Stratford Army Engine Plant
Restoration Advisory Board (RAB)
Meeting April 6, 2000

The Stratford Army Engine Plant (SAEP) which is proceeding with closure action under provisions of the Base Realignment and Closure Act (BRAC) of 1995 will hold a Restoration Advisory Board (RAB) on April 6, 2000 at 7p.m. in Room 22, Stratford Army Engine Plant. The meeting is open to the public. Parking is in the West Lot and entry through the main guard station.

Stratford Army Engine Plant
Restoration Advisory Board (RAB)
Meeting April 6, 2000

AGENDA

1. Welcome, opening remarks, introductions, announcements, old business.

2. Discussion of Pre-design Investigation Report and Engineering Evaluation/Cost Analysis [EE/CA] for the Causeway

3. Open forum, next meeting, adjourn.

For additional information call the SAEP BRAC office (John Burleson) at 385-4316 or Margarita Hartley Moore, RAB Community Co-Chairperson at Redacted - Privacy Act.

RAB MEETING – APRIL 6, 2000
SIGN-IN SHEET

Tim Corley US Army Corps of Engineers, NAN
John Burleson IAEP
Ken Feathers CT DEP
Vanity Bossie HLA
Rod Pendleton HLA
Krysta Hansen HLA
JIM OTTO RAB
TIM MIHALEY HEALTH STRATFORD COUNCIL
STAN SILVERSTEIN RAB
MICHAEL SUSCA TRC
Michelle BROCK USACE-New England
BRADD NOBBIN, WILLIAMS WILLIAMS [illegible]
JAY BORKLAND Foster Wheeler
Meghan Cassidy EPA
Fred Berger Team Stratford.
Janet Carlucci RAB
Fred Hyatt SAEP-BTC
Phil Katz RAB
Marcia Stewart RAB
Debbie Gallo Secretary

STRATFORD ARMY ENGINE PLANT
RESTORATION ADVISORY BOARD (RAB)

MEETING MINUTES

April 5, 2000

The SAEP Restoration Advisory Board conducted a Regular Meeting on Thursday, April 6, 2000 at 7:00 p.m. in Room 22 of the Stratford Engine Plant, 550 Main St., Stratford CT, pursuant to notice duly given.

Call to Order: The meeting was called to order at 7:05 p.m.
Presiding: John Burleson, Community Co-Chairman
In Attendance: J. Otto, P. Katz, M. Stewart, J. Carlucci, S. Silverstein, J. Mihaley, F. Hyatt, K. Feathers, M. Cassidy, J. Borkland, M. Brock, T. Corley, K. Hansen, R. Pendleton, D. Bossio, F. Berger, B. Robbins, M. Susca

1. WElcome, Opening Remarks, Introductions, Announcements, Old Business:
°J. Burleson reported that Margarita Hartley-Moore (RAB Community Co-Chairman) has indicated that she finds it necessary to resign from her position on the RAB due to current work load.
°Jim Otto was asked to serve as Community Co-Chairman, and he graciously accepted.
°Jim Mihaley has requested to become a member of the RAB, and hearing no objections he was unanimously approved.

2. Discussion of Pre-design Investigation Report and Engineering Evaluation/ Cost Analysis (EE/CA) for the Causeway: Presentation by R. Pendleton.

a) OU2 Pre-design Investigation Report, including information as follows.
°Site Geology
°Site Hydrogeology
°Plating Facility Contamination
°Chromium Soil Contamination
°Hexavalent Chromium Groundwater Contamination
°VOCs in Groundwater (3 hot spots) - (1) Bld. 2 beneath chromium plating facility; (2) Between Blds. B-48 and B-16; and (3) Bld. B-2 in the center.
°Soil Vapor Survey Results
°Indoor Air Monitoring Results (Round 6)
°Potential OU2 NCRA PDIR Data Gaps

b) Causeway and Dike EE/CA Update: EE/CA will be revised to include the following 4 alternatives:

°Alt. 1 - cap with hydraulic barrier
°Alt. 2 - composite cover system
°Alt. 3 - excavation and off-site disposal
°Alt. 4 - erosion control cover system (This alternative has been added at the request of the Dept. of the Army and Conn. DEP).

3. Open Forum, Next Meeting: There will be a meeting on Wednesday, May 10, 2000 at 7:00 p.m. Agenda item to be included - Remedial Investigation.

Adjournment at 9:45 p.m.

Debbie Gallo

Debbie Gallo, Recording Secretary

Project Status Updates

STRATFORD ARMY ENGINE PLANT

Foster Wheeler and
Harding Lawson Associates
April 6, 2000

Presentation Topics

- OU 2 - Groundwater Non-Time Critical Removal Action
  - Pre-Design Investigation Report
  - Indoor Air Monitoring - Round 6 Results
- Causeway EE/CA Update

OU 2 Pre-Design Investigation Report

- Operable Unit 2 (OU 2) consists of the groundwater beneath the main portion of the SAEP facility, bounded by Main Street, Sniffens Lane, the flood-control Dike, and the North Parking Lot
- The objective of the OU 2 Pre-Design Investigation Report (PDIR) is to summarize data from chromium soil, and chromium and VOC groundwater investigations, in support of the development of removal action alternatives

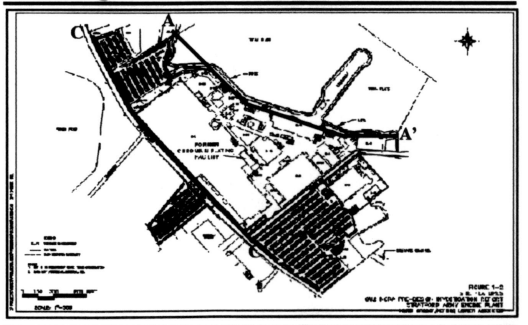
OU 2 PDIR - Site Geology

- **From shallowest to deepest, the following stratigraphic units have been defined beneath SAEP:**
  - Fill material (typically silt, sand and gravel, generally 2-5, but up to 15 feet in thickness near the Dike)
  - Estuarine Silt (silt and very fine sands, 30 feet in thickness near the Dike, absent near Main Street)
  - Reworked Glacial Outwash (sands, gravel and silt; glacial deposits reworked by Housatonic River; thickness increases from 20 to 40 feet from Dike to Main Street)

OU 2 PDIR - Site Geology (continued)

- Glacial Outwash (fine to medium sand with some silt and silt lenses, thickness varies from 20 feet near Dike to 130 feet near Main Street)
- Bedrock (black schist with greenstone, ranging in depth from 49 feet to 184 feet bgs)

Geologic Cross-Section Locations



Geologic Cross-Section A-A'

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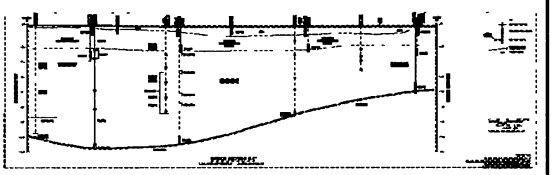
Geologic Cross-Section C-C'



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OU 2 PDIR - Site Hydrogeology

- Depth to water ranges from approximately 4 to 11 feet bgs, depending upon the surface elevation and tidal influence
- In the glacial outwash, the hydraulic conductivity (K) generally increases from west to east across the site; glacial outwash Ks in the northwestern portion of the facility (i.e., toward the North Parking Lot) are generally 1-2 orders of magnitude lower than Ks to the south and east

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OU 2 PDIR - Site Hydrogeology (cont.)

- Horizontal hydraulic gradients range from 0.0001 feet/foot beneath Building B-2 to 0.002 feet/foot to the east of Building B-16
- Vertical hydraulic gradients indicate a downward (recharging) potential to the south and west of Main Street; flattening gradients toward the central portion of the facility; and upward (discharging) potential in the vicinity of the Dike near the Housatonic River

OU 2 PDIR - Site Hydrogeology (cont.)

- Overall groundwater flow direction is from west to east/northeast, toward the Housatonic River
- Groundwater flow velocities in the glacial outwash are estimated to be on the order of 0.002 feet/day beneath Building B-2 and 0.3 feet/day to the east of Building B-16 toward Building B-19 and the Dike
- Groundwater flow velocities are slow due to low horizontal gradients, which are in part due to limited groundwater recharge

Plating Facility Decontamination

- Post-decontamination wipe sampling results from the former Chromium Plating Facility surfaces indicate exceedances of calculated risk-based cleanup standards for hexavalent chromium on approximately one-third of the concrete floor, the northernmost wall, and the northernmost columns and overhead beams
- Visual observations of the interior surfaces indicated a marked decrease in dust, however, the sampling results suggest a risk is still present for exposure to hexavalent chromium inside the facility

Chromium Soil Contamination

- Contamination of subsurface soils by chromium is observed beneath the majority of the former Chromium Plating Facility
- Concentrations of total chromium in soils from SPLP analyses were detected at up to 25.5 mg/L, versus the PMC of 0.5 mg/L
- Concentrations of hexavalent chromium in soils are generally less than I/C DEC of 100 mg/kg

Hexavalent Chromium GW Contam.

- Hexavalent chromium is present in groundwater beneath the former Chromium Plating Facility at concentrations up to 950 mg/L
- The source of the hexavalent chromium is attributable to the former plating operations conducted at the facility

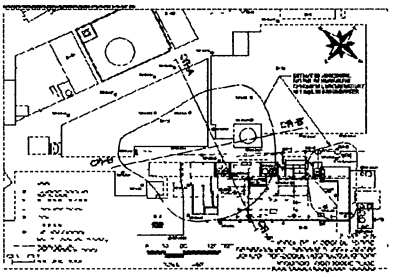
Hexavalent Chromium GW Contam.

- The conceptual model for the distribution of hexavalent chromium is infiltration of plating solutions through cracks in the concrete floor and waste lines, which subsequently migrated through the subsurface soils to the water table and deeper into the subsurface
- The depth of the hexavalent chromium contamination in groundwater can be explained by the probable high density of the former plating solutions relative to groundwater

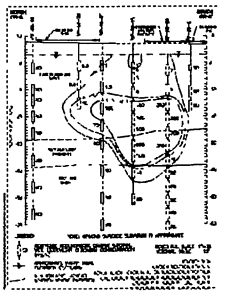
Hexavalent Chromium GW Contam.

- **The relative differences in vertical to horizontal permeability in the fine sands and silts at approximately 30 feet bgs impeded vertical movement of the hexavalent chromium plume, causing the plume to spread horizontally**
- **The relatively flat horizontal groundwater gradient, and lack of recharge from precipitation, has limited the horizontal movement of the hexavalent chromium**

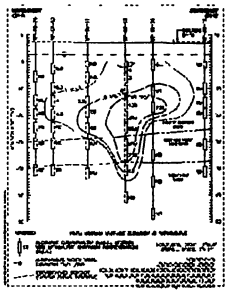
Hex Chrome in GW - Horiz. Distribution



Cross-Section A-A'



Cross-Section B-B'



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VOCs in Groundwater

- **Four chlorinated VOCs exceed SWPC in groundwater over the majority of the main portion of the SAEP facility:**
  - **1,1-DCE**
  - **PCE**
  - **TCE**
  - **1,1,1-TCA**

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VOCs in Groundwater

- **Review of the groundwater analytical data indicates three areas of chlorinated VOC concentrations in groundwater exceeding 100,000 µg/L, which have been identified as groundwater "hot-spots" in the PDIR**
- **These hot-spots are probable sources of continuing groundwater contamination**

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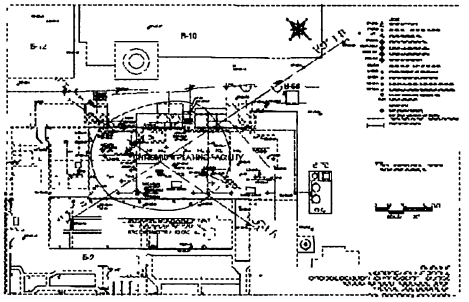
Chlorinated VOC Hot-Spot No. 1

- **Chlorinated VOC Hot-Spot No. 1 is located beneath the former Chromium Plating Facility in Building B-2**
- **The estimated horizontal extent of TCE in groundwater at concentrations exceeding 100,000 µg/L covers the majority of the footprint of the former Chromium Plating Facility**

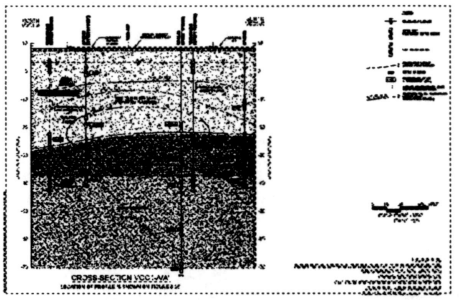
Horizontal Extent of VOC Hot-Spot No. 1



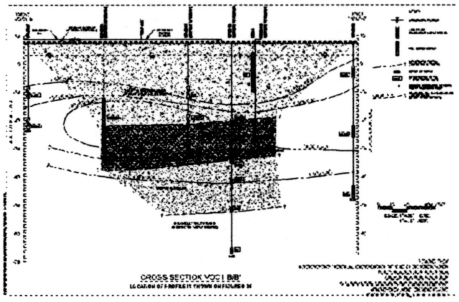
Chlorinated VOC Hot-Spot No. 1

- **The vertical distribution of TCE in groundwater beneath the former Chromium Plating Facility appears to be controlled by the layer of silt and very fine sand, the top of which is at an elevation of approximately –20 feet MSL**
- **The lower vertical permeability of the silt and very fine sand appear to have impeded, to a large extent, the vertical migration of the highest concentrations (>100,000 µg/L) of TCE in groundwater**

VOC Hot-Spot No. 1 Cross-Section A-A'



VOC Hot-Spot No. 1 Cross-Section B-B'



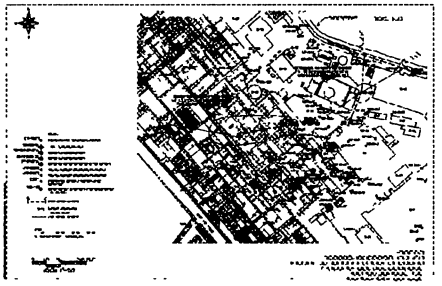
Chlorinated VOC Hot-Spot No. 1

- **The highest concentration of TCE detected in groundwater (830,000 µg/L) is approximately 75 percent of TCE's solubility limit in water, which is indicative of the possible presence of TCE NAPL**
- **Visual observation of subsurface soil and groundwater samples, and shake tests performed using Sudan IV dye, did not reveal the presence of any TCE non-aqueous phase liquid (NAPL), or TCE product**

Chlorinated VOC Hot-Spot No. 2

- **Chlorinated VOC Hot-Spot No. 2 is located between Buildings B-48 and B-16**
- **The estimated horizontal extent of TCE in groundwater at concentrations exceeding 100,000 µg/L covers an area roughly 75 feet in diameter**

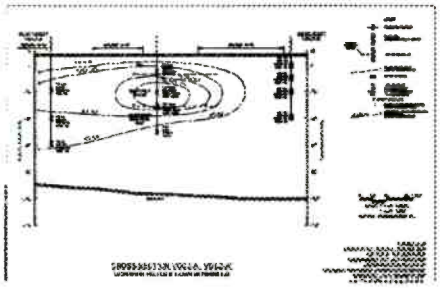
Horizontal Extent of VOC Hot-Spot No. 2



Chlorinated VOC Hot-Spot No. 2

- **The vertical distribution of TCE in groundwater appears to be controlled by the layer of sandy silt, similar to Hot-Spot No. 1**
- **Intrusion of denser, saline water beneath the facility may provide an additional barrier to vertical migration of the dissolved TCE**

VOC Hot-Spot No. 2 Cross-Section A-A'



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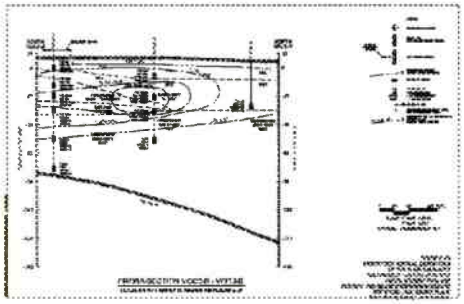
VOC Hot-Spot No. 2 Cross-Section B-B'



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Chlorinated VOC Hot-Spot No. 2

- The highest concentration of TCE detected was 264,000 µg/L, within the sandy silt
- Concentrations of TCE beneath the sandy silt are generally less than 1,000 µg/L, and less than the SWPC of 2,340 µg/L
- The depth to bedrock in the vicinity of VOC Hot-Spot No. 2 varies from –90 feet MSL to –105 feet MSL, dipping from southeast to northwest

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Chlorinated VOC Hot-Spot No. 2

- Analytical results from exploration WP-99-45 indicate that TCE concentrations do not exceed the SWPC of 2,340 µg/L at a depth of 60 feet; however, the concentration of TCE detected in nearby monitoring well WC2-3D (100 feet south of WP-99-33), screened on the top of bedrock, is 3,100 µg/L, indicating that some TCE has migrated vertically to the bedrock surface
- Review of the analytical data also indicate that the higher concentrations of TCE (>1,000 µg/L) from this hot-spot have not reached Dike or the intertidal flats behind Building B-16

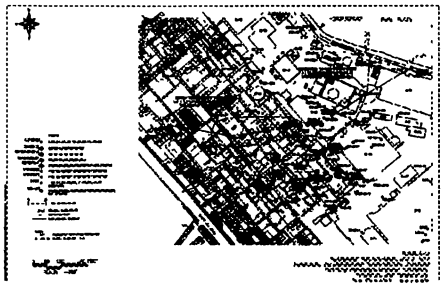
Chlorinated VOC Hot-Spot No. 2

- The highest concentration of TCE detected in groundwater (264,000 µg/L) is approximately 24 percent of TCE's solubility limit in water, which is indicative of the possible presence of TCE NAPL
- Visual observation of subsurface soil and groundwater samples did not reveal the presence of any TCE NAPL

Chlorinated VOC Hot-Spot No. 3

- Chlorinated VOC Hot-Spot No. 3 is located in the center of Building B-2
- The estimated horizontal extent of 1,1,1-TCA in groundwater at concentrations exceeding 100,000 µg/L covers an area roughly 350 feet long by 100 feet wide

Horizontal Extent of VOC Hot-Spot No. 3



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Chlorinated VOC Hot-Spot No. 3

- **The conceptual model for this hot-spot is that 1,1,1-TCA migrated from the ground surface vertically through the unsaturated zone, into and beneath the water table, to bedrock**
- **The highest concentration of 1,1,1-TCA detected was 280,000 µg/L (vs. an SWPC of 62,000 µg/L) in exploration CP-99-08 at a depth of approximately –24 feet MSL**

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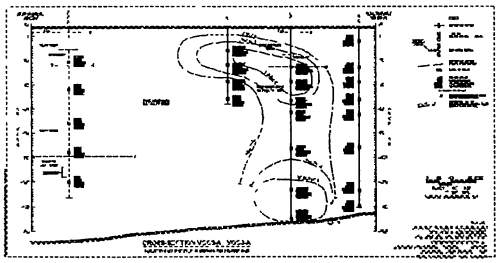
VOC Hot-Spot No. 3 Cross-Section A-A'



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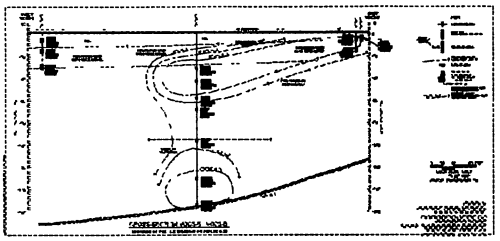
VOC Hot-Spot No. 3 Cross-Section B-B'



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Chlorinated VOC Hot-Spot No. 3

- 1,1,1-TCA has migrated to the bedrock surface (approximately –152 feet MSL) in the vicinity of exploration CP-99-08, where the concentration of 1,1,1-TCA is 210,000 µg/L
- The extent of 1,1,1-TCA near the bedrock surface has been delineated to the southeast of CP-99-08, but is not completely delineated to the east (toward exploration WP-99-48) and northwest (toward exploration CP-99-06)
- The 1,1,1-TCA near the bedrock surface appears to be contained by a depression in the bedrock surface, and is not likely to migrate substantially due to the slow groundwater flow rates

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Chlorinated VOC Hot-Spot No. 3

- The highest concentration of 1,1,1-TCA detected in groundwater (280,000 µg/L) is approximately 19 percent of 1,1,1-TCA's solubility limit in water, which is indicative of the possible presence of 1,1,1-TCA NAPL
- Visual observation of groundwater samples did not reveal the presence of any 1,1,1-TCA NAPL

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Chlorinated VOC Hot-Spot No. 3

- **Under methanogenic conditions, 1,1,1-TCA is known to transform to 1,1-DCE, which subsequently transforms to vinyl chloride**
- **Given this potential transformation, and the co-location of the highest concentrations of 1,1-DCE with 1,1,1-TCA, the source of the 1,1-DCE is suspected to be the transformation/degradation of 1,1,1-TCA**

Soil Vapor Survey Results

- **Analytical results from the soil vapor survey indicate that some soil vapor samples exceed I/C VC for the chlorinated VOCs vinyl chloride, 1,1-DCE, and TCE**
- **VOC soil vapor concentrations beneath the central portion of Building B-2, extending northeast and east toward Buildings B-15 and B-16, respectively, generally exceed CTDEP I/C VC, however, not all of the explorations in this region indicate exceedance of the criteria**
- **The distribution of I/C VC exceedances is generally co-located with groundwater contamination by the same chlorinated VOCs**

Indoor Air Monitoring Results

- **Initial rounds of indoor air quality sampling (Rounds 1-3) indicate that the VOCs detected in soil vapor samples are adversely affecting indoor air quality**
- **Analytical results from Round 3 of sampling indicate concentrations of 1,1-DCE and vinyl chloride exceeding CTDEP Industrial/Commercial Indoor Air Target Concentrations (I/C IATC) in a number of sample locations in Buildings B-2, B-9, B-12, B-48, and B-65**
- **VOC concentrations did not exceed CTDEP I/C IATC on samples from the 2nd and 3rd floors of Building 1**

Indoor Air Monitoring Results (cont)

- A preliminary screening level risk evaluation showed that the cumulative excess cancer risk met the CTDEP criteria of $1x10^{-5}$
- No short-term or long-term workplace exposure standards are exceeded
- Additional monthly indoor air monitoring is being conducted from February 2000 thru July 2000

Potential OU 2 NCRA PDIR Data Gaps

- There is limited stratigraphic information (no physical soil samples) for potential removal action design in the vicinity of VOC Hot-Spot No. 3, located in the center of Building B-2
- Delineation of VOC groundwater contamination near the bedrock surface between the former Chromium Plating Facility (VOC Hot-Spot No. 1) and the center of Building B-2 (VOC Hot-Spot No. 3) is limited
- VOC Hot-Spot No. 2, located between Buildings B-48 and B-16, may extend beneath Building B-16

Potential OU 2 NCRA PDIR Data Gaps

- Soil vapor sample SG-99-51, located in the eastern end of Building B-2, indicates relatively high concentrations of TCE in the vadose zone; however, nearby groundwater data does not indicate potential associated groundwater contamination

Indoor Air Monitoring - Round 6 Results

- Round 6 samples were collected on March 8, 2000
- Round 6 analytical results indicate vinyl chloride trip blank contamination, which will result in rejection of vinyl chloride data
- 1,1-DCE results indicate exceedances of CTDEP IATC in Buildings B-1(2nd floor) B-2 (boiler room and Myers Lease Area), B-9, B-12 (office and shop locations), B-65
- Round 7 sampling scheduled for April 12, 2000

ROUND 6 RESULTS

SITE ID:	SA-ML-01	SA-ML-02	SA-B1-01	SA-B1-02	SA-B1-03	SA-B9-01
SAMPLE ID:	0005128-07A	0005128-08A	0005128-12A	0005128-13A	0005128-09A	0005128-14A
DATE SAMPLED:	3/8/00	3/8/00	3/8/00	3/8/00	3/8/00	3/8/00
Compound	IATC *	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv
Vinyl chloride	0.019	[redacted]	0.020 U	0.019 U	[redacted]	0.020 U	[redacted]
1,1-Dichloroethane	0.02	[redacted]	0.020 U	0.019 U	0.019 U	0.020 U	[redacted]
1,1,1-Trichloroethane	266	0.190	0.120	0.280	0.290	0.140	3.860
Trichloroethene	0.92	0.100	0.061	0.074	0.062	0.066	0.190
Tetrachloroethene	1.61	0.340	0.200	0.180	0.180	0.250	[redacted]

SITE ID:	SA-B9-01D	SA-B65-01	SA-B1 2-01	SA-B1 2-02	SA-B1 2-02D	SA-B2-01
SAMPLE ID:	0005128-14AA	0005128-11A	0005128-02A	0005128-01A	0005128-04A	0005128-10A
DATE SAMPLED:	3/8/00	3/8/00	3/8/00	3/8/00	3/8/00	3/8/00
	Duplicate					
Compound	IATC *	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv
Vinyl chloride	0.019	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
1,1-Dichloroethane	0.02	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
1,1,1-Trichloroethane	266	0.830	0.210	0.330	0.280	0.320	0.810
Trichloroethene	0.92	0.100	0.110	0.130	0.095	0.100	0.380
Tetrachloroethene	1.61	[redacted]	0.065	0.240	0.064	0.200	0.330

SITE ID:	SA-BE GD-07	SA-BE GD-09	SA-TB-06
SAMPLE ID:	0005128-04A	0005128-05A	0005128-03A
DATE SAMPLED:	3/8/00	3/8/00	3/8/00
			Trip Blank
Compound	IATC *	ppbv	ppbv	ppbv
Vinyl chloride	0.019	0.019 U	0.019 U	[redacted]
1,1-Dichloroethane	0.02	0.019 U	[redacted]	0.020 U
1,1,1-Trichloroethane	266	0.096	0.100	0.250 U
Trichloroethene	0.92	0.064	0.055	0.100
Tetrachloroethene	1.61	0.160	0.170	0.110

Shaded value indicates exceedance of IATC

* - CTDEP Indoor Inhalt/Commercial Indoor Air Target Concentration (IAC IATC)

U - Not Detected at a concentration shown the detection limit

Causeway and Dike EE/CA Update

- EE/CA will be revised to include the following 4 alternatives:
  - Alternative 1 - Cap with Hydraulic Barrier
  - Alternative 2 - Composite Cover System
  - Alternative 3 - Excavation and Off-Site Disposal
  - Alternative 4 - Erosion Control Cover System
- Alternative 4 - an Erosion Control Cover System, has been added at the request of the Army and CTDEP

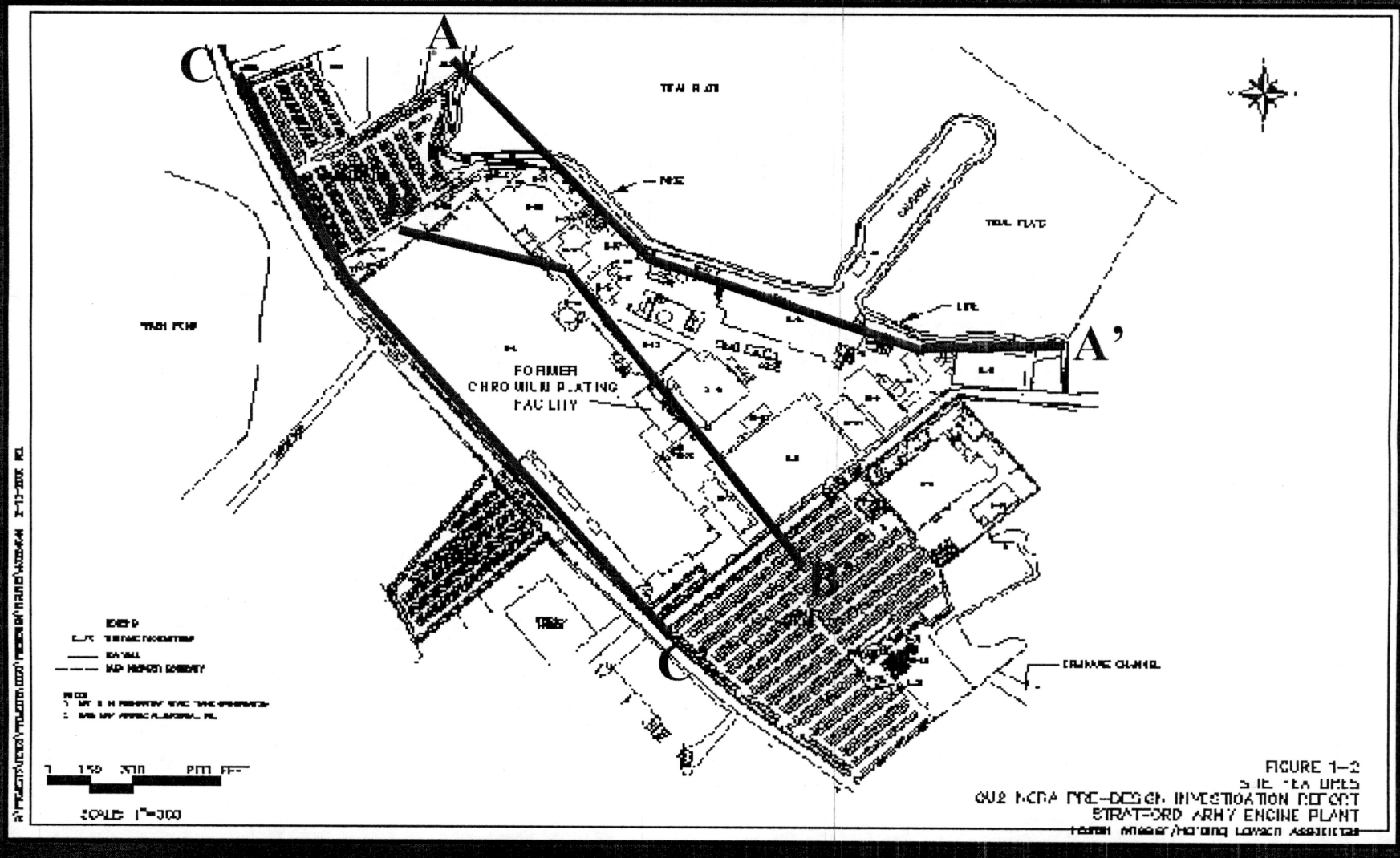
Causeway and Dike EE/CA

- **Alternative 4 requires collection of additional subsurface soil samples for SPLP analyses**
- **Alternative 4 would delay the design process, but construction of an erosion control cover system is simpler, and would take less time, than a hydraulic barrier cap**

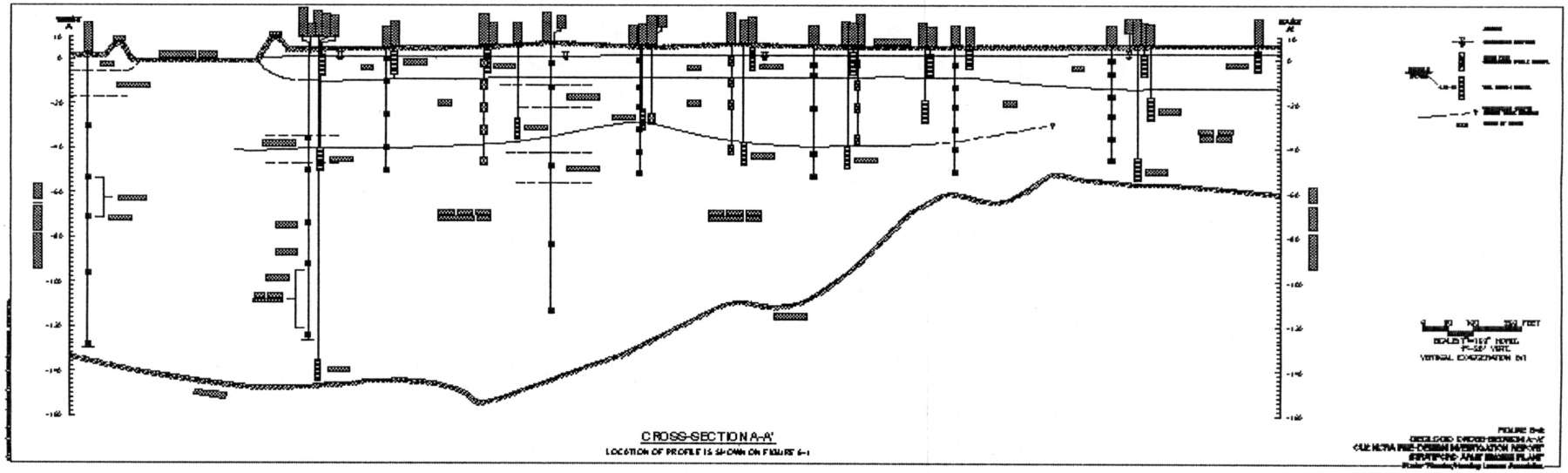
Causeway and Dike EE/CA

- **Results of SPLP analyses will determine whether excavation of contaminated soil will be necessary prior to cover system emplacement**
- **Proposed Schedule for Alternative 4**
  - Causeway design proposal award 4/28/00
  - Proceed with design tasks 4/29/00 to completion
  - Additional SPLP sampling 4/24/00 - 4/25/00
  - Receive data from lab 4/28/00
  - Revise/submit EE/CA to Army 5/12/00
  - EE/CA to EPA/CTDEP 5/26/00
  - EE/CA comments from EPA/CTDEP 6/9/00
  - Finalize EE/CA 6/23/00
  - EE/CA Public comment period 6/23/00 - 7/23/00

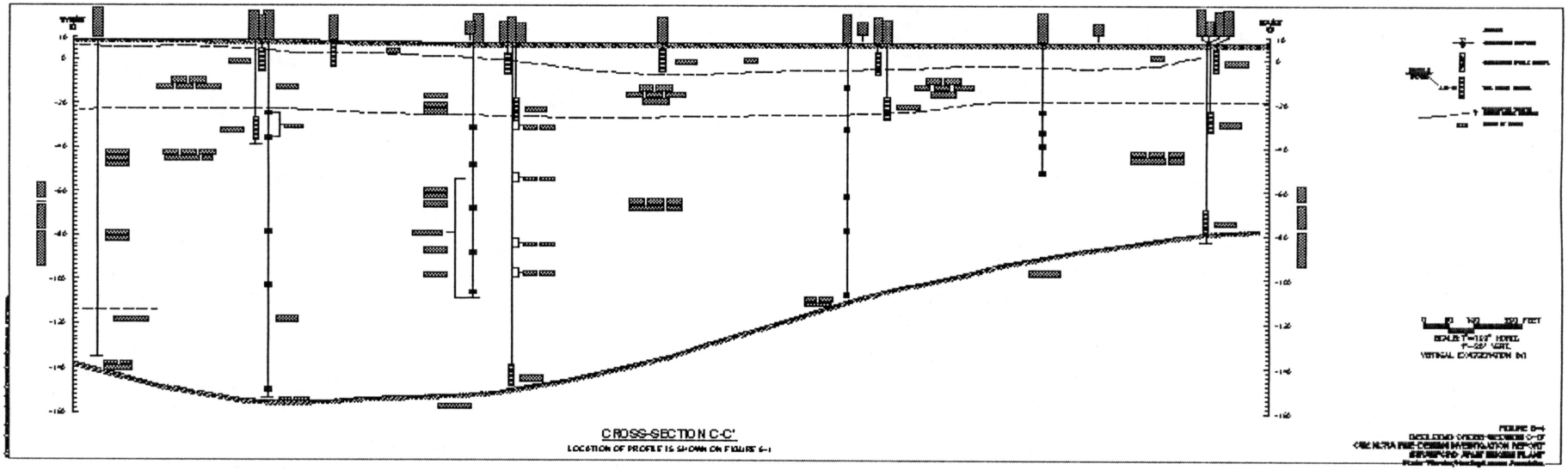
Geologic Cross-Section Locations



Geologic Cross-Section A-A'



Geologic Cross-Section C-C'



Hex Chrome in GW - Horiz. Distribution

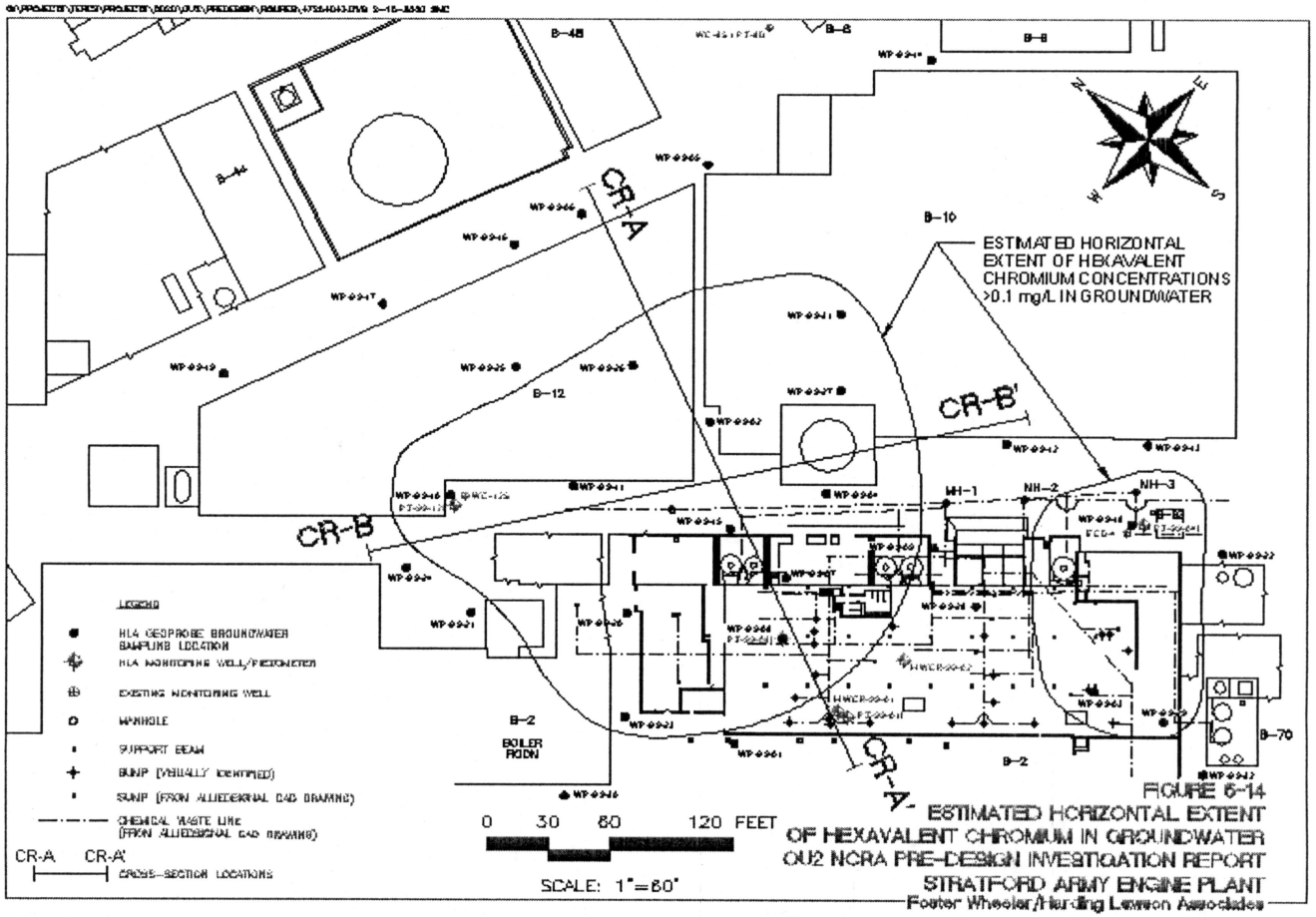
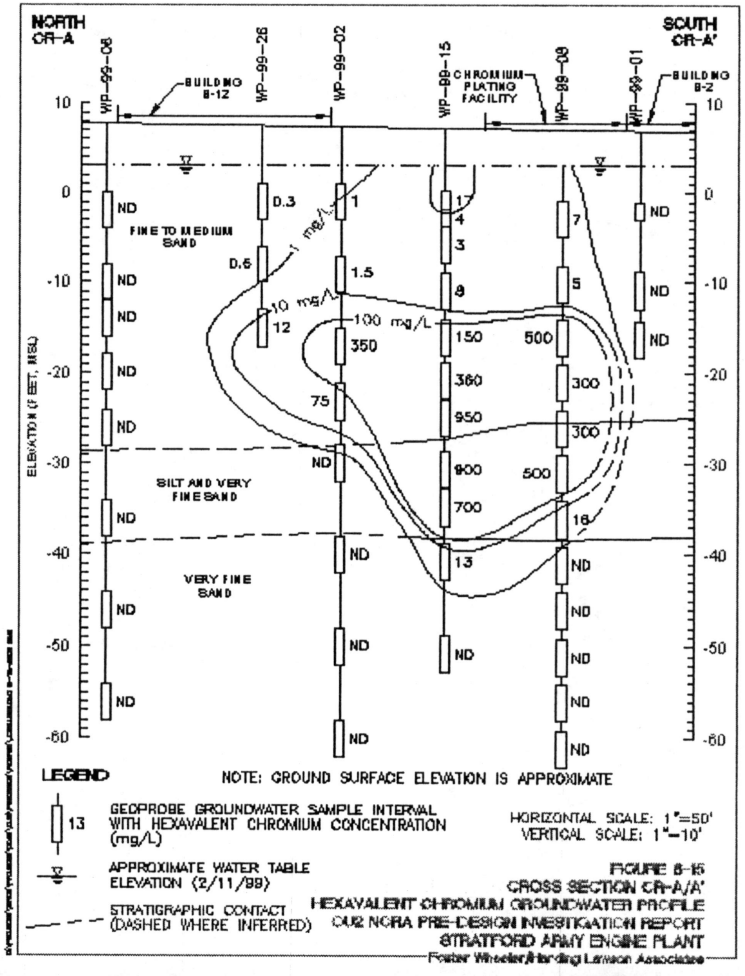
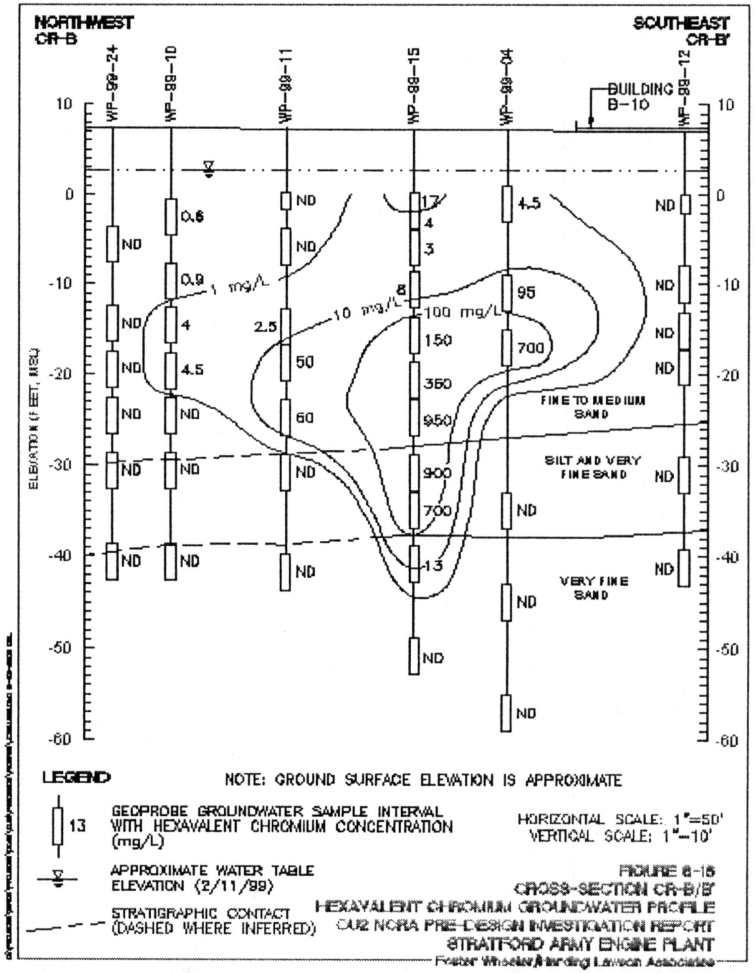


FIGURE 6-14
ESTIMATED HORIZONTAL EXTENT OF HEXAVALENT CHROMIUM IN GROUNDWATER
OU2 NCRA PRE-DESIGN INVESTIGATION REPORT
STRATFORD ARMY ENGINE PLANT
Foster Wheeler/Harding Lawson Associates

Cross-Section A-A'



Cross-Section B-B'



Horizontal Extent of VOC Hot-Spot No. 1

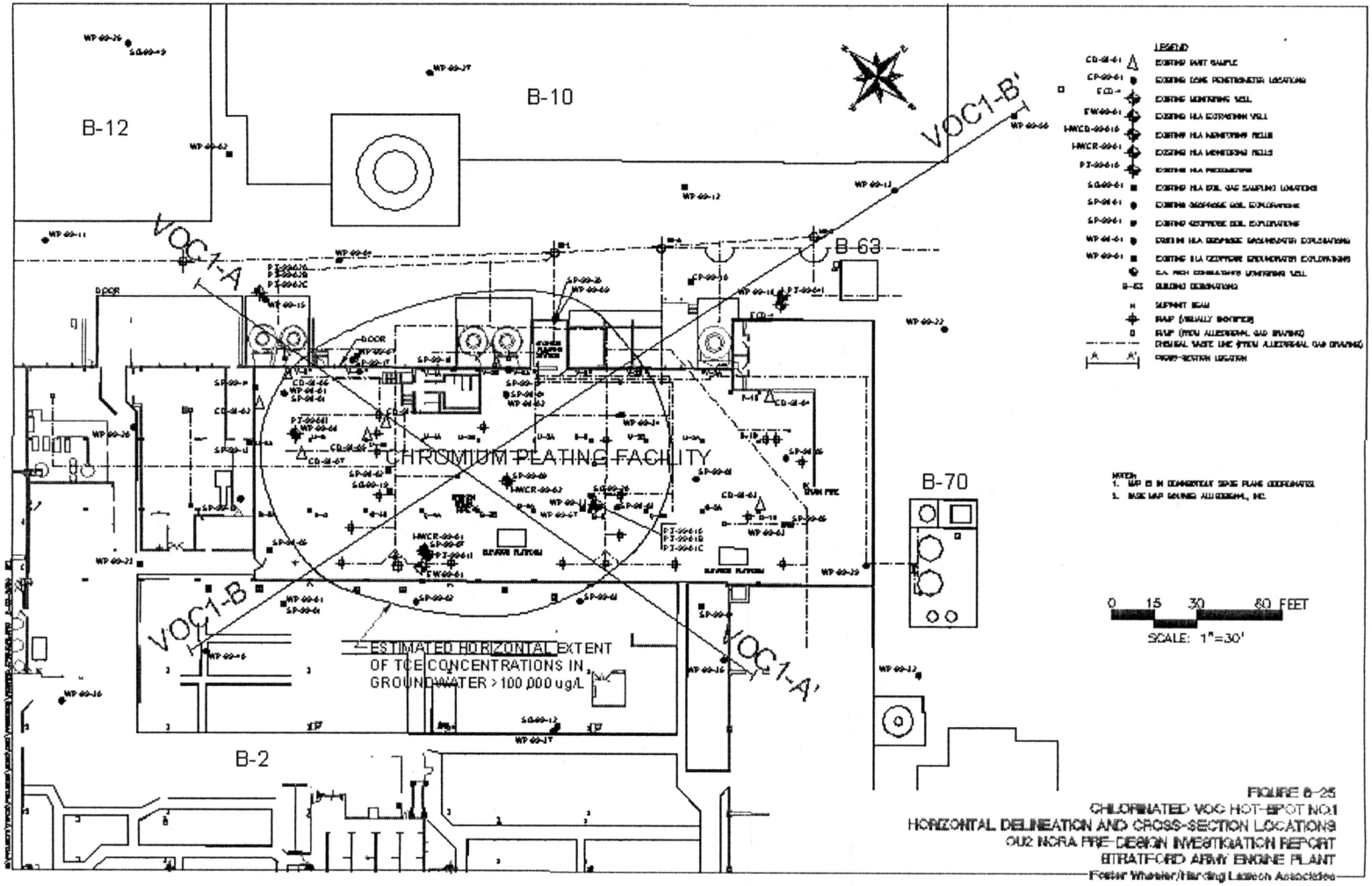


FIGURE 6-25
CHLORINATED VOC HOT-SPOT NO.1
HORIZONTAL DELINEATION AND CROSS-SECTION LOCATIONS
OU2 NCRA PRE-DESIGN INVESTIGATION REPORT
STRATFORD ARMY ENGINE PLANT
Foster Wheeler/Harding Lawson Associates

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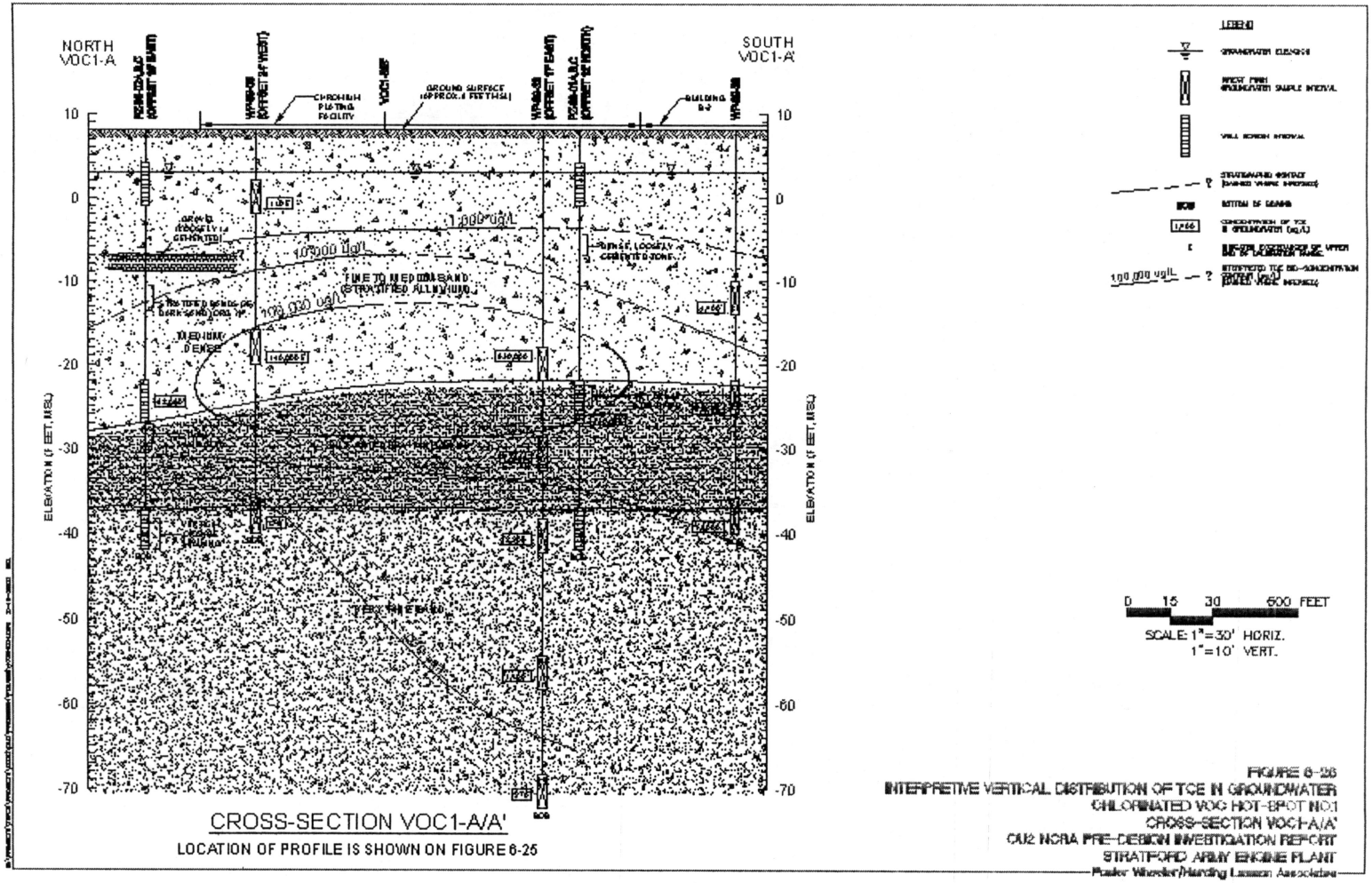
VOC Hot-Spot No. 1 Cross-Section A-A'

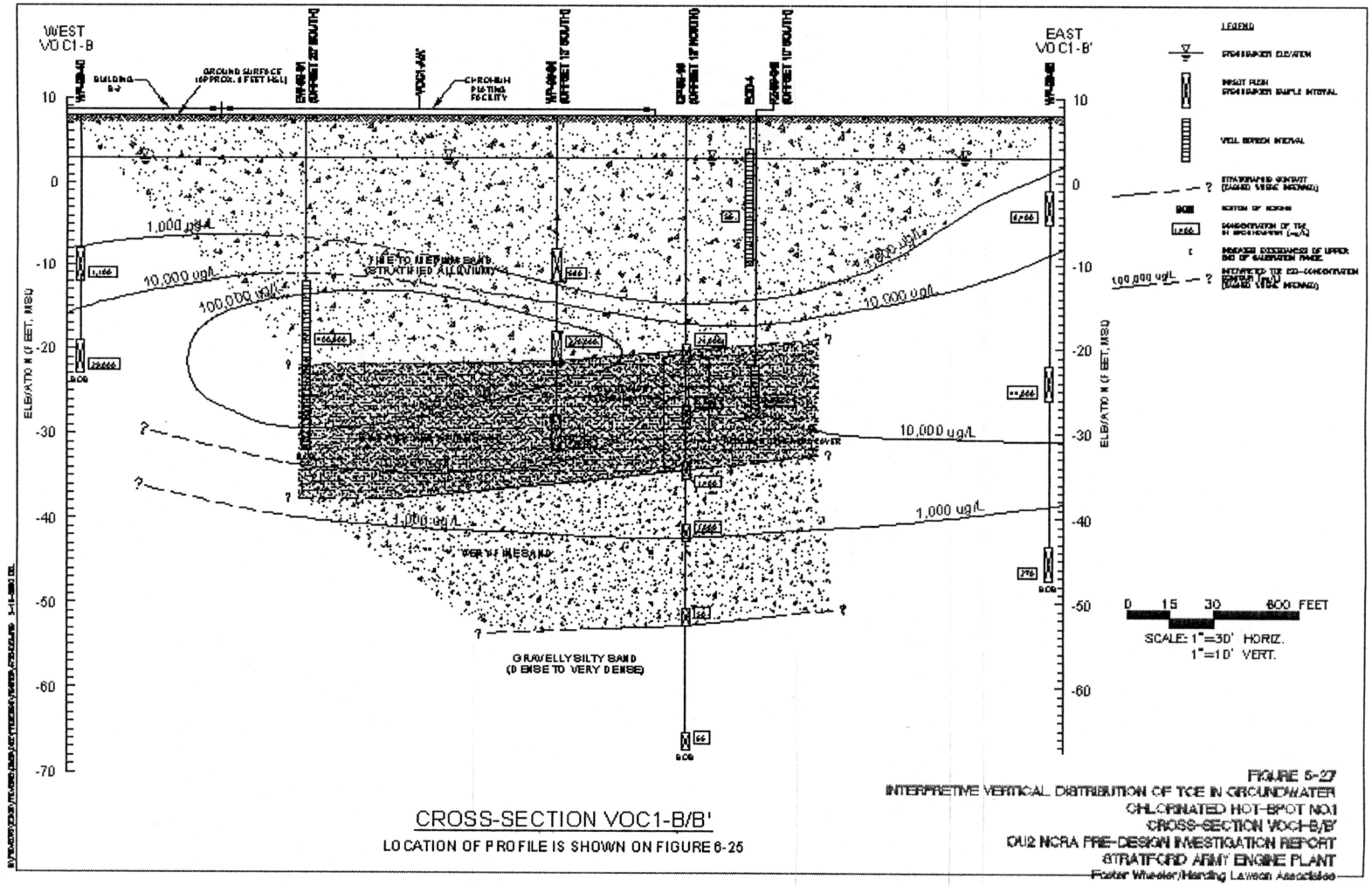


CROSS-SECTION VOC1-A/A'

LOCATION OF PROFILE IS SHOWN ON FIGURE 6-25

FIGURE 6-26
INTERPRETIVE VERTICAL DISTRIBUTION OF TCE IN GROUNDWATER
CHLORINATED VOC HOT-SPOT NO.1
CROSS-SECTION VOC1-A/A'
OU2 NCRA PRE-DESIGN INVESTIGATION REPORT
STRATFORD ARMY ENGINE PLANT
Foster Wheeler/Harding Lawson Associates

VOC Hot-Spot No. 1 Cross-Section B-B'



CROSS-SECTION VOC1-B/B'

LOCATION OF PROFILE IS SHOWN ON FIGURE 6-25

FIGURE 5-27
INTERPRETIVE VERTICAL DISTRIBUTION OF TCE IN GROUNDWATER
CHLORINATED HOT-SPOT NO.1
CROSS-SECTION VOC1-B/B'
OU2 NCRA PRE-DESIGN INVESTIGATION REPORT
STRATFORD ARMY ENGINE PLANT
Foster Wheeler/Harding Lawson Associates

Horizontal Extent of VOC Hot-Spot No. 2

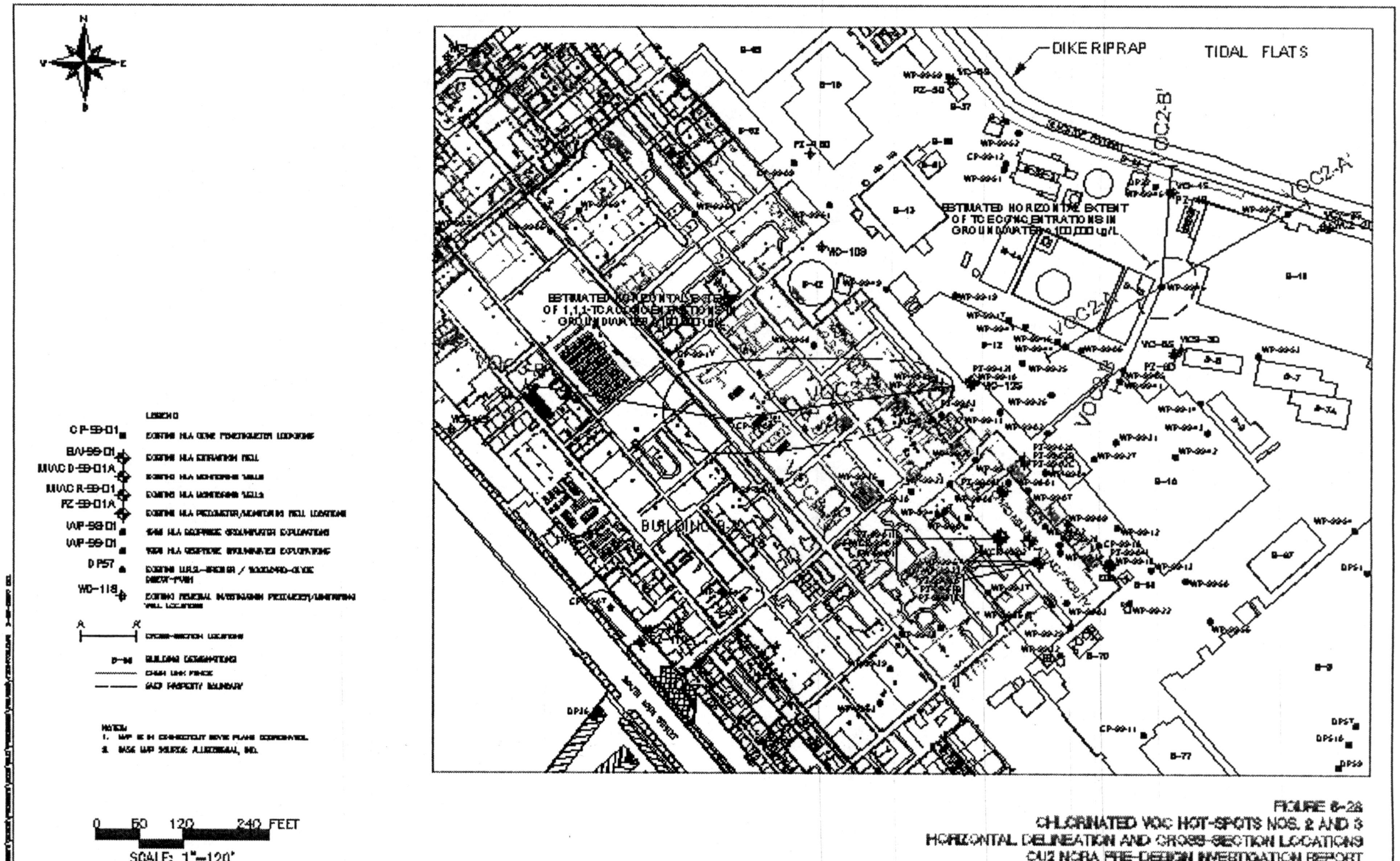
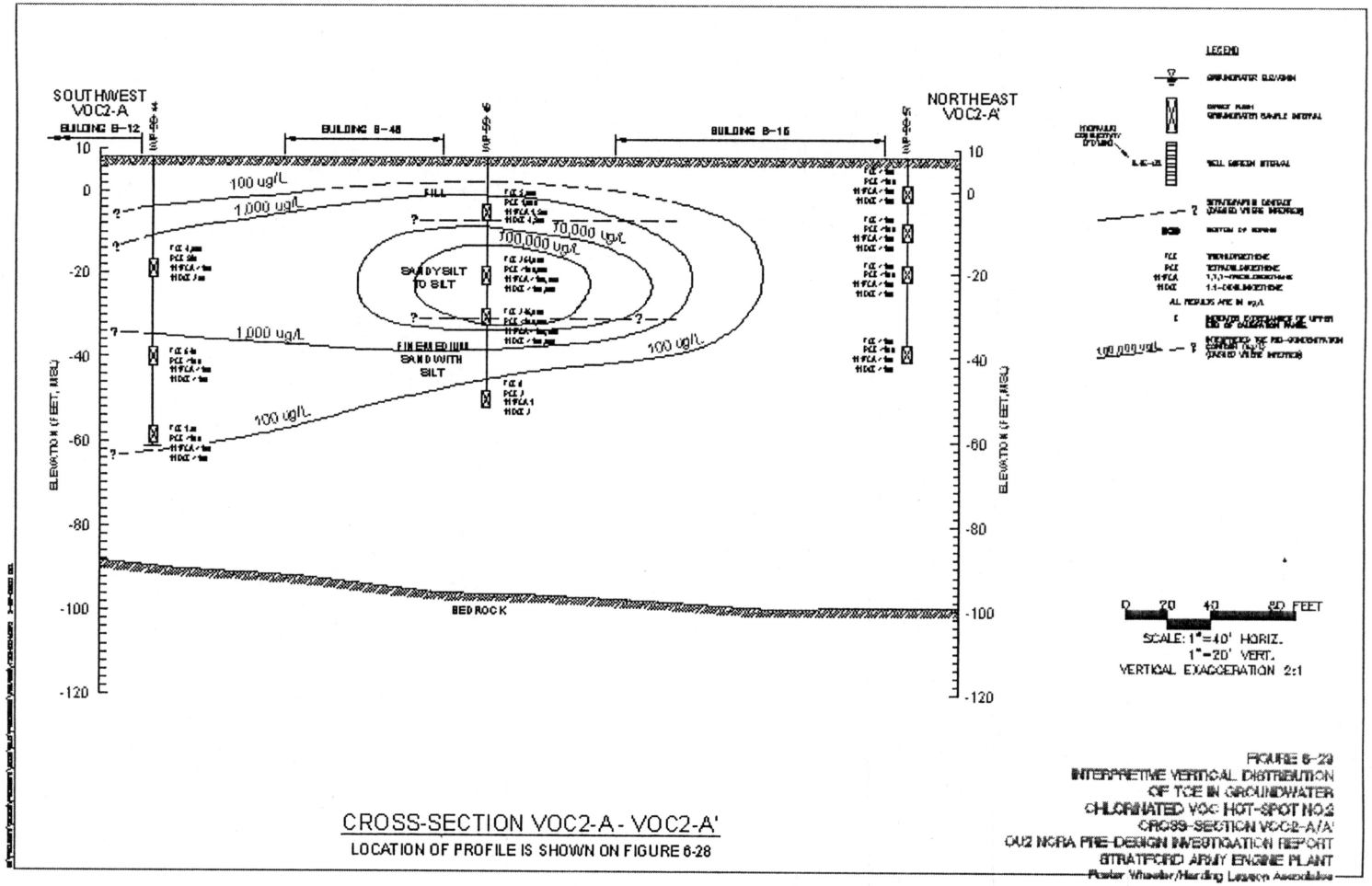


FIGURE 6-2a
CHLORINATED VOC HOT-SPOTS NOS. 2 AND 3
HORIZONTAL DELINEATION AND CROSS-SECTION LOCATIONS
OU2 NCRA PRE-DESIGN INVESTIGATION REPORT
STRATFORD ARMY ENGINE PLANT
Foster Wheeler/Harding Lawson Associates

VOC Hot-Spot No. 2 Cross-Section A-A'

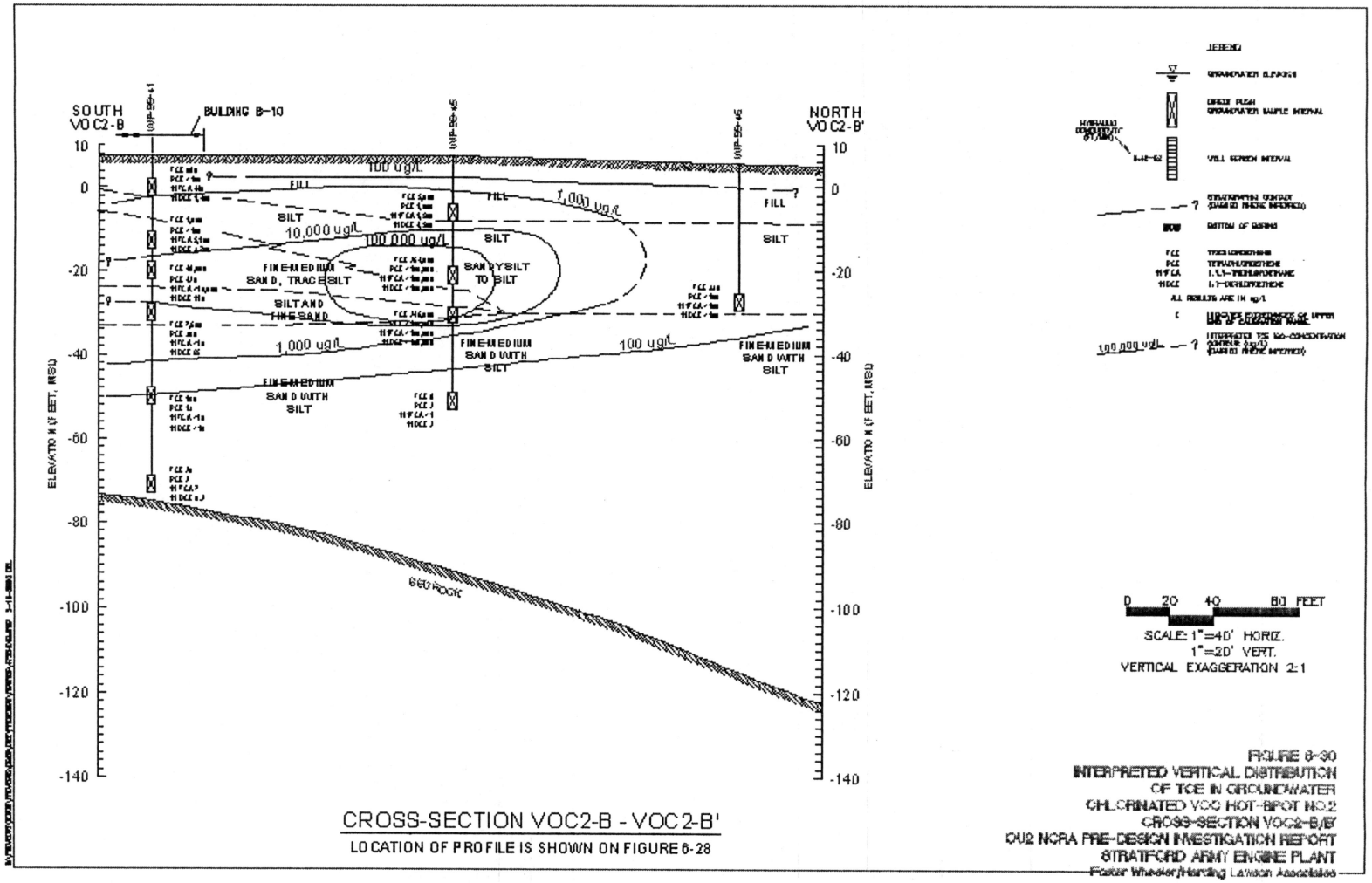


CROSS-SECTION VOC2-A - VOC2-A'

LOCATION OF PROFILE IS SHOWN ON FIGURE 6-28

FIGURE 6-29
INTERPRETIVE VERTICAL DISTRIBUTION
OF TCE IN GROUNDWATER
CHLORINATED VOC HOT-SPOT NO.2
CROSS-SECTION VOC2-A/A'
OU2 NCRA PRE-DESIGN INVESTIGATION REPORT
STRATFORD ARMY ENGINE PLANT
Foster Wheeler/Harding Lawson Associates

VOC Hot-Spot No. 2 Cross-Section B-B'



CROSS-SECTION VOC2-B - VOC2-B'

LOCATION OF PROFILE IS SHOWN ON FIGURE 6-28

FIGURE 6-30
INTERPRETED VERTICAL DISTRIBUTION
OF TCE IN GROUNDWATER
CHLORINATED VOC HOT-SPOT NO.2
CROSS-SECTION VOC2-B/B'
OU2 NCRA PRE-DESIGN INVESTIGATION REPORT
STRATFORD ARMY ENGINE PLANT
Foster Wheeler/Harding Lawson Associates

Horizontal Extent of VOC Hot-Spot No. 3

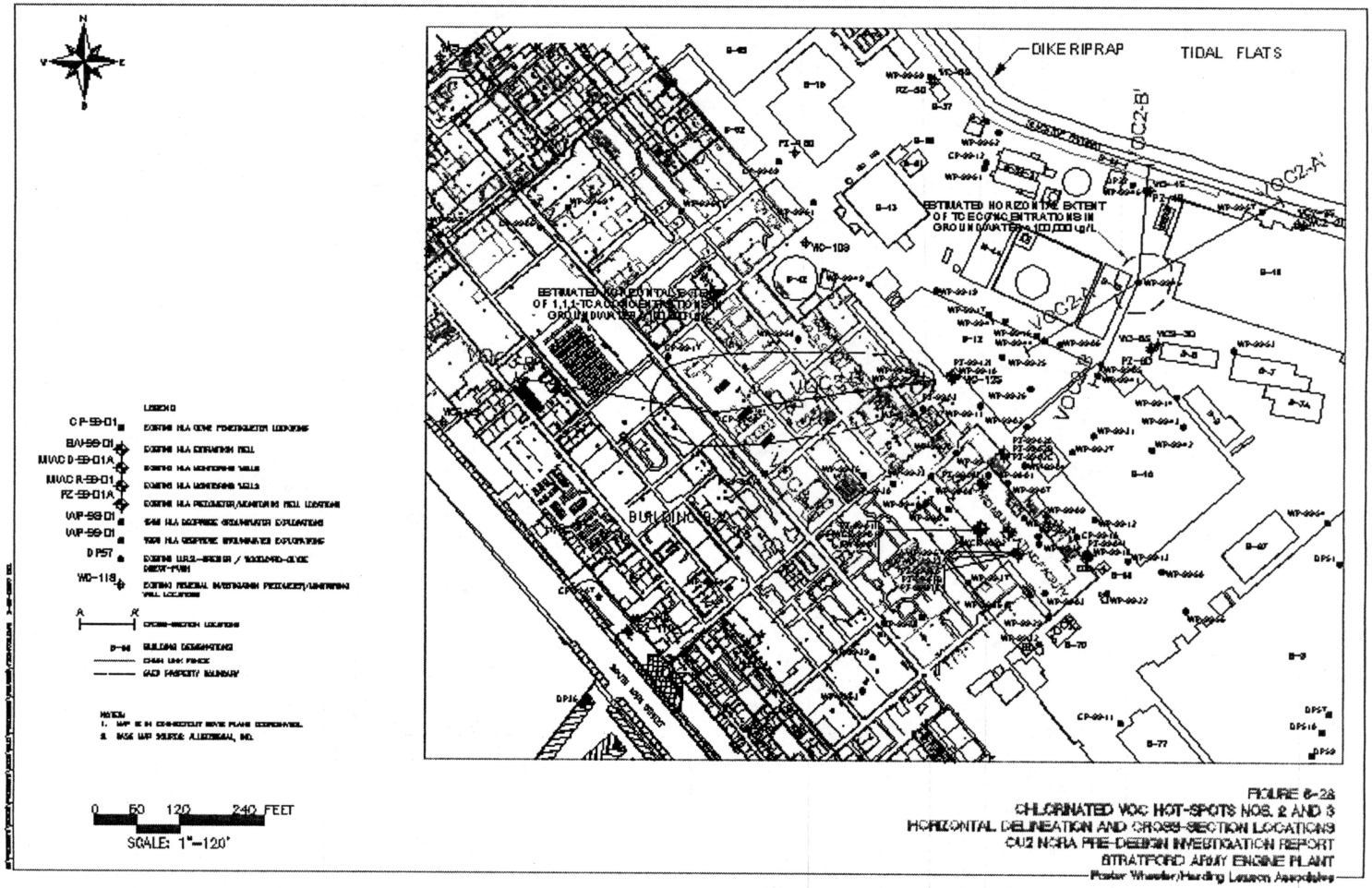
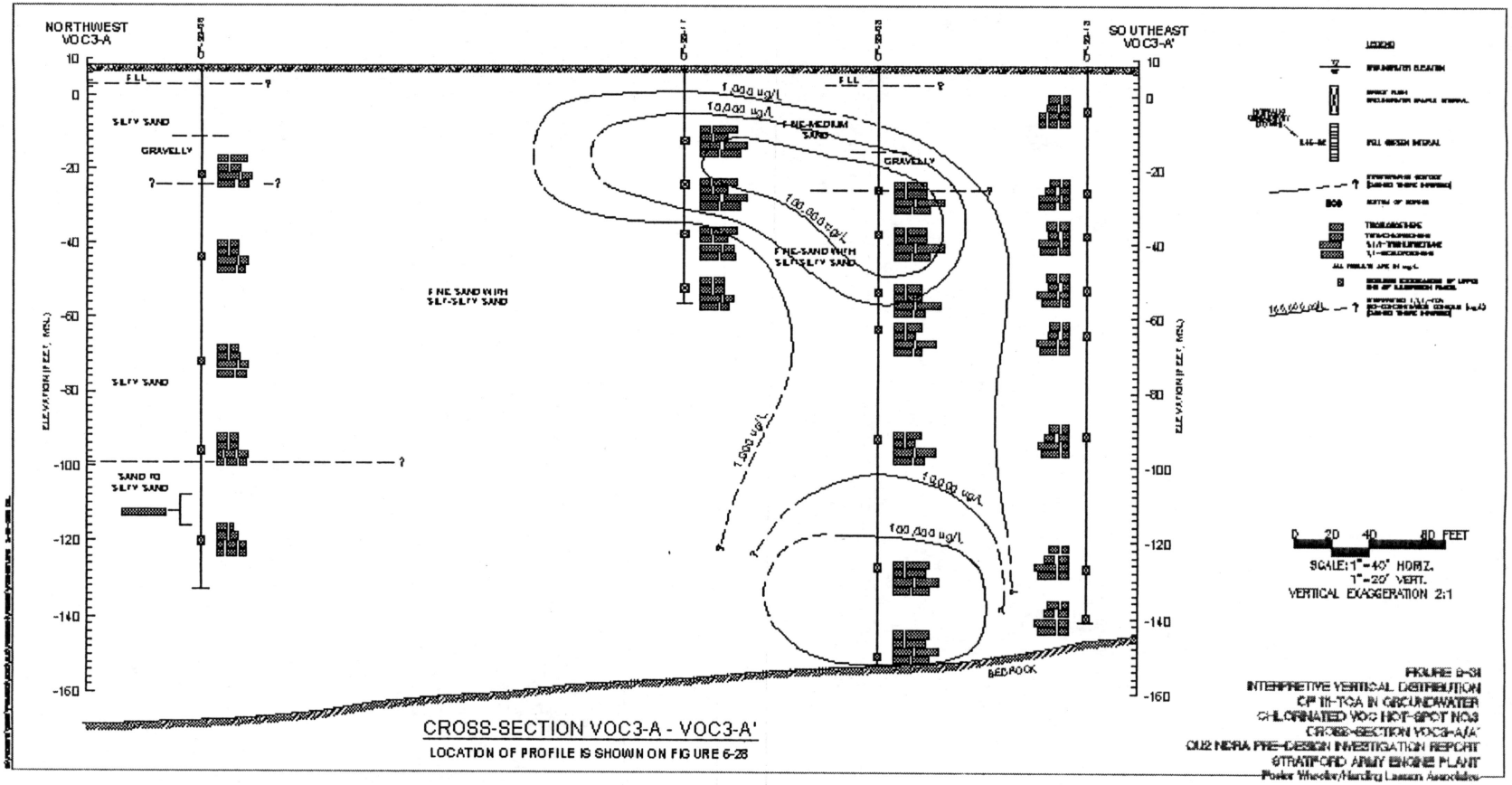


FIGURE 6-2a
CHLORINATED VOC HOT-SPOTS NOS. 2 AND 3
HORIZONTAL DELINEATION AND CROSS-SECTION LOCATIONS
OU2 NCRA PRE-DESIGN INVESTIGATION REPORT
STRATFORD ARMY ENGINE PLANT
Foster Wheeler/Harding Lawson Associates

VOC Hot-Spot No. 3 Cross-Section A-A'



Hot-Spot No. 3 Cross-Section B-B'

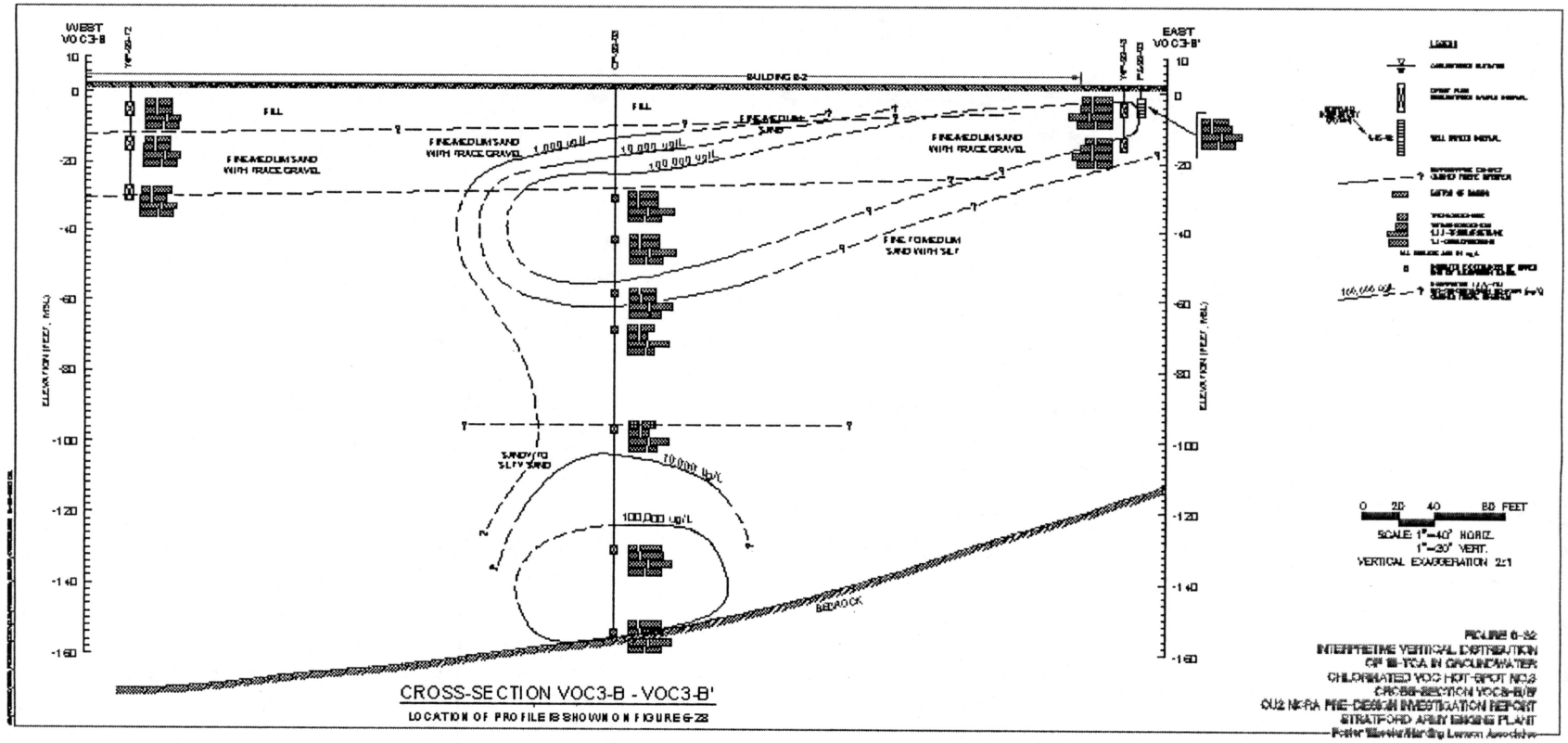


FIGURE 6-32
INTERPRETIVE VERTICAL DISTRIBUTION OF TCA IN GROUNDWATER
CHLORINATED VOC HOT-SPOT NO.3
CROSS-SECTION VOC3-B/B'
OU2 NCP/A PRE-DESIGN INVESTIGATION REPORT
STRATFORD ARMY ENGINE PLANT
Foster Wheeler/Harding Lawson Associates

W9912-08

Harding Lawson Associates

ROUND 6 RESULTS

SITE ID:		IA-ML-01	IA-ML-02	IA-B1-01	IA-B1-02	IA-B1-03	IA-B9-01
SAMPLE ID:		0003128-07A	0003128-08A	0003128-12A	0003128-13A	0003128-09A	0003128-14A
DATE SAMPLED:		3/17/00	3/17/00	3/17/00	3/17/00	3/17/00	3/17/00
Compound	**IATC***	**ppbv**	**ppbv**	**ppbv**	**ppbv**	**ppbv**	**ppbv**
Vinyl chloride	0.019	**0.025**	0.020 U	0.019 U	**0.024**	0.020 U	**0.021**
1,1-Dichloroethene	0.02	**0.021**	0.020 U	0.019 U	0.019 U	0.020 U	**0.180**
1,1,1-Trichloroethane	266	0.190	0.120	0.260	0.290	0.140	0.860
Trichloroethene	0.92	0.100	0.061	0.076	0.062	0.066	0.190
Tetrachloroethene	1.61	0.340	0.200	0.190	0.180	0.250	**3.200**

SITE ID:		IA-B9-01D	IA-B65-01	IA-B12-01	IA-B12-02	IA-B12-02D	IA-B2-01
SAMPLE ID:		0003128-14AA	0003128-11A	003128-02A	0003128-01A	0003128-06A	0003128-10A
DATE SAMPLED:		3/17/00 Duplicate	3/17/00	3/17/00	3/17/00	3/17/00	3/17/00
Compound	**IATC***	**ppbv**	**ppbv**	**ppbv**	**ppbv**	**ppbv**	**ppbv**
Vinyl chloride	0.019	**0.023**	**0.076**	**0.026**	**0.063**	**0.062**	**0.032**
1,1-Dichloroethene	0.02	**0.140**	**0.037**	**0.270**	**0.120**	**0.120**	**0.140**
1,1,1-Trichloroethane	266	0.830	0.210	0.530	0.280	0.320	0.810
Trichloroethene	0.92	0.190	0.110	0.150	0.093	0.100	0.380
Tetrachloroethene	1.61	**3.100**	0.065	0.240	0.094	0.200	0.350

SITE ID:		IA-BKGD-07	IA-BKGD-09	IA-TB-06
SAMPLE ID:		0003128-04A	0003128-05A	0003128-03A
DATE SAMPLED:		3/17/00	3/17/00	3/17/00 Trip Blank
Compound	**IATC***	**ppbv**	**ppbv**	**ppbv**
Vinyl chloride	0.019	0.019 U	0.019 U	**0.096**
1,1-Dichloroethene	0.02	0.019 U	**0.022**	0.050 U
1,1,1-Trichloroethane	266	0.096	0.100	0.250 U
Trichloroethene	0.92	0.064	0.055	0.100
Tetrachloroethene	1.61	0.160	0.170	0.110

Shaded values indicate exceedance of IATC

* - CTDEP Industrial/Commercial Indoor Air Target Concentrations (I/C IATC)

U - Not Detected at a concentration above the detection limit