State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director
2200 Churchill Road, Springfield, IL 62794-9276

December 10, 1996

John O'Grady
U.S. EPA, Region 5, HSRL-6J
77 W. Jackson
Chicago, IL 60604

Dear Mr. O'Grady,

Enclosed is information concerning the RCRA Closure at the Fansteel site located in North Chicago. I hope this information will be helpful to you. Concerning the issue of whether or not to include this site in the Engineering Evaluation/Cost Analysis of the Vacant Lot site, I have discussed this somewhat with our RCRA personnel, who feel it would be very helpful for us to have a better idea of your intentions. A map of the area(s) you would be addressing and a written, general idea of what type of work would be done, would be appreciated. Also, I believe that you are aware of my concern about Pettibone Creek, and I would like to know how the creek will be addressed by USEPA. This matter is of particular concern at this time, since R. Lavin & Sons (North Chicago Refiners & Smelters) discharges to the creek and is currently renegotiating a consent order with IEPA.

Thank you for your consideration of this matter. If I can be of any help, please call me at 217-524-1654.

Sincerely,

Judy J. Triller

Judy J. Triller
Site Assessment Unit
Remedial Project Management Section
Bureau of Land

EPA Region 5 Records Ctr.
229836

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CARLSON ENVIRONMENTAL, Inc.

TBM

January 12, 1993 PN 8441

Mr. Kevin Lesko
Division of Land Pollution Control
Bureau of Land
Illinois Environmental Protection Agency
P.O. Box 19276
2200 Churchill Road
Springfield, Illinois 62706

Reference: 0971230008--Lake County
Fansteel, Inc.
ILD005130786
RCRA Closure

Dear Kevin:

Per our phone conversation of Monday, I am enclosing the most recent data we have concerning the extent of contamination study at the Fansteel facility in North Chicago. Specifically, I have included the following:

- A general site map.
- A map showing the location of 14 boreholes drilled at the site last summer (B-1 through B-14, Figure Two).
- Analytical detection limits for all soil samples analyzed from these boreholes (Table 1).
- Analytical results from 77 soil samples taken from these boreholes (Tables 2.1 through 2.14). The results are summarized by borehole number.
- A map showing the deep borehole drilled on the Fansteel site by CEI and two deep boreholes drilled on the adjacent North Chicago Refiners & Smelters' property by ERM (Figure 3).
- A geological cross-section comparing the geological profiles of the Fansteel and North Chicago Refiners & Smelters as shown by the deep boreholes (Figure 4).

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- A map showing a series of cross-section locations linking various boreholes on the Fansteel property (Figure 5).

- Individual cross-sections profiling aspects of site geology (Figures 6A through 6D). We can also provide borehole logs if you need them.

- Cross-sections showing concentrations of VOCs, lead and cadmium (Figures 7A through 7H).

- Various diagrams outlining areas and depths of presumed contamination (Figures 8A through 8F).

As you can see, we have generated a significant amount of data on site characteristics. Fansteel is interested in moving towards discussion of an appropriate remedy at the site. Hopefully, this data will help move us in that direction. If you have questions, please call Jackie van Bosse at 312-704-8845 or me at 312-704-8842.

Sincerely,

Richard J. Carlson
President

cc: Mike Mocniak, Fansteel
Cliff Lake, McBride Baker & Coles

TABLE 1
ANALYTICAL DETECTION LIMITS FOR SOIL SAMPLES
AND SITE SPECIFIC CLEANUP OBJECTIVES
FANSTEEL NORTH CHICAGO FACILITY

Parameter	Site Specific Cleanup Objective	Analytical Detection Limit
Methylene Chloride*	250	5.0
Acetone*	700	50, 100
Chloroform*	1	5.0
1,1,1-Trichloroethane	1,000	5.0
Carbon Tetrachloride*	25	5.0
Trichloroethylene	25	5.0
Benzene*	25	2.0
Tetrachloroethylene	25	5.0
Toluene	5,000	2.0
Chlorobenzene*	500	5.0
Ethylbenzene*	1,000	2.0
Total Xylene*	10,000	5.0
4-Bromofluorobenzene*	Detection	10.0
1,4-Dichlorobutane*	Detection	10.0
Vinyl Chloride	10	5.0
1,1-Dichloroethylene*	35	5.0
Cis 1,2-Dichloroethylene	200	5.0
Trans 1,2-Dichloroethylene	500	5.0
Lead	0.1 milligrams/liter (mg/l)	0.10 mg/l
Cadmium	0.05 mg/l	0.050 mg/l

Concentrations expressed in micrograms/kilogram (ug/kg) unless otherwise stated.
* Compound not detected in any sample collected during August/September 1992.

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TABLE 2.1
ANALYTICAL RESULTS - SOIL SAMPLES
FANSTEEL NORTH CHICAGO FACILITY
Sampling dates: August 29, 1992 through September 10, 1992

BOREHOLE 1

VOLATILE ORGANIC COMPOUNDS

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in micrograms/kilogram (ug/kg).					Site Specific Cleanup Objective
	B#1-0 1-3 ft	B#1-A 5-7 ft	B#1-B 9-11 ft	B#1-D 19-21 ft	B#1-F 29-31 ft	
1,1,1-Trichloroethane	nd	nd	nd	nd	nd	1,000
Trichloroethylene	7.6	~160	nd	nd	nd	25
Tetrachloroethylene	nd	nd	nd	nd	nd	25
Toluene	nd	nd	nd	nd	nd	5,000
Vinyl Chloride	nd	nd	nd	nd	nd	10
Cis 1,2-Dichloroethylene	nd	nd	nd	nd	nd	200
Trans 1,2-Dichloroethylene	nd	nd	nd	nd	nd	500

LEAD AND CADMIUM

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in milligrams/liter (mg/l).					Site Specific Cleanup Objective
	B#1-0 1-3 ft	B#1-A 5-7 ft	B#1-B 9-11 ft	B#1-D 19-21 ft	B#1-F 29-31 ft	
Lead	~160	nd	nd	nd	nd	0.10
Cadmium	~1.2	nd	nd	nd	nd	0.050

nd: compound not detected.
Analytical results are shown only for those compounds detected in any samples from this sampling round. For a complete list of all compounds analyzed, see Table 1.

TABLE 2.2
ANALYTICAL RESULTS - SOIL SAMPLES
FANSTEEL NORTH CHICAGO FACILITY
Sampling dates: August 29, 1992 through September 10, 1992

BOREHOLE 2

VOLATILE ORGANIC COMPOUNDS

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in micrograms/kilogram (ug/kg).					Site Specific Objective
	B#2-0 2-4 ft	B#2-A 6-8 ft	B#2-B 10-12 ft	B#2-D 20-22 ft	B#2-F 28-30 ft	
1.1.1-Trichloroethane	nd	nd	nd	nd	nd	1.000
Trichloroethylene	nd	nd	nd	nd	nd	25
Tetrachloroethylene	nd	nd	nd	nd	nd	25
Toluene	nd	nd	nd	nd	nd	5.000
Vinyl Chloride	nd	nd	nd	nd	nd	10
Cis 1.2-Dichloroethylene	nd	nd	nd	nd	nd	200
Trans 1.2-Dichloroethylene	nd	nd	nd	nd	nd	500

LEAD AND CADMIUM

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in milligrams/liter (mg/l).					Site Specific Objective
	B#2-0 2-4 ft	B#2-B 10-12 ft	B#2-C 14-16 ft	B#2-D 20-22 ft	B#2-F 28-30 ft	
Lead	30	nd	nd	nd	nd	0.10
Cadmium	0.31	0.058	nd	nd	nd	0.050

nd: compound not detected.
Analytical results are shown only for those compounds detected in any samples from this sampling round.
For a complete list of all compounds analyzed, see Table 1.

TABLE 2.3
ANALYTICAL RESULTS - SOIL SAMPLES
FANSTEEL NORTH CHICAGO FACILITY
Sampling dates: August 29, 1992 through September 10, 1992

BOREHOLE 3

VOLATILE ORGANIC COMPOUNDS

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in micrograms/kilogram (ug/kg).						Site Specific Objective
	B#3-A 2-4.5 ft	Duplicate (B3) of B#3-A	B#3-B 7-9.5 ft	B#3-C 12-14.5 ft	B#3-E 22-24.5 ft	B#3-G 32-34.5 ft	
1,1,1-Trichloroethane	nd	nd	nd	nd	nd	nd	1,000
Trichloroethylene	nd	nd	nd	nd	nd	nd	25
Tetrachloroethylene	nd	nd	nd	nd	nd	nd	25
Toluene	nd	nd	nd	nd	nd	nd	5,000
Vinyl Chloride	nd	nd	nd	nd	nd	nd	10
Cis 1,2-Dichloroethylene	nd	nd	nd	nd	nd	nd	200
Trans 1,2-Dichloroethylene	nd	nd	nd	nd	nd	nd	500

LEAD AND CADMIUM

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in milligrams/liter (mg/l).						Site Specific Objective
	B#3-A 2-4.5 ft	Duplicate (B3) of B#3-A	B#3-B 7-9.5 ft	B#3-C 12-14.5 ft	B#3-E 22-24.5 ft	B#3-G 32-34.5 ft	
Lead	26	15	nd	nd	nd	nd	0.10
Cadmium	0.088	0.12	nd	nd	nd	nd	0.050

nd: compound not detected.
Analytical results are shown only for those compounds detected in any samples from this sampling round.
For a complete list of all compounds analyzed, see Table 1.

TABLE 2.4
ANALYTICAL RESULTS - SOIL SAMPLES
FANSTEEL NORTH CHICAGO FACILITY
Sampling dates: August 29, 1992 through September 10, 1992

BOREHOLE 4

VOLATILE ORGANIC COMPOUNDS

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in micrograms/kilogram (ug/kg).					Site Specific Objective
	B#4-A 2-4.5 ft	B#4-B 7-9.5 ft	B#4-C 12-14.5 ft	B#4-E 24-26.5 ft	B#4-G 32-34.5 ft	
1,1,1-Trichloroethane	nd	nd	nd	nd	nd	1,000
Trichloroethylene	nd	nd	nd	nd	nd	25
Tetrachloroethylene	nd	nd	nd	nd	nd	25
Toluene	nd	nd	nd	nd	nd	5,000
Vinyl Chloride	nd	nd	nd	nd	nd	10
Cis 1,2-Dichloroethylene	nd	nd	nd	nd	nd	200
Trans 1,2-Dichloroethylene	nd	nd	nd	nd	nd	500

LEAD AND CADMIUM

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in milligrams/liter (mg/l).					Site Specific Objective
	B#4-A 2-4.5 ft	B#4-B 7-9.5 ft	B#4-C 12-14.5 ft	B#4-E 24-26.5 ft	B#4-G 32-34 ft	
Lead	1.1	nd	nd	nd	nd	0.10
Cadmium	0.061	nd	nd	nd	nd	0.050

nd: compound not detected.
Analytical results are shown only for those compounds detected in any samples from this sampling round. For a complete list of all compounds analyzed, see Table 1.

TABLE 2.5
ANALYTICAL RESULTS - SOIL SAMPLES
FANSTEEL NORTH CHICAGO FACILITY
Sampling dates: August 29, 1992 through September 10, 1992

BOREHOLE 5

VOLATILE ORGANIC COMPOUNDS

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in micrograms/kilogram (ug/kg).						Site Specific Objective
	B#5-A 2-4.5 ft	Duplicate (5) of B#5-A	B#5-B 7-9.5 ft	B#5-C 12-14.5 ft	B#5-E 22-24.5 ft	B#5-G 32-34.5 ft	
1,1,1-Trichloroethane	nd	nd	nd	nd	nd	nd	1,000
Trichloroethylene	nd	nd	120	nd	nd	nd	25
Tetrachloroethylene	nd	nd	14	nd	nd	nd	25
Toluene	nd	nd	nd	nd	nd	nd	5,000
Vinyl Chloride	nd	nd	nd	nd	nd	nd	10
Cis 1,2-Dichloroethylene	nd	nd	nd	nd	nd	nd	200
Trans 1,2-Dichloroethylene	nd	nd	nd	nd	nd	nd	500

LEAD AND CADMIUM

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in milligrams/liter (mg/l).						Site Specific Objective
	B#5-A 2-4.5 ft	Duplicate (5) of B#5-A	B#5-C 12-14.5 ft	B#5-D 17-19.5 ft	B#5-E 22-24.5 ft	B#5-G 32-34.5 ft	
Lead	9.2	4.3	0.27	nd	nd	nd	0.10
Cadmium	0.32	0.36	0.079	nd	nd	nd	0.050

nd: compound not detected.
Analytical results are shown only for those compounds detected in any samples from this sampling round. For a complete list of all compounds analyzed, see Table 1.

TABLE 2.6
ANALYTICAL RESULTS - SOIL SAMPLES
FANSTEEL NORTH CHICAGO FACILITY
Sampling dates: August 29, 1992 through September 10, 1992

BOREHOLE 6

VOLATILE ORGANIC COMPOUNDS

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in micrograms/kilogram (ug/kg).						Site Specific Objective
	B#6-A 2-4.5 ft	Duplicate (3) of B#6-A	B#6-B 7-9.5 ft	B#6-C 12-14.5 ft	B#6-E 22-24.5 ft	B#6-G 32-34.5 ft	
1.1.1-Trichloroethane	nd	nd	nd	nd	nd	nd	1.000
Trichloroethylene	nd	nd	53	nd	nd	nd	25
Tetrachloroethylene	nd	nd	nd	nd	nd	nd	25
Toluene	nd	nd	nd	nd	nd	nd	5.000
Vinyl Chloride	nd	nd	nd	nd	nd	nd	10
Cis 1.2-Dichloroethylene	nd	nd	nd	nd	nd	nd	200
Trans 1.2-Dichloroethylene	nd	nd	nd	nd	nd	nd	500

LEAD AND CADMIUM

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in milligrams/liter (mg/l).						Site Specific Objective
	B#6-A 2-4.5 ft	Duplicate (3) of B#6-A	B#6-B 7-9.5 ft	B#6-C 12-14.5 ft	B#6-E 22-24.5 ft	B#6-G 32-34.5 ft	
Lead	14	26	nd	nd	nd	nd	0.10
Cadmium	0.42	0.39	0.12	nd	nd	nd	0.050

nd: compound not detected.
Analytical results are shown only for those compounds detected in any samples from this sampling round. For a complete list of all compounds analyzed, see Table 1.

TABLE 2.7
ANALYTICAL RESULTS - SOIL SAMPLES
FANSTEEL NORTH CHICAGO FACILITY
Sampling dates: August 29, 1992 through September 10, 1992

BOREHOLE 7

VOLATILE ORGANIC COMPOUNDS

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in micrograms/kilogram (ug/kg).					Site Specific Objective
	B#7-A 2-4.5 ft	B#7-C 12-14.5 ft	B#7-E 22-24.5 ft	B#7-G 32-34.5 ft	B#7-H 37-39.5 ft	
1.1.1-Trichloroethane	nd	nd	nd	nd	nd	1.000
Trichloroethylene	3,800	13	nd	nd	38	25
Tetrachloroethylene	330	41	13	20	nd	25
Toluene	nd	nd	nd	nd	nd	5.000
Vinyl Chloride	nd	nd	nd	nd	nd	10
Cis 1.2-Dichloroethylene	nd	nd	nd	nd	nd	200
Trans 1.2-Dichloroethylene	nd	nd	nd	nd	nd	500

LEAD AND CADMIUM

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in milligrams/liter (mg/l).					Site Specific Objective
	B#7-A 2-4.5 ft	B#7-B 7-9.5 ft	B#7-C 12-14.5 ft	B#7-E 22-24.5 ft	B#7-G 32-34.5 ft	
Lead	79	17	nd	nd	nd	0.10
Cadmium	3.3	0.19	nd	nd	nd	0.050

nd: compound not detected.
Analytical results are shown only for those compounds detected in any samples from this sampling round. For a complete list of all compounds analyzed, see Table 1.

TABLE 2.8
ANALYTICAL RESULTS - SOIL SAMPLES
FANSTEEL NORTH CHICAGO FACILITY
Sampling dates: August 29, 1992 through September 10, 1992

BOREHOLE 8

VOLATILE ORGANIC COMPOUNDS

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in micrograms/kilogram (ug/kg).						Site Specific Objective
	B#8-B 7-9.5 ft	Duplicate (7) of B#88	B#8-C 12-14 ft	B#8-D 17-19.5 ft	B#8-E 22-24.5 ft	B#8-G 32-34.5 ft	
1,1,1-Trichloroethane	nd	nd	nd	nd	nd	nd	1,000
Trichloroethylene	nd	nd	nd	7,200	nd	nd	25
Tetrachloroethylene	96	36	35	180	13	15	25
Toluene	nd	nd	nd	nd	nd	nd	5,000
Vinyl Chloride	nd	nd	nd	nd	nd	nd	10
Cis 1,2-Dichloroethylene	nd	nd	nd	nd	nd	nd	200
Trans 1,2-Dichloroethylene	nd	nd	nd	nd	nd	nd	500

LEAD AND CADMIUM

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in milligrams/liter (mg/l).						Site Specific Objective
	B#8-B 7-9.5 ft	Duplicate (7) of B#8-B	B#8-C 12-14 ft	B#8-D 17-19 ft	B#8-E 22-24.5 ft	B#8-G 32-34.5 ft	
Lead	43	47	1.8	nd	nd	nd	0.10
Cadmium	0.33	0.33	0.93	nd	nd	nd	0.050

nd: compound not detected.
Analytical results are shown only for those compounds detected in any samples from this sampling round. For a complete list of all compounds analyzed, see Table 1.

TABLE 2.9
ANALYTICAL RESULTS - SOIL SAMPLES
FANSTEEL NORTH CHICAGO FACILITY
Sampling dates: August 29, 1992 through September 10, 1992

BOREHOLE 9

VOLATILE ORGANIC COMPOUNDS

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in micrograms/kilogram (ug/kg).					Site Specific Objective
	B#9-A 2-4.5 ft	B#9-C 12-14.5 ft	B#9-E 22-24.5 ft	B#9-G 32-34.5 ft	B#9-H 37-39.5 ft	
1,1,1-Trichloroethane	nd	nd	nd	nd	nd	1,000
Trichloroethylene	nd	41	10	20	15	25
Tetrachloroethylene	nd	nd	nd	nd	nd	25
Toluene	nd	nd	nd	nd	nd	5,000
Vinyl Chloride	nd	nd	nd	nd	nd	10
Cis 1,2-Dichloroethylene	nd	nd	nd	nd	nd	200
Trans 1,2-Dichloroethylene	nd	nd	nd	nd	nd	500

LEAD AND CADMIUM

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in milligrams/liter (mg/l).					Site Specific Objective
	B#9-A 2-4.5 ft	B#9-C 12-14.5 ft	B#9-E 22-24.5 ft	B#9-G 32-34.5 ft	B#9-H 37-39.5 ft	
Lead	nd	nd	nd	nd	nd	0.10
Cadmium	0.052	0.059	0.069	0.065	nd	0.050

nd: compound not detected.
Analytical results are shown only for those compounds detected in any samples from this sampling round. For a complete list of all compounds analyzed, see Table 1.

TABLE 2.10
ANALYTICAL RESULTS - SOIL SAMPLES
FANSTEEL NORTH CHICAGO FACILITY
Sampling dates: August 29, 1992 through September 10, 1992

BOREHOLE 10

VOLATILE ORGANIC COMPOUNDS

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in micrograms/kilogram (ug/kg).						Site Specific Cleanup Objective
	B#10-A 2-4.5 ft	B#10-A Dupli-cate (8)	B#10-C 12-14.5 ft	B#10-E 24-26.5 ft	B#10-G 32-34.5 ft	B#10-H 37-39.5 ft	
1,1,1-Trichloroethane	nd	nd	nd	nd	nd	nd	1,000
Trichloroethylene	73,000	23,000	180,000	19	3,000	910	25
Tetrachloroethylene	1,400	nd	100	nd	nd	nd	25
Toluene	nd	nd	230	nd	nd	nd	5,000
Vinyl Chloride	nd	nd	nd	nd	nd	nd	10
Cis 1,2-Dichloroethylene	2,000	1,300	210	nd	120	nd	200
Trans 1,2-Dichloroethylene	nd	74	nd	nd	nd	nd	500

LEAD AND CADMIUM

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in milligrams/liter (mg/l).						Site Specific Cleanup Objective
	B#10-A 2-4.5 ft	B#10-A Dupli-cate (8)	B#10-C 12-14.5 ft	B#10-E 24-26.5 ft	B#10-G 32-34.5 ft	B#10-H 37-39.5 ft	
Lead	26	34	nd	36	0.22	nd	0.10
Cadmium	0.23	0.45	0.065	0.22	0.068	nd	0.050

nd: compound not detected.
Analytical results are shown only for those compounds detected in any samples from this sampling round. For a complete list of all compounds analyzed, see Table 1.

TABLE 2.11
ANALYTICAL RESULTS - SOIL SAMPLES
FANSTEEL NORTH CHICAGO FACILITY
Sampling dates: August 29, 1992 through September 10, 1992

BOREHOLE 11

VOLATILE ORGANIC COMPOUNDS

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in micrograms/kilogram (ug/kg).					Site Specific Cleanup Objective
	B#11-A 2-4.5 ft	B#11-C 12-14.5 ft	B#11-E 22-24.5 ft	B#11-G 32-34.5 ft	B#11-H 37-39.5 ft	
1,1,1-Trichloroethane	nd	nd	nd	nd	nd	1,000
Trichloroethylene	2,200	180,000	15	25	6.8	25
Tetrachloroethylene	92	3,000	nd	nd	nd	25
Toluene	nd	nd	nd	nd	nd	5,000
Vinyl Chloride	nd	nd	nd	nd	nd	10
Cis 1,2-Dichloroethylene	450	2,400	nd	nd	nd	200
Trans 1,2-Dichloroethylene	31	nd	nd	nd	nd	500

LEAD AND CADMIUM

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in milligrams/liter (mg/l).					Site Specific Cleanup Objective
	B#11-A 2-4.5 ft	B#11-C 12-14.5 ft	B#11-E 22-24.5 ft	B#11-G 32-34.5 ft	B#11-H 37-39.5 ft	
Lead	61	42	nd	nd	nd	0.10
Cadmium	0.23	0.15	0.057	0.059	nd	0.050

nd: compound not detected.
Analytical results are shown only for those compounds detected in any samples from this sampling round.
For a complete list of all compounds analyzed, see Table 1.

TABLE 2.12
ANALYTICAL RESULTS - SOIL SAMPLES
FANSTEEL NORTH CHICAGO FACILITY
Sampling dates: August 29, 1992 through September 10, 1992

BOREHOLE 12

VOLATILE ORGANIC COMPOUNDS

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in micrograms/kilogram (ug/kg).						Site Specific Objective
	B#12-A 2-4.5 ft	Duplicate (9) of B#12-A	B#12-C 12-14.5 ft	B#12-E 22-24.5 ft	B#12-G 32-34.5 ft	B#12-H 37-39.5 ft	
1,1,1-Trichloroethane	nd	nd	nd	nd	nd	nd	1,000
Trichloroethylene	440	960	nd	nd	12	nd	25
Tetrachloroethylene	nd	nd	nd	nd	nd	nd	25
Toluene	nd	nd	nd	nd	nd	nd	5,000
Vinyl Chloride	nd	nd	nd	nd	nd	nd	10
Cis 1,2-Dichloroethylene	84	nd	nd	nd	nd	nd	200
Trans 1,2-Dichloroethylene	nd	nd	nd	nd	nd	nd	500

LEAD AND CADMIUM

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in milligrams/liter (mg/l).						Site Specific Objective
	B#12-A 2-4.5 ft	Duplicate (9) of B#12-A	B#12-C 12-14.5 ft	B#12-E 22-24.5 ft	B#12-F 27-29.5 ft	B#12-G 32-34.5 ft	
Lead	nd	nd	nd	nd	nd	nd	0.10
Cadmium	nd	nd	nd	0.055	nd	nd	0.050

nd: compound not detected.
Analytical results are shown only for those compounds detected in any samples from this sampling round.
For a complete list of all compounds analyzed, see Table 1.

TABLE 2.13
ANALYTICAL RESULTS - SOIL SAMPLES
FANSTEEL NORTH CHICAGO FACILITY
Sampling dates: August 29, 1992 through September 10, 1992

BOREHOLE 13

VOLATILE ORGANIC COMPOUNDS

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in micrograms/kilogram (ug/kg).						Site Specific Objective
	B#13-A 2-4.5 ft	Duplicate (10) of B#13-A	B#13-C 12-14.5 ft	B#13-E 22-24.5 ft	B#13-F 27-29.5 ft	B#13-G 32-34.5 ft	
1.1.1-Trichloroethane	nd	59	nd	nd	nd	nd	1,000
Trichloroethylene	4,400	5,200	14,000	33	140	15	25
Tetrachloroethylene	280	340	nd	nd	nd	nd	25
Toluene	nd	nd	nd	nd	nd	nd	5,000
Vinyl Chloride	nd	nd	nd	nd	nd	nd	10
Cis 1,2-Dichloroethylene	nd	nd	nd	nd	nd	nd	200
Trans 1,2-Dichloroethylene	nd	nd	nd	nd	nd	nd	500

LEAD AND CADMIUM

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in milligrams/liter (mg/l).						Site Specific Objective
	B#13-A 2-4.5 ft	Duplicate (10) of B#13-A	B#13-C 12-14.5 ft	B#13-E 22-24.5 ft	B#13-G 32-34.5 ft	B#13-H 37-39.5 ft	
Lead	54	44	nd	nd	nd	nd	0.10
Cadmium	0.74	0.051	0.073	0.058	0.056	nd	0.050

nd: compound not detected.
Analytical results are shown only for those compounds detected in any samples from this sampling round. For a complete list of all compounds analyzed, see Table 1.

TABLE 2.14
ANALYTICAL RESULTS - SOIL SAMPLES
FANSTEEL NORTH CHICAGO FACILITY
Sampling dates: August 29, 1992 through September 10, 1992

BOREHOLE 14

VOLATILE ORGANIC COMPOUNDS

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in micrograms/kilogram (ug/kg).					Site Specific Cleanup Objective
	B#14-A 2-4.5 ft	B#14-B 7-9.5 ft	B#14-C 12-14.5 ft	B#14-E 22-24.5 ft	B#14-G 32-34.5 ft	
1,1,1-Trichloroethane	nd	nd	nd	nd	nd	1,000
Trichloroethylene	440	7,800	nd	nd	nd	25
Tetrachloroethylene	nd	nd	nd	nd	nd	25
Toluene	nd	nd	nd	nd	nd	5,000
Vinyl Chloride	340	nd	nd	nd	nd	10
Cis 1,2-Dichloroethylene	380	410	nd	nd	nd	200
Trans 1,2-Dichloroethylene	340	55	nd	nd	nd	500

LEAD AND CADMIUM

PARAMETER	Boring Number-Sample Number/Depth Analytical results are in milligrams/liter (mg/l).					Site Specific Cleanup Objective
	B#14-A 2-4.5 ft	B#14-C 12-14.5 ft	B#14-E 22-24.5 ft	B#14-G 32-34.5 ft	B#14-H 37-39.5 ft	
Lead	nd	nd	nd	nd	nd	0.10
Cadmium	nd	0.056	0.054	0.053	0.060	0.050

nd: compound not detected.
Analytical results are shown only for those compounds detected in any samples from this sampling round. For a complete list of all compounds analyzed, see Table 1.

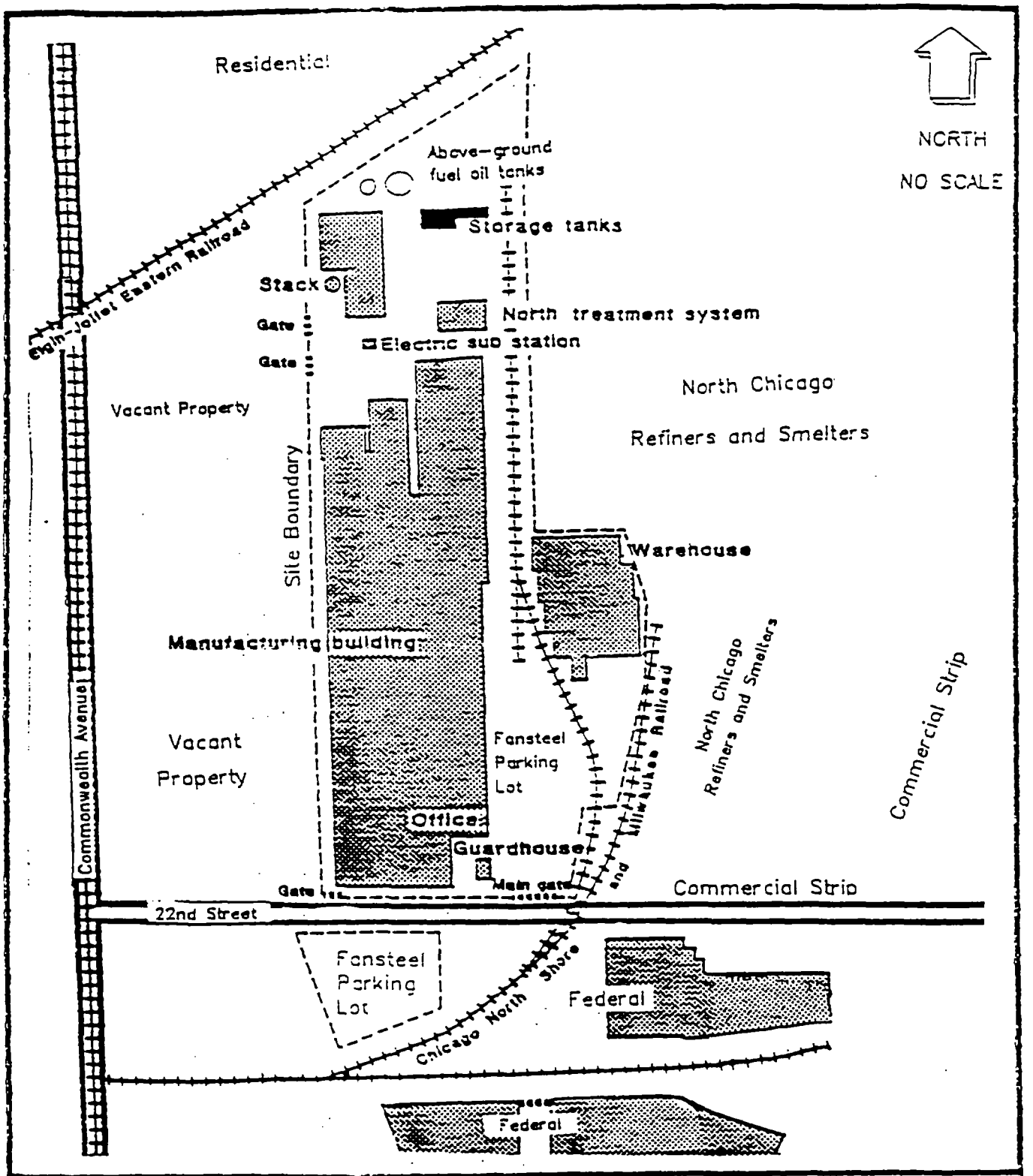

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FIGURE TWO
SITE CONFIGURATION

Developed from map in
Fansteel RCRA Closure Plan

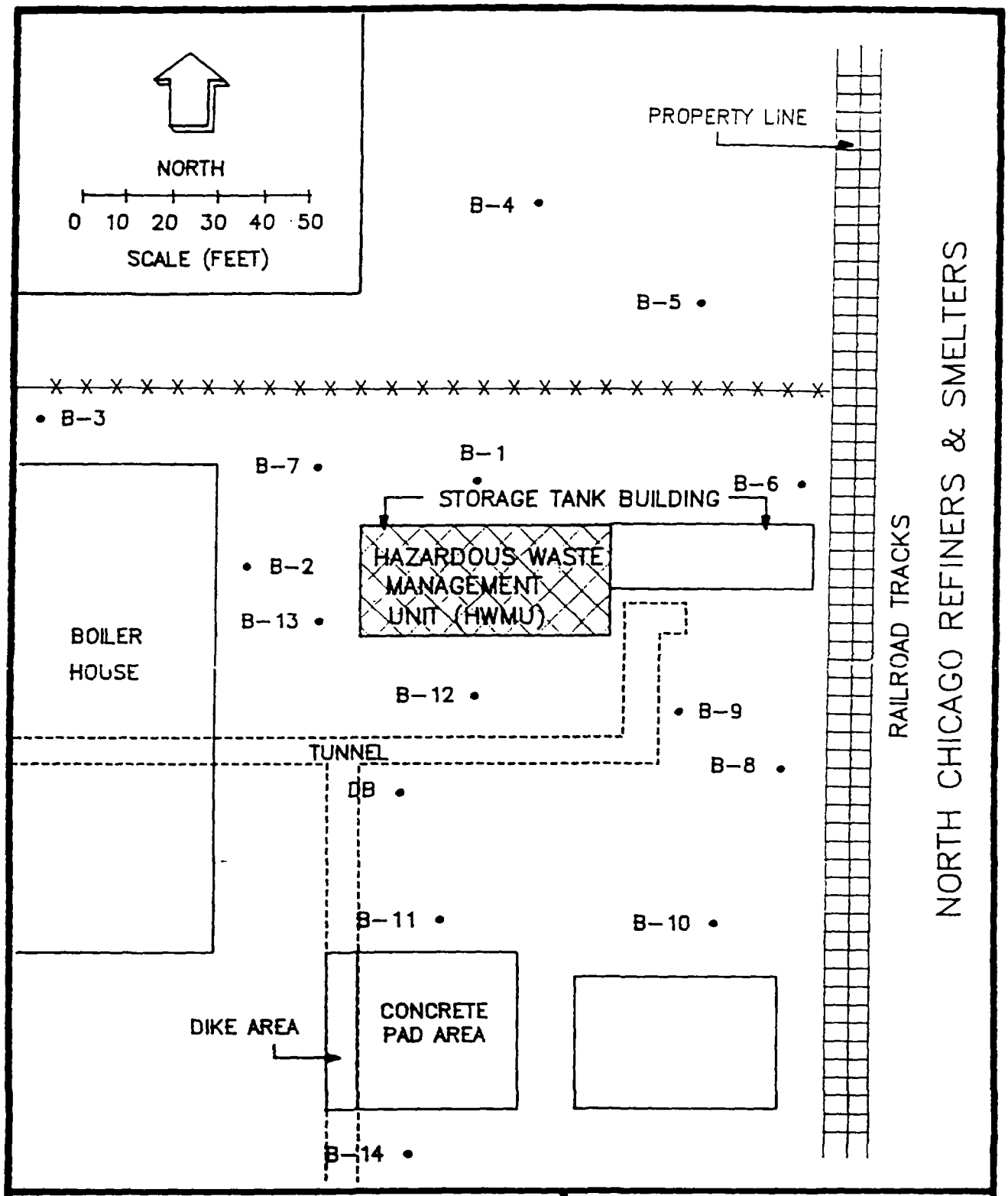

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FIGURE TWO
FANSTEEL BOREHOLE LOCATIONS
PN 8441

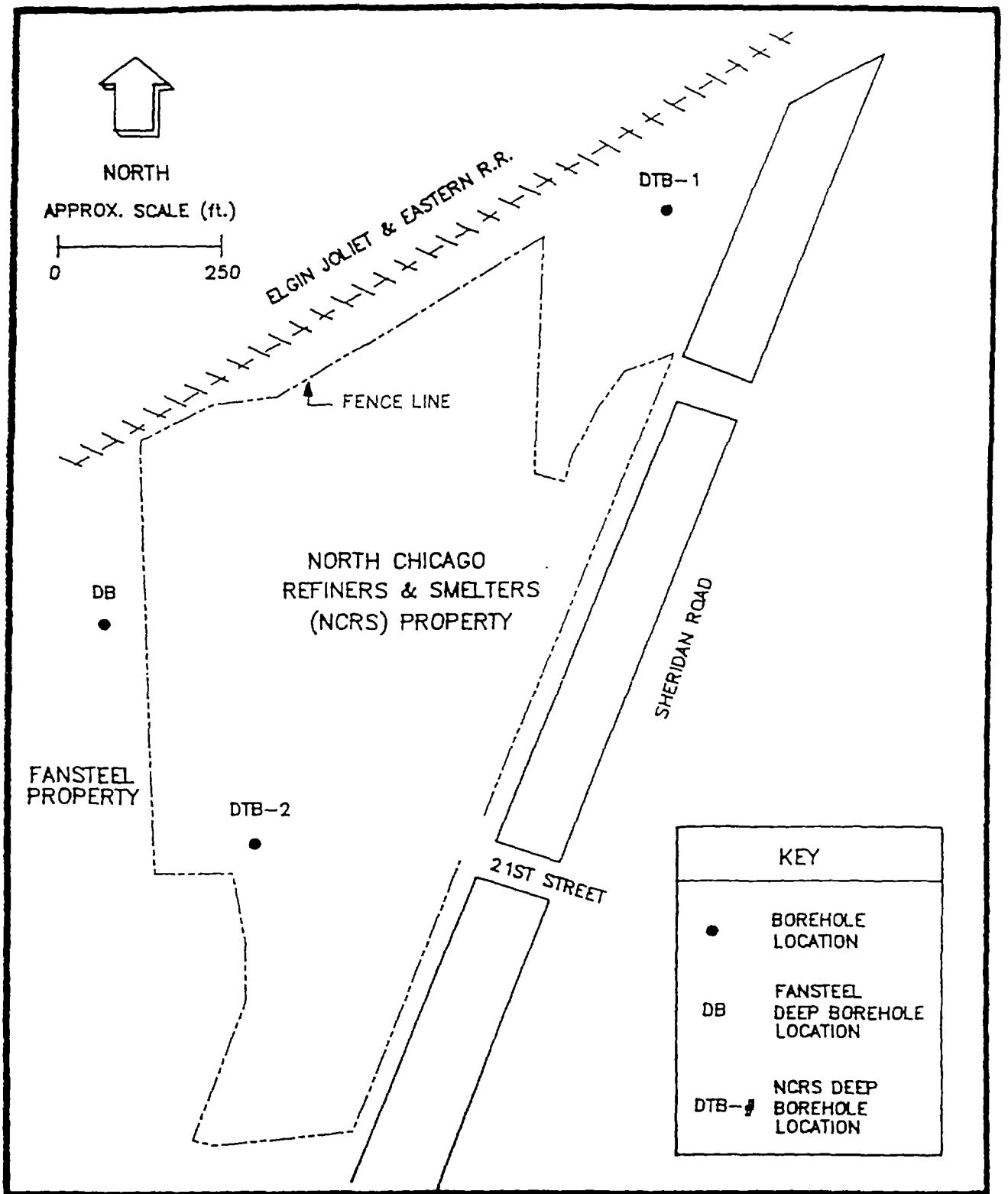

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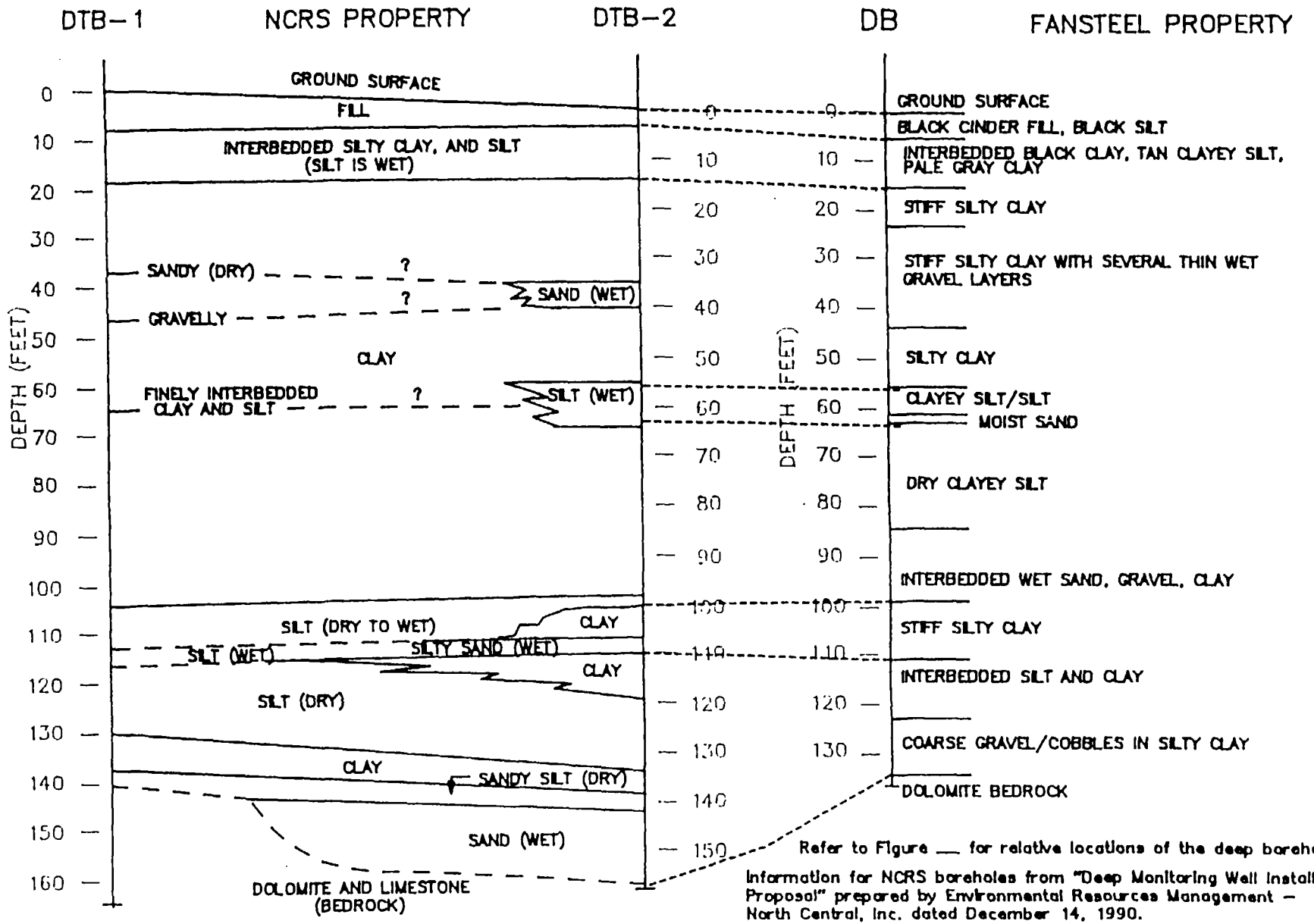
FIGURE 3

DEEP BOREHOLE LOCATIONS

FANSTEEL PN 8441



Refer to Figure ___ for relative locations of the deep boreholes.

Information for NCRS boreholes from "Deep Monitoring Well Installation Proposal" prepared by Environmental Resources Management – North Central, Inc. dated December 14, 1990.

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FIGURE 4

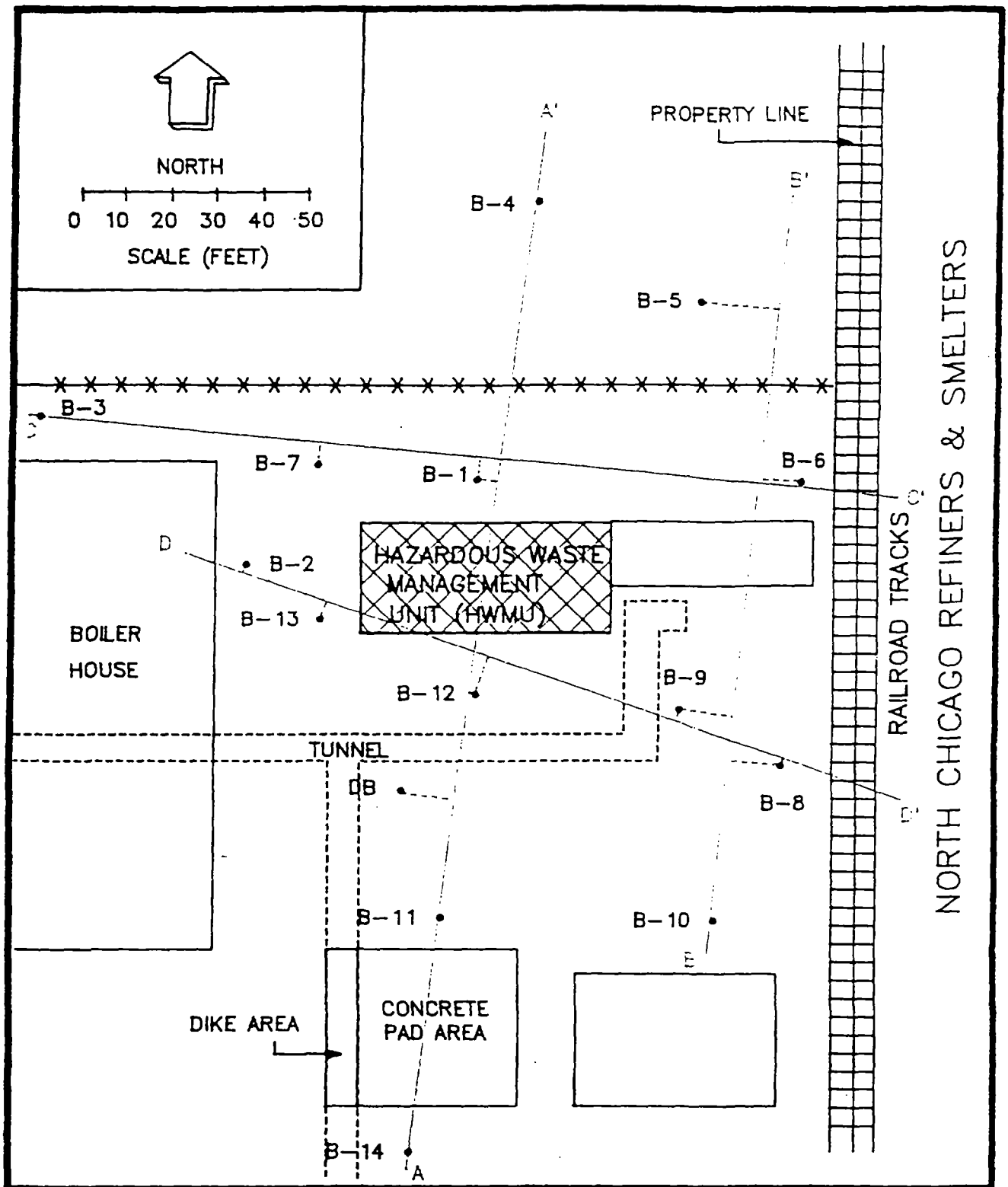

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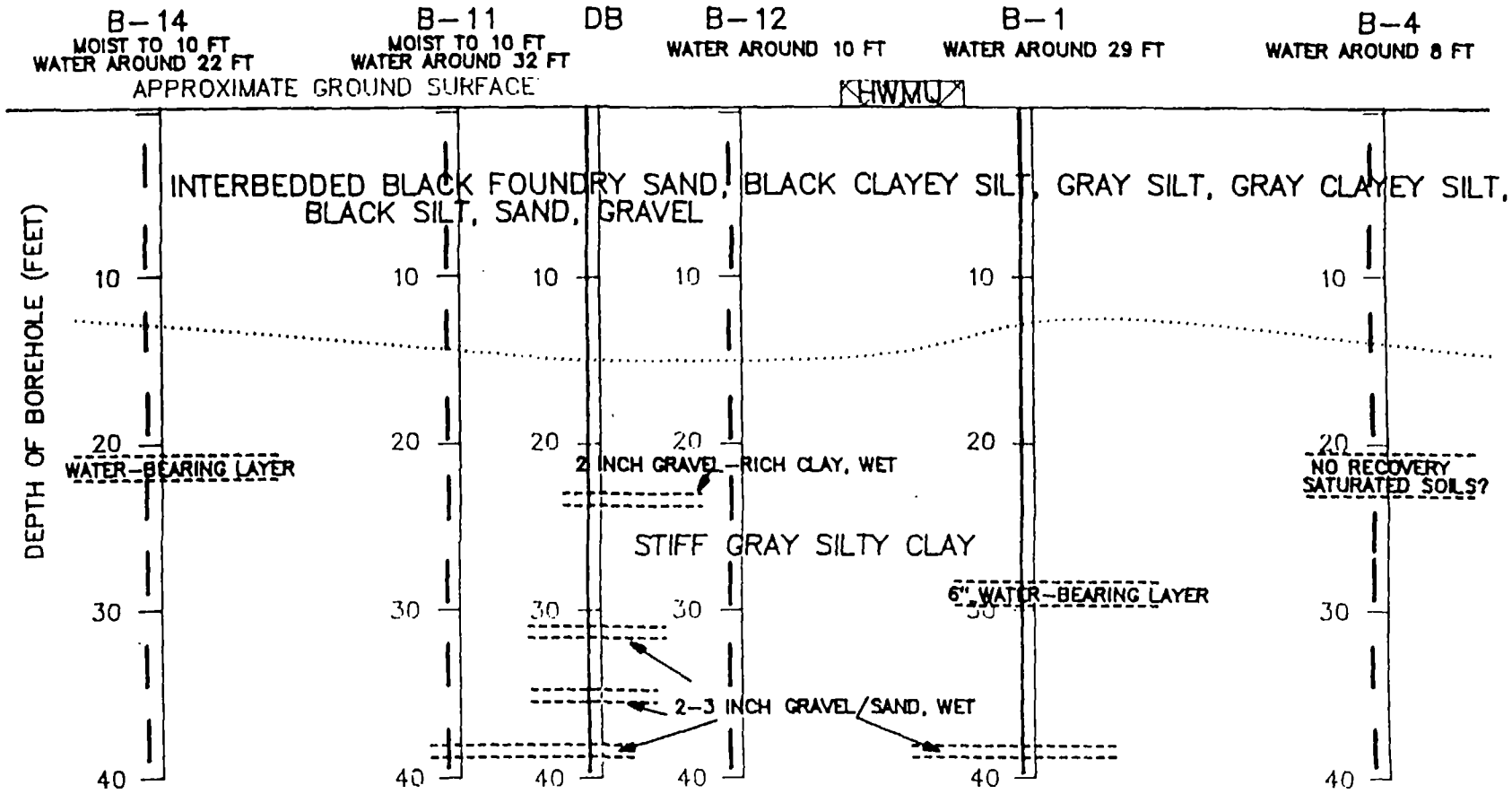
FIGURE 5
CROSS SECTION LOCATIONS

GEOLOGICAL PROFILE
CROSS SECTION A–A'



"WATER–BEARING LAYER" INDICATES SECTION WHERE NO SAMPLE WAS RECOVERED, BUT WATER WAS BROUGHT TO THE SURFACE

— AREA OF BOREHOLE SAMPLED

····· APPROXIMATE INTERFACE BETWEEN STIFF GRAY SILTY CLAY AND OVERLYING INTERBEDDED SOILS

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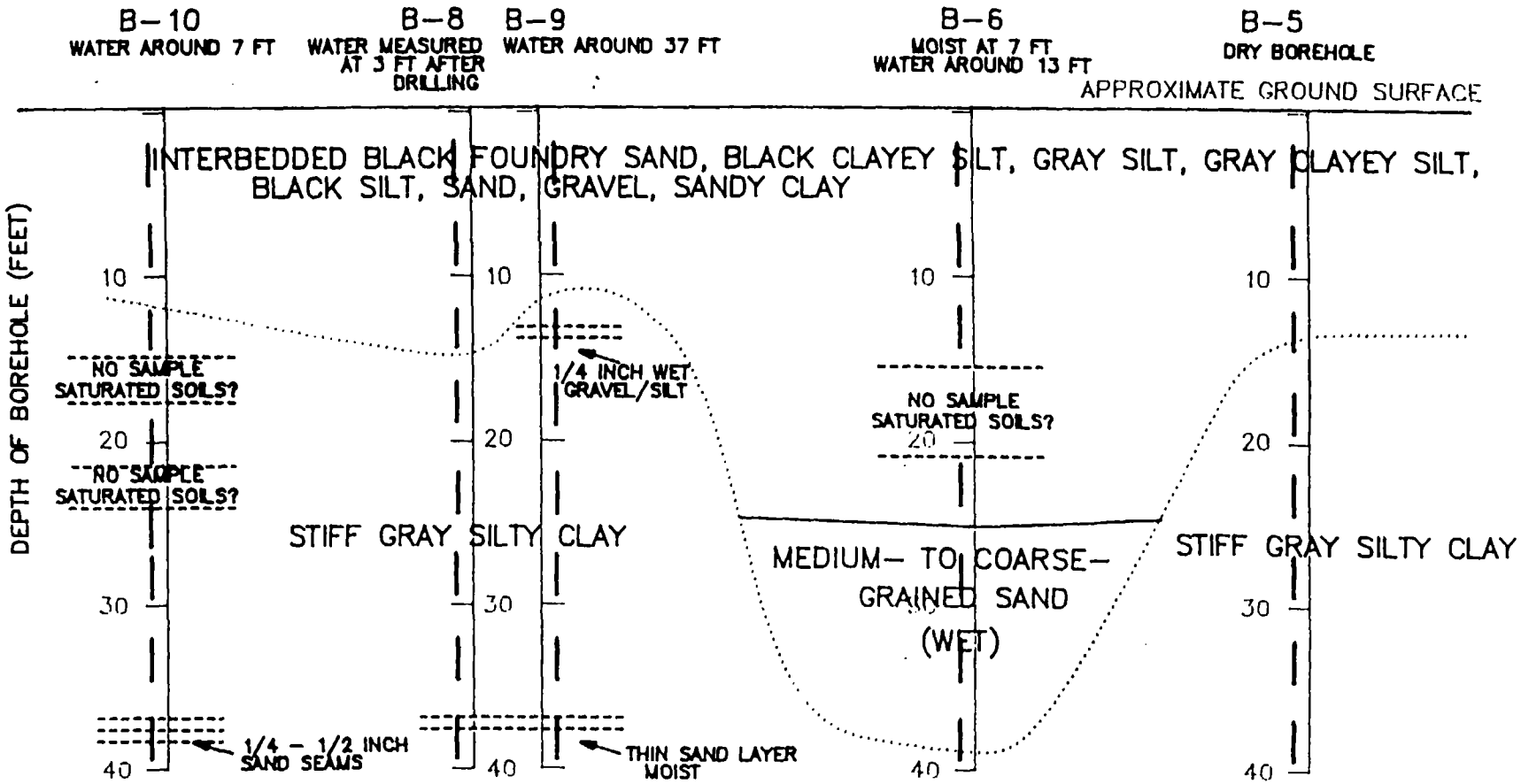
FIGURE 6A

GEOLOGICAL PROFILE
CROSS SECTION B–B'



— LOCATION OF SAMPLES

NO SAMPLE SATURATED SOILS? — NO SAMPLE WAS RECOVERED AFTER REPEATED SAMPLING. SOIL MAY BE SATURATED.

····· APPROXIMATE INTERFACE BETWEEN STIFF GRAY SILTY CLAY AND OVERLYING SOILS

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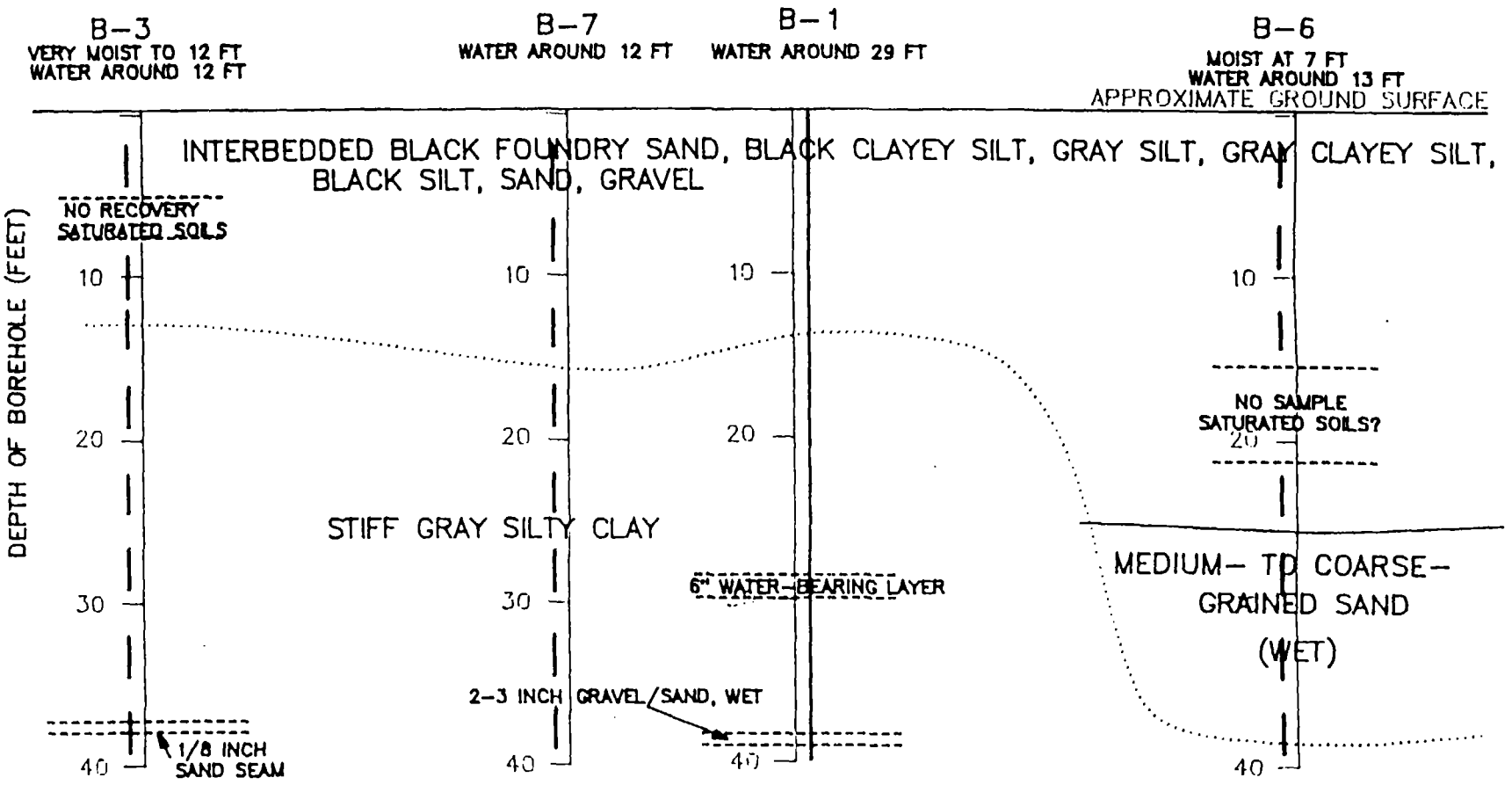
FIGURE 6B

GEOLOGICAL PROFILE
CROSS SECTION C–C'



APPROXIMATE INTERFACE BETWEEN STIFF GRAY SILTY CLAY AND OVERLYING SOILS

AREA OF BOREHOLE SAMPLED

NO SAMPLE SATURATED SOILS? — NO SAMPLE WAS RECOVERED AFTER REPEATED SAMPLING. SOIL MAY BE SATURATED.

"WATER–BEARING LAYER" INDICATES SECTION WHERE NO SAMPLE WAS RECOVERED BUT WATER WAS BROUGHT TO THE SURFACE

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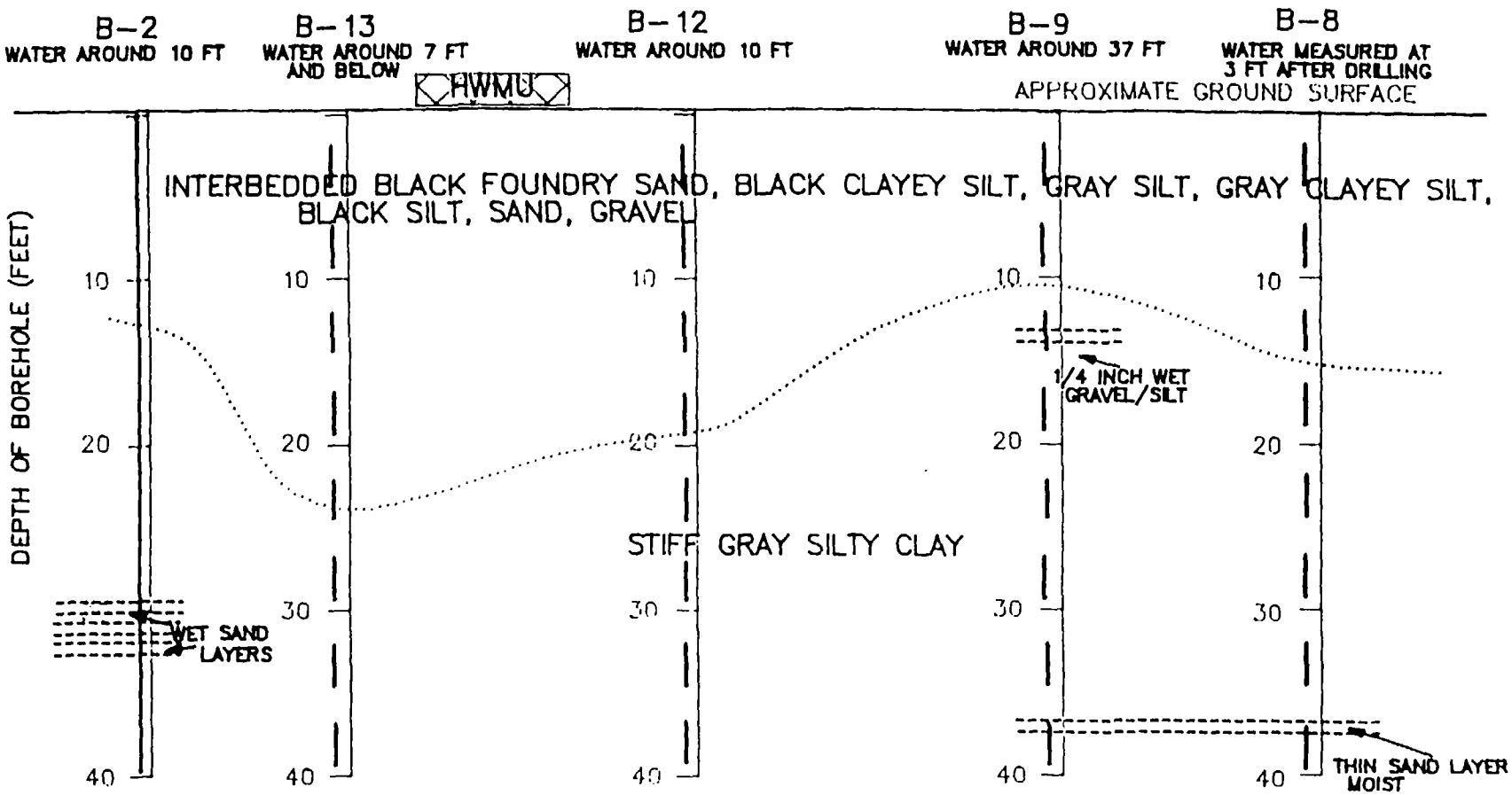
FIGURE 6C

GEOLOGICAL PROFILE
CROSS SECTION D–D'



— AREA OF BOREHOLE SAMPLED

····· APPROXIMATE INTERFACE BETWEEN STIFF GRAY SILTY CLAY AND OVERLYING INTERBEDDED SOILS

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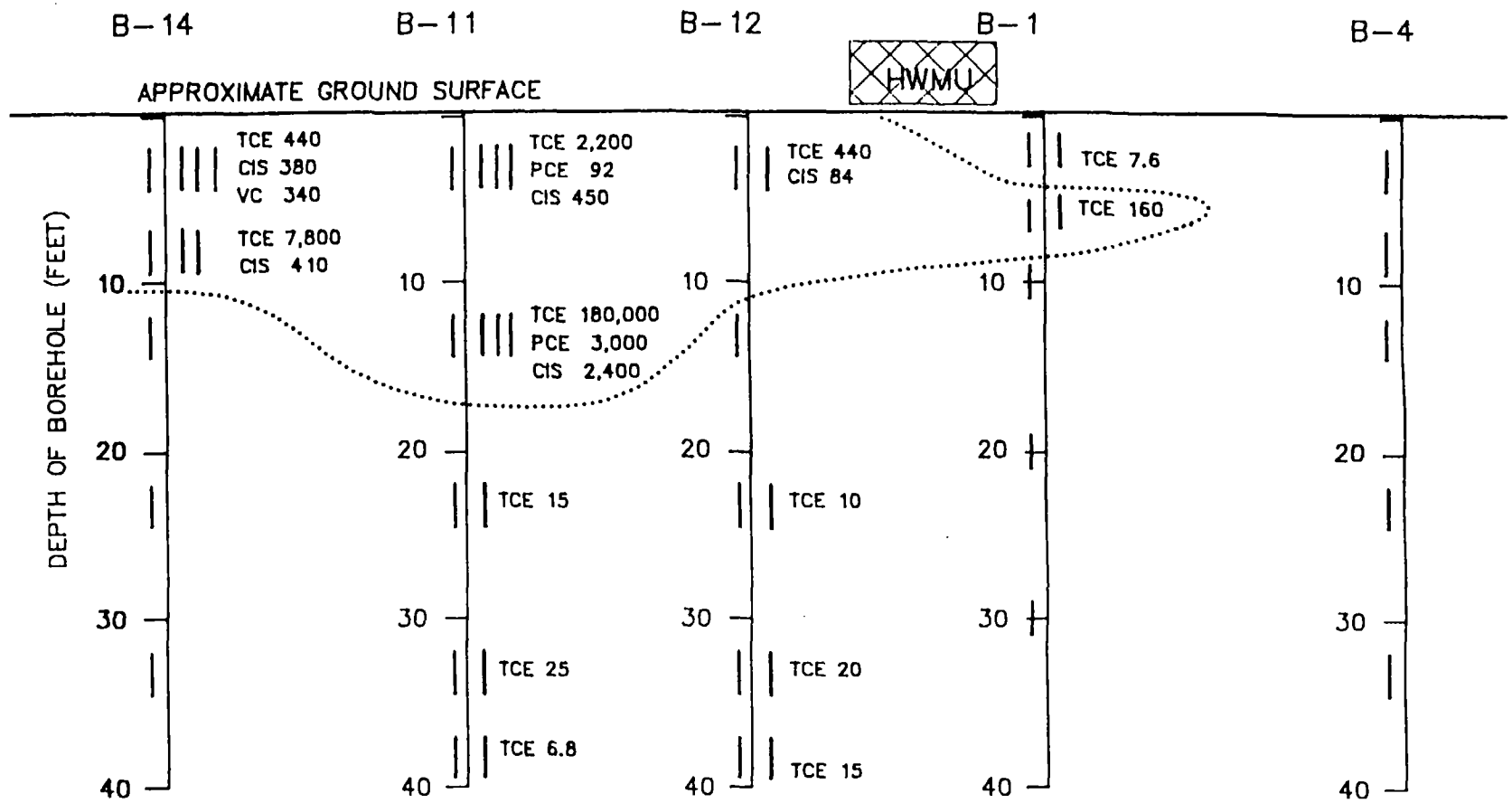
FIGURE 6D

VOLATILE ORGANIC COMPOUNDS PROFILE
CROSS SECTION A–A'



— LOCATION OF ANALYZED SAMPLE

····· APPROXIMATE EXTENT OF CONTAMINATION AT LEVELS ABOVE SITE CLEANUP OBJECTIVES

COMPOUNDS DETECTED IN SAMPLES
(concentrations in ug/kg)

— TRICHLOROETHYLENE (TCE)
— TETRACHLOROETHYLENE (PCE)
— VINYL CHLORIDE (VC)
— CIS 1,2–DICHLOROETHYLENE (CIS)

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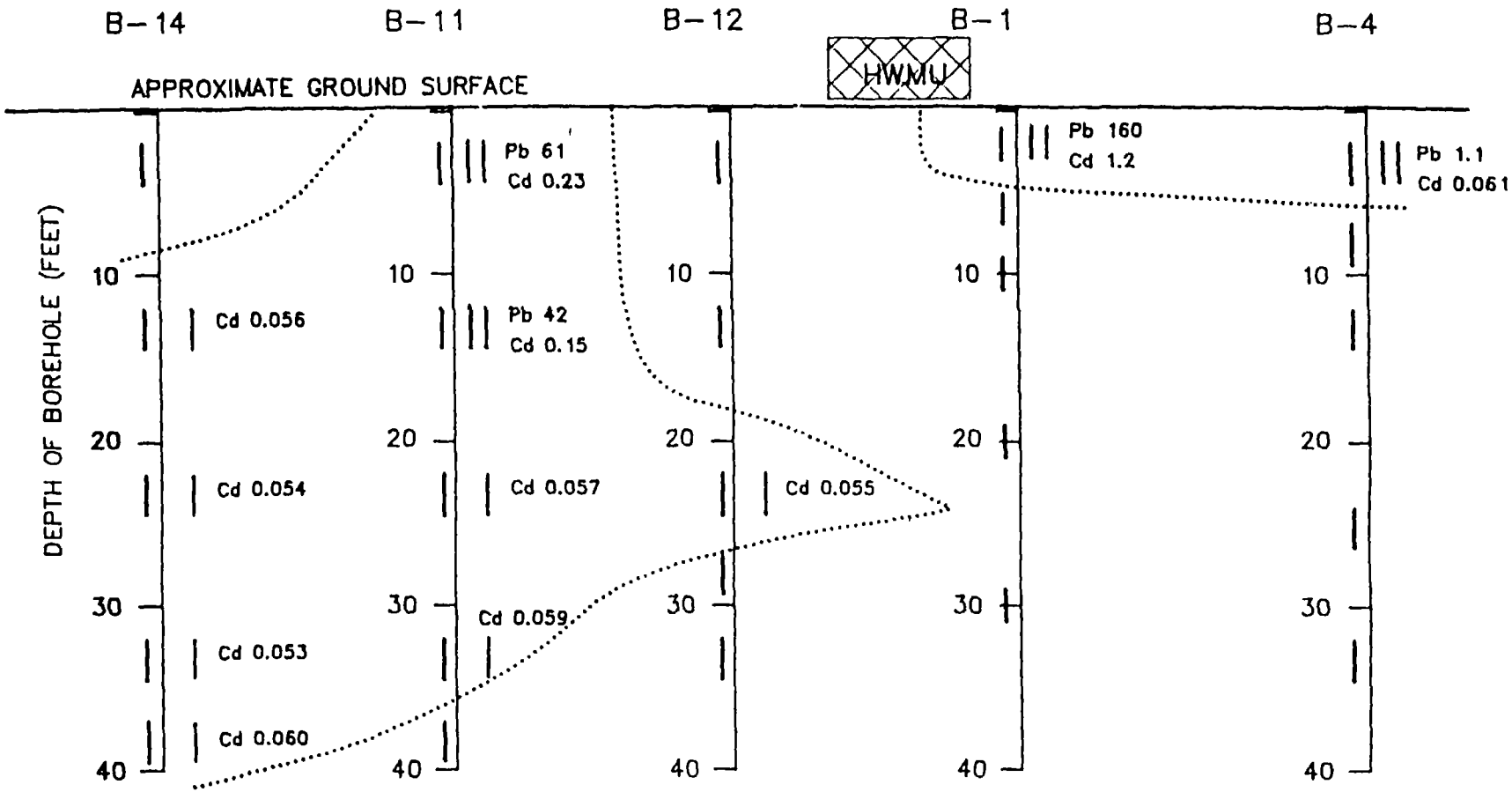
FIGURE 7A

LEAD AND CADMIUM PROFILE
CROSS SECTION A–A'



— LOCATION OF ANALYZED SAMPLE

····· APPROXIMATE EXTENT OF CONTAMINATION AT LEVELS ABOVE SITE CLEANUP OBJECTIVES

COMPOUNDS DETECTED IN SAMPLES
(concentrations in mg/L, TCLP)

— LEAD (Pb) — CADMIUM (Cd)

SITE OBJECTIVES: LEAD 0.1 mg/l; CADMIUM 0.05 mg/l

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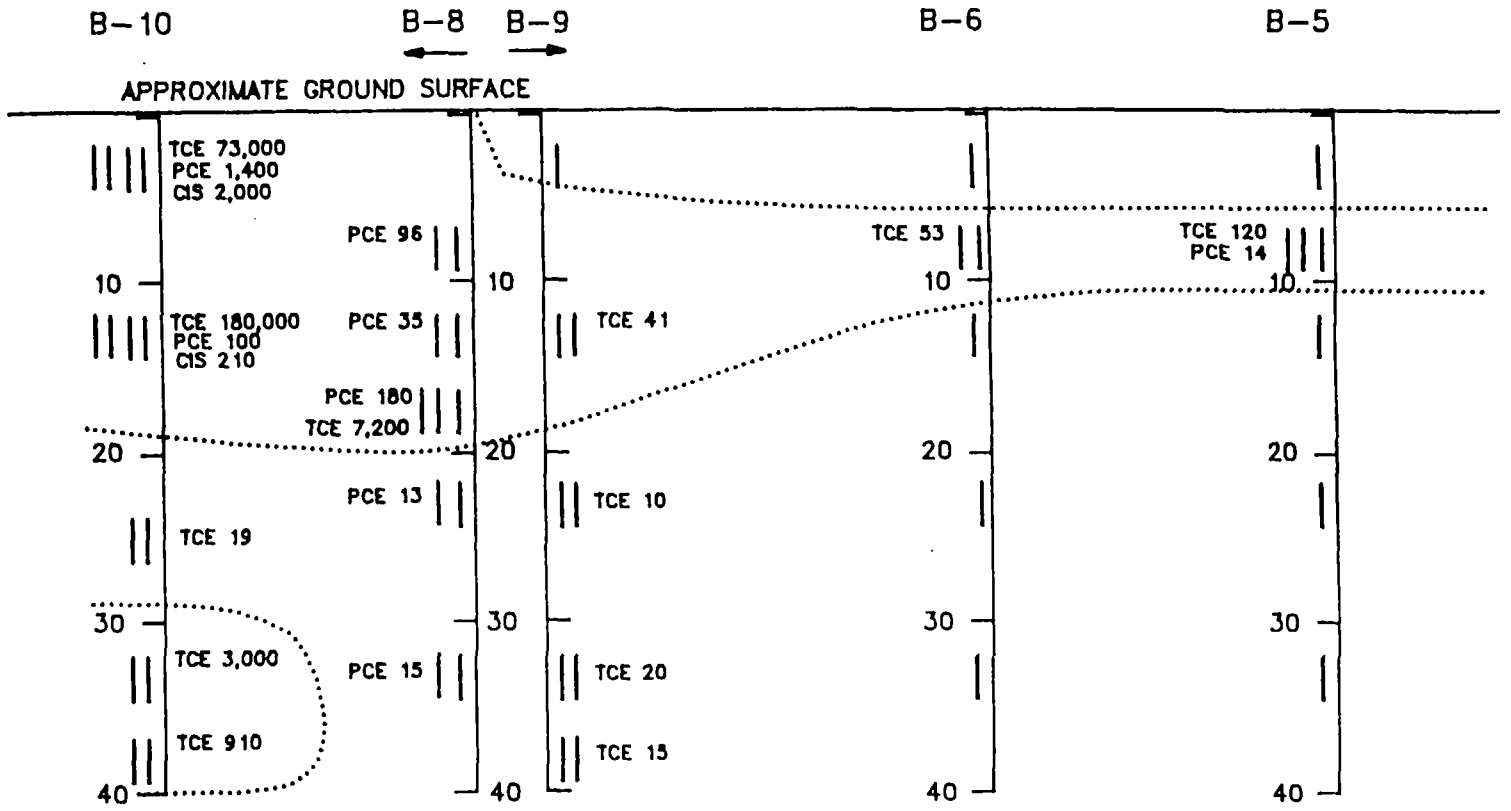
FIGURE 7B

VOLATILE ORGANIC COMPOUNDS PROFILE
CROSS SECTION B–B'



— LOCATION OF ANALYZED SAMPLE

····· APPROXIMATE EXTENT OF CONTAMINATION AT LEVELS ABOVE SITE CLEANUP OBJECTIVES

COMPOUNDS DETECTED IN SAMPLES
(concentrations in ug/kg)

— TRICHLOROETHYLENE (TCE)

— TETRACHLOROETHYLENE (PCE)

— CIS 1,2–DICHLOROETHYLENE (CIS)

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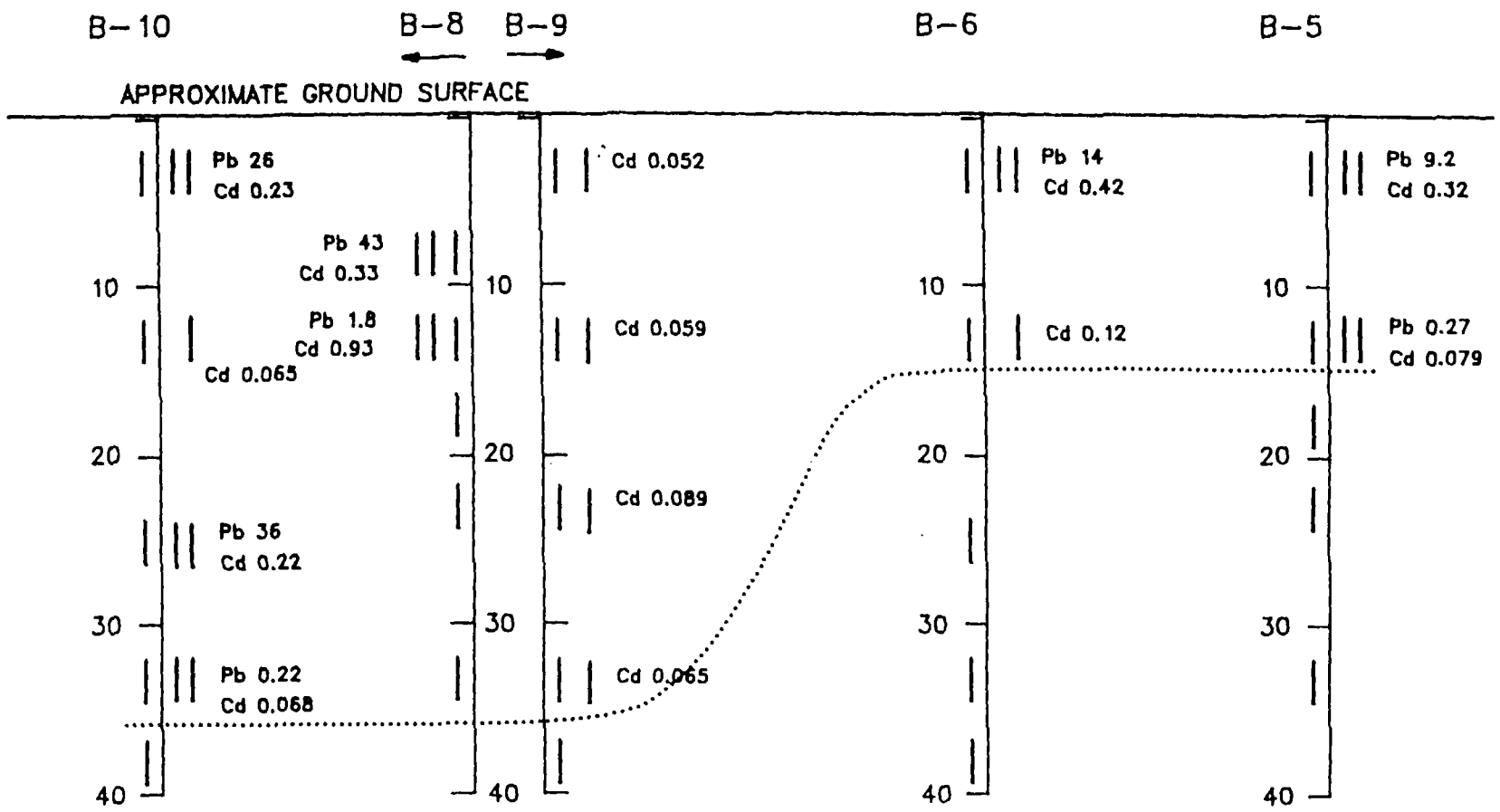
FIGURE 7C

LEAD AND CADMIUM PROFILE
CROSS SECTION B–B'



— LOCATION OF ANALYZED SAMPLE

..... APPROXIMATE EXTENT OF CONTAMINATION AT LEVELS ABOVE SITE CLEANUP OBJECTIVES

COMPOUNDS DETECTED IN SAMPLES
(concentrations in mg/L, TCLP)

— LEAD (Pb) — CADMIUM (Cd)

SITE OBJECTIVES: LEAD 0.1 mg/l; CADMIUM 0.05 mg/l

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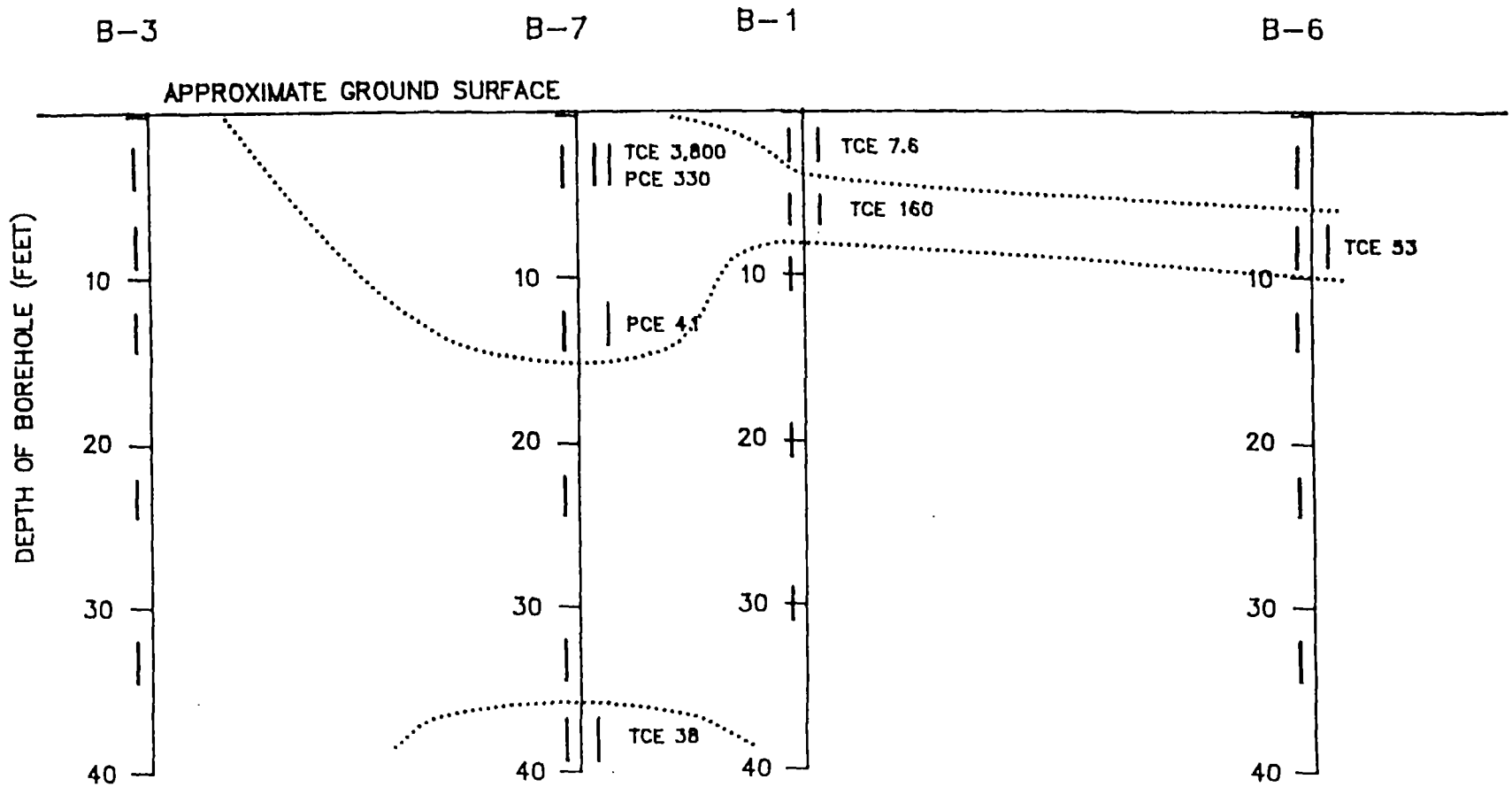
FIGURE 7D

VOLATILE ORGANIC COMPOUNDS PROFILE
CROSS SECTION C–C'



— LOCATION OF ANALYZED SAMPLE

..... APPROXIMATE EXTENT OF CONTAMINATION AT LEVELS ABOVE SITE CLEANUP OBJECTIVES

COMPOUNDS DETECTED IN SAMPLES
(concentrations in ug/kg)

— TRICHLOROETHYLENE (TCE)

— TETRACHLOROETHYLENE (PCE)

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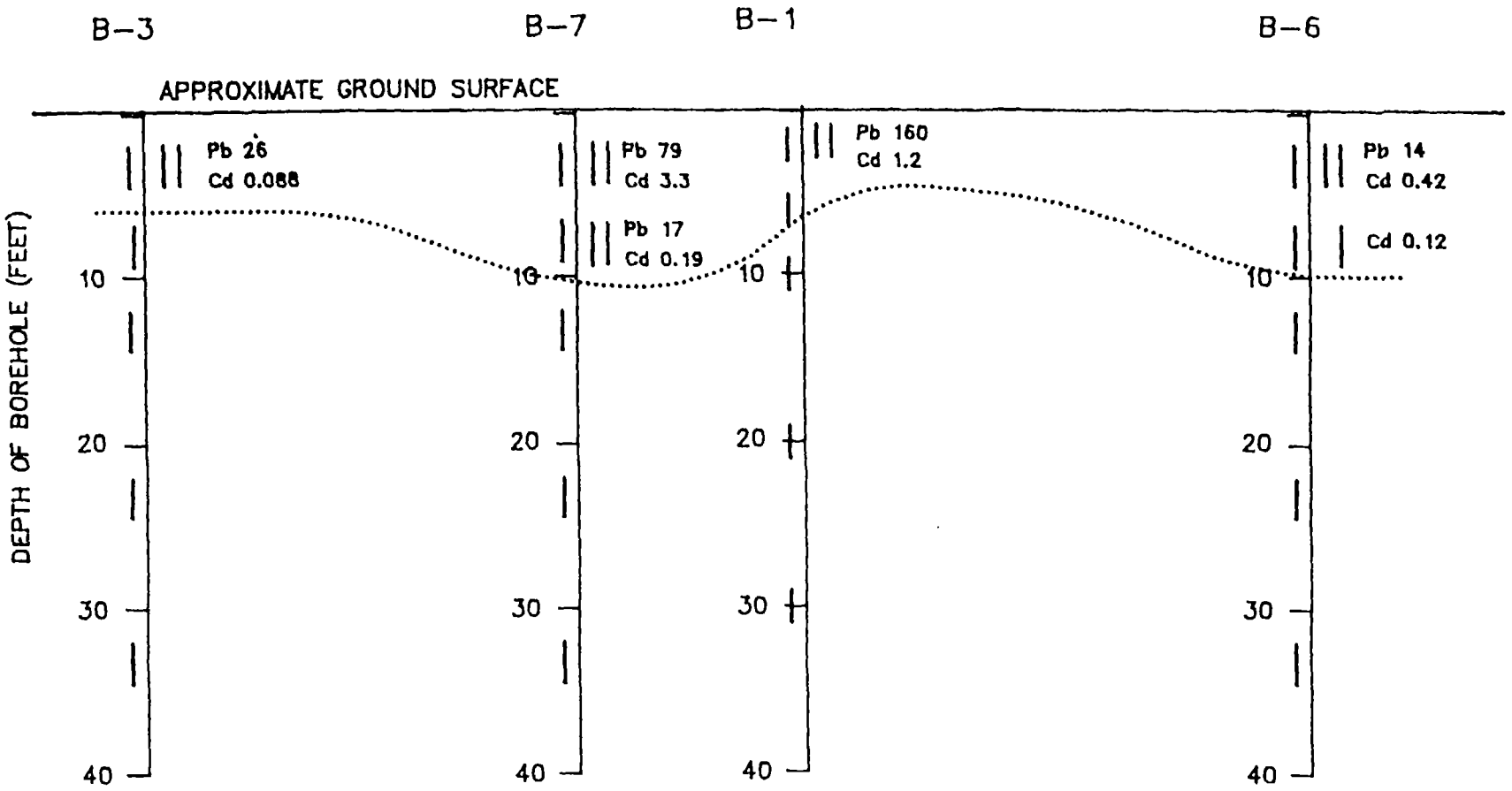
FIGURE 7E

LEAD AND CADMIUM PROFILE
CROSS SECTION C–C'



— LOCATION OF ANALYZED SAMPLE

..... APPROXIMATE EXTENT OF CONTAMINATION AT LEVELS ABOVE SITE CLEANUP OBJECTIVES

COMPOUNDS DETECTED IN SAMPLES
(concentrations in mg/L, TCLP)

— LEAD (Pb) — CADMIUM (Cd)

SITE OBJECTIVES: LEAD 0.1 mg/l; CADMIUM 0.05 mg/l

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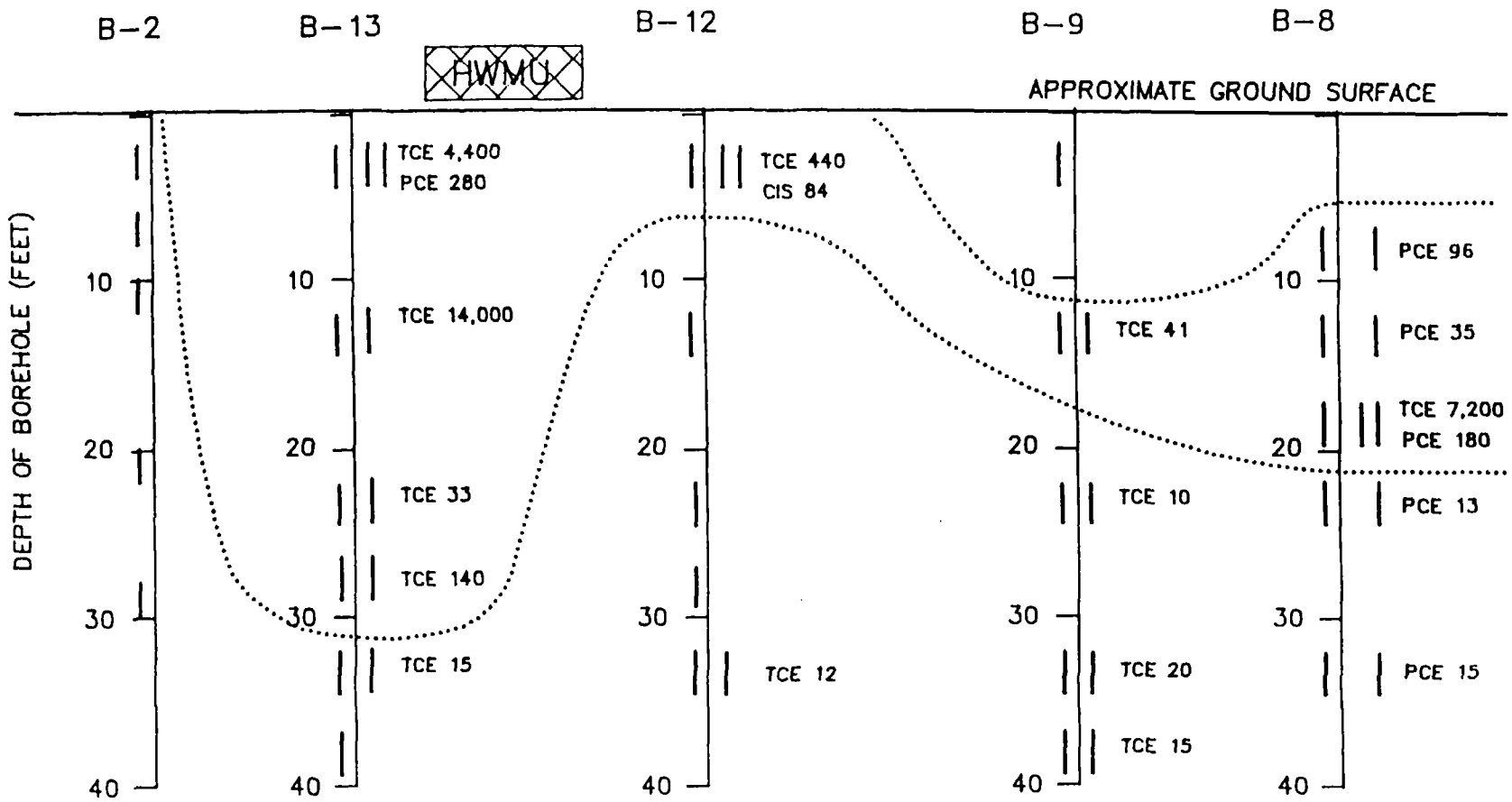
FIGURE 7F

VOLATILE ORGANIC COMPOUNDS PROFILE
CROSS SECTION D–D'



— LOCATION OF ANALYZED SAMPLE

····· APPROXIMATE EXTENT OF CONTAMINATION AT LEVELS ABOVE SITE CLEANUP OBJECTIVES

COMPOUNDS DETECTED IN SAMPLES
(concentrations in ug/kg)

— TRICHLOROETHYLENE (TCE)

— TETRACHLOROETHYLENE (PCE)

— CIS 1,2–DICHLOROETHYLENE (CIS)

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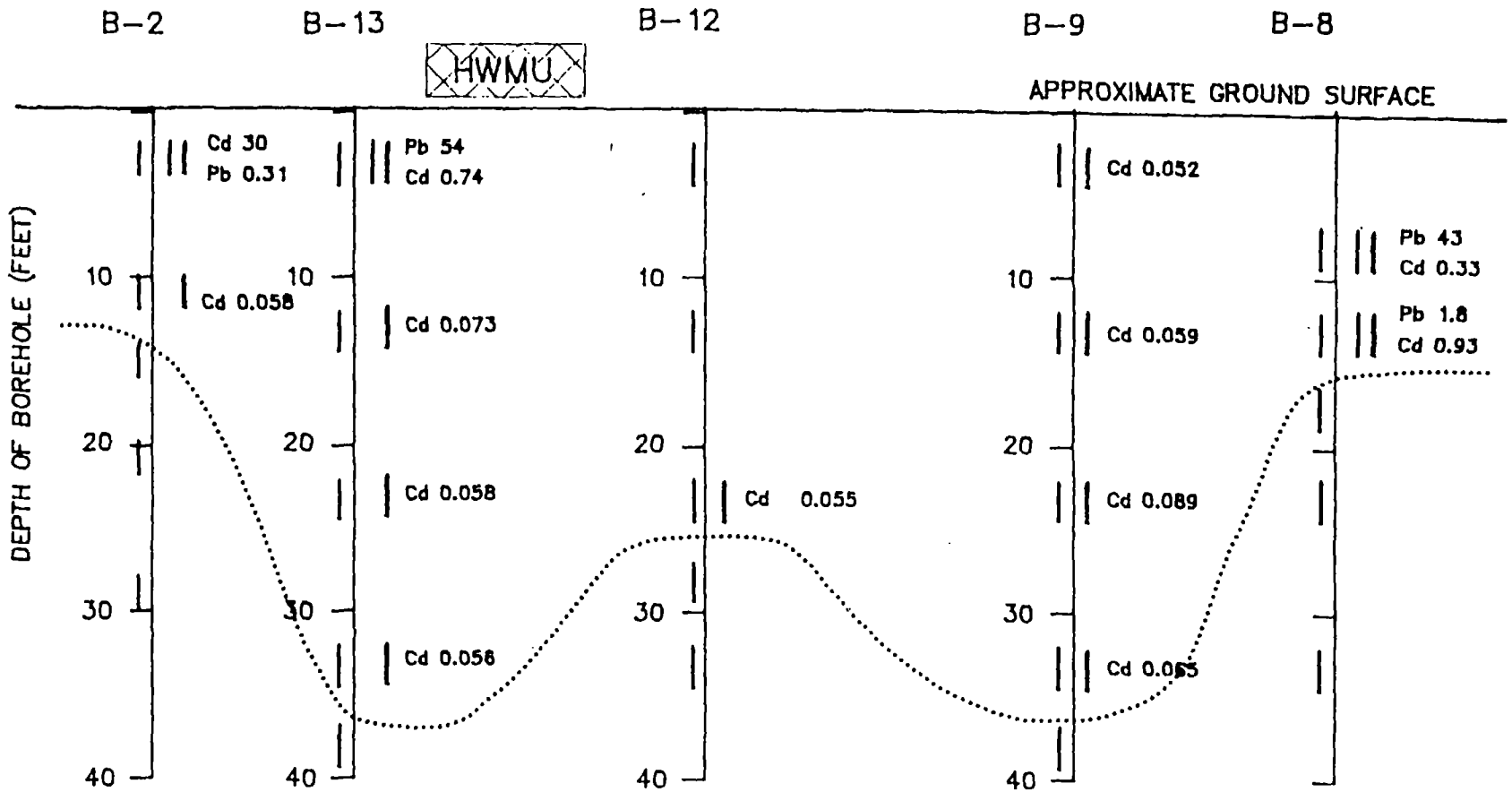
FIGURE 7G

LEAD AND CADMIUM PROFILE
CROSS SECTION D–D'



— LOCATION OF ANALYZED SAMPLE

····· APPROXIMATE EXTENT OF CONTAMINATION AT LEVELS ABOVE SITE CLEANUP OBJECTIVES

COMPOUNDS DETECTED IN SAMPLES
(concentrations in mg/L, TCLP)

— LEAD (Pb) — CADMIUM (Cd)

SITE OBJECTIVES: LEAD 0.1 mg/l; CADMIUM 0.05 mg/l

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FIGURE 7H

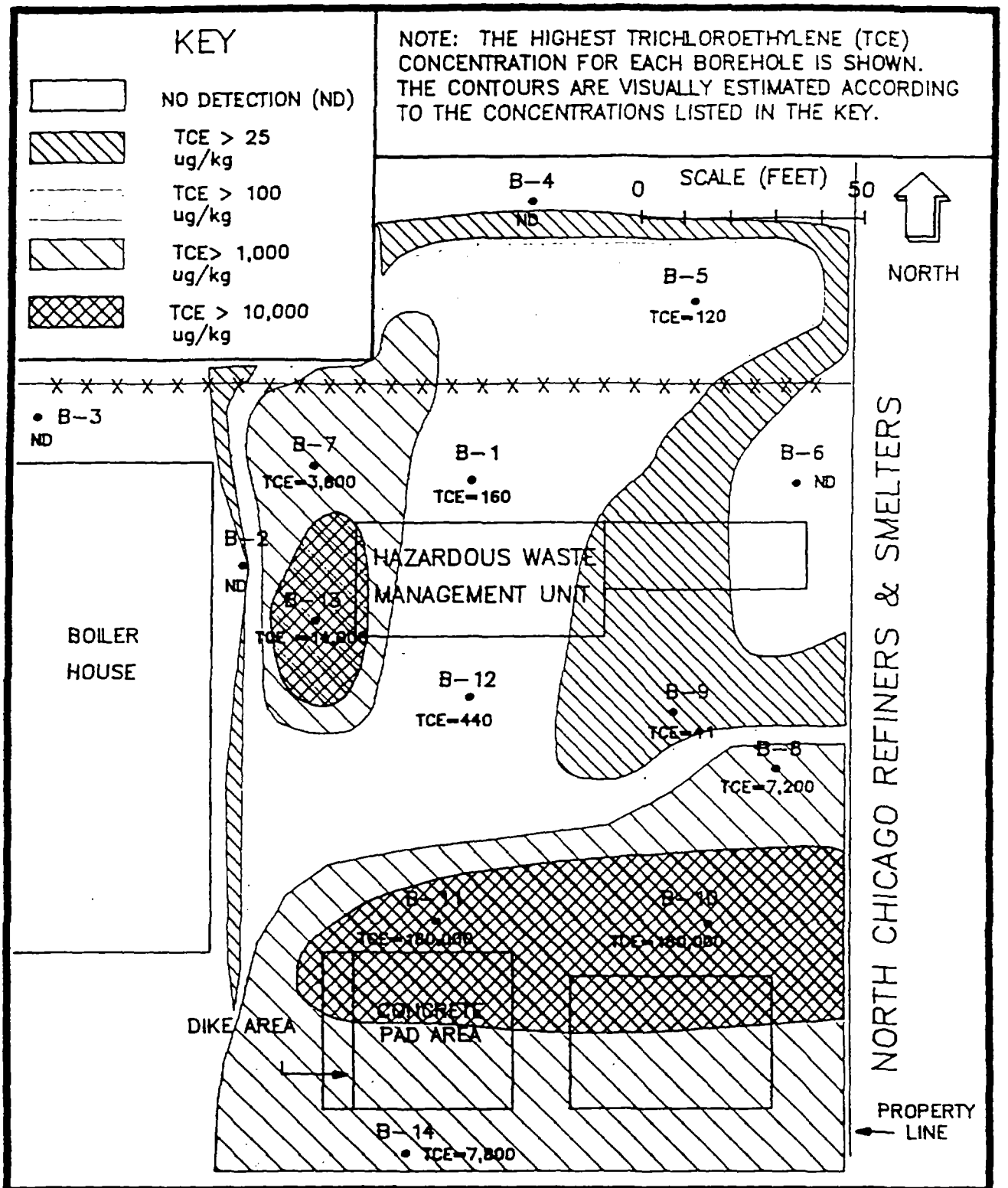

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FIGURE 8A
ESTIMATED CONTOUR DIAGRAM BASED ON TCE CONCENTRATION
PN 8441

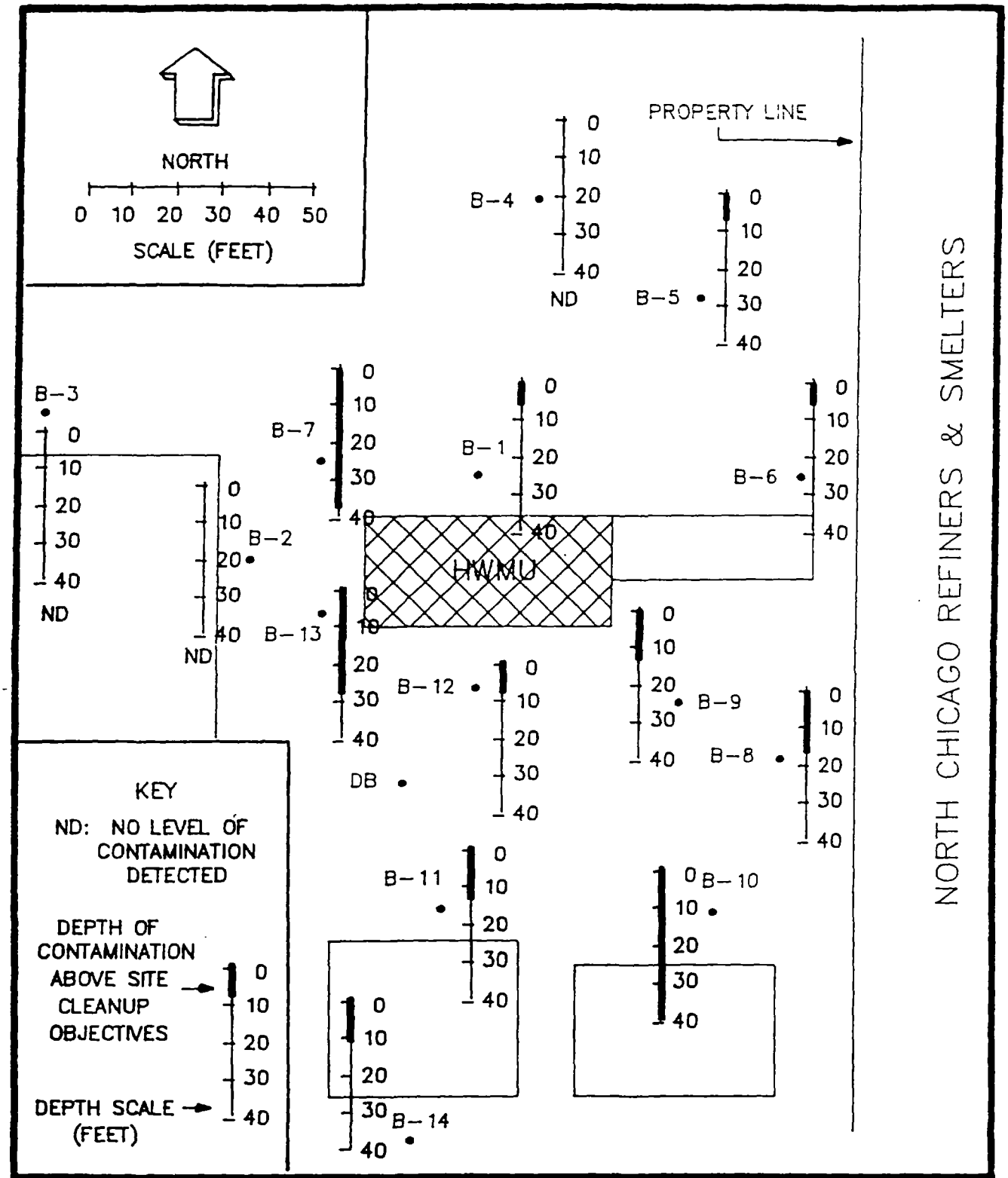

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FIGURE 8B
FANSTEEL – VOLATILE ORGANIC COMPOUND LEVELS PRESENT IN BOREHOLES PN 8441

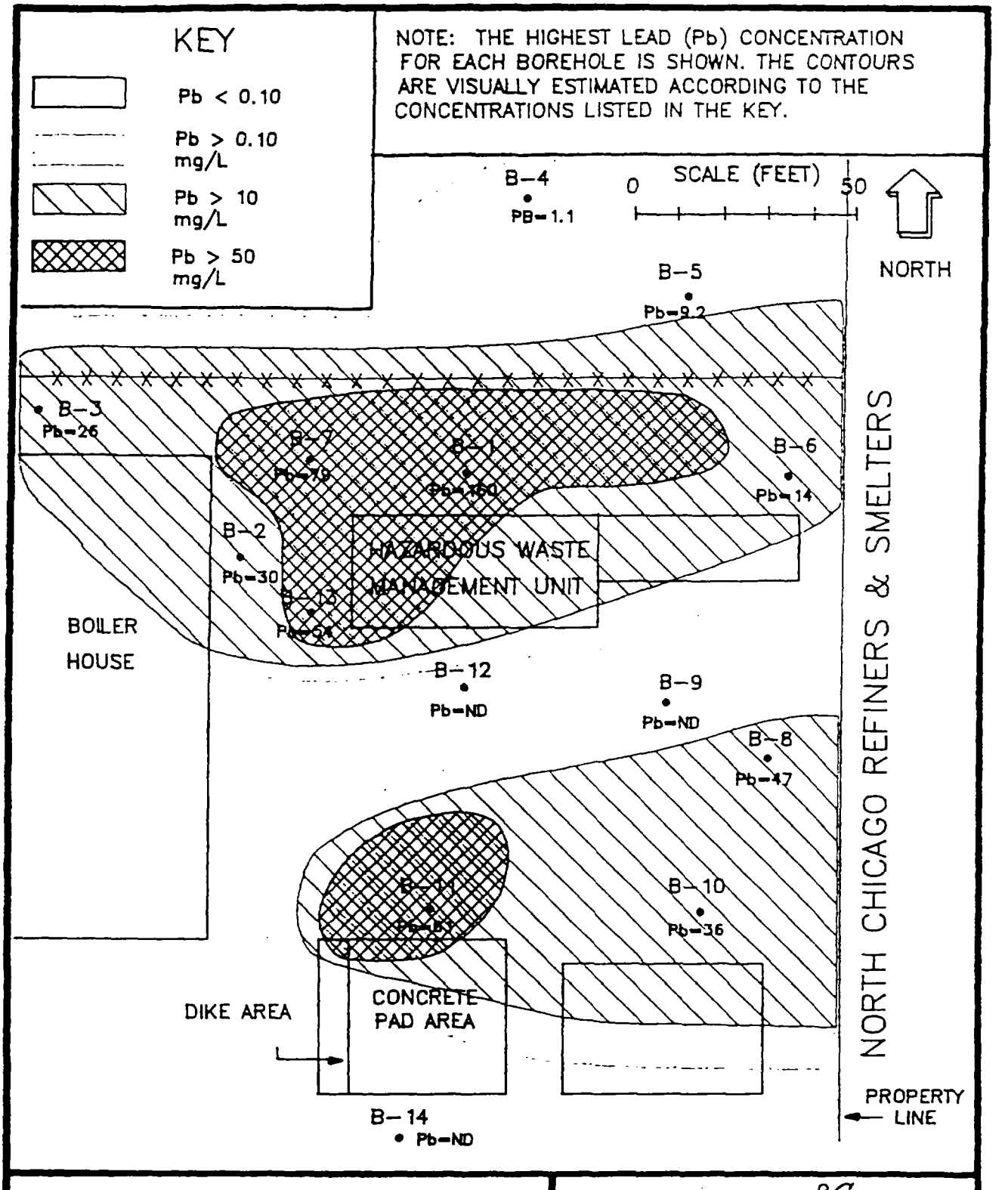

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FIGURE 8C
ESTIMATED CONTOUR DIAGRAM BASED ON LEAD CONCENTRATION
PN 8441

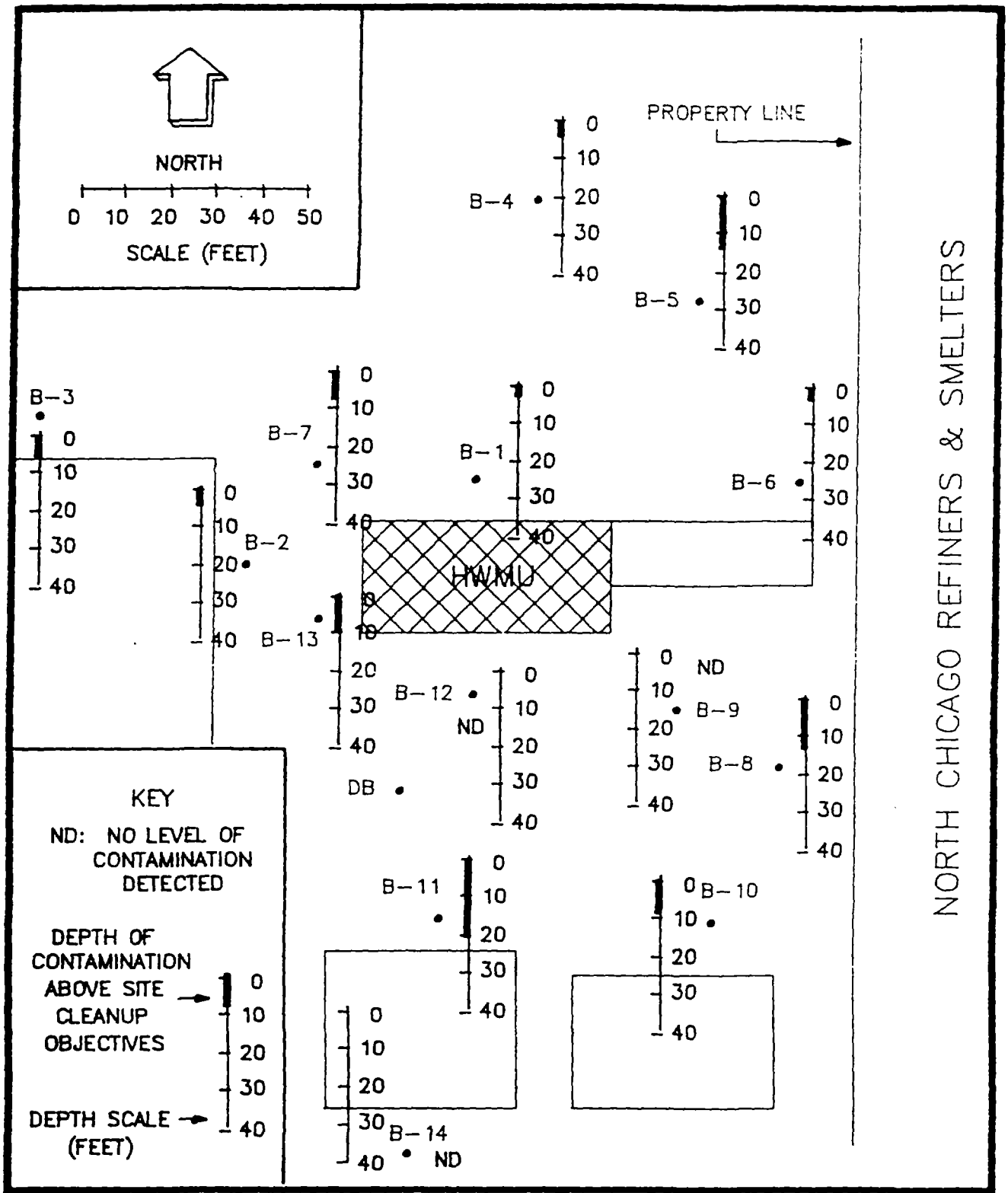

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FIGURE 8D
FANSTEEL – LEAD LEVELS PRESENT IN BOREHOLES
PN 8441

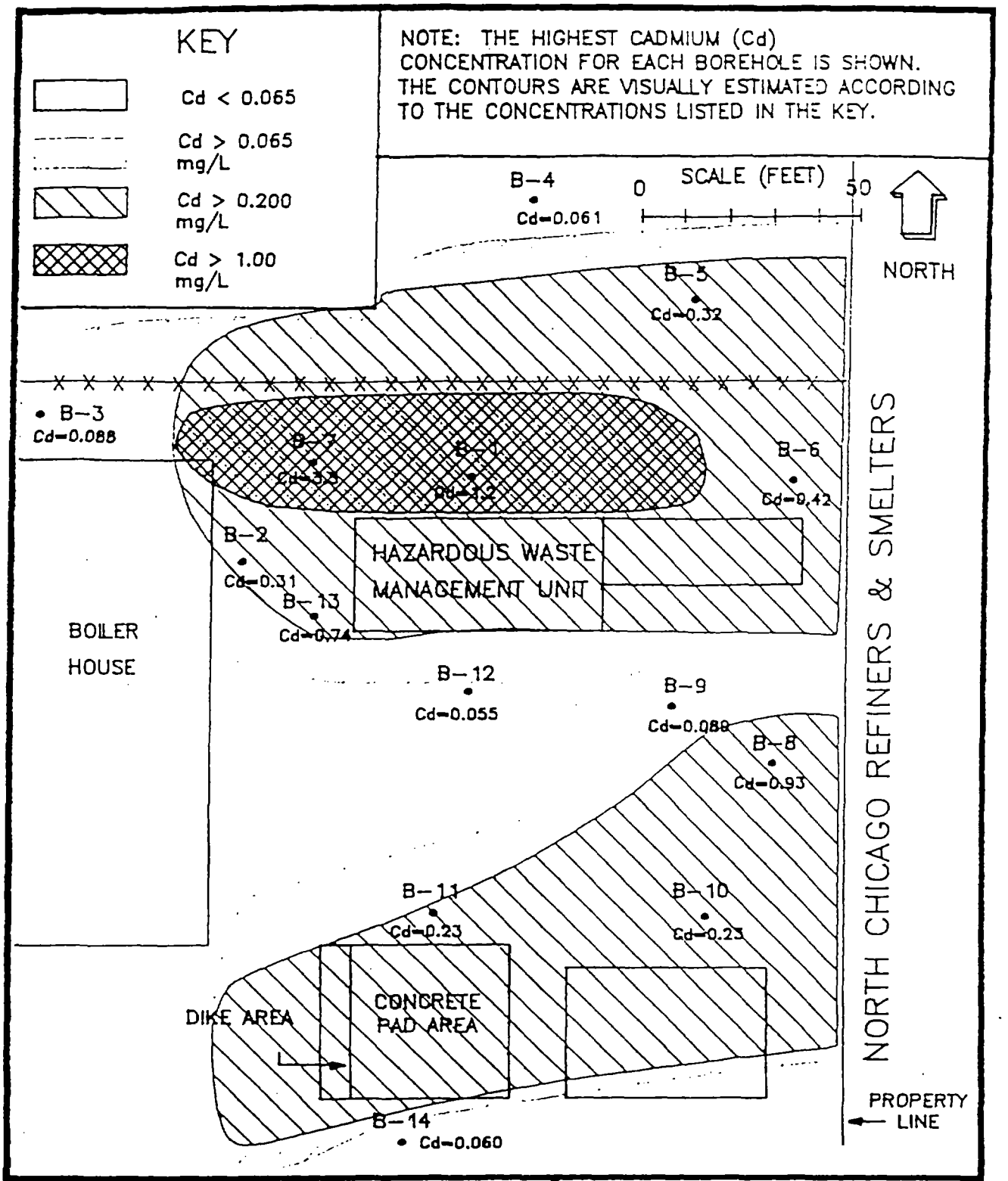

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FIGURE 8E
ESTIMATED CONTOUR DIAGRAM BASED ON CADMIUM CONCENTRATION
PN 8441

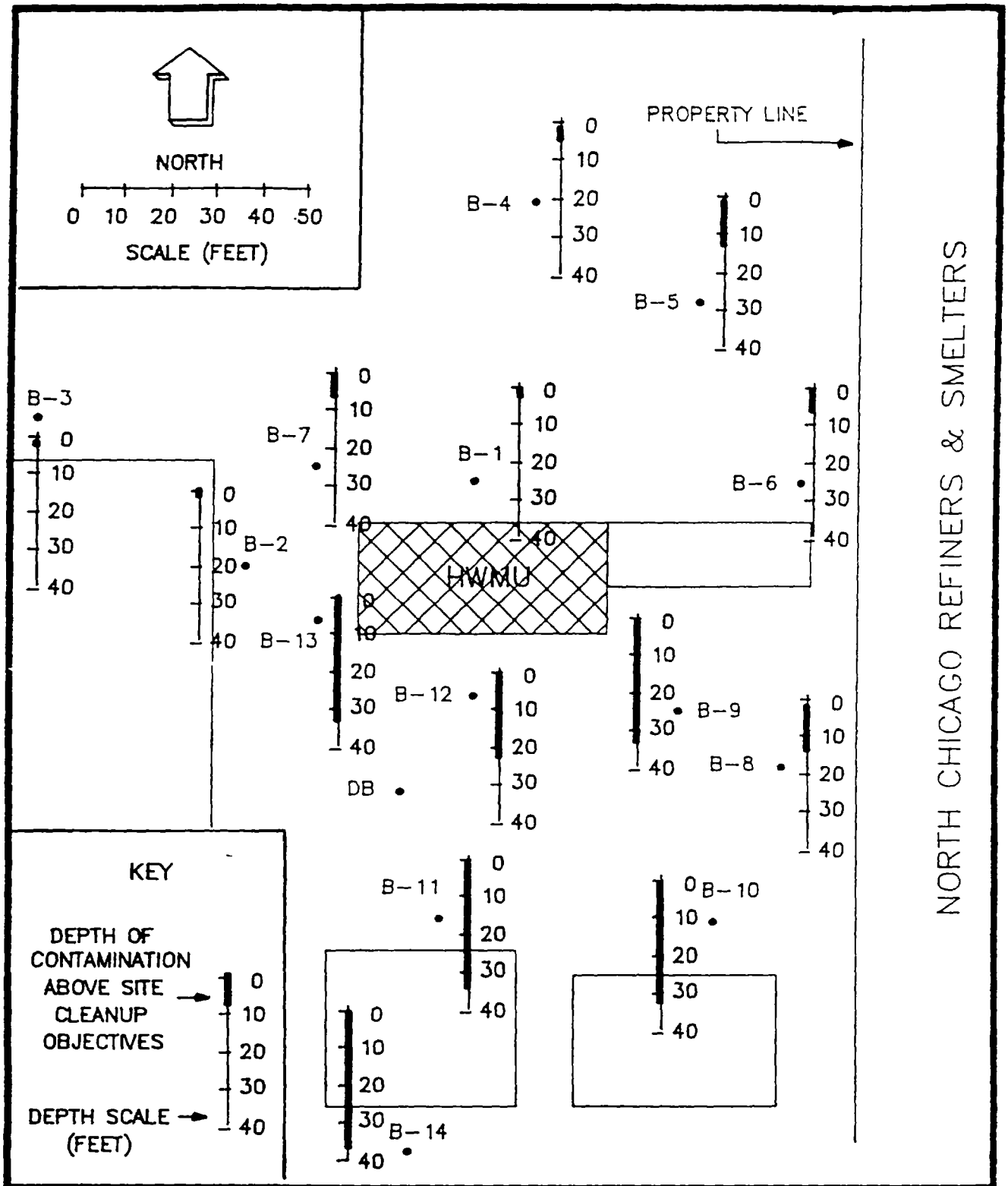

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FIGURE 8F
FANSTEEL – CADMIUM LEVELS PRESENT IN BOREHOLES
PN 8441