITY MAILBOX/RR SIGNAL POLE
- (NOT ALL SYMBOLS MAY APPEAR ON MAP)

--- APPROXIMATE EXTENT OF SEAD-26

ACAD:SENECA:25-266RIF:SD6SLDVG

**P PARSONS**  
**PARSONS ENGINEERING SCIENCE, INC.**  
 CLIENT/PRODUCT TITLE  
**SENECA ARMY DEPOT ACTIVITY**  
 RI/FS  
**SEAD-26 FIRE TRAINING PIT AND AREA**  
 D/P1 ENVIRONMENTAL ENGINEERING Dwg No. 720069-02003  
**FIGURE 1-4**  
**SEAD-26**  
**SITE PLAN**  
 SCALE 1" = 100' DATE MARCH 1996





ACAD:SENECA25-66RIF:SD6SANK.DWG

- LEGEND**
- SEAD-28
  - MINOR WATERWAY
  - MAJOR WATERWAY
  - - - FENCE
  - - - UNPAVED ROAD
  - ..... BRUSH LINE
  - ..... LANDFILL EXTENT
  - ..... RAILROAD
  - 746 — GROUND SURFACE
  - ..... ELEVATION CONTOUR
  - ..... UNDERGROUND ELECTRIC UTILITY LINE
  - ..... UNDERGROUND WATER UTILITY LINE
  - ⊠ SURVEY MONUMENT WITH LABEL
  - ⊕ DECIDUOUS TREE
  - ⊕ MANHOLE GUIDE POST
  - ⊕ UTILITY BOX
  - ⊕ COORDINATE GRID (250' GRID)
  - ⊕ MAILBOX/RR SIGNAL
  - ⊕ POLE
- (NOT ALL SYMBOLS MAY APPEAR ON MAP)

APPROXIMATE EXTENT OF SEAD-28

⊕ MW26-2  
738.01  
MONITORING WELL LOCATION  
AND ELEVATION OF WATER TABLE

744  
GROUNDWATER CONTOUR  
LINE (DASHED WHERE INFERRED)

**PARSONS**  
**PARSONS ENGINEERING SCIENCE, INC.**

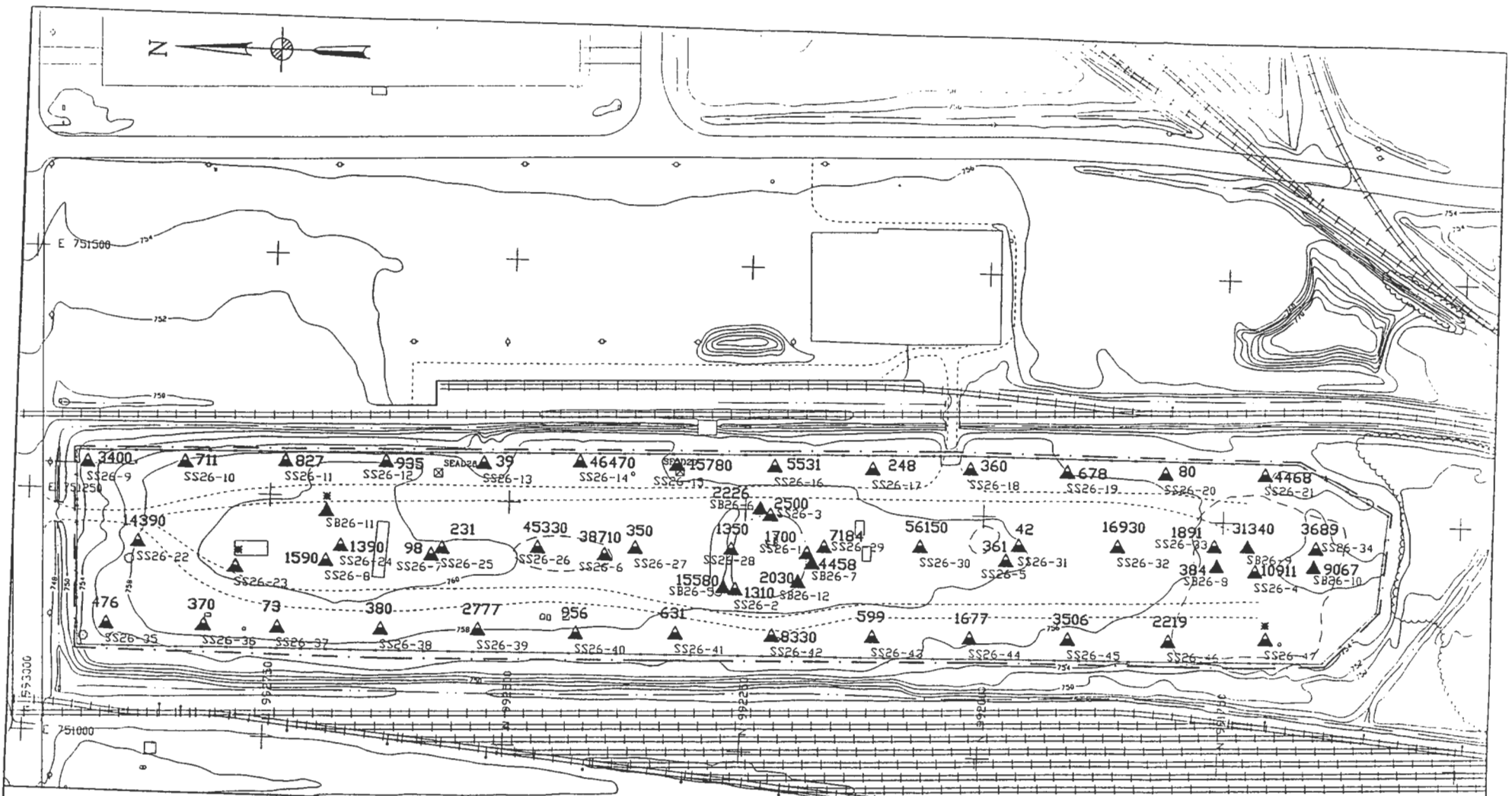
CLIENT/PROJECT TITLE  
**SENECA ARMY DEPOT ACTIVITY**  
 RI/FS  
 SEAD-28 FIRE TRAINING PIT AND AREA

DEPT ENVIRONMENTAL ENGINEERING 729018-02003

FIGURE 3-20  
 SEAD-28 GROUNDWATER TOPOGRAPHY FOR THE  
 TILL/WEATHERED SHALE AQUIFER-NOVEMBER 4, 1995

SCALE 1" = 100' DATE MARCH 1998





**LEGEND**

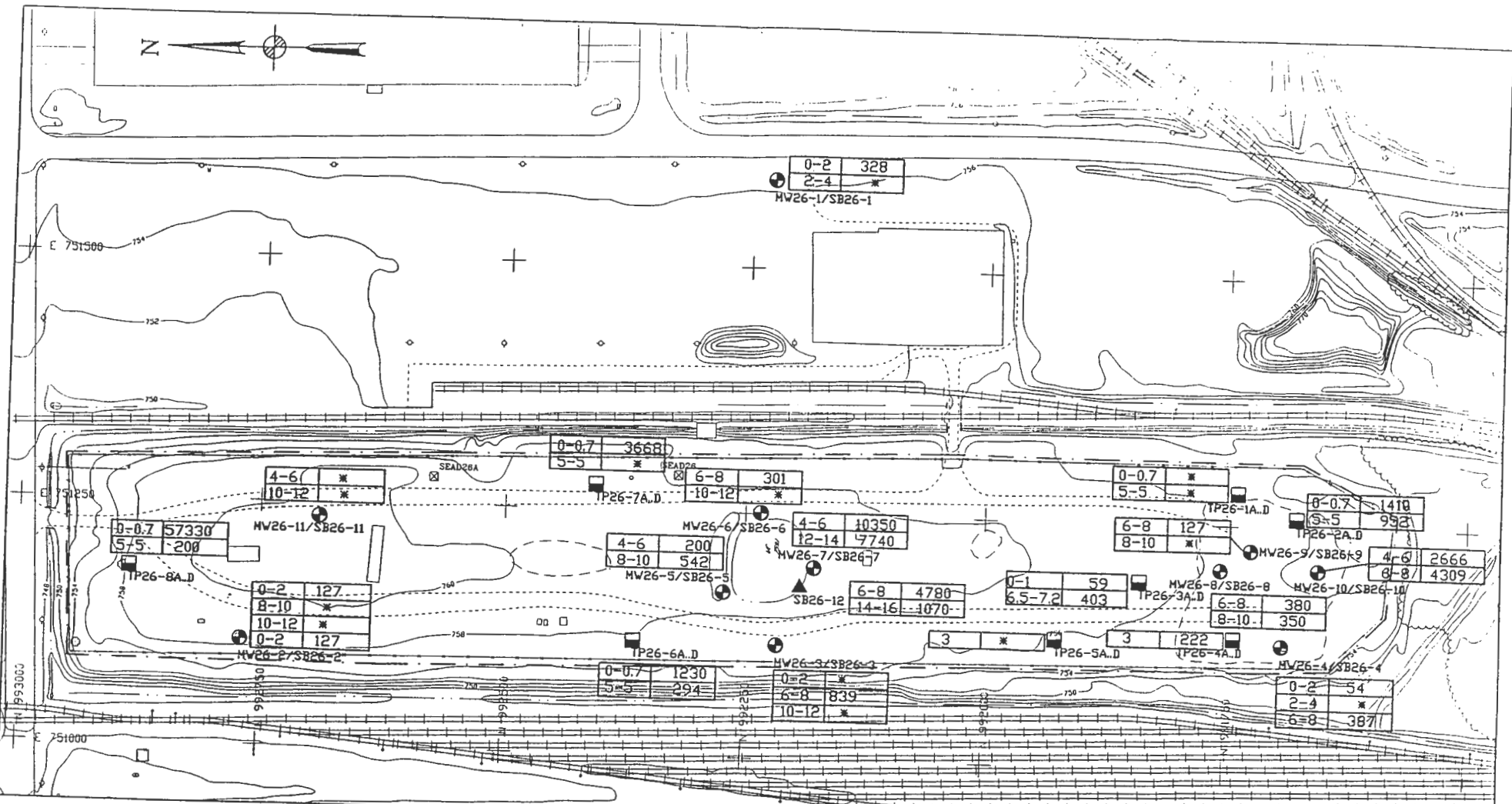
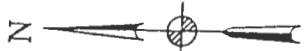
- MINOR WATERWAY
- MAJOR WATERWAY
- FENCE
- UNPAVED ROAD
- BRUSH LINE
- LANDFILL EXTENT
- RAILROAD
- 764 — GROUND SURFACE ELEVATION CONTOUR
- UNDERGROUND ELECTRIC UTILITY LINK
- UNDERGROUND WATER UTILITY LINK
- SEAD-26
- ⊠ SURVEY MONUMENT WITH LABEL
- ⊕ ROAD SIGN
- R DECIDUOUS TREE
- ⊗ FIRE HYDRANT
- ⊙ MANHOLE
- ⊕ GUIDE POST
- ⊙ POLE
- ⊠ UTILITY BOX
- ⊕ COORDINATE GRD (250' GRD)
- OVERHEAD UTILITY MAILBOX/RR SIGNAL
- (NOT ALL SYMBOLS MAY APPEAR ON MAP)

APPROXIMATE EXTENT OF SEAD-26  
 1700  
 SURFACE SOIL SAMPLE LOCATION  
 SS26-1 WITH PAH CONCENTRATION (ug/kg)  
 • INDICATES NONE WERE DETECTED



ACAD\SENECA\RI-F\SS26P\HDV.G

|   |                 |
|---|-----------------|
| <b>PARSONS</b>                            |                 |
| <b>PARSONS ENGINEERING SCIENCE, INC.</b>  |                 |
| CLIENT/PROJECT TITLE                      |                 |
| <b>SENECA ARMY DEPOT ACTIVITY</b>         |                 |
| RI/FS                                     |                 |
| <b>SEAD-26 FIRE TRAINING PIT AND AREA</b> |                 |
| DEPT                                      | DWG. NO.        |
| ENVIRONMENTAL ENGINEERING                 | 728059-02003    |
| FIGURE 4-6                                |                 |
| <b>SEAD-26 TOTAL PAH'S</b>                |                 |
| <b>IN SURFACE SOILS</b>                   |                 |
| SCALE 1" = 100'                           | DATE MARCH 1996 |



- MINOR WATERWAY
- MAJOR WATERWAY
- FENCE
- UNPAVED ROAD
- BRUSH LINE
- LANDFILL EXTENT
- RAILROAD
- 768 --- GROUND SURFACE ELEVATION CONTOUR
- UNDERGROUND ELECTRIC UTILITY LINE
- UNDERGROUND WATER UTILITY LINE

- LEGEND**
- SEAD-26
- ⊗ SURVEY MONUMENT WITH LABEL
  - ⊕ ROAD SIGN
  - ⊗ DECIDUOUS TREE
  - ⊕ FIRE HYDRANT
  - ⊗ MANHOLE GUIDE POST
  - ⊕ POLE
  - ⊗ UTILITY BOX
  - ⊕ COORDINATE GRD (250' GRID)
  - ⊗ OVERHEAD UTILITY MAILBOX/RR SIGNAL
  - ⊕ POLE (NOT ALL SYMBOLS MAY APPEAR ON MAP)

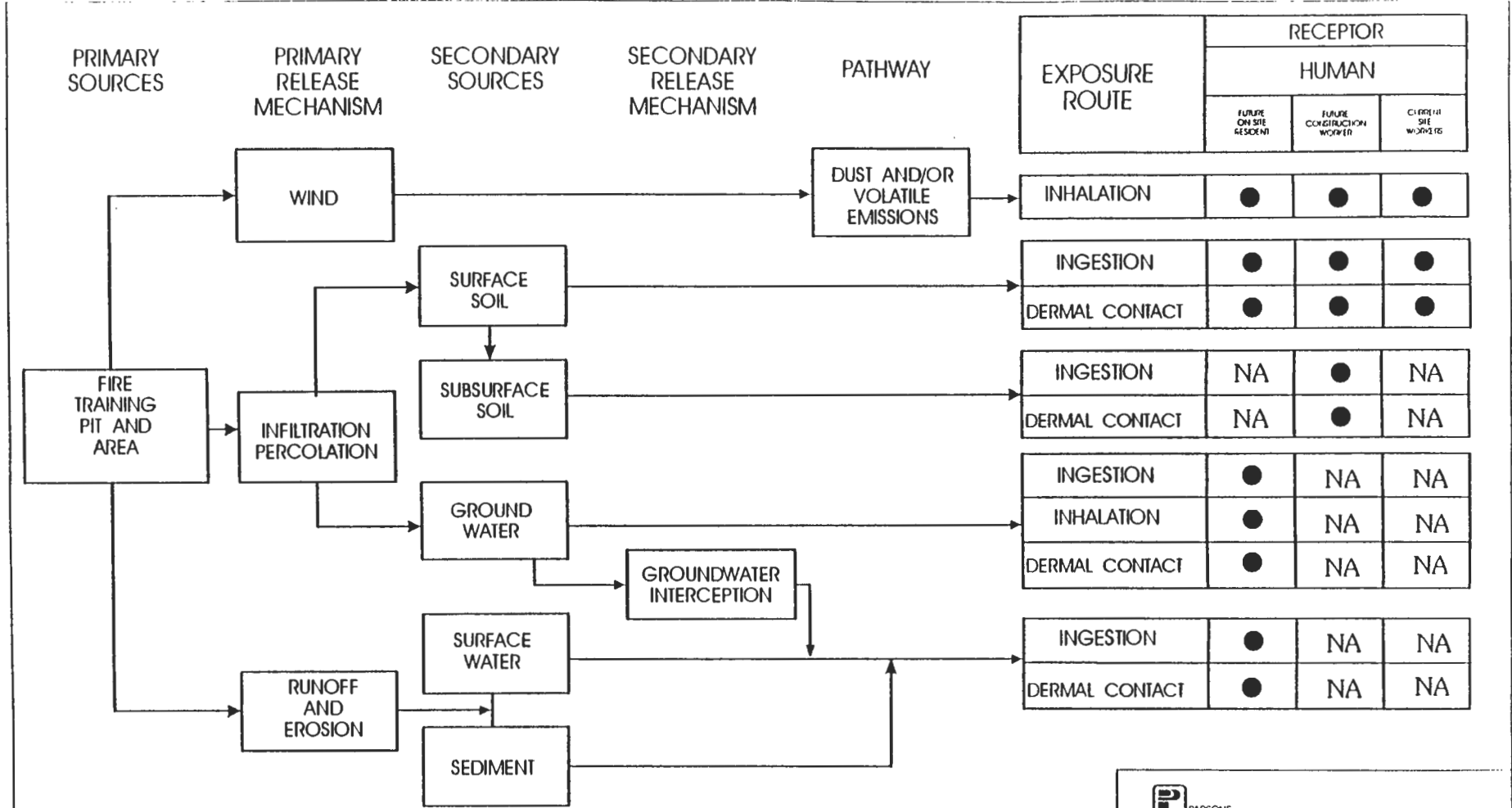
- APPROXIMATE EXTENT OF SEAD-26
- TEST PIT LOCATION
  - ⊕ MONITORING WELL LOCATION
  - ▲ SOIL BORING SAMPLE
  - \* INDICATES NONE WERE DETECTED

| DEPTH | CONC. |
|-------|-------|
| 0-0.7 | 3668  |
| 10-12 | *     |



**PARSONS**  
**PARSONS ENGINEERING SCIENCE, INC.**  
 CLIENT/PROJECT TITLE  
**SENECA ARMY DEPOT ACTIVITY**  
 RI/FS  
**SEAD-26 FIRE TRAINING PIT AND AREA**  
 DEPT. ENVIRONMENTAL ENGINEERING (PWP NO. 722069-02003)  
 FIGURE 4-10  
**SEAD-26 DISTRIBUTION OF PAH'S IN SOIL**  
 SCALE 1" = 100'  
 DATE MARCH 1998





● PATHWAY CONSIDERED TO POSE POTENTIAL RISK  
 NA NOT APPLICABLE RECEPTOR

| EXPOSURE ROUTE | RECEPTOR                |                            |                      |
|----------------|-------------------------|----------------------------|----------------------|
|                | HUMAN                   |                            |                      |
|                | FUTURE ON-SITE RESIDENT | FUTURE CONSTRUCTION WORKER | CURRENT-SITE WORKERS |
| INHALATION     | ●                       | ●                          | ●                    |
| INGESTION      | ●                       | ●                          | ●                    |
| DERMAL CONTACT | ●                       | ●                          | ●                    |
| INGESTION      | NA                      | ●                          | NA                   |
| DERMAL CONTACT | NA                      | ●                          | NA                   |
| INGESTION      | ●                       | NA                         | NA                   |
| INHALATION     | ●                       | NA                         | NA                   |
| DERMAL CONTACT | ●                       | NA                         | NA                   |
| INGESTION      | ●                       | NA                         | NA                   |
| DERMAL CONTACT | ●                       | NA                         | NA                   |

PARSONS  
 PARSONS ENGINEERING SCIENCE, INC.  
 CLIENT/PROJECT FILE  
**SENECA ARMY DEPOT ACTIVITY**  
 RISK ASSESSMENT EXPOSURE PATHWAYS  
 SEAD-26 FIRE TRAINING PIT AND AREA  
 DATE ENVIRONMENTAL ENGINEERING DWG NO. 728059 02002  
**FIGURE 7-13**  
**EXPOSURE PATHWAY SUMMARY**  
 SCALE NA DATE MAY 1995

# Potential Soil Remedial Technologies for SEADs-25 & 26

- No-Action
- Off-Site Disposal (Landfilling)
- Containment (Slurry Walls and Caps)
- Vapor Extraction
- Bioremediation (In-Situ or Ex-Situ)
- Low Temperature Thermal Treatment
- Soil Washing

# Potential Groundwater Remedial Technologies for SEAD-25

- No Action
- Pump and Treat (Collection Trench & Air Stripping/Carbon Adsorption)
- Bioremediation
- Air Sparging



# *Health Risk Assessment*

---

*U.S. Army Center for Health  
Promotion and Preventive  
Medicine*

*Health Risk Assessment and Risk  
Communication Program*

# *HRA Objectives - 1*

- *Provide a consistent Process for evaluating and documenting public health threats at sites*



# *HRA Objectives - 2*

- *Provide an analysis of baseline risks and help determine the need for action at sites*



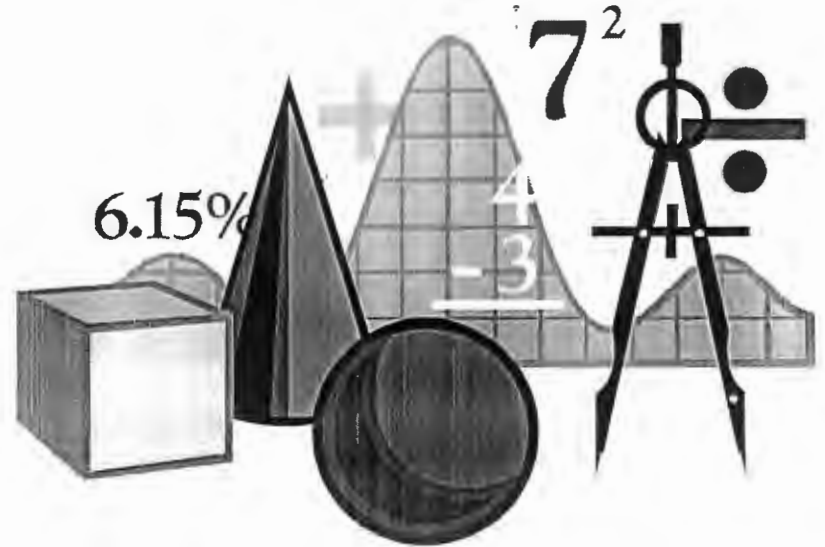
# *HRA Objectives - 3*

- *Provide a basis for determining levels that can remain onsite and still be adequately protective of public health*



# *HRA Objectives ~ 4*

- *Provide a basis for comparing potential health impacts of various remedial alternatives*





# *Superfund Remediation Process*

- *CERCLA Information System (CERCLIS)*
  - *A listing of sites with possible releases of hazardous substances*
- *Preliminary Assessment (PA)*
  - *An initial evaluation of the site using existing information.*
  - *Approximately 50% of CERCLIS sites are eliminated from further consideration after PA*

# *Superfund Remediation Process*

---

## ■ *Site Inspection (SI)*

- *Based on the results of the PA, an SI may be performed to:*
  - *Determine if there is a potential threat to human health or the environment*
  - *Determine if there is an immediate threat to people in the area*
  - *Collect sufficient data (which may include limited sampling) to enable the site to be scored using HRS*

# *Superfund Remediation Process*

## ■ *Interagency Agreement*

- *Agreement between the federal facility, EPA, and often the state to address remediation at the site*

## ■ *Remedial Investigation*



# *Remedial Investigation (RI)*

---

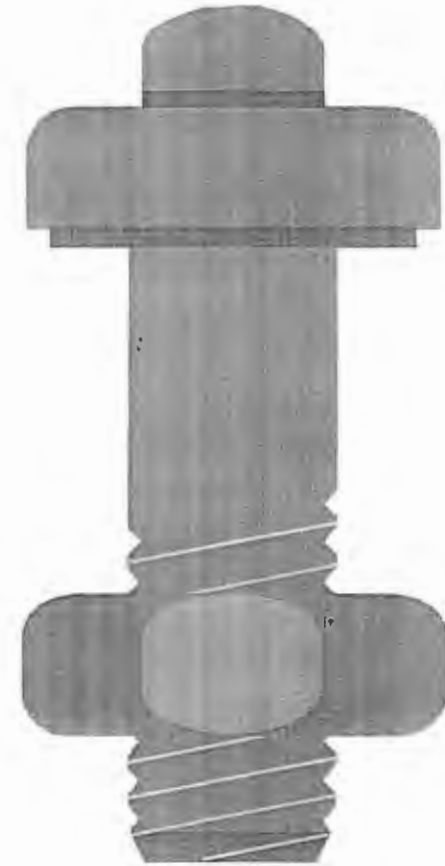
## ■ *Purpose*

- *To Collect data necessary to adequately characterize the site for the purpose of developing and evaluating effective remedial alternatives*
- *Usually contains BRA*

# *Superfund Remediation Process*

---

## ■ *Baseline Risk Assessment*

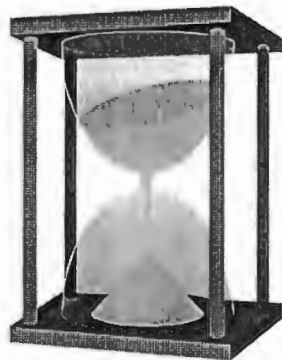


# *Superfund Remediation Process*

---

## ■ *Feasibility Study*

- *Develop and evaluate remedial alternatives*

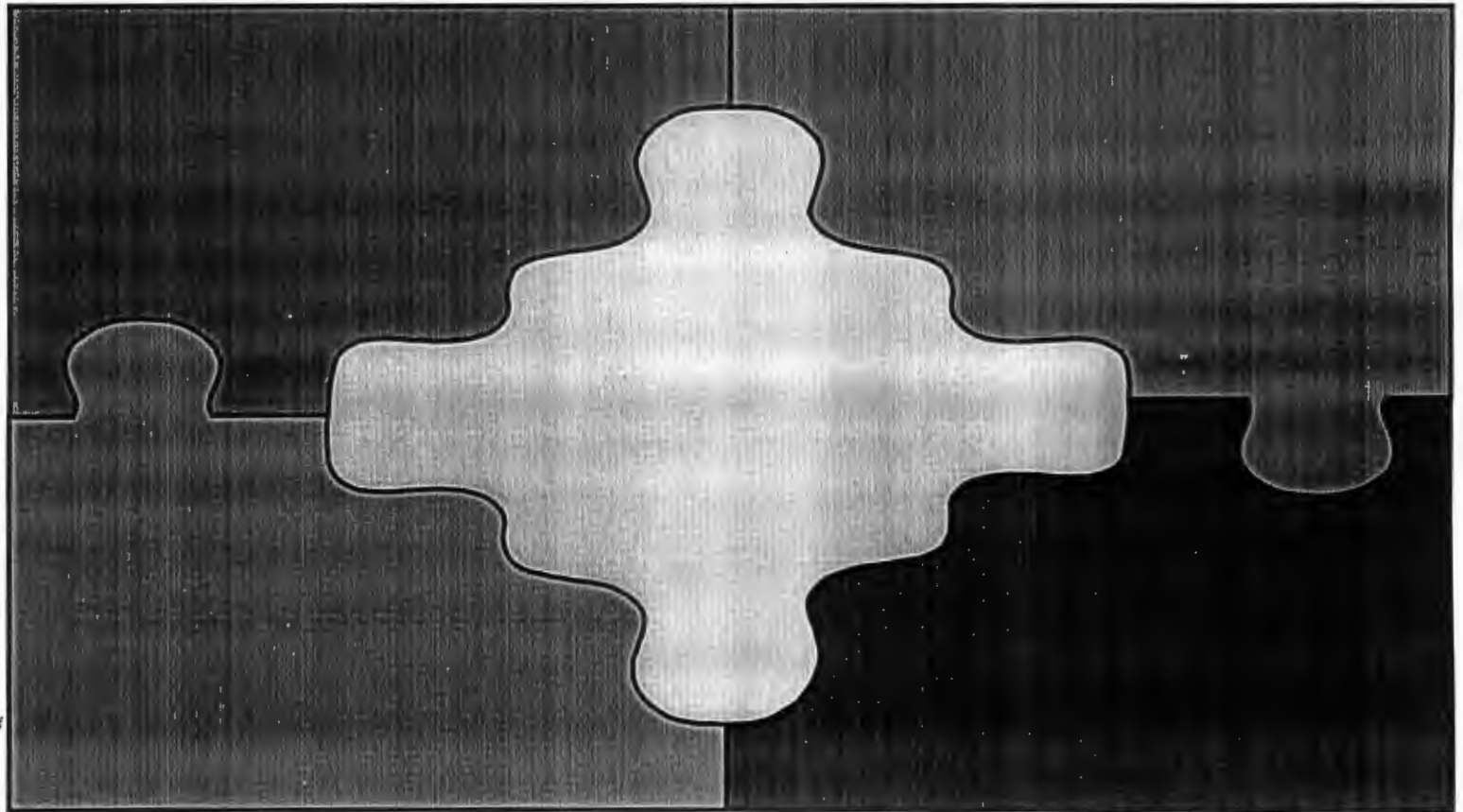


# *Superfund Remediation Process*

---

- *Record of Decision (ROD)*
  - *Final remedy decision agreed upon by regulated and regulating agencies*
- *Remedial Design (RD)*
  - *Development of actual design of the selected remedy*
- *Remedial Action (RA)*
  - *Implementation of the remedy*

# *Risk Assessment Process*





# *Risk Assessment Process*

---

- *Data Collection*
- *Data Evaluation*
- *Exposure Assessment*
- *Toxicity Assessment*
- *Risk Characterization*

# *Data Collection*

- *Collect Existing Information*
- *Address Modeling Needs*
- *Collect Background Data*
- *Conduct Preliminary Exposure Assessment*
- *Devise Strategy for Sample Collection*
- *Identify Special Analytical Needs*
- *Examine QA/QC Measures*

# *Data Collection*

---

## ■ *Data Needed for Risk Assessment*

- *Contaminant Identities*
- *Contaminant Concentrations*
- *Characteristics of Source*
- *Characteristics of Environmental Setting*
  - *As they may affect fate, transport and persistence*

# *Data Collection*

---

- *Based on review of existing information, develop a conceptual site model*
  - *Sources*
  - *Pathways*
  - *Receptors*

# *Data Collection*

## ■ *Background*

- *Naturally occurring ~ Ambient concentrations of chemicals present in the environment that have not been influenced by humans*
- *Anthropogenic ~ Concentrations of chemicals that are present in the environment due to human made non-site sources*

# *Data Collection*

---

- *Preliminary Identification of Potential Human Exposure*
  - *Media of Concern*
  - *Areas of Concern*
  - *Types of Chemicals*
  - *Routes of Transport*

# *Data Collection*

---

## *Media ~ Soil*

- *Heterogeneous Nature of Soil*
- *Designation of Hot Spots*
- *Depth of Samples*
- *Fate and Transport Properties*
- *“Exposure” Properties*

# *Data Collection*

---

## *Media ~ Ground Water*

- *Hydrogeologic Properties*
- *Well Location*
- *Well Depth*
- *Filtered Vs. Unfiltered Samples*
- *“Exposure” Properties*



# *Data Collection*

## *Media - Surface Water and Sediment*

- *Lotic Waters*
- *Lentic Waters*
- *Estuaries*
- *Sediments*
- *“Exposure” Properties*

# *Data Collection*

---

## *Media - Air*

- *Time and Space*
- *Emission Sources*
- *Meteorological Conditions*
- *Modeling Considerations*
- *“Exposure” Properties*

# *Data Collection*

---

## *Media ~ Biota*

- *Area Specific Food Preferences*
- *Usability*
- *Whole vs. Portion*
- *Time*

# *Data Evaluation*

- *Combine Available SI Data*
- *Evaluate Analytical Methods*
- *Evaluate Quantitation Limits*
- *Evaluate Qualified and Coded Data*
- *Evaluate Blanks*
- *Evaluate Tentatively Identified Compounds*
- *Compare Site Data with Background*
- *Identify Chemicals of Potential Concern*

# *Data Evaluation*

- *Comparison of Blanks with Sample Data*
  - *Containing Common Laboratory Contaminants*
    - *Methyl ethyl ketone*
    - *Methylene Chloride*
    - *Toluene*
    - *Phthalate esters*
  - *Containing Other Contaminants*

# *Data Evaluation*

- *Comparison of Samples with Background*
  - *Use appropriate background data*
  - *Identify statistical methods ~ statistical significance*
  - *compare concentrations with naturally occurring levels*
  - *compare chemical concentrations with anthropogenic levels*

# *Data Evaluation*

---

- *Identify Chemicals of Potential Concern*
  - *Positively detected in at least one sample with adequate QA/QC*
  - *Detected at levels significantly elevated above naturally occurring levels*
  - *Tentatively identified, but associated with the site based on historical information*
  - *Transformation or breakdown products of chemicals known to be present*

# *Exposure Assessment*

- *Characterize the Physical Setting*
- *Identify Potentially Exposed Populations*
- *Identify Potential Exposure Pathways*
- *Estimate Exposure Concentrations*
- *Estimate Chemical Intakes*



# *Exposure Assessment*

## *Step 1*

- *Characterize the Physical Setting*
  - *Climate*
  - *Meteorology*
  - *Geologic Setting*
  - *Vegetation*
  - *Soil Type*
  - *Ground Water Hydrology*
  - *Location and Description of Surface Water*

# *Exposure Assessment*

## *Step 2*

### ■ *Characterize Potentially Exposed Populations*

- *Determine location of current populations relative to the site*
- *Determine current land use*
- *Determine future land use*
- *Identify subpopulations of potential concern*

# *Exposure Assessment*

## *Step 3*

### ■ *Identify Potential Exposure Pathways*

- *Identify sources and receiving media*
- *Evaluate fate and transport in release media*
- *Integrate information into exposure pathways*



# *Exposure Assessment*

---

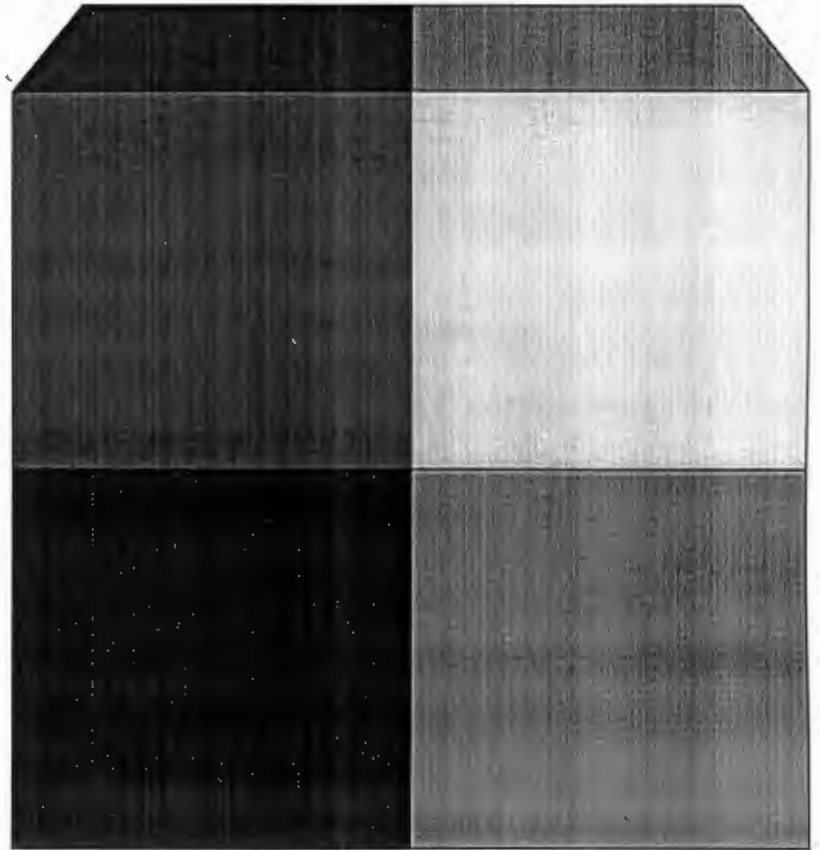
*Reasonable*

*Maximum*

*Exposure*

# *Exposure Assessment*

- *Estimation of Chemical Intakes*



# *Exposure Assessment*

## *Step 4*

### ■ *Determination of Exposure Concentrations*

- *Media specific*
- *Statistically based*
- *Direct use of monitoring data*
- *Use of modeling data*

# *Toxicity Assessment*

- *Gather Qualitative and Quantitative Toxicity Information for Substances being Evaluated*
- *Identify Exposure Periods for Which Toxicity Values are Necessary*
- *Determine Toxicity Values for Noncarcinogenic Effects*
- *Determine Toxicity Values for Carcinogenic Effects*

# *Toxicity Assessment*

- *Gather Toxicity Information for Substances Being Evaluated*





# *Toxicity Assessment*

---

## ■ *Sources of Toxicological Information*

- *Integrated Risk Information System (IRIS)*
- *Health Effects Summary Tables (HEAST)*
- *EPA Criteria Documents*
- *ATSDR Toxicological Profiles*
- *EPA Environmental Criteria and Assessment Office (ECAO)*
- *Open Literature*

# *Toxicity Assessment*

- *Noncarcinogenic Toxicity Assessment*
  - *Uses Reference Dose (RfD)*
  - *mg/kg-day*

# *Toxicity Assessment*

---

- *Carcinogenic Toxicity Assessment*
  - *Uses Slope Factors*
    - *Based on one-hit linear dose response*
  - $(\text{mg}/\text{kg}\cdot\text{day})^{-1}$

# *Toxicity Assessment*

---

- *Carcinogenicity Weight of Evidence (EPA)*
  - *A - Known human carcinogen*
  - *B - Probable human carcinogen*
    - *B1 - Limited human data available*
    - *B2 - Sufficient animal data, inadequate or no evidence in humans*
  - *C - Possible human carcinogen*
  - *D - Not classifiable*
  - *E - Evidence of noncarcinogenicity in humans*

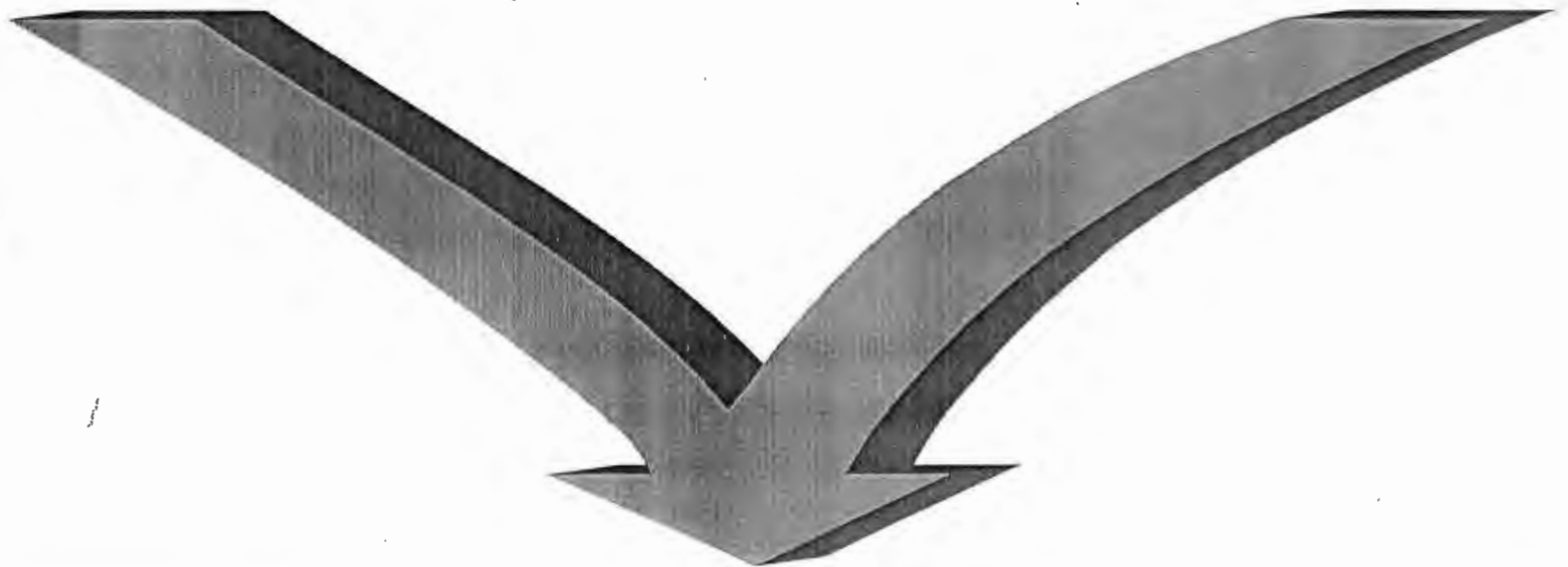
# *Risk Characterization*

- *Review Outputs from Toxicity and Exposure Assessments*
- *Quantify Risks from Individual Chemicals*
- *Quantify Risks from Multiple Chemicals*
- *Combine Risk Across Exposure Pathways*
- *Assess and Present Uncertainty*
- *Consider Site-Specific Human Studies*

# *Risk Characterization*

---

- *Review Outputs from Toxicity and Exposure Assessments*



# *Risk Characterization*

## ■ *Calculate Risks from Individual Chemicals*

- *Carcinogenic Risk*

- *Intake X Toxicity = Risk*

- *Risk expressed as probability in hypothetically exposed population*

- *Noncarcinogenic Risk*

- *Intake/Toxicity = Hazard Quotient*

- *HQ > 1 indicates potential for adverse health effects (noncarcinogenic)*

# *Risk Characterization*

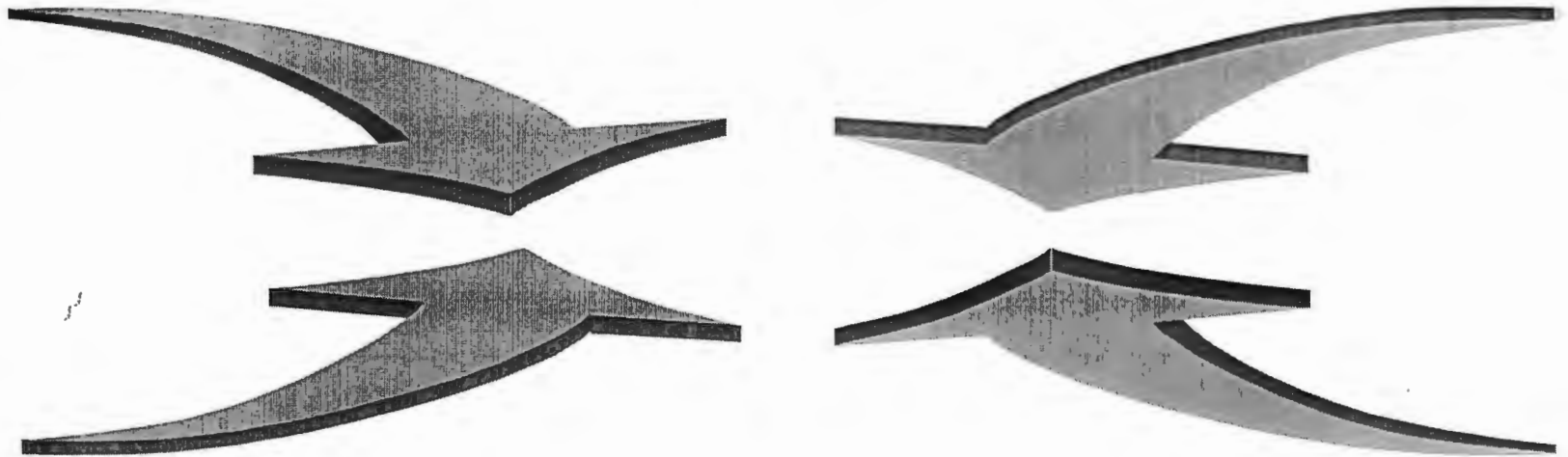
---

- *Quantify Risks from Multiple Chemicals*
  - *Carcinogenic Risk ~~~> Summation of risk for all chemicals*
  - *Noncarcinogenic Risk ~~~> Summation of HQs to determine Hazard Index*



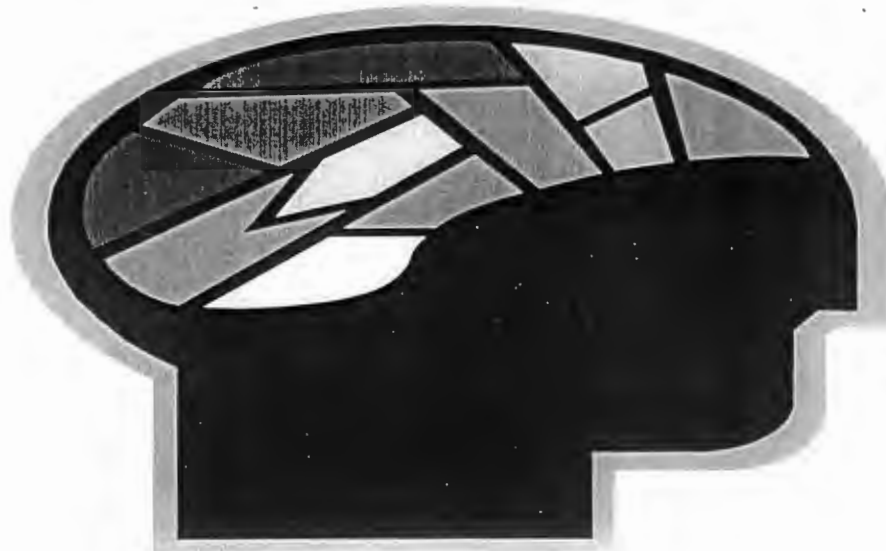
# *Risk Characterization*

- *Combine Risks Across Exposure Pathway*
  - *Summation for both carcinogenic and noncarcinogenic effects in the same manner as for multiple chemicals*



# *Risk Characterization*

- *Assess and Present Uncertainty*
  - *Lack of data and/or scientific certainty necessitates use of assumptions*



**MINUTES  
RESTORATION ADVISORY BOARD  
OCTOBER 15, 1996 MEETING MINUTES**

1. Attendance:

Government RAB Members Present:

Stephen M. Absolom, BRAC Environmental Coordinator, SEDA/Army Co-Chair  
Kamal Gupta, NYS Department of Environmental Conservation  
Dan Geraghty, NYS Department of Health

Government RAB Members Not Present:

Carla Struble, U.S. Environmental Protection Agency

Community RAB Members Present:

Dick Durst/Community Co-Chair, Anne Herman, David Wagner,  
Brian Dombrowski, Richard Sisson, Al Legasse, Lucinda Sangree,  
Estelle Coleman, Frank Ives, Henry Van Ness, Harold Kugelmass

Community RAB Members Not Present:

Russell Miller, Mary Ann Krupsak, Richard Lewis, Carmen Serrett

Government and Technical Support Personnel Present:

LTC Stephen Brooks, SEDA Commander  
Jerry Whitaker, SEDA Base Transition Coordinator  
Beverly Lombardo, SEDA Public Affairs Officer  
Joanne Ogden, SEDA Legal Office Representative  
Thomas Enroth, SEDA Engineering and Environmental Division  
Janet Fallo, SEDA Engineering and Environmental Division  
Susan Cooper, SEDA Secretary  
Randy Battaglia, U.S. Army Corps of Engineers, NY District, SEDA Resident Office  
Mike Duchesneau, Parsons Engineering Science, Inc.  
Andrew Schwartz, Parsons Engineering Science, Inc.  
Keith Hoddinott, U.S. Army Environmental Center for Health Promotion and  
Preventive Medicine  
Michael Rivara, NYS Department of Health  
Rick Newill, Woodward-Clyde Federal Services  
Robert Scott, NYS Department of Environmental Conservation  
Jeff Waugh, U.S. Army Environmental Center  
Dorothy Richards, U.S. Army Corps of Engineers, Huntsville District

Others Present (from sign-in sheet):

Christopher Raddell, Community Member  
Joanne Howard, Community Member



# *Threshold Screening Criteria*

---

- *Protectiveness of Human Health and the Environment*
- *Effectiveness*
- *Cost*
- *State and Community Acceptance*



# *Site Status at the Ash Landfill*

---

## Summary of Remedial Alternatives

# *Ash Landfill Source Control Remedial Alternatives*

---

- **SC-1:** *No Action*
- **SC-2:** *Excavation of Both Landfills/Disposal Off-site in Licenced Landfill*
- **SC-3:** *Excavation/Consolidation to the NCFL/Cap NCFL*
- **SC-4:** *Excavation/Wash/Backfill coarse fraction/Solidify fine fraction*
- **SC-5:** *Excavation of Debris Piles at the Ash Landfill/Disposal in an off-site Licenced landfill/Soil cap for Ash Landfill and NCFL*

# *Ash Landfill Migration Control Remedial Alternatives*

---

- **MC-1:** *No Action*
- **MC-2:** *Natural Attenuation and Institutional Controls*
- **MC-3:** *Air Sparging of Plume In-situ Treatment*
- **MC-3a:** *Funnel-and-Gate / In-situ Treatment (Iron Filings)*
- **MC-4:** *Interceptor Trenches/Filtration/LiquidPhase Carbon/Surface Water Discharge*
- **MC-5:** *InterceptorTrenches/Filtration/Air Stripping/Surface Water Discharge*
- **MC-6:** *InterceptorTrenches/Filtration/UV Oxidation/Discharge to Surface Water*
- **MC-7:** *Interceptor Trenches/Filtration/Two-Stage Biological Treatment/Surface Water Discharge*

# *MC-1, No-Action Alternative*

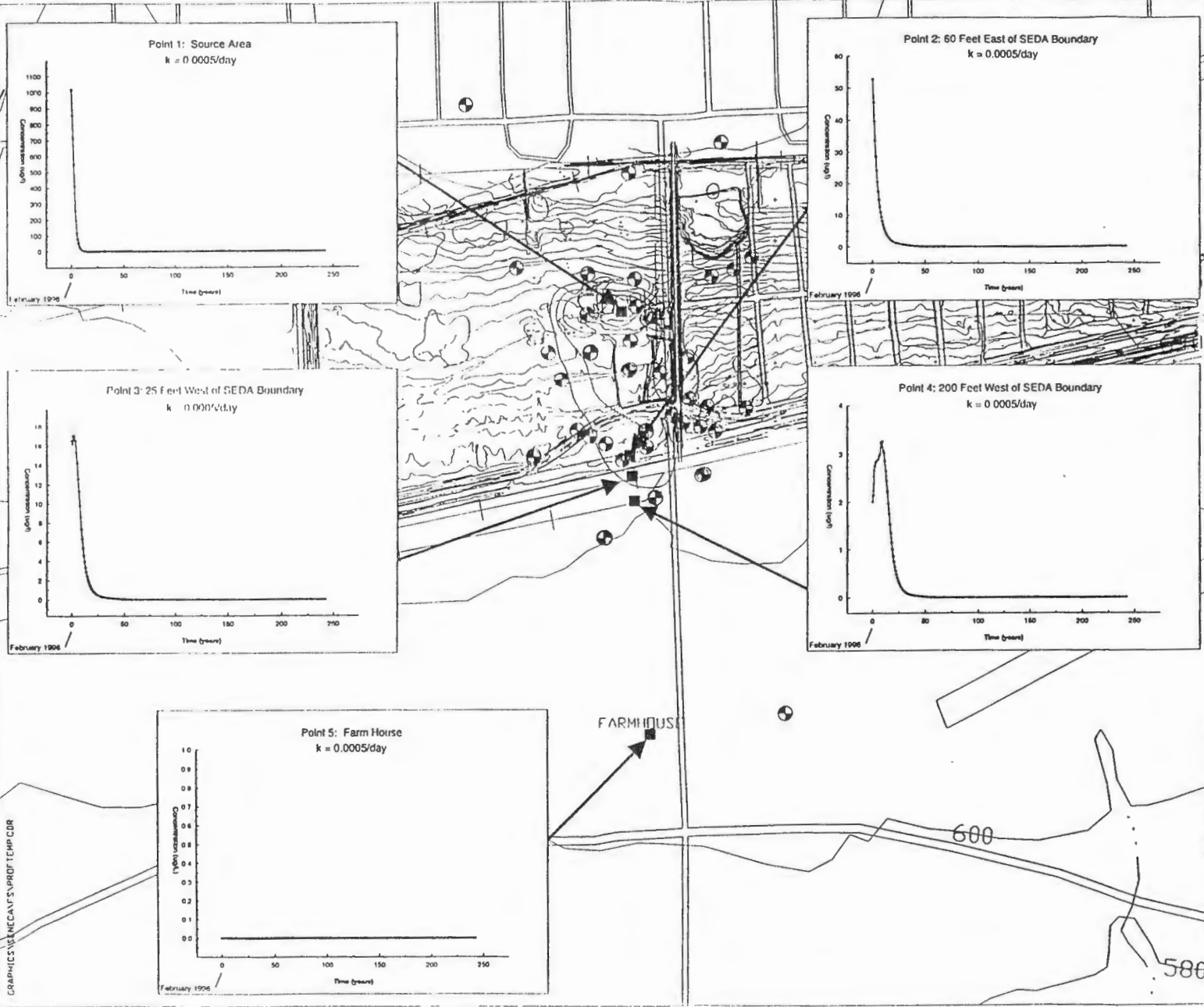
---

- *Nothing is Implemented*
- *No Monitoring is Involved*
- *Costs are Zero*
- *Retained as a Baseline Comparison to Other Alternatives*

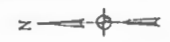


# *MC-2, Natural Attenuation and Institutional Controls*

- *Natural Mechanisms, i.e. Biological, Sorption, are Effective in Achieving Reductions*
- *Acceptable Risk is Achieved by Pathway Elimination*
- *The Intended Future Land Use is Restricted to a Wildlife Management Area*
- *Alternative Water Supply will Eliminate Potential Future Off-Site Exposure to Groundwater*
- *Monitoring Program Will Provide Warning of Potential Future Threats*
- *Cost Effective*



GRAPHICS BY MECAN/S/PROF/TEMP/CUR

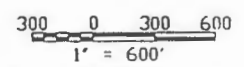


**LEGEND**

- ACTIVE MODEL BOUNDARY
- ⊕ MONITORING WELL
- SIMULATION POINT
- STREAM / CREEK
- - - INTERMITTENT STREAM
- RAILROAD TRACKS
- GROUND SURFACE
- ELEVATION CONTOUR



VOC PLUME  
FEBRUARY 1996



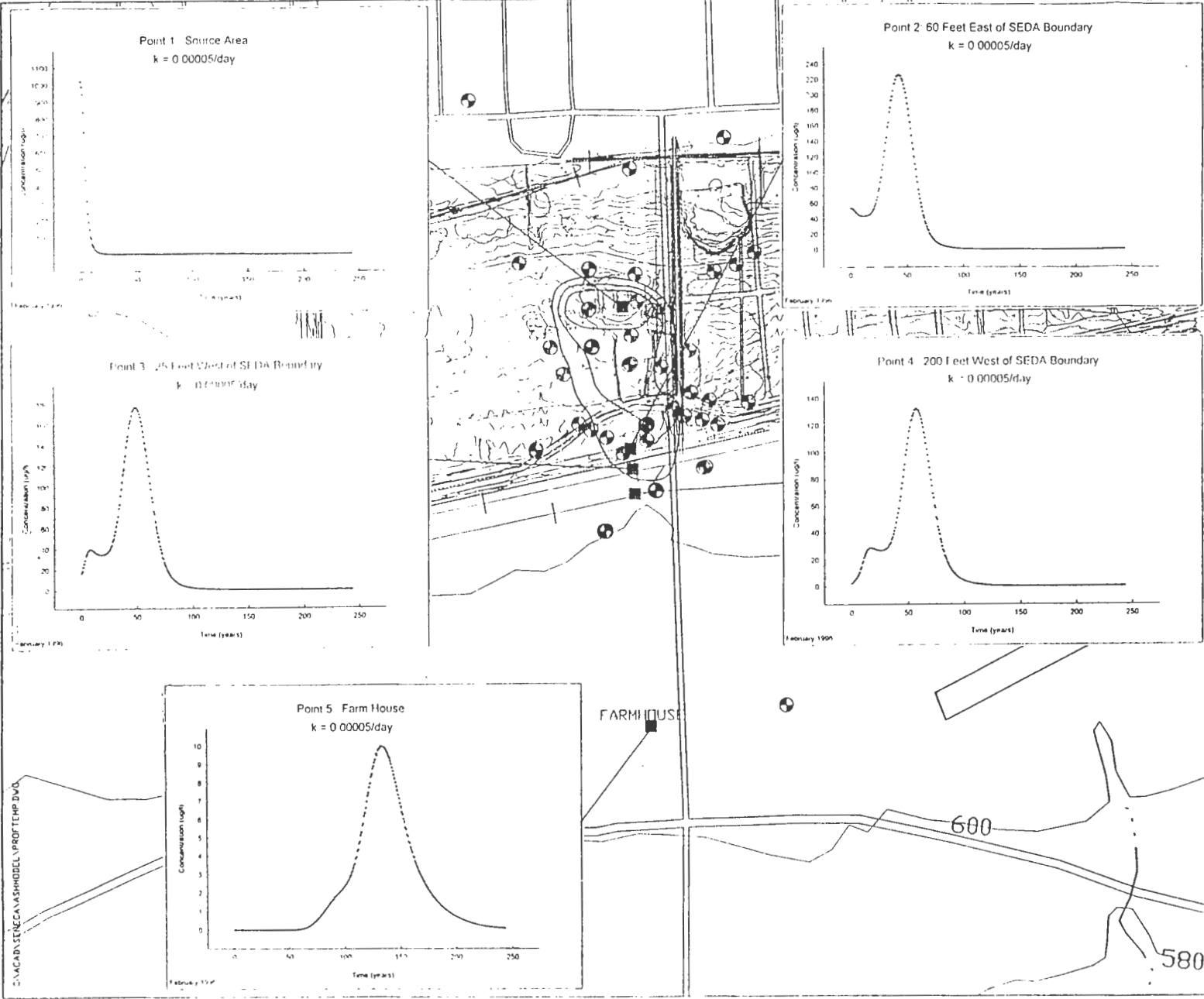
**PARSONS**  
**PARSONS ENGINEERING SCIENCE, INC.**

CLIENT/PROJECT TITLE  
**SENECA ARMY DEPOT ACTIVITY  
 FEASIBILITY STUDY  
 ASH LANDFILL**

DEPT. ENVIRONMENTAL ENGINEERING      Dep. No. 720447-08000

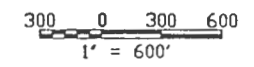
**FIGURE 5-4**  
 PROFILES OF VOC CONCENTRATIONS AT  
 SELECTED LOCATIONS IN LAYER 1 SENARIO 3 B

SCALE: 1" = 600'      DATE: MAY 1998      SHEET: 4



**LEGEND**

- ACTIVE MODEL BOUNDARY
- MONITORING WELL
- SIMULATION POINT
- STREAM / CREEK
- - - INTERMITTENT STREAM
- - - RAILROAD TRACKS
- - - GROUND SURFACE
- - - ELEVATION CONTOUR



**P** PARSONS  
PARSONS ENGINEERING SCIENCE, INC.

PROJECT TITLE  
**SENECA ARMY DEPOT ACTIVITY  
ASH LANDFILL GROUNDWATER MODEL.**

DATE: ENVIRONMENTAL ENGINEERING      Draw No: 728209-01002

**FIGURE 6-18**

PROFILES OF VOC CONCENTRATIONS AT  
SELECTED LOCATIONS IN LAYER 1-SCENARIO 3 A

1" = 600'      DATE: APRIL 1998

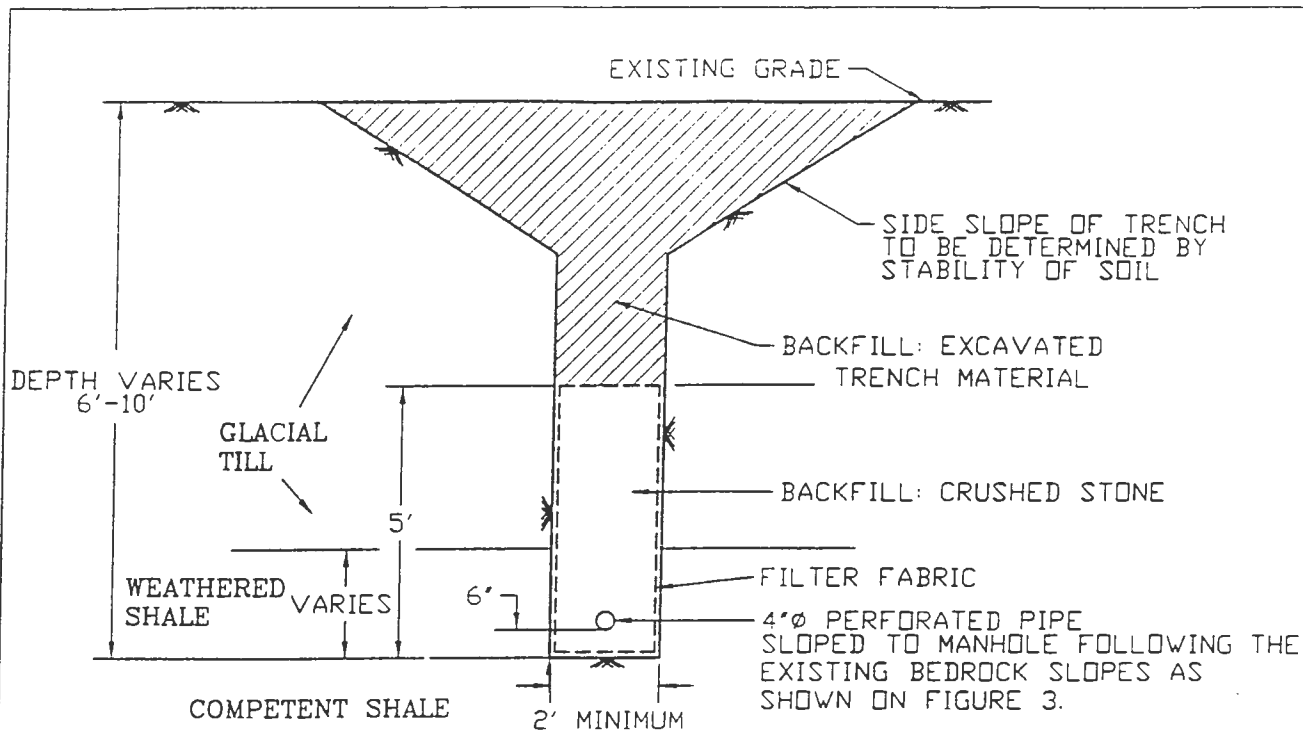
*In-situ Treatment Alternatives : MC-3, Air Sparging, & MC-3a, Funnel and Gate*

---

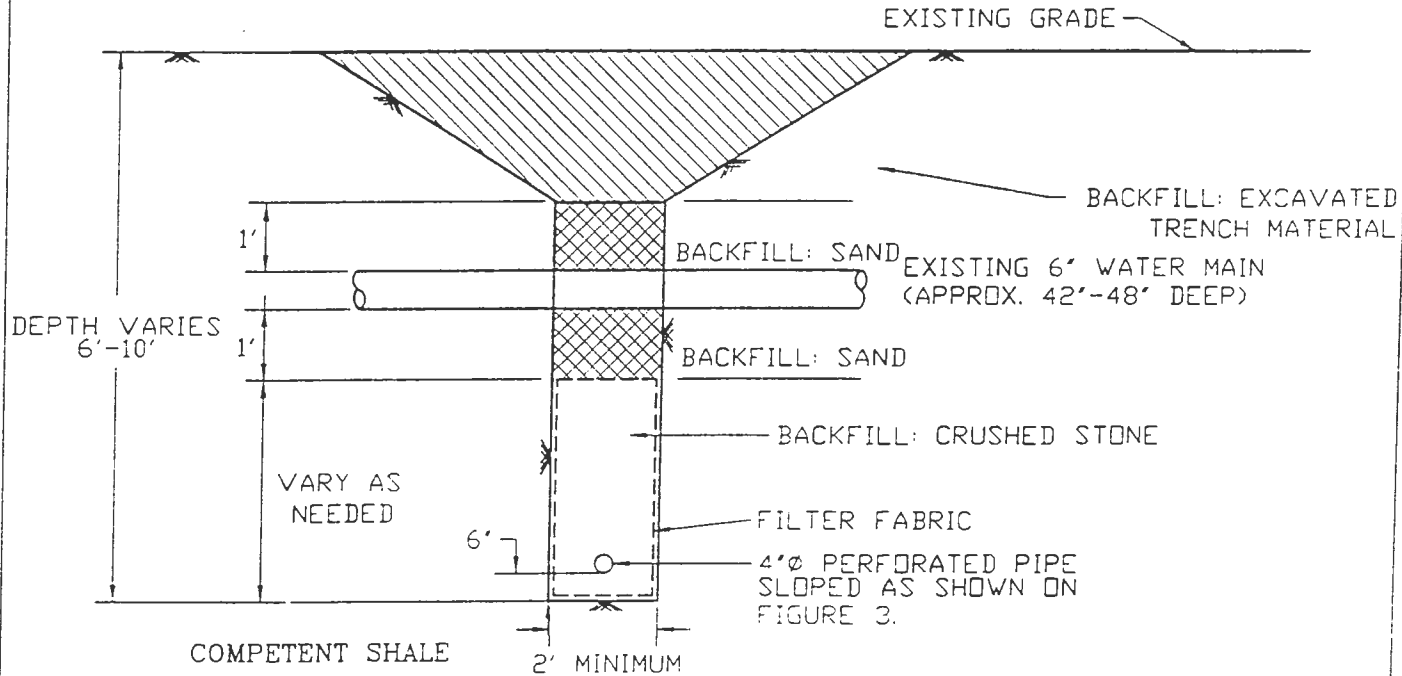
- *Air Sparging - VOCs are Removed by Air Injection into Groundwater*
- *Funnel & Gate - An Impermeable Wall, (Funnel), Diverts Groundwater to a Permeable Treatment Zone, (Gate).*

## *MC-4, Pump and Treat Alternative No. 1, Collection and Activated Carbon*

- *Groundwater is Collected via Trenches and Pumped to a Treatment Facility*
- *Treatment Involves Filtration, Activated Carbon Sorption, and Surface Water Discharge*
- *Proven Technology for Removal of VOCs from Water*



TYPICAL SECTION



DETAIL OF WATER MAIN INTERSECTION

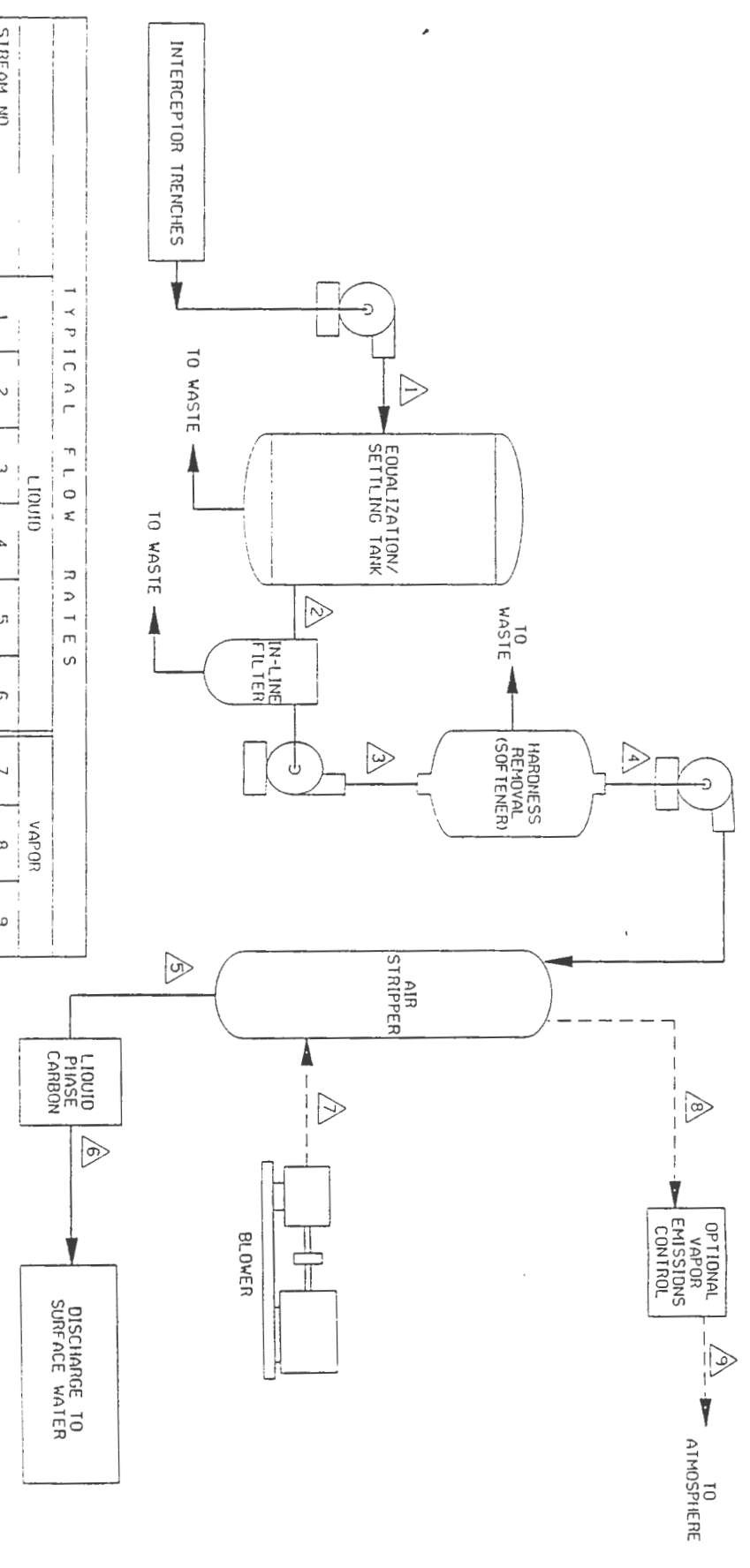
NOTES:

- EXCAVATION FOR THE INTERCEPTOR TRENCH IS TO BE MADE TO THE TOP OF COMPETENT BEDROCK. (SEE APPENDIX FOR BORING LOGS)
- MINIMUM TRENCH WIDTH IS 2 FEET.

|   |                        |
|---|------------------------|
| <b>P PARSONS</b>  |                        |
| <b>ENGINEERING-SCIENCE, INC.</b>  |                        |
| CLIENT/PROJECT TITLE<br>SENECA ARMY DEPOT<br>ASH LANDFILL                   |                        |
| DEPT<br>ENVIRONMENTAL ENGINEERING   | DWG. NO.               |
| FIGURE 5-7 CROSS SECTIONS<br>GROUNDWATER COLLECTION AND<br>TREATMENT SYSTEM |                        |
| SCALE<br>NONE   | DATE<br>SEPTEMBER 1995 |

*MC-5, Pump and Treat Alternative  
No. 2, Collection and Air Stripping*

- *Groundwater is Collected via Trenches and Pumped to a Treatment Facility*
- *Treatment Involves Air Stripping, Activated Carbon Polishing and Surface Water Discharge*
- *Proven Technology for Removal of VOCs from Water*



**TYPICAL FLOW RATES**

| STREAM NO.       | LIQUID |     |     |     |    |    | VAPOR |      |      |
|------------------|--------|-----|-----|-----|----|----|-------|------|------|
|                  | 1      | 2   | 3   | 4   | 5  | 6  | 7     | 8    | 9    |
| FLOW RATE (gpm)  | 20-30  | 25  | 25  | 25  | 25 | 25 |       |      |      |
| ICE (ug/L)       | 100    | 100 | 100 | 100 | <5 | <3 |       |      |      |
| I,2 DCE (ug/L)   | 100    | 100 | 100 | 100 | <5 | <3 |       |      |      |
| HARDNESS (mg/L)  | 320    | 320 | 320 | 0   | 0  | 0  |       |      |      |
| ISS (mg/L)       | 180    | 180 | 10  | 5   | 5  | 5  |       |      |      |
| FLOW RATE (m3/S) |        |     |     |     |    |    | 0.12  | 0.12 | 0.12 |
| ICE (ppmV)       |        |     |     |     |    |    | 0     | 0.26 | 0.03 |
| I,2 DCE (ppm V)  |        |     |     |     |    |    | 0     | 0.43 | 0.04 |

PARSONS ENGINEERING SERVICES, INC. 17-1100 MAY 1988

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**SENECA ARMY DEPOT ACTIVITY**  
 FEASIBILITY STUDY  
 ASH LANDFILL  
 ENVIRONMENTAL ENGINEERING

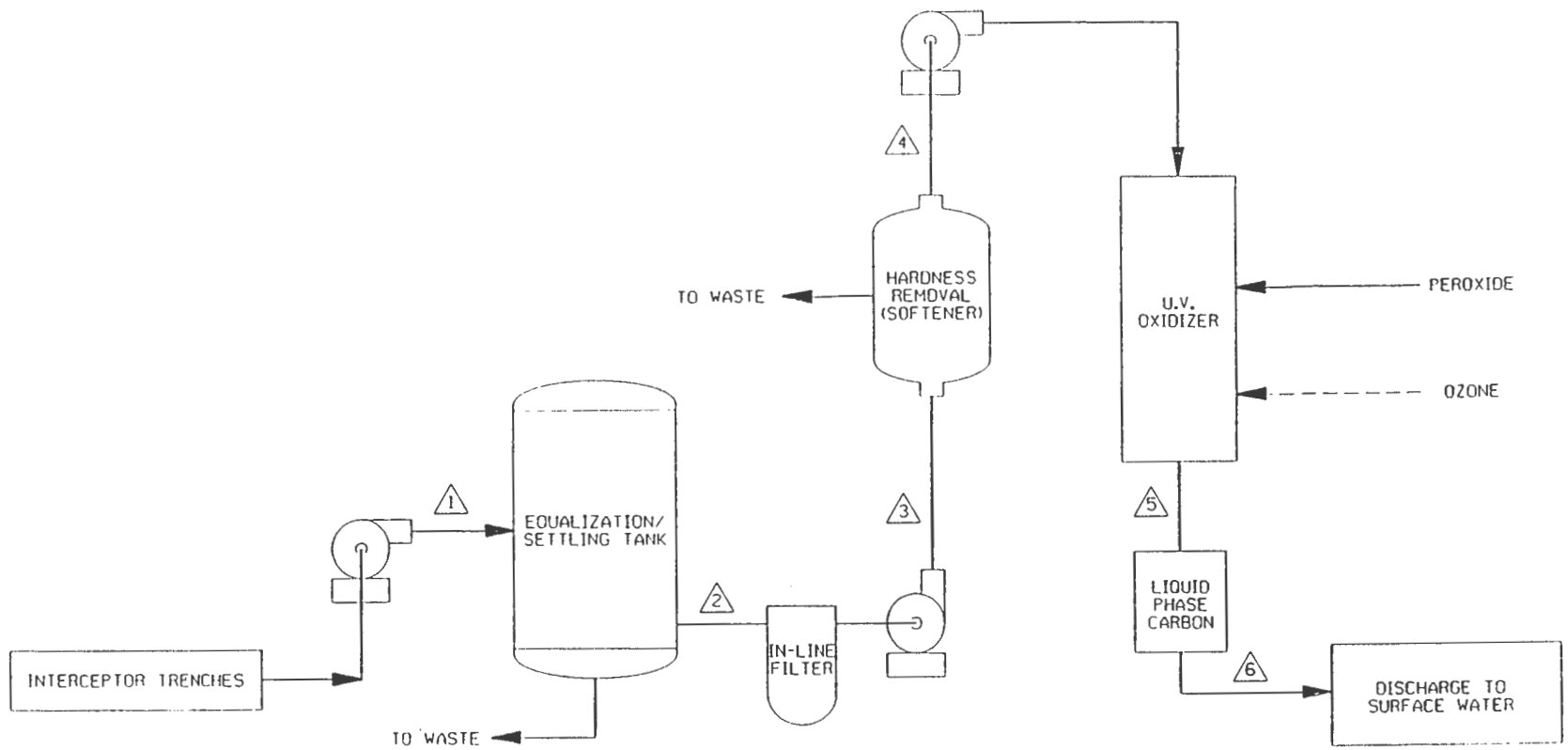
**FIGURE 5-8**  
 ALTERNATIVE NC-5  
 PROCESS FLOW SCHEMATIC



## *MC-6, Pump and Treat Alternative No. 3, Collection and UV Oxidation*

---

- *Groundwater is Collected via Trenches and Pumped to a Treatment Facility*
- *Treatment Involves Filtration, UV Oxidation, Activated Carbon and Surface Water Discharge*
- *Proven Technology for Removal of VOCs from Water*



| TYPICAL FLOW RATES |       |     |     |     |    |    |
|--------------------|-------|-----|-----|-----|----|----|
| STREAM NO.         | 1     | 2   | 3   | 4   | 5  | 6  |
| FLOW RATE (gpm)    | 20-30 | 25  | 25  | 25  | 25 | 25 |
| TCE (ug/L)         | 100   | 100 | 100 | 100 | <5 | <5 |
| 1,2 DCE (ug/L)     | 100   | 100 | 100 | 100 | <5 | <5 |
| HARDNESS (mg/L)    | 320   | 320 | 320 | 0   | 0  | 0  |
| TSS (mg/L)         | 180   | 180 | 10  | 5   | 5  | 5  |

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DESIGNED BY  
**SENECA ARMY DEPOT ACTIVITY**  
 FEASIBILITY STUDY  
 ASH LANDFILL

DATE: ENVIRONMENTAL ENGINEERING      DWG NO: 720446-01026

**FIGURE 5-9**  
 ALTERNATIVE MC-6  
 PROCESS FLOW SCHEMATIC

SCALE: 1" = 20'      DATE: MAY 1996

*MC-7, Pump and Treat Alternative No. 4, Collection via Trenches and Two- Stage Biological Treatment*

---

- *Groundwater is Collected via Trenches and Pumped to a Treatment Facility*
  - *Treatment Involves a Two-Stage Biological Reactor, Activated Carbon and Surface Water Discharge*
  - *Developed and Licenced by Prof. Jewell from Cornell*
  - *Innovative Technology for Removal of VOCs from Water*
  - *Treatability or Pilot Testing Required*
-

**Table 3-5**  
**Summary Cost Breakdown for Source Control Alternatives**

**SOURCE CONTROL (SC) ALTERNATIVES**

| Alternative Number | Description                               | Capital Cost | O&M Present Worth | Total Present Worth Cost |
|--------------------|---|--------------|-------------------|--------------------------|
| SC-1               | No-Action                                 | \$0          | \$0               | \$0                      |
| SC-2               | Off-Site Disposal                         | \$17,500,000 | \$0               | \$17,500,000             |
| SC-3               | Consolidate and Cap                       | \$1,370,000  | \$490,000         | \$1,860,000              |
| SC-4               | Soil Washing & Solidification             | \$31,500,000 | \$490,000         | \$32,000,000             |
| SC-5               | Off-site Disposal Debris Piles Only/Cover | \$237,063    | \$490,000         | \$727,063                |

Table 3-6

MIGRATION CONTROL (MC) ALTERNATIVES

| Alternative Number | Description                                | Capital Cost | O&M Present Worth | Total Present Worth Cost |
|--------------------|--|--------------|-------------------|--------------------------|
| MC-1               | No-Action                                  | \$0          | \$0               | \$0                      |
| MC-2               | Natural Removal/<br>Institutional Controls | \$160,000    | \$794,000         | \$954,000                |
| MC-3               | In-Situ Air Sparging                       | \$668,000    | \$1,790,000       | \$2,458,000              |
| MC-3a              | Funnel and Gate<br>System/Iron Filings     | \$422,00     | \$601,622         | \$1,023,622              |
| MC-4               | Liquid Phase Carbon<br>Adsorption          | \$668,000    | \$1,703,000       | \$2,371,000              |
| MC-5               | Air Stripping                              | \$543,000    | \$1,222,000       | \$1,765,000              |
| MC-6               | UV Oxidation                               | \$556,000    | \$1,308,000       | \$1,864,000              |
| MC-7               | Two Stage Biological<br>Treatment          | \$710,000    | \$1,492,000       | \$2,202,000              |



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# *Ecological Risk Assessment*

*January 21, 1997*  
*Julia Schulten, Ph. D.*



# *Tonight's Topics*

---

- Why Do We Do Risk Assessment
- What is Ecological Risk Assessment
- How Do We Do Ecological Risk Assessment
- What is the Relationship Between Risk Assessment and Site Cleanup

# *WHY DO WE DO RISK ASSESSMENT*

---

- Part of the “*Superfund*” process and the Army’s Remedial Investigation process
  - Must determine site’s current effects
  - Must be used in cleanup planning



# *What is Ecological Risk Assessment*

---

- It is a process that evaluates the likelihood that adverse ecological effects may occur or are occurring as a result of exposure to hazardous substances
- Risk management involves selection of a course of action in response to a risk. It may involve factors, such as social, legal, political, or economic ones, in addition to risk assessment results.

# HUMAN HEALTH RISK ASSESSMENT

# ECOLOGICAL RISK ASSESSMENT



# *How Do We Do Risk Assessment*

---

- Identification of Chemicals of potential concern
- Exposure assessment
- Toxicity assessment
- Risk characterization



# *Identification of Chemicals of Potential Concern*

---

- Sample collection from soil, groundwater, surface water, sediment
- Lab analysis
- Data review
- Calculate reasonable maximum exposure concentration

# *Chemicals at SEAD-16 and SEAD-17*

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- Fuel-related compounds
- Solvent-type compounds
- Metals
- Ammunition constituents
- Pesticides and Herbicides

# *Exposure*

---

- *Chemical is present and can be contacted*
- *Receptor is or may be at point of contact*

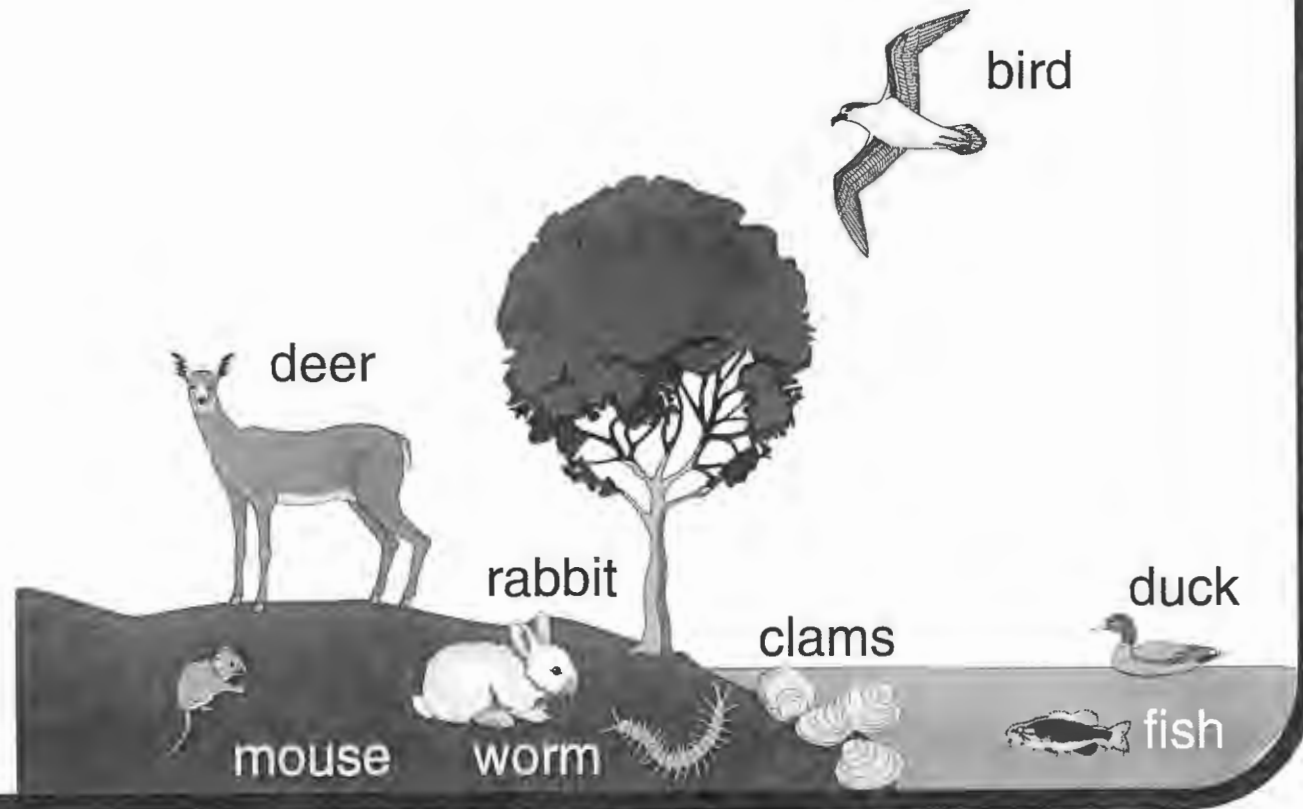
# EXPOSURE ASSESSMENT

## HUMAN HEALTH ASSESSMENT



*Homo sapiens*

## ECOLOGICAL ASSESSMENT



deer

rabbit

mouse

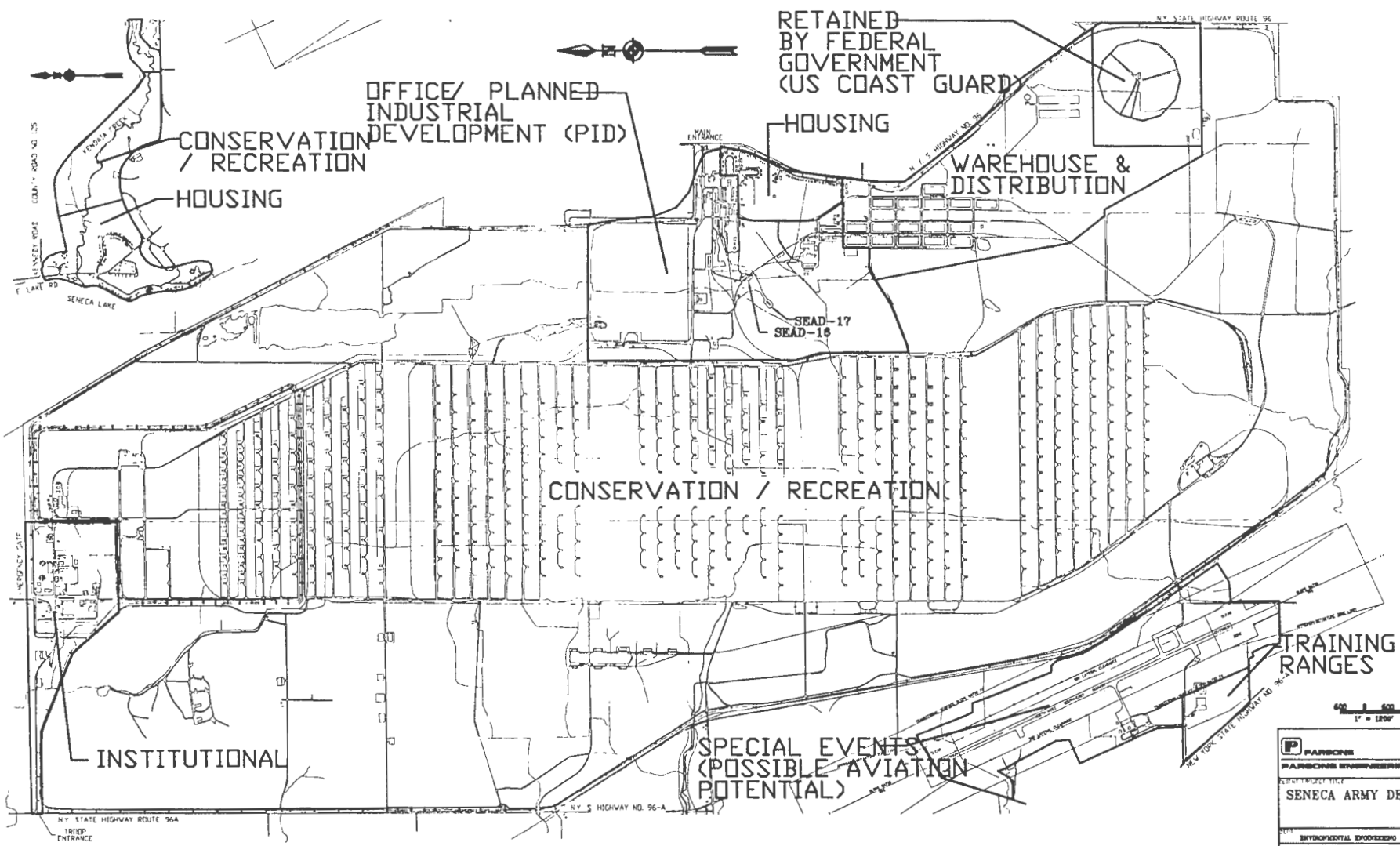
worm

bird

clams

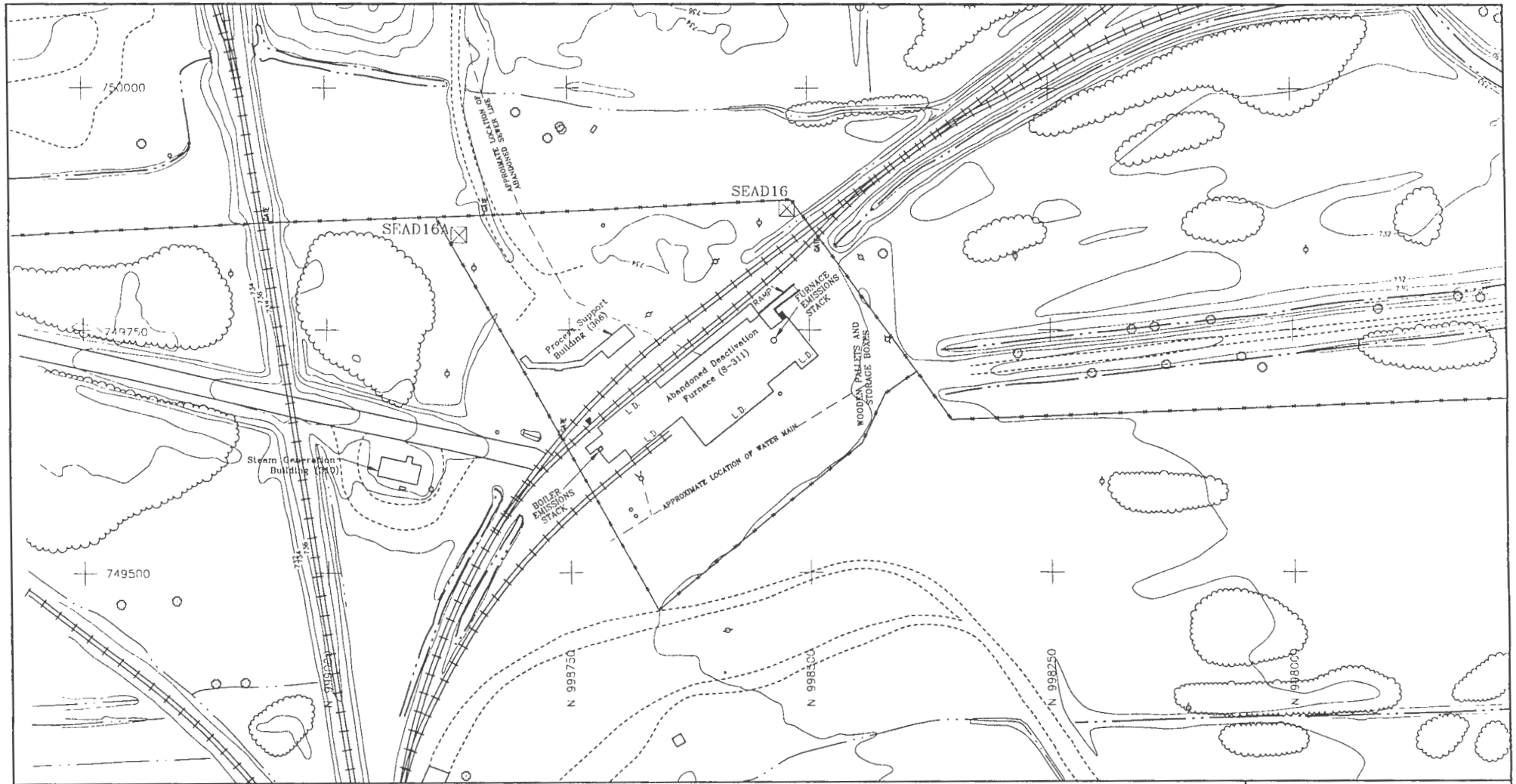
duck

fish



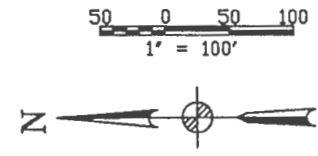
0 50 100  
 1" = 100'  
**P** PARSONS  
 PARSONS ENGINEERING SCIENCE, INC.  
 SENeca ARMY DEPOT ACTIVITY  
 ENVIRONMENTAL ENGINEERING  
 SENeca-16 AND SENeca-17  
 SITE LOCATION AND  
 LAND USE  
 1" = 1000' JANUARY 1997





**LEGEND**

- |   |                                  |   |                       |                   |                               |
|---|----------------------------------|---|-----------------------|-------------------|-------------------------------|
| — | MINOR WATERWAY                   | ⊠ | SURVEY MONUMENT       | L.D.              |                               |
| — | MAJOR WATERWAY                   | ⊠ | ROAD SIGN             | LOADING DOCK      |                               |
| — | FENCE                            | ⊠ | DECIDUOUS TREE        |                   |                               |
| — | UNPAVED ROAD                     | ⊠ | FIRE HYDRANT          | MANHOLE           | GUIDE POST                    |
| — | BRUSH LINE                       | ⊠ | POLE                  | UTILITY BOX       | CORDINATE GRID<br>(250' GRID) |
| — | LANDFILL EXTENTS                 | ⊠ | OVERHEAD UTILITY POLE | MAILBOX/RR SIGNAL |                               |
| — | RAILROAD                         |   |                       |                   |                               |
| — | GROUND SURFACE ELEVATION CONTOUR |   |                       |                   |                               |



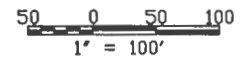
|  |                    |
|--|--------------------|
| <b>PARSONS</b>                         |                    |
| PARSONS ENGINEERING SCIENCE, INC.      |                    |
| CLIENT/PROJECT TITLE                   |                    |
| SENECA ARMY DEPOT ACTIVITY             |                    |
| RI/FS                                  |                    |
| SEAD-16 ABANDONED DEACTIVATION FURNACE |                    |
| ENVIRONMENTAL ENGINEERING              | 720806-01001       |
| <b>FIGURE 1-3</b>                      |                    |
| <b>SEAD -16 SITE PLAN</b>              |                    |
| SCALE 1" = 100'                        | DATE DECEMBER 1996 |

ACAD:SENECA16-17RIF\SDISS1.DWG



**LEGEND**

- MINOR WATERWAY
- MAJOR WATERWAY
- - - - - FENCE
- - - - - UNPAVED ROAD
- ~~~~~ BRUSH LINE
- ..... LANDFILL EXTENTS
- ===== RAILROAD
- 740 —— GROUND SURFACE ELEVATION CONTOUR
  
- ⊠ SURVEY MONUMENT
- ⊕ ROAD SIGN
- ⊙ DECIDUOUS TREE
  
- ⊗ FIRE HYDRANT
- ⊘ MANHOLE
- △ GUIDE POST
  
- POLE
- UTILITY BOX
- + COORDINATE GRID (250' GRID)
  
- OVERHEAD UTILITY POLE
- MAILBOX/RR SIGNAL



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CLIENT/PROJECT TITLE  
**SENECA ARMY DEPOT ACTIVITY**  
 RI/FS  
**SEAD-17 ACTIVE DEACTIVATION FURNACE**

DEPT ENVIRONMENTAL ENGINEERING      Des. No. 720605-01001

**FIGURE 1-4**  
**SEAD 17 SITE PLAN**

SCALE 1" = 100'      DATE DECEMBER 1998      SHEET A

ACAD\SENECA\16-17\RI\SDI\751.DWG



# *Representative Ecological Receptors at SEAD-16 and SEAD-17*

---

| <u><i>Receptor</i></u> | <u><i>Represents</i></u> |
|------------------------|--------------------------|
| <i>Deer mouse</i>      | <i>Small mammals</i>     |
| <i>Creek Chub</i>      | <i>Fish</i>              |

# *Measuring Exposure*

---

- How is the receptor exposed?
- How much of the chemical in the soil, water, or sediment gets into the receptor?
- How much of the chemical gets to the receptor through its food?
- How much time does the receptor spend at the site?

# *Ecological Exposure Scenarios*

---

|                               | Deer mouse | Creek chub |
|-------------------------------|------------|------------|
| Ingestion of soil             | X          | --         |
| Skin contact with soil        | O          | --         |
| Ingestion of food             | X          | --         |
| Inhalation of dust and vapors | O          | --         |
| Contact with surface water    | --         | X          |

---

X = evaluated quantitatively

O = evaluated qualitatively

-- = not a pathway

---

# TOXICITY ASSESSMENT

DOSE



EFFECT

Liver

Kidney

Cancer

Nervous  
System

Skin

Blood

Lungs

# *Risk Characterization*

---

$$RISK = \frac{Exposure\ Level}{\text{"Safe" Dose}}$$

Target is less than 1

? ? ? ? ? ? ? ? ? ?

## *Uncertainty*

- *Were all contaminated locations sampled?*
- *Do sample results exactly represent exposure concentrations?*
- *How sensitive are the lab instruments?*
- *Are there chemicals that were not analyzed for?*
- *What will future land uses be?*
- *How will future receptors contact contaminants?*
- *Do the deer mouse and creek chub adequately represent all biota?*
- *What are the toxic effects of contaminants at this site?*
- *What is the true ecological effect?*





# *Risk Summary*

---

- *Conclusions based on risk numbers as well as uncertainty*
- *Focus on ecological significance*

**MINUTES  
RESTORATION ADVISORY BOARD  
FEBRUARY 18, 1997 MEETING**

1. Attendance:

Government RAB Members Present:

Stephen M. Absolom, BRAC Environmental Coordinator, SEDA/Army Co-Chair  
Dan Geraghty, NYS Department of Health

Government RAB Members Not Present:

Kamal Gupta, NYS Department of Environmental Conservation  
Carla Struble, U.S. Environmental Protection Agency

Community RAB Members Present:

Dick Durst/Community Co-Chair, Anne Herman, Richard Sisson, Henry Van Ness,  
Pat Jones, Brian Dombrowski, Harold Kugelmass

Community RAB Members Not Present:

Russell Miller, Richard Lewis, Carmen Serrett, Lucinda Sangree, Mary Ann Krupsak,  
Al Legasse, Estelle Coleman, Frank Ives, David Wagner

Government and Technical Support Personnel Present:

Thomas Enroth, SEDA Engineering and Environmental Division  
Janet Fallo, SEDA Engineering and Environmental Division  
Susan Cooper, SEDA Secretary  
Randy Battaglia, U.S. Army Corps of Engineers, NY District, SEDA Resident Office  
Joanne Ogden, SEDA Legal Rep/Public Affairs Officer  
Jerry Whitaker, SEDA Base Transition Coordinator  
Mike Duchesneau, Parsons Engineering Science, Inc.  
Robert Scott, NYS Department of Environmental Conservation  
Dorothy Richards, U.S. Army Corps of Engineers, Huntsville Division  
Jeff Waugh, U.S. Army Environmental Center

Others Present (from sign-in sheet):

Heather Clark, Community Member  
Joanne Howard, Community Member  
Neil Chaffie, Community Member  
Sandra Tersegno, Community Member  
Gerry DeCuollo, Community Member

2. Stephen Absolom welcomed members and support staff to the February Restoration Advisory Board in the NCO Club, outlined the evening's agenda, and asked for introductions.

3. Minutes from January's RAB meeting were approved, signed, and accepted into record.

4. A presentation on the Ash Landfill Remedial Alternatives was given by Stephen Absolom. A discussion was held on the Tables showing the preferred alternatives for remediation.

a. Table 1, Source Control, Option 5--Removal to an Off-Site Landfill: A concern was raised as to adequate recordkeeping at off-site landfills to know what materials are contained therein. It was explained that landfills can only take certain types of debris--you must prove the material you are landfilling before they can accept it. Landfills monitor and maintain records as required by State regulations.

b. Table 2, Migration Control, options were discussed: Option MC2--Alternate Water Source with Natural Attenuation of Plume and MC3a--Funnel-and-G with Zero Valance Iron are being considered as the preferred alternatives and are cost effective. The element of time was discussed as a consideration for remedial action. It is a variable that must be considered when discussing alternatives. When asked if there was any indication that the plume was still moving, Mr. Duchesneau stated that the plume is basically staying the same. RAB members were largely undecided in choosing one or the other alternative. Time for completion of remediation needs to be considered with, but not a critical consideration, in determining the preferred alternative.

5. Michael Duchesneau gave a briefing on the Open Burning Grounds Proposed Plan. His briefing included the background of the site, summary of the remedial investigation, remedial action objectives, and the remedial alternatives. The preferred alternative is off-site disposal of the 18,000 cubic yards of soils and sediments after excavation and solidification of materials above the toxicity levels. This alternative has good implementability as excavation and disposal is proven technology and readily available as well as the most cost effective.

a. A request was made to explain how soil volume is determined. It was explained that using the lead criteria of no more than 500 parts per million for presence of lead, material over the limits would be excavated and removed. After removal, 6 to 9" of material is placed over the area, graded, etc.

b. A discussion regarding the presence of small amounts of unexploded ordnance at the OB Grounds indicated that any UXO would be removed by a contractor by hand sorting and sifting, a highly specialized process.

c. The subject of landfills and available space showed that Seneca Meadows, Ontario County Landfill, and High Acres have an abundance of space due to extensive recycling

efforts in the area. Seneca Meadows has possible use for the excavated material as daily cover. The type of material the depot needs to landfill off-site is good, solid material which Seneca Meadows will accept.

6. A date for the Open Burning Grounds Public Meeting was unable to be scheduled as the regulators are still reviewing the documents.

7. Open discussion followed with two :

a. A suggestions for a future meeting topic was Money--how we receive it, including the timeframe and how we program and receive funds.

b. Due to a high incidence of absenteeism at recent RAB meetings, RAB membership needs to be addressed. The Charter will be reviewed with action following.

8. The next Restoration Advisory Board meeting will be held on March 18, 1997 at 7:00 p.m. in the SEDA NCO Club.

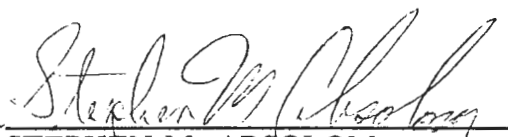
9. The meeting was adjourned at 9:30 p.m.

Respectfully submitted,

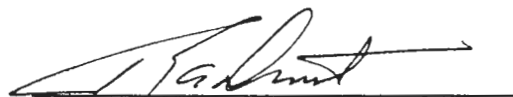


SUSAN R. COOPER  
Secretary

APPROVED AS SUBMITTED:



STEPHEN M. ABSOLOM  
U.S. Army Co-Chair



RICHARD A. DURST  
Community Co-Chair

SEAD-03-036

*Presentation to the  
Restoration Advisory Board*

*February 18, 1997*

*Proposed Remedial Action Plan  
(PRAP) for the OB Grounds*



# *Topics for Tonight's Presentations*

---

- Background of the OB Grounds Site
- Remedial Investigation (RI) Summary
- Remedial Action Objectives
- Remedial Alternatives
- Preferred Alternative



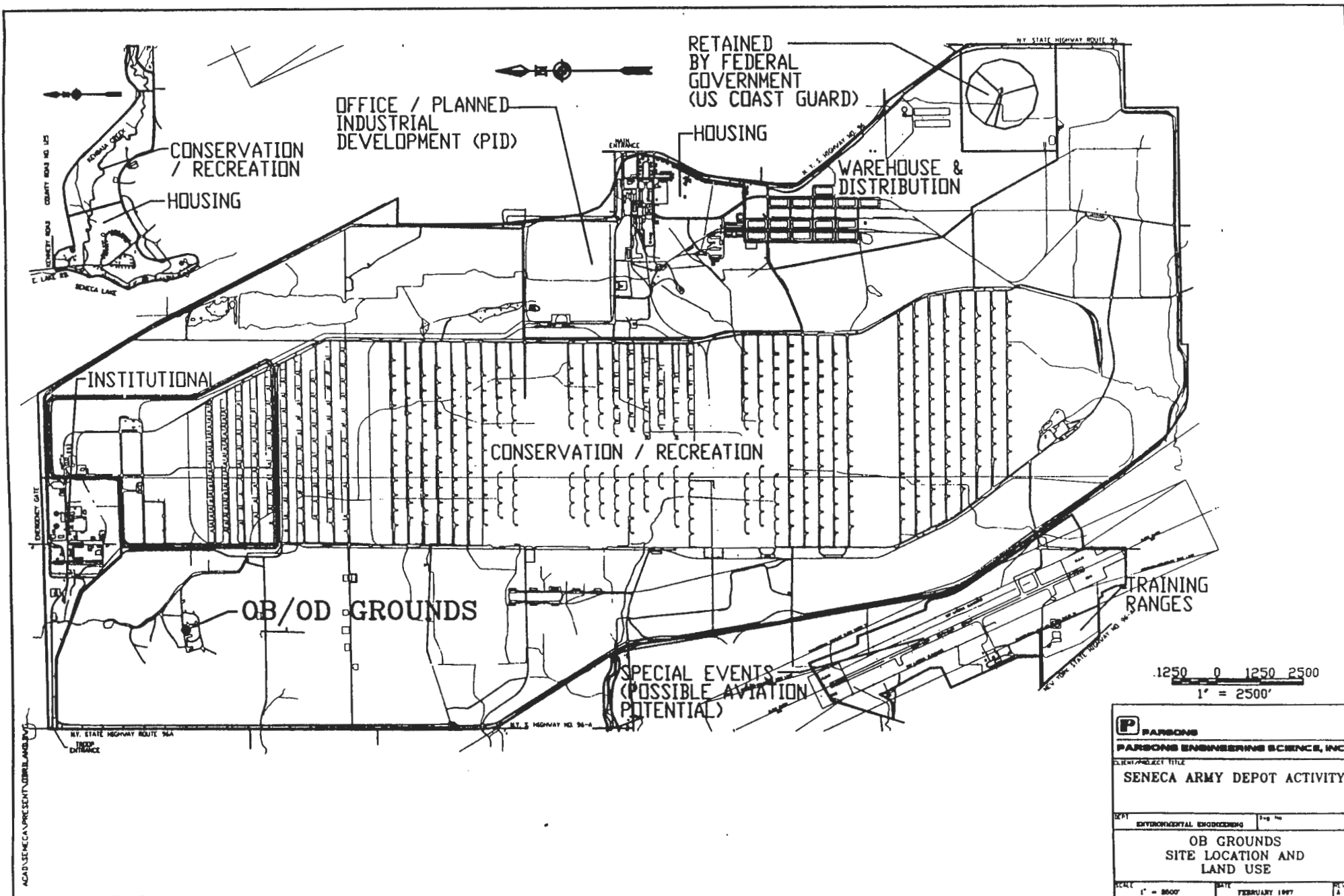


# Background of the OB Grounds

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1250 0 1250 2500  
1" = 2500'

|  |                       |
|--|-----------------------|
| <b>PARSONS</b><br>PARSONS ENGINEERING SCIENCE, INC.                    |                       |
| CLIENT/PROJECT TITLE<br><b>SENECA ARMY DEPOT ACTIVITY</b>              |                       |
| DEPT<br>ENVIRONMENTAL ENGINEERING                                      | Dwg No<br>100         |
| <b>OB GROUNDS<br/>         SITE LOCATION AND<br/>         LAND USE</b> |                       |
| SCALE<br>1" = 8000'  | DATE<br>FEBRUARY 1997 |

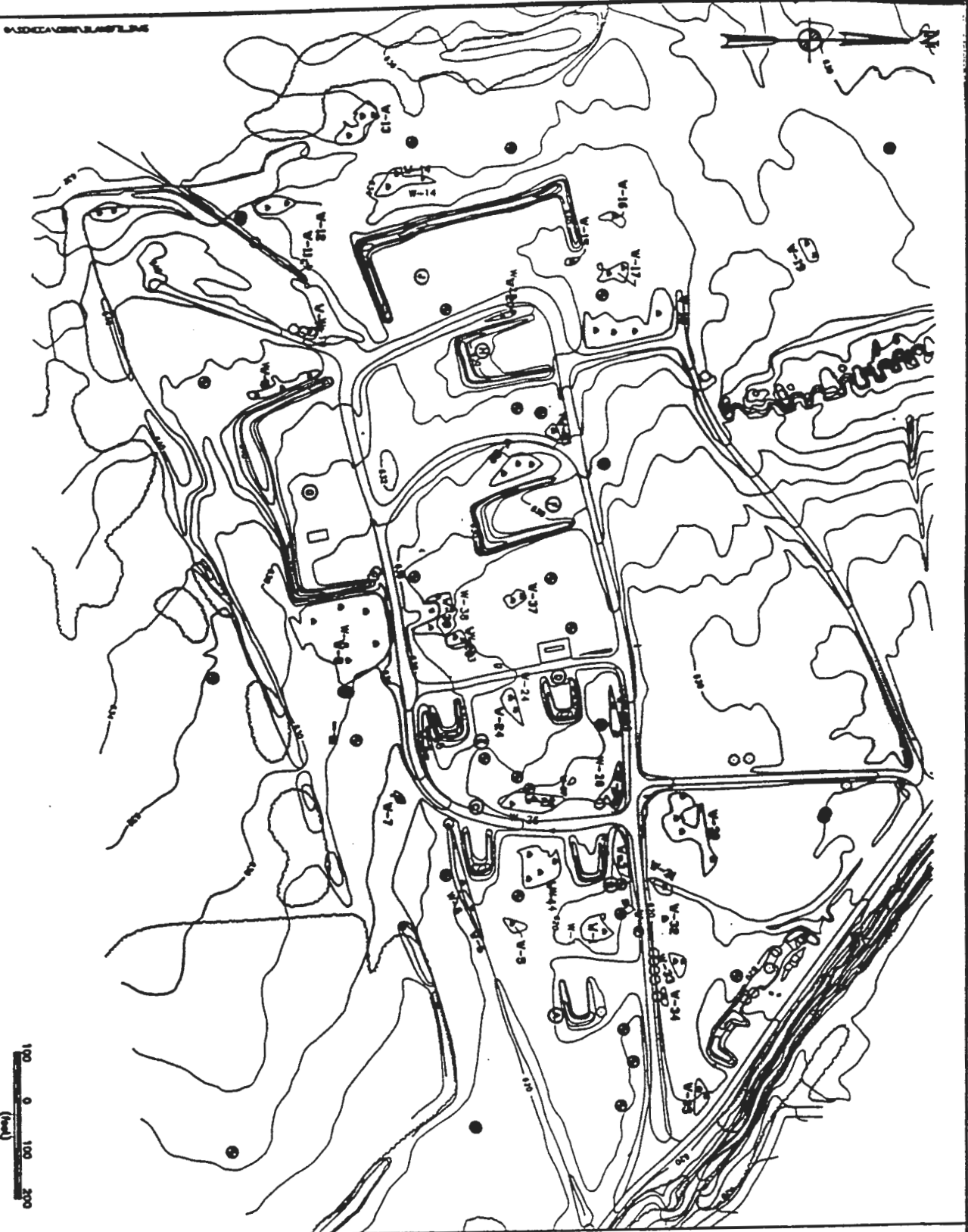
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# *Open Burning (OB) Grounds Site Background*

---

- Operated as Munitions Destruction Area, under Interim Status Provisions of RCRA
- Munitions were burned on 9 Pads
- Preliminary investigations identified burning residues in mid-1980's
- From 1987, burning was performed in 40 Ft. Aboveground Steel Tray
- Identified as a SWMU, SEAD-23
- One of the first RIs performed under CERCLA




FAB C-NO SCALE

- LEGEND:
- ① BARRACKS FOOTPRINT
  - W-1-100 FILL EXCAVATION
  - W-1-100-100 FILL EXCAVATION
  - W-1-100-100-100 EXCAVATION
  - EXCAVATION, PROPERTY DEVIATION & EXCAVATION
  - GRADE CONTROL AND ELEVATION
  - VEGETATION & EXCAVATION
  - REPAIRING WALL & EXCAVATION
  - UTILITY PIPE
  - WALK
  - PERCEIVE VULNERABILITY LEVEL

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 1000 RIVERVIEW DRIVE  
 SENECA ARMY DEPOT ACTIVITY  
 REMEDIAL INVESTIGATION/TEASIBILITY STUDY  
 OPEN BURNING GROUNDS

SITE PLAN

DATE: 1-1-88  
 BY: MARCH 1988



---

# Summary of the Remedial Investigation (RI) at the OB Grounds

---

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# *Milestones of the RI/FS Process*

---

- Initiated Fieldwork December, 1991
- Completed Fieldwork June, 1994
- Remedial Investigation (RI) Report
  - Final on September 9, 1994
- Feasibility Study (FS) Report
  - Final on December 12, 1996
- Project Remedial Action Plan (PRAP)
  - Draft-final on January 15, 1997

# *Remedial Investigation Field Tasks Summary*

88 Soil Borings & 106 Soil Excavations

35 Groundwater Monitoring Wells

- 2 Rounds of Groundwater Sampling
- 29 Surface Water and Sediment Samples
- Ecological Survey
  - Aquatic Sampling in Reeder Creek
  - Terrestrial Study

***HUMAN HEALTH RISK ASSESSMENT  
OPEN BURNING GROUNDS  
EXPOSED POPULATIONS***

---

- Current Land Use Scenarios
  - Off-Site Residential
  - On-Site Worker
  
- Future Land Use Scenario
  - On-Site Residential



---

# Remedial Action Objectives (RAO)

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# *Remedial Action Objectives*

## *OB Grounds*

Prevent Hazards from Unexploded Ordnance  
Eliminate Exposure from Lead in Soils > 500 mg/kg

- Protect Ecological Exposure from Lead in Soils > 60 mg/kg
- Eliminate Aquatic Exposure from Sediment >16 mg/kg for Copper & 31 mg/kg for Lead in Reeder Creek
- Prevent Surface Water Runoff
- Monitor Effectiveness and Compliance with ARARs in Groundwater and Sediments in Reeder Creek





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# Summary of Remedial Alternatives

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# *Threshold Criteria*

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- *Protectiveness of Human Health and the Environment*
- *Compliance with Applicable, Relevant and Appropriate Requirements (ARARs)*

# *Primary Balancing Criteria*

---

- *Long Term Effectiveness and Permanence*
- *Reduction of Toxicity, Mobility and Volume through Treatment*
- *Short Term Effectiveness*
- *Implementability*
- *Cost*

# *Modifying Criteria*

---

- *Acceptance with State and Local Community*

# *Summary of Remedial Alternatives*

- ***Alternative 1: No Action***
- ***Alternative 4: Excavation and Disposal, Off-site, in Licensed Landfill***
- ***Alternative 5: Excavation, Disposal, On-site, in a constructed On-site Landfill***
- ***Alternative 6: Excavation, Soil Washing and Backfill***

# *Alternative 1*

## *No-Action Alternative*

---

- *Nothing is Implemented*
- *Risks Remain as Presented*
- *No Monitoring is Involved*
- *Costs are Zero*
- *Retained as a Baseline Comparison to Other Alternatives*

# *Common Aspects of Each Alternative*

---

- *UXO Clearance and Disposal*
- *Excavation of Soils with Lead above 500 mg/kg*
- *Excavation of Sediments in Reeder Creek above 31 mg/kg Lead and 16 mg/kg Copper*
- *Vegetative Cover of Soils above 60 mg/kg*
- *Groundwater and Sediment Monitoring Program*
- *Surface Water Runoff Control*



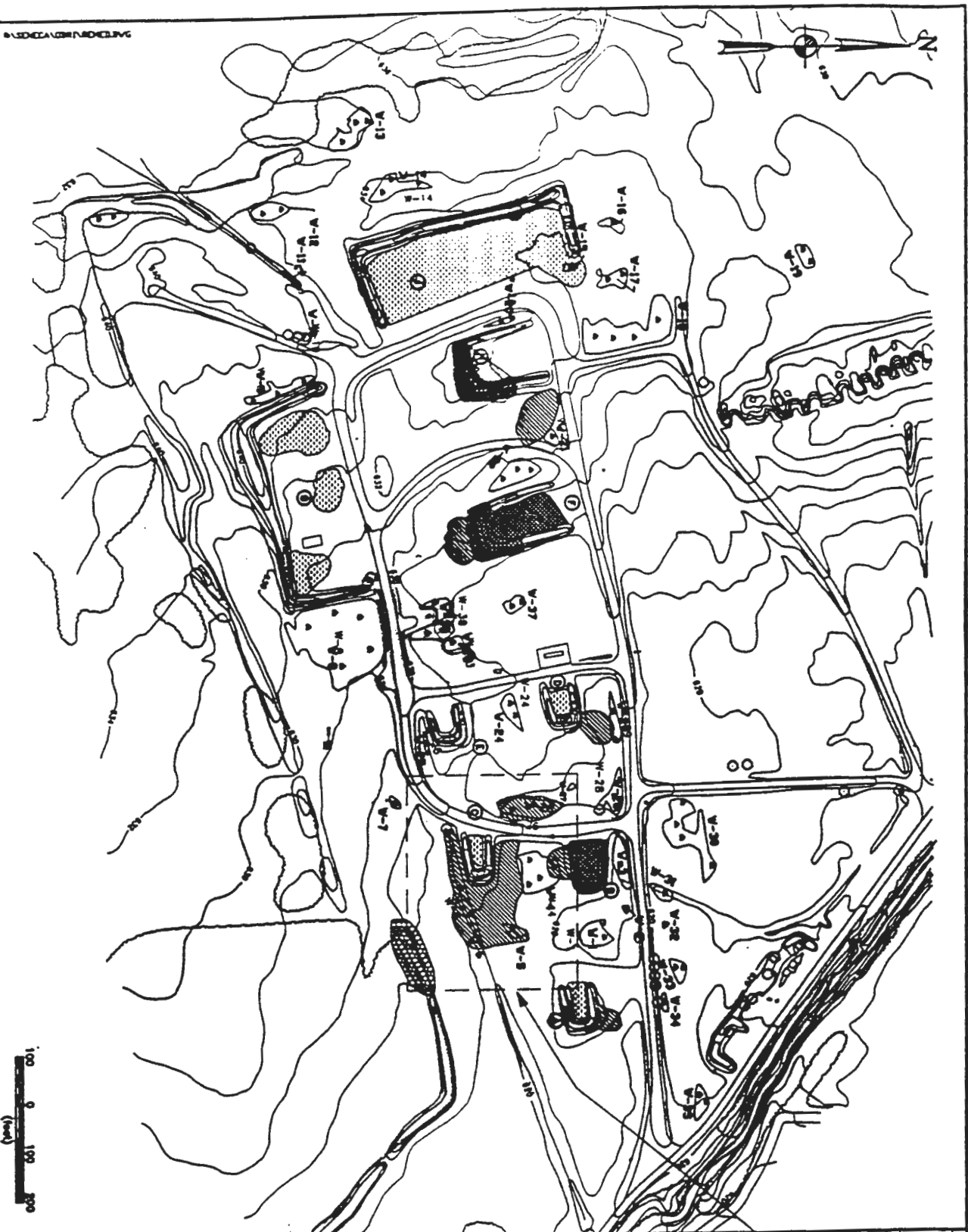
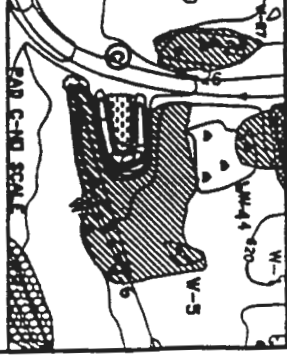
**LEGEND**

- BARRACKS AND DETACHMENT
- ROADS, CORRIDORS, AND ELEVATION
- UTILITY POLES AND DISTRIBUTION
- UTILITY POLES
- BARRACKS 1
- BARRACKS 2
- BARRACKS 3
- BARRACKS 4
- BARRACKS 5
- BARRACKS 6

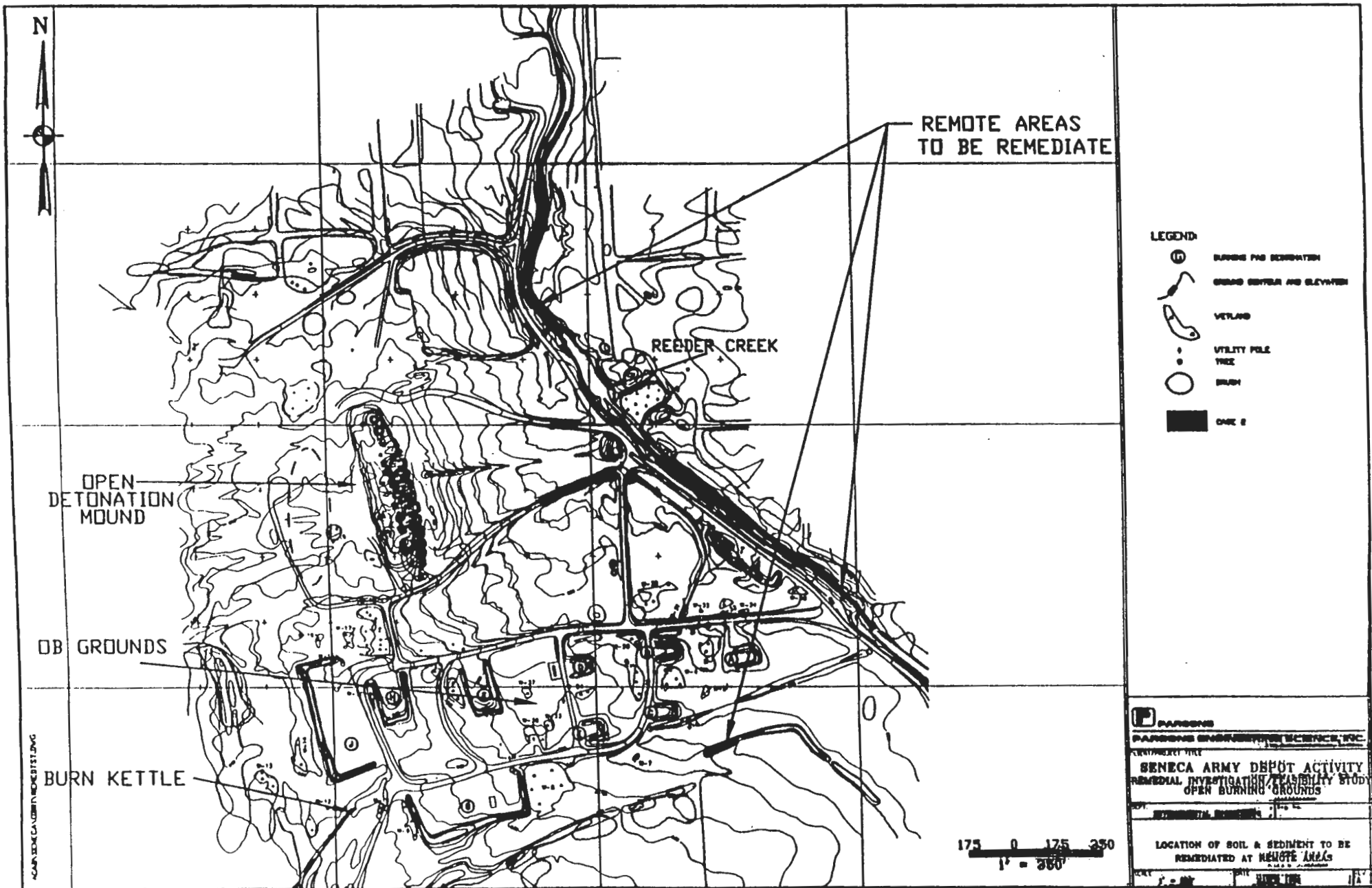
**PARAMETERS**

GENERAL ANNY DIRECT ACTIVITY  
 GENERAL DETACHMENT/ACTIVITY BLDG  
 OPEN RUNNING GROUNDS

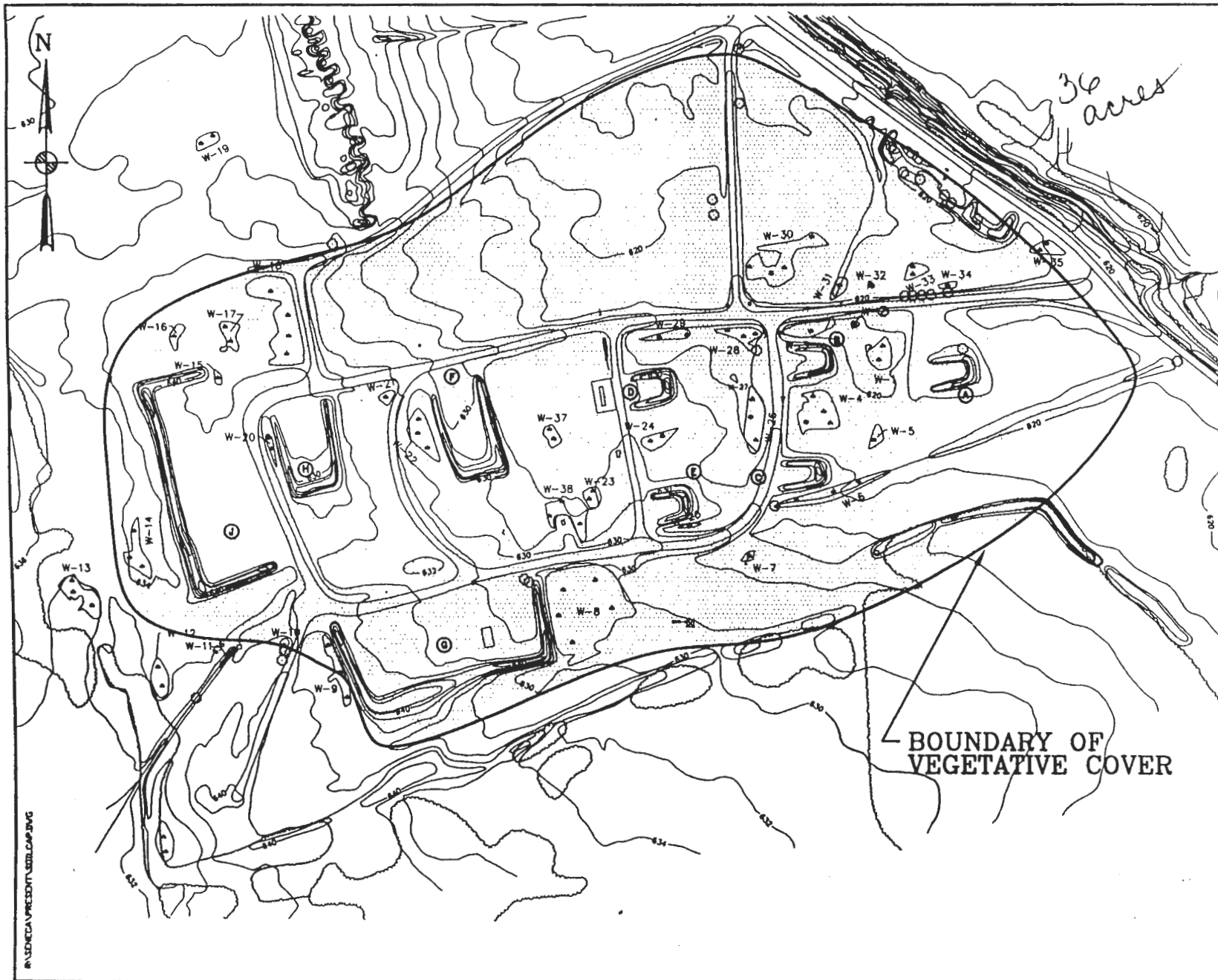
**LOCATION OF POLE TO BE IDENTIFIED (GREATER THAN 500M/1/2 MILE)**







SCALE: SENECA ARMY DEPOT ACTIVITY



- LEGEND:**
- BURROWS PAD DESIGNATION
  - PAD OR GRID BORDERS
  - GROUND CONTOUR AND ELEVATION
  - WETLANDS & DESIGNATION
  - UTILITY POLE
  - TREE
  - BRUSH

BOUNDARY OF VEGETATIVE COVER

IN SENECA PRESIDENT'S HOLDING INC.

|                                   |                    |
|-----------------------------------|--------------------|
|                                   |                    |
| PARSONS ENGINEERING SCIENCE, INC. |                    |
| CLIENT/PROJECT TITLE              |                    |
| SENECA ARMY DEPOT ACTIVITY        |                    |
| DEPT                              | 3-4                |
| ENVIRONMENTAL ENGINEERING         |                    |
| AREA OF VEGETATIVE COVER          |                    |
| SCALE 1" = 800'                   | DATE FEBRUARY 1997 |

# *Alternative 4 : Off-Site Disposal*

---

- *All Soils & Sediments Disposed of in Off-site Landfill*
- *Excavate and Solidify Soils Above TCLP Limits*
- *Long Term Effectiveness and Permanence*
  - *Effective & Permanent , ranked lower than Alternative 6*
- *Reduction of Toxicity, Mobility and Volume*
  - *Reduction achieved, ranked lower than Alternative 6*
- *Most Short Term Impacts due traffic, dust & noise*
- *Ranked Highest for Implementability*
  - *Excavation and disposal is proved and readily available*
- *Most Cost Effective Alternative*

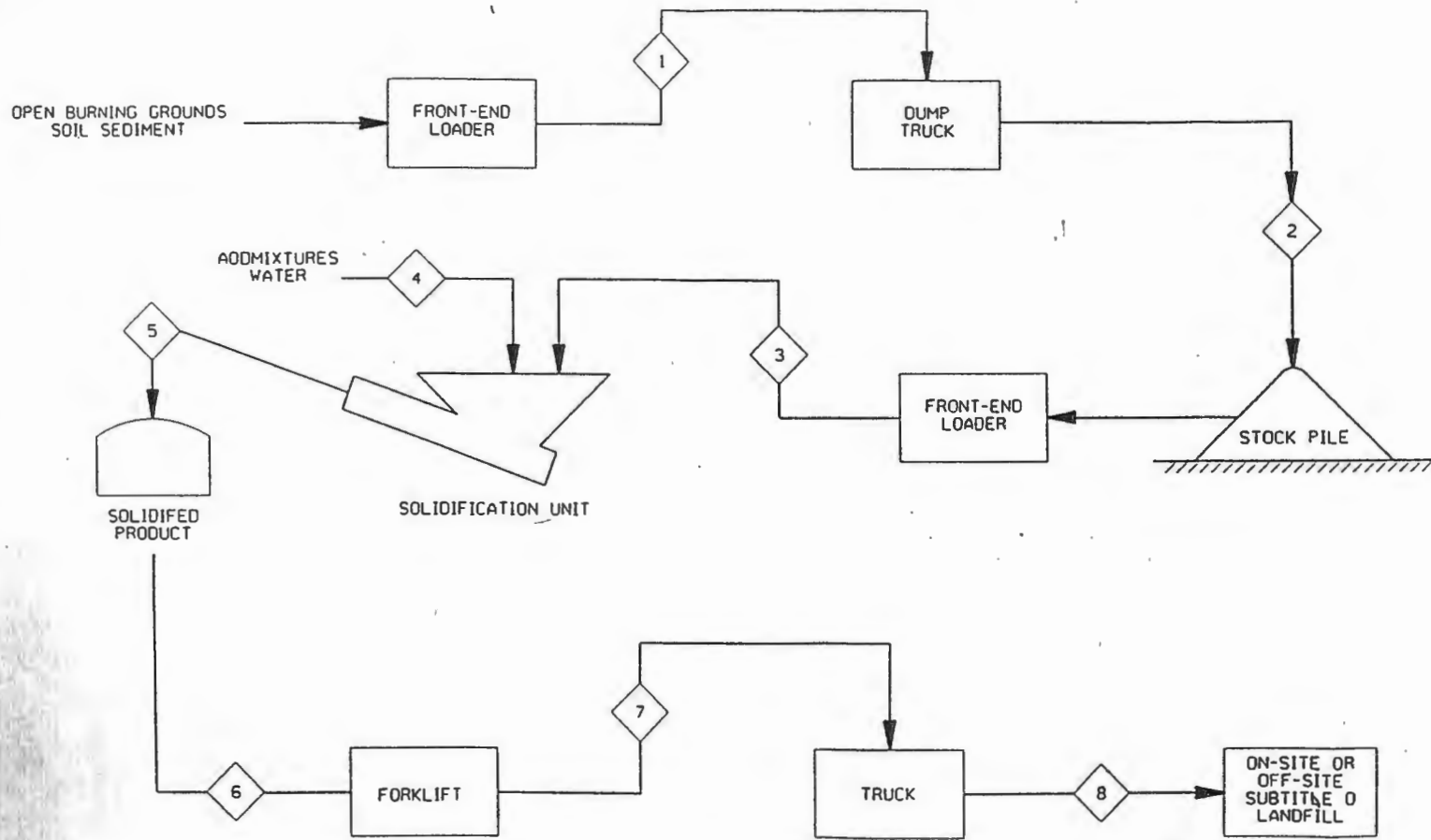
# *Alternative 5 : On-Site Disposal*

- *On-site Landfill Constructed to Accept Soils*
- *Excavate and Solidify Soils Above TCLP Limits*
- *Long Term Effectiveness and Permanence*
  - *Effective & Permanent , ranked lower than Alt. 6*
- *Reduction of Toxicity, Mobility and Volume*
  - *Reduction achieved, ranked lower than Alt. 6*
- *Least Short Term Impacts due traffic, dust & noise*
- *Ranked Lower than Alt. 4 for Implementability*
  - *Landfill permitting process is involved*
- *More Costly than Alternative 4*

# *Alternative 6 : Soil Washing*

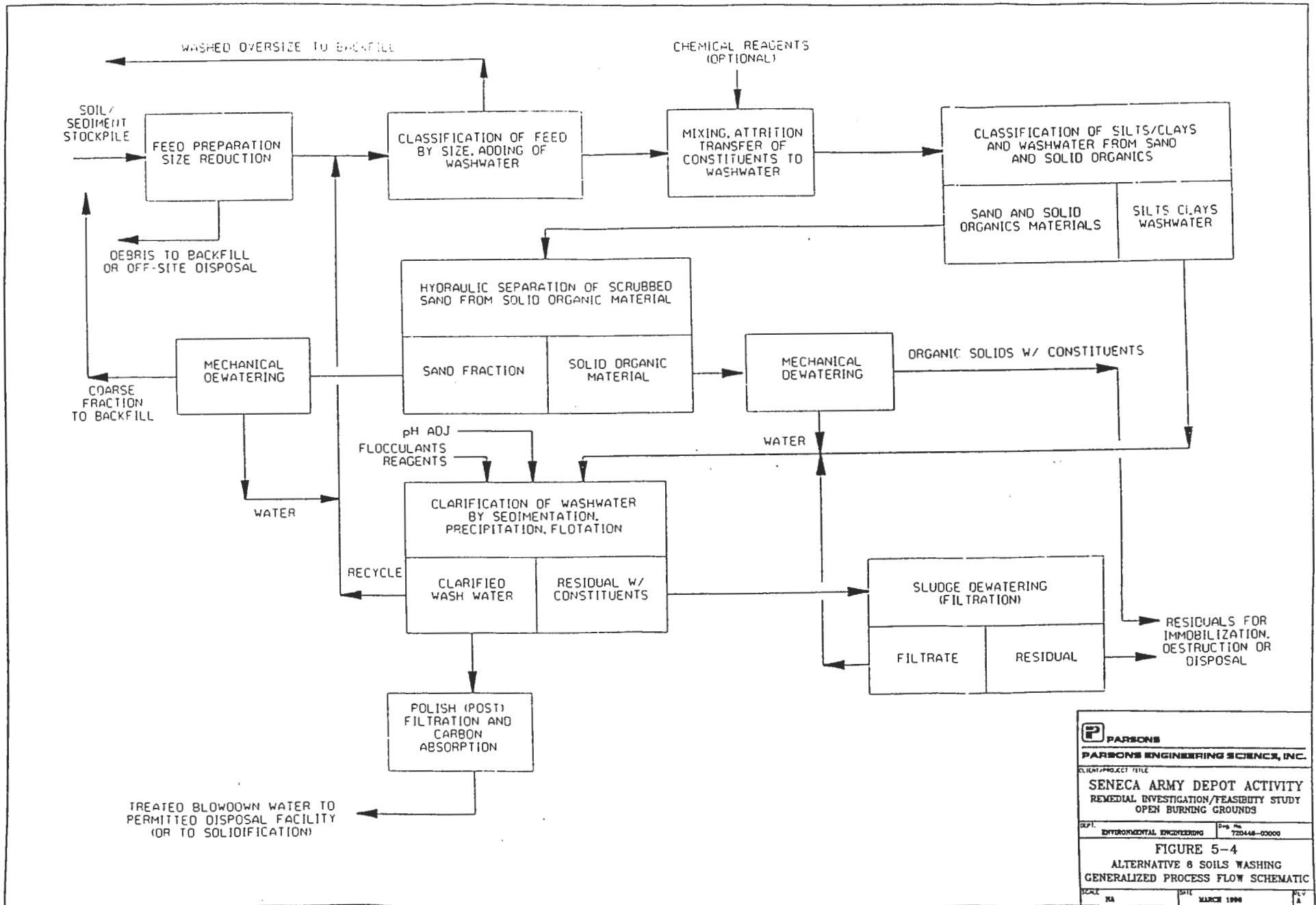
- *Techniques developed from mining industry*
- *Innovative technology will require treatability study*
- *Long Term Effectiveness and Permanence*
  - *Most Effective & Permanent Alternative*
  - *Residues are disposed off-site*
- *Reduction of Toxicity, Mobility and Volume*
  - *Ranked highest, most treatment*
- *Some Short Term Impacts*
  - *Ranked higher than Alt. 4, lower than Alt. 5*
- *Most difficult to implement*
  - *Technology is affected by unknown site conditions and only available from few vendors*
- *Most Costly Alternative*





| TYPICAL FLOW RATES          |            |    |    |    |    |    |    |    |   |    |    |    |    |    |
|-----------------------------|------------|----|----|----|----|----|----|----|---|----|----|----|----|----|
| MATERIAL                    | STREAM NO. |    |    |    |    |    |    |    |   |    |    |    |    |    |
|                             | 1          | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9 | 10 | 11 | 12 | 13 | 14 |
| SOIL/SEDIMENT (CY/HR)       | 50         | 50 | 40 |    |    |    |    |    |   |    |    |    |    |    |
| SOLIDIFIED PRODUCT (CY/HR)  |            |    |    |    | 60 | 60 | 60 | 60 |   |    |    |    |    |    |
| ADDMIXTURES / WATER (CY/HR) |            |    |    | 20 |    |    |    |    |   |    |    |    |    |    |

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CLIENT/PROJECT TITLE  
**SENECA ARMY DEPOT ACTIVITY  
 REMEDIAL INVESTIGATION/FEASIBILITY STUDY  
 OPEN BURNING GROUNDS**  
DEPT. ENVIRONMENTAL ENGINEERING FORM NO. 720448-0000  
**FIGURE 5-1**  
**ALTERNATIVE 4 AND 5**  
**SOLIDIFICATION/SUBTITLE D LANDFILL**  
SCALE: NA DATE: MARCH 1998 SHEET: A



|  |                        |
|--|------------------------|
| <b>PARSONS</b>   |                        |
| PARSONS ENGINEERING SCIENCES, INC.   |                        |
| CLIENT/PROJECT TITLE   |                        |
| SENECA ARMY DEPOT ACTIVITY<br>REMEDIAL INVESTIGATION/FEASIBILITY STUDY<br>OPEN BURNING GROUNDS |                        |
| DEPT. ENVIRONMENTAL ENGINEERING  | Proj. No. 720444-00000 |
| FIGURE 5-4<br>ALTERNATIVE 8 SOILS WASHING<br>GENERALIZED PROCESS FLOW SCHEMATIC                |                        |
| SCALE NA   | DATE MARCH 1990        |
|  | REV A                  |

# ***COST ESTIMATES FOR ALTERNATIVES***

| <b>Alternative</b>     | <b>Total Present<br/>Worth Cost<br/>(\$ Millions)</b> | <b>Capital Cost<br/>(\$ Millions)</b> | <b>Present<br/>Worth O&amp;M<br/>Costs<br/>(\$ Millions)</b> |
|------------------------|---|---------------------------------------|--|
| 4 Off-site<br>Disposal | \$4.1 to \$5.7  | \$3.6 to \$5.2                        | \$0.503  |
| 5 On-site<br>Disposal  | \$5.7   | \$5.2                                 | \$0.544  |
| 6 Soil<br>Washing      | \$11.1  | \$10.6                                | \$0.503  |





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# The Preferred Remedial Alternative

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# *Preferred Remedial Alternative*

## *Alternative 4 : Off-Site Disposal*

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- *Solidification of soils with TCLP exceedances*
  - *Excavation and off-site disposal of soils and sediment*
  - *Vegetative soil cover for remaining soils*
  - *Construction Time:*
    - *Treatability Testing for Solidification : 3 months*
    - *Remedial Action : 12 to 18 months*
  - *Present Worth Cost: \$4.1 to \$5.7 million*
-

# **Restoration Advisory Board Meeting Agenda**

**March 18, 1997**

- 7:00**            **Welcome**  
Mr. Stephen M. Absolom  
Army Co-chair
- 7:05**            **Acceptance of Minutes**  
Mr. Stephen M. Absolom/Dr. Dick Durst  
Army Co-chair/Community Co-chair
- 7:15**            **The Funding Process**  
Mr. Jeff Waugh  
Program Manager, Army Environmental Center
- 7:45**            **Break**
- 8:00**            **Deactivation Furnaces Remedial Investigation**  
Mr. Michael Duchesneau, P.E.  
Project Manager, Parsons Engineering Science, Inc.
- 8:30**            **Open Discussion**
- 9:00**            **Adjourn**

**MINUTES  
RESTORATION ADVISORY BOARD  
MARCH 18, 1997 MEETING**

1. Attendance:

Government RAB Members Present:

Stephen M. Absolom, BRAC Environmental Coordinator, SEDA/Army Co-Chair  
Kamal Gupta, NYS Department of Environmental Conservation  
Carla Struble, U.S. Environmental Protection Agency

Government RAB Members Not Present:

Dan Geraghty, NYS Department of Health

Community RAB Members Present:

Anne Herman, Richard Sisson, Frank Ives, Pat Jones, Brian Dombrowski,  
Harold Kugelmass, David Wagner, Russell Miller

Community RAB Members Not Present:

Dick Durst/Community Co-Chair, Richard Lewis, Carmen Serrett, Henry Van Ness  
Lucinda Sangree, Mary Ann Krupsak, Al Legasse, Estelle Coleman

Government and Technical Support Personnel Present:

LTC Stephen Brooks, SEDA Commander  
Thomas Enroth, SEDA Engineering and Environmental Division  
Janet Fallo, SEDA Engineering and Environmental Division  
Susan Cooper, SEDA Secretary  
Randy Battaglia, U.S. Army Corps of Engineers, NY District, SEDA Resident Office  
Joanne Ogden, SEDA Legal Rep/Public Affairs Officer  
Mike Duchesneau, Parsons Engineering Science, Inc.  
Keith Hoddinott, USA Center for Health Promotion and Preventive Medicine  
Jeff Waugh, U.S. Army Environmental Center

Others Present (from sign-in sheet):

Heather Clark, Community Member  
Joanne Howard, Community Member  
Neil Chaffie, Community Member

2. Stephen Absolom welcomed members and support staff to the March Restoration Advisory Board in the NCO Club, outlined the evening's agenda, and asked for introductions.
3. Minutes from February's RAB meeting were approved, signed, and accepted into record.
4. Jeff Waugh presented a briefing on the Funding Process and the lengthy course it must follow.

- a. The BRAC environmental program requirements first need to be identified by the installation after which the BRAC budget process (currently for FY99) begins and follows the chain of command until money is appropriated. Army BRAC budget priorities are established with the budgets allocated and money is apportioned to installations. Installations prioritize their projects and move the money into place for accomplishment of those projects. After the installation sends their request back through the chain, funds are finally released. It was noted that available funds will likely decline and confirmed the importance the RAB, Reuse Committee, and regulator input has in helping set cleanup priorities to optimize cleanup resources.

- b. A concern was raised regarding funds for unplanned projects should something be found which poses a hazard. In that case, money would be appropriated protect human health and the environment.

5. Michael Duchesneau's presentation covered the Former and Existing Deactivation Furnace Sites. These sites rendered munitions inactive from 1945 to 1989. The Former site used from 1945 to the mid 1960s did not use an emission control system since there was none available at that time. The upgraded site was utilized from 1962 to 1989 and inactive since then, requires a permit to operate. Both units were classified as SWMUs and, therefore, combined as one unit. Summaries of the Remedial Investigations follow:

- a. Former Deactivation Furnace - Field tasks summary shows detection of metals in surface soil sampling. Significantly elevated levels of copper and lead were found as well as detection of nitroaromatics. Groundwater sampling indicated low levels of nitroaromatics and metals. Surface water showed some metals detected above surface water standards.

- b. Existing Deactivation Furnace - Surface soil sampling detected metals, but not the levels found at the former deactivation site due to the installation of air pollution control equipment that was operational. The PAHs detected (compounds found widespread and are a manmade occurrence) were associated with combustion. Groundwater sampling showed two metals above standards, but no nitroaromatics. Surface water results detected four metals above standards.

- c. A discussion regarding the size of the area with ground contamination indicated that it was approximately one acre in size, not near the road or living areas, and confined to the depot. Regarding wind current and how far the contamination was carried, it appears the contaminated material was not carried as it dropped quickly to the ground and was dispersed within 200 feet. It was also noted that most of the work was seasonal and when funds were available. The furnaces were rarely used in the winter as there was no heat in the building.

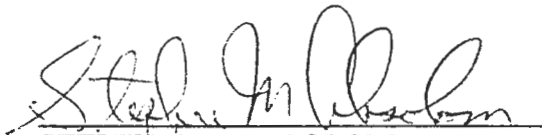
6. During the open discussion, it was noted that the April meeting will take place during the schools' Easter break. To facilitate those being out of town, it was voted to hold the next RAB meeting in May. Steve Absolom also mentioned to the RAB that there would be a Peer Review held April 1-4, 1997 which will entail technical experts reviewing 15 projects at Seneca.
7. The next Restoration Advisory Board meeting will be held on May 20, 1997 at 7:00 p.m. in the SEDA Officers' Club.
8. The meeting was adjourned at 9:00 p.m.

Respectfully submitted,

*Susan R. Cooper*

SUSAN R. COOPER  
Secretary

APPROVED AS SUBMITTED:

  
STEPHEN M. ABSOLOM  
U.S. Army Co-Chair

  
RICHARD A. DURST  
Community Co-Chair

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## **Department of Army BRAC Budget Process**

Briefing to Seneca Army Depot Activity  
Restoration Advisory Board, March 18, 1997  
by Jeff Waugh, Army Environmental Center (AEC)

### **Environmental Program Requirements**

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- Installation develops Environmental Program Requirements (EPR)
  - BRAC-Environmental Requirements (BRAC-ER)
    - Studies, Cleanup, RAB support, Program Management
    - BRAC Compliance (Asbestos, LBP, USTs, UXO, Radiation, PCBs)
  - Operations & Maintenance, Army (OMA)
    - Cultural & Natural Resources, cleanup of current operations, NEPA, other compliance requirements

## **Environmental Program Requirements (cont.)**

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- EPR similar to the Cost to Complete (CTC: cost estimating model)
- should include future work (outyears)
- funding requirements should be consistent with execution, (can't fund cleanup before design, contract limitations)

## **BRAC Budget Process**

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- Installation submits EPR to major command (MACOM)
- MACOM submits requirements to AEC
- AEC submits workplan to Department of Army BRAC Office (DAIM-BO)
- DAIM-BO submits environmental budget as part of Budget Estimate Submittal (BES)
- Army budget submission



## **Budget Allocations**

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- Budget for entire BRAC-ER Program is developed from the CTC
- DAIM-BO/AEC uses EPR to apportion requirements among installations/ MACOMs at the beginning of the BRAC Program
- budget is adjusted as requirements change

## **BRAC Work Plan Cutlines**

---

- DAIM-BO provides AEC the budgeted amount by installation for the year
- AEC then identifies the cutline position for each installation for all BRACs based on the DAIM-BO budgeted amount or MACOM adjusted amount

## BUDGET VS REQTS ALL BRACs

---

### FY98 TO COMPLETION (\$M)

| BRAC<br>ROUND | REQTS | BUDGET | SHORTFALL |
|---------------|-------|--------|-----------|
| BRAC I        | 213   | 0      | 213       |
| BRAC 91       | 225   | 0      | 225       |
| BRAC 93       | 28    | 19     | 9         |
| BRAC 95       | 806   | 761    | 45        |
| TOTALS        | 1,272 | 781    | 491       |

## BRAC Funding Process

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- Installation sends request to MACOM
- MACOM forwards request to DAIM-BO
- DAIM-BO reviews request based on current workplan and forwards funds release to Assistant Secretary of the Army for Financial Management ASA(FM)
- ASA(FM) forwards funds release request to DFAS (Defense Finance & Accounting Service)

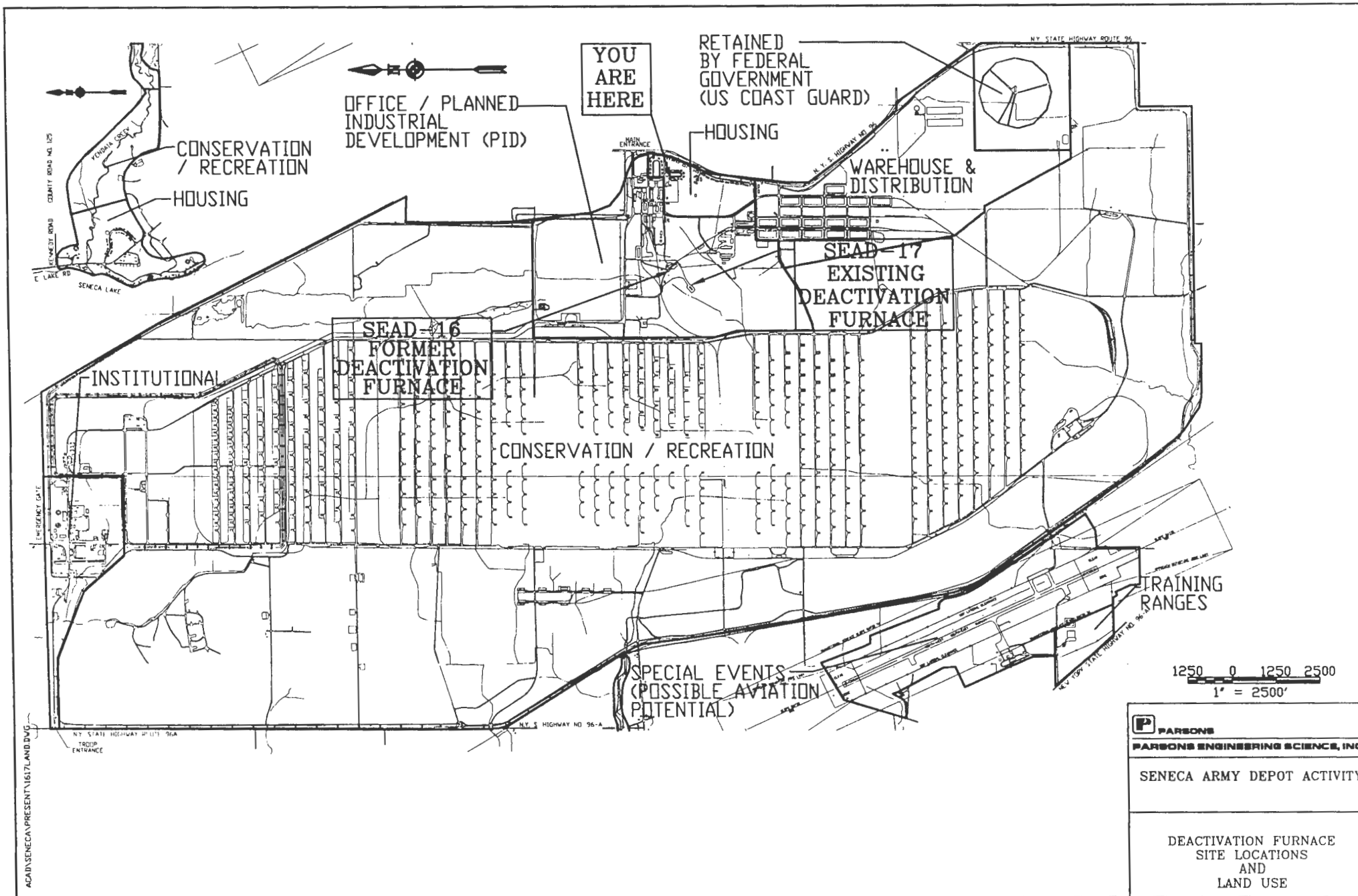
*Presentation to the RAB*  
*March 18, 1997*

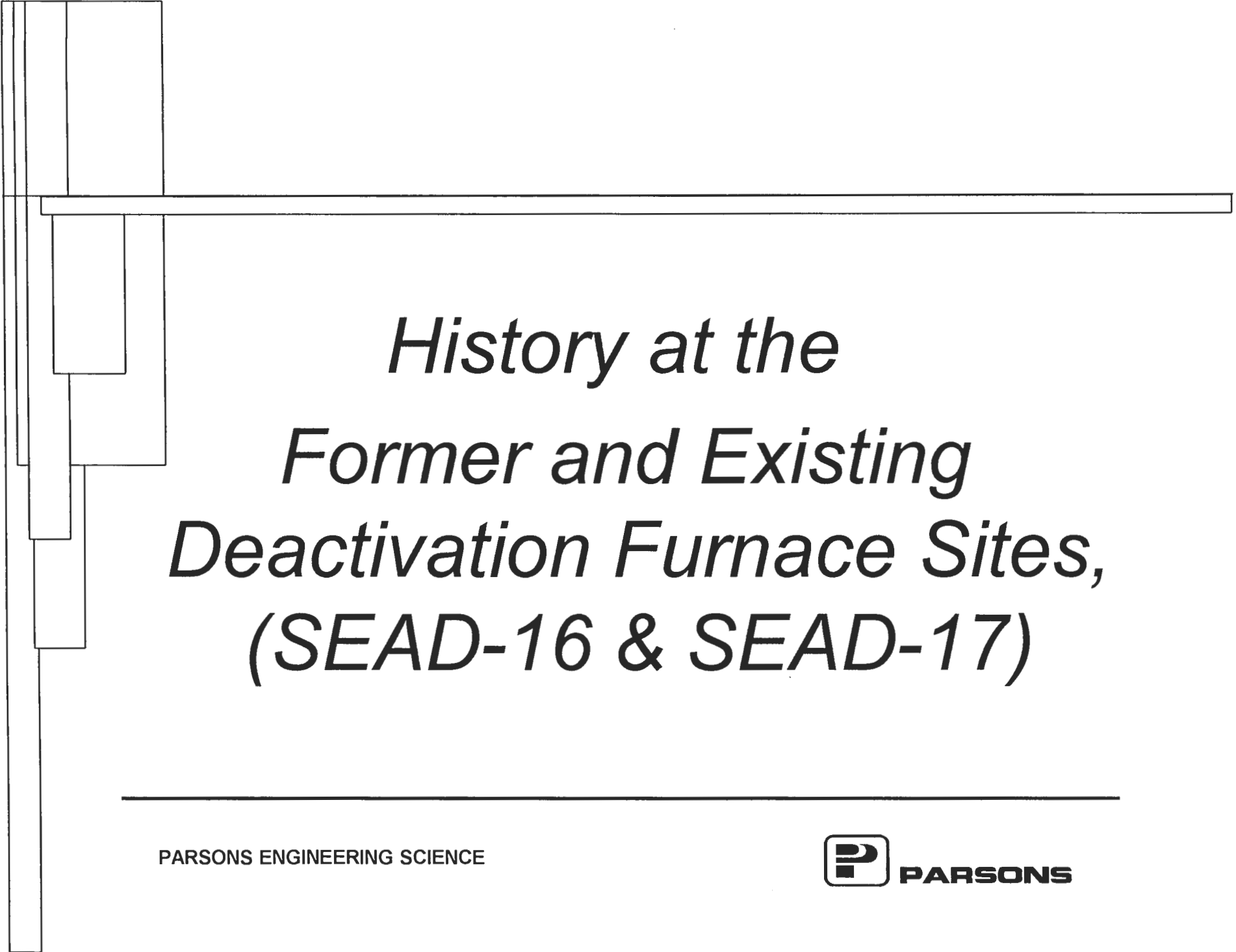
*Update on the*  
*Former and Existing Deactivation*  
*Furnace Sites,*  
*(SEAD-16 and SEAD-17),*

*Michael Duchesneau, P. E.*

# *Topics for Tonight's Presentations*

- *Site History*
- *Site Background*
- *Remedial Investigation (RI) Summary*





*History at the  
Former and Existing  
Deactivation Furnace Sites,  
(SEAD-16 & SEAD-17)*

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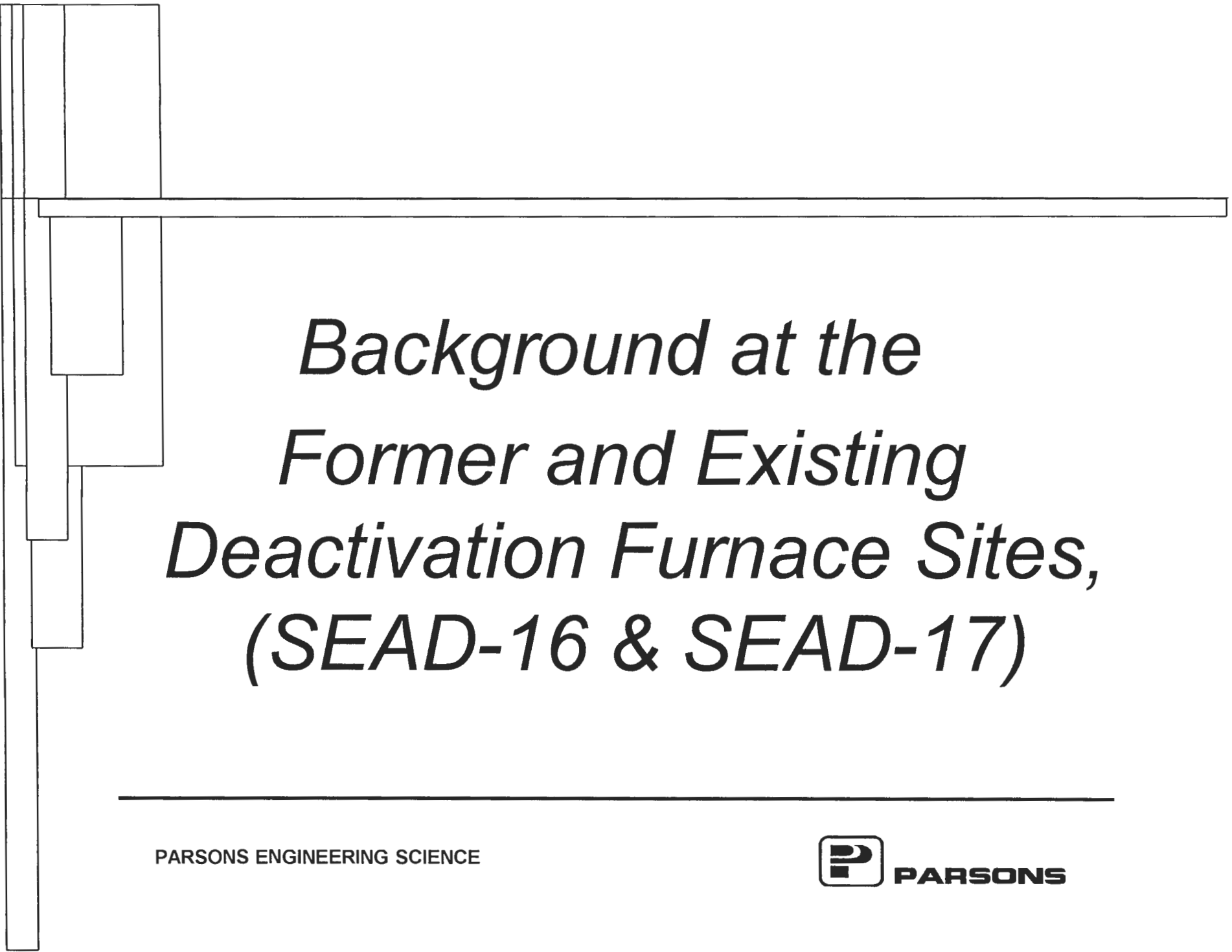
# *History at the Former Deactivation Furnace (SEAD-16)*

- *Standard Military Technique for Rendering Munitions Inactive*
- *Seneca “Popping Furnace” Operated from 1945 to mid-1960s*
- *Demilitarized Small Arms and Bulk Propellant by Heating in a Rotating Steel Kiln, approximately 20 Feet Long until Detonation was Achieved*
- *Air Emission Control Technology was not Available during years of operation*

# *History at the Existing Deactivation Furnace (SEAD-17)*

- *Updated Version of the Former Deactivation Furnace, Deactivation occurred in a Rotating Steel Kiln, by Heating*
- *Furnace Operated from 1962 to mid-1989*
- *Baghouse, Air Coolers, Cyclone and Afterburner Added in 1978*
- *Automatic Waste Feed Cutoff System, CEMs and Control Equipment Added in 1989*
- *Inactive since 1989 pending RCRA Permit Approval as a Hazardous Waste Treatment Unit*
- *Partial RCRA Closure Performed in 1989*





*Background at the  
Former and Existing  
Deactivation Furnace Sites,  
(SEAD-16 & SEAD-17)*

# *Background at SEAD-16 and SEAD-17*

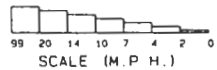
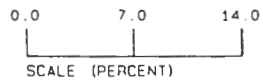
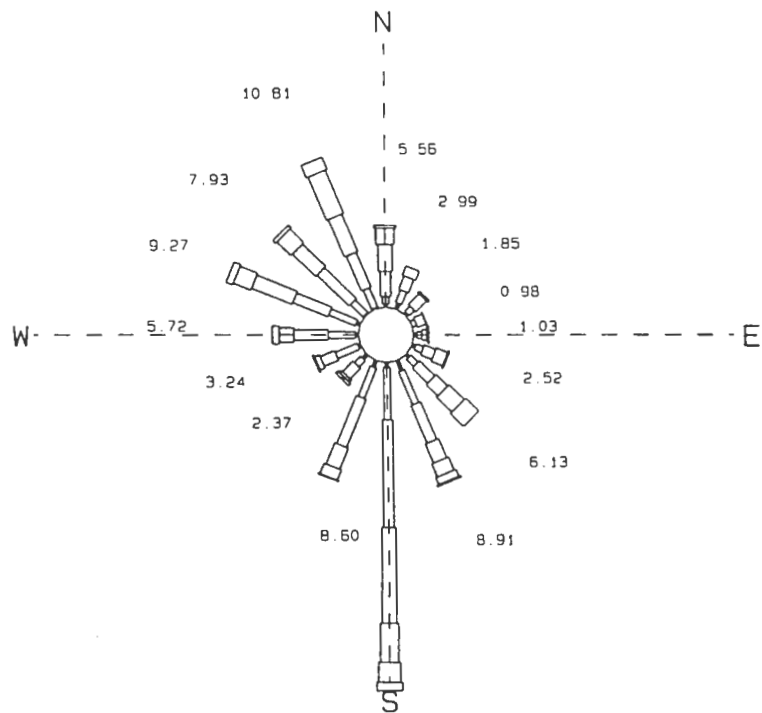
- *Both Solid Waste Management Units (SWMU)s Classified as Areas of Concern (AOC) from Historical Site Operations*
- *Expanded Site Inspections (ESI)s*
  - *Used to Confirm the Presence of Pollutants and Identify the Threat*
- *Combined as One Operable Unit*
- *Remedial Investigation (RI)*
  - *Used to Quantify the Risk Posed by the Pollutants*

# *SEAD-16 & SEAD-17 Milestones*

- *Final ESI Issued, Dec. 11, 1995*
- *RI/FS Recommended*
- *Final RI Workplan Issued, Dec. 1, 1995*
- *COE Authorization to Proceed, July 2, 1996*
- *Fieldwork Mobilization, July 22, 1996*
- *Fieldwork Completed, Sept. 15, 1996*
- *2nd Round GW Sampling Completed, December 13, 1996*
- *Draft RI Issued, Jan. 15, 1997*

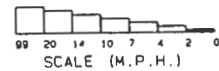
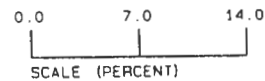
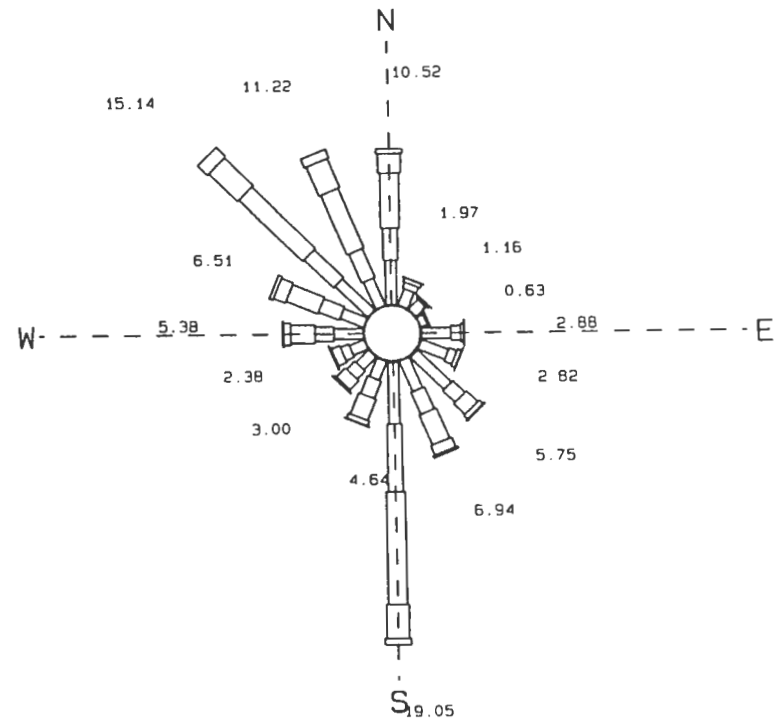
# *Conceptual Site Model at SEAD-16 and SEAD-17*

- *Expected Impacts Due to Furnace Emissions*
- *Particulates Would Settle, Limiting Impacts to Surficial Soils and Drainage Collection Ditches*
- *Distribution of Metals, Pb, Ba, Hg and Zn Coincident with Prevailing Wind Direction*
- *Limited Groundwater Impacts*



TOTAL HOURS: 2928  
PERCENT CALM: 0.00

SENECA ARMY DEPOT  
SENECA 10-M MET. TOWER  
SEASONAL WIND ROSE  
10 METER LEVEL APRIL 24 - JULY 14 1995



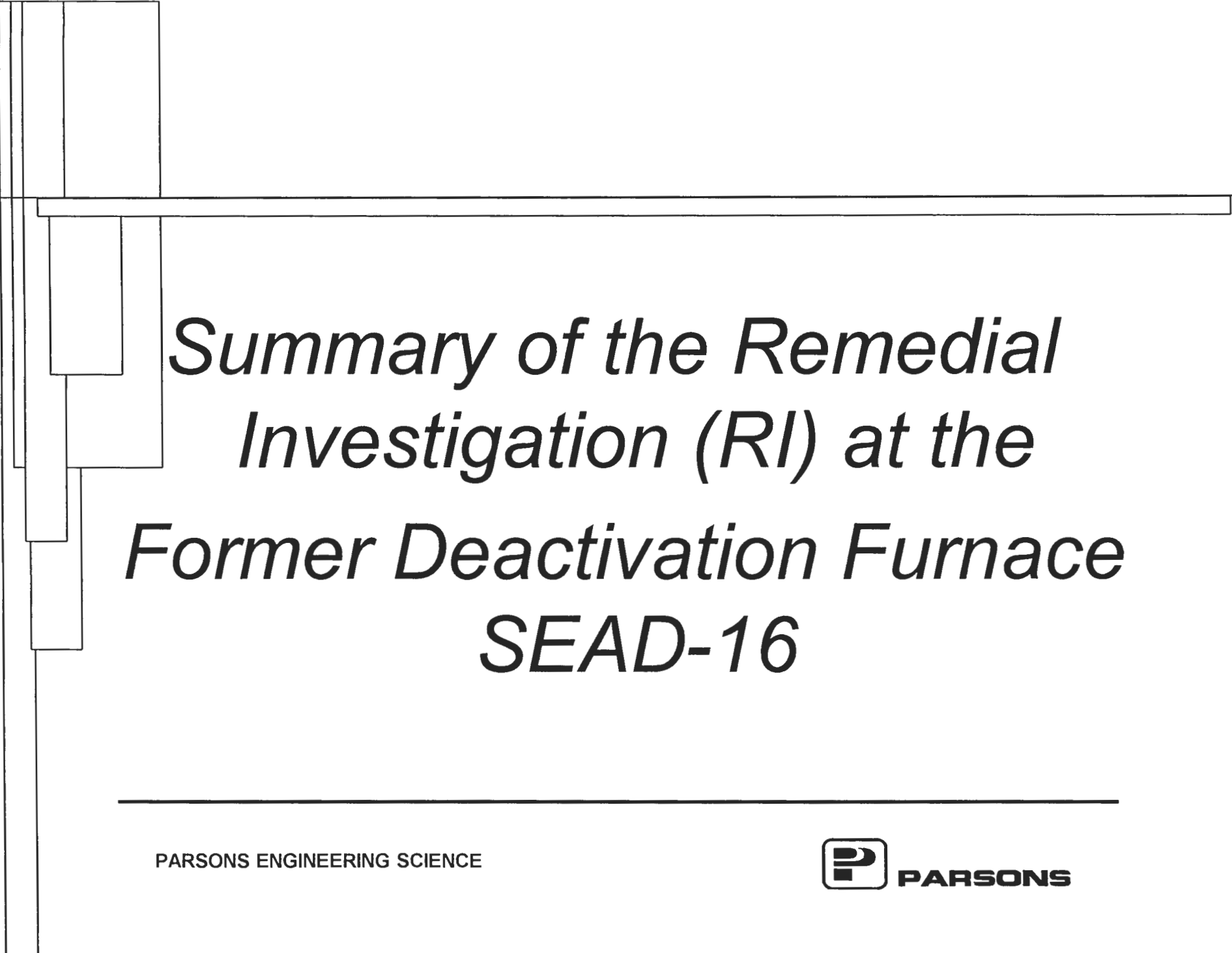
TOTAL HOURS: 29307  
PERCENT CALM: 14.29  
PERCENT MISSING: 0.00

SENECA ARMY DEPOT  
ITHACA AIRPORT  
ANNUAL WIND ROSE  
20 FOOT LEVEL POR: 1989-1993

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SENECA ARMY DEPOT ACTIVITY  
RI/S  
SEAD16 AND SEAD 17

WIND ROSES



*Summary of the Remedial  
Investigation (RI) at the  
Former Deactivation Furnace  
SEAD-16*

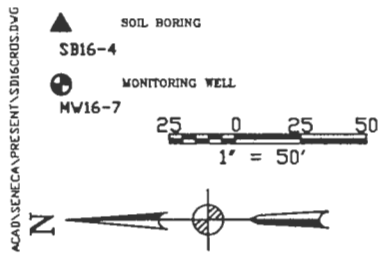
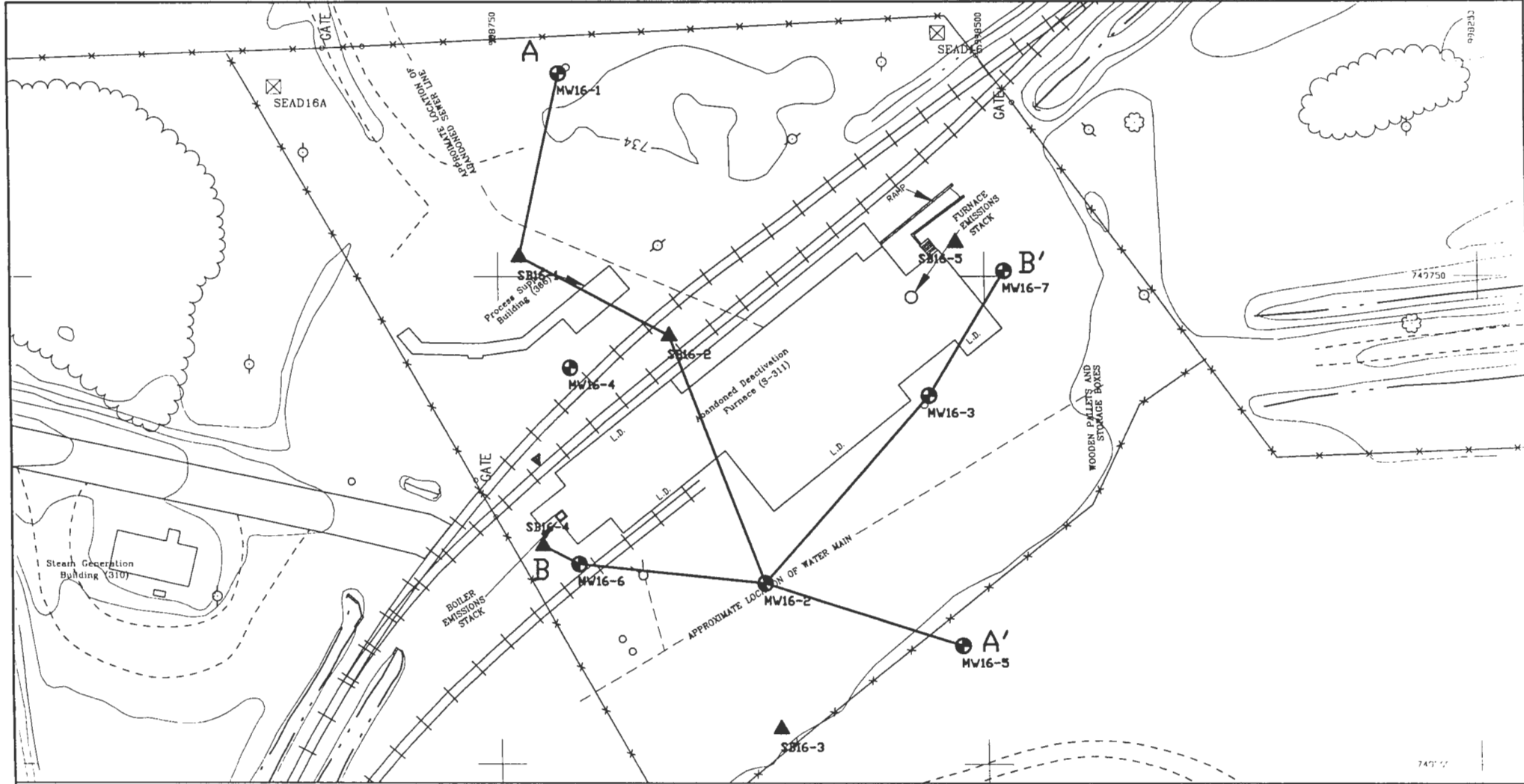
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# *Site Geology at SEAD-16*

- *Glacial Till Thicknesses range from 0.5 feet to 3.0 feet*
- *Weathered Shale Thicknesses range from 0.2 feet to 2.7 feet*
- *Competent Shale*



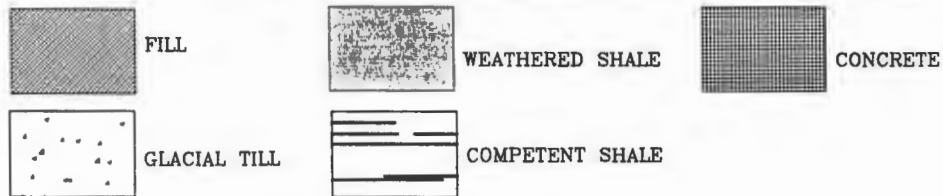
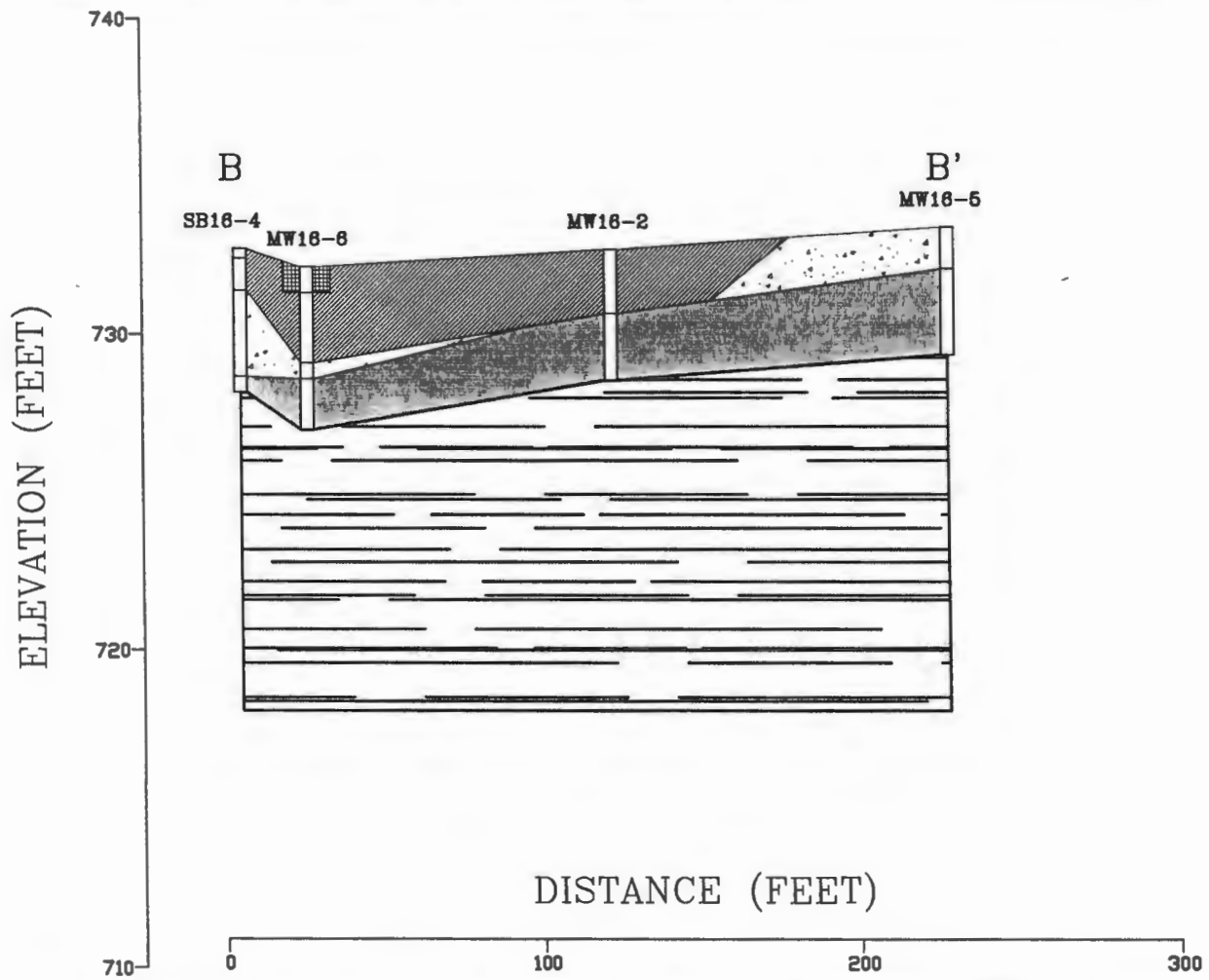
**P** PARSONS  
PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY  
RI/FS  
SEAD-16 ABANDONED DEACTIVATION FURNACE

SEAD-16  
LOCATION OF  
GEOLOGIC  
CROSS-SECTIONS  
A-A' AND B-B'

ACAD\SENECA\PRESENT\ASB\GCRDS.DWG



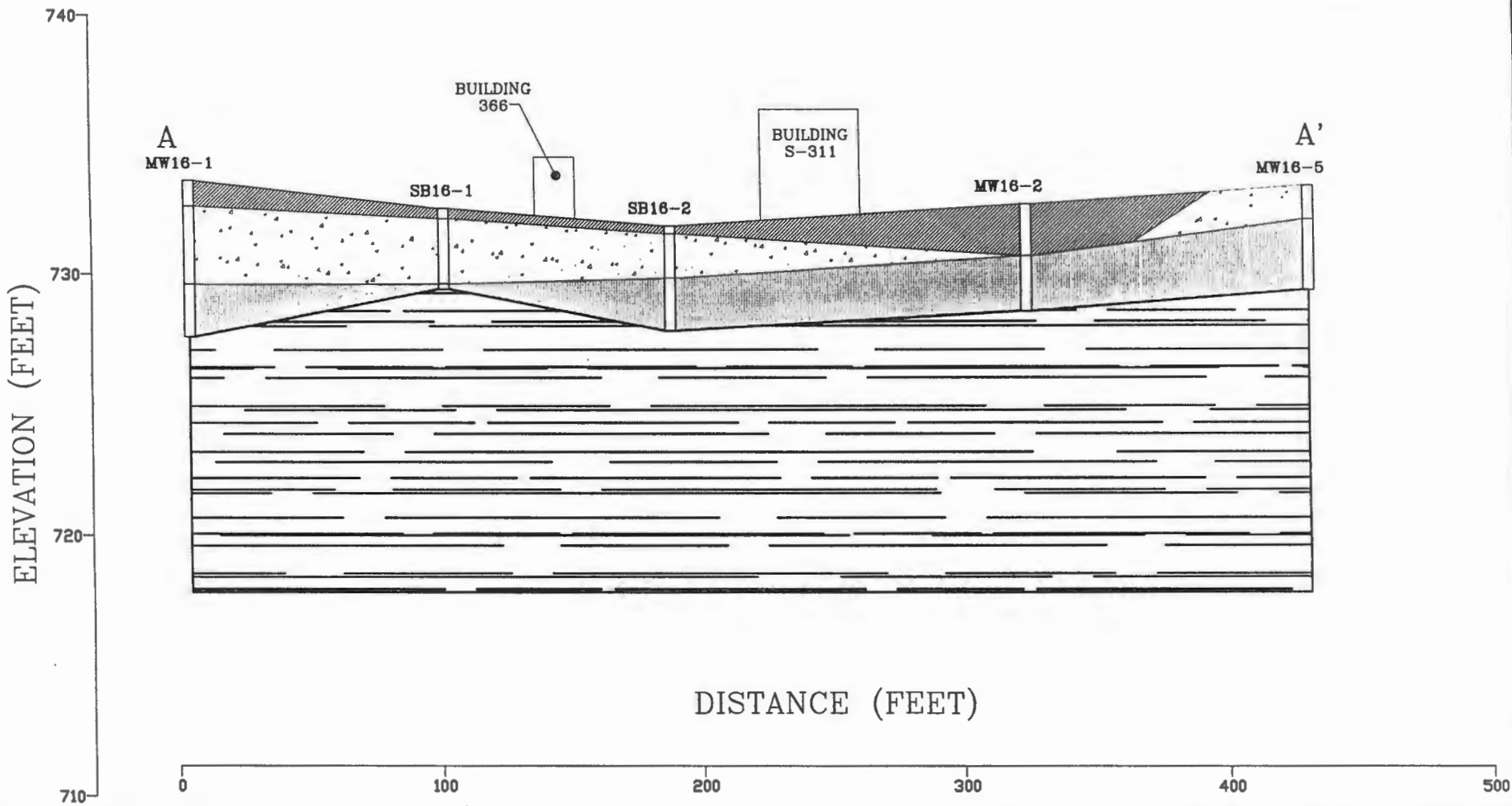


HORIZONTAL SCALE - 1" = 40'  
 VERTICAL EXAGGERATION = 10X  
 BUILDING VERTICAL SCALE IS ESTIMATED

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SENECA ARMY DEPOT ACTIVITY  
 RI/FS  
 SEAD-16 ABANDONED DEACTIVATION FURNACE

SEAD-16  
 GEOLOGIC  
 CROSS-SECTION  
 B-B'



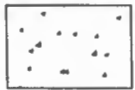
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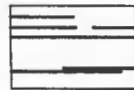
FILL



WEATHERED SHALE



GLACIAL TILL



COMPETENT SHALE

HORIZONTAL SCALE - 1" = 40'  
 VERTICAL EXAGGERATION = 10X  
 BUILDING VERTICAL SCALE IS ESTIMATED



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SENECA ARMY DEPOT ACTIVITY

RI/FS  
 SEAD-16 ABANDONED DEACTIVATION FURNACE

SEAD-16  
 GEOLOGIC  
 CROSS-SECTION  
 A-A'

# *Remedial Investigation at SEAD-16, Field Tasks Summary*

- *UXO Clearance and Support Required*
- *Seismic Refraction (4 - 115 ft. lines)*
- *Building Survey (Buildings S-311 & 366)*
  - *2 Indoor Air, 1 Outdoor Air (Background)*
  - *16 Building Materials for Asbestos*
  - *8 Soil from the Floor*
  - *2 Standing Water Samples*

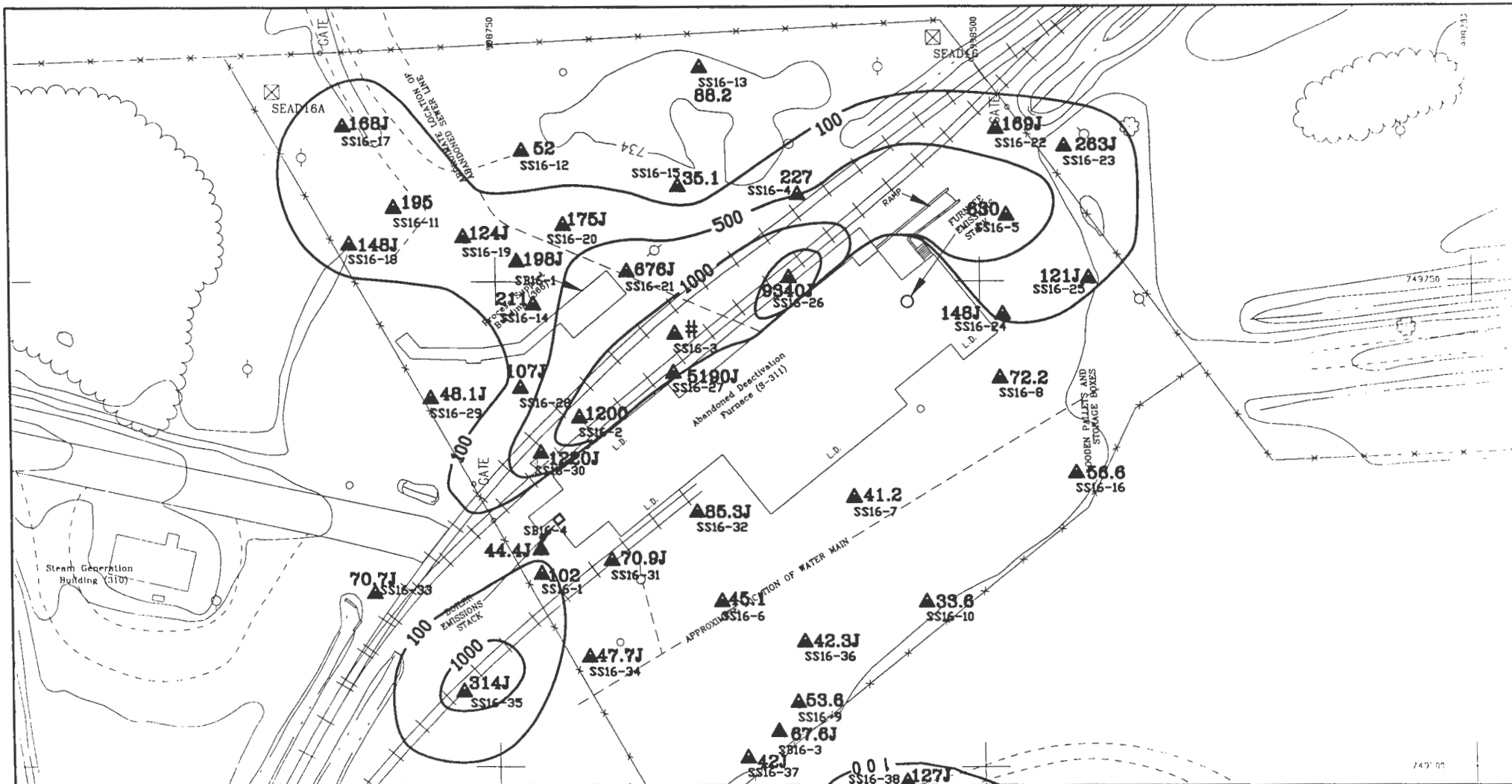
# *Remedial Investigation at SEAD-16, Field Tasks Summary*

- *5 Soil Borings & 39 Surface Soil Samp.*
- *7 Groundwater Monitoring Wells*
  - *2 Rounds of Groundwater Sampling*
- *10 Surface Water and Sediment Samples*
- *Ecological Survey*
  - *Aquatic Sampling in Kendaia Creek*
  - *Terrestrial Study*

# *Surface Soil Sampling Summary at SEAD-16*

- ***Metals Detected :***

- *Sb(16 of 43, max 1930 mg/kg; Bkg. is 3.6 mg/kg)*
- *Ba(8 of 43, max 9340 mg/kg; TAGM is 300 mg/kg)*
- *Cu(43of 43, max 37,900 mg/kg; TAGM is 25 mg/kg)*
- *Pb(41of 43, max 140,000 mg/kg;Bkg. is 22mg/kg )*
- *Hg(26of 43, max 11.4 mg/kg; TAGM is 0.1 mg/kg)*
- *Zn(35of 43, max 14,600 mg/kg; Bkg. is 82.5 mg/kg)*



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▲167J  
SS17-6

SURFACE SOIL SAMPLE  
WITH CHEMICAL CONCENTRATION

100  
CHEMICAL CONCENTRATION CONTOURS

25 0 25 50  
1" = 50'



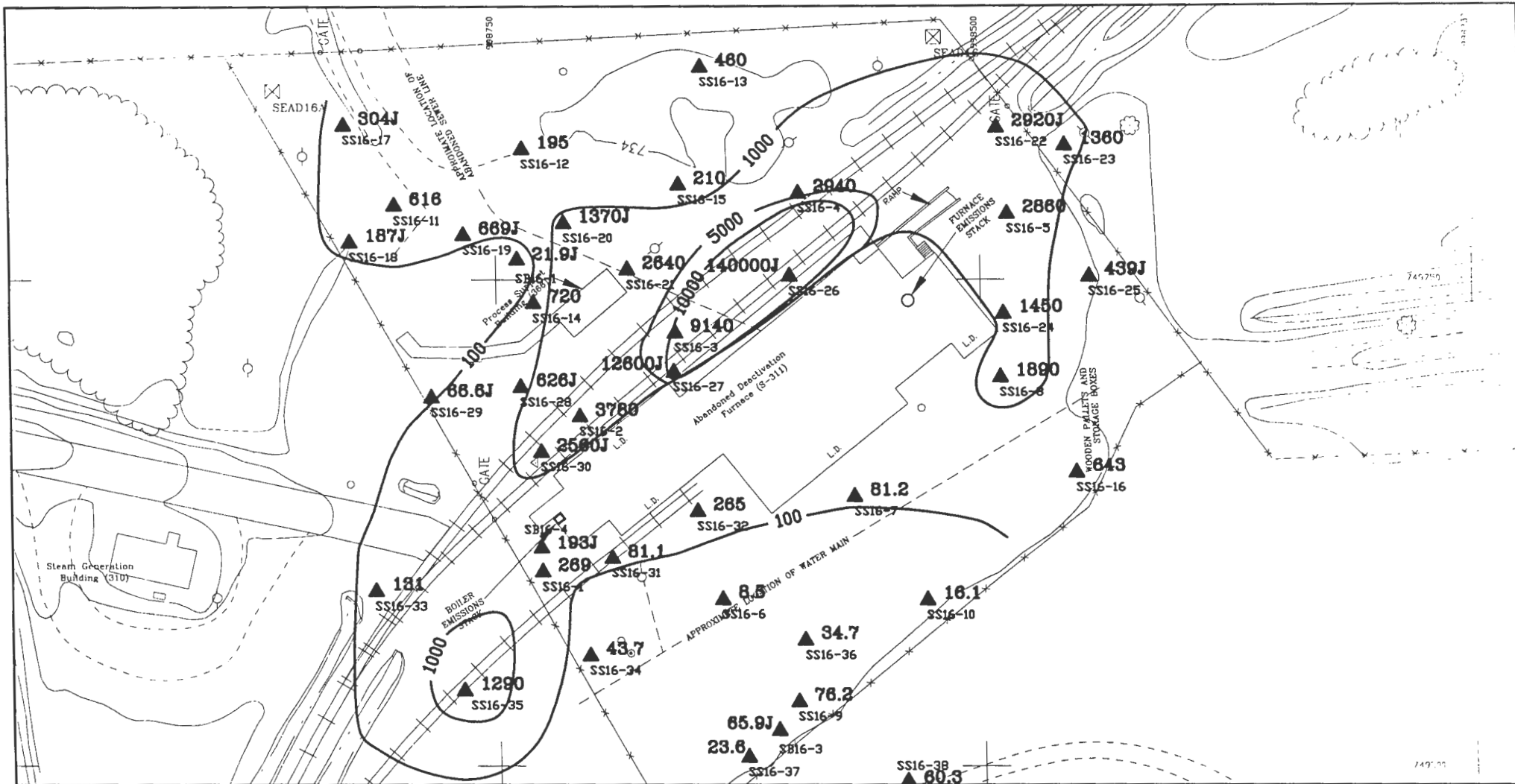
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REJECTED DATA

**PARSONS**  
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SENECA ARMY DEPOT ACTIVITY  
RI/FS  
SEAD-16 ABANDONED DEACTIVATION FURNACE

SEAD-16  
DISTRIBUTION OF  
BARIUM  
IN  
SURFACE SOILS



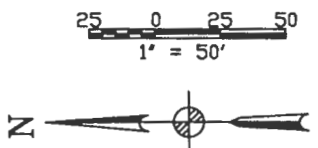
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SS17-6

SURFACE SOIL SAMPLE  
WITH CHEMICAL CONCENTRATION

100

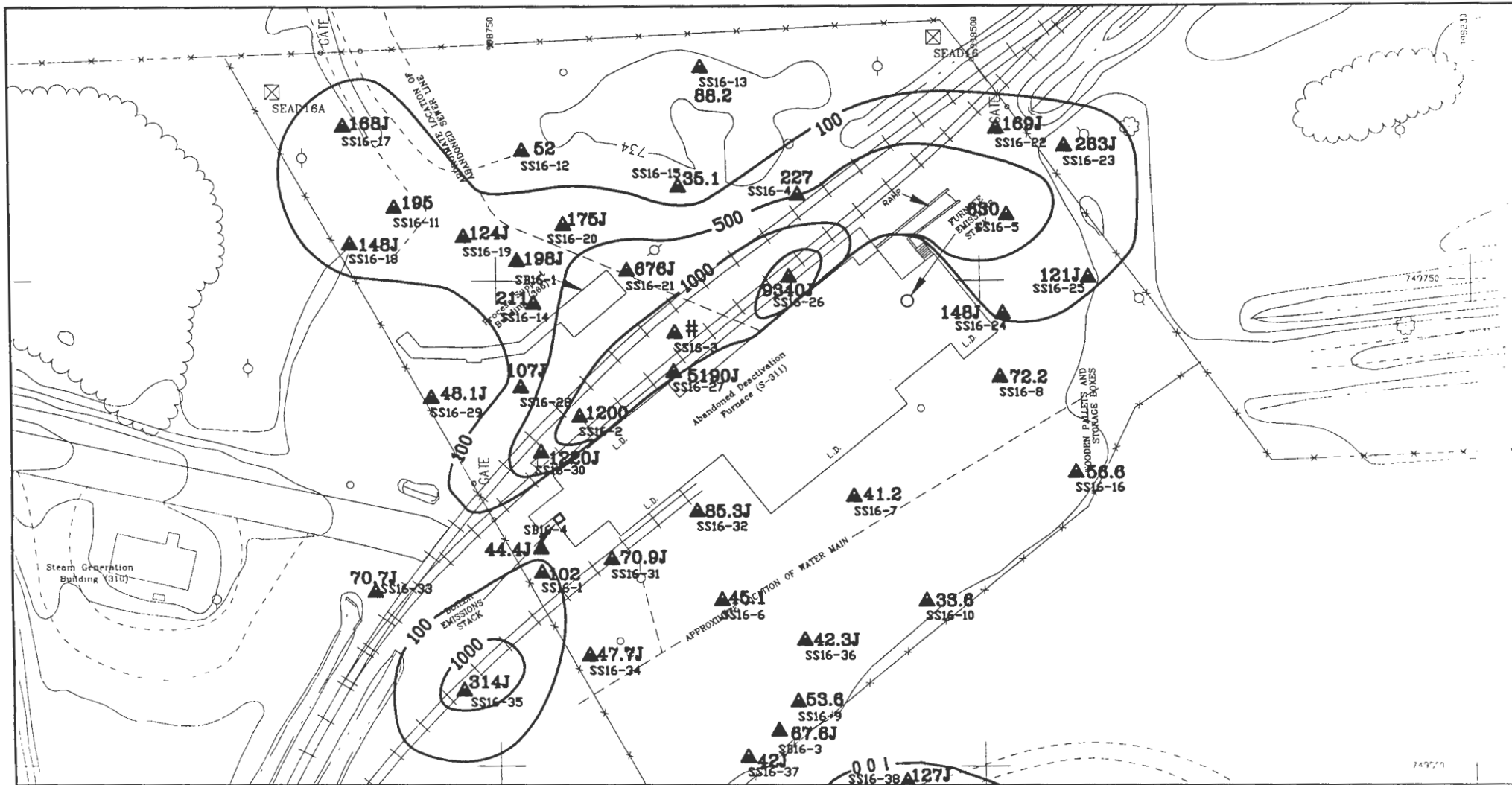
CHEMICAL CONCENTRATION CONTOURS



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SENECA ARMY DEPOT ACTIVITY  
RI/FS  
SEAD-16 ABANDONED DEACTIVATION FURNACE

SEAD-16  
DISTRIBUTION OF  
LEAD  
IN  
SURFACE SOILS



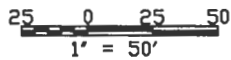
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SS17-6

SURFACE SOIL SAMPLE  
WITH CHEMICAL CONCENTRATION

100

CHEMICAL CONCENTRATION CONTOURS



# REJECTED DATA

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SENECA ARMY DEPOT ACTIVITY  
RI/FS  
SEAD-16 ABANDONED DEACTIVATION FURNACE

SEAD-16  
DISTRIBUTION OF  
MERCURY  
IN  
SURFACE SOILS

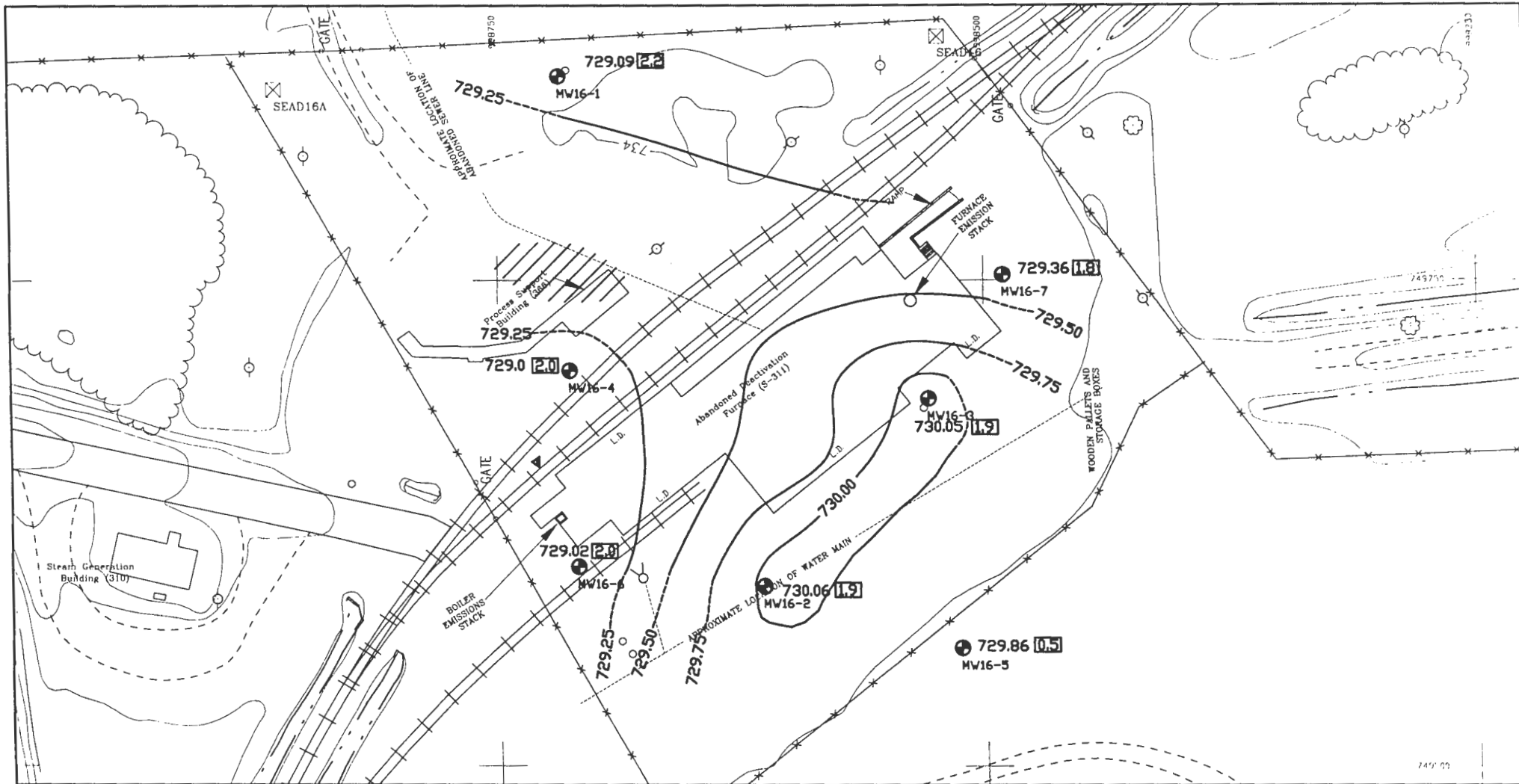


# *Surface Soil Sampling Summary at SEAD-16*

- *Nitroaromatics Detected :*
  - *2,6 Dinitrotoluene (3 of 43, max 0.320 mg/kg; TAGM is 1mg/kg)*
  - *2,4 Dinitrotoluene (27 of 43, max 74 mg/kg; No TAGM)*
  - *2-amino-4,6-dinitrotoluene (1 of 43, 0.430 mg/kg; No TAGM )*
  - *Tetryl (1 of 43, 0.220 mg/kg; No TAGM )*

# *Groundwater at SEAD-16*

- *Located in High Bedrock Elevation*
- *Water Table Thickness is Shallow Ranging from 2.7 to 5.1 feet, depending upon the season*
- *Direction of Flow Changes*

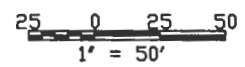


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729.86 [0.5]  
 MONITORING WELL WITH ELEVATION OF GROUNDWATER AND SATURATED THICKNESS (IN BOX)  
 MW16-7

GROUNDWATER CONTOUR LINE (DASHED WHERE INFERRED)

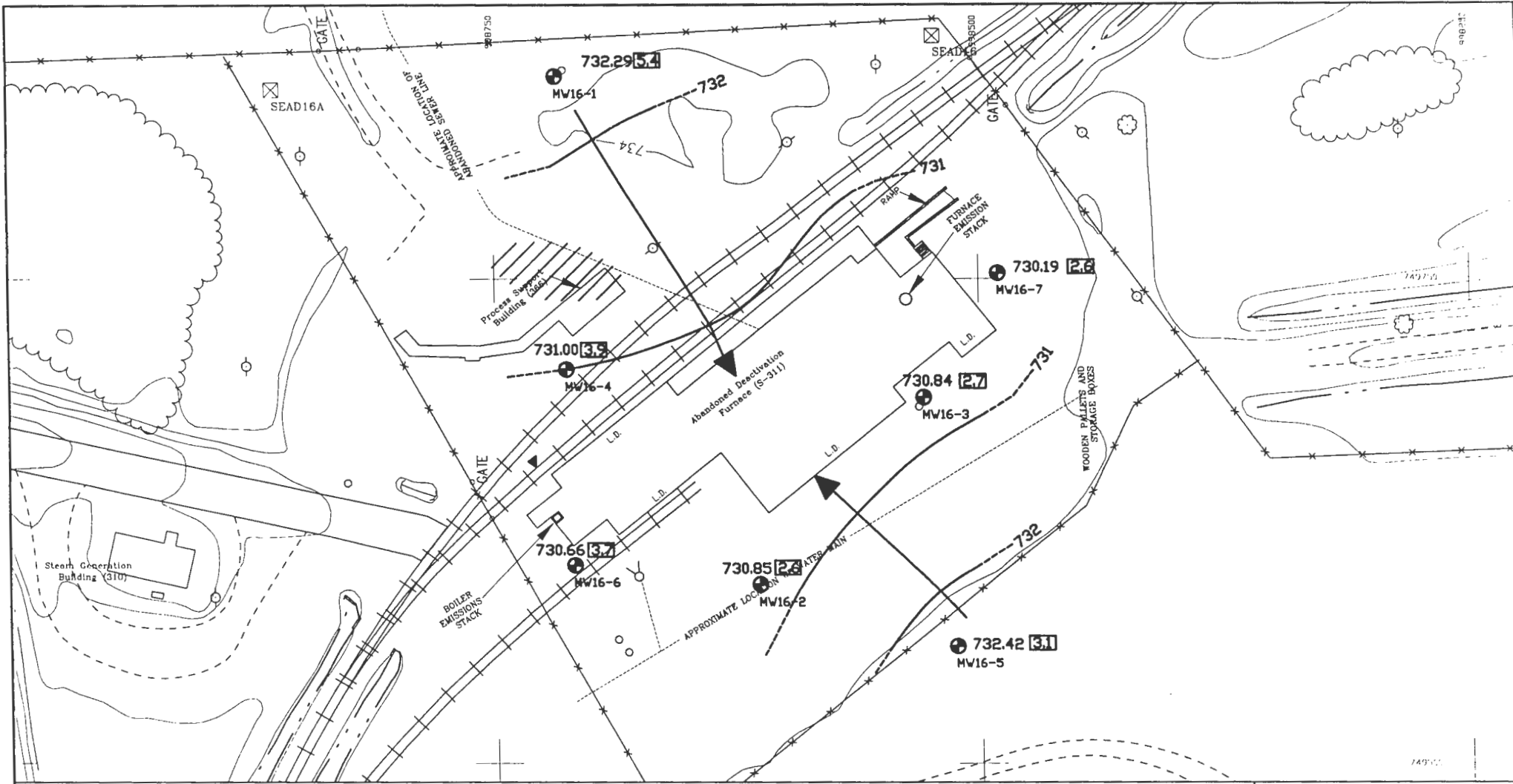
APPROXIMATE AREA OF BEDROCK HIGH (>729 msl) BASED ON STRATIGRAPHIC DATA FROM SB16-1



**PARSONS**  
 PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY  
 RI/FS  
 SEAD-16 ABANDONED DEACTIVATION FURNACE

SEAD-16  
 GROUNDWATER TOPOGRAPHY MAP  
 FOR THE TILL/WEATHERED  
 SHALE AQUIFER  
 AUGUST 27, 1996

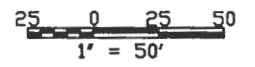


730.19 [2.6]  
 MW16-7  
 MONITORING WELL WITH ELEVATION OF GROUNDWATER AND SATURATED THICKNESS (IN BOX)

GROUNDWATER CONTOUR LINE (DASHED WHERE INFERRED)

ARROW INDICATES APPROXIMATE DIRECTION OF GROUNDWATER FLOW

APPROXIMATE AREA OF BEDROCK HIGH (>729 masl) BASED ON STRATIGRAPHIC DATA FROM SB16-1



ACAD:SENECA/PRESENT/SD16GW.TW.DWG

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 PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY  
 RI/FS  
 SEAD-16 ABANDONED DEACTIVATION FURNACE

SEAD-16  
 GROUNDWATER TOPOGRAPHY MAP  
 FOR THE TILL/WEATHERED  
 SHALE AQUIFER  
 DECEMBER 6, 1996

# *Groundwater Sampling Summary for SEAD-16*

- *No VOCs Detected*
- *2 Nitroaromatics Detected, None Above 5 ug/L Class GA Standard:*
  - *1,3Dinitrobenzene (2 of 7 MWs @ 1.8 & 0.26ug/L)*
  - *2,4Dinitrotoluene (1 of 7 MWs @ 0.68ug/L)*
- *7 Metals above GA Standard*
  - *Al, Fe, Mn, Pb, Sb, Na, Tl*

# *Groundwater Sampling Summary for SEAD-16*

- *Metals Detected and Criteria :*
  - *Al (4 of 7 MWs; max 1.85 mg/L; Secondary MCL 0.2 mg/L)*
  - *Sb (2 of 7 MWs; max 0.012 mg/L; MCL 0.006 mg/L)*
  - *Pb (1 of 7 MWs; 0.024 mg/L; GA 0.025 mg/L; EPA DW Action Limit 0.015mg/L)*
  - *Tl (1 of 7 MWs; 0.006 mg/L; MCL 0.002 mg/L)*

# *Surface Water Sampling Summary for SEAD-16*

- *Drainage Ditches drain to Headwaters of Kendaia Creek, Class C*
- *No VOCs, PCBs/Pesticides and Nitroaromatics*
- *6 Metals, (Cd, Cu, Fe, Pb, Se and Zn) were detected above Class C Surface Water Standard*

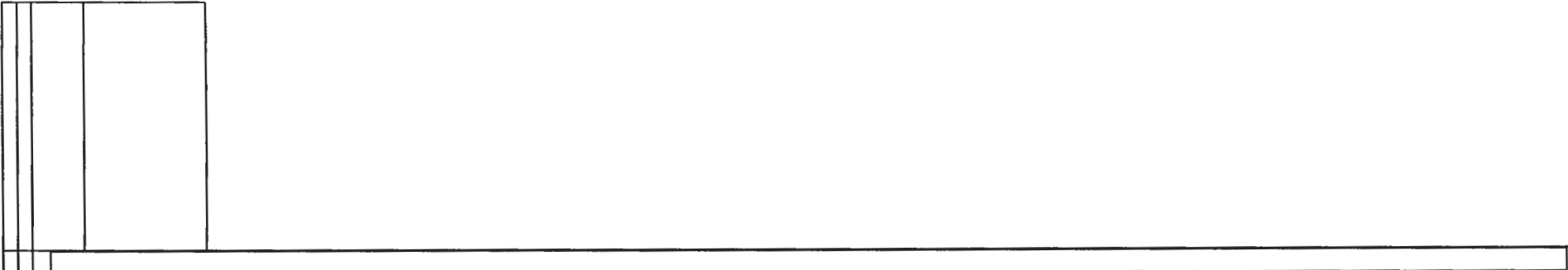
# *Surface Water Sampling Summary for SEAD-16*

- *Metals Detected and Class C Criteria :*
  - *Cd - 1 of 10 ; 2 ug/L; Class C 1.8 ug/L*
  - *Cu - 7 of 10; max 424 ug/L; Class C 20 ug/L*
  - *Pb - 9 of 10; max 813 & 97 ug/L; Class C Criteria 7 ug/L*
  - *Zn - 3 of 10; max 253 & 217 ug/L; Class C Criteria 141 ug/L*



***SUMMARY OF BASELINE HUMAN  
HEALTH RISK ASSESSMENT  
SEAD-16, Former Deactivation Furnace***

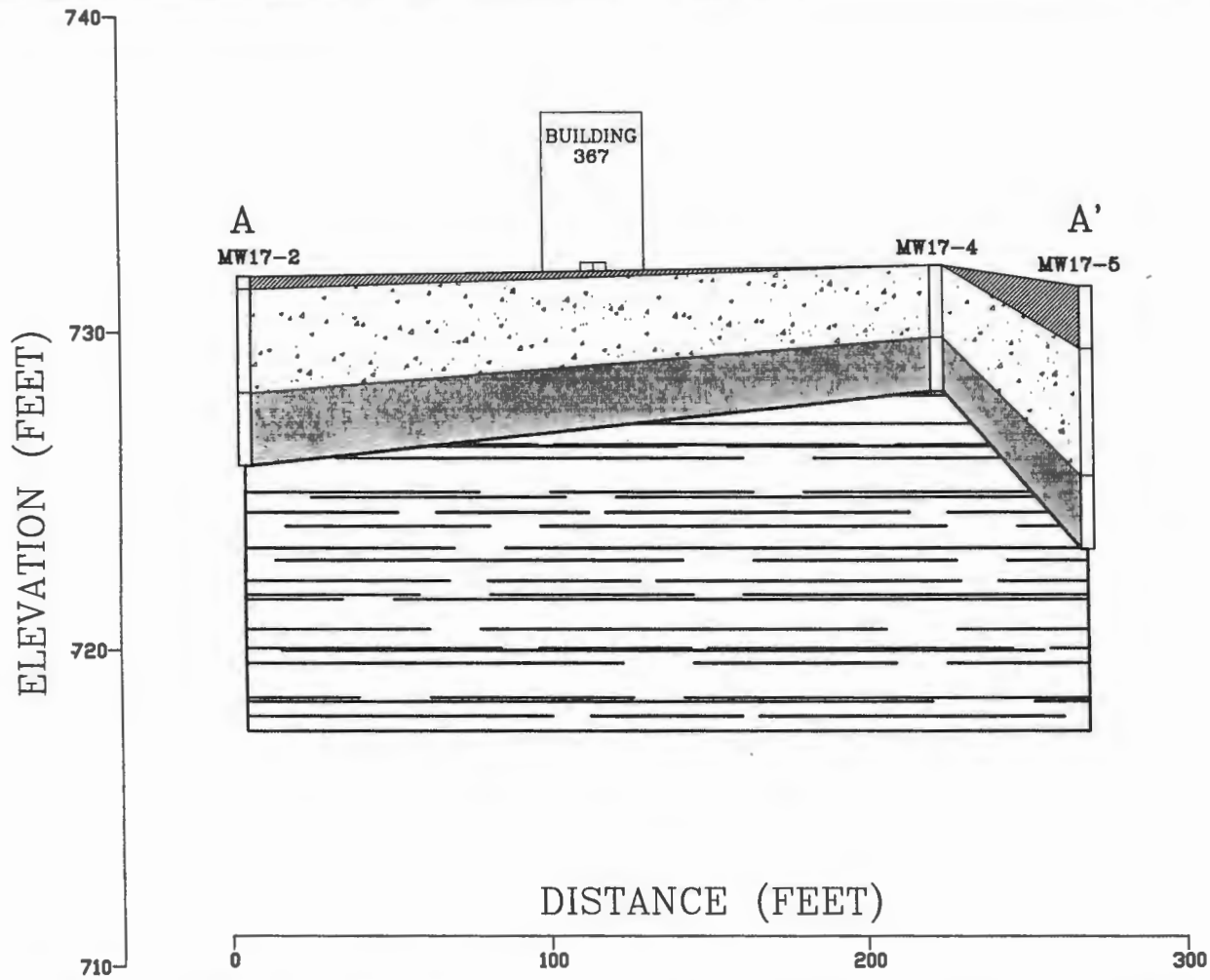
| EXPOSURE SCENARIO                  | TOTAL HAZARD INDEX | TOTAL CANCER RISK        |
|------------------------------------|--------------------|--------------------------|
| Current on-site Worker             | 0.10               | $2.4 \times 10^{-6}$     |
| Future on-site Industrial Worker   | 19.6               | $3.5 \times 10^{-5}$     |
| Future on-site Construction Worker | 2.15               | $5.1 \times 10^{-6}$     |
| Future Trespasser (Child)          | 0.70               | $5.1 \times 10^{-6}$     |
| EPA target value                   | 1.0                | $10^{-4} \times 10^{-6}$ |



*Summary of the Remedial  
Investigation (RI) at the  
Existing Deactivation Furnace  
SEAD-17*

# *Site Geology at SEAD-17*

- *Glacial Till Thicknesses range from 2.3 feet to 6.0 feet*
- *Weathered Shale Thicknesses range from 0.5 feet to 3.3 feet*
- *Competent Shale*



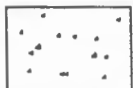
ACAD\SENECA\PRESENT\SB17AA.DWG



FILL



WEATHERED SHALE



GLACIAL TILL



COMPETENT SHALE

HORIZONTAL SCALE - 1" = 40'  
 VERTICAL EXAGGERATION = 10X  
 BUILDING VERTICAL SCALE IS ESTIMATED

**PARSONS**  
 PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY  
 RI/FS  
 SEAD-17 ACTIVE DEACTIVATION FURNACE

SEAD-17  
 GEOLOGIC  
 CROSS-SECTION  
 A-A'

# *Remedial Investigation at SEAD-17, Field Tasks Summary*

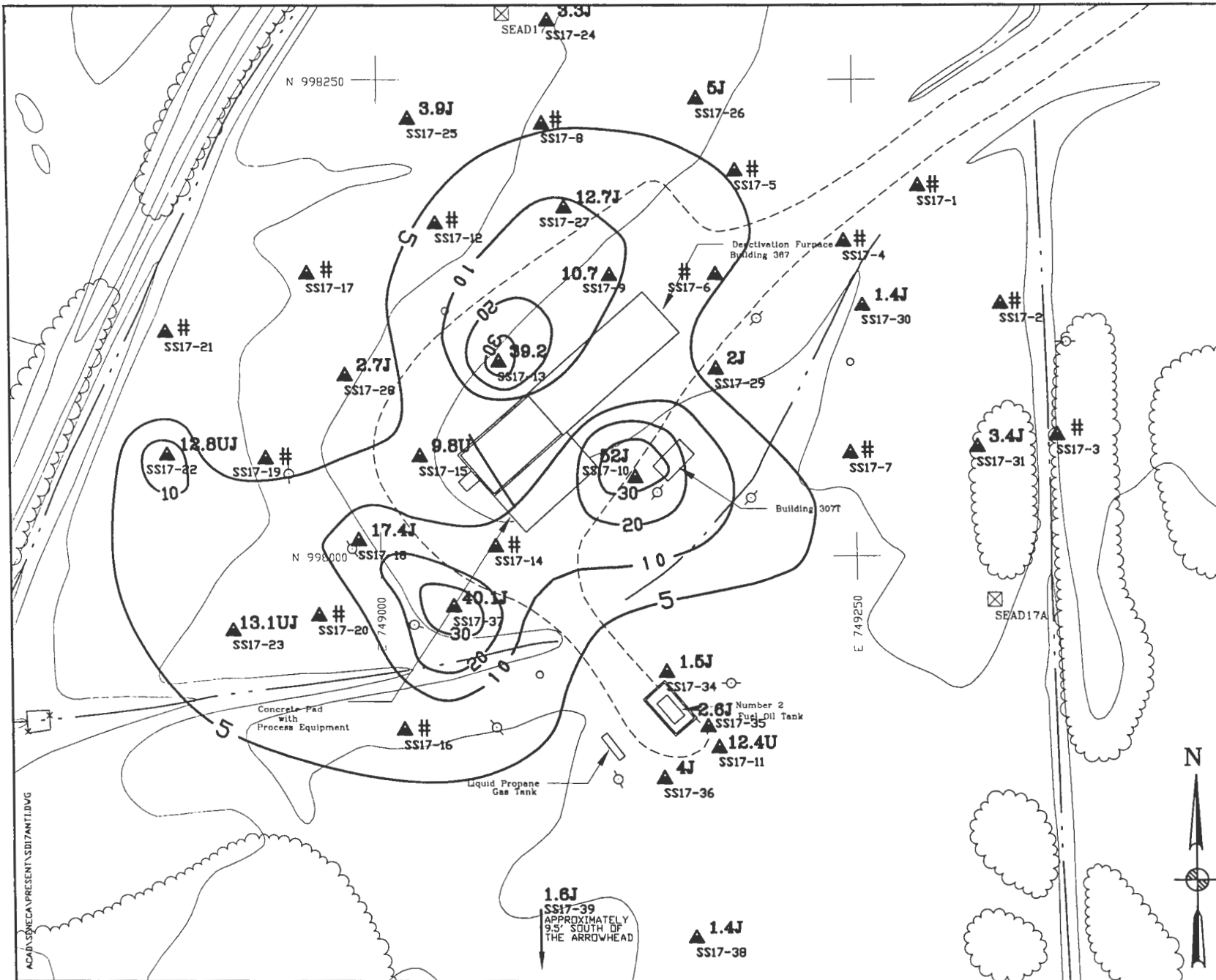
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- *UXO Clearance and Support Required*
- *4 Soil Borings & 38 Surface Soil Samp.*
- *5 Groundwater Monitoring Wells*
  - *2 Rounds of Groundwater Sampling*
- *10 Surface Water and Sediment Samples*
- *Ecological Survey*
  - *Aquatic Sampling of Headwaters of Kendaia Creek*
  - *Terrestrial Study*

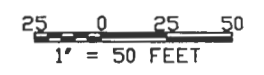
# *Surface Soil Sampling Summary at SEAD-17*

- ***Metals Detected :***

- *Sb(9 of 38, max 52 mg/kg; Bkg 3.6 mg/kg)*
- *Ba(5 of 38, max 524 mg/kg; TAGM is 300 mg/kg)*
- *Cu(37 of 38, max 837 mg/kg; TAGM is 25 mg/kg)*
- *Pb(37 of 38, max 6,270mg/kg;Bkg22mg/kg)*
- *Hg(7 of 38, max 1.0 mg/kg; TAGM is 0.1 mg/kg)*
- *Zn(35 of 38, max 1,530 mg/kg; Bkg is 82.5 mg/kg)*



- ▲ 3.4J SS17-6 SURFACE SOIL SAMPLE WITH CHEMICAL CONCENTRATION
- 10 --- CHEMICAL CONCENTRATION CONTOUR
- # REJECTED DATA

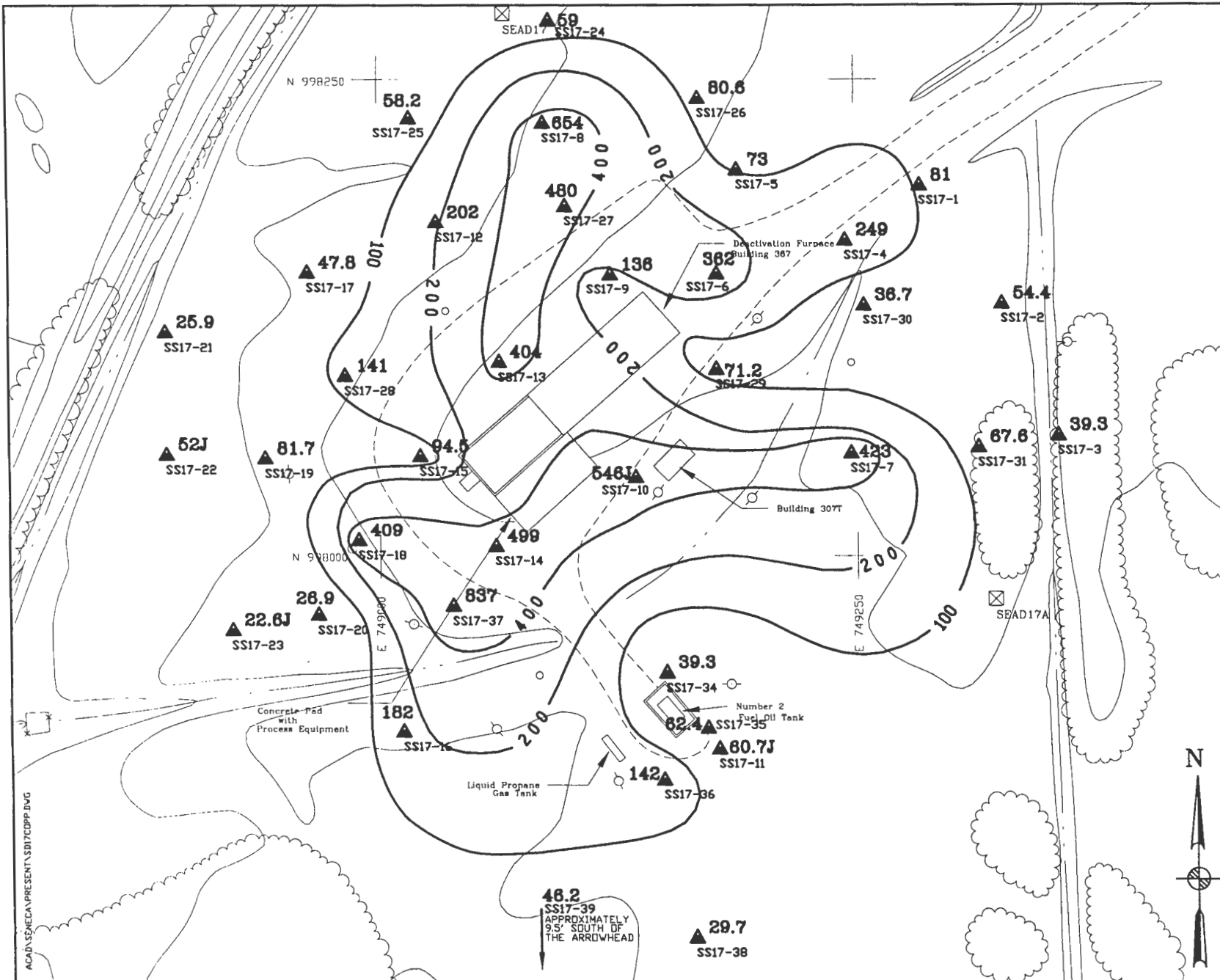


**PARSONS**  
**PARSONS ENGINEERING SCIENCE, INC.**

SENECA ARMY DEPOT ACTIVITY  
 RI/FS  
 SEAD-17 ACTIVE DEACTIVATION FURNACE

SEAD-17  
 DISTRIBUTION OF  
 ANTIMONY  
 IN  
 SURFACE SOILS

ACAD\SENECA\PRESENT\SDI7ANT\LDVG



▲ 265 SURFACE SOIL SAMPLE WITH CHEMICAL CONCENTRATION  
SS17-6

100  
CHEMICAL CONCENTRATION CONTOURS

25 0 25 50  
1" = 50 FEET



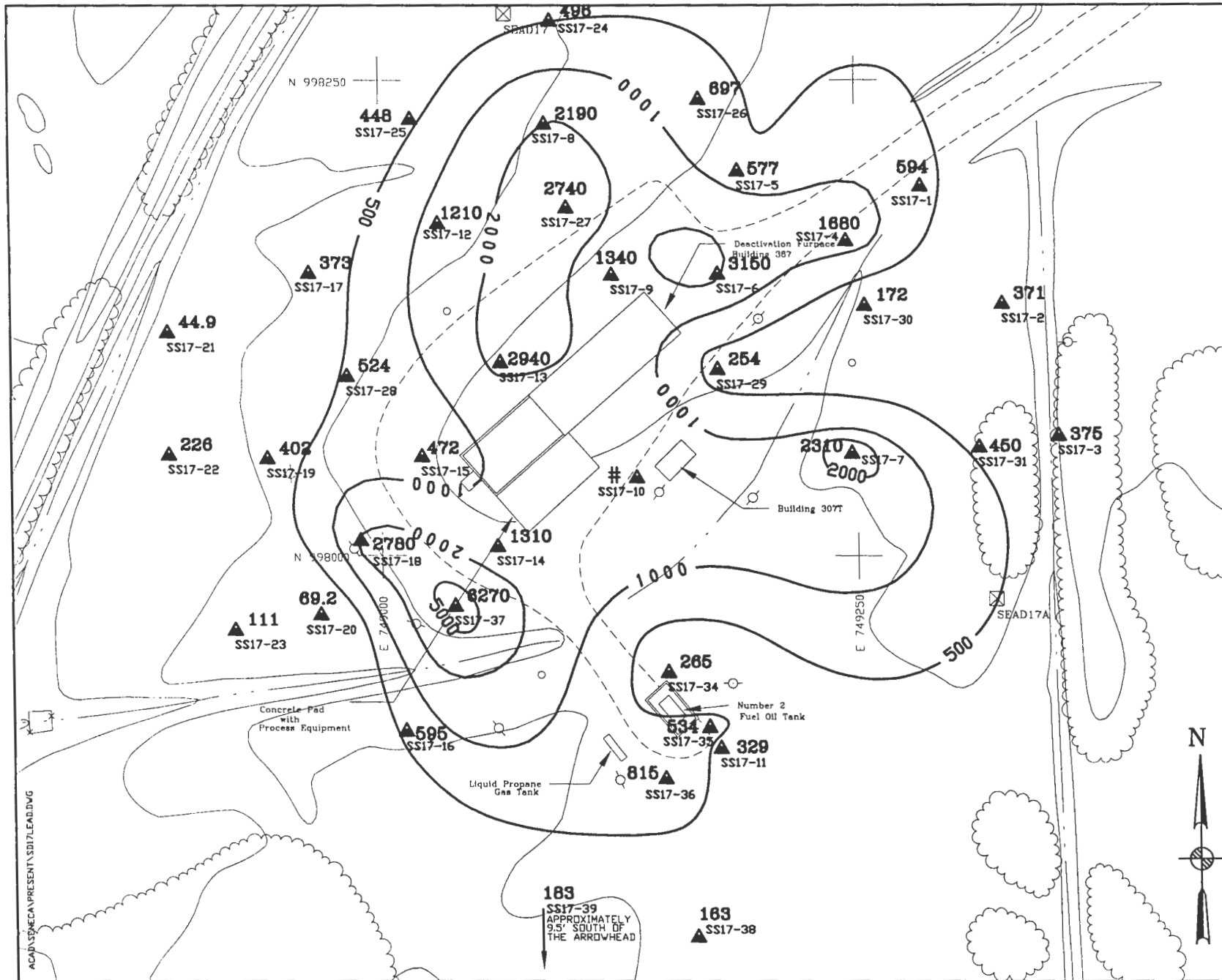
**P** PARSONS  
PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY  
RI/FS  
SEAD-17 ACTIVE DEACTIVATION FURNACE

SEAD-17  
DISTRIBUTION OF  
COPPER  
IN  
SURFACE SOILS

ACAD\SENECA\PRESENT\SD17\CDPP.DWG

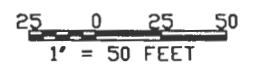




▲ 44.9 SURFACE SOIL SAMPLE WITH CHEMICAL CONCENTRATION SS17-6

— 500 — CHEMICAL CONCENTRATION CONTOUR

# REJECTED DATA



**P** PARSONS  
 PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY  
 RI/FS  
 SEAD-17 ACTIVE DEACTIVATION FURNACE

SEAD-17  
 DISTRIBUTION OF  
 LEAD  
 IN  
 SURFACE SOILS

183  
 SS17-39  
 APPROXIMATELY  
 9.5' SOUTH OF  
 THE ARROWHEAD

ACAD\SENECA\PRESENT\SB17\LEAD.DWG

# *Surface Soil Sampling Summary at SEAD-17*

- *Nitroaromatics Detected :*
  - *2,4 Dinitrotoluene (4 of 38, Ranged from 72 to 330 ug/kg; No TAGM)*
- *PAHs Detected:*
  - *Ubiquitous, Detected in every sample*
  - *3-nitroaniline (1 of 38, 990 ug/kg; TAGM is 500 ug/kg)*
  - *Dibenz(a,h)anthracene (3 of 38, max 59 ug/kg; TAGM is 14 ug/kg)*

# *Groundwater at SEAD-17*

- *Located in High Bedrock Elevation*
- *Water Table Thickness is Shallow Ranging from 2.7 to 5.1 feet*
- *Depth to Water :*
  - *2.4 feet to 3.2 feet in April*
  - *6.9 feet to 7.6 feet in August*
- *Direction of Flow Changes Depending on the Time of Year*

# *Groundwater Sampling Summary for SEAD-17*

- *1st Round 2 Wells Contained Water*
- *No VOCs Detected*
- *4 Semi-Volatile Compounds Detected,  
None above the GA Standard*
- *No Nitroaromatics Detected*
- *No PCBs or Pesticides Detected*
- *2 Metals above GA Standard*
  - *Mn and Tl*

# *Groundwater Sampling Summary for SEAD-17*

- *Metals Detected and Criteria :*
  - *Mn (1 of 2 MWs; 73 ug/L; Secondary MCL 50 ug/L)*
  - *Tl (2 of 2 MWs; 4.7 ug/L; MCL 2 ug/L)*

# *Surface Water Sampling Summary for SEAD-17*

- *Drainage Ditches drain to Headwaters of Kendaia Creek, Class C*
- *No VOCs, PCBs/Pesticides or Nitroaromatics Detected*
- *4 Metals, (Cu, Fe, Pb and Se) were detected above Class C Surface Water Standards*

# *Surface Water Sampling Summary for SEAD-17*

- *Metals Detected and Class C Criteria :*
  - *Cu - 1 of 10; 33 ug/L; Class C 20 ug/L*
  - *Pb - 3 of 10; max 37 ug/L; Class C Criteria 7 ug/L*
  - *Se - 5 of 10; max 3.5 ug/L; Class C Criteria 1 ug/L*

***SUMMARY OF BASELINE HUMAN  
HEALTH RISK ASSESSMENT  
SEAD-17, Existing Deactivation Furnace***

| EXPOSURE SCENARIO                     | TOTAL<br>HAZARD<br>INDEX | TOTAL<br>CANCER<br>RISK  |
|---------------------------------------|--------------------------|--------------------------|
| Current on-site Worker                | 0.029                    | $6.0 \times 10^{-7}$     |
| Future on-site<br>Industrial Worker   | 0.122                    | $2.7 \times 10^{-6}$     |
| Future on-site<br>Construction Worker | 0.84                     | $1.3 \times 10^{-6}$     |
| Future Trespasser (Child)             | 0.33                     | $2.2 \times 10^{-6}$     |
| EPA target value                      | 1.0                      | $10^{-4} \times 10^{-6}$ |



# **Restoration Advisory Board Meeting Agenda**

**May 20, 1997**

- 7:00**            **Welcome**  
LTC Stephen W. Brooks  
Commander, Seneca Army Depot Activity
- 7:05**            **Acceptance of Minutes**  
Dr. Dick Durst  
Community Co-chair
- 7:10**            **RAB Charter: Attendance, Meeting Frequency, Resignation**  
Dr. Dick Durst  
Community Co-chair
- 7:30**            **Break**
- 7:40**            **Breast Cancer Incidence in Seneca County**  
Ms. Betsy Lewis-Michl, Ph.D.  
New York State Department of Health
- 8:15**            **Open Discussion**
- 8:45**            **Adjourn**

MINUTES  
RESTORATION ADVISORY BOARD  
MAY 20, 1997 MEETING

1. Attendance:

Government RAB Members Present:

Carla Struble, U.S. Environmental Protection Agency  
Dan Geraghty, NYS Department of Health

Government RAB Members Not Present:

Stephen M. Absolom, BRAC Environmental Coordinator,  
SEDA/Army Co-Chair  
Kamal Gupta, NYS Department of Environmental Conservation

Community RAB Members Present:

Dick Durst/Community Co-Chair, Anne Herman, Richard Sisson,  
Henry Van Ness, Pat Jones, Brian Dombrowski, Mary Ann  
Krupsak, Lucinda Sangree, Ken Reimer

Community RAB Members Not Present:

Harold Kugelmass, Russell Miller, Richard Lewis,  
Carmen Serrett, Estelle Coleman, Frank Ives, David Wagner

Environmental Support Personnel Present:

Thomas Enroth, U.S. Army Corps of Engineers, NY District,  
SEDA Resident Office  
Janet Fallo, U.S. Army Corps of Engineers, NY District,  
SEDA Resident Office  
Susan Cooper, SEDA Secretary  
Joanne Ogden, SEDA Legal Rep/Public Affairs Officer  
Keith Hoddinott, U.S. Army Center for Health Promotion &  
Preventive Medicine  
Robert Scott, NYS Department of Environmental Conservation  
Betsy Lewis-Michl, NYS Department of Health

Community Support (from sign-in sheet):

Brooke Brewer, Community Member  
Faye Jensen, Community Member  
Heather Clark, Community Member  
Eileen Alexander, Community Member  
Yolande Goltry, Community Member  
June Allen, Community Member

Sandra Bartlett, Community Member  
Betty Serven, Community Member  
Barbara Messur, Community Member  
Gail Serven, Community Member  
Diane Reimer, Community Member  
Mary LeClair, Finger Lakes Times

2. Dick Durst, the Community Co-Chair, welcomed members and support staff to the May Restoration Advisory Board at the Officers' Club, outlined the evening's agenda, and asked for introductions.

3. Minutes from March's RAB meeting were approved, signed, and accepted into record.

4. The first item for discussion was the high rate of absenteeism at the RAB meetings. Several members have missed numerous meetings. Dick Durst asked the members present what constitutes acceptable attendance. Several suggestions were presented:

a. Generate a periodic form to be sent to members who have had excessive absences requesting their intentions to remain on the RAB.

b. Extend an invitation to community members who regularly attend the RAB meetings to participate and apply for membership.

c. Have an open enrollment period to solicit new members.

d. Develop a quarterly newsletter for individuals interested in being on a mailing list.

The frequency of meetings was deemed acceptable and will remain on a monthly basis.

5. Betsy Lewis-Michl from the New York State Department of Health, Bureau of Environmental and Occupational Epidemiology, gave a presentation on Breast Cancer Incidence in Seneca County. The available data from the New York State Cancer Registry was collected from 1940 to 1992. Information for 1993 to 1997 is currently being entered into the State's computerized database. Although rates of breast cancer have increased in all counties in New York State, the charts indicate the incidence rate of breast cancer to be elevated in Seneca County when compared to the New York State average. It is believed this higher rate is

due to the excellent screening programs in Seneca County. The mortality rates are equal to the state average. Early diagnosis and treatment contribute to this stabilized mortality rate.

a. Questions arose as to inclusion of specific groups in the available data. The former Willard Psychiatric Center was not included in the findings, although it should have been since they were considered a long-term institution. The Amish community was not considered a contributing factor in the data.

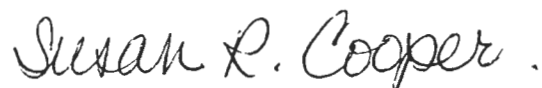
b. Breast cancer risk factors were discussed. These risk factors include smoking, endocrine disruptions, diet, air pollution, environmental factors, disruption of hormonal activity, births over age 30, and the use of pesticides. The effect of pesticides on the female population in or around farms is being further studied with the assistance of the New York State Farm Bureau.

6. Open discussion followed with solicitation of future topics. A request was made for clarification of which sites are being monitored for environmental purposes and what is the monitoring showing.

7. The next Restoration Advisory Board meeting will be held on July 15, 1997 at 7:00 p.m. in the SEDA NCO Club.

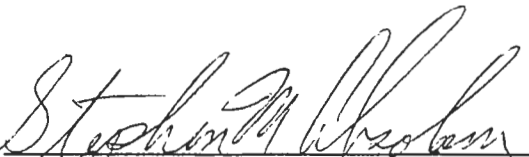
8. The meeting was adjourned at 8:40 p.m.

Respectfully submitted,



SUSAN R. COOPER  
Secretary

APPROVED AS SUBMITTED:



STEPHEN M. ABSOLOM  
U.S. Army Co-Chair

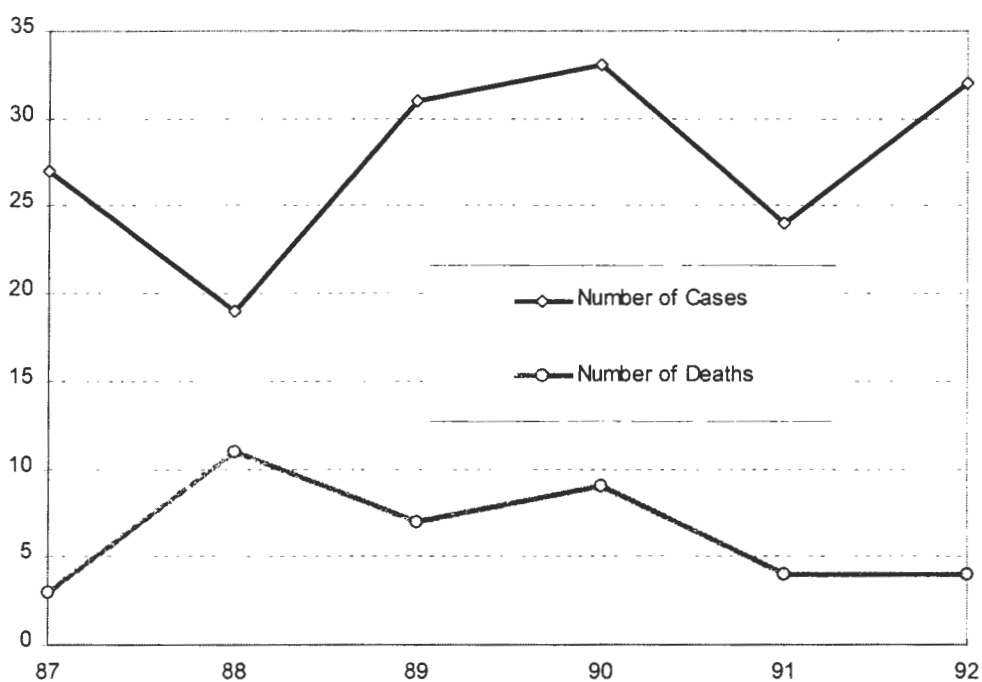


RICHARD A. DURST  
Community Co-Chair

**Seneca County Breast Cancer Incidence,  
Breast Cancer Mortality,  
and Stage of Diagnosis  
1987-1992**

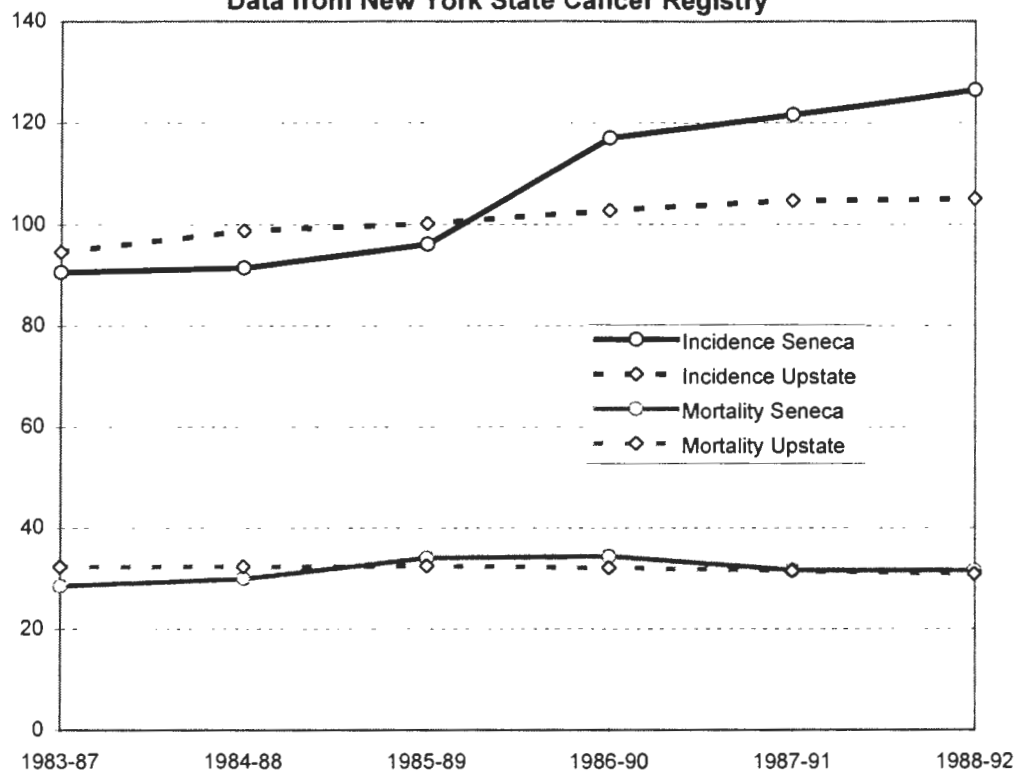
Presentation to Restoration Advisory Board  
Seneca Army Depot  
May 21, 1997

**Chart 1**  
**Breast Cancer Incident Cases and Breast Cancer Deaths**  
**Seneca County 1987-1992**  
**Data from New York State Cancer Registry**



| Year | Number<br>of Cases | Number<br>of Deaths |
|------|--------------------|---------------------|
| 87   | 27                 | 3                   |
| 88   | 19                 | 11                  |
| 89   | 31                 | 7                   |
| 90   | 33                 | 9                   |
| 91   | 24                 | 4                   |
| 92   | 32                 | 4                   |

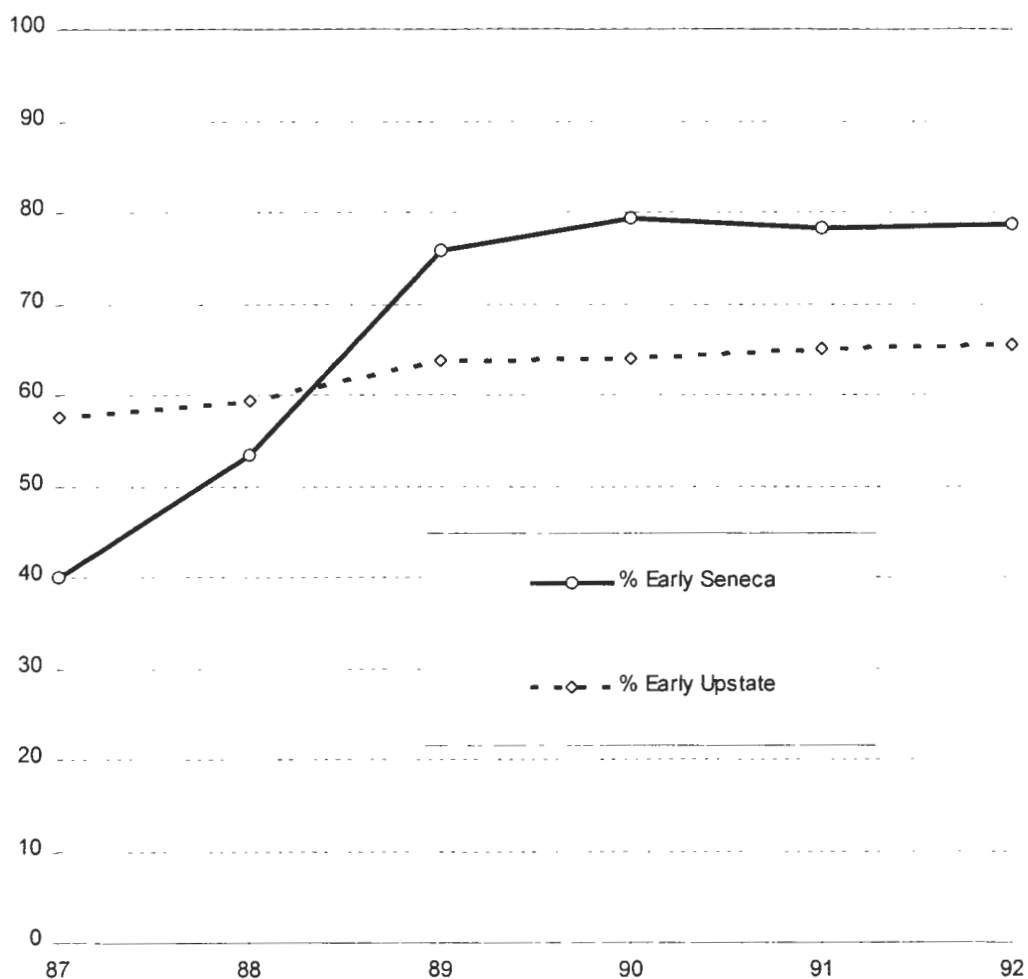
**Chart 2**  
**Breast Cancer Incidence and Mortality Rates\***  
**Seneca County and Upstate New York**  
**Rolling Five-year Averages, 1983-1992**  
**Data from New York State Cancer Registry**



\*Rates are per 100,000 female population, age-adjusted to the 1970 United States population. Age-specific rates for Seneca County during 1987 to 1992 were calculated using the 1990 United States Census. The age-specific rates were then weighted according to the age distribution of the United States population in 1970 to calculate the age-adjusted rate. Age-adjustment, using the 1970 United States population, is standard practice. Since age is the most important risk factor for cancer, age-adjustment allows more valid comparisons to be made among geographic regions and over time.

| Year    | Incidence Seneca | Incidence Upstate | Mortality Seneca | Mortality Upstate |
|---------|------------------|-------------------|------------------|-------------------|
| 1983-87 | 90.6             | 94.6              | 28.6             | 32.3              |
| 1984-88 | 91.5             | 98.8              | 30               | 32.4              |
| 1985-89 | 96.1             | 100.2             | 34.1             | 32.5              |
| 1986-90 | 117.1            | 102.8             | 34.4             | 32.1              |
| 1987-91 | 121.6            | 104.7             | 31.7             | 31.5              |
| 1988-92 | 126.5            | 105.1             | 31.6             | 30.9              |

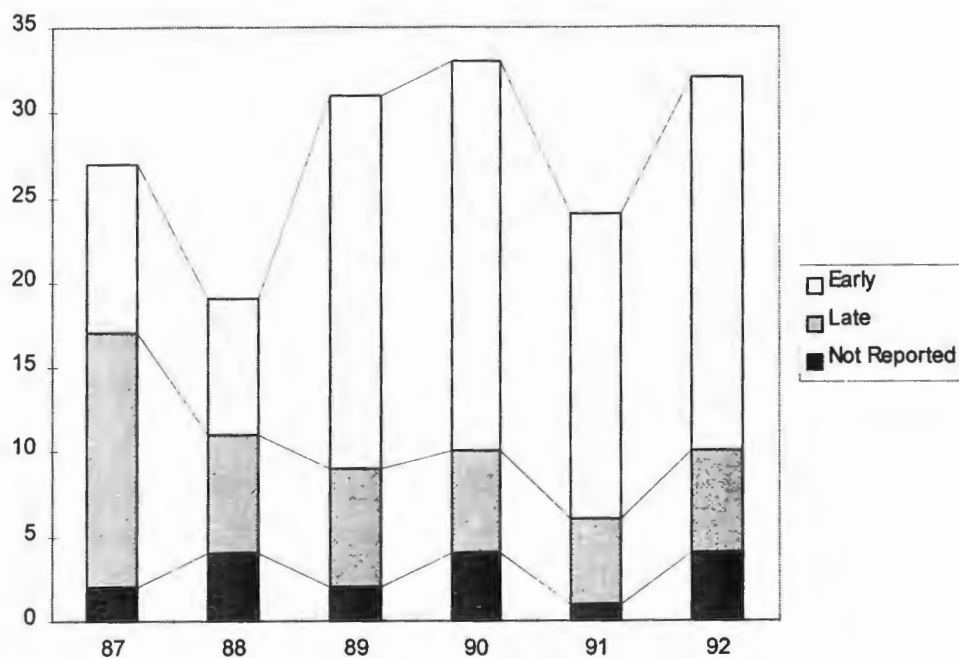
**Chart 3**  
**Percent of Breast Cancer Cases\* which are Localized at Diagnosis**  
**(% Early Diagnoses)**  
**Seneca County and Upstate New York**  
**1987-1992**  
**Data from the New York State Cancer Registry**



| Year | % Early Seneca | % Early Upstate |
|------|----------------|-----------------|
| 87   | 40             | 57.5            |
| 88   | 53.3           | 59.4            |
| 89   | 75.9           | 63.8            |
| 90   | 79.3           | 64              |
| 91   | 78.3           | 65.1            |
| 92   | 78.6           | 65.5            |

\*Percent of Cases for which stage of diagnosis is reported.

**Chart 4**  
**Incident Breast Cancers by**  
**Stage of Diagnosis**  
**Seneca County, 1987-1992**  
**Data from New York State Cancer Registry**





# NOTICE OF PUBLIC AVAILABILITY

SENECA ARMY DEPOT ACTIVITY ANNOUNCES THE AVAILABILITY  
OF THE INFORMATION REPOSITORY FOR  
REMEDIAL ACTIONS SITES AT  
SENECA ARMY DEPOT ACTIVITY, ROMULUS, NEW YORK

Seneca Army Depot Activity announces the availability, for public review, of files comprising the Information Repository for remedial actions at the Ash Landfill, Open Burning Grounds, Fire Training Areas, and Deactivation Furnaces, Seneca Army Depot Activity, Romulus, New York. Seneca Army Depot seeks to inform the public of the availability of the Information Repository, located at Seneca Army Depot Activity, Romulus, New York. Seneca Army Depot Activity encourages the public to comment on documents as they are added to the repository.

The Information Repository is intended to provide citizens, local officials, and the media with easy access to accurate, detailed, and current data about the Sites. Documents now in the Information Repository include the Final Work Plans, Remedial Investigations, and Feasibility Studies for the Ash Landfill and Open Burning Grounds, and Final Work Plans for the Fire Training Areas and Deactivation Furnaces.

Other documents will be added to the Information Repository as site work progresses on these and other sites. These additional documents may include, but are not limited to brochures, fact sheets, and other information relevant to remedial actions at the Sites.

Effective June 15, 1997, the Information Repository will be available for review during normal business hours Monday - Thursday (7:00 a.m. - 4:30 p.m.) and every other Friday (7:00 a.m. - 4:30 p.m.) at:

Seneca Army Depot Activity  
5786 State Route 96, Building 116  
Romulus, New York 14541-5001

To ensure access or to provide written comments on the Information Repository, please contact:

Joanne Ogden  
Public Affairs Officer  
Seneca Army Depot Activity  
Romulus, New York 14541-5001  
(607) 869-1353  
(315) 585-4481, extension 1353  
(315) 549-8231, extension 1353

MEMORANDUM THRU BEC

FOR OSO (Mary Farnsworth)

SUBJECT: Request for Service

1. Request the attached Public Notice announcing the change in location of the Information Repository be placed in The Finger Lakes Times on or before June 15.

2. The Public Notice is published in support of the Installation Restoration Program. Costs should be charged accordingly.

3. POC is Joanne Ogden, ext 1-353.

Thanks!  
Joanne

NOTICE OF PUBLIC  
AVAILABILITY  
SENECA ARMY DEPOT  
ACTIVITY ANNOUNCES THE  
AVAILABILITY OF THE  
INFORMATION REPOSITO-  
RY FOR REMEDIAL  
ACTIONS SITES AT SENECA  
ARMY DEPOT ACTIVITY,  
ROMULUS, NEW YORK

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Effective June 15, 1997, the Information Repository will be available for review during normal business hours Monday - Thursday (7:00 a.m. - 4:30 p.m.) and every other Friday (7:00 a.m. - 4:30 p.m.) at: Seneca Army Depot Activity 5786 State Route 96, Bldg 116 Romulus, NY 14541-5001

To ensure access or to provide written comments on the Information Repository, please contact:

Joanne Ogden  
Public Affairs Officer  
Seneca Army Depot Activity  
Romulus, NY 14541-5001  
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(315) 585-4481 Ext. 1353  
(315) 549-8231 Ext. 1353

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## NOTICE OF PUBLIC AVAILABILITY

SENECA ARMY DEPOT ANNOUNCES THE AVAILABILITY  
OF THE INFORMATION REPOSITORY FOR  
REMEDIAL ACTIONS SITES AT  
SENECA ARMY DEPOT, ROMULUS, NEW YORK

Seneca Army Depot announces the availability, for public review, of files comprising the Information Repository for remedial actions at the Ash Landfill and Open Burning (OB) Grounds Sites, Seneca Army Depot, Romulus, New York. Seneca Army Depot seeks to inform the public of the availability of the Information Repository, located in the Romulus Town Hall, Willard, New York. Seneca Army Depot encourages the public to comment on documents as they are added to the repository.

The Information Repository is intended to provide citizens, local officials, and the media with easy access to accurate, detailed, and current data about the Ash Landfill and OB Grounds Sites. Documents now in the Information Repository include the Final RI/FS Workplan for the Ash Landfill Site, copies of newspaper clippings that refer to the Ash Landfill and OB Grounds Sites, and the Administrative Record file for the Ash Landfill Site.

Other documents will be added to the Information Repository as site work progresses. These additional documents may include, but are not limited to brochures, fact sheets, and other information relevant to remedial actions at the OB Grounds and Ash Landfill Sites.

The Information Repository will be available for review during normal business hours (8:00 A.M. - 4:30 P.M.) at:

Romulus Town Hall  
1435 Prospect Street  
Willard, New York  
(607) 869-9236

869-9324

Written comments on the Information Repository should be sent to:

Jerry Whitaker  
Public Affairs Officer  
Seneca Army Depot  
ATTN: SDSSE-PAO  
Romulus, New York 14541-5001

NOTICE OF PUBLIC AVAILABILITY

SENECA ARMY DEPOT ANNOUNCES THE AVAILABILITY  
OF THE ADMINISTRATIVE RECORD FOR THE  
ASH LANDFILL SITE  
SENECA ARMY DEPOT, ROMULUS, NEW YORK

Seneca Army Depot announces the availability for public review of files comprising the Administrative Record for the selection of remedial action at the Ash Landfill Site, Seneca Army Depot, Romulus, New York. Seneca Army Depot seeks to inform the public of the availability of the record files at a repository located in the Romulus Town Hall, Willard, New York. Seneca Army Depot encourages the public to comment on documents as they are placed in the record file.

The Administrative Record file includes documents which form the basis for the selection of a remedial action at this site. Documents now in the record file include a Remedial Investigation/Feasibility Study (RI/FS) Workplan. Other documents will be added to the record files as site work progresses. These additional documents may include, but are not limited to a Community Relations Plan, RI/FS reports, other technical reports, and new data submitted by interested persons.

The Administrative Record file is available for review during normal business hours at: (8:00 A.M. - 4:30 P.M.) at:

The Romulus Town Hall  
1435 Prospect Street  
Willard, New York  
(607) 869-9236

Written comments on the Administrative Record should be sent to:

Jerry Whitaker  
Public Affairs Officer  
Seneca Army Depot  
ATTN: SDSSE-PAO  
Romulus, New York 14541-5001

# TIMES TWO

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Finger Lakes Times

## Classified Ads and Public Notices

Finger Lakes Times, Geneva, N.Y., Monday, March 16, 1992

### NOTICE OF PUBLIC AVAILABILITY SENECA ARMY DEPOT AN- NOUNCES THE AVAILABILITY OF THE ADMINISTRATIVE RE- CORD FOR THE ASH LANDFILL SITE- SENECA ARMY DEPOT, ROMULUS, NEW YORK

Seneca Army Depot an-  
nounces the availability for public  
review of files comprising the Ad-  
ministrative Record for the selec-  
tion of remedial action at the Ash  
Landfill Site, Seneca Army Depot,  
Romulus, New York. Seneca Army  
Depot seeks to inform the public of  
the availability of the record files at  
a repository located in the Romulus  
Town Hall, Willard, New York.  
Seneca Army Depot encourages the  
public to comment on docu-  
ments as they are placed in the re-  
cord file.

The Administrative Record file  
includes documents which form the

### Public Notices 105

basis for the selection of a remedi-  
al action at this site. Documents  
now in the record file include a Re-  
medial Investigation/Feasibility  
Study (RT/FS) Work plan. Other  
documents will be added to the re-  
cord files as site work progresses.  
These additional documents may  
include, but are not limited to a  
Community Relations Plan, RT/FS  
reports, other technical reports,  
and new data submitted by inter-  
ested persons.

The Administrative Record file  
is available for review during nor-  
mal business hours at: (8:00 A.M.  
- 4:30 P.M.) at:  
The Romulus Town Hall  
1435 Prospect Street  
Willard, New York  
(607) 869-9236

Written comments on the Ad-  
ministrative Record should be sent  
to:  
Jerry Whitaker  
Public Affairs Officer  
Seneca Army Depot  
ATTN: SDSSE-PAO  
Romulus, New York  
14541-5001

### NOTICE OF PUBLIC AVAILABILITY SENECA ARMY DEPOT AN- NOUNCES THE AVAILABILITY OF THE INFORMATION REPOSI- TORY FOR REMEDIAL ACTION SITES AT SENECA ARMY DE- POT, ROMULUS, NEW YORK

Seneca Army Depot an-  
nounces the availability, for public  
review, of files comprising the In-  
formation Repository for remedial  
actions at the Ash Landfill and  
Open Burning (OB) Grounds Sites,  
Seneca Army Depot, Romulus,  
New York. Seneca Army Depot  
seeks to inform the public of the  
availability of the Information Re-  
pository, located in the Romulus  
Town Hall, Willard, New York. Sen-  
eca Army Depot encourages the  
public to comment on documents  
as they are added to the reposito-  
ry.

The Information Repository is  
intended to provide citizens, local  
officials, and the media with easy  
access to accurate, detailed, and  
current data about the Ash Landfill  
and OB Grounds Sites. Docu-  
ments now in the Information Re-  
pository include the Final RI/FS  
Work plan for the Ash Landfill Site,  
copies of newspaper clippings that  
refer to the Ash Landfill and OB  
Grounds Sites, and the Administra-  
tive Record file for the Ash Landfill  
Site.

Other documents will be added  
to the Information Repository as  
site work progresses. These addi-  
tional documents may include, but  
are not limited to brochures, fact  
sheets, and other information rele-  
vant to remedial actions at the OB  
Grounds and Ash Landfill Sites.

The Information Repository will  
be available for review during nor-  
mal business hours (8:00 A.M. -  
4:30 P.M.) at:

Romulus Town Hall  
1435 Prospect Street  
Willard, New York  
(607) 869-9236

Written comments on the Infor-  
mation Repository should be sent  
to:

Jerry Whitaker  
Public Affairs Officer  
Seneca Army Depot  
ATTN: SDSSE-PAO  
Romulus, New York

# **Restoration Advisory Board Meeting Agenda**

**July 15, 1997**

- 7:00**      **Welcome/Introduction of LTC Donald C. Olson**  
Mr. Stephen M. Absolom  
Army Co-chair
- 7:15**      **Acceptance of Minutes**  
Mr. Stephen M. Absolom/Dr. Dick Durst  
Army Co-chair/Community Co-chair
- 7:20**      **Peer Review Process**  
Mr. Thomas R. Enroth  
Project Engineer, U.S. Army Corps of Engineers, New York District
- 7:35**      **Open Burning Grounds Public Meeting**  
Mr. Stephen M. Absolom  
Army Co-chair
- 7:55**      **Break**
- 8:05**      **Soil Cleanup Technologies**  
Mr. Michael Duchesneau, P.E.  
Project Manager, Parsons Engineering Science, Inc.
- 8:30**      **Open Discussion**
- 9:00**      **Adjourn**

**MINUTES  
RESTORATION ADVISORY BOARD  
JULY 15, 1997 MEETING**

1. Attendance:

Government RAB Members Present:

Carla Struble, U.S. Environmental Protection Agency  
Dan Geraghty, NYS Department of Health  
Stephen M. Absolom, BRAC Environmental Coordinator,  
SEDA/Army Co-Chair

Government RAB Members Not Present:

Marsden Chen, NYS Department of Environmental Conservation

Community RAB Members Present:

Harold Kugelmass, Anne Herman, Frank Ives, Ken Reimer

Community RAB Members Not Present:

Dick Durst/Community Co-Chair, Russell Miller,  
Richard Lewis, Carmen Serrett, Estelle Coleman,  
Richard Sisson, Pat Jones, Brian Dombrowski,  
Mary Ann Krupsak, Lucinda Sangree, David Wagner,  
Henry Van Ness

Environmental Support Personnel Present:

LTC Donald Olson, SEDA Commander  
Thomas Enroth, U.S. Army Corps of Engineers, NY District,  
SEDA Resident Office  
Janet Fallo, U.S. Army Corps of Engineers, NY District,  
SEDA Resident Office  
Randy Battaglia, U.S. Army Corps of Engineers, NY District,  
SEDA Resident Office  
Susan Cooper, SEDA Secretary  
Joanne Ogden, SEDA Legal Rep/Public Affairs Officer  
Keith Hoddinott, U.S. Army Center for Health Promotion &  
Preventive Medicine  
Jeff Waugh, Army Environmental Center  
Bob Radkiewicz, HQ IOC  
Ed Agy, HQ IOC  
Dorothy Richards, U.S. Army Corps of Engineers, Huntsville  
Division  
Kevin Healy, U.S. Army Corps of Engineers, Huntsville Div



Community Support (from sign-in sheet):

Heather Clark, Community Member  
Gerry DeCuollo, OHM Corp, Trenton, NJ

2. Stephen Absolom, the Army Co-Chair, welcomed members and support staff to the July Restoration Advisory Board at the NCO Club and outlined the evening's agenda. He then introduced Seneca's new Commander, LTC Donald Olson, who provided opening remarks for his participation in the RAB and asked for introductions of all attending the evening's meeting.

3. Minutes from May's RAB meeting were discussed with changes to be made for approval and signature at the next meeting.

4. Tom Enroth from Seneca's Resident Office, U.S. Army Corps of Engineers, gave a presentation covering the Peer Review Process held April 1-4, 1997. The purpose of the Peer Review was to conduct a review of restoration projects by a team of experts from government and nongovernment agencies to ensure efficient and effective use of funds. This review is a pilot study which may be performed on an annual basis at all Army installations. Seneca was one of four installations that hosted a Peer Review. The recommendations and Seneca's implementation of those recommendations were discussed with the following questions being generated.

a. **Question:** Will there be a slowdown of projects due to this review?

**Answer:** A temporary slowdown may be seen, but an eventual acceleration of projects will be realized. As time is freed up from performing lengthy studies, a proactive, aggressive approach would be used to accelerate remediation.

b. **Question:** How can the Peer Review team ensure effectiveness?

**Answer:** The Peer Review personnel from the Army Environmental Center are monitoring the process. Instituted recommendations will be looked at to determine if the Peer Review was successful.

c. **Question:** How many sites were looked at during the Peer Review?

**Answer:** 15 projects were reviewed—some of these included multiple sites. The qualifier was a dollar threshold.

Over \$2 million associated with a project dictated which were reviewed.

d. **Question:** Once the cleanup is accomplished, what is the public's assurance that the site is actually clean?

**Answer:** The government must have concurrence by the regulators from New York State and the Environmental Protection Agency before cleanup at a site has been deemed completed. All documents pertaining to each site are available for review in the Administrative Record located at the Seneca Army Depot Activity. The RAB is the liaison with the community.

5. Stephen Absolom reported on the upcoming Open Burning Grounds Public Meeting. A date for the public meeting needs to be set. There was an agreement that the RAB convene before the public meeting in order to review the plan for the Open Burning Grounds. The RAB members would be helpful in explaining the process and recommended technology to the public as their liaison between the community and the Army.

6. A briefing on a few Remedial Action Technologies was given by Michael Duchesneau of Parsons Engineering Science. The technologies included soil washing, solidification/stabilization, and bioventing. The goal of soil washing is to reduce volume, concentrate contaminated material, and landfill the end residuals. Solidification/stabilization "binds" contaminated material into a solidified matrix for landfilling. Bioventing enhances the natural degradation of hydrocarbons by injecting air into the ground, increasing available oxygen for microbes in the soil.

a. **Question:** When residuals from solidification/stabilization are mixed with asphalt and used for road surface, doesn't the material eventually break down, repeating the concern for contamination to the environment?

**Answer:** The solidified material is combined with a base material used for paving which remains in place for a long period of time. This material is no more hazardous than the material used because the solidified material is chemically bound.

b. **Question:** Does climate affect the bioventing process?

**Answer:** Although the ground's top layers may be frozen in the winter months, there is degradation of hydrocarbons below the frost line. Air pumps at the surface would be subject to the winter climate which may cause problems mechanically and with site access.

c. **Question:** Is there a liability to the original owner of solidified material if dug up years later?

**Answer:** The property transfer would require a disclosure identifying the solidified material present.

d. **Question:** When landfilling solidified material, would we use up all the available space for household garbage in the future years?

**Answer:** The popularity of recycling has made a significant impact to where the price is driven down and there is a considerable amount of space available. We will be occupying some landfill space, but won't use it up.

e. **Question:** Was there air monitoring done at the Open Burning Grounds?

**Answer:** Downwind locations were tested with nothing of concern found.

7. Open discussion generated more dialogue regarding attendance at the RAB meetings. Survey responses forwarded last month have been low. Contact by phone will be made to those members who did not respond to see if they are interested in continuing their membership in the RAB. It was also agreed that additional members would be solicited if at least two people resigned. Future topics proposed included review of the RAB charter to address attendance as well as review of the FY98 programs and the future list of projects we would like to accomplish.

8. The next Restoration Advisory Board meeting will be held on August 19, 1997 at 7:00 p.m. in the SEDA NCO Club.

9. The meeting was adjourned at 9:15 p.m.

Respectfully submitted,



SUSAN R. COOPER  
Secretary

APPROVED AS SUBMITTED:



STEPHEN M. ABSOLOM  
U.S. Army Co-Chair



RICHARD A. DURST  
Community Co-Chair

## Pilot Study at Seneca (cont.)

- BRAC Cleanup Team members were present at Peer Review to support Seneca's projects
- Peer Review team provided a report of recommendations to Seneca
- Seneca is in the process of addressing the recommendations

Peer Review Presentation, Thomas R. Enroth

## Peer Review Recommendations

- Reduce laboratory costs by incorporating more field screening techniques
- Develop installation-wide background concentrations for contaminants in soils and groundwater

Peer Review Presentation, Thomas R. Enroth

## Peer Review Recommendations (cont.)

- Change decision making process to accelerate site cleanup by identifying and conducting removal actions before completion of Feasibility Study phase
- Strongly consider intrinsic bioremediation for cleanup of petroleum contaminated sites

Peer Review Presentation, Thomas R. Enroth

## Implementation of Recommendations

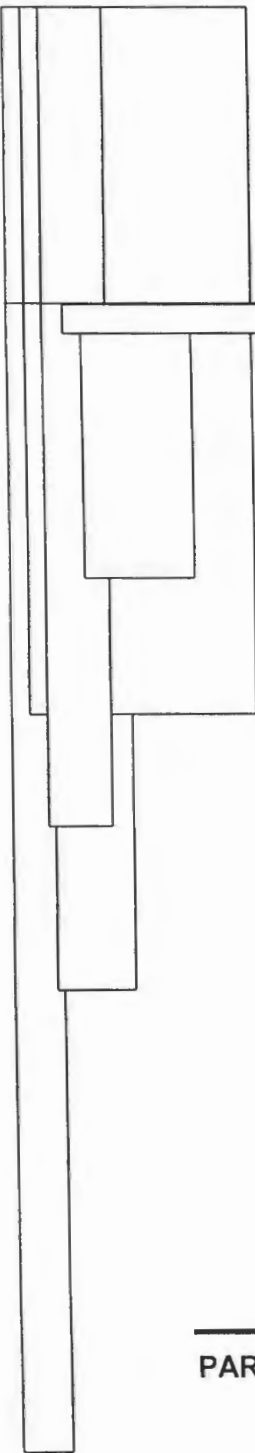
- Seneca needs to modify existing contracts and the overall process to address the recommendations
- Coordination with regulators is required before changes are implemented

Peer Review Presentation, Thomas R. Enroth

## Summary

- Peer Review may be performed on an annual basis at all Army installations as a result of pilot studies
- Peer Review was designed to ensure efficient and effective use of environmental funds

Peer Review Presentation, Thomas R. Enroth



*Presentation to the RAB*  
*July 15, 1997*

*Remedial Action Technologies*

*Michael Duchesneau, P. E.*



# *Technologies to be Discussed*

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- *Soil Washing*
- *Solidification/Stabilization*
- *Bioventing*



# *Soil Washing*

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PARSONS ENGINEERING SCIENCE

# *Soil Washing*

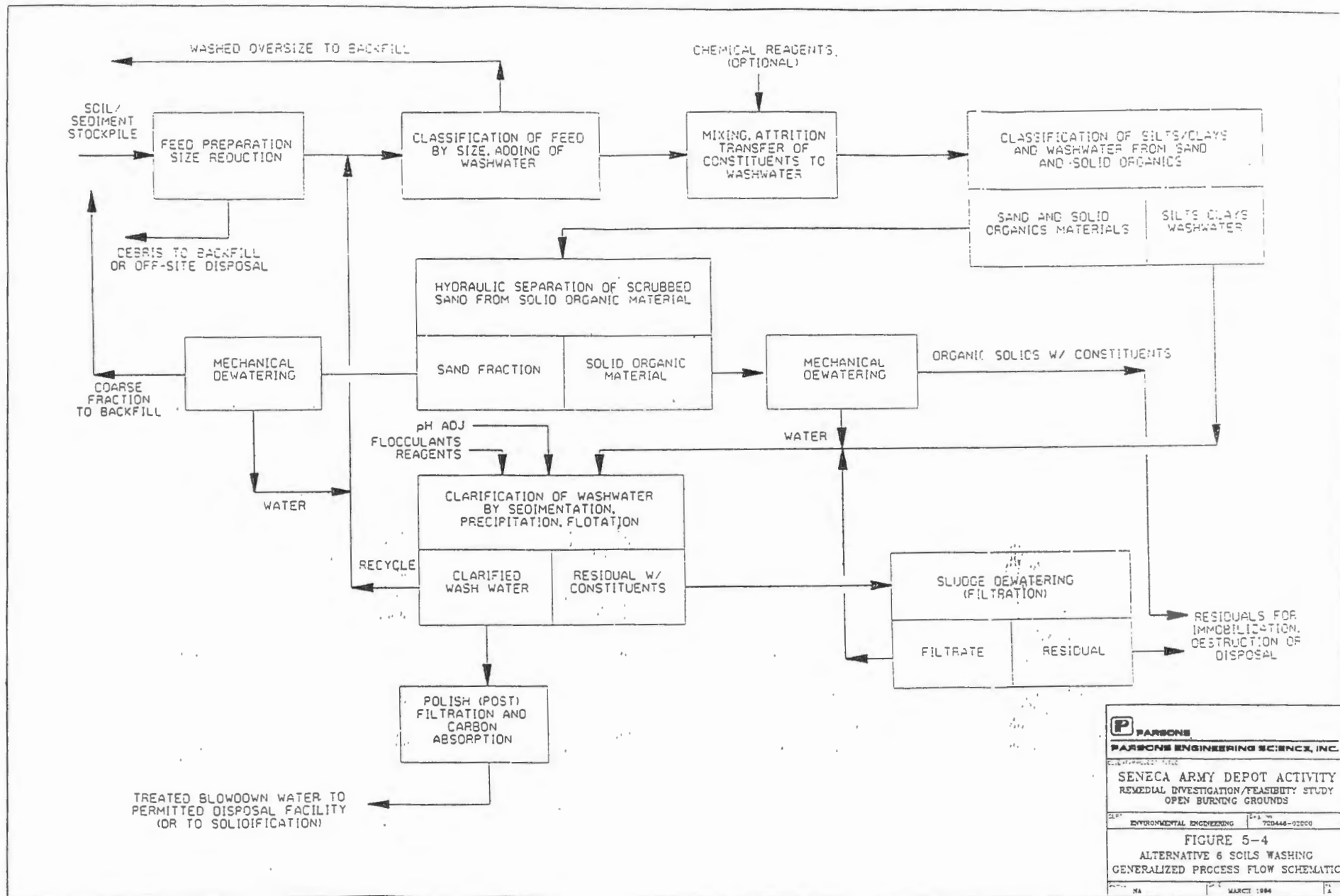
- *Technology Developed from Mining Operations*
- *Goal is Volume Reduction*
- *Excavation, Separation, Replace Clean Soil, Acid Leaching/Metals Recovery, Landfill*
- *Particle Size Separation Achieved using:*
  - *Vibrating Screens*
  - *Rotary Attrition Scrubbers*
  - *Hydrocyclones*
  - *Froth Flotation*



# *Soil Washing*

## *Principal Process Steps*

- *Feed Preparation*
  - *Crushing, Removal of Debris*
- *Mixing, Attrition Scrubbing, Surficial Extraction*
  - *Clay/Silts are Separated from Sands*
- *Separation of Clay/Silt & Wash Water from Scrubbed Granular Materials*
  - *Dewatered Solids and Wash Water with Clay/Silt*
- *Removal of Clay/Silt from Wash Water*
  - *Chem. Precipitation used to Removal Clay and Metals*
- *Management of Residuals*



**P** PARSONS  
 PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE  
 SENECA ARMY DEPOT ACTIVITY  
 REMEDIAL INVESTIGATION/FEASIBILITY STUDY  
 OPEN BURNING GROUNDS

DEPT. ENVIRONMENTAL ENGINEERING      720446-02000

FIGURE 5-4  
 ALTERNATIVE 6 SOILS WASHING  
 GENERALIZED PROCESS FLOW SCHEMATIC

NA      MARCH 1994      1

# *Soil Washing*

- *Advantages :*
  - *Volume Reduction*
  - *Metals Leaching/Extraction can be Added*
  - *Proven Technology*
  - *Resource Recovery is Possible*
- *Disadvantages:*
  - *Water Intense Operation*
  - *Heavy, Specialized, Equipment Required*
  - *Costly*
  - *Landfilling is Required as Final Disposal*



## Plant Layout Soil Washing

Soil Washing Unit Operations



Disolved Air Floation

Lamella Plate Clarifier

Mixing Tank

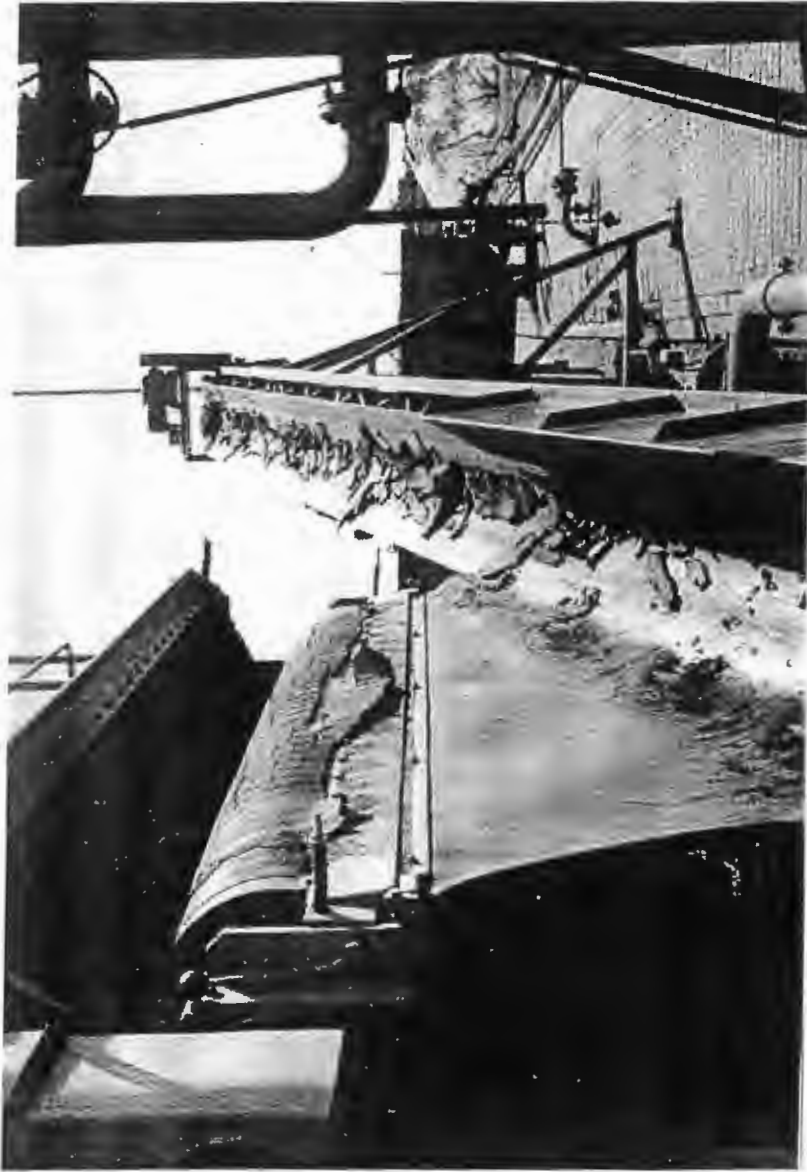
Soil Washing Unit Operations



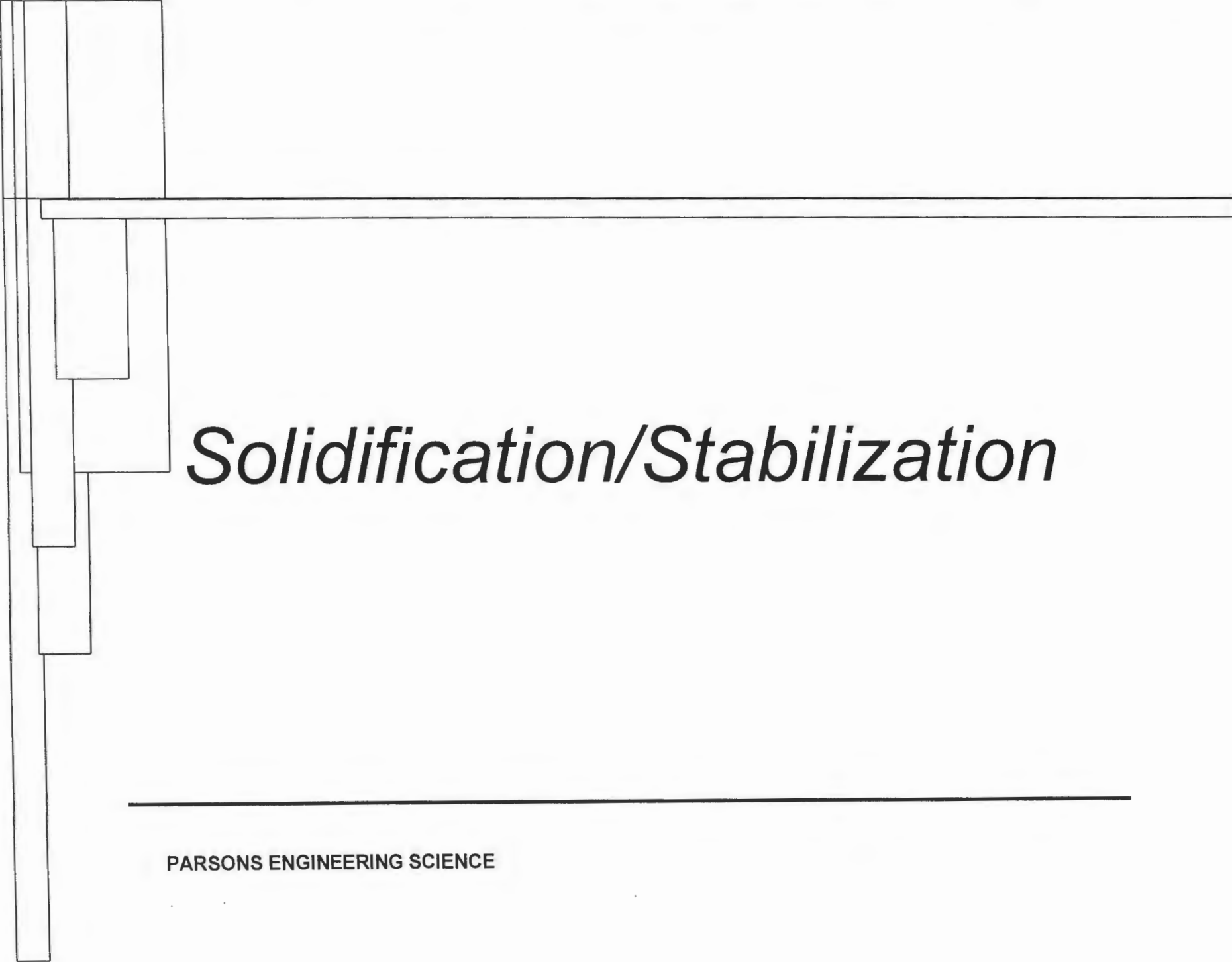
Residuals including Precipitated Heavy Metals and Organics prior to Dewatering in Belt Filter Press

Soil Washing Unit Operations

Filter Cake  
Produced  
Following  
Dewatering  
in Belt Filter  
Press



Soil Washing Unit Operations



# *Solidification/Stabilization*

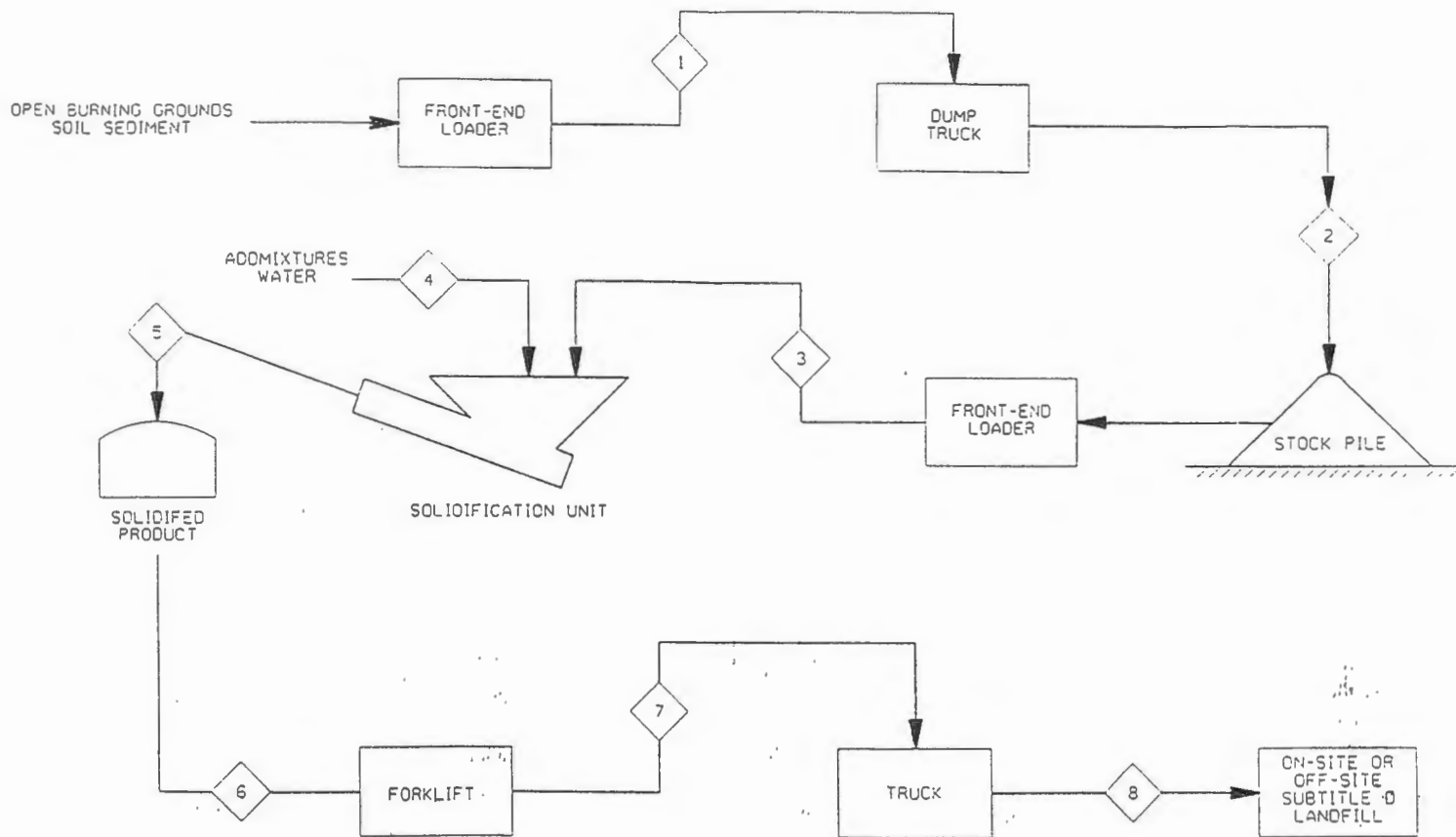
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# *Solidification/Stabilization*

- *Immobilization Technology*
- *Constituents of Concern are “bound” within a Solidified Matrix*
- *Solidifying Agents Include:*
  - *Sorbents (lime, fly ash, clay, kiln dust, zeolites )*
  - *Lime/Fly Ash Pozzolan (Silica)*
  - *Pozzolan-Portland Cement*
  - *Asphaltic Materials (Cold Patch or Hot Mix)*



TYPICAL FLOW RATES

| MATERIAL                   | STREAM NO. |    |    |    |    |    |    |    |   |    |    |    |    |    |
|----------------------------|------------|----|----|----|----|----|----|----|---|----|----|----|----|----|
|                            | 1          | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9 | 10 | 11 | 12 | 13 | 14 |
| SOIL/SEDIMENT (CY/HR)      | 50         | 50 | 40 |    |    |    |    |    |   |    |    |    |    |    |
| SOLIDIFIED PRODUCT (CY/HR) |            |    |    |    | 60 | 60 | 60 | 60 |   |    |    |    |    |    |
| ADMIXTURES / WATER (CY/HR) |            |    |    | 20 |    |    |    |    |   |    |    |    |    |    |

**P** PARSONS  
**PARSONS ENGINEERING SCIENCE, INC.**  
CLIENT/PROJECT TITLE  
**SENECA ARMY DEPOT ACTIVITY  
 REMEDIAL INVESTIGATION/FEASIBILITY STUDY  
 OPEN BURNING GROUNDS**  
SCAFF ENVIRONMENTAL ENGINEERING DESIGN 7804448-0000  
**FIGURE 5-1**  
**ALTERNATIVE 4 AND 5**  
**SOLIDIFICATION/SUBTITLE D LANDFILL**  
SCALE NA DATE MARCH 1996 NO. 14

# *Solidification/Stabilization*

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- *Advantages :*
  - *Proven Technology (BDAT for metals)*
  - *Simple*
  - *Generally Less Costly than Washing*
- *Disadvantages:*
  - *Effectiveness is Matrix Dependent*
    - *High Clay Soils cause Clumping*
    - *High Oil Content Decrease Effectiveness*
  - *Volume of Material is Increased*

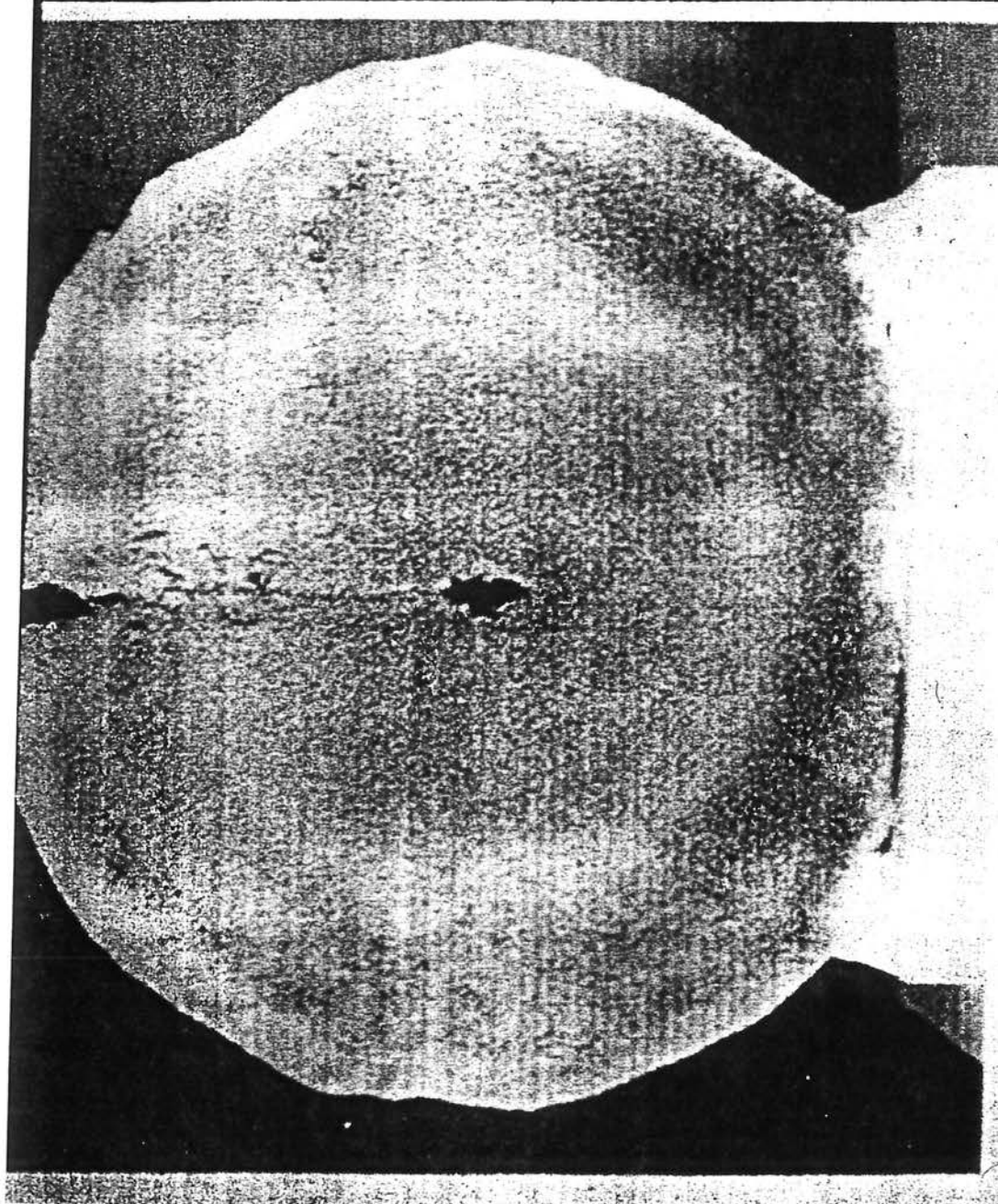


FIG. 1.—CONCENTRIC RINGS SHOW UNIFORM RADIAL SPREAD OF GROUT IN SATURATED ISOTROPIC SAND UNDER STATIC PRESSURE

# *Bioventing*

---

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# *Bioventing*

- *In-situ (below ground) Degradation of Hydrocarbons*
- *Air (21% O<sub>2</sub>) is Injected into the Ground*
- *Natural Occurring Microbial Colonies (Aerobic) Utilize O<sub>2</sub> and Consume Hydrocarbons*
- *Respiration Rate is Use to Monitor Progress of Degradation Rate*
- *Can be Converted from a Vapor Extraction System once High Concentrations of VOCs are Extracted*

## Aerobic Biodegradation - Respiration



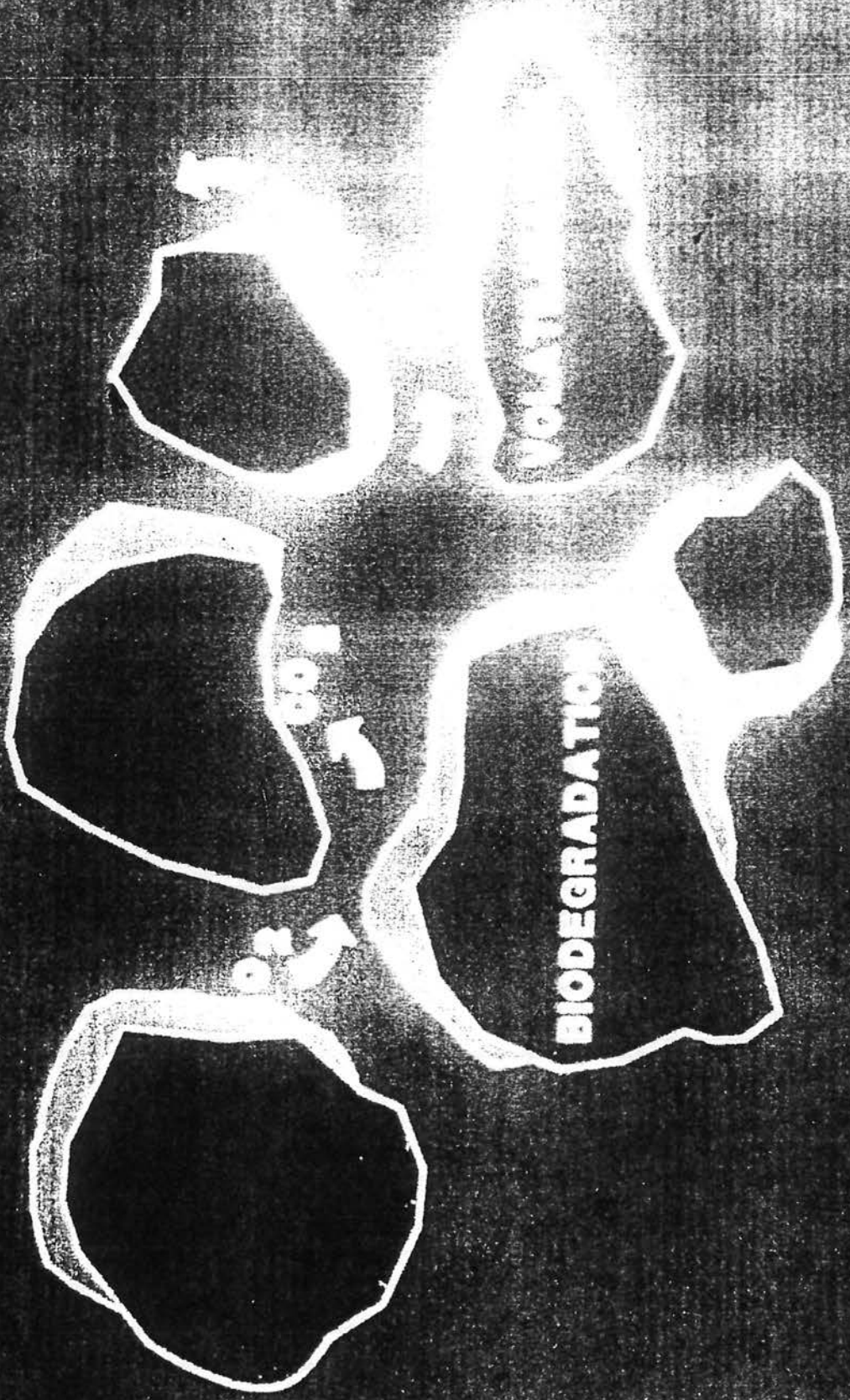
3.1 lb O<sub>2</sub>/lb C<sub>6</sub>H<sub>6</sub>



3.5<sub>2</sub> lb O<sub>2</sub>/lb C<sub>6</sub>H<sub>14</sub>



**VENTING ENHANCED BIODEGRADATION**

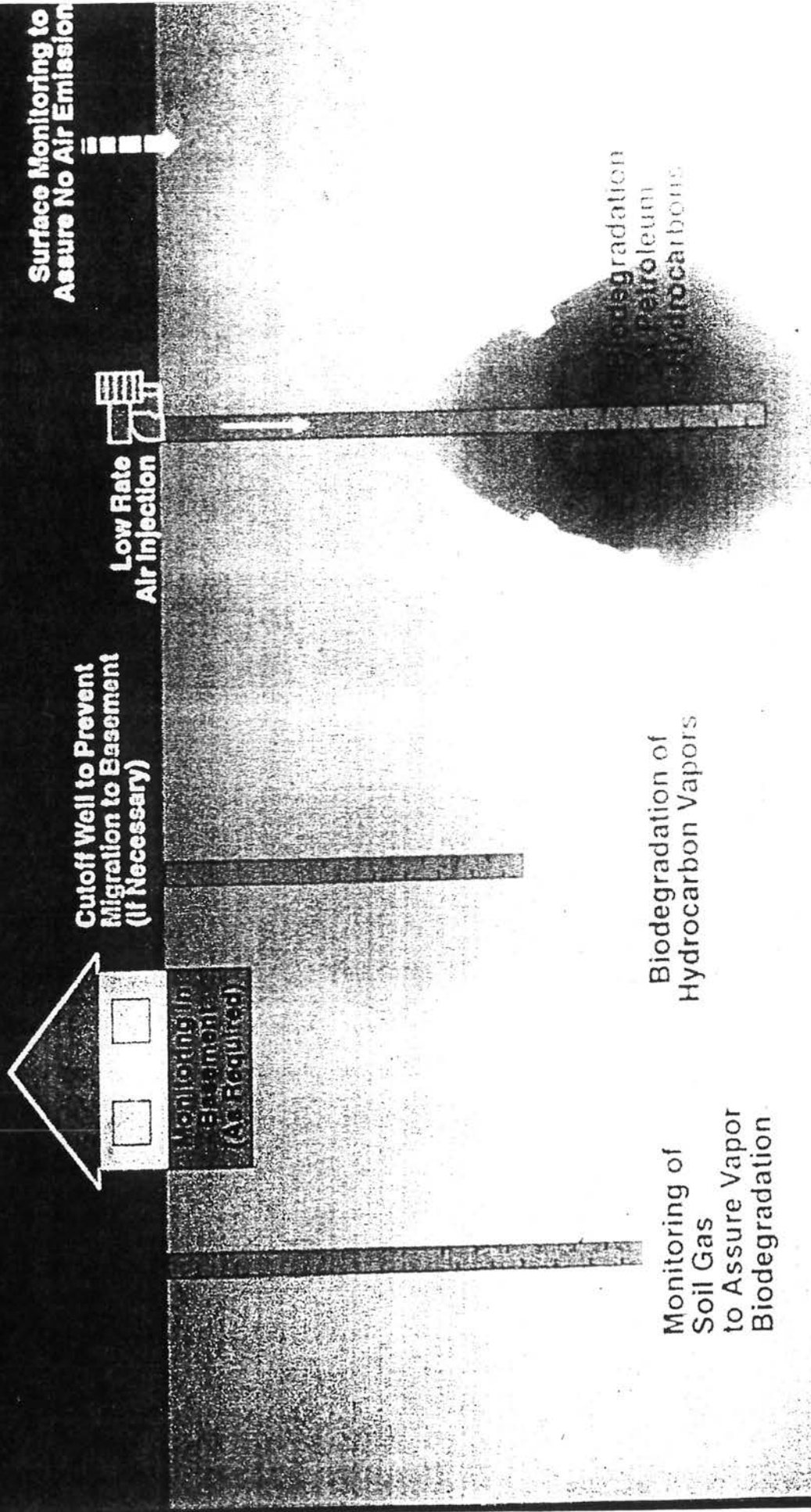


**BIODEGRADATION**

**VENTING**



# Conceptual Layout of *In Situ* Bioventing



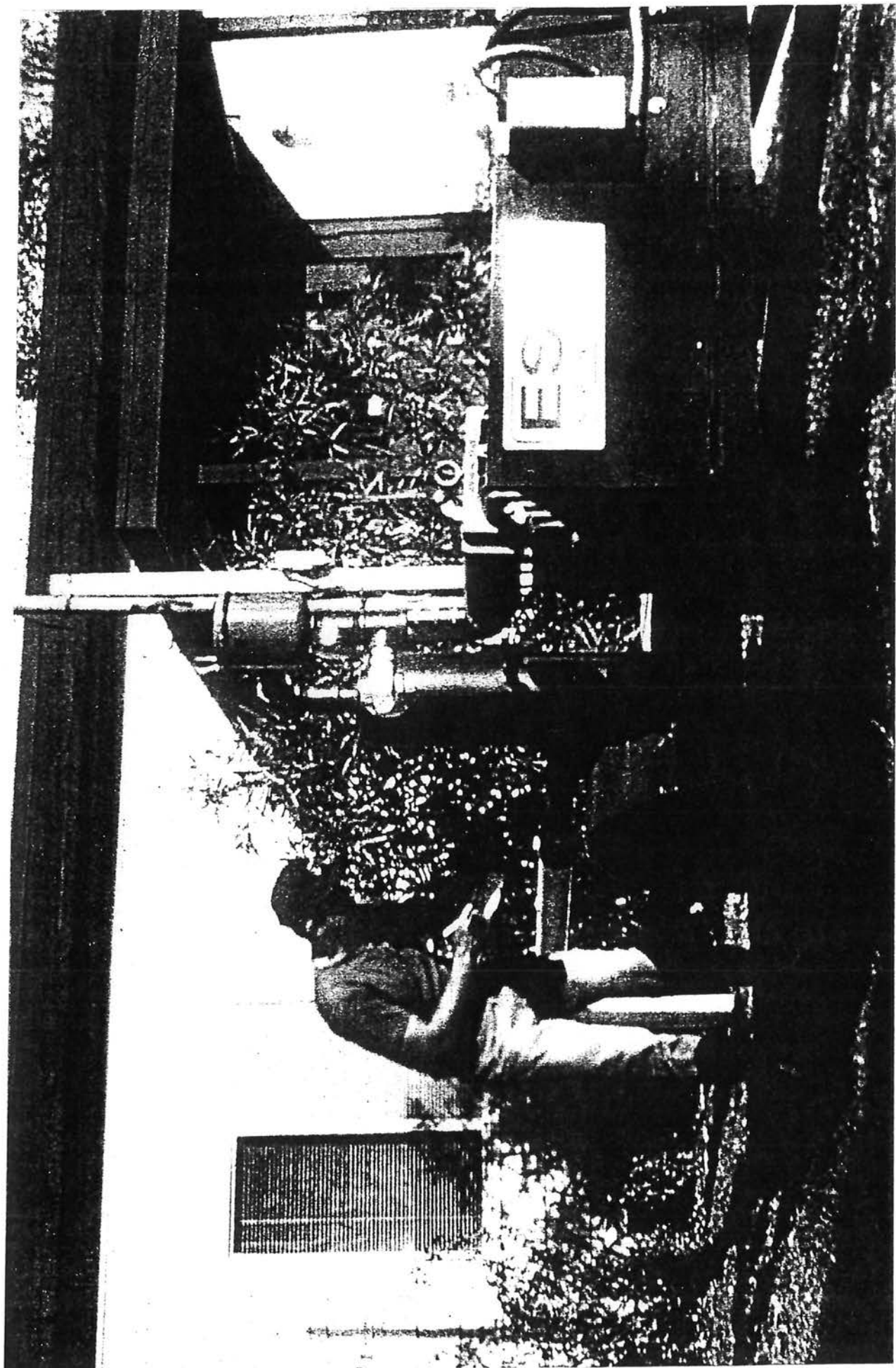
# *Bioventing*

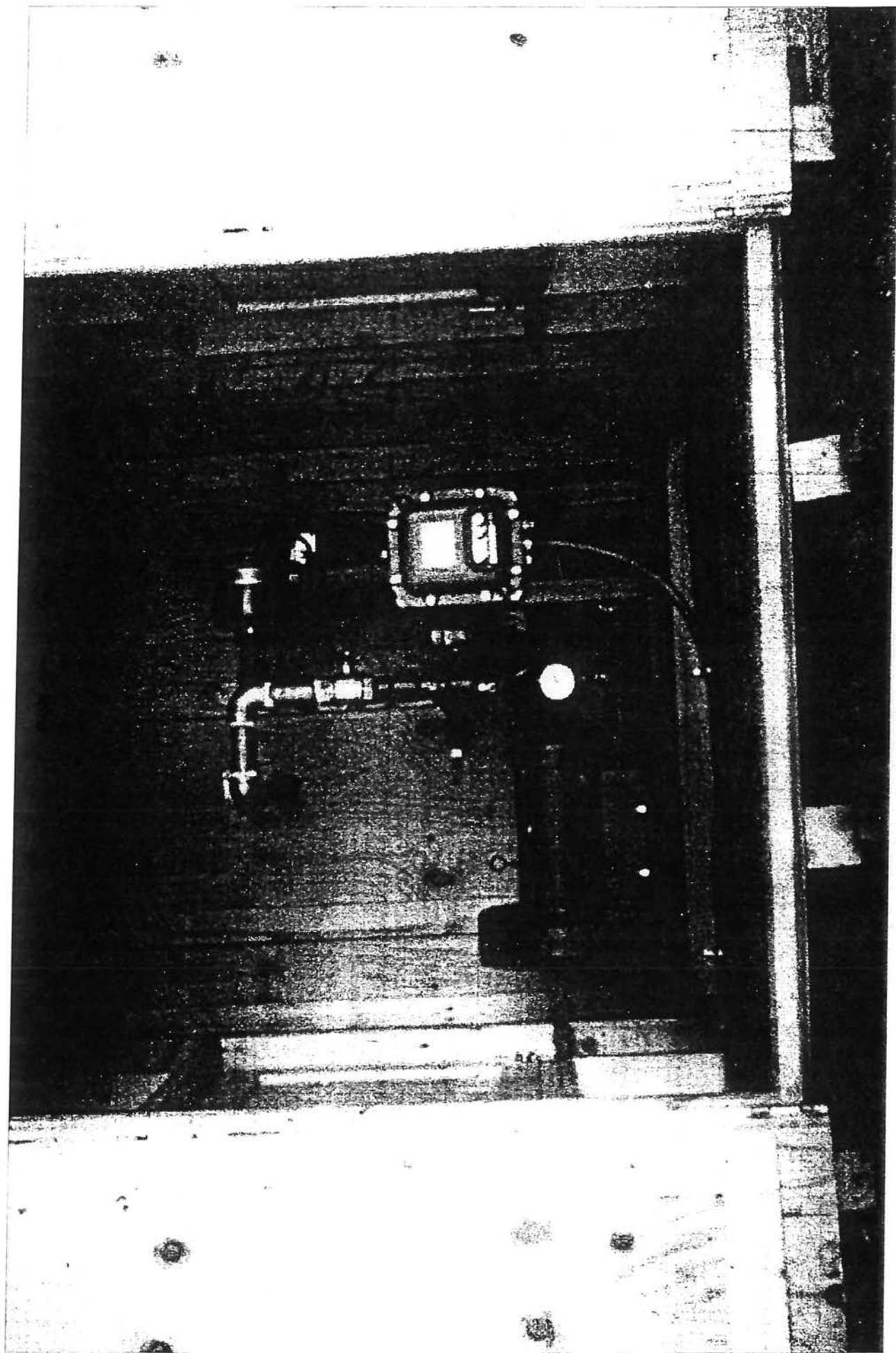
- *Advantages :*

- *No Excavation Required*
- *Studies have Shown Effectiveness*
- *Simple, Low Capital Costs*
- *Usually the Least Costly Option*

- *Disadvantages:*

- *Problematic in Low Permeable Soils*
- *Requires Longer Clean-up Times*
- *Resistant Compounds are Not Degraded*

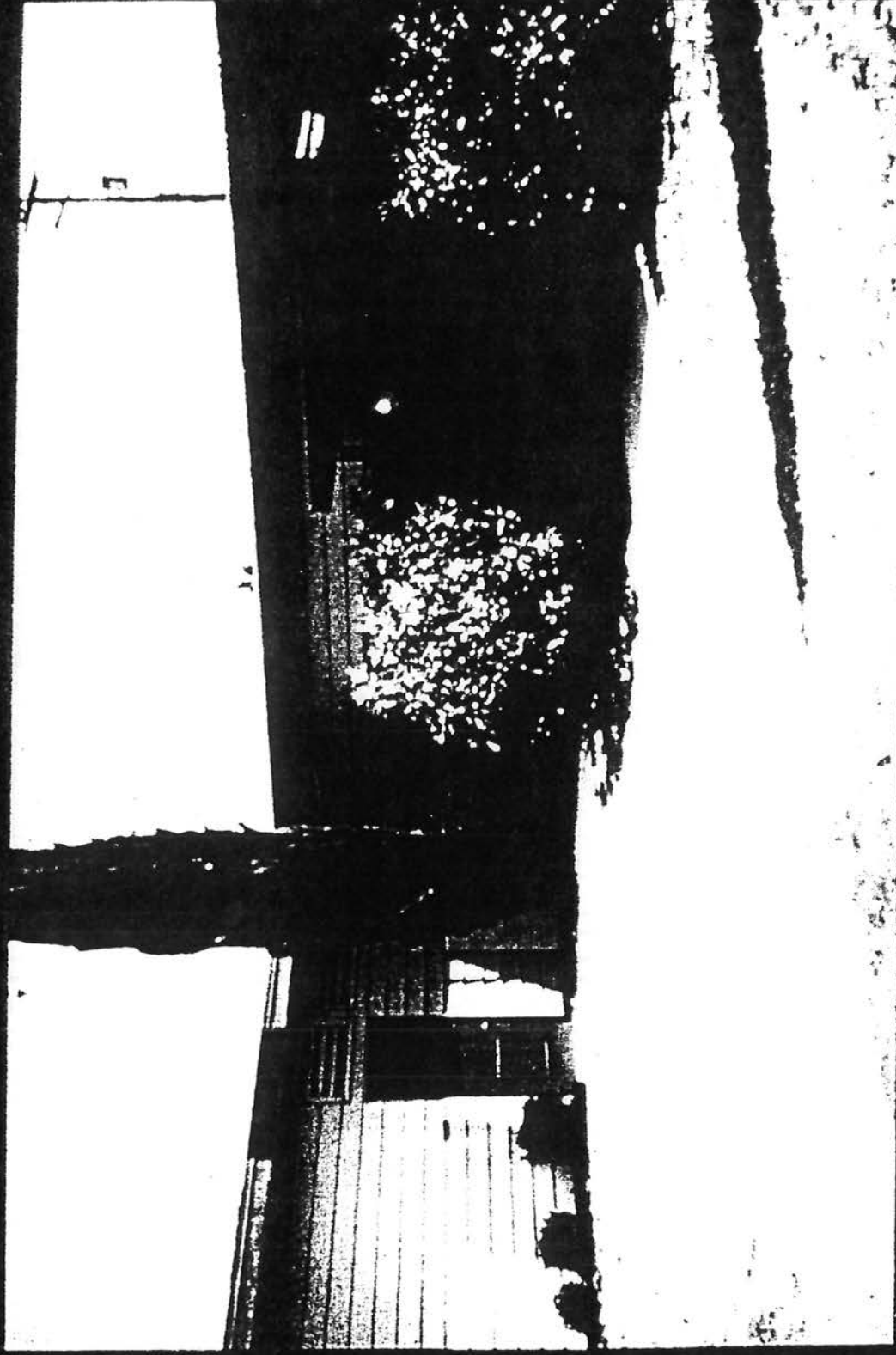






**Beale AFB, California**

**Site 22-A20**

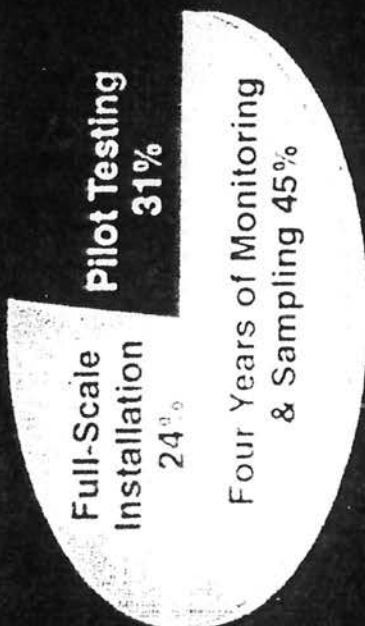


**Heating Oil**

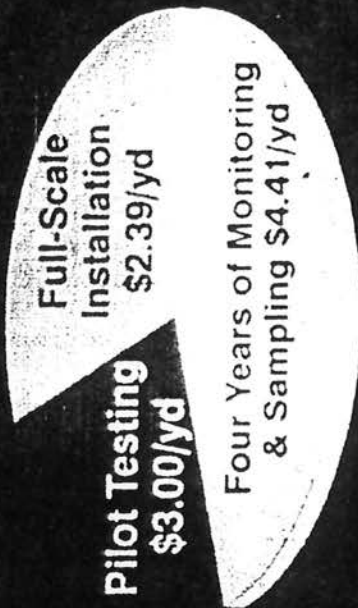
**Biodegradation Rate= 750-900 mg/kg/yr**

# Cost Summary for Four-Year Bioventing Demonstration

Total Cost to Date - \$147,000



Total Cost Per Cubic Yard - \$9.80\*

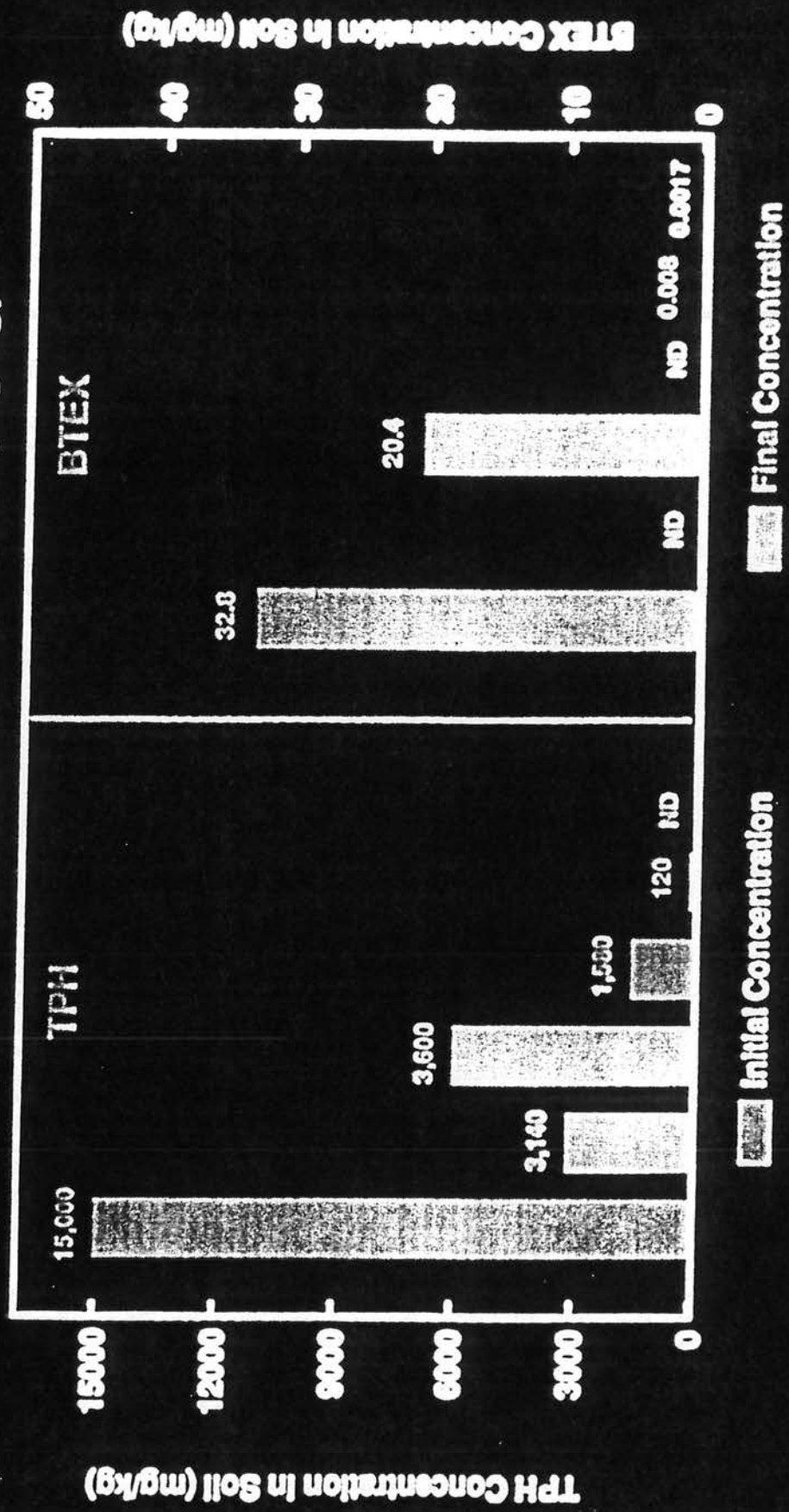


\* Based on Estimated 15,000 Cubic Yards



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# Battle Creek ANGB (Site 3) 1-Year Bioventing Results - Soil (mg/kg)



TPH Concentration in Soil (mg/kg)

BTEX Concentration in Soil (mg/kg)

Initial Concentration

Final Concentration

# TWO-YEAR TPH REDUCTION

*Full-Scale Bioventing Demonstration Pumphouse Spill Site  
Alliance, Nebraska*

D e p t h   i n   F e e t  
30  
35  
40  
45  
50  
55  
60  
65

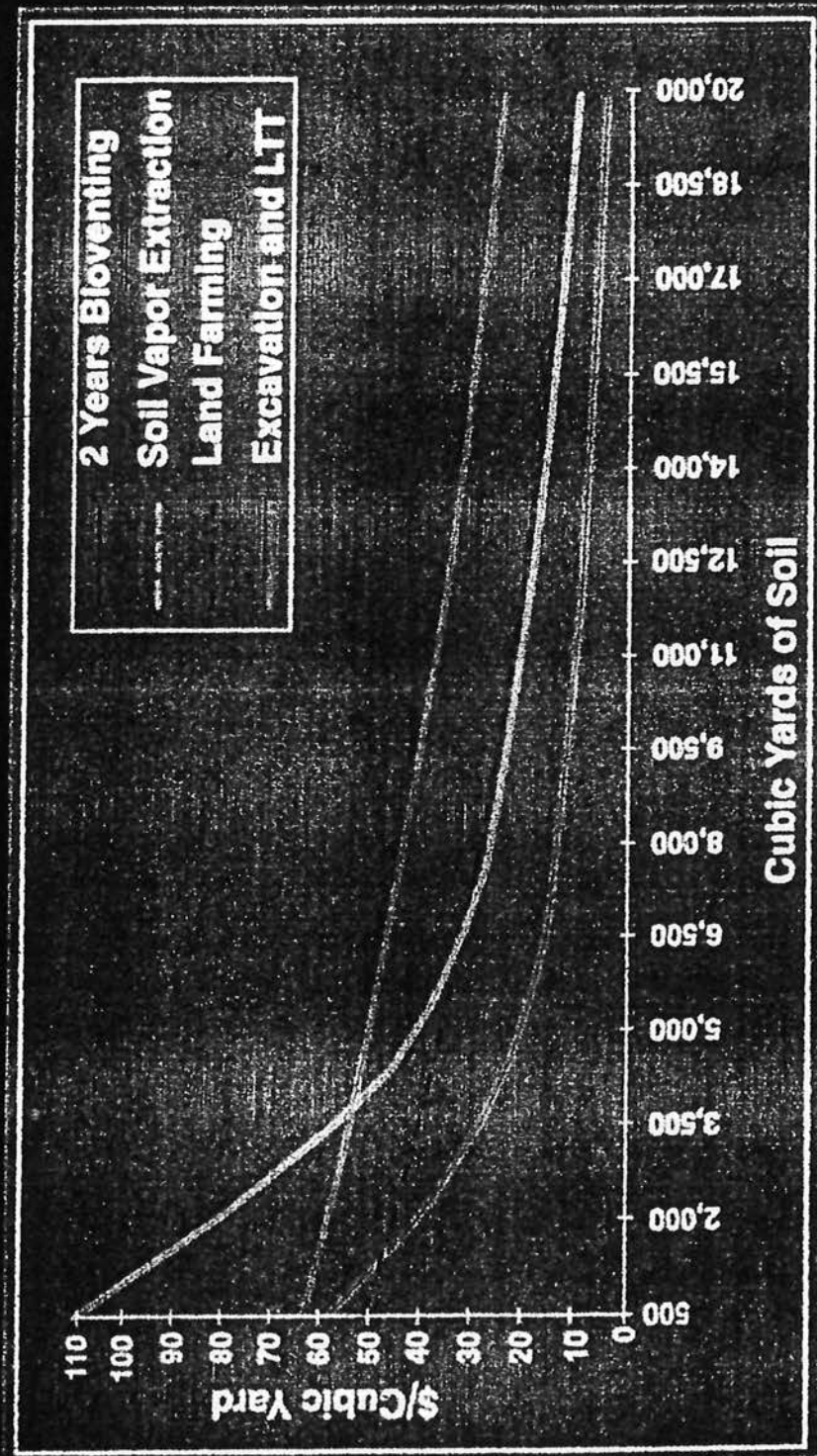
0   10000   20000   30000   40000   50000   60000  
Total Recoverable Petroleum Hydrocarbons (TRPH) (mg/kg)

Initial

Two-Year



# Comparison of Unit Costs



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**MINUTES**  
**RESTORATION ADVISORY BOARD**  
**AUGUST 19, 1997 MEETING**

1. Attendance:

Government RAB Members Present:

Stephen M. Absolom, BRAC Environmental Coordinator,  
SEDA/Army Co-Chair  
Dan Geraghty, NYS Department of Health  
Carla Struble, U.S. Environmental Protection Agency

Government RAB Members Not Present:

Marsden Chen, NYS Department of Environmental Conservation

Community RAB Members Present:

Dick Durst/Community Co-Chair, Anne Herman, Frank Ives, Pat Jones, Harold Kugelmass, Mary Ann Krupsak, Russell Miller, Ken Reimer, Richard Sisson, Henry Van Ness, David Wagner

Community RAB Members Not Present:

Brian Dombrowski, Richard Lewis, Lucinda Sangree, Carmen Serrett

Environmental Support Personnel Present:

Thomas Enroth, U.S. Army Corps of Engineers, NY District,  
SEDA Resident Office  
Randy Battaglia, U.S. Army Corps of Engineers, NY District,  
SEDA Resident Office  
Kevin Healy, U.S. Army Corps of Engineers, Huntsville Div  
Joanne Ogden, SEDA Legal Rep/Public Affairs Officer  
Andrew Schwartz, Parsons Engineering Science, Inc.  
Laura Sposato, SEDA Secretary

Community Support (from sign-in sheet):

Artje Banmer, Cornell  
Neil Chaffie, Ovid Gazette  
Carol Marthaller, Community Member  
Emilie Sisson, Community Member

2. Stephen Absolom, the Army Co-Chair, welcomed members and support staff to the August Restoration Advisory Board at the NCO Club and outlined the evening's agenda. Steve provided the opening remarks for the meeting and asked for introductions of all attending.

3. Minutes from May and July's RAB meetings were signed and entered into the record.

4. Thomas Enroth from Seneca's Resident Office, U.S. Army Corps of Engineers, gave a presentation on the FY98 Environmental Program. The presentation gave an overview of the 27 FY98 BRAC environmental projects planned and a brief summary of the restoration projects. The following questions were generated:

a. **Question:** What does BTEX stand for?

**Answer:** It is the acronym for Benzene, Toluene, Ethylbenzene, and Xylenes, the characteristics of gasoline.

b. **Question:** Who will support site access, security, and fieldwork for contractors working on weekends?

**Answer:** Seneca will continue to support these areas as long as there is an ammunition requirement and manpower. The security is driven by ammunition. When the supplies and ammo are gone, the contractor will have to do it.

c. **Question:** Why are we doing radiation surveys?

**Answer:** Tied to the BRAC effort for license termination. The policy is if there was some radioactive element, structures need to be surveyed for residuals. We still have depleted uranium ammunition stored here.

d. **Question:** Is there any radiation?

**Answer:** We still have to do a closeout survey even though the annual surveys do not show any release. It is mandated by Nuclear Regulatory Commission (NRC).

e. **Question:** What is UXO?

**Answer:** UXO is an acronym for unexploded ordnance.

f. **Question:** What is the Installation Archive Search.

**Answer:** A record review of the history of ammunition use at the installation will show areas where unexploded ordnance has the potential to exist.

g. **Question:** Has it been done yet?

**Answer:** No. It will be done installation-wide. It is a separate effort from previous reviews.

h. **Question:** Training requirements - i.e. HAZMAT, hazardous materials ... shouldn't it be responsibility of contractor.

**Answer:** Training provided at Seneca is only for Seneca personnel. O'Brien and Gere, Inc., has been contracted to perform much of the training.

i. **Question:** What areas are included in asbestos abatement and lead-based abatement?

**Answer:** Asbestos in Bldgs 208, 209. Pipe insulation in these houses require removal. There is some lead-based paint in other housing units. They have to be tested. Before they can be transferred, may need to have abatement.

j. **Question:** Will they do remedial work on Fire Training Areas even though reuse in the future may be for a fire related function?

**Answer:** Reuse plan does not call for that as a future use.

k. **Question:** In reference to Ash Landfill, is there and to what extent is there ground water contamination?

**Answer:** The plume, some of which is off post, contains contaminants at levels below drinking water standards. The site is on the west side of the base, midway down. Hope to have something in place soon as a pilot study. Refer to map "ASH LF". It is located near Sampson State Park if you were driving up 96A. The remedial design will be prepared in FY98.

l. **Question:** On deactivation furnaces, what is PRAP?

**Answer:** It is the acronym for Proposed Remedial Action Plan for the clean up of a site.

m. **Question:** Is a deactivation furnace used for ordnance?

**Answer:** Yes, i.e., also known as the popping plant - explodes bullets and separates brass casings out for recycling.

n. **Question:** What is in IRFNA site?

**Answer:** It is a liquid propellant in the form of an acid with a corrosion inhibitor. We do not have the chemical composition yet. We will investigate this in the proposed FY 98 effort.

o. **Question:** What was done with waste from munitions washout facility?

**Answer:** A lack of information exists about this site and the corresponding operations. This is some of the problems that we face. We will be checking with other depots to find out what happened to water, etc., at their site.

p. **Question:** Every three months I receive correspondence in the mail about the water. Does this have anything to do with it?

**Answer:** Not at all. The correspondence has to do with surface water treatment rules. We are in violation because our water doesn't go through a filtering process. The current status on the water project, to connect to the Waterloo treatment plant, is ahead of schedule. We expect to be tied in by early September. Then you won't receive those letters anymore because we will be in compliance with regulations.

q. **Question:** Where did the debris of the old construction debris landfill come from - community or military?

**Answer:** Military

r. **Question:** Are the raw metals that are stockpiled going to be a problem?

**Answer:** We are reviewing this issue with the regulators. We don't believe it to be a problem.

s. **Question:** Will they be removing these below the ground level?

**Answer:** Yes

t. **Question:** Are the sludge piles more hazardous than fertilizer?

**Answer:** No, it is municipal sewage with no industrial waste included.

u. **Question:** Does it vary greatly from other municipal sewage plants?

**Answer:** Not really. Some tests show larger amounts of some metals than other plants do. We didn't find anything unusual.

v. **Question:** How many piles are there and where are they located?

**Answer:** Six of them and they are located in the South Depot, identified as SEAD 5.



w. **Question:** Do the asbestos storage tank look like a regular tank from the outside?

**Answer:** Yes it does, an aboveground dry storage tank.

x. **Question:** Since FY 98 will be a busy year, who or how is it decided when we get the funding for which project?

**Answer:** Usually it is money driven. The schedule is part of the Federal Facilities Agreement. It depends on what has reuse potential, relative risk, i.e., worse first.

y. **Question:** Does this come out of the army budget?

**Answer:** Yes it competes with same money for army bases and the active army payroll.

z. **Question:** Why are they investigating the site at 119A?

**Answer:** Site 119A was sewage spill overflow. We don't expect to find anything. Investigation will do limited sampling on this. Only five houses on the hill could have impacted this site. In the mid 80's it was a new pump station. The pumps failed and it overflowed.

aa. **Question:** Conveyance is expected for institutional housing areas, airfield for FY 98. Are sites in the 97 budget, completed now or being scheduled in 98?

**Answer:** Institutional area has site identified with prefix number 123 and in FY98 will be investigated i.e., pile of dirt, buried drums, etc. We don't expect to find much.

bb. **Question:** Can we issue a FOSL report before cleanup?

**Answer:** FOSL is Finding of Suitability to Lease. We can, but we have to work through the issues.

cc. **Question:** What is being removed from the dirt mound near RTE 96 and where is it going?

**Answer:** Ferrochrome ore - a stockpile, and it's being shipped to North Carolina

dd. **Question:** Will you be looking at housing in Elliot Acres?

**Answer:** Yes, but asbestos abatement effort is required in building 208 & 209 before transfer.

ee. **Question:** What about the airfield?

**Answer:** At site 122 we will do some testing in FY98. Things of concern include 122E where deicing of plane may have occurred. We have no records on this. Air force used this airfield prior to Seneca. We will do some sampling to see if deicing occurred. Other areas that are being looked at: 122A -

skeet range for lead contamination, 122C - storage building for possible oil spills, 122B -small arms range. This may not require anything. We will do some testing for contamination. Site 122D had a fuel spill. The site was cleaned up but not closed out.

ff. **Question:** Wouldn't it be beneficial to attach the location numbers to the specific areas to be cleaned up in the next presentation?

**Answer:** Yes, the maps were an addition to this presentation. We will provide a key for the maps and keep everyone posted on the projects being funded.

5. Randy Battaglia from the U.S. Army Corps of Engineers, N.Y. District, gave a presentation on the Open Burning Grounds Proposed Remedial Action Plan. Since 1988, Seneca was the first facility to use a steel tray for open burning. He showed a movie of a crew setting up and performing an open burning ground operation. Once it is set up, they ignite it electronically from a remote location. The residual is vacuumed and disposed of as waste. Randy also showed some slides showing the demilling of 105mm artillery rounds. They are disassembled and the propellant vacuumed out. The leftover brass shell is collected, flashed and sent off as recyclable brass. Some questions generated from presentation:

a. **Question:** How often do you perform open burning operations?

**Answer:** Some years we did it more than others. It is based on what other work there is to do and availability of money.

b. **Question:** Was the ammunition stored here?

**Answer:** Yes.

c. **Question:** Where is the Burn Kettle on the map?

**Answer:** Locate Pad J on the west side of the open burning grounds, it was southwest of Pad J.

d. **Question:** Do you need a permit for this burning?

**Answer:** Yes, and it is renewed annually.

e. **Question:** Did we meet the pollution standard?

**Answer:** Back then we did. We are still in compliance with open burning rules.

f. **Question:** Has the money been requested for this project?

**Answer:** Yes.

g. **Question:** When is this being done?

**Answer:** Optimistically March. The plan will get approved in September, budget approved the end of September-October. Then we develop a remedial action design. We will develop a design for the clean up and then contract the effort.

h. **Question:** When will you begin working on the plan?

**Answer:** Not until next spring - 2-3 months for UXO survey, 12-18 months to complete the entire effort.

i. **Question:** Do you use open contracts with contractors?

**Answer:** Yes, we use some that are preplaced.

j. **Question:** Are they renewed?

**Answer:** Yes, some have option years but all are eventually renewed.

k. **Question:** Are there any nuclear weapons stored at Seneca?

**Answer:** We can neither confirm or deny the presence of such.

7. During open discussion Steve Absolom brought up the question raised earlier in meeting regarding an article in the newspaper on reuse of Seneca's North End by Youth Services. Pat Jones of the LRA stated that they do have a proposal on the table and it is being considered by the LRA.

8. Steve also addressed the attendance at meetings. As a result of a survey conducted, one member resigned, and one is considering whether or not to continue. He raised the question of whether we want to go out and solicit the community for additional members, i.e., advertise in the newspaper. RAB agreed we should proceed with solicitation of new members. We currently have 16 members including the LRA. If someone can't make meeting, can still receive handout information. It was suggested that after a member misses two meetings unexcused, send a reminder. If they miss a third, then they would be removed. Also agreed that the charter be revised to reflect this. It will be reviewed at the next meeting.

9. Steve also solicited topics for future meetings. Suggestions were reuse and impact of clean up effort, more information on solidification process, status of clean up funding and a priorities listing for clean up projects.




10. The next Restoration Advisory Board, or a public meeting on the cleanup plan for the Open Burning (OB) Grounds, to be held at Seneca County Office Building on September 16, 1997 at 7:00 p.m. If there isn't a public meeting, then the RAB will be held at the SEDA NCO Club. More about this will be known in the next couple of weeks. Notification on the next meeting will be announced.

11. The meeting was adjourned at 9:45 p.m.

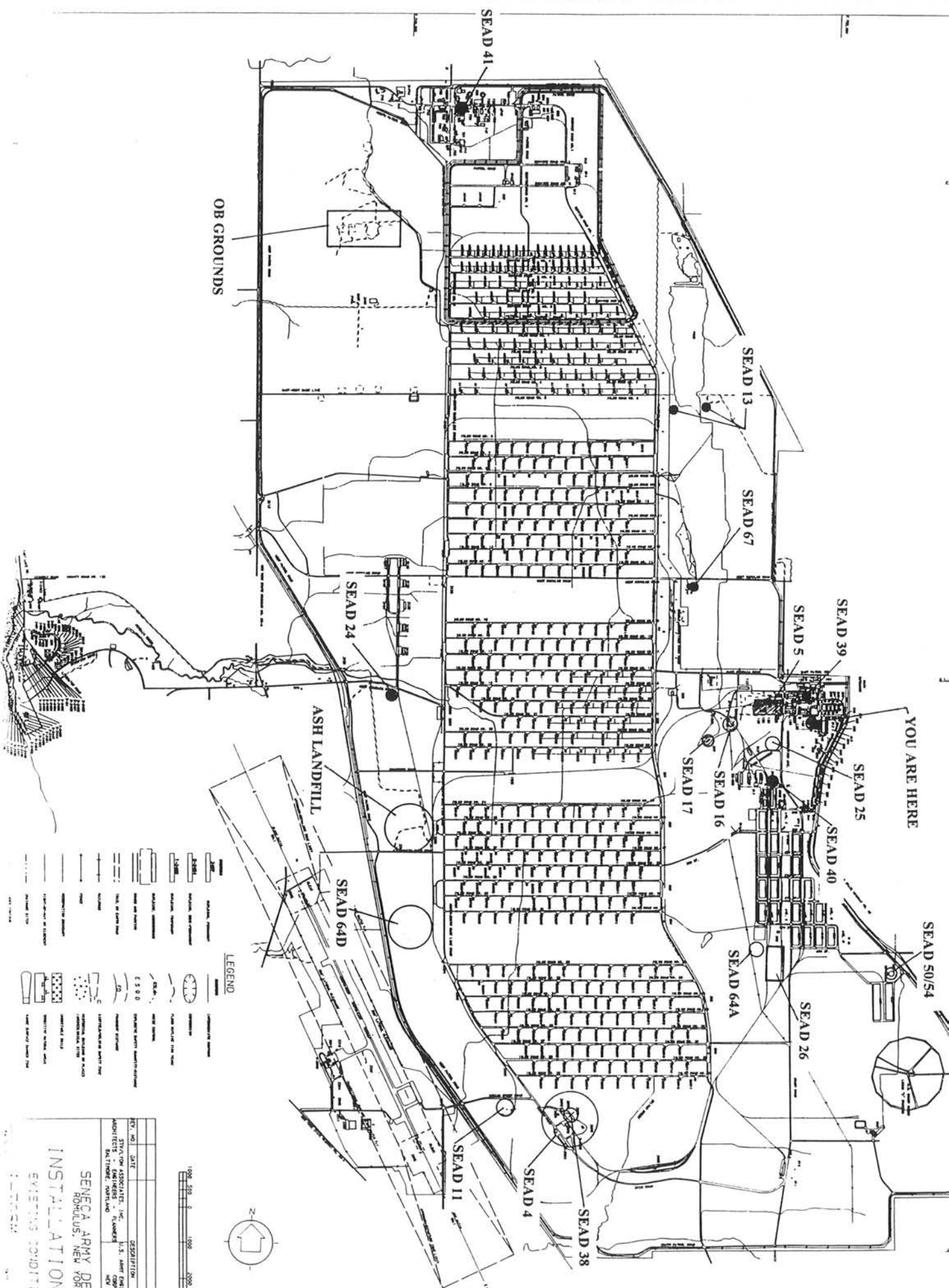
Respectfully submitted,

  
LAURA J. SPOSATO  
Secretary

APPROVED AS SUBMITTED:

  
STEPHEN M. ABSOLOM  
U.S. Army Co-Chair

  
RICHARD A. DURST  
Community Co-Chair

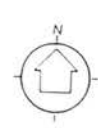
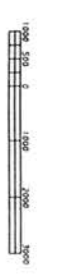


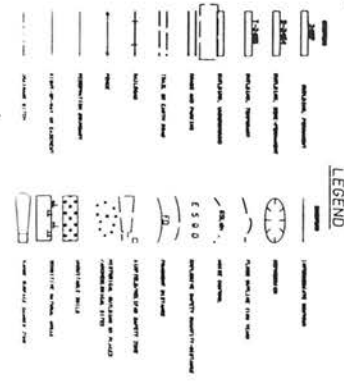
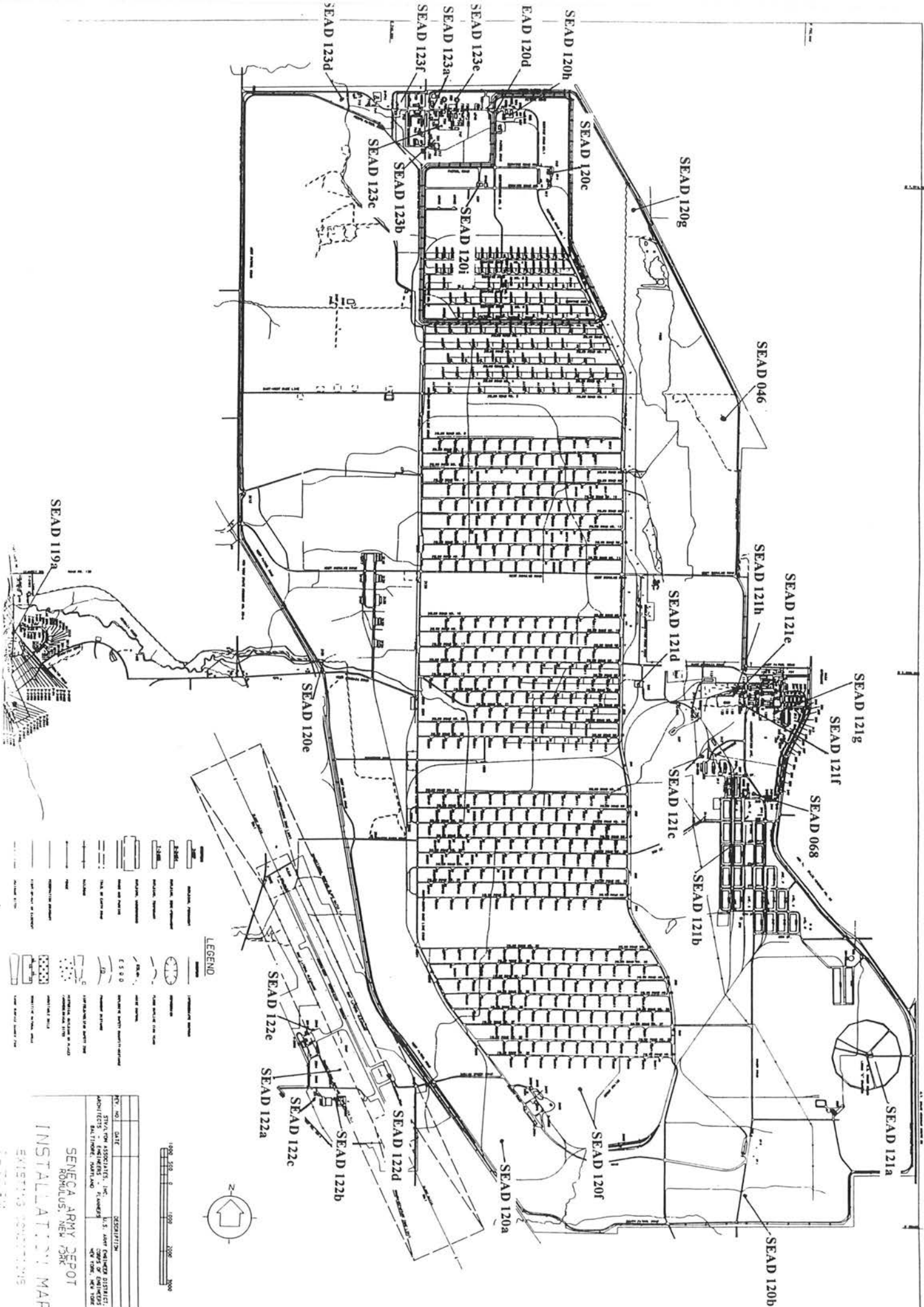
**LEGEND**

|                              |                          |
|------------------------------|--------------------------|
| Symbol                       | Description              |
| Circle with dot              | Well                     |
| Circle with cross            | Water tank               |
| Circle with vertical lines   | Water tower              |
| Circle with horizontal lines | Water pump               |
| Circle with diagonal lines   | Water valve              |
| Circle with concentric lines | Water filter             |
| Circle with grid             | Water treatment plant    |
| Circle with 'X'              | Water storage tank       |
| Circle with 'O'              | Water distribution point |
| Circle with 'A'              | Water access point       |
| Circle with 'B'              | Water exit point         |
| Circle with 'C'              | Water inlet point        |
| Circle with 'D'              | Water outlet point       |
| Circle with 'E'              | Water connection point   |
| Circle with 'F'              | Water junction point     |
| Circle with 'G'              | Water branch point       |
| Circle with 'H'              | Water termination point  |
| Circle with 'I'              | Water starting point     |
| Circle with 'J'              | Water ending point       |
| Circle with 'K'              | Water crossing point     |
| Circle with 'L'              | Water intersection point |
| Circle with 'M'              | Water connection point   |
| Circle with 'N'              | Water junction point     |
| Circle with 'O'              | Water branch point       |
| Circle with 'P'              | Water termination point  |
| Circle with 'Q'              | Water starting point     |
| Circle with 'R'              | Water ending point       |
| Circle with 'S'              | Water crossing point     |
| Circle with 'T'              | Water intersection point |
| Circle with 'U'              | Water connection point   |
| Circle with 'V'              | Water junction point     |
| Circle with 'W'              | Water branch point       |
| Circle with 'X'              | Water termination point  |
| Circle with 'Y'              | Water starting point     |
| Circle with 'Z'              | Water ending point       |

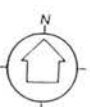
|          |          |                     |          |
|----------|----------|---------------------|----------|
| REV. NO. | DATE     | DESCRIPTION         | DATE     |
| 1        | 11/10/54 | INSTALLATION MAP    | 11/10/54 |
| 2        | 11/10/54 | EXISTING CONDITIONS | 11/10/54 |

SENECA ARMY DEPOT  
 ROMULUS, NEW YORK  
 INSTALLATION MAP  
 EXISTING CONDITIONS





LEGEND



|          |      |                         |
|----------|------|-------------------------|
| REV. NO. | DATE | DESCRIPTION             |
| 1        |      | ISSUED FOR CONSTRUCTION |
| 2        |      | ISSUED FOR CONSTRUCTION |
| 3        |      | ISSUED FOR CONSTRUCTION |
| 4        |      | ISSUED FOR CONSTRUCTION |
| 5        |      | ISSUED FOR CONSTRUCTION |
| 6        |      | ISSUED FOR CONSTRUCTION |
| 7        |      | ISSUED FOR CONSTRUCTION |
| 8        |      | ISSUED FOR CONSTRUCTION |
| 9        |      | ISSUED FOR CONSTRUCTION |
| 10       |      | ISSUED FOR CONSTRUCTION |

SENECA ARMY DEPOT  
 INSTALLATION MAP  
 EXISTING CONDITIONS

DESIGNED BY: SENeca ARMY DEPOT  
 DRAWN BY: SENeca ARMY DEPOT  
 CHECKED BY: SENeca ARMY DEPOT  
 APPROVED BY: SENeca ARMY DEPOT  
 DATE: 1954

# Open Burning Grounds Proposed Remedial Action Plan

Presented By:

Randy Battaglia

Project Engineer, New York District

U.S. Army Corps of Engineers



## Previous Presentations

- February 18, 1997
  - Discussed Background, Studies, Objectives, Alternatives, and the Preferred Alternative
- July 15, 1997
  - Discussed various Technologies that can be used

## Site History

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- Destroyed Ammunition for Safe Disposal
- Open Burning on 9 Pads
- Investigations Identified Residues in 1980's
- 40-ft. Steel Tray used since 1988

## Historical Operations

---

- Open Burning of propellant, and pyrotechnics
- Burning of propellant and explosive - containing materials
- Burning on the Ground
- Burning in the Tray
- Past Operations - Burn Kettle
- Stability and Safety for Disposal

## Clean Up Objectives, Continued

- Prevent Erosion with Vegetation, and Rainwater washing into Reeder Creek
- Continue groundwater Well Testing
- Periodic Testing of Sediments

## Alternatives Evaluated and Costs

- |                     |                     |
|---------------------|---------------------|
| ● No Action         | ● No Cost           |
| ● Off-Site Disposal | ● \$4.1-5.7 Million |
| ● On-Site Disposal  | ● \$5.7 Million     |
| ● Soil Washing      | ● \$11.1 Million    |

# **Restoration Advisory Board Meeting Agenda**

**September 16, 1997**

- 7:00**            **Welcome**  
LTC Donald C. Olson  
Commander, Seneca Army Depot Activity
- 7:05**            **Acceptance of Minutes/ RAB Charter Change: Attendance**  
Mr. Stephen M. Absolom/Dr. Dick Durst  
Army Co-chair/Community Co-chair
- 7:15**            **Solidification of Contaminated Soil**  
Mr. Michael Duchesneau  
Project Manager, Parsons-Engineering Science, Inc.
- 7:35**            **Changes to Fiscal Year 1998 Program**  
Mr. Thomas R. Enroth  
Project Engineer, U.S. Army Corps of Engineers, NY District
- 7:50**            **Break**
- 8:00**            **Clearance of Unexploded Ordnance (UXO)**  
Mr. Kevin Healy  
Technical Manager, U.S. Army Corps of Engineers, Huntsville, AL
- 8:30**            **Open Discussion**
- 9:00**            **Adjourn**



*Presentation to the RAB  
September 16, 1997*

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*Solidification/Stabilization  
Remedial Technologies  
Michael Duchesneau, P. E.*

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PARSONS ENGINEERING SCIENCE



# Solidificaton/Stabilizaton

*Treatment technology, (in-situ or ex-situ), involving mixing of solid or semi-solid waste with an additive to prevent leaching and eliminate exposure.*



# *Superfund Policy for Solidification/Stabilization*

*“ Immobilization is generally appropriate as a treatment alternative only for materials containing inorganics, semi-volatile and/or non-volatile organics. ”*

# Solidificaton/Stabilizaton

## Definitions

*Solidification - (macro-scale) production of a monolithic, inert, block to prevent physical interaction between waste and leaching fluids.*

*Stabilization - (micro-scale) involves a chemical reaction that produces an insoluble product from the waste.*

# Solidificaton/Stabilizaton Goals

- *Prevent Exposure*
- *Eliminate Leaching :*
  - *Change solubility of waste*
  - *Decrease Surface Area between leaching fluid and waste*
- *Improve Handling and Physical Characteristics*

# *Solidification/Stabilization*

## *Solidifying Agents*

- *Lime, Quicklime or Limestone*
- *Fly Ash Pozzolan (Silica)*
- *Portland Cement or Cement Kiln Dust*
- *Asphaltic Materials*
- *Mixtures of these Materials*

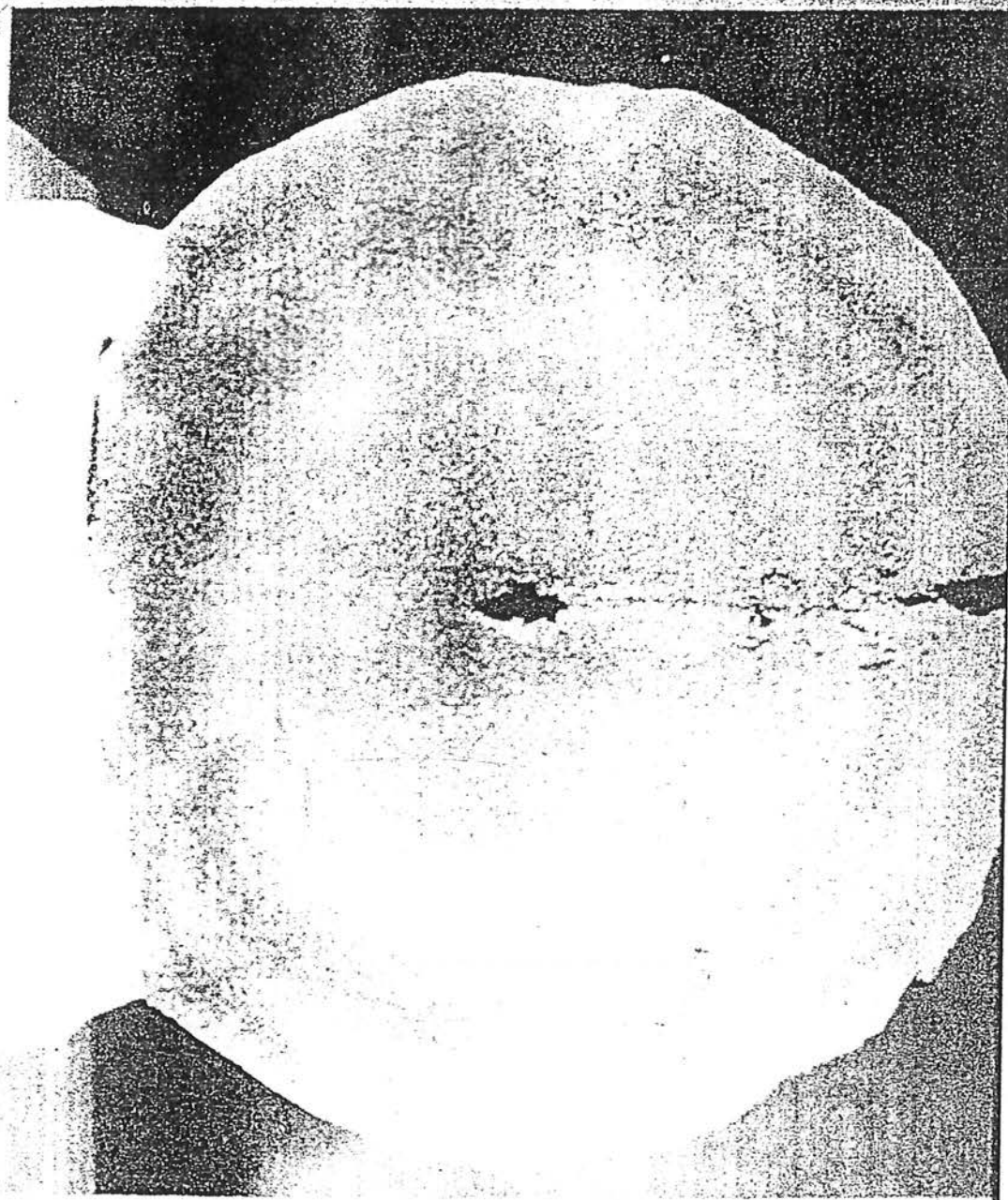
# *Solidification/Stabilization*

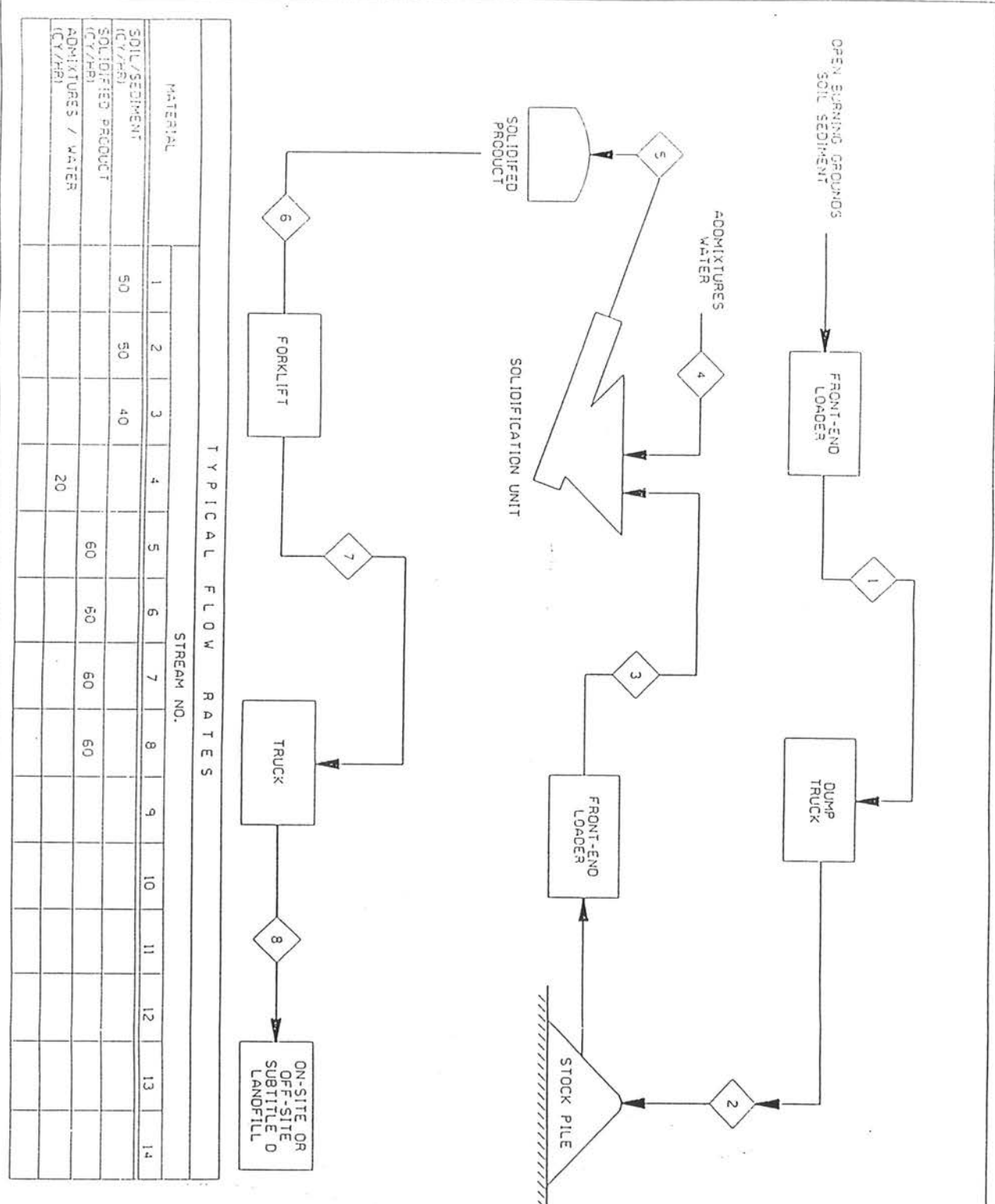
## *Advantages & Disadvantages*

- *Advantages :*
  - *Proven Technology (BDAT for metals)*
  - *Simple*
  - *Generally Less Costly than Washing*
- *Disadvantages:*
  - *Effectiveness is Matrix Dependent*
    - *High Clay Soils cause Clumping*
    - *High Oil Content Decrease Effectiveness*
  - *Volume of Material is Increased*



FIG. 1.—CONCENTRIC RINGS WITH  
GROUT IN SATURATED ISOPHOREN  
WATER





**TYPICAL FLOW RATES**

| MATERIAL                    | STREAM NO. |    |    |    |    |    |    |    |   |    |    |    |    |    |
|-----------------------------|------------|----|----|----|----|----|----|----|---|----|----|----|----|----|
|                             | 1          | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9 | 10 | 11 | 12 | 13 | 14 |
| SOIL/SEDIMENT (CY/HR)       | 50         | 50 | 40 |    |    |    |    |    |   |    |    |    |    |    |
| SOLIDIFIED PRODUCT (CY/HR)  |            |    |    |    | 60 | 50 | 60 | 60 |   |    |    |    |    |    |
| ADDMIXTURES / WATER (CT/HR) |            |    |    | 20 |    |    |    |    |   |    |    |    |    |    |

**PARSONS**  
**PARSONS ENGINEERING SCIENCE, INC.**  
 SENECA ARMY DEPOT ACTIVITY  
 REMEDIAL INVESTIGATION/FEASIBILITY STUDY  
 OPEN BURNING GROUNDS  
 ENVIRONMENTAL ENGINEERING  
 78044-0000  
 FIGURE 5-1  
 ALTERNATIVE 4 AND 5  
 SOLIDIFICATION/SUBTITLE D LANDFILL  
 MARCH 1984



# FY 98 Environmental Program Update

Presented by Thomas Enroth  
Project Engineer  
U. S. Army Corps of Engineers

FY 98 Environmental Program, Seneca Army Depot

## TONIGHT'S DISCUSSION

- Projects that have changed
- What are the changes
- How will the program be effected
- Summary

FY 98 Environmental Program, Seneca Army Depot

## Projects That Changed

- Installation Groundwater Monitoring Program
- Ash Landfill
- Open Burning Grounds
- Fire Training Areas

FY 98 Environmental Program, Seneca Army Depot

## Projects That Changed

- Munitions Washout Facility
- IRFNA Disposal Site
- Old Construction Debris Landfills

FY 98 Environmental Program, Seneca Army Depot

## Projects That Changed

- Deactivation Furnaces
- Removal-BTEX /VOC's

FY 98 Environmental Program, Seneca Army Depot

## Projects That Changed

- Sludge Piles
- Radiation Survey

FY 98 Environmental Program, Seneca Army Depot

## Summary

- FY 98 will still be a very busy year
- FY 98 budget submission is for \$12.5 Million (was \$16.8 Million last month)
- All of the projects that were planned are still in the schedule
- A phased approach will be used
- Cleanup projects may be accelerated

FY 98 Environmental Program, Seneca Army Depot



**SENECA ADA**  
**INSTALLATION AND**  
**OPEN BURNING GROUNDS**  
**ORDNANCE REMEDIATION OVERVIEW**

Presented to the SENECA ADA  
Restoration Advisory Board  
September 16th, 1997



# Ordnance and Explosives Program Overview

US Army Corps of Engineers  
Huntsville Engineering  
and Support Center



# Topics

- Definitions
- Huntsville Center OE Missions
- OE Center of Expertise
- OE Design Center



# Definitions

- **OE -- Ordnance and Explosives:** Bombs and warheads, guided and ballistic missiles; artillery and mortar; rocket ammunition, mines; demolition charges, pyrotechnics, grenades; containerized and uncontainerized explosives and propellants; military chemical agents; and all similar and related items or components, explosive in nature or otherwise designed to cause damage to personnel or material. Soils with explosive constituents are considered OE if the concentration is sufficient to be reactive and present an imminent safety hazard.
- **UXO -- Unexploded Ordnance:** An item of ordnance which has failed to function as designed, or has been abandoned or discarded and is still capable of functioning and causing injury to personnel or material.
- **UXO Personnel:** Graduates of the US Naval Explosive Ordnance Disposal (EOD) School at Indianhead, Maryland. Active duty EOD experience requirements vary with position (Sr. Supervisor -- 15 years, Supervisor -- 10 years, Specialist -- 3 years).





# Huntsville Center OE

- Huntsville has 2 Main OE Missions
  - USACE OE Center of Expertise
  - USACE OE Design Center
- Secondary Munitions Missions
  - Range and Training Lands Program



## OE CX & Design Center Experience

- Have Traditional Corps Capabilities
- Additional Unique Capabilities
  - Explosive Ordnance Disposal
    - Staff of Military Trained EOD Safety Specialists
    - 400+ years EOD Experience
    - Experienced in Both Conventional & CWM
  - OE Experienced Staff in
    - Public Affairs
    - Engineering
    - Legal/Regulatory
    - Contracting



## OE CX Missions

- Oversight of USACE OE Activities
- Develop USACE OE Policy
- Review of OE Design Products
- Advise and Participate in External Working Groups for OE
- Find the Best Available Technology for UXO
- OE Training



# OE Design Center Mission

- To Reduce the Risks to the Public from OE
- To Do all Actions Safely
- Insure Highest Level of Quality
- Be Cost Effective
- Risk Based versus Removal Without Analysis



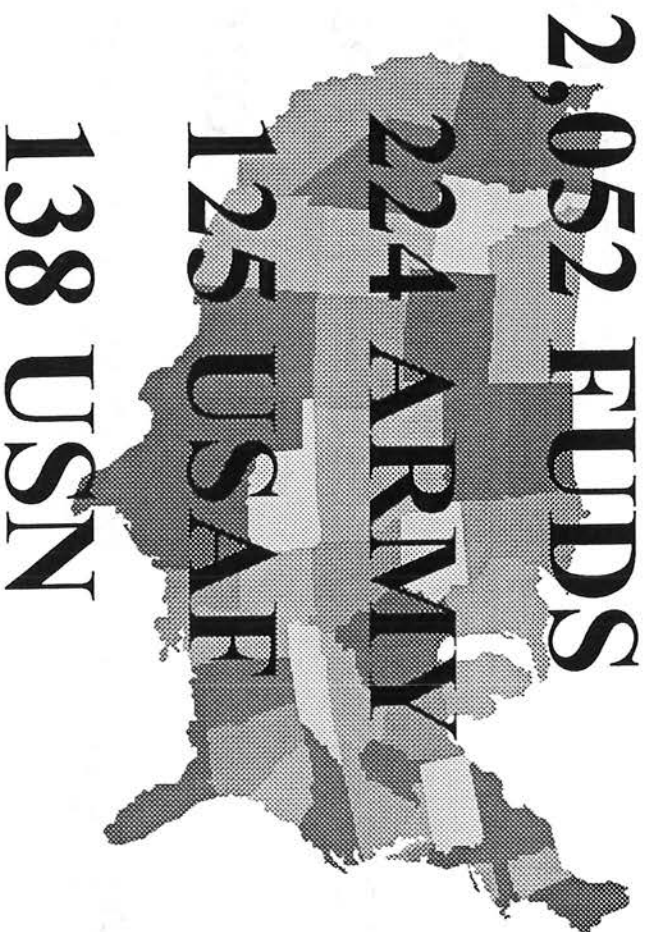
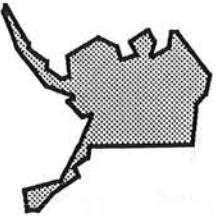
# OE Customers

- FUDS (Formerly Used Defense Sites)
- IR (Installation Restoration)
- BRAC (Base Realignment and Closure)
- Work for Others
  - National Park Service
  - Bureau of Land Management
  - Department of Energy
  - Environmental Protection Agency



# Potential OE Sites

Site Counts as of: 27 Sep 96





# Execution Strategy

## ACTION

- Investigations/Studies
- Time Critical Removal Actions
- Engineering Evaluation Cost Analysis
- Removal Design
- Removal Actions

## EXECUTION OPTIONS

### Government:

- In House UXO Specialists
- Other Districts

### Contracts (AE/UXO)

- Purchase Orders
- Letter
- Time & Materials (1 - UXO)
- Firm Fixed Price
- Cost Plus Fixed Fee (2 - UXO)

(3 - A/E)



# Project Categories

Three Basic Categories of Projects:

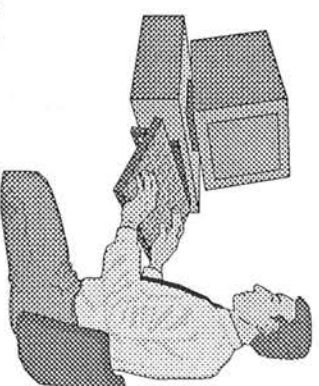
- OE Risk Reduction -- Project Focus is on Known or Probable OE and Public Safety
  - 58 Former Defense Sites
  - 30 BRAC Installations
  - 1 Active Installation
- OE Avoidance -- Project Focus is HTRW or Construction
- Real Estate Disposal Actions





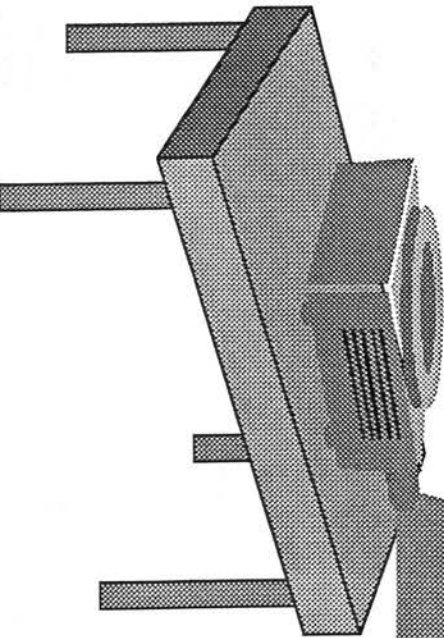
# Internet Addresses

- Huntsville Center
  - email: *lnameinitial@smtp.hnd.usace.army.mil*
  - Home Page on the Web:  
<http://www.hnd.usace.army.mil>
- DUSD - Environmental Security
  - <http://www.acq.osd.mil/ens/>
- Project Information Retrieval System
  - <http://dogbert.ncr.usace.army.mil>





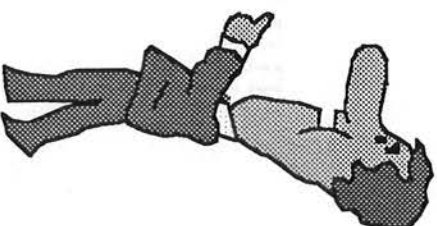
# Questions



**USAESC, Huntsville**  
**P.O. Box 1600**  
**Huntsville, AL 35807-4301**

**OE Project Execution:**  
Phone: (205) 895-1582  
FAX: (205) 895-1819

**OE- CX - Policy, Regulations:**  
Phone: (205) 895-1320  
FAX: (205) 722-8709





# Installation-Wide Remediation Overview

USACE OE CX



## Complete Archive Search Report (FY 98)

Information search to gather all available information regarding potential Ordnance sites. Includes records reviews, personnel interviews, etc.

## Perform an Engineering Evaluation/Cost Analysis

Sampling at various sites to determine the presence/ extent of OE contamination at each and possible alternatives for removal.

Prepare cost analyses for alternatives and recommend removal alternative

## Public/Regulatory Review

Implement Chosen Alternative (s)



# OB Grounds Remediation Overview



## Complete Work Plans

### Complete Explosives Safety Submission

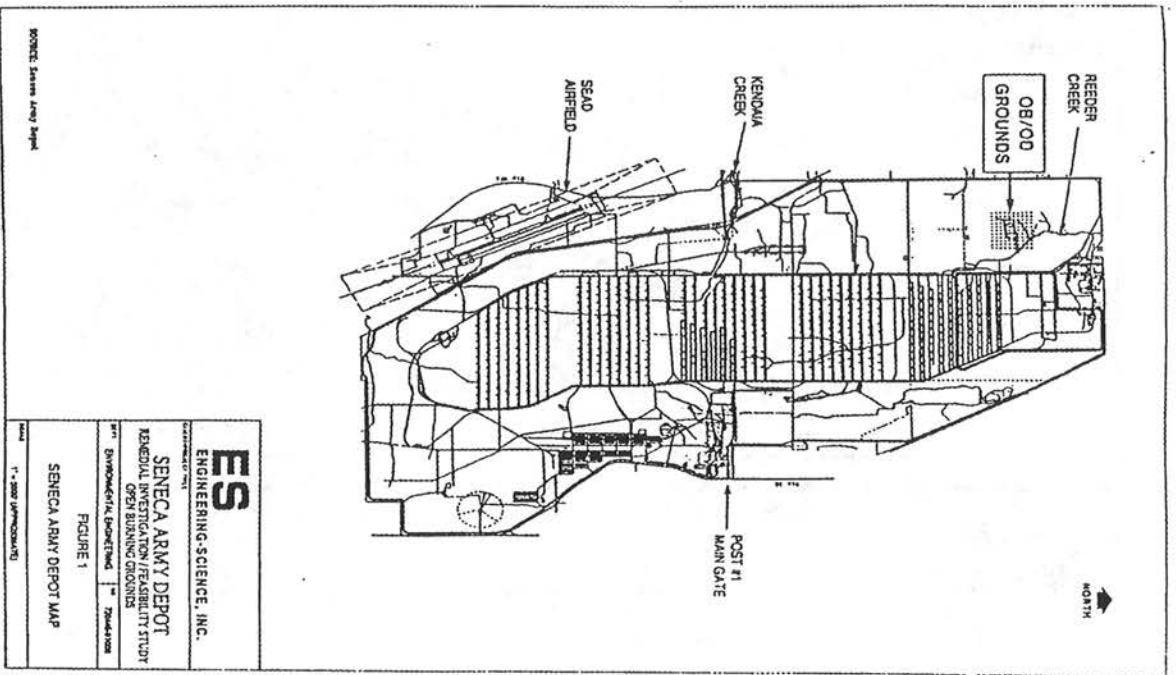
#### Perform Remediation

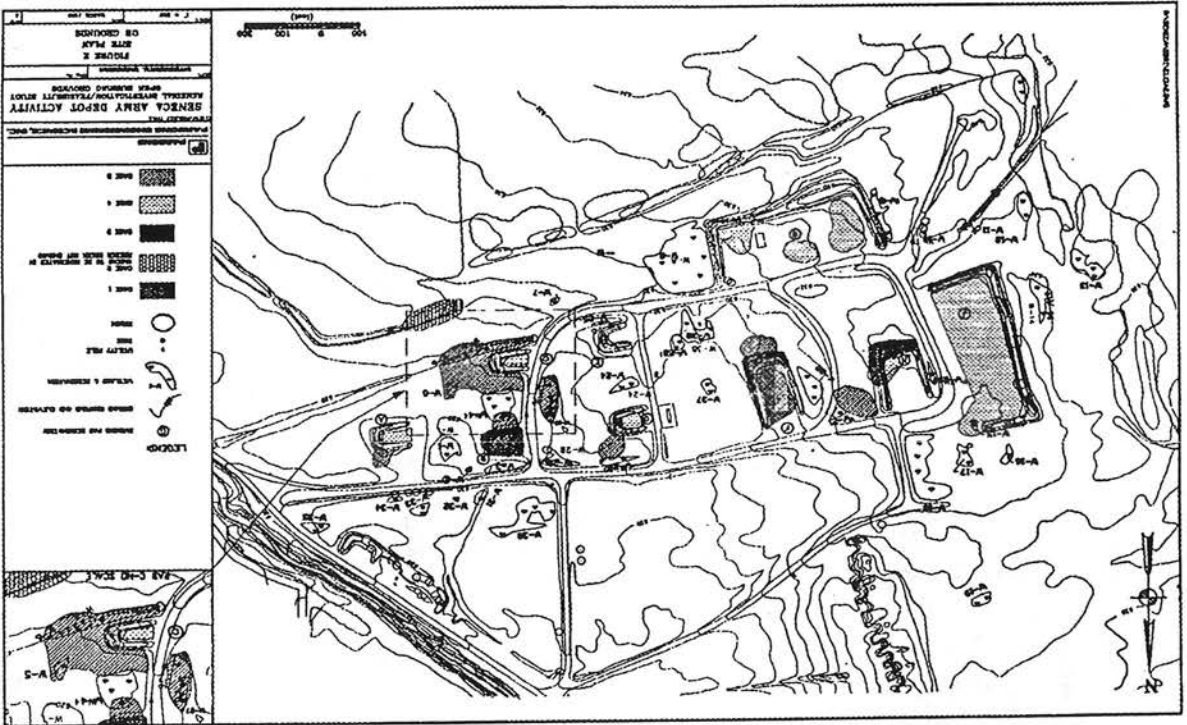
##### Surface OE Contamination

- sift soils in the burning pad berms
- sift soils in the low-lying hill
- visually/geophysically locate OE contamination in the remaining acreage

##### Subsurface OE Contamination

- sweep and clear all anomalies to a depth of two feet
- sift soils in areas of greater depths









## Quality Control/Quality Assurance

Contractor performs QC

Huntsville Safety Specialist is on-site to oversee all operations and perform a 10% QA check

## Disposal

UXO is blown in place.

OE-related scrap is inspected (as many as four times) before being certified as inert and disposed of to locally available scrap dealers.

