United States
Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R05-87/054
September 1987

COPY 2

EPA Region 5 Records Ctr.

205625

EPA

Superfund Record of Decision:

Schmalz Dump, WI

TECHNICAL REPORT DATA

(Please read Instructions on the reverse before completing)

1. REPORT NO. EPA/ROD/R05-87/054	2.	3. RECIPIENT'S ACCESSION NO.
4. TITLE AND SUBTITLE SUPERFUND RECORD OF DECISION Schmalz Dump, WI Second Remedial Action - Final		5. REPORT DATE September 30, 1987
		6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S)		8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS		10. PROGRAM ELEMENT NO.
		11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS U.S. Environmental Protection Agency 401 M Street, S.W. Washington, D.C. 20460		13. TYPE OF REPORT AND PERIOD COVERED Final ROD Report
		14. SPONSORING AGENCY CODE 800/00

15. SUPPLEMENTARY NOTES

16. ABSTRACT

The Schmalz Dump site occupying approximately seven acres of the Waverly Beach wetlands area, is located on the north shore of Lake Winnebago in the town of Harrison, Wisconsin. Industries dumped wastes at various locations along the north shore of Lake Winnebago for several years. Mr. Gerald Schmalz, the previous site owner, began filling his property in 1968. Records show that wastes hauled there consisted of solid wastes, car bodies, stone, trees, pulp chips and mash. Between 1972 and 1973 the site accepted fly ash and bottom ash from Menasha Utility, and in 1978 and 1979 Schmalz accepted the demolition debris of a building owned by the Allis-Chalmers Corporation. Initial onsite sampling in early 1979 determined that an area containing the Allis-Chalmers debris was contaminated with concentrations of PCBs as high as 3,100 ppm with lead and chromium also detected in relatively high concentrations. In August 1985, a ROD was signed approving an operable unit to address the PCB contamination. This second operable unit addresses soil contamination with lead and chromium $^{+3}$.

The selected remedial action for this site includes: the installation of a low permeability, compacted earth material cap over approximately seven acres of lead and chromium contaminated soils; and implementation of ground water monitoring involving the installation of slurry wall for lead and chromium. A voluntary well abandonment program for nearby wells is also proposed. The estimated capital cost for this remedial action is $687,664 with annual O&M of $17,940.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Record of Decision Schmalz Dump, WI Second Remedial Action - Final Contaminated Media: soil Key contaminants: lead, chromium^{+3}		

18. DISTRIBUTION STATEMENT	19. SECURITY CLASS *(This Report)* None	21. NO. OF PAGES 33
	20. SECURITY CLASS *(This page)* None	22. PRICE

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DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Schmalz Dump, Harrison, Wisconsin

STATEMENT OF PURPOSE

This decision document represents the selected remedial action for this site developed in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. § 9601 et seq., (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and to the extent practicable, the National Contingency Plan (40 CFR Part 300).

The State of Wisconsin has concurred on the selected remedy, as stated in the attached Letter of Concurence.

STATEMENT OF BASIS

This decision is based upon the Administrative Record developed for the Schmalz Dump Site. The attached index for the Schmalz Dump administrative record identifies the items which comprise the record upon which the selection of a remedial action is based.

DESCRIPTION OF THE SELECTED REMEDY

The preferred alternative involves the installation of a low permeability, compacted earth material cap over approximately seven acres of lead and chromium contaminated soils, and implementation of groundwater monitoring for lead and chromium. A voluntary well abandonment program for nearby wells is also proposed.

DECLARATION

As required by Section 121(a) of CERCLA as amended by SARA, the selected remedy is protective of human health and the environment, attains Federal and State requirements that are applicable or relevant and appropriate, and is cost-effective. The statutory preference for treatment set forth in Section 121(b) of CERCLA as amended by SARA is not satisifed because treatment was found to be impracticable due to questionable technical feasibility, inadequate short-term protection, and inappropriate site conditions.

September 30th, 1987
Date

Valdas V. Adamkus
Valdas V. Adamkus
Regional Administrator

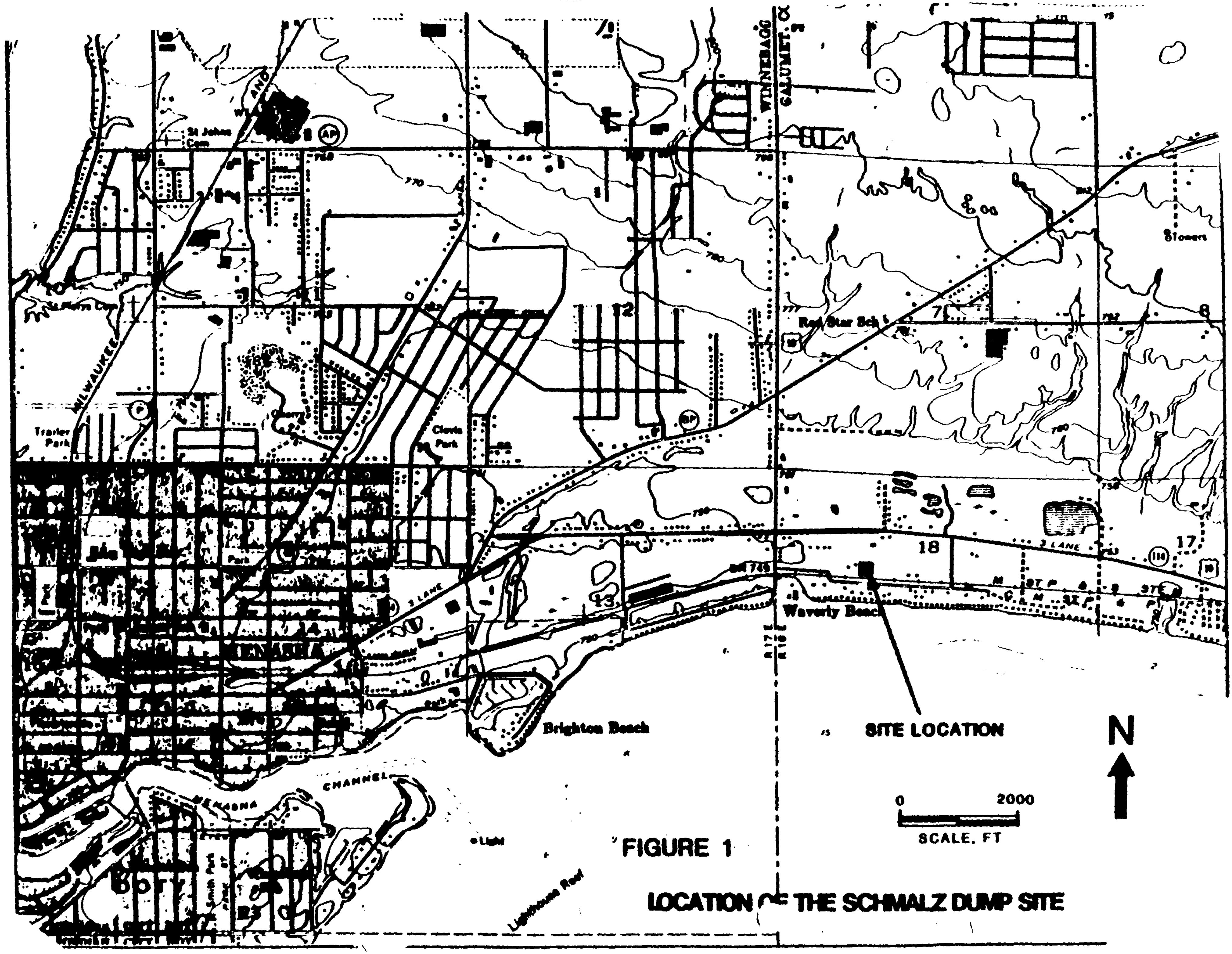


FIGURE 1

LOCATION OF THE SCHMALZ DUMP SITE

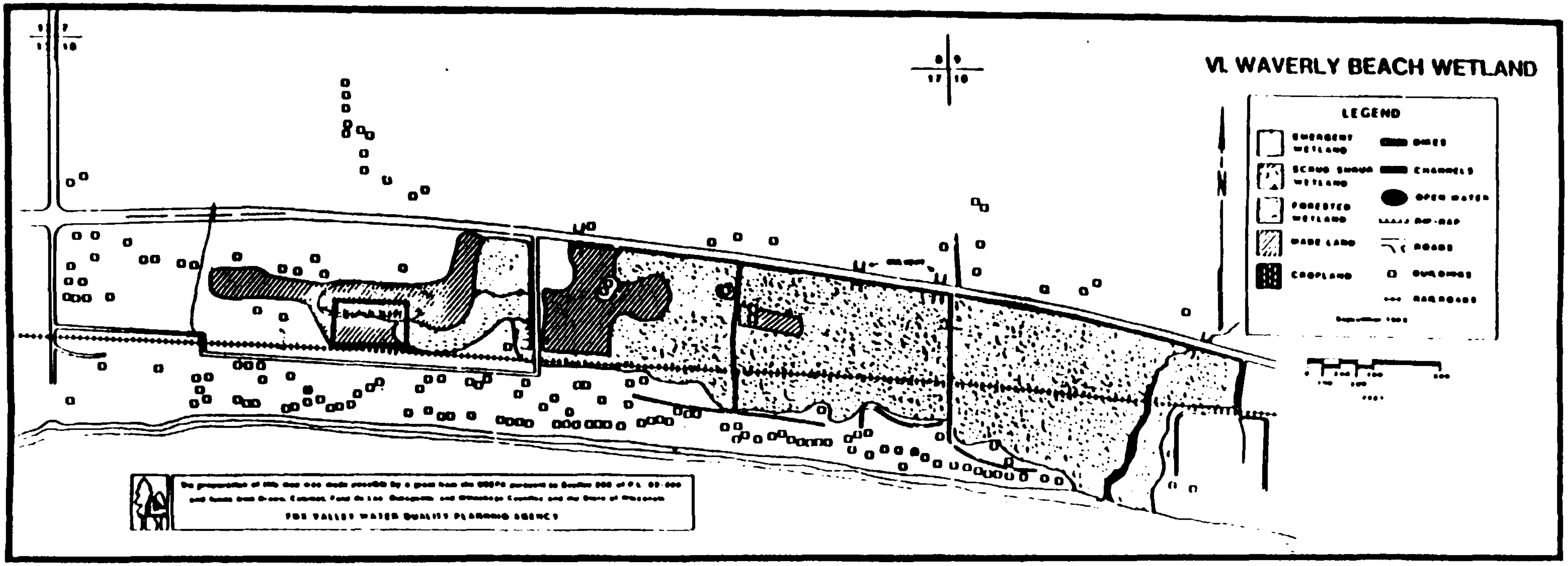


FIGURE 2

SCHMALZ DUMP SITE
HARRISON, WISCONSIN

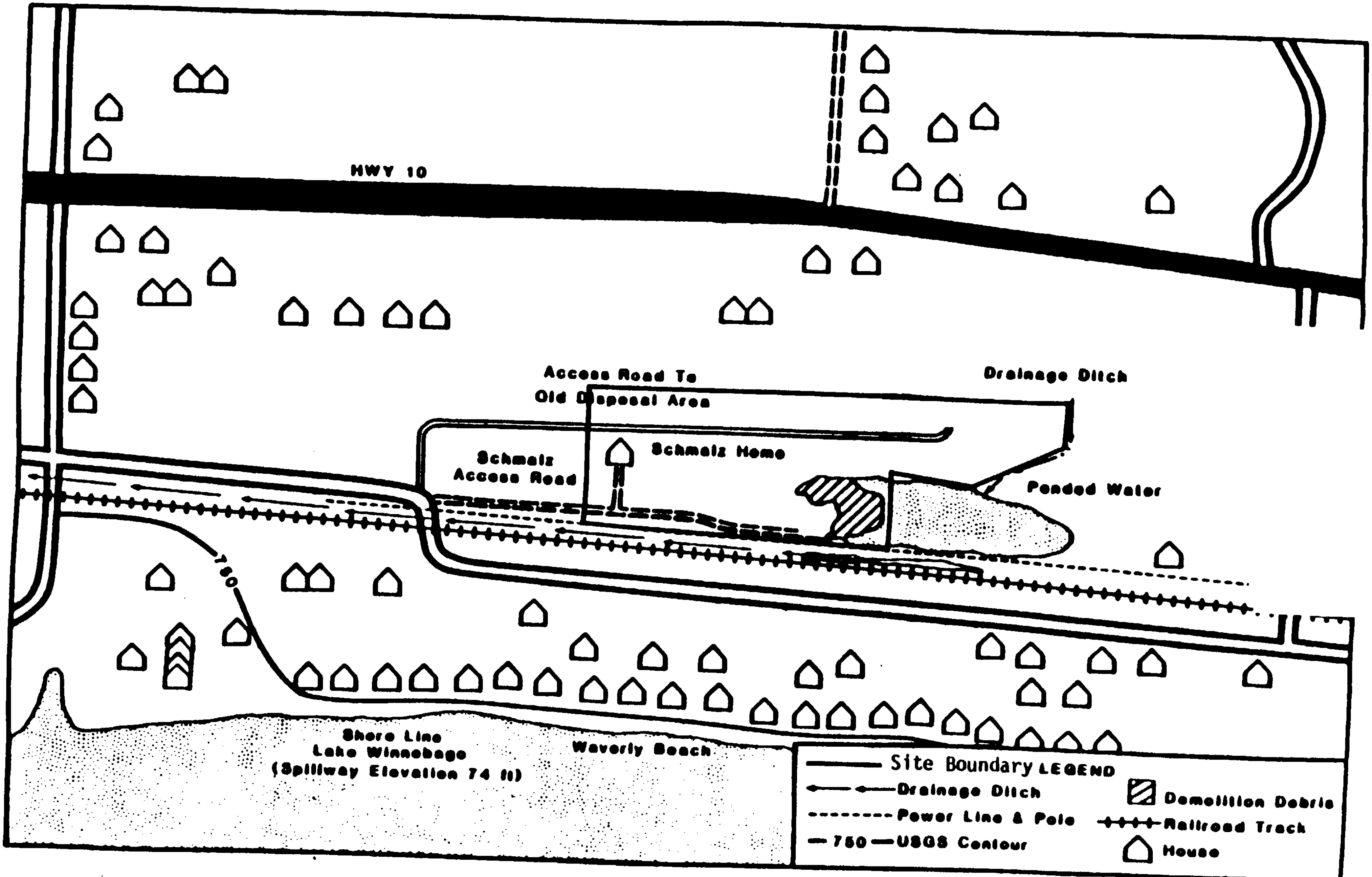


FIGURE 3

SUMMARY OF REMEDIAL ALTERNATIVE SELECTION
SCHMALZ DUMP SITE

I. Site Location and Description

The Schmalz Dump Site is located on the north shore of Lake Winnebago in the Town of Harrison. Harrison is located approximately ten miles south of Appleton, and two miles east of Menasha, in Calumet County, in the east central section of Wisconsin (see Figure 1).

The Site occupies approximately seven acres in the Waverly Beach Wetlands area (Figure 2). Unauthorized dumping occurred at the site in the late 1960s and 1970s. The property north and west of the site has also been used for waste disposal. A wet marshy area bounds the site to the east, with a railroad right-of-way to the south. Beyond the railroad tracks, between the Site and Lake Winnebago, is a moderately populated residential area. All of these residences have been hooked-up to the Menasha water system, although some have retained wells for auxiliary uses. The neighboring city of Appleton, with a population of 60,000, has its drinking water intake approximately 1200 feet from the shore of Lake Winnebago, in close proximity to the site.

II. Current Site Status

Site History

According to the Wisconsin Department of Natural Resources (WDNR) and court documents, industries dumped wastes at various locations along the north shore of Lake Winnebago for several years. Mr. Gerald Schmalz, previous site owner, began filling his property in 1968. Records show that the wastes hauled there consisted of solid waste, car bodies, stone, trees, pulp chips and mash. Between 1972 and 1973 the site accepted fly ash and bottom ash from Menasha Utility, and in 1978 and 1979 Schmalz accepted the demolition debris of a building owned by the Allis-Chalmers Corporation.

Initial on-site sampling by the State of Wisconsin and the U.S. Army Corps of Engineers (U.S. ACE) in early 1979 determined that the area containing the Allis-Chalmers debris was contaminated with concentrations of PCBs as high as 3100 parts per million (ppm). Lead and chromium were also detected in relatively high concentrations at several sampling stations.

In the summer of 1979, the Wisconsin Attorney General filed suit against Mr. Schmalz, the waste hauler - Weiseler Construction, and Allis Chalmers Corporation, alleging illegal disposal of PCBs. However, due to lack of direct evidence, the court ruled against the State. In 1983, Gerald Schmalz sold the property to his son Gregory.

TABLE 1

GROUNDWATER SAMPLE ANALYSES

Well Location	Total Pb ug/l	Dissolved Pb ug/l	Total Cr^{+3} ug/l	Dissolved Cr^{+3} ug/l	Ratio of Total to Dissolved Cr	Cr^{+6} ug/l	Total Suspended Solids mg/l
Detection Limit	2	2	0.5	0.5		10	5
GW-1	-	-	89	38	1.89	-	392
GW-2	149	-	390	48	8.13	-	603
GW-3	64	-	120	27	4.44	-	418
GW-4	-	-	45	14	3.21	-	102
GW-5	-	-	60	8.9	6.74	-	274
GW-6	-	-	22	6.5	3.38	-	77
GW-7	-	-	40	2.1	19.05	-	188
GW-8	-	-	25	2.4	10.42	-	274
GW-9[1]	-	-	1130	1140	0.99	-	429
GW-9a	-	-	286	185	1.55	-	210
GW-10	-	-	21	3.3	6.36	-	280
GW-11	-	-	102	29	3.52	-	382
DW-01	-	-	2.4	1.5	1.6	-	-

- = Below detection limit.

DW-01 is a sample of the water used during drilling.

[1] Note: Relative percent difference between total and dissolved chromium in sample GW-9 = 0.88%, which is well within the prer ion limits of the analytical procedure.

In September 1984, the site was listed on the national priorities list. USEPA completed a report identifying potentially responsible parties, including waste generators and transporters, in October 1984. The Remedial Investigation/Feasibility Study (RI/FS) was initiated during April 1985. Since a threat to public health had been identified due to the PCB contaminated demolition debris, USEPA and WDNR decided to prepare a phased feasibility study to evaluate potential source control remedies.

In August 1985, a Record of Decision was signed approving an operable unit to address the PCB contamination at the site. The operable unit consists of removal of construction debris and sediments containing elevated concentrations of PCBs. Additionally, the water/solids mixture in the sediments will be separated, with solids destined for a USEPA approved hazardous waste landfill. The water will undergo metals precipitation and activated carbon treatment for removal of PCBs, chromium and lead prior to discharge to the pond area of the Schmalz property. Implementation of the operable unit is scheduled to occur in the fall of 1987.

Site Characterization

RI/FS work has progressed concurrently with design of the operable unit. Phase I of the RI was completed in April 1987. Phase II of the RI, which was designed to characterize inorganic contamination of the ground water, was performed in June 1987. The scope of the RI work at the Site included the installation of monitoring wells, and collection of soil, sediment, surface water, residential well, and groundwater monitoring well samples. The objectives of the RI were to characterize the areas of the site that were not addressed by the operable unit and to determine if a public health or environmental threat exists outside the PCB contaminated area of the site. All samples were analyzed for priority pollutant metals and PCBs. A percentage of these were also analyzed for EP Toxicity and organic priority pollutants. Results of the RI are discussed below.

Groundwater

Groundwater samples collected during the RI indicate the presence of low levels of trivalent chromium beneath the site, in the water table aquifer. Levels range from 14 micrograms per liter (ug/l) to 48 ug/l within the site boundary but do not exceed background levels downgradient of the site (see Figure 4 and Table 1).

Groundwater samples collected indicate the existence of two separate plumes of trivalent chromium: a diffuse, east-west trending plume beneath the site, and an isolated off-site anomaly west of the Schmalz Site. In the diffuse east-west trending plume beneath the site, groundwater samples contain levels of chromium ranging from 14 ug/l to 48 ug/l. Groundwater samples in the vicinity of the isolated anomaly to the west of th Site exhibited high concentrations of soluble chromium (1140 ppb) (see Figure 4). The chromium contamination at this location is not associated with suspended particles, like that found beneath the site, and appears to emanate from a localized

Dissolved Chromium Distribution (µg/l)

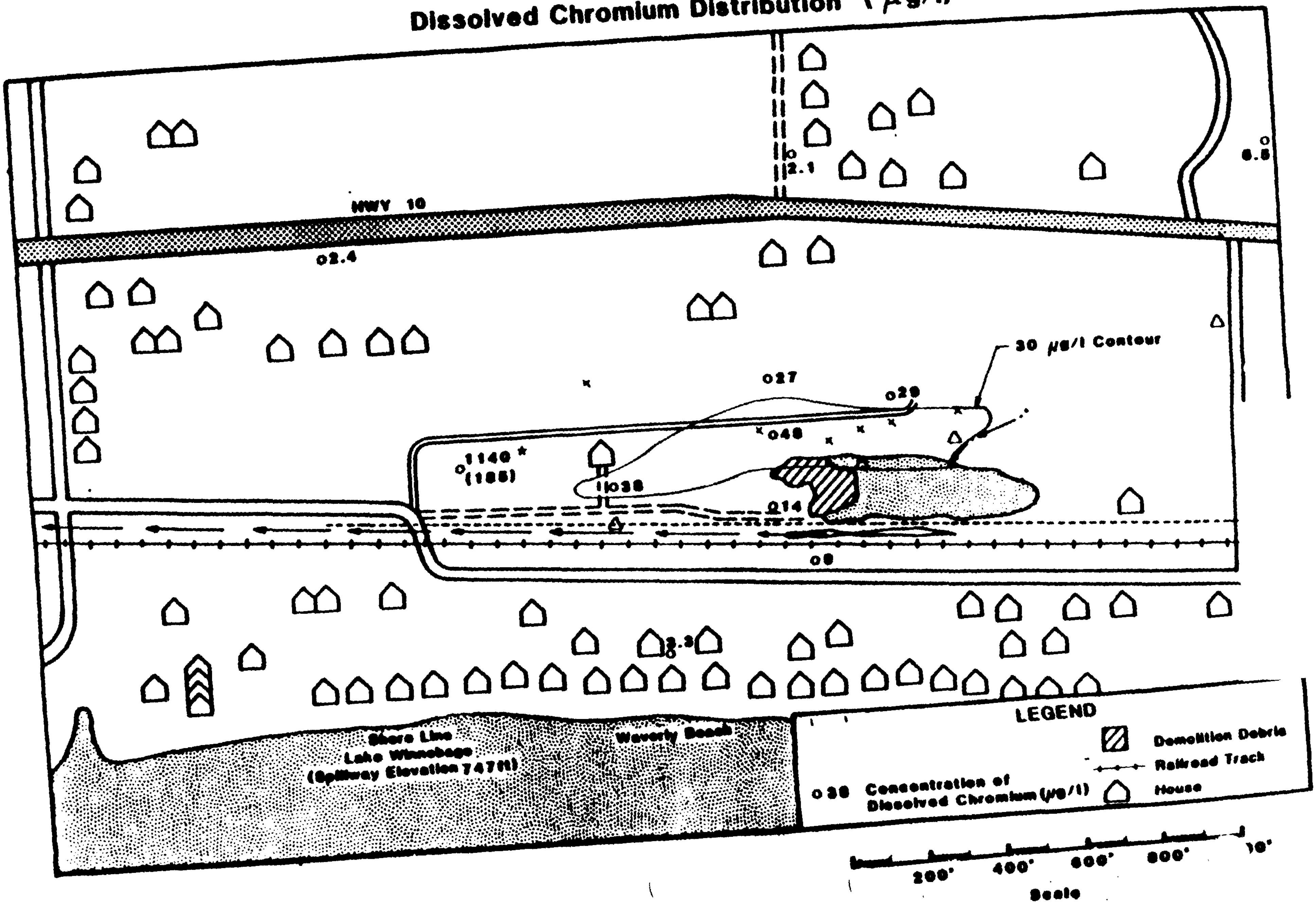


Figure 4

point source. Based on the history of dumping in the area, this phenomenon is not unusual. Residential wells downgradient of the site were also sampled during the RI. Sample results did not indicate the presence of lead or chromium, but did show degraded groundwater quality due to high levels of iron, magnesium, potassium, sodium, ammonia, strontium and boron (see Table 2).

Based on existing literature, surficial soils overlie 15 to 35 feet of fine grained, saturated silty sand and a 30 to 50 foot thick clay layer, which in turn overlies a 5 to 20 foot thick hardpan layer. In the immediate vicinity of the site, the silty sand unit has a thickness of 20 feet. Clay and hardpan layers are impermeable, and isolate the contaminated silty sand aquifer from the deeper Paleozoic dolomite and sandstone aquifers in which local residents have their wells. Schematic east-wast and north-south cross sections through the site are illustrated in Figures 5 and 6.

Based on the above discussion, the silty sand aquifer beneath the site appears to be separated from the lower aquifer by a fairly thick, continuous clay layer. It is therefore unlikely that contaminants from the site would enter the lower aquifer and reach residential wells. Also, chromium levels found in groundwater do not exceed the drinking water Maximum Contaminant Level (MCL) of 50 ug/l under the Safe Drinking Water Act (SDWA).

Surface Water and Sediments

Surface water and sediment samples collected during the RI from the area of demolition debris disposal contained elevated concentrations of PCBs, lead and chromium. This area will be addressed during removal of the debris under the first operable unit remedial action. Samples collected in the drainage ditch south of the site and at the entrance of Lake Winnebago did not contain elevated levels of these contaminants.

The shallow aquifer beneath the site contains levels of trivalent chromium above background but not above the MCL. Based on RI data, the water table is three to five feet below the land surface and direction of flow is to the southwest, towards Lake Winnebago. Because the City of Appleton obtains its drinking water from the Lake, the City's population was identified as a potential receptor (see Figure 7).

As part of the RI, a groundwater modeling study was performed to determine movement of chromium in the groundwater over time. Although the model did indicate that chromium found at the site would migrate toward the lake shore, the flow rate of groundwater is estimated to be between eight and eleven feet per year. This indicates that in fifty years, groundwater containing chromium would have migrated just beyond the site boundary (see Figure 8).

Based on the rate of groundwater movement, and taking into consideration the dilution that would occur once ground water discharges to

TABLE 2

SCHMALZ DUMP SITE - REMEDIAL INVESTIGATION - RESIDENTIAL WELL DATA
(Samples collected Oct. thru Dec. 1985)
(Concentrations expressed in ug/l)

PARAMETER	DRINKING WATER STDS	NUMBER EXCEED DRK. STDS	1584	1583	2530	1581	1580	1579
			RW-1	RW-2	RW-3	RW-4	RW-5	RW-6
METALS:								
Arsenic	50	0	ND	ND	ND	ND	ND	26
Lead	50	0	ND	9.4	ND	ND	2.7	ND
Silver	50	0	ND	ND	4.48	ND	6.8	ND
Boron			285	345	306	299	410	299
Barium	1000	0	236	141	157	140	87	110
Cadmium			ND	3.47	ND	ND	ND	ND
Chromium	50	0	ND	ND	8.24	ND	ND	ND
Copper	A 1300	0	47	ND	ND	404	8	ND
Iron	S 300	5	7020	2490	277	1100	10100	3000
Lithium			17.1	14	12.9	13.1	13	ND
Manganese	S 50	0	19.8	11.7	7	15.7	6.3	28.2
Strontium			1800	1560	1560	1020	1900	549
Zinc	S 5000	0	809	ND	ND	ND	74.4	ND
Calcium			61400	46700	52900	55300	43400	46900
Potassium			3240	3330	2730	2490	3170	ND
Magnesium			53300	50600	50600	44200	41100	41200
Sodium	C 20000	6	33000	32000	33400	36000	29500	27000
Fluoride	4000	0	300	300	300	300	300	300
Ammonia (as N)			2500	1970	1740	1500	1400	2120
Alkalinity (as CaCO3)			310000	410000	439000	394000	436000	360000
Sulfate (as SO4)	S 250000	0	18000	4000	5000	ND	ND	ND
Chloride (as Cl-)	S 220000		20000	16000	20000	21000	9000	ND
VOLATILES:								
Carbon Disulfide			ND	ND	2.3	ND	ND	ND
SEMIVOLATILES:								
Phenol	B 3500	0	ND	ND	ND	1.1	1.4	ND
Di-n-Butylphthalate	B 3500	0	ND	1.2	ND	ND	ND	ND
Butylbenzylphthalate			ND	ND	ND	ND	1.4 A	ND
PESTICIDES:								
NONE DETECTED								

ND = Not Detected
A = Estimated Value
S = Secondary Drinking Water Standards
A = Proposed Maximum Concentration Levels
B = Health Advisory Guidance Level
C = American Heart Association Recommended Level

Figure 5

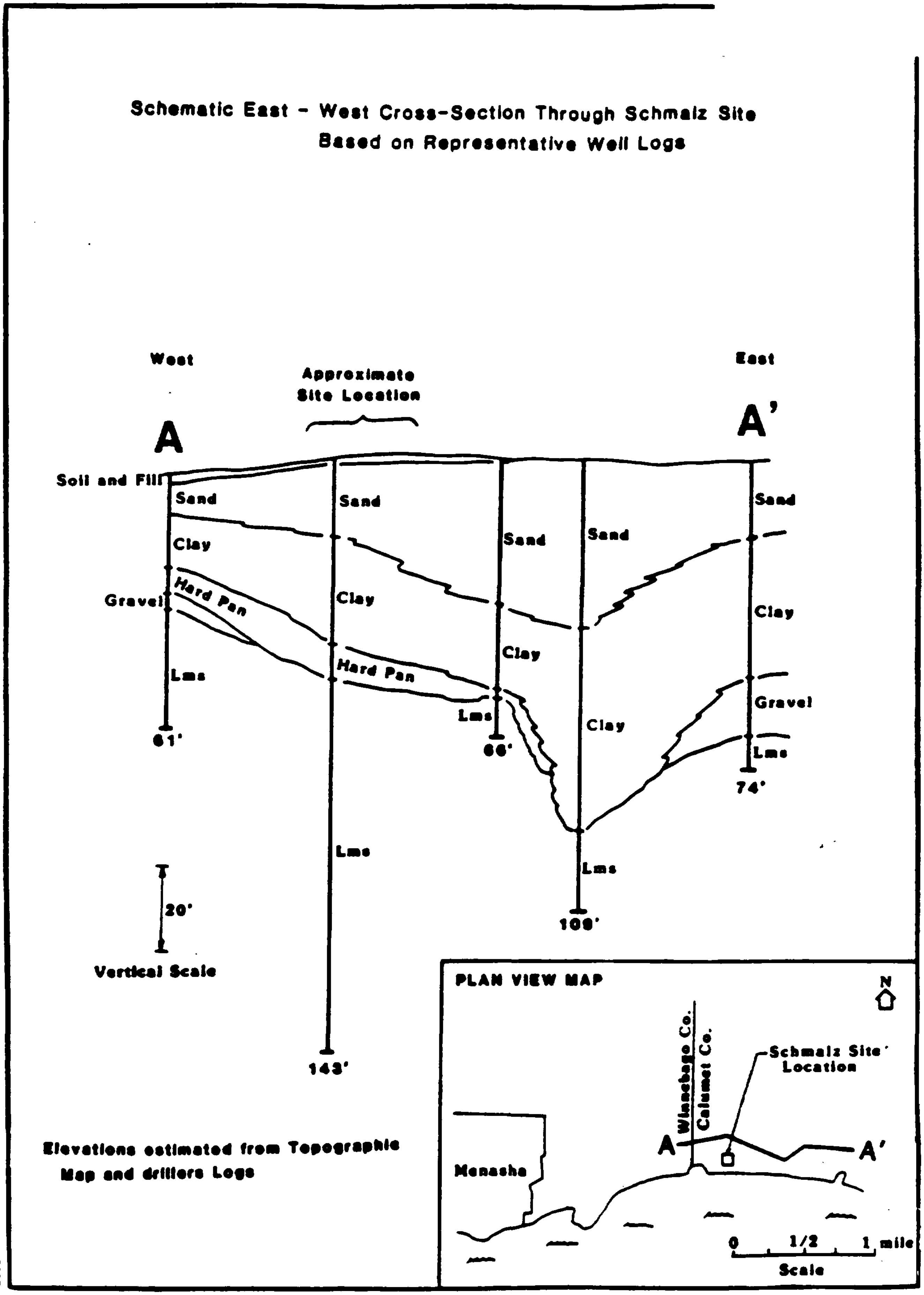

Schematic East - West Cross-Section Through Schmalz Site
Based on Representative Well Logs
West
Approximate Site Location
East
A
A'
Soil and Fill
Sand
Sand
Sand
Sand
Sand
Clay
Gravel
Hard Pan
Clay
Clay
Clay
Clay
Hard Pan
Lms
Lms
Gravel
Lms
Lms
Lms
61'
66'
74'
109'
143'
20'
Vertical Scale
Elevations estimated from Topographic Map and drillers Logs
PLAN VIEW MAP
N
Winnebago Co.
Calumet Co.
Schmalz Site Location
Menasha
A
A'
0
1/2
1 mile
Scale

Figure 6

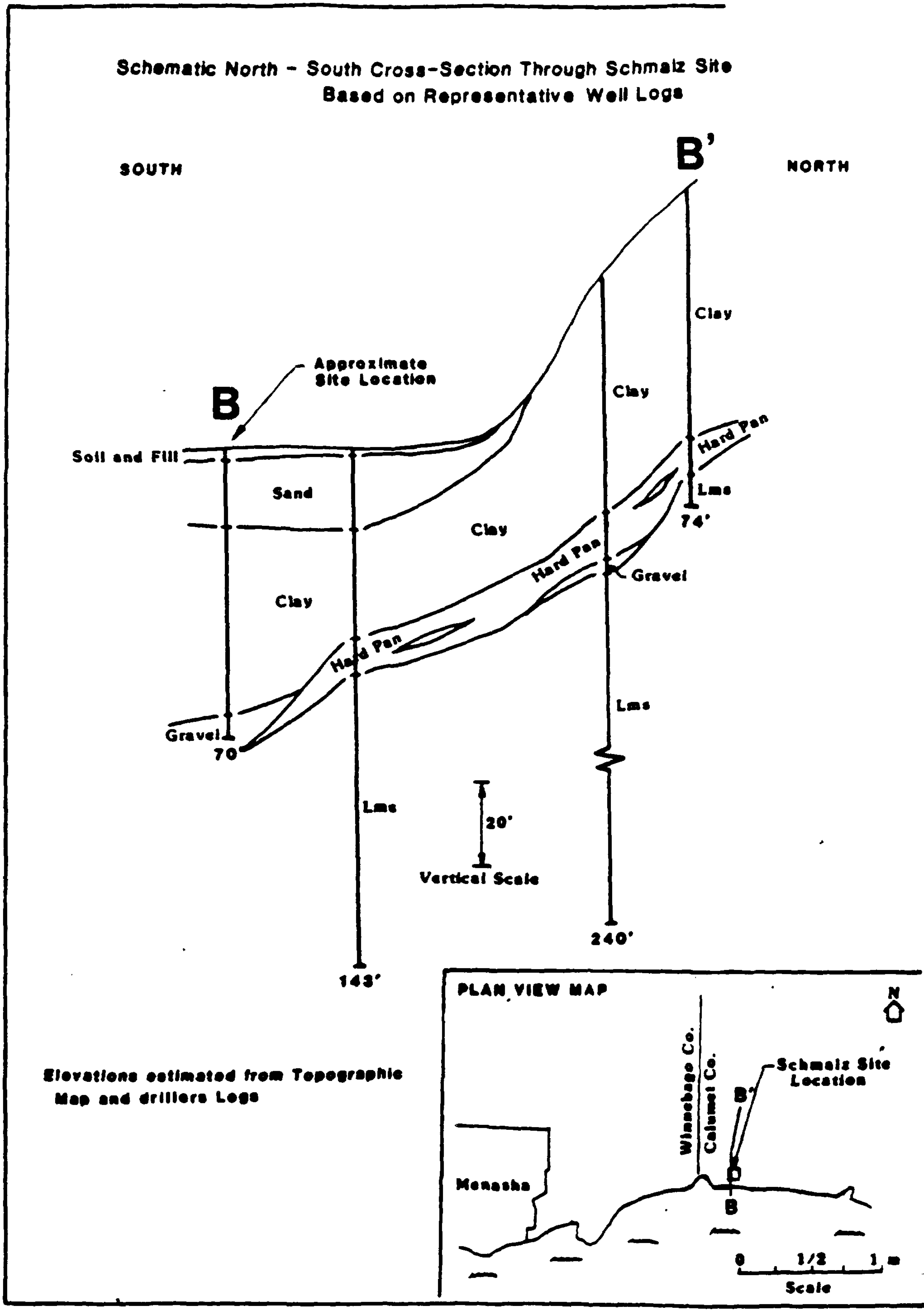

Schematic North - South Cross-Section Through Schmalz Site
Based on Representative Well Logs
SOUTH
NORTH
B'
B
Approximate
Site Location
Soil and Fill
Sand
Clay
Clay
Clay
Clay
Hard Pan
Hard Pan
Hard Pan
Lms
Lms
Lms
Gravel
Gravel
70'
74'
143'
240'
20'
Vertical Scale
Elevations estimated from Topographic
Map and drillers Logs
PLAN VIEW MAP
N
Winnebago Co.
Calumet Co.
Schmalz Site
Location
B'
B
Menasha
0
1/2
1 m
Scale

Figure 7 Water Table

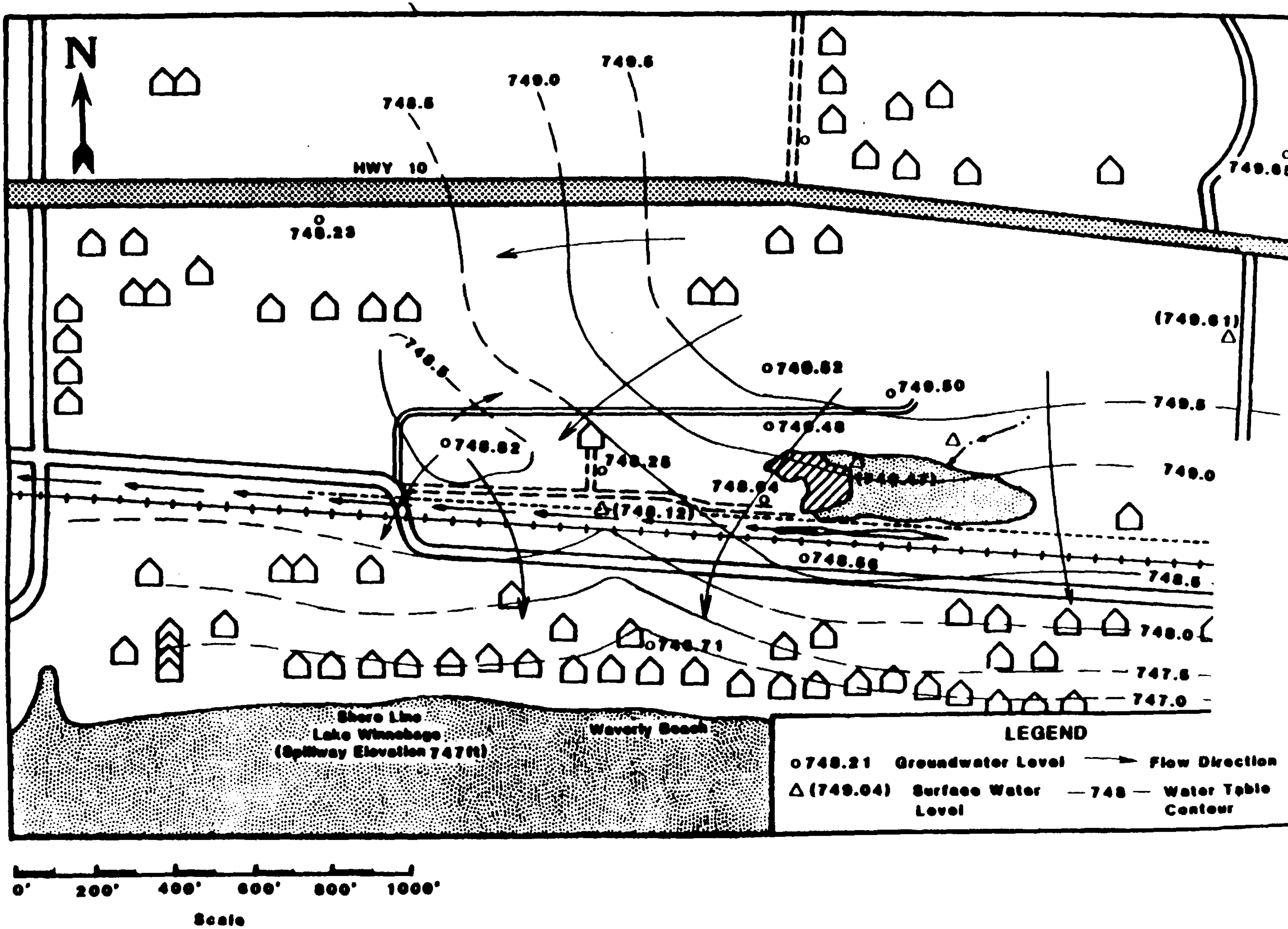
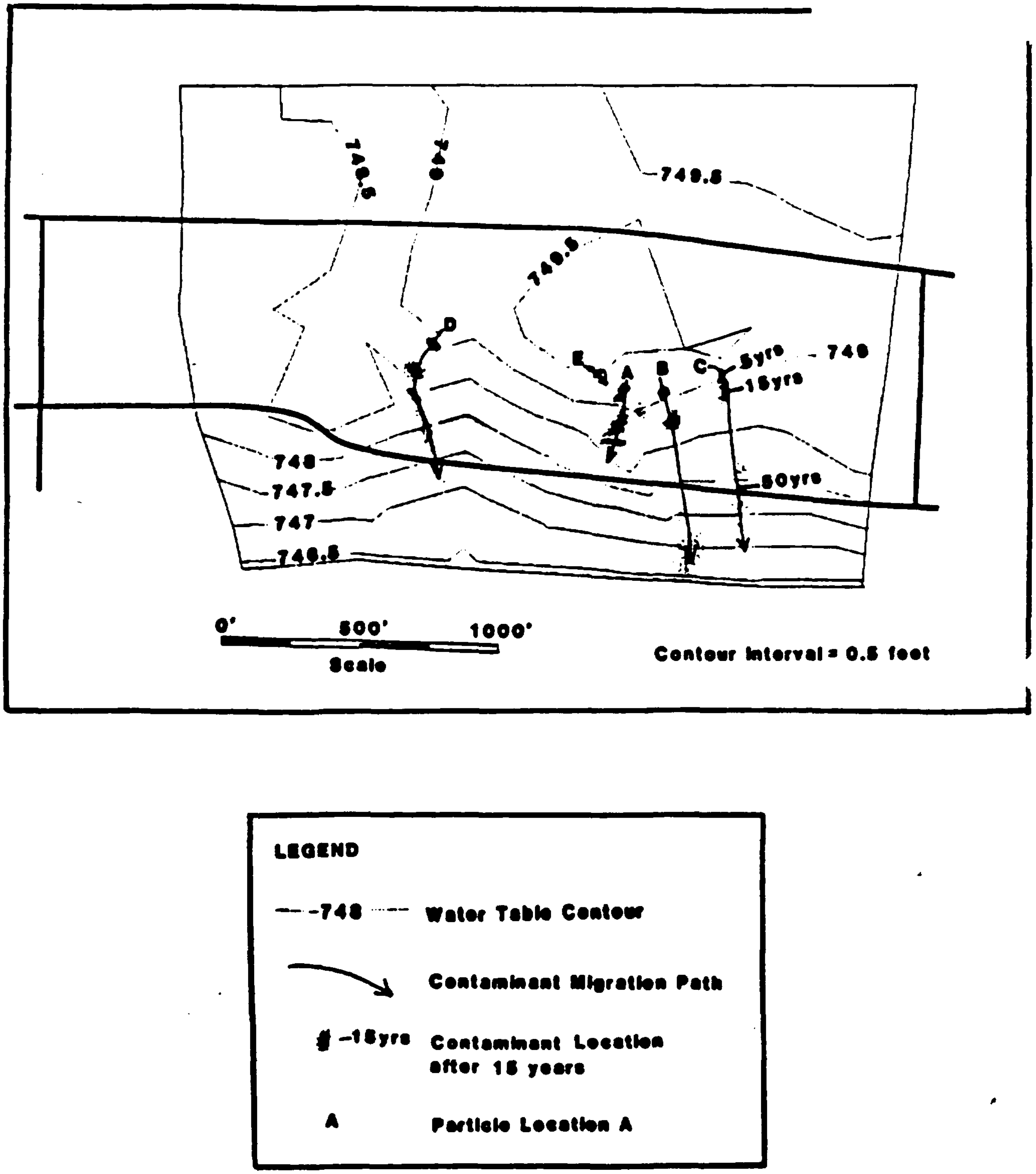


Figure 8



Contaminant Migration in Dry Period Water Table at 5, 15, and 50 years.

the Lake, the levels of chromium in the groundwater should never pose a threat to Appleton's water supply. Also, as discussed above, chromium levels in the groundwater do not exceed the SDWA standard of 50 ug/l.

Soils

Surface and subsurface soil samples collected at the Site show lead and chromium to be the contaminants of concern. Lead and trivalent chromium were found throughout the site at concentrations ranging from detection limits to 1940 milligrams per kilogram (mg/kg) and 964 mg/kg respectively (see Figures 9 and 10).

PCB contamination is confined to the area where demolition debris was disposed. The first operable unit will address the PCB contamination at the site. During the RI, volatile and semi-volatile organics were found at low levels and at scattered locations.

During the RI, it was noted that several teenaged children use the Site as a dirt bike trail. It was also noted that fresh refuse was continuously being dumped on site. Given that the Site is an attractive nuisance, and that the area containing high levels of lead and chromium in soils is accessible, it was determined that direct contact is an exposure route.

Threat to Public Health

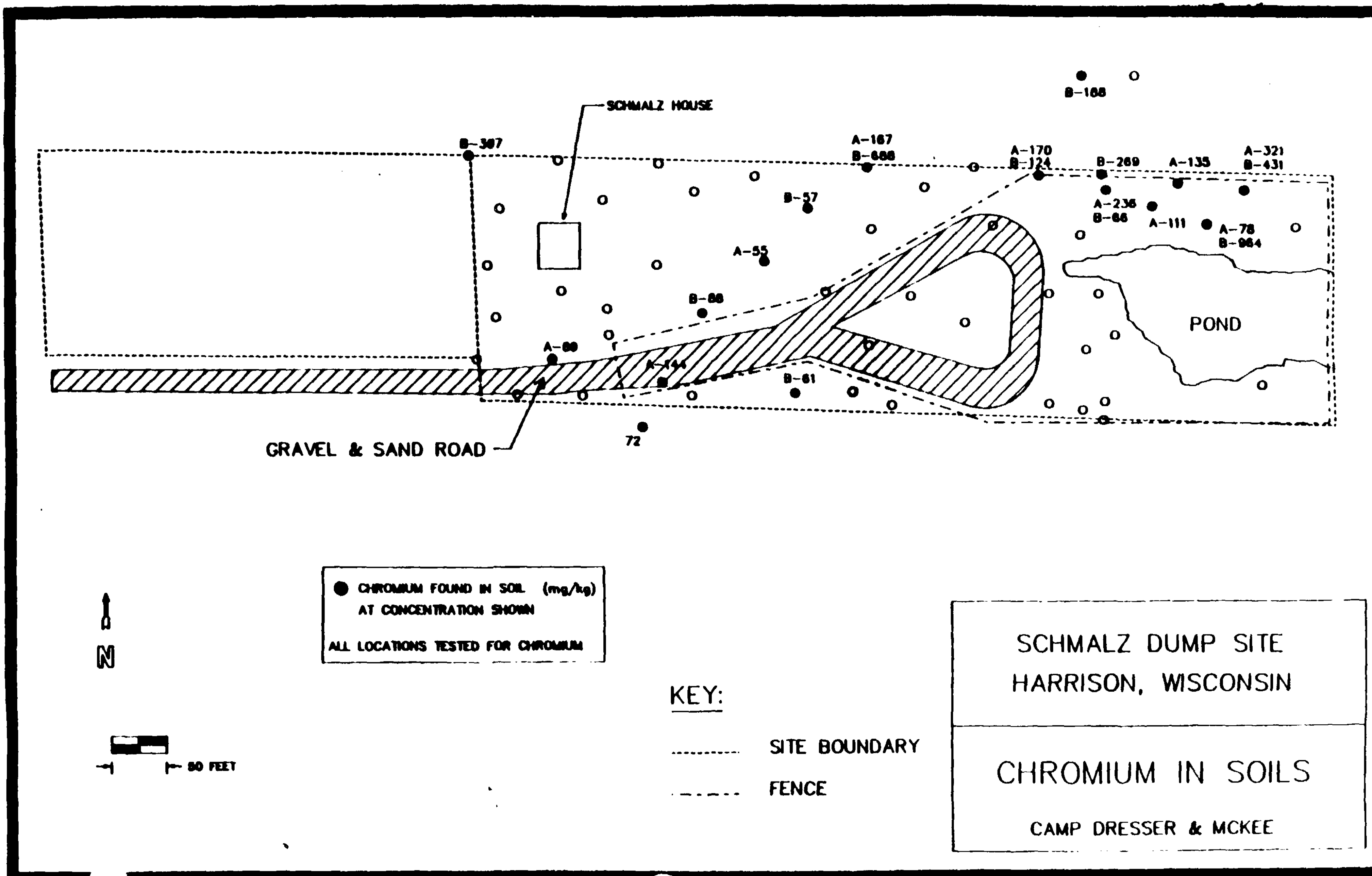
The Public Health Evaluation (PHE) summary in the Phase II RI report for the Schmalz site identified lead and chromium as the contaminants of concern. The pathway of exposure is direct contact with lead and chromium contaminated soils on site.

Potential risks from contaminated soils are based on the assumption that the site would be used for residential development in the future. Since lead and trivalent chromium are noncarcinogens, the acceptable chronic daily intake (AICs) were used to calculate allowable daily chemical intake levels from the identified exposure route. An AIC is the dose that is anticipated to be without lifetime risk when taken daily.

Exposure risks from direct contact were calculated based on the assumption that a child in a residential setting would consume one gram of soil per day. The AICs for lead and trivalent chromium are .014 and 140 milligrams per kilogram per day respectively. Based on these values, lead and chromium in soils on the Schmalz site with concentrations greater than 14 mg/kg and 100 mg/kg respectively, pose an unacceptable lifetime risk from direct contact.

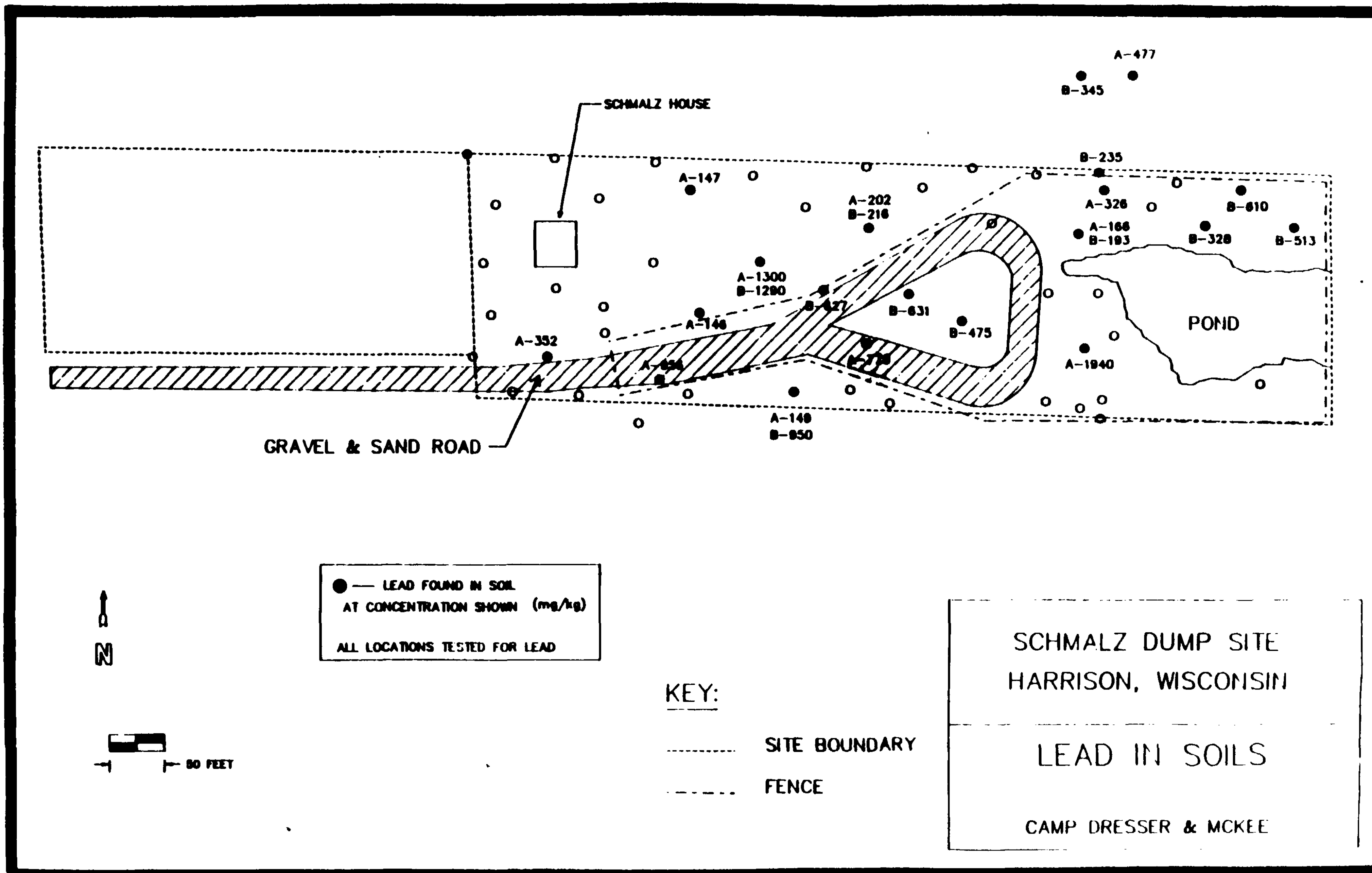
Groundwater was determined not to be a public health threat because chromium concentrations are below the SDWA drinking water standards. However, leaching of chromium and/or lead to groundwater could potentially cause drinking water standards to be exceeded. To determine if leachable amounts of contaminants would leach, EP

FIGURE 9



SCHMALZ HOUSE
B-307
A-167
A-170
B-124
B-269
A-135
A-321
B-431
A-236
B-66
A-111
A-78
B-964
B-57
A-55
B-61
72
POND
GRAVEL & SAND ROAD
CHROMIUM FOUND IN SOIL (mg/kg) AT CONCENTRATION SHOWN
ALL LOCATIONS TESTED FOR CHROMIUM
N
80 FEET
KEY:
SITE BOUNDARY
FENCE
SCHMALZ DUMP SITE
HARRISON, WISCONSIN
CHROMIUM IN SOILS
CAMP DRESSER & MCKEE

FIGURE 10



A-477
B-345
SCHMALZ HOUSE
B-235
A-147
A-202
B-216
A-326
B-610
A-166
B-193
B-328
B-513
A-1300
B-1280
B-427
B-631
A-146
B-475
A-352
POND
A-1940
A-148
B-850
GRAVEL & SAND ROAD
LEAD FOUND IN SOIL AT CONCENTRATION SHOWN (mg/kg)
ALL LOCATIONS TESTED FOR LEAD
N
80 FEET
KEY:
SITE BOUNDARY
FENCE
SCHMALZ DUMP SITE
HARRISON, WISCONSIN
LEAD IN SOILS
CAMP DRESSER & MCKEE

Toxicity Extraction Tests were performed on soils during the RI. Results of the tests show that very low levels of both lead and chromium are leachable. Leachable concentrations ranged from .071 to .146 mg/l for lead and from .011 to .063 mg/l for chromium. Considering dilution factors, these values are not expected to cause contamination in the ground water to exceed drinking water standards. These values are well below the EP Toxicity test's 5 mg/l limit for determining if the soil is a RCRA hazardous waste and indicates that very little of the contaminants will leach from soils to groundwater. In addition, trivalent chromium has an affinity to fine grained, silty soils like those found in the site area. This would inhibit movement of chromium through the aquifer, and probably explains why chromium has not migrated farther to date.

Based on the above discussions, onsite soils are not likely to ever increase chromium and lead concentrations in the ground water to greater than the drinking water MCLs of 50 ug/l. However, because there is a remote possibility that this pathway could later become a concern, it was determined that groundwater should be monitored over time. In addition, residents in the vicinity of the site will be asked to voluntarily abandon any existing wells. This is a precautionary measure to ensure that no potential for exposure exists should contaminant levels in groundwater increase in the future.

III. Enforcement

CERCLA related enforcement activities began at the site in 1984. A responsible party search was conducted to identify potentially responsible waste generators and transporters. Eight parties were named based on information indicating their involvement in the site, including parties who were named in the State's unsuccessful 1979 lawsuit. Notice letters were sent to each party and a negotiating meeting was held to discuss the RI/FS. At the end of the negotiating period, none of the parties committed to perform the RI/FS.

In August 1987, Potentially Responsible Parties (PRPs) were again notified for the Remedial Design and Remedial Action (RD/RA) of the final remedy. Notification letters were sent to:

Allis-Chalmers Corporation
Akrisol
Mr. Gregory Schmalz
Mr. Gerald Schmalz
Menasha Corporation
Menasha Electric and Water Utility
James Peters Company
Weisler Construction

After receiving the notification letter, Akrisol and Menasha Corporation requested that U.S. EPA delete their names from the PRP list. Following review of information in U.S. EPA files, including information submitted to U.S. EPA by Akrisol and Menasha Corporation, Akrisol and Menasha Corporation were deleted from the list of PRPs.

August 17, 1987 marked the commencement of the negotiation moratorium. October 16, 1987 is the deadline for PRP involvement in the RD/RA. At this time, no good faith effort has been put forth by the PRPs. Therefore, no extension of the negotiation moratorium has been made.

IV. Community Relations

The public comment period for the RI/FS began on August 17, 1987. Copies of the Phase Two RI Report and the FS Report were made available to the community on this date. Two locations served as repositories for these reports as well as the proposed plan and the remainder of the administrative record. U.S. EPA issued a press release containing the proposed plan prior to commencing the comment period.

A public meeting was held on August 19, 1987, to discuss the findings of the RI/FS and to present the U.S. EPA preferred alternative. Questions regarding the project were also answered. No public comments were submitted during the meeting. Two subsequent written comments were received. The public comment period ended September 8, 1987. Public comments are addressed in the attached responsiveness summary.

V. Alternatives Evaluation

The Feasibility Study was initiated to evaluate alternative remedial actions for remediation of contamination at the Schmalz Site. Response objectives for the site were identified in the Public Health Evaluation (PHE). Based on the PHE, protection from direct contact with contaminated soils and monitoring for degradation of groundwater quality from these soils were identified as the site specific response objectives.

A variety of technologies to address response objectives was identified and evaluated for further consideration. From these, eleven alternatives were developed and screened for effectiveness, implementability and cost. Following screening, six alternatives remained and were subjected to detailed analysis using the evaluation criteria outlined in SARA. Table 3 lists the six alternatives evaluated.

TABLE 3
REMEDIAL ACTION ALTERNATIVES

Alternative	Description
A-1	Groundwater extraction coagulation/ flocculation, filtration, ion exchange, and discharge
A-3	Slurry wall and cap
B-1	RCRA Subtitle C cap
B-2	Soil cap

B-5	Solidification, stabilization, on-site disposal
C-1	No action

In order to address response objectives adequately, two groups of alternatives were developed; those addressing groundwater and those addressing soils. The alternatives numbers in Table 3 refer to the numbering in the feasibility study. Group A alternatives address groundwater, group B alternatives address soils, and the no action alternative makes up group C.

DESCRIPTION OF ALTERNATIVES

Alternative A-1: Groundwater Extraction, Coagulation/Flocculation, Filtration, Ion Exchange and Discharge

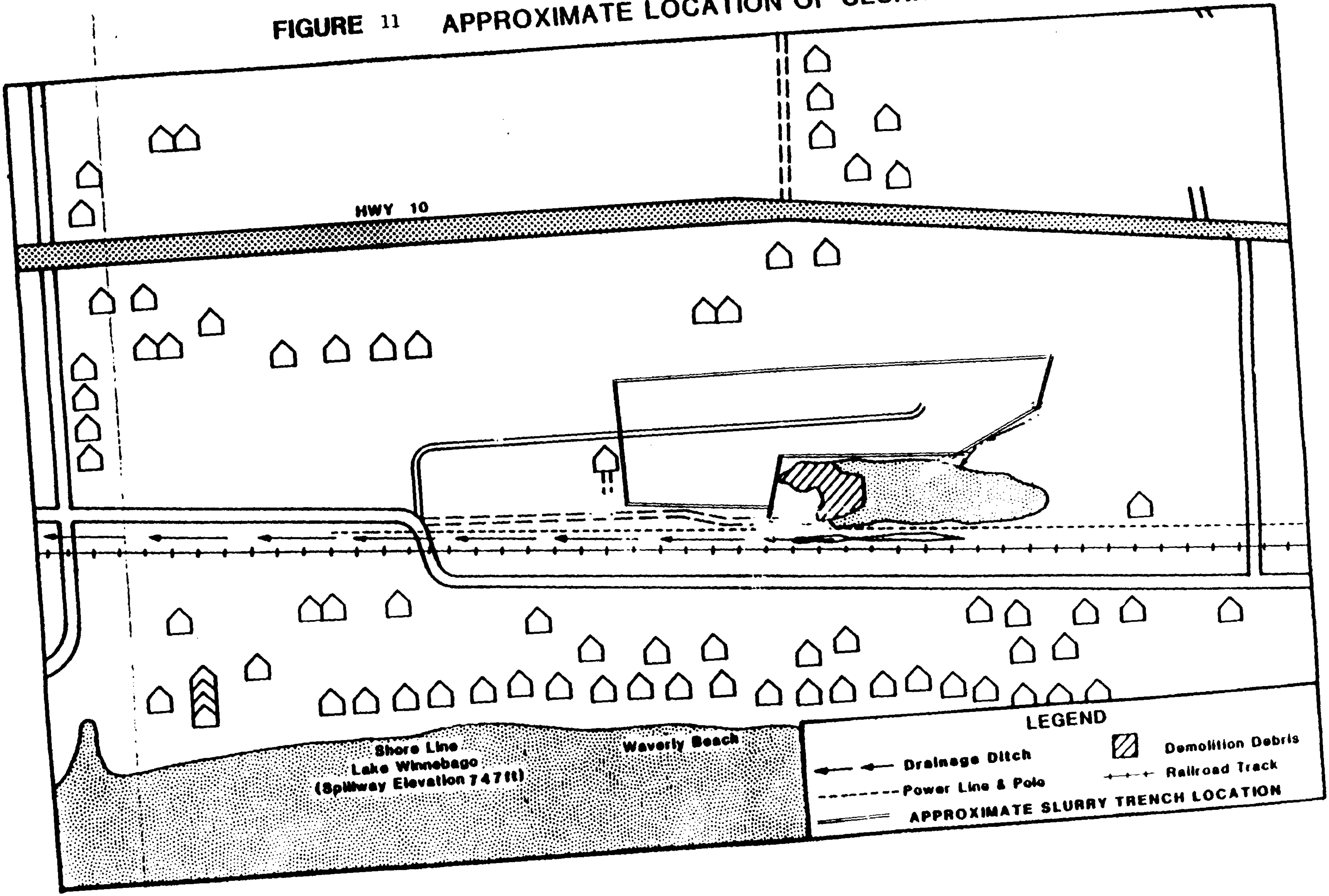
This alternative would entail treating the groundwater at the Schmalz Dump site to remove chromium to background levels. Treatment would involve coagulation of the suspended solids contained in extracted groundwater by means of polymer or lime addition, and flocculation to enhance the formation of larger particles. Sedimentation would follow, in which the insoluble forms of lead and chromium would be separated from the water. The next treatment process would be filtration, removing the fines and "polishing" the treated water. The final treatment process would be a cation exchange unit, where the soluble chromium remaining would be removed from the water. Following treatment, water would be discharged to the on-site pond.

The volume of contaminated water to be pumped and treated was estimated to be 42 million gallons or 3 pore volumes of the water table aquifer beneath the site. This is the estimated amount that would have to be extracted to reduce chromium levels to background. Background for the site is assumed to be approximately 5 ug/l, based on upgradient monitoring well samples. The extraction system would be composed of 2-inch diameter wells placed on 10-foot centers around the perimeter of the site. Water would be pumped at a rate of 50 gallons per minute with a project duration of approximately 19 months.

Alternative A-3: Slurry Wall and Cap

The purpose of this alternative is to prevent contaminant migration by containing the plume and isolating the waste from surface infiltration. This alternative involves the installation of a circumferential slurry wall around the perimeter of the site (Figure 11). The slurry trench would be excavated three feet into the confining clay (located approximately 25 feet below the ground surface). The backfill material would consist of a mixture of excavated soil, water, and bentonite clay. The permeability of the walls would be greatly reduced because of the swelling properties of the clay. Thus, the lateral migration of contaminated groundwater within the walls would be minimized. The low permeability of the underlying

FIGURE 11 APPROXIMATE LOCATION OF SLURRY WALL



clay layer prohibits the vertical movement of the groundwater. Because the slurry walls would be keyed into this formation, the potential for migration of contaminated water under the walls would be low.

An impermeable cap would be constructed over the affected area to prevent the area enclosed by the walls from filling with water. The cap would consist of a 24-inch layer of vegetated topsoil, a layer of geotextile fabric, 12 inches of gravel, a 20-mm synthetic liner, and 24 inches of compacted clay.

Operation and Maintenance (O&M) on the slurry wall and cap would be required as part of the alternative. O&M would include periodic inspections of both the cap and slurry wall for signs of erosion, settlement, or subsidence. Additional maintenance of the cap would include the application of fertilizer and periodic mowing to prevent invasion by deep-rooted vegetation.

It is not anticipated that extensive 'pooling' of water will occur within the slurry wall. However, if necessary, a low capacity extraction well could be installed to extract water. The amount of leachate extracted would be very little and could be sent to the local POTW for treatment.

The slurry wall and cap alternative would require that a groundwater monitoring program be instituted. For the purposes of this alternative, it is assumed that the monitoring program will conform with RCRA requirements (40 CFR Part 264.95 and 264.97). This program would consist of placing monitoring wells at the boundary of the waste management unit and upgradient of the unit. The wells would be sampled and analyzed for pH, conductivity, dissolved chromium, and dissolved lead on a quarterly basis for the first year and annually thereafter for 4 years. At the end of the five year period, the monitoring program would be re-evaluted and a determination made on future monitoring.

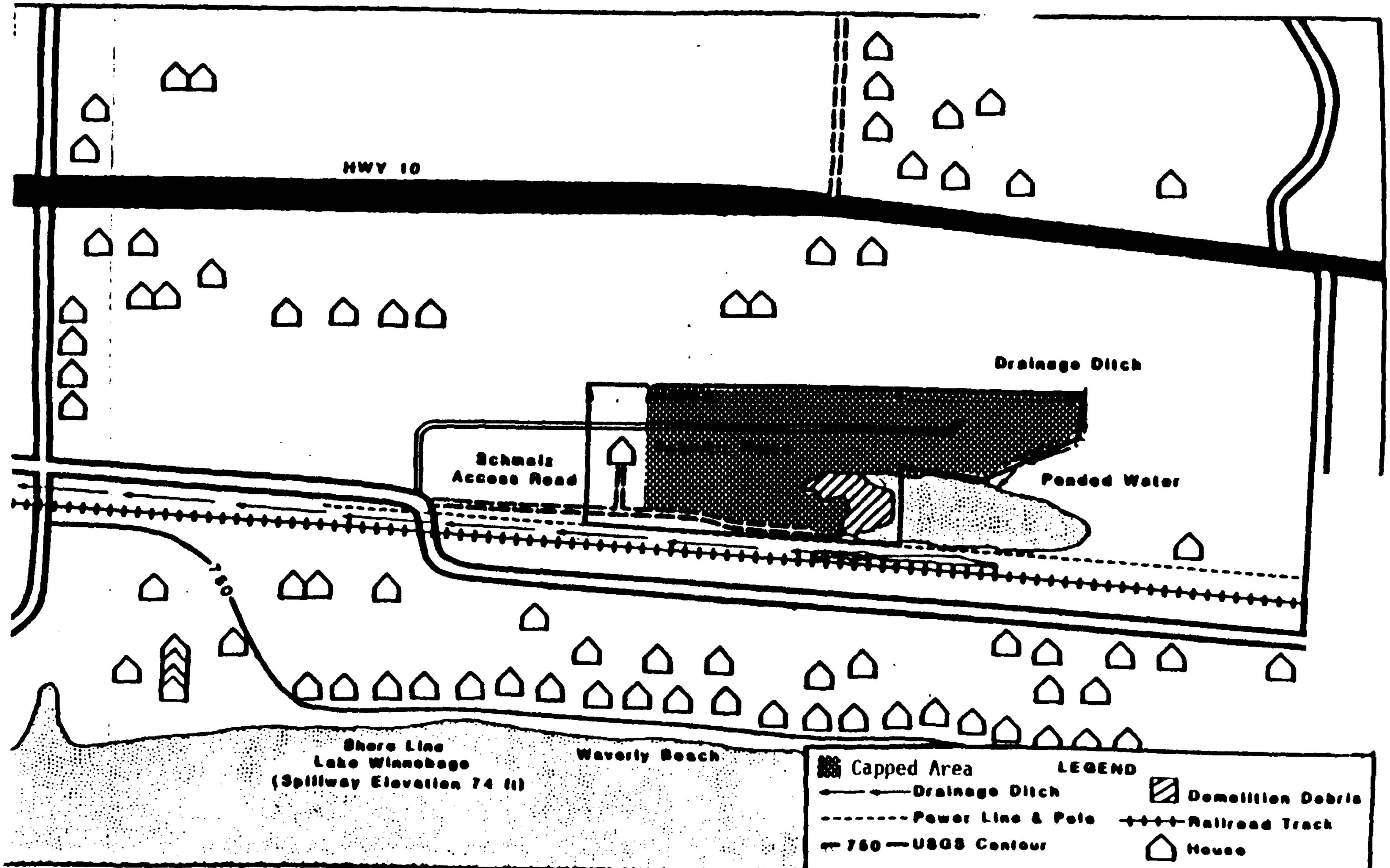
Operation and Maintenance (O&M) would include periodic inspections of both the cap and slurry wall for signs of erosion, settlement, or subsidence. Maintenance of the cap would also include application of fertilizer and periodic mowing and weed control techniques to prevent invasion by deep-rooted vegetation.

Alternative B-1: RCRA Subtitle C Cap

Capping of the site would involve construction of a three-layer cap conforming to RCRA guidelines. The area to be capped is outlined on Figure 12. This operation would first consist of the placement of a two-foot clay layer, compacted in six-inch lifts. A twenty-mil synthetic liner would then be placed over the clay. Next, a one-foot thick drainage layer of gravel would be spread and overlain with geotextile fabric. The geotextile fabric would maintain the drainage layer and help to stabilize a final layer of twenty-four inches of topsoil by keeping fine topsoil particles from filling the pore space of the gravel layer. The topsoil would be vegetated to prevent erosion. Also, the cap would have a minimum slope of two

FIGURE 12

APPROXIMATE EXTENT OF CAP



percent to the northeast. Drainage channels will be constructed to direct surface runoff to the present site drainage. Precipitation that percolates through the topsoil would flow laterally through the gravel and over the impermeable synthetic and clay barrier and into the drainage channels.

Operation and maintenance of the cap would include periodic inspections for signs of erosion, settlement, or subsidence. Maintenance of the cap would also include the application of fertilizer and periodic mowing and weed control techniques to prevent invasion by deep-rooted vegetation.

Groundwater monitoring would be recommended in conjunction with this alternative. The monitoring plan described for Alternative A-3 would apply here.

Alternative B-2: Soil Cover

The placement of a soil cover over the contaminated area would involve placement of 24 inches of low permeability compacted earth over the site (see Figure 12). The area would then be graded and sloped adequately to allow surface water runoff. The final grade would be approximately two percent to the northeast. The finished surface would be covered with six inches of topsoil and vegetated. Site drainage would also be provided. A diversion ditch constructed upgradient would divert flow to the pond to limit surface water contact with the final cover. Runoff from the cover would be captured by two drainage channels and directed to the ditch located south of the site.

Operation and maintenance of the cap would include periodic inspections for signs of erosion, settlement, or subsidence. Maintenance of the cap would also include the application of fertilizer and periodic mowing and weed control techniques to prevent invasion by deep-rooted vegetation.

Groundwater monitoring would be required in conjunction with the soil cap. The monitoring plan described under Alternative A-3 would also apply here.

Alternative B-5: Excavation, Solidification/Stabilization

This alternative involves the excavation of all contaminated soil, treatment of the soil with solidification/stabilization reagents, and backfilling of the excavated areas with the treated soil. Approximately 8000 cubic yards would be excavated in the contaminated areas. Solidification/Stabilization (S/S) would be used as a permanent remedial action to limit the off-site mobility, solubility and toxicity of the heavy metals.

The S/S process is commercially offered as a complete, on-site mobile treatment unit. The unit is outfitted with reagent tanks, metering equipment and an operating console which monitors the entire process. The waste is first slurried and then pumped to the treatment unit, where mixing and chemical reaction with the solidification/stabilization reagents occurs. The treated material is then pumped back to the excavated area, where solidification occurs within 36 to 72 hours.

A slurry tank would be used to mix the dry sand with water to produce a sludge with a maximum solid content of 30 to 40 percent. This would improve the efficiency of the process and the handling characteristics of the waste. Following this, the material would be pumped to the treatment unit and then to the excavated areas. The treated soil would then be spread and graded over the excavated areas, and a gravel cover placed on the site.

Dewatering of the soils taken from the site may be necessary prior to treatment unless a groundwater extraction alternative is implemented in conjunction with excavation. The drawdown of the extraction wells could effectively dewater the soils to a depth of greater than five feet. If an alternative involving groundwater extraction is not selected, the soils could be dewatered after excavation by placement on a drainage pad next to the excavated area and water allowed to drain back into the pit. In addition, steps for delisting the soil as a hazardous waste would also need to be considered and carried out.

Alternative C-1: No Action

As the name implies, if this alternative is selected, no remedial action would be taken at the site and current conditions would persist. This alternative was evaluated in the Public Health Evaluation presented in the Remedial Investigation Report, and this assessment serves as the basis for the evaluation of all other remedial action alternatives. This option could be applied to the groundwater, soil, or both. No capital or O&M costs would be associated with this alternative.

EVALUATION OF ALTERNATIVES

The alternatives listed in Table 3 were evaluated using factors mandated by SARA Section 121(b)(1)(A-G) that have been organized into the evaluation criteria used in the evaluation. A discussion of these criteria as they relate to each remedial alternative follows. The no action alternative is discussed separately at the end.

Compliance with ARARs

Alternatives were assessed as to whether they attain legally Applicable or Relevant and Appropriate Requirements (ARARs) of other Federal and State environmental and public health laws. The evaluation of ARARs included contaminant-specific, location-specific and action-specific ARARs.

For contaminant-specific ARARs, all alternatives would meet the following ARARs upon implementation:

- ° SDWA Drinking Water Standard Maximum Concentration Limits (MCLs);
- ° Wisconsin Statute NR140 (groundwater protection);
- ° 42 U.S.C. 7401 (National Ambient Air Quality Standards for Total Suspended Particulates);
- ° CWA Ambient Water Quality Criteria for Protection of Aquatic Life;
- ° Water Quality Act of 1987, Section 118, Great Lakes Protection.
- ° Article VI, Annex 8 and 10, and Appendix 1, 2, and 12 of the 1978 Great Lakes Water Quality Agreement between the United States and Canada.

Alternative A-1 would also be required to meet the following ARARs:

- ° NPDES requirements of the Clean Water Act (CWA) cited in 40 CFR 125.100-.104;

- ° Wisconsin Statute NR 102, NR 104 and NR 219 (relating to stream classification/standards and sampling/testing methods for surface water);

- ° Wisconsin Statute NR 108 (relating to wastewater treatment facility plan review and standards).

Location-specific ARARs which have been reviewed for the site include:

- ° Executive Order 11990, Protection of Wetlands;
- ° Executive Order 11998, Protection of Floodplains;
- ° Wisconsin Statute NR 115, Shoreland Management.

The site has been determined not to be within the floodplain of Lake Winnebago. Further, it has been determined that construction of any of the alternatives being evaluated would occur in an upland area not classified as a wetland. As such, implementation of aay of the remedial alternatives considered are compliant with these two Executive Orders.

The following action-specific ARARs have been identified for the site:

For Alternative A-1, the following ARARs have been identified:

- ° 40 CFR 122.44(a) (Best available technology economically achievable is required to control toxic and non-conventional pollutants);

- ° 50 FR 30794 (Applicable Federal Water Quality Criteria must be complied with);

- ° 40 CFR 136.1 - 136.4 (Sample preservation procedures, containers, holding times are prescribed);

- 40 CFR 122.21 (NPDES Permit Requirements).

For Alternative A-3, the following ARARs have been identified:

- Section 404 of CWA, 40 CFR Part 230 and 231 (Part of the Clean Water Act addressing dredge and fill requirements in wetland areas);
- Wisconsin Statute NR 180 and NR 181 (solid waste landfill cap standards);
- 40 CFR Parts 264.117 (relating to post closure care);
- 40 CFR Parts 264.111 and 264.310(b) (relating to the prevention of run-on/runoff from damaging a site cover);
- 40 CFR Parts 264.111 and 264.310 (relating to landfill closure);
- 40 CFR Part 268 (relating to groundwater diversion and slurry wall installations).

For Alternative B-1, the same ARARs must be attained with the exception of 40 CFR Part 268.

For Alternative B-2, components of the clean closure requirements of 40 CFR 264.111 and 264.117, as well as the landfill closure requirements of 40 CFR 264.111, 264.117 and 264.310, are relevant and appropriate. Wisconsin Code NR 180.13(12) is applicable for closure as well. Compliance with these ARARs would be achieved upon implementation of this alternative.

For Alternative B-5, RCRA Subtitle C and Wisconsin Statute NR 181 were determined not to apply due to the residual stabilized mass being delisted as a hazardous waste. RCRA Subtitle D and NR 180 would still be ARARs. Land disposal restrictions for certain California list hazardous wastes under 40 CFR 268 would also be an ARAR.

At this time, it is not anticipated that any ARARs waivers would be needed for the alternatives evaluated. Based on the evaluation performed in the FS, all alternatives would comply with Federal and State ARARs upon implementation.

<u>Reduction of Toxicity, Mobility or Volume</u>

The degree to which alternatives employ treatment that reduces toxicity, mobility or volume was evaluated during the detailed analysis of alternatives.

Alternative A-1 has been developed to ensure that the mobility and volume of lead and chromium in groundwater be significantly reduced. A necessary result of this is that the concentrations of these compounds would be increased in process sidestreams (water treatment sludge and products of resin regeneration). This would cause an increase in toxicity. There is, however, no indication that EP toxicity values for these sidestreams would necessarily increase.

Implementation of Alternative A-3 is not expected to reduce the toxicity or volume of lead or chromium in groundwater, however the mobility of the compounds would be curtailed by containment throughout the effective life of the alternative. As the RI has indicated that these compounds are currently of limited mobility, a slurry wall and cap would essentially eliminate future mobility of these compounds in groundwater within the area of remediation.

Implementation of Alternatives B-1 or B-2 is expected to significantly reduce the mobility of lead and chromium by containment in the site soils, but do nothing to reduce toxicity or volume of contaminants. The mobility and toxicity of lead and chromium are expected to be somewhat reduced as a result of implementing Alternative B-5 due to decreasing the potential for leaching. The volume of material containing these compounds would increase slightly.

Short Term Effectiveness

The short-term effectiveness was assessed for each of the alternatives. Factors evaluated include magnitude of reduction of existing risks, short-term risks associated with implementation and time necessary to achieve protection. A discussion of each follows.

In the short term of Alternative A-1, the risk of ingesting on-site groundwater would decrease with decreasing influent chromium levels. To a lesser extent, risk reduction would also occur as a result of implementation of Alternative A-3, but only to those potential users of the groundwater directly affected by the groundwater flow alteration caused by the slurry wall and cap.

For Alternative B-1 and B-2, short-term risks associated with direct contact with soils would not be altered. Alternative B-5 would increase the short-term risks to workers responsible for implementing the alternative and may contribute to increased risk to the local residents as well, especially during excavation, due to potential airborne migration of dusts from the site.

On a short-term basis, Alternatives A-1, A-3, B-1 and B-2 are all envisioned to provide equivalent protection to both the community and workers conducting the remedial action, whereas Alternative B-5, by virtue of its necessitating intimate contact with on-site soils, would offer a decreased level of protection to site workers.

The time until identifiable protection is achieved is assumed to be the duration of planning, construction and implementation of each alternative. In summary:

Alternative A-1	48 months
Alternative A-3	28 months
Alternative B-1	20 months
Alternative B-2	20 months
Alternative B-5	16 months

Long-term Effectiveness and Permanence

Alternatives were evaluated for the long-term effectiveness and permanence they afford along with the degree of certainty that the remedy will prove successful. Factors considered include magnitude of residual risks, type and degree of long-term management required, potential for exposure to wastes, long-term reliability of engineering and institutional controls, and the potential need for replacement of the remedy.

Long-term risk reduction associated with the ingestion of chromium in the groundwater would occur as a result of implementing Alternative A-1; however, as there are no identifiable potential users of the groundwater, the magnitude of risk reduction cannot be quantified.

Implementation of Alternative A-3 is not expected to decrease long-term risks in the same manner, as chromium would remain in the groundwater system and potential exposure could occur, particularly in the event of placing a drinking water well within the capped area. Again, the risks are unquantifiable.

Alternative B-1 would eliminate risks associated with contacting on-site soils for as long as the cap was properly maintained. Similar risk reduction would occur with Alternative B-2. Implementation of Alternative B-5 is not expected to significantly minimize risks associated with ingestion of soils without additional restrictions on use of the site (e.g., additional fencing).

Owing to the relatively complex nature of treatment system components, Alternative A-1 is deemed to have a relatively low reliability when compared to other alternatives analyzed. In comparison, Alternatives A-3, B-1, and B-2 are deemed more reliable due to their simplicity. The reliability of Alternative B-5 is unknown principally due to the lack of data documenting long-term success or failure of similar projects.

Components of Alternative A-1 will not require replacement throughout the life of the remedial action (2 to 3 years). For Alternative A-3, B-1 and B-2, the only potential need for replacement is seen to be that of the cap or soil cover. This need could occur if the original cap was washed out by some storm event, if heavy equipment were to abrade the cover, or if unforeseen subsidence were to occur. Replacement of Alternative B-5 is not applicable.

Implementability

The ease or difficulty of implementing each alternative was assessed during the detailed analysis. Factors evaluated include the degree of difficulty associated with construction, expected operational reliability, need to obtain approvals and permits, and availability of necessary equipment and specialists.

All alternatives evaluated have been constructed for various applications in the past. Alternatives B-1 and B-2 do not require as great a degree of engineering as Alternatives A-1, A-3 or B-5. Treatability or compatibility testing is required for Alternatives A-1, A-3 and B-5 prior to design and construction.

Assessments of the reliability of the component technologies of Alternative A-1 reveal that several problems can occur at each component stage. This could result in delays or inability to implement the alternative. For Alternative A-3, the reliability of slurry wall technology is deemed high, subject to the achievement of design tolerances for head differentials across the wall.

Capping (Alternatives A-3 and B-1) employs reliable technology for sealing off contamination from the aboveground environment and significantly reducing underground migration of wastes. Alternative B-2 employs reliable technology for sealing off contamination from the aboveground environment, but is not reliable for reducing underground waste migration.

For Alternative B-5, there is considerable research data to suggest that silicates used together with a cement setting agent can stabilize a wide range of materials including metals. However, the feasibility of using silicates for any application must be determined on a site specific basis, particularly in view of the large number of additives and different sources of silicates which may be used. Soluble silicates such as sodium and potassium silicate are generally more effective than fly ash, blast furnace slag, etc.

Based on the content of soils on the site, Alternative B-5 may be difficult to implement. Contaminated soils consist of solid waste, wood, brick, and car bodies, which would make implementation difficult.

In order to implement the alternatives presented, U.S. EPA will need to coordinate with and obtain necessary approvals and permits from other offices within the Agency and from other Agencies.

The following Agency participation will be required in the remedial action implementation:

- ° U.S. Army Corps of Engineers - will design, construct and oversee remedial action;
- ° State of Wisconsin - will aid in coordination of a voluntary well abandonment, assume responsibility for operation and maintenance activities after one year following construction, coordinate site access, and provide a 10 percent share of construction costs.

In addition, approvals from other agencies will also be necessary. These are listed below for each alternative.

Agency	Alternative
U.S. Army Corps of Engineers	A-1, A-3, B-1, B-2, B-5 (Wetlands)
County Zoning Department	A-1, A-3, B-1, B-2, B-5 (Shoreland Zoning)
WDNR	A-1 (Discharge)
RCRA (USEPA)	B-5 (Delisting Residuals)
State of Wisconsin	A-1, A-3, B-1, B-2, B-5 (Well Abandonment)
Menasha POTW	A-3 (if POTW disposal of leachate extraction is required)

Since none of the alternatives have proposed off-site treatment, storage or disposal services, availability of these services is not a concern for the project. However, on-site activities for each alternative will require specific equipment and specialist services.

For Alternative A-1, each component of the treatment process is available; however, procurement of the ion exchange units and resins may require 16 to 20 weeks after ordering. The remaining treatment system components are available as prefabricated units. Treatment plant operators would also be needed and may require licensing.

Alternatives A-3, B-1 and B-2 do not require a high level of skilled personnel for implementation. Equipment necessary for these alternatives would be provided by the remedial action contractor.

For Alternative B-5, the manufacturer/supplier of the solidification/stabilization process provides equipment and operations specialists for the duration of treatment. Standard earth moving equipment would be required for final placement of solidified materials.

Cost

Each alternative was evaluated for estimated costs of implementation. Estimated costs include capital costs as well as annual operation and maintenance costs. The net present worth of these costs provides the basis for cost comparison.

The present worth analysis was performed on all remedial alternatives using a 10 percent discount (interest) rate over a period of 30 years except where the life of a given component of an alternative was less than 30 years. Inflation was not considered in preparing the present worth costs and a depreciation of 100 percent was assumed. The present worth costs for each alternative are summarized in Table 4.

TABLE 4
COST COMPARISON OF REMEDIAL ALTERNATIVES

Alternative	Capital Cost	Annual O&M	Total Present Worth
A-1 Groundwater Extraction, Coagulation Sedimentation, Ion Exchange, Discharge	$2,085,813	$902,083	$3,361,700
A-3 Slurry Wall and Cap	$3,143,130	$9.315	$3,210,729
B-1 Cap	$2,292,848	$17,940	$2,391,798
B-2 Soil Cover	$687.664	$17,940	$786.614
B-5 Excavation, Solidification/ Stabilization	$2,790,152	$9,775	$2,812,131
C-1 No Action	$0	$0	$0

Community Acceptance

As the groundwater is not presently being used as a drinking water source, and contamination at the site is confined to on-site media, the community does not perceive the site as an immediate danger. Three of the alternatives evaluated would entail mowing down the vegetation present at the site. This could have a negative impact on the community's perception of these alternatives.

State Acceptance

When evaluating potential response actions, it is important to consider State concerns with alternatives evaluated. The State of Wisconsin has expressed support for alternatives that address direct contact threats. Because groundwater quality is within the Wisconsin Code NR 140 requirements for groundwater protection, and due to the excess cost involved, they do not feel that a groundwater treatment alternative is warranted. Alternative B-2 will meet State ARARs for closure under the State's Solid Waste Code, NR 180, and will comply with relevant and appropriate portions of their Hazardous Waste Code NR 181.

The State has concerns over whether adequate cap protection is available for alternatives involving capping the site. Since the preferred alternative entails capping, the State has agreed to attempt to obtain a voluntary agreement from the landowner. The agreement would provide a guarantee that the landowner will not damage the cap once it is installed. The State is aware that U.S. EPA has legal authority under CERCLA to issue an order for corrective action, should the owner make an attempt to damage the cap.

Overall Protection of Human Health and the Environment

Following the analyses of remedial options against individual evaluation criteria, the alternatives were assessed from the standpoint of whether they would provide adequate protection to human health and the environment based on the evaluation criteria discussed above.

Based on the evaluation criteria, it appears that Alternatives A-3, B-1 and B-2 would provide adequate protection from contaminated soils on site. A-3 and B-1 provide additional protection for groundwater, which is not considered a pathway of concern. Alternative A-1 does not provide protection from contaminated soils which is the only pathway of concern at the site. Thus, this alternative would have to be combined with an alternative to achieve protection.

Although Alternative B-5 would be protective upon implementation, there are risks to workers and residents associated with implementing it. In addition, the ability to implement the alternative is somewhat questionable due to the content of the soils.

No Action Alternative

The no action alternative was also evaluated using the factors listed in Section 121 (b)(1)(A-G) of SARA that were organized into evaluation criteria for the selection of remedies. The following discussion provides the results of the no action evaluation.

If no action was implemented at the Site, it would not comply with the ARARs listed below.

- RCRA Subtitle C, Hazardous Waste Landfill Closure Requirements;
- Wisconsin Code NR 180, Sanitary Landfill Closure;
- Wisconsin Code NR 181, Hazardous Landfill Closure;

No action would not reduce mobility, toxicity or volume of contaminants nor would it protect against future direct contact exposure. No short or long-term protectiveness or risk reduction would occur at the site, and community response was not favorable to a no action alternative. In addition, although there is no cost involved presently, this alternative has the greatest potential for future remedial action costs. In summary, the no action alternative does not provide adequate protection of human health and the environment.

COMPARISON OF ALTERNATIVES

In order to determine the most appropriate alternative that is protective of human health and the environment, attains ARARs and utilizes permanent solutions and treatment technologies to the maximum extent practicable, alternatives were compared to each other. Comparisons are based on the evaluation criteria mandated by SARA, and as discussed in the previous section of this ROD.

All the alternatives would comply with Federal and State ARARs if implemented. Treatment Alternatives A-1 and B-5 would require compliance with additional action-specific ARARs, but this is not seen as a problem.

None of the alternatives would reduce toxicity of lead and chromium in soils or chromium in the groundwater. Because metals are persistent as natural elements, it is not feasible to change their form. Alternative A-1 actually increases the toxicity of chromium because it increases the concentration. All alternatives reduce the mobility of lead and chromium in soils except A-1. A-1 reduces mobility of contaminants in groundwater only. A-1 also reduces the volume of contaminated groundwater. A-3 and B-1 reduce the mobility of contaminants in both media. None of the alternatives reduce the volume of contaminated soils and B-5 actually increases the volume slightly.

For short-term effectiveness, Alternatives A-1, A-3 and B-1 reduce risks from groundwater; however, A-1 does not reduce risks from soils. Alternatives B-2 and B-5 provide risk reduction from soils only. None of the alternatives, except B-5, pose a threat during implementation. B-5 would expose workers and the community to wind blown contaminants and direct contact during construction. The schedule for planning and implementation of all the alternatives call for one and a half to three years. This is not expected to cause any adverse effects.

In considering long-term effectiveness, Alternative A-1 reduces risk to groundwater but not to soils. Alternatives A-3 and B-1 provide protection from groundwater and soils. B-2 and B-5 provide good protection for soils but only minimal protection for groundwater. The reliability and potential for replacement for the alternatives was also considered. Reliability of all alternatives, except B-5, is considered good. Reliability of B-5 is unknown. Replacement of A-1 and B-5 is not applicable. There is a possibility that Alternatives A-3, B-1 and B-2 would need replacement.

In evaluating implementability, it is envisioned that A-1, A-3 and B-5 would be more difficult because they require more complex design. Reliability would be low for A-1 and B-5 during implementation. This is due to complexity and the likelihood of one or more components of the system failing. Alternatives A-1 and B-5 would also require additional approvals and specialists and lead time to implement them.

The evaluation of overall protection indicates that Alternative A-1 does not protect against direct contact with soils, and Alternative B-5 has risks associated with implementation and implementability.

To summarize the comparison of alternatives, it is apparent that the cost-effective alternative that is protective of human health and the environment is Alternative B-2. Alternative A-1 does not protect against direct contact. Alternatives A-3 and B-1 are not cost effective because they provide excess protection for groundwater. Alternative B-5 would be protective upon implementation, however, there are several problems associated with implementation of this alternative that make it undesirable.

VI. Selected Remedy

Section 121 of SARA requires that all remedies for Superfund sites be protective of human health and the environment and comply with applicable or relevant and appropriate Federal and State laws. Based on the evaluation of all alternatives using the SARA Section 121 requirements, and the technical, public health, environmental impacts and cost criteria, the U.S. EPA, in conjunction with WDNR, selected Alternative B-2 as the final remedy for the site. The remedy entails:

° Installation of a low permeability soil cap over the contaminated soil;
° Implementation of a groundwater monitoring program;
° Implementation of a voluntary well abandonment program for residents between the site and the lake;
° Recommendation that adjacent property be evaluated under the pre-remedial program.

The selected remedy will adequately protect public health and the environment from direct contact, ingestion and inhalation of soils containing lead and chromium, which is the only exposure pathway identified in the public health evaluation. Groundwater monitoring will provide essential information on changes in groundwater quality. Any increase in existing levels of chromium or lead will be evaluated as to whether corrective action is necessary based on levels found.

The remedy is considered the most cost-effective remedial action. It complies with Federal and State ARARs and is protective of human health and the environment by eliminating the threat of direct contact with contaminated soils. Based on current information, the preferred alternative meets the protectiveness, implementability and cost effectiveness standards of CERCLA, as amended by SARA, and the NCP.

Protectiveness

Based on the Public Health Evaluation developed for the site, direct contact with contaminated soils on-site is the only pathway of concern. Eliminating the potential for direct contact by utilizing a compact soil cap over the contaminated soils is protective of human health and the environment. Establishing a groundwater monitoring program to monitor long-term compliance with groundwater protection standards for lead and chromium will provide protection from potential future releases.

Compliance with Other Laws

The selected remedy has been evaluated to ensure that all Federal and State public health and environmental requirements have been identified and that all appropriate ARARs will be attained. The site-specific ARARs for the selected remedy are listed below.

Resource Conversation and Recovery Act (RCRA) Subtitle C

Because RCRA specifically regulates hazardous waste management after November 19, 1980, RCRA is not legally applicable to the Schmalz Dump site. However, since hazardous material was dumped at the site prior to 1980, certain RCRA Subtitle C closure requirements are relevant and appropriate. RCRA Subtitle C Subpart N defines closure and post-closure requirements for landfills. Under Subpart N, two closure options exist, clean closure and disposal, or landfill closure. RCRA regulations on clean closure are found in 40 CFR 264.113, 264.228 and 264.258. Under clean closure, contaminant levels must be below established Agency-approved cleanup-levels for all pathways. Regulations for disposal, or landfill closure are found in 40 CFR 264.113, 264.228, 264.258,and 263.310. Under this closure option, the site must be capped to minimize infiltration, and a 30-year groundwater monitoring, leachate treatment and post closure maintenance program must be implemented. A corrective action strategy for potential releases from the facility must also be developed, and if necessary, implemented.

For the Schmalz Dump site, neither clean closure nor landfill closure is relevant and appropriate as a whole. Clean closure requires elimination of exposure to all pathways. At Schmalz Dump there is a direct contact exposure pathway. Landfill closure addresses contaminated groundwater and leachate pathways as well as direct contact. At Schmalz Dump, groundwater contamination is not above MCLs and there is no leachate release. Based on the above considerations, components of both closure options have been deemed relevant and appropriate. This approach is consistent with U.S. EPA's July 9, 1987 "Interim Guidance on Compliance with Applicable or Relevant and Appropriate Requirements," which states that "it is possible for only part of a requirement to be considered relevant and appropriate, the rest being dismissed if judged not to be relevant and appropriate in a given case." Thus, relevant and appropriate components from both options have been tailored into a site-specific closure option that is protective of public health.

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) mandates that U.S. EPA establish regulations to protect human health from contaminants in drinking water. The drinking water standard, or maximum contaminant level (MCL), for both chromium and lead is 50 ug/l.

For water that is used for drinking, the MCLs are generally applicable where water will be provided to 25 or more people. MCLs are relevant and appropriate where surface water or groundwater could be used for drinking water. At the Schmalz Dump site, chromium detected in groundwater did not exceed the MCL, and lead was not reported above the detection limits. Therefore, groundwater at the Schmalz Site is in compliance with the SDWA without implementing treatment.

Clean Water Act

Section 404 of the Clean Water Act (CWA) regulates dredge and fill activities in navigable waters in the United States. Protection of wetlands is a primary goal of the dredge and fill permit program. Permit applications for these activities are reviewed for impact on public interest and compliance with relevant Section 404 (b)(1) Guidelines. The U.S. Army Corps of Engineers (U.S. ACE) has agreed that U.S. EPA need not obtain permits for Superfund activities; however, the proposed activities should be based on technical factors, including:

- A determination that proposed filling activities will not have adverse impacts on the aquatic ecosystem;
- A determination that fill materials do not degrade water quality or contribute to violations of any State standard;
- A determination of the potential short-term and long-term effects of filling activities on the physical, chemical and biological components of the wetland.

The determination as to whether an area is actually a wetland is made by the U.S. ACE. At the Schmalz Dump site, U.S. ACE has determined that the area to be capped is an upland area because it is not inundated with water for any significant time during the year. Therefore, CWA regulations for dredge and fill activities in the area where the soil cap will be installed are not applicable or relevant and appropriate.

The areas on-site that are emergent are considered wetlands and thus, if any future actions were taken at these locations, Section 404 of CWA would be applicable.

Wetlands Protection

Executive Order 11990 - Wetlands Protection, regulates activities in wetlands. U.S. EPA incorporated these requirements into its Policy on Floodplains and Wetlands Assessments for CERCLA Actions in August 1985. As discussed previously under CWA, the area to be capped on the Schmalz Dump site is not a wetland area. Here too, if actions are taken in wetland areas of the Site, the Wetlands Protection Order would be applicable.

NR 140 Wisconsin Administrative Code (WAC)

Wisconsin's groundwater protection Administrative Rule, Chapter NR 140 WAC, regulates public health groundwater quality standards for the State of Wisconsin. NR 140 is a promulgated State Administrative Rule and is, therefore, applicable for Superfund activities in Wisconsin. The enforceable groundwater quality standard for chromium is 5u ug/l. This is equivalent to the MCL for chromium under the SDWA.

NR 180 WAC

Wisconsin's Solid Waste Management Administrative Rule, Chapter NR 180 WAC, regulates solid waste in the State. This rule is applicable for the Schmalz Dump site based on the history of filling at the site. The proposed remedy will comply with NR 180.13(13) closure requirements for unlicensed landfill closure.

NR 181 WAC

Wisconsin's Hazardous Waste Management Administrative Rule, Chapter NR 181 WAC, regulates the handling of hazardous waste in the State. Similar to Federal RCRA regulations, NR 181 regulates waste handling after 1980. Like RCRA, NR 181 is not applicable, but certain requirements may be relevant and appropriate for Superfund sites. Section NR 181.44(12) of the rule regulates closure of landfill facilities without operating licenses. The requirements under this section are relevant and appropriate for the Schmalz Dump Site. In addition, certain components of closure for licensed facilities are also relevant and appropriate. The selected remedy for the Site fully complies with NR 181.44(12). And, since requirements for closure of licensed facilities under NR 181 are not more stringent than RCRA, the selected remedy complies with relevant and appropriate components of closure under NR 181.

NR 115 WAC

Wisconsin's Shoreland Management Program Administrative Rule, Chapter NR 115 WAC, regulates zoning and use regulations for shorelands in the state. This rule is applicable to the Schmalz Dump site because the facility is within 1,000 feet of Lake Winnebago, and is, therefore, subject to the County Shoreland-Wetland Zoning ordinance, adopted pursuant to Chapter NR 115, and enforced by the County. Under this ordinance, all actions taken on shorelands-wetlands must be approved by the County Planning Department. Preliminary indications by the Planning Department favor the proposed remedy, provided proper erosion controls are utilized. These erosion controls are also required under RCRA and NR 181 closure regulations, and will, therefore, comply with these requirements.

Cost-Effectiveness and Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

The selected remedy is the lowest cost alternative that adequately protects public health and the environment from the threat of direct contact at the Schmalz Site. While other alternatives evaluated also provide protection, they are more costly while achieving the same desired results.

Under SARA, selected remedies should attempt to satisfy the statutory preference for treatment as the principal element. The selected remedy does not satisfy this treatment preference because none of the components of the alternative involve treatment. Alternative B-5, solidification/stabilization of soils, would seem to be the most desirable alternative because it utilizes treatment as the principal element. However, due to site-specific conditions, this alternative has serious drawbacks. First, because the contaminated soils consist of large amounts of solid waste, wood, brick, and car bodies, solidification and stabilization of the soils would likely be infeasible. Alternative B-5 also poses a short-term risk to workers and the community during implementation, would increase the volume of contaminated soils, and has unknown reliability. In addition, solidification and stabilization of the soils is not conducive to a wetlands environment. Capping and vegetation of the site is.

Based on the above considerations, Alternative B-5, which meets the statutory perference for treatment, was considered impracticable due to questionable technical feasibility, inadequate short-term protection, and inappropriate site conditions. Therefore, the statutory preference for treatment is not satisfied because treatment was found to be impracticable.

Schedule

The following are the key milestones for implementation of the remedial action:

° ROD Signature	9/25/87
° Award Interagency Agreement to U.S. ACE	FY 1988 Q1
° Start Remedial Design (RD)	FY 1988 Q1
° Complete RD	FY 1989 Q1
° Begin Remedial Action	FY 1989 Q2

SCHMALZ DUMP, HARRISON, WISCONSIN

RESPONSIVENESS SUMMARY

The community responsiveness summary is developed to document community involvement and concerns during the remedial investigation/feasibility study (RI/FS) phase of the project, and to respond to public comments received during the public comment period. Also included, as Attachment A, is a summary of the community relations activities conducted by U.S. EPA during this phase of the project.

OVERVIEW

The preferred alternative for the Schmalz Site was announced to the public just prior to the beginning of the public comment period. The preferred alternative involves the installation of a compacted, low permeability soil cap over contaminated soils to protect against direct contact with lead and chromium. It also includes the implementation of a groundwater monitoring program and also a voluntary well abandonment by residents downgradient of the site.

Judging from the comments received during the public comment period, at least some residents feel that a full RCRA Subtitle C Cap should be installed. Other residents have not expressed a position either way. The State of Wisconsin supports our preferred alternative, however it has several concerns related to implementation of the remedy. These concerns are discussed in the Summary of Remedial Alternative Selection section of the ROD.

BACKGROUND ON COMMUNITY INVOLVEMENT

Community interest in the Schmalz Site dates back to 1978 when local residents complained about Mr. Schmalz filling his property with PCB contaminated material. Since that time, community concern and involvement have tapered off considerably, primarily due to residents being hooked up to Menasha's water supply system. The major concerns expressed during the remedial planning activities at the Schmalz Site and how U.S. EPA and the State addressed these concerns are described below:

° Amount of Money Involved in Planning and Remediation. A common comment recorded was the large amount of money being spent on the site.

EPA Response: This is a common comment from both officials and the public. The public is not familiar with Superfund procedures and the need for in-depth site investigations. The reasons for the high costs have been explained during public meetings and media interviews.

° Appleton Intake. The public expressed concerns over the potential for contamination of the Appleton water supply. The municipal water intake for Appleton is located in Lake Winnebago approximately 1200 feet from the north shore in close proximity to the Site.

EPA Response: U.S. EPA contacted the Appleton water supply utility to discuss adding PCBs to their quarterly sampling parameters. The utility agreed to include them. Sample analyses to date have not detected PCBs.

° Property Values. Citizens have expressed concern for their property values due to the contamination at the Site.

EPA Response: Following implementation of the selected remedy, exposure to contamination from the Schmalz Site will be eliminated. Once this occurs, the site should not have an effect on property values. This has been discussed with the public during the public meeting.

Summary of Public Comments Received During the Public Comment Period and Agency Responses

The public comment period was held from August 17 to September 8, 1987, to receive comments from the public on the draft feasibility study. Only three comments were received during the comment period. These comments are summarized and discussed below:

Comment: The Fox Valley Water Quality Planning Agency and one private citizen expressed a preference for Alternative B-1. This alternative entails installation of a RCRA regulation cap. This would include layers of clay, gravel, and synthetic liners in addition to what is proposed under Alternative B-2, the preferred alternative.

EPA Response: Installation of a RCRA regulation cap was evaluated in the feasibility study for the Site. This alternative was not recommended because it was determined not to be cost-effective based on the public health evaluation conducted for the site. The health evaluation concluded that direct contact was the only exposure route of concern. Alternative B-1 is protective of direct contact but is also designed to protect against ground water contamination. Thus, the additional protection to groundwater is considered over-protective, since groundwater is not contaminated. Alternative B-1 is therefore not cost-effective because of the additional cost involved in providing for groundwater protection.

Comment: An anonymous commenter asked why EPA does not make Allis-Chalmers pay for the remedial action.

EPA Response: As part of the Superfund process, potentially responsible parties (PRPs) are identified and given the opportunity to perform the RI/FS. If they decline, U.S. EPA tasks a contractor to conduct the study. Following completion of the RI/FS, the PRPs are again given the opportunity to take over the project. If they again decline, U.S. EPA completes the remedial action and then enters into cost recovery litigation with the PRPs.

At the Schmalz Site, there are six identified PRPs including Allis-Chalmers Corporation. To date, PRPs have been given the opportunity to conduct the RI/FS but have declined. They have also been notified regarding the proposed remedy. At this time, none of the PRPs have committed to perform the remedial action. If none are committed within the specified time frame set by U.S. EPA, the remedy will be implemented by U.S. EPA and the case will then go into cost recovery litigation to recover the costs spent.

ATTACHMENT A

COMMUNITY RELATIONS ACTIVITIES CONDUCTED

AT THE SCHMALZ DUMP SITE

Community relations activities conducted at the Schmalz site to date include the following:

- U.S. EPA conducted community interviews with local officials and interested residents (February, 1985);
- U.S. EPA contractor prepared the community relations plan (March, 1985);
- Two information repositories were established in the vicinity of the site (June, 1985);
- A press release was issued announcing a kick-off meeting and plans for an expedited response action (operable unit)(June, 1985);
- A fact sheet was prepared and distributed on the Superfund process and the operable unit (July, 1985);
- U.S. EPA held a public meeting to discuss kick-off of RI/FS and to explain the operable unit (July, 1985);
- U.S. EPA initiated phone calls and issued a press release regarding slowdown of the Superfund program due to reauthorization delays (August, 1985);
- U.S. EPA initiated several phone calls during the RI/FS to the press and local officials to report on progress (ongoing throughout the RI/FS);
- A press release was issued announcing the release of the remedial investigation report and a public meeting to present RI findings (May, 1987);
- A public meeting was held to discuss RI findings (May 13, 1987);
- A press release was issued announcing the release of the feasibility study and the beginning of the public comment period (August, 1987).
- A fact sheet was prepared and distributed on the feasibility study and the preferred alternative. This was considered the proposed plan for the site (August, 1987);
- A public meeting was held to discuss the feasibility study, present the preferred alternative, and receive oral public comments (August 19, 1987).

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Carroll D. Besadny
Secretary

BOX 7921
MADISON, WISCONSIN 53707

September 28, 1987

4430
File Ref:

Mr. Valdus Adamkus, Regional Administrator
US EPA Region V
230 South Dearborn Street
Chicago, IL 60604

SUBJECT: Schmalz Dump - Final Superfund Remedy

Dear Mr. Adamkus:

Your staff has requested this letter to document our position on the final remedy for the Schmalz Dump Site. The proposed final remedy is a soil cap. The purpose of the cap is to minimize direct contact of any contaminants remaining after the Operable Unit action (removal of the PCB contaminated debris) is completed. I recently signed the State Cost Share Contract for the Operable Unit action.

Based upon our review of the Feasibility Study/Alternatives Array, our agency, the Wisconsin Department of Natural Resources (WDNR), concurs with the selection of the soil cap. With our concurrence, I acknowledge that the State will be required to cost share up to 10% of the cost of the remedy and commit to long-term care and maintenance costs after site remedial actions are completed.

My staff has also advised me that the cap could be damaged by the landowner, who has indicated a desire to build on the site. It is our understanding that if the remedy is damaged, EPA has legal authority under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) to issue an order for corrective action. I am asking you to put a commitment in the State Cost Share Contract to take action should the cap be damaged. I am also committing to have my staff attempt to obtain a voluntary agreement with the landowner to protect the cap. The purpose of the agreement would be to require the landowner to seek approval from our agency before any construction is initiated. This will enable us to ensure the integrity of the cap while working voluntarily with the land owner. However, if our efforts fail, then we must rely upon you to rectify the situation.

As always, thank you for your support and cooperation in addressing this contamination problem. If you have any questions regarding this matter, please contact Paul Didier, Director of the Bureau of Solid Waste Management at (608) 267-1327.

Sincerely,

C. D. Besadny
Secretary

cc: Lyman Wible - AD/5
Paul Didier/Mark Giesfeldt/Barb Schultz - SW/3
Doug Rossberg - LMD
Renee Sanford - FN/1

mfg-msg1

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	Title	Description	Date	Author	Pages
1	Sample Data: QA/QC'd Raw Data and Chain of Custody Forms for RI	These documents are available to the public but are not included in the information repositories	/ /		0
2	Record of communication: Letter to Gerald Schmalz	Closure of unauthorized dump on property	10/03/71	D. Martin, WDNR	1
3	Record of communication: Letter to Gerald Schmalz	Closure of unauthorized dump on property	08/25/72	A. Schoen, WDNR	1
4	Record of communication: Letter to Gerald Schmalz	Noncompliance with instructions to close dump	05/21/74	L. Boehn, WDNR	1
5	Record of communication: Letter to Gerald Schmalz	Unauthorized dumping on property	03/05/79	D. Klessig, Calumet County	2
6	Record of communication: Letter to Gerald Schmalz	Unauthorized dumping on property	03/12/79	D. Misterek, WDNR	1
7	Record of communication: Letter to Gerald Schmalz	Initiation of investigation into PCB contaminated fill	04/11/79	J. Miller, USACE	1
8	Record of communication: Letter to A. Ackerman, USACE	Destroyed wetlands due to Schmalz's dumping activities	04/18/79	R. Hoppe, US Fish & Wildlife	2
9	Record of communication: Letter to R. Mustard, USEPA	Characterization of hazardous materials onsite	04/26/79	J. Miller, USACE	1
10	Record of communication: Letter to C. Bohl, US Attorney	Lawsuit involving US vs Gerald Schmalz and Wieseler Construction	10/29/79	W. Miner, USEPA	3
11	Record of communication: Letter to C. Bohl, US Attorney	Sample results from Schmalz site	01/18/80	S. Gardebring, USEPA	3
12	Document: Initial Assessment of Schmalz Disposal Site	Report	05/05/80	RMT, Inc	30
13	Document: Results of Additional Testing of Schmalz Landfill	Report	07/07/80	RMT, Inc.	25
14	Record of communication: Letter to D. Seno, USEPA	Results of site assessment of Schmalz site	11/06/80	D. Nichols, RMT, Inc.	3
15	Guidance Document	Procedures for Identifying Responsible Parties OSWER Directive # 9834.3	02/01/82		0
16	Guidance Document	Uncontrolled Hazardous Waste Site Ranking System- A Users Manual OSWER Directive # 9355.0-03	07/16/82		0
17	Guidance Document	Superfund Community Relations Policy OSWER Directive # 9230.0-02	05/09/83		0
18	Document: Preliminary Assessment	First Step in Superfund Pre-Remedial Program	05/23/83	Ecology & Environment, Inc.	5
19	Document: Site Inspection	Second Step in Pre-Remedial Process	05/23/83	WDNR	14
20	Document: Hazardous Ranking Scoring Package	All documentation for scoring site for NPL, including references	07/14/83	USEPA	150
21	Guidance Document	Community Relations in Superfund: A Handbook, Interim Version OSWER Directive # 9230.0-03	09/01/83		0
22	Guidance Document	Community Relations Guidance for Evaluating Citizens Concerns at Superfund Sites Dir. # 9230.0-04	10/17/83		0

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	Title	Description	Date	Author	Pages
23	Guidance Document	Slurry Trench Construction for Pollution Migration Control OSWER Directive # 9380.0-02	02/01/84		0
24	Guidance Document	EP Toxicity Test OSWER Directive # 9443.04-84	08/20/84		0
25	Record of communication: Letter to V. Adamkus, USEPA	Request for Superfund assistance	09/28/84	C. Besadny, WDNR	2
26	Guidance Document	User's Guide to the Contract Laboratory Program OSWER Directive # 9240.0-01	10/01/84		0
27	Guidance Document	Guidance on Issuance of Notice Letters OSWER Directive # 9834.1	10/12/84		0
28	Record of communication: Letter to D. Hanson, WDNR	Proposed Superfund activities at Schmalz	10/26/84	B. Constantelos, USEPA	2
29	Record of communication: Letter to H. Kiesow, ECWRPC	Support for Superfund actions at the site	11/14/84	W. Elman, FVWQPA	1
30	Record of communication: Letter to H. Kiesow, ECWRPC	Support for Superfund actions at Schmalz	11/14/84	D. Klessig, Calumet County	1
31	Guidance Document	Standard Operating Safety Guide Manual OSWER Directive # 9285.1-01-B	11/19/84		0
32	Record of communication: Letter to W. Strimbu, USEPA	Support for Superfund actions	12/21/84	R. Willey, ECWRPC	1
33	Community Relations: Letter to J. Beck, USEPA	Comments on draft Community Relations (CR) Plan	02/07/85	R. O'Hara, WDNR	16
34	Guidance Document	Preparation of Decision Documents For Approving Fund-Financed RAs Under CERCLA Dir. # 9340.2-01	02/27/85		0
35	CR: Community Relations Plan for Schmalz Dump	Document	03/20/85	CH2M HILL, Inc.	35
36	Guidance Document	MOU Between the ATSDR and USEPA OSWER Directive # 9295.1-01	04/02/85		0
37	Record of communication: Letter to J. Knoy, USEPA	Comments on draft RI/FS work plan	05/20/85	R. O'Hara, WDNR	4
38	Record of communication: Notice letters to PRPs for Schmalz RI/FS	A total of eight PRPs were noticed and given an opportunity to perform the RI/FS	05/21/85	B. Constantelos, USEPA	56
39	Guidance Document	Guidance on Feasibility Studies Under CERCLA OSWER Directive # 9355.0-05C	06/01/85		0
40	Guidance Document	Guidance on Remedial Investigations Under CERCLA OSWER Directive # 9355.0-05B	06/01/85		0
41	CR: Press Release	Availability of Operable Unit FS and announcement of RI/FS kick-off meeting	06/25/85	J. Beck, USEPA	1
4[illegible]	[illegible]ment: RI/FS Work Plan for [illegible]malz Dump Site	Report	06/27/85	Camp Dresser & McKee, Inc.	70

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43 CR: Fact Sheet	Discusion of operable unit actions and the RI/FS plans	07/06/85	J. Beck, USEPA	4
44 CR: Agenda for Public Meeting	Outlines topics of discusion for meeting: Operable Unit FS and RI/FS kick-off	07/09/85	J. Beck, USEPA	1
45 Record of communicavion: Letter to M. Guerriero, USEPA	Comments on RI/FS work plan	07/30/85	R. O'Hara, WDNR	2
46 Guidance Document	Policy on Flood Plains and Wetlands Assessments OSWER Directive # 9280.0-02	08/06/85		0
47 Document: Health & Safety Plan for Schmalz RI/FS	Report	09/25/85	CDM, Inc.	35
48 Guidance Document	CERCLA Compliance with Other Environmental Statutes OSWER Directive # 9234.0-02	10/02/85		0
49 Document: Sampling Protocol Revisions to the RI/FS Work Plan	Addendum to work plan	10/08/85	CDM, Inc.	10
50 Record of Communication: Phone Conversation with D. Payne, USEPA	Verbal approval for RI/FS Sampling activities prior to QAPP approval	10/18/85	M. Guerriero, USEPA	1
51 Sample Data:Analytical Summary Pages for RI Samples, w/QC reports	Organics:86RC01S01-1S93 Inorganics:86RC01S01-2S29 EP TOX:86RC03S01-3S09 Res wells:86RC01S79-1S89	12/12/85	Contract Lab Program labs	500
52 Document: Technical Memorandum for Schmalz Dump Site RI	Report on RI field work	01/14/85	CDM, Inc.	7[illegible]
53 Guidance Document	State Participation in the Superfund Program Manual OSWER Directive # 9375.1-04	03/01/85		0
54 Record of communication: Memo to G. Vanderlaan, USEPA	Approval of RI/FS QAPP except for procedures for analyzing PCB's in tissue	03/03/86	J. Adams, USEPA	1
55 Record of communication: Conference call with ATSDR	Conference call with L. Fabinski, & B. Williams, ATSDR regardingtheir review of res well sample data	03/18/85	M. Guerriero, USEPA	2
56 Guidance Document	Analytical Support for Superfund OSWER Directive # 9240.0-02	03/20/85		0
57 Record of communication: Memo to L. Fabinski, ATSDR	Review of residential well data by ATSDR	04/02/86	J. Lybarger, M.D., ATSDR	5
58 Guidance Document	Discharge of wastewater from CERCLA Sites to POTWs OSWER Directive # 9330.2-04	04/15/85		0
59 Document: Supplemental Work Plan for Schmalz Dump RI/FS	Work plan for the collection of additional samples on the site	04/21/86	CDM, Inc.	16
60 Document: Supplemental QAPP for Additional Sampling at Schmalz	QAPP for collection of additional samples at the site	04/22/86	CDM, Inc.	24
61 Sample data:Analytical Summary Pages for RI Samples, w/QC Reports	Inorganic & organic sample #'s: 86RC03S01-3S09	07/07/86	Contract Lab Program lab	35
62 Record of communication: Letter to M. Guerriero, USEPA	Review and approval of RI report	10/09/86	R. O'Hara, WDNR	1
63 Guidance Document	Superfund Public Health Evaluation Manual OSWER Directive # 9285.4-01	11/07/85		0

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64 Guidance Document	Federal-Lead Remedial Project Management Manual OSWER Directive # 9355.1-01	12/01/86		0
65 Guidance Document	Interim Guidance on Superfund Selection of Remedy OSWER Directive # 9355.0-19	12/24/86		0
66 Document: Alternatives Array, Schmalz Dump	Report	01/27/87	CDM, Inc.	70
67 Record of communication: Letter to C. Besadny, WDNR	Request for notification of State ARARs	02/04/87	V. Adamkus, USEPA	2
68 Document:Approved QAPP for Schmalz Dump RI/FS	Report	02/20/87	CDM, Inc.	160
69 Record of communication: Letter to V. Adamkus, USEPA	Response to request for notification of State ARARs	03/06/87	C. Besadny, WDNR	2
70 Record of communication: Letter to B. Constantelos, USEPA	Notification of site-specific State ARARs Preliminary identification of ARARs attachment	03/06/87	P. Didier, WDNR	20
71 Guidance Document	Guidance for Coordinating ATSDR Health Assessment Activities w/Superfund Remedial Process 9285.4-02	03/11/87		0
72 Record of communication: Letter to M. Guerriero, USEPA	Technical review comments on Alternatives Array Document	03/[illegible]/87	R. O'Hara, WDNR	2
3 Guidance Document	Data Quality Objectives for Remedial Response Activities OSWER Directive # 9355.0-7B	04/[illegible]/87		0
74 Document: Phase I RI Report for Schmalz Dump	Public Health Evaluation included as an appendix	04/29/87	CDM, Inc.	200
75 CR: Press Release	Announcing completion of Phase I RI report and plans for Phase II RI and FS	05/04/87	J. Beck, USEPA	1
76 Document: Phase II RI/FS work plan for Schmalz Dump	Report	05/07/87	CDM, Inc.	25
77 CR: Fact Sheet	Completion of Phase I RI and discusion of findings plans for Phase II RI and FS	05/[illegible]/87	J. Beck, USEPA	4
78 CR: Agenda for Public Meeting	Outlines topics of discusion for the meeting: Findings of Phase I and plans for Phase II of the RI	05/[illegible]/87	J. Beck, USEPA	1
79 Document: Supplemental QAPP for Additional Sampling at Schmalz	Report	05/[illegible]/87	CDM, Inc.	35
80 Record of communication: Letter to P. Didier, WDNR	Response to State's notification of ARARs	05/21/87	B. Constantelos, USEPA	2
81 Sample Data: Summary sheets for Phase II RI samples	Inorganic sample #'s: 87RC01S01-1S41	06/24/87	Contract Lab Program lab	30
82 Memo: To file	The use of filtered vs unfiltered samples for metals analysis	07/07/87	M. Guerriero, USEPA	2
Guidance Document	Interim Guidance on Compliance with Applicable or Relevant and Appropriate Requirements 9234.0-05	07/[illegible]/87		0

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84 Guidance Document	Additional Interim Guidance for FY'87 Records of Decision OSWER Directive # 9355.0-21	07/24/87		
85 CR: Synopsis of Proposed Plan in Appleton Post-Cresent Newspaper	Announcement of preferred alternative and notice of public comment period for FS and public meeting	08/05/87	S. Pastor, USEPA	1
86 CR: Press Release	Announcement of preferred alternative and notice of public meeting date	08/07/87	S. Pastor, USEPA	2
87 Record of communication: Phone conversation with P. Lagoy, ICF	The need to use USEPA's Public Health Evaluation Manual in determining risk levels at Schmalz	08/14/87	M. Guerriero, USEPA	3
88 Memo: To file	Discusion of the Schmalz PHE and the determination that protection from direct contact is needed	08/14/87	M. Guerriero, USEPA	3
89 Record of communication: Phone conversation with G. Knapton, USACE	Determination that area to be capped in the perferred alternative is not a wetlands area	08/14/87	M. Guerriero, USEPA	2
90 Document: Public Comment Draft Feasibility Study Report	Final FS	08/14/87	CDM, Inc.	90
91 Document: Phase II RI Report	PHE for second phase RI is included	08/14/87	CDM, Inc.	80
92 CR: Fact Sheet	Completion of Phase II RI and FS and their findings also includes the proposed plan for the site	08/17/87	S. Pastor, USEPA	4
93 Record of communication: Notice letters to PRPs for Schmalz RD/RA	The eight PRPs were sent notice letters and given the opportunity to perform the RD/RA at Schmalz	08/17/87	B. Constantelos, USEPA	80
94 Record of communication: Letter to M. Guerriero, USEPA	Comments on the draft Phase II RI report and the draft FS report, with attachment	08/17/87	M. Giesfeldt, WDNR	20
95 CR: Agenda for public meeting	List of topics to be discussed by speakers during public meeting	08/19/87	S. Pastor, USEPA	1
96 CR: Transcript of 8/19/87 public meeting on the proposed plan		08/19/87		23
97 CR: Public Comments (3) on USEPA's proposed plan	Comments include: preference for RCRA cap and recommendation that PRPs are made to pay for remedy	09/08/87		3
98 Record of communication: Letter to M. Guerriero, USEPA	Comments on public comment drafts of Phase II RI and FS reports	09/11/87	M. Giesfeldt, WDNR	2
99 Memo: To file	Issues outstanding with WDNR on selected remedy, resolutions discussed, and outcome	09/18/87	M. Guerriero, USEPA	3
100 Record of Decision Summary of Remedial Alternative Selection	Package includes: Responsiveness Summary Letter of State Concurence and Administrative Record Index	09/30/87	V. Adamkus, USEPA	35