



Superfund Record of Decision:

14 9803

Pine Bend Sanitary Landfill,
MN



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4. Title and Subtitle SUPERFUND RECORD OF DECISION Pine Bend Sanitary Landfill, MN First Remedial Action			5. Report Date 09/30/91	
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12. Sponsoring Organization Name and Address U.S. Environmental Protection Agency 401 M Street, S.W. Washington, D.C. 20460			13. Type of Report & Period Covered 800/000	
15. Supplementary Notes			14.	
16. Abstract (Limit: 200 words) The Pine Bend Sanitary Landfill site is located 1 mile east of the Mississippi River in Inver Grove Heights, Dakota County, Minnesota. Land use in the area is residential and industrial. The terrain is generally flat and contains an immature drainage system resulting in onsite numerous ponds and wetlands. The site is composed of two landfills: the 255-acre active Pine Bend Sanitary Landfill (PBSL) and the inactive 52-acre Crosby American Demolition Landfill (CADL). PBSL began operation in 1971 as a mixed municipal solid waste facility. CADL accepted compressed bales of municipal solid wastes from 1971 to 1974, and later, from 1976 to 1989 also accepted demolition wastes. Hydrogeologic data from the site show that the two landfills are considered one site because their ground water plumes commingle within a common surficial aquifer. The resulting plume moves through the surficial aquifer and is believed to eventually discharge to the Mississippi River via springs in the river bottom. In 1983, elevated levels of VOCs were detected in the surficial ground water beneath the site, and low levels of VOCs were identified in numerous downgradient commercial and residential wells. This contamination is believed to be the result of precipitation infiltrating through the permeable landfill material and (See Attached Page)				
17. Document Analysis a. Descriptors Record of Decision - Pine Bend Sanitary Landfill, MN First Remedial Action Contaminated Medium: gw Key Contaminants: VOCs (benzene, PCE, TCE, toluene) b. Identifiers/Open-Ended Terms c. COSATI Field/Group				
18. Availability Statement		19. Security Class (This Report) None		21. No. of Pages 28
		20. Security Class (This Page) None		22. Price

EPA/ROD/R05-91/178

Pine Bend Sanitary Landfill, MN

First Remedial Action

Abstract (Continued)

coming in contact with buried waste. Since 1986, at the request of the State, CADL has provided bottled water to residences with contaminated wells to minimize the risk of VOC-contamination migrating from the PBSL/CADL site. This Record of Decision (ROD) addresses ground water contamination as the first of three Operable Units (OUs). Future RODs will address source control and final remediation of ground water. The primary contaminants of concern affecting the site are VOCs including benzene, PCE, TCE, and toluene.

The selected remedial action for this site includes providing a permanent alternative water supply by extending the existing Inver Grove Heights municipal water supply; connecting impacted or potentially impacted premises to the municipal water supply; and permanently sealing the potentially affected onsite private water supply wells. The estimated present worth cost for this remedial action is \$2,649,499, which includes an annual O&M cost of \$30,350 for 30 years.

PERFORMANCE STANDARDS OR GOALS: Not applicable.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

REPLY TO ATTENTION OF:
SRA-14

SEP 30 1991

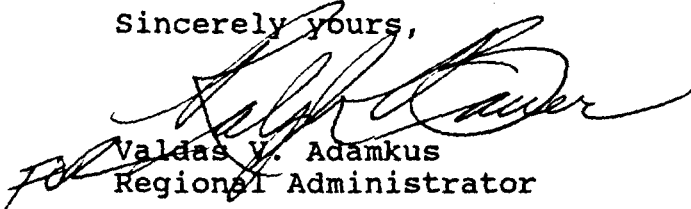
Charles W. Williams
Commissioner
Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, Minnesota 55155

Dear Mr. Williams:

The United States Environmental Protection Agency (U.S. EPA) hereby concurs in the remedy identified in the enclosed Record of Decision (ROD), which was compiled by the Minnesota Pollution Control Agency (MPCA) for the Pine Bend Sanitary Landfill site. Our concurrence is in accordance with 40 CFR 300.515 (e)(2)(i) and (ii), and is based upon our review of documents contained in the Administrative Record Index as supplemented by U.S. EPA.

We look forward to continued involvement with MPCA at this site.

Sincerely yours,


Valdas V. Adamkus
Regional Administrator

Enclosures



Minnesota Pollution Control Agency

520 Lafayette Road, Saint Paul, Minnesota 55155-3898

Telephone (612) 296-6300

September 30, 1991

Mr. Valdas Adamkus
Regional Administrator
U.S. Environmental Protection Agency
230 South Dearborn Street
Chicago, Illinois 60604

Dear Mr. Adamkus:

RE: Pine Bend Sanitary Landfill/Crosby American Demolition Landfill Site
State of Minnesota
Record of Decision - Operable Unit No. 1
Alternate Water Supply

Enclosed for your concurrence are two signed copies of the Record of Decision (ROD) for the above-referenced site (the Site). This ROD was jointly drafted by staff of the Minnesota Pollution Control Agency (MPCA) and the U.S. Environmental Protection Agency (USEPA), Region V.

The ROD selects a permanent alternate water supply to replace impacted private wells downgradient of the Site. The remedy selected is based upon information considered in a focused feasibility study for this Operable Unit.

It is the MPCA staff's understanding that USEPA need only to concur on the ROD, because the Site is state-lead and nonfederally financed. Therefore, there is no signature space for the USEPA.

MPCA staff appreciates the cooperation and assistance of your staff, particularly Mr. Turpin Ballard, in the preparation of the ROD. If you have any questions regarding the document, please contact Douglas Day, Superfund Unit Supervisor at 612/297-1780.

Sincerely,

Charles W. Williams
Commissioner

CWW:cj

Enclosure

cc: See attached page.

DECLARATION FOR THE RECORD OF DECISION
PINE BEND SANITARY LANDFILL/CROSBY AMERICAN DEMOLITION LANDFILL SUPERFUND SITE
OPERABLE UNIT 1: PERMANENT ALTERNATE DRINKING WATER SUPPLY

Site Name and Location:

Pine Bend Sanitary Landfill/Crosby American Demolition Landfill Superfund Site
City of Inver Grove Heights, Dakota County, Minnesota

Statement of Basis and Purpose:

This decision document presents the selected early final remedial action for the Pine Bend Sanitary Landfill/Crosby American Demolition Landfill Superfund Site (the Site), city of Inver Grove Heights, Minnesota, which was chosen in accordance with the Minnesota Environmental Response and Liability Act of 1983 and the October 23, 1990, Response Order by Consent for the Site. The selection and the remedial action takes into account and is not inconsistent with the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended by the Superfund Amendment and Reauthorization Act of 1986, and the National Contingency Plan.

This decision is based upon the reports and information which constitute the administrative record for the Site. The attached index identifies the items that comprise the administrative record upon which the selection of this remedial action is based.

Assessment of the Site:

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action in this Record of Decision, may present imminent and substantial endangerment to public health and welfare.

Description of the Selected Remedy:

This operable unit is the first of three operable units for the Site. It involves the installation of a permanent alternate water supply. The second operable unit involves source control for the Site. The third operable unit will address the contamination that is present in the ground water. The combination of these three discrete actions are expected to address the releases and threatened releases at the Site. This Record of Decision will identify the selected remedy for the first operable unit only. The second and third operable units will each be addressed in their respective Record of Decisions at a later date.

The selected remedy for the first operable unit consists of the following components:

- The extension of the existing city of Inver Grove Heights municipal water supply
- The connection of impacted or potentially impacted premises to the municipal water supply
- The permanent sealing of the private water supply wells which presently serve the premises that will be connected to the municipal water supply.

RECORD OF DECISION SUMMARY
PINE BEND SANITARY LANDFILL/CROSBY AMERICAN DEMOLITION LANDFILL SUPERFUND SITE
OPERABLE UNIT 1: PERMANENT ALTERNATE DRINKING WATER SUPPLY

I. SITE NAME, LOCATION AND DESCRIPTION

The Pine Bend Sanitary Landfill/Crosby American Demolition Landfill (PBSL/CADL) site is located in northeast Dakota County, on the periphery of the Minneapolis/St. Paul metropolitan area, in Sections 27, 28 and 33, Township 27 North, Range 22 West, city of Inver Grove Heights, Minnesota (Attachment 1). PBSL encompasses approximately 255 acres and is an open operating mixed municipal solid waste facility. CADL encompasses approximately 52 acres and ceased accepting waste in 1989 and is inactive. CADL is located immediately north of the PBSL (Attachment 2). The PBSL and CADL were operated as separate facilities under separate ownership. CADL and PBSL are connected hydrogeologically in the surficial aquifer, with CADL being immediately down and sidegradient of PBSL, and PBSL being side gradient of CADL.

The PBSL/CAP site is included on the Minnesota Permanent List of Priorities with a Hazard Ranking System Score of 52. PBSL, only, is included on the National Priority List (NPL) with a Hazard Ranking System Score of 52. The Minnesota Pollution Control Agency (MPCA) has always considered the two landfills as one site because hydrogeologic data demonstrates that the ground water contamination plumes emanating from each landfill commingle on and east of their common border. The MPCA considers the Responsible Persons for both landfills jointly and severally liable for the commingled ground water contamination hydrogeologically down and sidegradient of the PBSL/CADL site.

The PBSL/CADL site (the Site) is bordered on the south by industrial areas, to the east by residential and industrial areas, to the north by residential areas, and to the west by pasture and residential areas. The terrain is generally flat to gently rolling and possesses an immature natural surface drainage system resulting in numerous ponds and wetlands. The Mississippi River is located approximately one mile to the east of the Site.

The geology of the area in the vicinity of the Site consists of a thick sequence of glacial drift overlying approximately 700 feet of cambrian bedrock. The bedrock is generally flat lying but has been deeply eroded in some areas and subsequently filled with glacial drift. The axis of a pronounced buried bedrock valley trends west-northwest to east-southeast near the northeastern corner of the Site. The valley is nearly two miles wide and 450 feet or more deep in places, although there is no surface indication of its presence. The gradient flow of surficial ground water, supported by extensive hydrogeological data, is found to be east-northeast running from south of PBSL, through PBSL, continuing in a northeasterly direction through CADL, then east along the buried bedrock valley to the Mississippi River (Attachment 3). The ground water contamination plume emanating from the Site is moving through the surficial aquifer in this area and it is believed that it will eventually discharge to the Mississippi River via springs in the river bottom.

II. SITE HISTORY AND ENFORCEMENT ACTIVITIES

The PBSL was first issued a permit (SW-45) to operate by the MPCA on September 7, 1971. Since then, it has operated as a sanitary landfill accepting mixed municipal solid waste (mmsw) and nonhazardous industrial waste.

The CADL was first issued a permit (SW-16) to operate by the MPCA on September 17, 1970. From January 1971 through June 1974, CADL accepted compressed bales of mmsw. In 1976, CADL began operating as a demolition waste landfill, accepting only waste associated with demolished structures. Approximately 35 percent by volume of the 40 acres for the CADL contains baled mmsw.

Volatile organic compounds (VOCs) were first detected in the surficial ground water beneath the Site in 1983. Since that time, 31 different VOCs (Attachment 4) have been found within the ground water monitoring network (Attachment 5). Downgradient private water supply wells consist of two types, wells screened in the surficial aquifer (17 wells), and wells screened in the deep bedrock aquifers (4 wells). The bedrock wells serve the CENEX facility, Pabst Meat Supply Company, the Union Carbide facility, and the NSP facility (NSP-D).

Available information indicates that a majority of the downgradient wells are screened in the surficial aquifer which ranges from 100 to 300 feet in depth. Analysis of ground water samples from nineteen downgradient private wells have shown detectable concentrations of VOCs in eight of the wells at the present time. The Minnesota Department of Health (MDH) has recommended that two private wells (Cardin and A. Sachwitz) should not be used as a potable water supply. Eleven private well owners are presently using bottled water paid for by the PBSL. The MDH issued a well drilling advisory in 1985 for an area east and west of the PBSL which recommends that no new wells be constructed in the area (Attachment 6). The MPCA has requested the MDH to consider modifying the well drilling advisory area (Attachment 7) to reflect, given more information, the area impacted or potentially impacted by the contamination plume.

Enforcement History:

Pine Bend Landfill, Inc. (PBLI), a wholly-owned subsidiary of Browning Ferris Industries, is the owner and permittee of the PBSL. Crosby American Properties, Inc. (CAPI), a wholly-owned subsidiary of Amdura Corporation, is the owner and permittee of the CADL site.

In April, 1985, under the Minnesota Environmental Response and Liability Act (MERLA), Pine Bend Landfill, Inc. entered into a Response Order by Consent (Consent Order) with the MPCA to carry out a Remedial Investigation (RI), Feasibility Study (FS) and Response Action (RA). The Consent Order was amended on October 23, 1990. Pursuant to that Consent Order, PBLI has, among other things, conducted an RI (1986), conducted additional RI activities (1987), conducted a pump test (1989-90), submitted a Preliminary Alternatives Report (1989), undertaken an interim ground water monitoring program (1985-90) and submitted an MPCA approved final RI report in August, 1991. PBLI has also taken or will undertake various environmental improvements at PBSL as required by its MPCA operating permit including: placement of final cover on portions of the landfill that are filled to final elevation, installation of a combustible gas collection system, installation of a clay liner and leachate collection system in an expansion area, and the installation of a surface drainage control

system. In addition, PBLI has provided bottled water from approximately 1986 until the present to a number of nearby residents due to actual or potential drinking water contamination.

In April, 1985, under MERLA, CAPI and the MPCA entered into a Consent Order to carry out RI, FS and RA activities. The Consent Order was amended on November 25, 1986. Pursuant to the Consent Order, CAPI has submitted a draft RI/FS report, has expanded its original ground water monitoring network, and has submitted a revised ground water sampling plan. On April 12, 1990, CAPI's parent company, Amdura Corporation, filed for protection under Chapter 11 of the Bankruptcy Code. Due to the bankruptcy proceedings, CAPI claimed it could not carry out the terms of its Consent Order and suspended all activities at the CADL site.

On August 28, 1990, the MPCA issued to CAPI a Determination That Actions Will Not Be Taken In the Manner and Time Requested to CAPI for failing to carry out the terms of its 1985 Consent Order. The MPCA is presently expending state superfund monies at the site to carry out work not being performed by CAPI.

A Potential Responsible Party (PRP) investigation is being conducted by the MPCA for the CADL. Claims have been made for costs incurred at the CADL portion of the site by the state of Minnesota in the bankruptcy proceedings of Amdura Corporation. Browning Ferris Industries has guaranteed the performance of PBLI under its Response Order by Consent.

III. HIGHLIGHTS OF COMMUNITY PARTICIPATION

The Superfund activities at the Site have been followed closely by the local community and press. To date, there have been public meetings, fact sheets, update letters and press releases regarding the activities at the Site. There is an active mailing list of local citizens interested in the activities at the Site. A chronology of past community relations activities at the Site is listed in the Responsiveness Summary (Attachment 8).

A public information repository has been established in the Wescott Branch Library, of the Dakota County Library System, in the neighboring city of Eagan, Minnesota. This is the closest public library to the Site. The Administrative Record for the Site is located at the main office of the MPCA in St. Paul, Minnesota.

Notice of availability for the Proposed Plan for this operable unit was published in the Sun Current (Inver Grove Heights Edition) Newspaper in the form of a display ad on May 1, 1991. This ad initiated a 30 day public comment period. The public comment period is consistent with CERCLA, Section 117 (a). Notice of the public meeting held on May 15, 1991, was included. Additionally, a news release providing notification of the proposed remedy and public meeting was sent to interested parties and the press.

A public meeting was held on May 15, 1991, where the MPCA presented the alternatives to a group of interested citizens. The Responsiveness Summary (Attachment 8) addresses specific comments raised at the May 15th public meeting and during the public comment period. The public comment period officially ended May 30, 1991. No formal request for an extension of the public comment period was received by the MPCA. However, due to the low turnout by the residents residing in the impacted or potentially impacted area, a questionnaire was sent to those people, and, therefore, the comment period was informally extended.

IV. SCOPE AND ROLE OF OPERABLE UNIT

The activities at the Site have been divided into three operable units (OUs) as follows:

- OU 1: Permanent Alternate Water Supply
- OU 2: Source Control
- OU 3: Ground Water Contamination

OU 1, which is addressed in this ROD, will provide for the extension of the existing city of Inver Grove Heights municipal water supply into the impacted area east of the Site in order to eliminate exposure pathways as discussed below in section VI.

OU 2, will address source control that will prevent or minimize the contamination contained in the buried waste from migrating into the ground water beneath the site. This OU is currently in the feasibility study phase which is expected to be completed by December, 1991.

OU 3, will address the contamination that has moved into the ground water and is traveling off the Site. The objective will be to prevent contamination from migrating further and restore ground water quality in the plume area. This OU is currently in the feasibility study phase which is expected to be completed by December, 1991.

The combination of these three discrete actions is intended to address the releases and threatened releases at and from the Site.

The primary objective of OU 1 is to eliminate possible human exposure to contaminants from the Site, primarily VOCs, by interrupting the current exposure pathway that derives from use of commercial and residential water supply wells downgradient of the Site.

V. SITE CHARACTERIZATION

The problem of primary concern is the VOC contamination in ground water due to leachate migrating from the Site. The Site is the only known source of the contamination of ground water in the impacted area east of the Site.

Ground water was the only medium found to be contaminated off-Site that could be attributable to the Site. With the exception of benzene and the chlorinated fluoromethanes, all of these substances identified may be related to the transformation of certain chemicals to vinyl chloride through both chemical and biological processes. These substances are found at locations both outside and within the boundaries of the Site. The ground water contamination is most likely the result of precipitation infiltrating through the permeable landfill cover material and coming in contact with the buried waste. Specific compounds may also result from the degradation of waste products. The compounds of concern can be classified as to carcinogenicity (the likelihood that they may cause cancer in humans). A "Group A compound" means that sufficient information exists to classify it as a human carcinogen. "Group B compounds" are classified as probable human carcinogens because sufficient epidemiological evidence does not exist, but there is sufficient evidence from animal studies to support the classification of "probable" human carcinogen. "Group D compounds" are not classifiable as to human carcinogenicity. The classes of the compounds of concern are as follows:

ORAL		INHALATION	
Chemical	Group		Group
Benzene	A		A
1,1 Dichloroethane	C		C
1,1 Dichloroethylene	C		C
1,2 Dichloropropane	B		B
Methylene Chloride	B		B
Tetrachloroethylene	B		B
Trichloroethylene	B		B
Vinyl Chloride	A		A

All other VOC contaminants that have been found in on and off Site wells are classified as Group D compounds.

VI. SUMMARY OF SITE RISKS

The formal human health and ecological risk assessments for the Site have not been completed as of the writing of this ROD. The MDH published a preliminary health assessment for the PBSL in June, 1989. The assessment is based on ground water quality data produced between February, 1986 through July, 1987. The final health assessment is being drafted by the MDH at the present time.

Sampling and analysis of ground water from monitoring wells and downgradient residential and commercial wells has occurred since 1983 and continues today. The monitoring well, residential and commercial ground water monitoring network has expanded during this period of time to the east and northeast of the Site to track the migrating contamination plume. The plume is moving in an east - northeasterly direction towards the Mississippi River, approximately one mile to the east. On-Site monitoring wells show levels of VOCs in excess of the

Recommended Allowable Limits (RALs) and the Maximum Contaminant Levels (MCLs). The RALs and MCLs are concentration limits established by the MDH federal government, respectively, for certain substances in drinking water. There is a risk of contamination of residential wells by these compounds as they migrate towards those wells.

Six downgradient residential and two downgradient commercial wells have consistently shown detectable concentrations of VOCs over several sampling events. None of the wells have yet to show VOC concentrations above the RALs or the MCLs for the individual compounds analyzed.

The MDH issued two well advisories (Cardin and A. Sachwitz), which advise the well owner to seek an alternative source of water for drinking and cooking, because sampling of these wells over several years consistently detected four or more VOCs in the wells. The MDH refers to this situation as "multiple contaminant exposure". These two wells have had detectable and elevated concentrations of the following compounds:

- 1,1 trichloroethane
- cis-1,2 dichloroethylene
- 1,1 dichloroethane
- 1,2 dichloroethane
- chloroform
- toluene
- chlorinated fluoromethanes (Freons)
- ethyl ether

Concentrations of the Freons in these wells were found to be increasing with time but are presently below RALs for those compounds. The presence and concentrations of the other compounds have fluctuated over time. The health concern from contaminant exposure to even low levels of these types of compounds stems in large part from the lack of scientific data regarding the additive, or synergistic effects of several compounds being ingested at the same time. In addition, 1,2 dichloroethane and chloroform are classified as "probable" human carcinogens. The USEPA has determined that there is no safe threshold for exposure to carcinogens.

The other four residential wells have shown detectable concentrations of VOCs, but have not shown concentrations in excess of RALs or in quantities exceeding four or more contaminant detections per sampling event. Hydrogeological data for the site indicates that the remaining downgradient private wells and the NSP-S well, all of which have not shown contamination in the past, have the potential to become contaminated because there is strong indication that they are in the path of the plume. All of the owners of the residential wells except the Pine Bend Motel are being provided bottled water paid for by PBLI.

Two downgradient commercial wells, Pabst Meat and CENEX (Attachment 5), have shown detectable concentrations of VOC contamination consistently over several sampling events. The compounds appearing in these wells are as follows:

CENEX

Trichlorofluoromethane
Dichlorofluoromethane
Dichlorodifluoromethane

Pabst Meat Supply Co.

Dichlorodifluoromethane
Methylene Chloride
1,1 Dichloroethane
Dichlorofluoromethane

These two wells are deep, double-cased, bedrock wells. Contamination is suspected to be migrating down the side of the casing due to a poor annulus seal of cement grout. The RI report gives no indication of the direct vertical migration of compounds to the bedrock aquifers beneath or in the vicinity of the Site. The two wells are considered public water supplies, and, therefore, are analyzed for contaminants annually by the MDH in addition to sampling and analysis of the wells by PBLI's contract laboratory. Due to their status as a public water supply, Maximum Contaminant Levels (MCLs) rather than RALs are used for water quality criteria. None of the compound's concentrations exceed MCLs. The MDH does not consider the consumption of the water supplied by these wells as a human health risk. The Union Carbide well and the NSP-D well are also deep, double-cased, bedrock wells. These two wells have never shown contamination consistently. The Union Carbide well is a public water supply well, while the NSP-D well is used for fire suppression only.

In summary, none of the downgradient residential wells that show detectable concentrations of VOCs possess concentrations that exceed RALs at the present time. However, two of the wells do show the presence of four or more VOCs, levels of Freons appear to be rising and multiple exposure is a health concern. Continued use of bottled water by these well owners will minimize the risk from ingestion, however, bottled water is not a permanent solution to the drinking water problem. None of the downgradient commercial wells are considered to be at risk at this time.

VII. DESCRIPTION OF ALTERNATIVES

Five remedial action alternatives have been identified for OU 1 as follows:

- Alternative 1: No action.
- Alternative 2: Extension of the city of Inver Grove Heights existing municipal water supply into the impacted area.
- Alternative 3: Construction of a community water supply system to service the impacted area.
- Alternative 4: Construction of a new well for each impacted well owner.
- Alternative 5: Relocating impacted or potentially impacted private well owners outside of the impacted area through the purchase of their property.

Alternatives 4 and 5 will be eliminated from further analysis. Alternative 4 would require a well to be constructed for each well that is impacted or is in the path of the contamination plume. In 1985, the MDH issued a well drilling advisory for the area presently impacted and areas that may be in the path of the plume. The advisory discourages water wells to be constructed in this area due to the potential for producing a contaminated well or contaminating deeper ground water when drilling. Also, this alternative is not considered a permanent solution because the wells would need to be monitored indefinitely. Therefore, Alternative 4 is not considered effective or implementable, and is less protective of human health than Alternative 2 or 3.

Alternative 5 would be considered only after exhausting other remedies. It has the greatest difficulty of implementation of all the options, and the greatest impact on the affected residents. After discussing Alternative 5 with several of the residents, it was determined that the majority of them would not want to sell their property and relocate. For this reason, Alternative 5 is not considered implementable or desirable.

In the summer of 1990, the MPCA, the city of Inver Grove Heights, PBLI, Dakota County and Browning Ferris Industries entered into discussions concerning the installation of a permanent alternate water supply in the impacted area east of the Site. As a result of those discussions and MPCA negotiations with PBLI to amend its original Response Order by Consent, a focused FS was done in October 1990 to identify alternatives and their respective costs for an alternate water system. The focused FS was financed by PBLI. Two addendums to the focused FS were completed in November, 1990.

Alternative 1 - No Action

The no action alternative consists of the downgradient residential well owners in the impacted area continuing to use bottled water as their potable water supply. Their wells would continue to be sampled by the RPs of the Site indefinitely. This alternative is not protective of human health and is not an effective or acceptable permanent remedy. This alternative will not be considered or evaluated further.

Alternative 2 - Extension of Municipal Water Into the Impacted Area

The focused FS originally identified this alternative as a six inch water line that would dead-end in the impacted area and serve only those residents and businesses in the impacted area. During discussions between the city of Inver Grove Heights, the MPCA, PBLI, and Dakota County, the city determined that its water system could only be extended if it met certain design requirements. The city wanted the system extended in a way that would allow other users not affected by the Site's contamination, to connect to the extension. The city also required that the system have the capacity to provide fire protection (fire hydrants and larger water mains), and the system needed to be looped rather than a dead-end system. The looped system was needed to decrease the holding time of the water in the system, thereby, maintaining water quality more effectively than a dead-end type of system. The last condition of the

city was that the RPs for the Site would be required to pay the city the difference between the amount of money the city would collect in user fees (water bills) from users connected to the extension and the actual cost of Operation and Maintenance (O&M) of the extension on an annual basis.

Addendum 1 to the focused FS studied the options for providing fire protection to the area. Addendum 2 investigated the feasibility of a looped system.

Alternative 2 will involve the following: Extension of municipal water into the impacted area in a looped system fashion (Attachment 9). The system will contain a booster pump which will aid in circulating water through the looped system more rapidly than would normally occur, thereby, decreasing the holding time of the water within the loop. This will maintain water quality within the looped extension. There will be ample storage capabilities which are already built in to the existing municipal system. The RPs of the Site will construct the extension, connect the residents' homes/businesses to the system, pay the cost associated with relandscaped lawns, etc., and permanently seal the private wells that will be taken out of service by this extension. Water use by the residents/businesses connected to the system will be metered by the city. The issue of whether water bills will be the responsibility of the property owners or the RPs of the Site has not been resolved. The city would own, operate and maintain the extension. At the present time, water treatment by the city consists of the addition of chlorine, fluoride, and sodium silicate which prevents the precipitation of minerals from the water in the water lines. The city is considering the construction of a water treatment facility which will remove the majority of minerals found in the city's water supply. The cost of Alternative 2 is estimated as follows:

Capital Cost:	\$2,131,300
Annual O&M:	\$30,350
Estimated Present Worth:	\$2,649,499
Implementation Time:	1 to 2 years

(Estimated present worth was calculated using an estimated annual inflation rate of 4.1 percent and a thirty year period of analysis.)

Alternative 3 - Construction of a Community Water Supply System

This alternative will consist of the construction of two double-cased, bedrock wells (one for a backup), and a water distribution system consisting of a pump house and water mains (Attachment 10). The water produced by the wells will not be treated in any manner. The distribution system will be a "dead-end system" which is expected to contribute to poor water quality by increasing the holding time of the water within the system. There would be limited storage capabilities. The RPs of the Site will construct the system, connect the residents' homes/businesses to the system, pay the costs associated with relandscaped lawns, etc., and permanently seal the private wells that will be taken out of service by this system. The RPs of the Site would own, operate, and maintain the system. Water use would not be metered. There would be no water bills charged to the residents/businesses connected to the system. The cost of Alternative 3 is estimated as follows:

Capital Cost:	\$900,500
Annual O&M:	\$16,539
Estimated Present Worth:	\$1,183,052
Implementation Time:	1 to 2 years

(Estimated present worth was calculated using an estimated annual inflation rate of 4.1 percent and a thirty year period of analysis.)

VIII. SUMMARY OF THE COMPARATIVE ANALYSIS

The nine criteria used for evaluating the remedial alternatives listed above include: overall protection of human health and the environment; compliance with ARARs; long-term effectiveness; reduction in toxicity, mobility, and volume; short term effectiveness; implementability; cost; USEPA and community acceptance. The advantages and disadvantages of each alternative were compared to identify the alternative providing the best balance among the nine criteria.

Overall protection of human health and the environment.

Alternatives 2 and 3 are protective of human health because they each provide a safe, permanent, potable water supply to affected residents and commercial businesses. The alternatives do not protect the environment but neither are they detrimental. The other OUs for the Site will address the release of contaminants from the Site and will be protective of the environment.

Compliance with ARARs.

The term "ARARs" is derived from the Superfund Amendment and Reauthorization Act of 1986, which requires that remedial actions meet legally applicable or relevant and appropriate requirements of other environmental laws. A "legally applicable" requirement is one which would legally apply to the response action if that action were not taken pursuant to Sections 104, 106 and 122 of CERCLA. A "relevant and appropriate" requirement is designed to apply to problems sufficiently similar that the action is relevant to the situation and appropriate to take. There are three classes of ARARs; Chemical-specific, Action-specific, and Location-specific. The Minnesota Environmental Response and Liability Act (MERLA) defines a remedial action as a permanent action needed to protect public health or welfare or the environment. In selecting remedial actions under MERLA, MPCA takes into account the environmental requirements that apply to a particular release or threatened release as well as requirements or standards that apply to sufficiently similar circumstances that would be reasonable to comply with in order to protect public health or welfare or the environment. MPCA refers to these requirements and standards as ARARs.

ARARs are expected to be met with Alternative 2. ARARs will be associated with meeting the applicable requirements of the Safe Drinking Water Act in the form of state drinking water standards, or MCLs. Presently, MDH requires the sampling and analysis of the City's water supply system for bacteria a minimum of 12 times per year. MDH requires sampling and analysis of the City's water system for other contaminants such as VOCs, once every fifteen (15) months. Contaminant concentration must be below the MCLs regulated by the MDH for municipal public water supplies.

All ARARs are expected to be met with Alternative 3. The alternative would require the construction of two wells and a water distribution system. The wells would have to be constructed in the present Well Construction Advisory Area established by the MDH in 1985. The wells would be allowed to be constructed provided they meet certain design criteria such as double casing. Construction plans are required to be reviewed and approved by the MDH. Sampling and analysis of the well water would be required upon completion of well construction and then at a minimum of once every three years. Analysis would be for the same compounds as the City's municipal system in Alternative 2. Proper construction of the wells would be regulated by the Dakota County Public Health Department as per the Minnesota Water Well Construction Code and Dakota County Well Construction and Abandonment Ordinance No. 113. The construction of the distribution system and the connection to the buildings would be regulated by the Minnesota Plumbing Code and any other local or state plumbing law, ordinance, rule or regulation that is enforced by the city.

Once the alternate water system in Alternative 2 or 3 is constructed, the Minnesota Plumbing Code, Section 4715.0310, gives the city the authority to require connection to the system by residents and businesses in the impacted area and the permanent sealing of the private wells serving the properties by a state licensed water well contractor. The city has not used this authority in the past and has stated that it will not use this authority in this particular situation.

Long-term effectiveness and permanence.

Both Alternatives 2 and 3 would be protective of human health due to the system distributing water from an uncontaminated source that would be chemically monitored by the MDH on a regular basis. Either alternative will provide a permanent solution to the drinking water problem. However, neither addresses the actual contamination in the ground water. The ground water contamination will be addressed by OU#2 and OU#3.

Reduction of toxicity, mobility, or volume.

The water source for Alternatives 2 and 3 will be the city's municipal wells and two deep, double cased bedrock wells, respectively. The alternate sources will eliminate the use of the shallow ground water in the impacted area as a potable water supply. The alternatives do not reduce the toxicity, mobility, or volume of the contaminants. However OU #2 and #3 will address these issues.

Short-term effectiveness.

It is anticipated that the implementation of Alternatives 2 and 3 can occur within one construction season. The installation of the distribution system will create dust, inconvenience due to possible automobile traffic delays because of the installation of the system along roadways, and may require resodding due to the installation of the water lines under lawns. No short-term environmental or health effects are foreseen. The action will take place entirely off-site, with no potential for a contamination release from the Site. The water distribution line is not expected to transverse any wetland or other sensitive ecosystem.

Implementability.

Alternative 2 offers advantages over Alternative 3 in terms of technical feasibility. Alternative 2 is an extension of an existing water distribution system, therefore, the engineering design may be more simplified. Alternative 3 requires design of a new system, including new wells and a distribution system. Both are proven technologies that are feasible. Alternative 2 presents potential administrative problems because approval by the city of Inver Grove Heights City Council is necessary. The services and materials necessary to construct Alternative 2 and 3 are readily available. It is imperative that all activities be overseen by the city engineer.

Cost.

	Alternative 2	Alternative 3
Capital cost:	\$2,131,000	\$900,500
Annual O & M cost:	\$ 30,350	\$ 16,539
Estimated present worth:	\$2,649,499	\$1,183,052

Support agency acceptance.

The USEPA believes that Alternative 2 - extension of the city's existing municipal water supply - presents the best balance among the nine evaluation criteria. It is USEPA, Region V, policy to encourage extension of existing water supplies over creation of new ones for Superfund remediation.

Community acceptance.

The public generally accepted Alternative 2, because they felt more confident with the city owning and operating the alternate system, they were apprehensive about the location of the two water supply wells proposed in Alternative 3 being in close proximity to the Site, and felt that the city's system would produce water of better quality than water provided by Alternative 3. However, they expressed some concerns regarding the payment of water bills as proposed in Alternative 2. See the attached Responsiveness Summary for a detailed discussion of comments received.

IX. THE SELECTED REMEDY

The selected remedy to provide a permanent, alternate water supply is Alternative 2, the extension of the existing City of Inver Grove Heights municipal water supply into the impacted area.

The goal of the remedial action is to provide residents and businesses, who possess water supply wells located downgradient of the Site and screened in the surficial aquifer, with a safe, permanent, alternate water supply. The private wells that this remedial action will replace must be permanently sealed in order for this remedy to be effective.

Alternative 2 will involve the extension of an existing municipal water system into the impacted area in a looped system fashion, and the connection of seventeen (17) homes and businesses to the system. The system will contain a booster pump which will aid in circulating water through the looped system more quickly than would otherwise occur with normal water use, thereby, decreasing the holding time of the water within the loop. This will maintain water quality within the looped extension.

The RPs of the Site will construct the extension, connect the residents homes/businesses to the system, relandscape lawns, etc., and permanently seal the private wells that will be taken out of service by this extension. Water use by the residents/businesses connected to the system will be metered by the city. The issue of whether water bills will be the responsibility of the property owners or the RPs of the Site has not been resolved. The city would own, operate and maintain the extension.

At the present time, water treatment by the city consists of the addition of chlorine, fluoride, and sodium silicate which prevents the precipitation of minerals from the water in the water lines. The city is considering the construction of a water treatment facility which will remove the majority of minerals found in the city's water supply.

Presently, MDH requires the sampling and analysis of the City's water supply system for bacteria a minimum of twelve (12) times per year. MDH requires sampling and analysis of the City's water system for other compounds such as VOCs, once every fifteen (15) months. Compound concentrations must be below the MCLs regulated by the MDH for municipal public water supplies. The construction of the distribution system and the connection to the buildings would be regulated by the Minnesota Plumbing Code and any other local or state plumbing law, ordinance, rule or regulation that is enforced by the city.

The associated costs for Alternative 2 are shown in Attachments 11 and 12.

X. STATUTORY DETERMINATION

The implementation of Alternative 2 at the Site satisfies the requirements of Section 121 (a to e) of CERCLA as detailed below.

Protection of Human Health and the Environment

Implementation of the selected alternative, and the subsequent sealing of the private wells that will be replaced by the alternative, will eliminate the potential risks to human health posed by exposure to contaminated ground water through ingestion, inhalation, and dermal contact. The remedy for this operable unit is not intended to address protection of the environment. Operable units 2 and 3 will address the release of contaminants from the Site and will be protective of the environment.

Attainment of Applicable or Relevant and Appropriate Requirements.

ARARs are expected to be met with Alternative 2. ARARs will be associated with meeting the applicable requirements of the Safe Drinking Water Act in the form of state drinking water standards, or MCLs. Presently, MDH requires the sampling and analysis of the City's water supply system for bacteria a minimum of twelve (12) times per year. MDH requires sampling and analysis of the City's water system for other compounds such as VOCs, once every fifteen (15) months. Compound concentrations must be below the MCLs regulated by the MDH for municipal public water supplies.

Cost Effectiveness

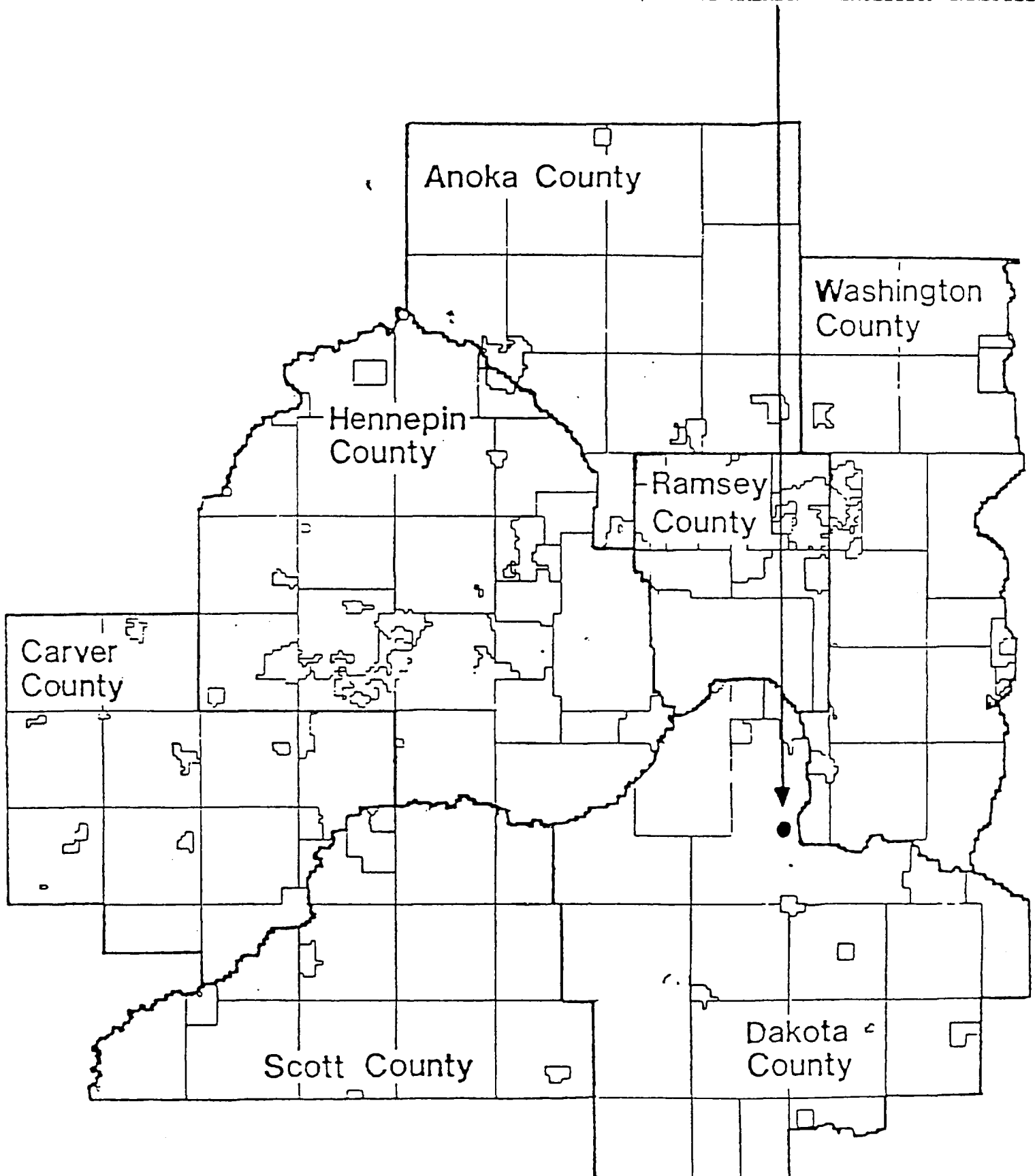
Although the capital and operational costs of the Alternative 2 exceed the costs of Alternative 3, Alternative 2 will more effectively supply a potable water supply to the area. The lower costs associated with Alternative 3 are due to the downsizing of the watermain, the smaller overall size of the system, and the elimination of watermain looping.

Utilization of Permanent Solutions

The MPCA and the USEPA believe that the selected remedy represents a permanent solution to provide an alternate water supply to the area downgradient of the Site. Bottled water, in use at the present time, will be eliminated. The municipal system will be in operation for as long as the City exists. The selected alternative does not address the actual contamination in the ground water. The ground water contamination will be addressed by OU#2 and OU#3.

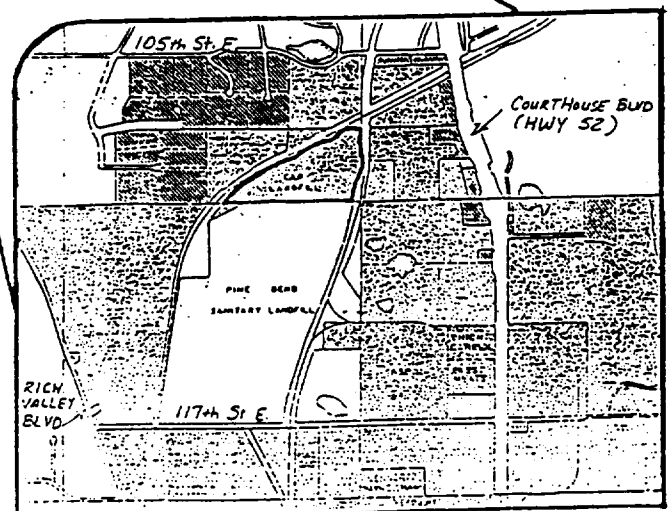
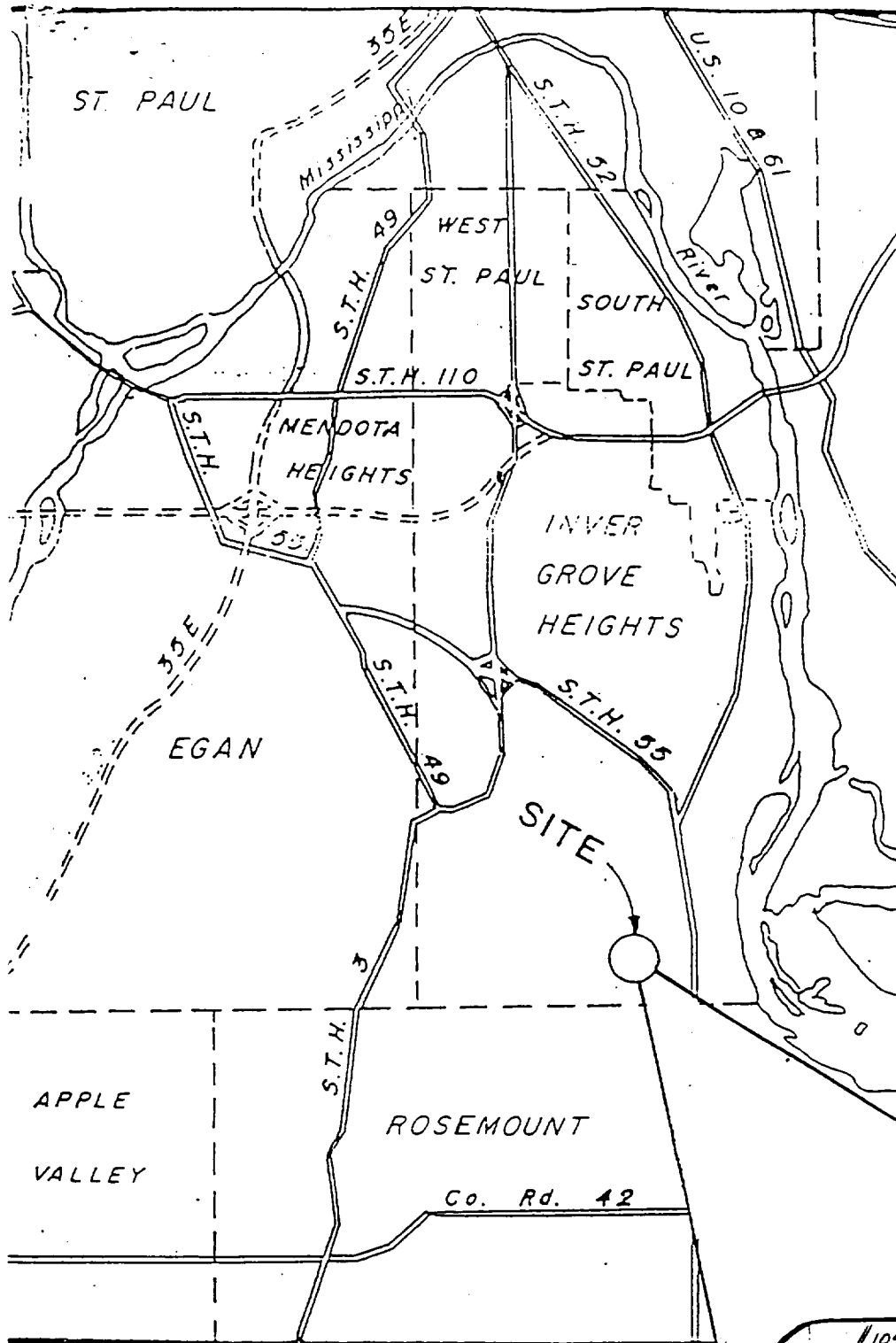
The selected alternative - Extension of municipal water into the impacted area - represents the best balance among the evaluation criteria used to evaluate the remedies. Based upon the information available, the MPCA and the USEPA believe the selected alternative would be cost-effective, protective of public health, implementable, permanent and comply with ARARs.

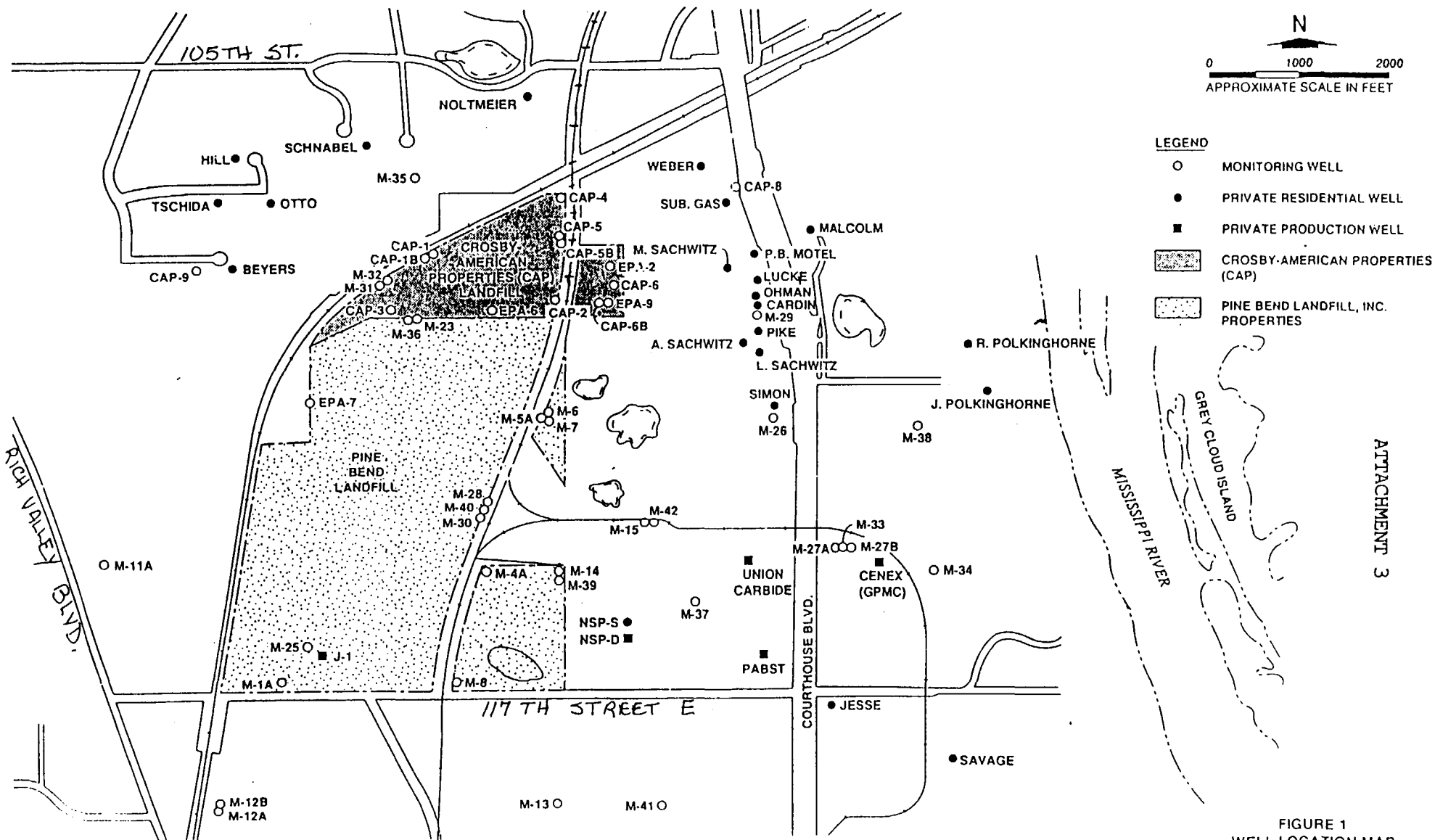
PINE BEND SANITARY LANDFILL/CROSBY AMERICAN DEMOLITION LANDFILL



ATTACHMENT 2

LOCATION MAP



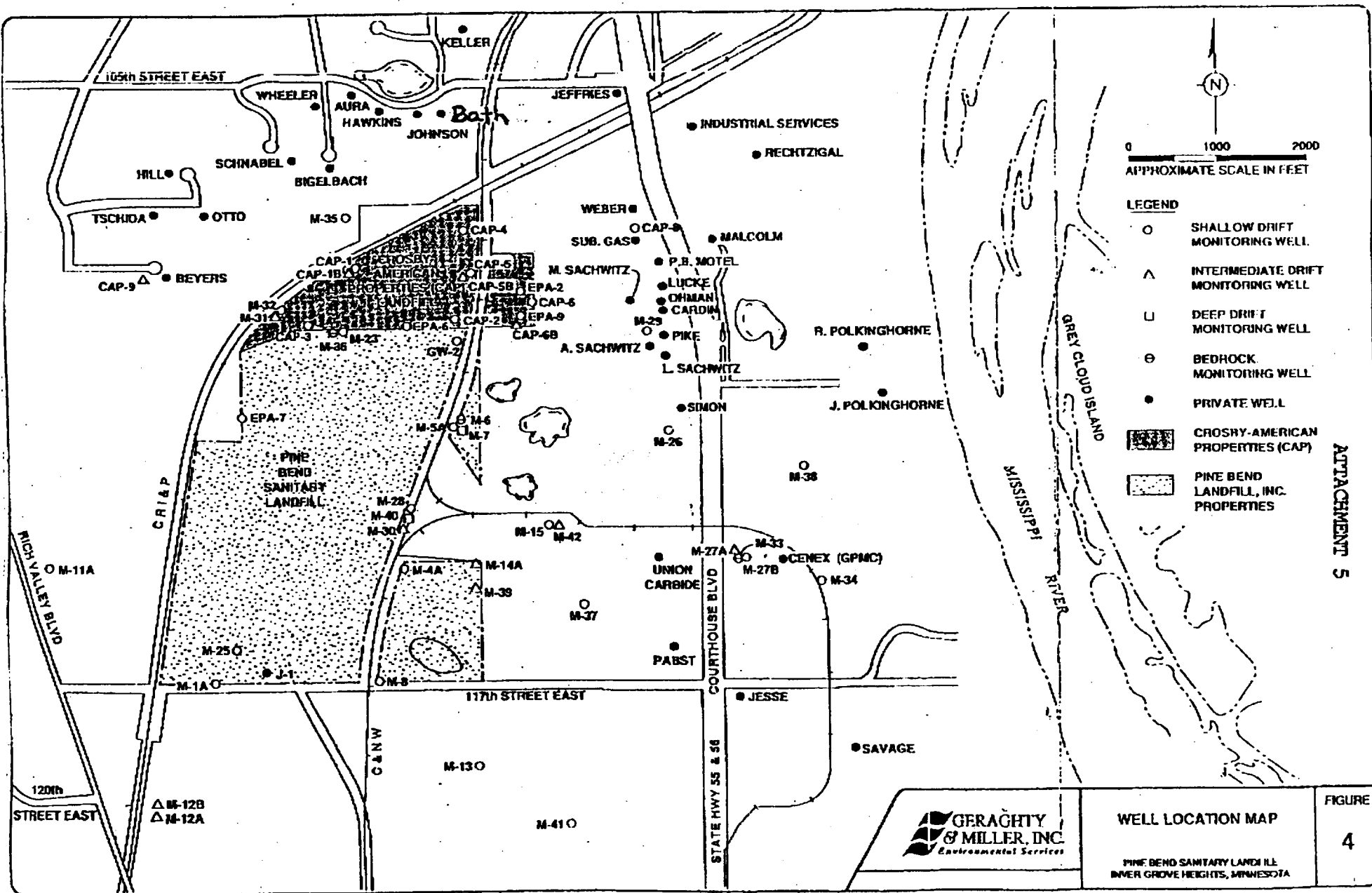


ATTACHMENT 3

FIGURE 1
WELL LOCATION MAP
PINE BEND LANDFILL, INC.
INVER GROVE HEIGHTS, MINNESOTA

GERAGHTY
& MILLER, INC.
Environmental Services

Parameters	RAL's	MCL's	Observed
	(ug/l)	(ug/l)	Concentration
			(ug/l)
Dichlorodifluoromethane	1000		1300
Methyl Ethyl Ketone	300		700
o,p,m-xylene	10000		580
Acetone	700		430
Methylene chloride	50		880
Ethyl benzene	700		290
Ethyl ether	1000		260
Trichlorofluoromethane	2000		190
1,1,1-Trichloroethane	600	200	87
1,1,2-Trichloroethylene			76
1,1-Dichloroethane	70		76
1,1,2,2-Tetrachloroethylene			72
c-1,2-Dichloroethylene			82
Vinyl Chloride	0.1	2	70
Toluene	1000		42
Benzene	10	5	28
1,2-Dichloropropane	5		25
t-1,3-Dichloro-1-propene			18
Methyl isobutyl ketone	300		12
1,1 Dichloroethylene			11
t-1,2 Dichloroethylene			10
1,1,2-Trichlorotrifluoroethane			7.5
1,3-Dichloropropane			7.1
1,1,2,2 Tetrachloroethane	2		2.4
1,1,1,2-Tetrachloroethane	20		2.4
1,2 -Dichloroethane	4	5	3.9
1,1,2-Trichloroethane	3		1.5
c-1,3-Dichloro-1-propene			1.5
Dibromochloromethane	10		1.5
Chloroform	60		6

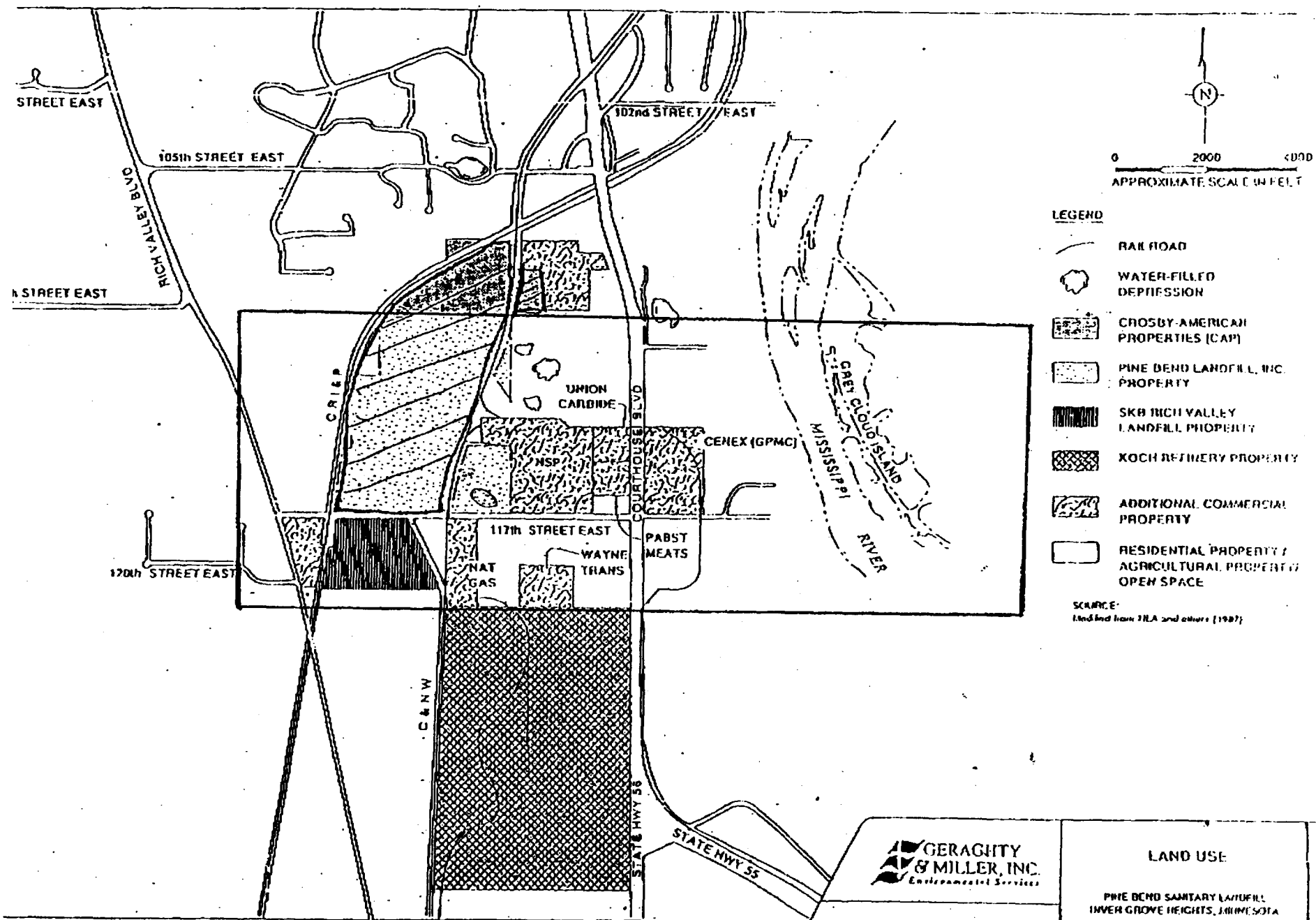


ATTACHMENT 6

FIGURE

2

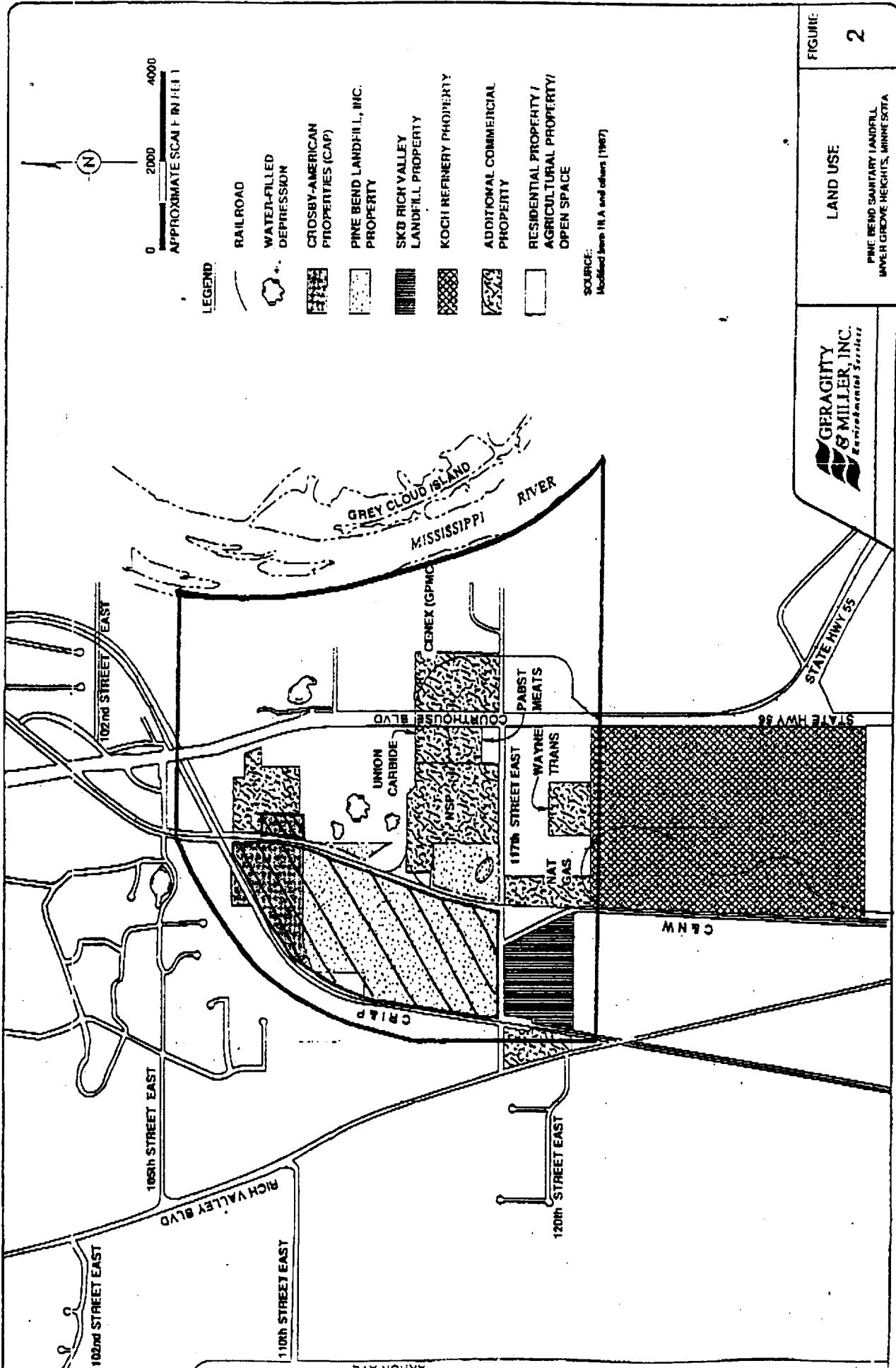
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GERAGHTY & MILLER, INC.
Environmental Services

LAND USE

PINE BEND SANITARY LANDFILL
INVER GROVE HEIGHTS, MINNESOTA



ATTACHMENT 8

RESPONSIVENESS SUMMARY

to comments received on the
Proposed Plan for a Permanent Alternate Water Supply
for residents affected by the
Pine Bend Sanitary Landfill/Crosby American Demolition Landfill

This community responsiveness summary has been developed to document community involvement and concerns during the selection of a permanent alternate water supply remedy for residents near the Pine Bend Sanitary Landfill/Crosby American Demolition Landfill Superfund site (referred to below as "the site") whose drinking water is affected by the site, and to respond to comments received during the public comment period on the proposed plan.

OVERVIEW

The MPCA's preferred remedy for a permanent alternate water supply was announced to the community through a news release to local newspapers, a legal notice in the local newspapers of record in both the communities of Rosemount and Inver Grove Heights, and an evening public meeting held at the Inver Grove Heights City Hall on May 15, 1991. The selected remedy is the extension of Inver Grove Heights' municipal water supply into the affected area east of the site.

Only one substantive comment was received during the public meeting on feasible water-supply alternatives. In addition, to further guide selection of alternatives, MPCA staff later prepared a written survey and distributed it to all residents in the affected area. The survey results are summarized as one comment, below. No further comments were received during the public comment period (May 1 - May 30, 1991). Comments are summarized below, along with the MPCA's responses.

SUMMARY OF COMMENTS RECEIVED AND MPCA RESPONSES

Comment: A citizen at the meeting indicated that a nearby freeway expansion will result in heavy development pressure from the area south of the affected area, and expressed concern that the alternative water supply should allow for future expansion. The resident also asked whether industrial water users in the area would be mandated to hook up to a new water supply. Further, he indicated a strong preference for some type of alternative to be implemented in the "very near future."

MPCA response: It is the MPCA's intention to implement the selected remedy as soon as possible. The city of Inver Grove Heights would have jurisdiction over whether the system is expanded further. The city would also have jurisdiction as to whether industrial water users in the area would be mandated to connect to a new water supply.

Comment: MPCA staff prepared and sent by registered mail a survey to all residents in the affected area. Return-mail envelopes were included. The survey asked recipients to indicate their choice of remedies for a permanent alternate water supply and whether they would choose to connect their homes or businesses to the alternate water supply they selected. A total of 16 surveys were returned out of 18 mailed. Generally, the results are as follows:

Eleven of the 12 residents surveyed indicated they preferred the extension of city water into their area. They indicated they would be willing to sign an agreement stating they would allow their homes to be connected to the system. Several of the residents did not like the fact they would have to pay water bills. Although none of the residents were asked the question, two indicated they would be interested in selling their property and moving out of the area. One resident has not responded to the survey.

Two of the six businesses surveyed indicated they would not allow their businesses to be connected to any alternate water system and preferred to use their existing wells. Three businesses preferred the extension of city water into the area and stated they would sign an agreement to ensure that they would allow connection to the alternate water system. One business has not responded to the survey.

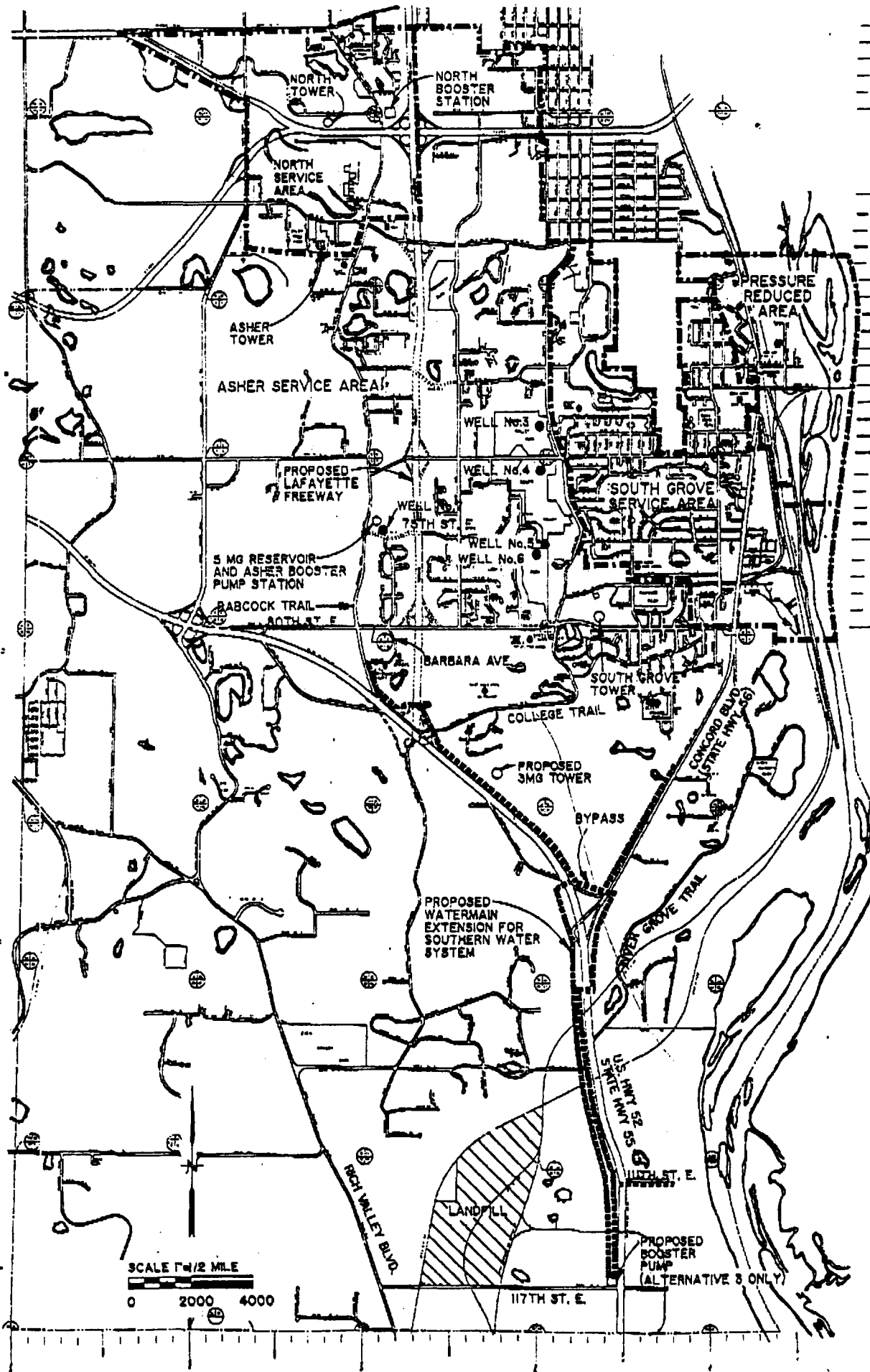
MPCA response:

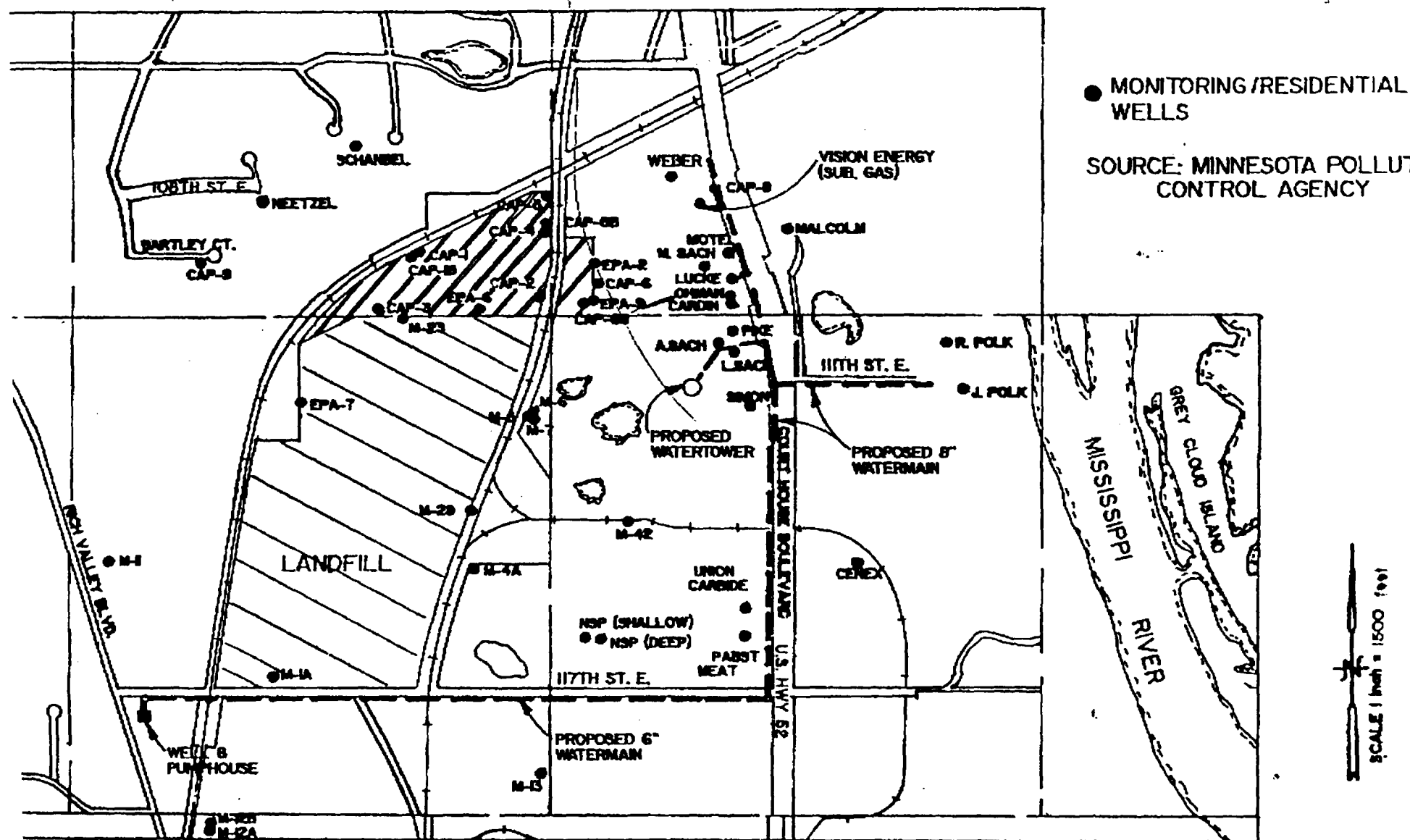
1. The majority of residents and half the businesses indicated they prefer the extension of city water rather than construction of a stand-alone system as a permanent alternate water supply in their area.
2. Residents who choose not to allow their homes to be connected to an alternate water supply would either have to be required to do so by the city or be allowed the continued use of their existing wells. If the city does not require connection, the MPCA would not require the Responsible Persons (RPs) to analyze those residents' wells for contaminants associated with the landfills, nor require them to provide the residents with bottled water. The MPCA would monitor the wells on a periodic basis.
3. MPCA staff recommends that businesses whose potable water comes from bedrock wells (Pabst Meat Supply Co., CENEX, Union Carbide and NSP-Deep), who choose not to connect to the alternate water system, and whose water supply is not considered a health risk by the Minnesota Department of Health

(MDH), should not be required by the city to connect to the alternate water supply. The MPCA would not require the RPs to analyze these wells for contaminants associated with the landfills, nor would they be required to provide the businesses with bottled water. The MDH presently monitors the Fabst Meat, CENEX, and Union Carbide wells on an annual basis. MPCA would monitor the NSP-Deep well on a periodic basis.

4. Businesses who do not possess bedrock wells (Pine Bend Motel, NSP-Shallow) and who do not allow their buildings to be connected to a permanent alternate water supply would either be required to do so by the city of Inver Grove Heights or be allowed the continued use of their existing wells. If the city does not require connection, the MPCA would not require the RPs to analyze these wells for contaminants associated with the landfills nor require them to provide the businesses with bottled water. The MPCA would monitor the wells on a periodic basis.

5. The issue of whether residents and businesses who would be connected to the city's water supply would pay their own water bills has not been resolved at this time.





pce PROGRESSIVE
CONSULTING
ENGINEERS, INC.

INVER GROVE HEIGHTS
SEPARATE WATER SUPPLY SYSTEM FOR
PINE BEND, POTABLE AND FIRE DEMAND

90030

FIGURE 4

ATTACHMENT 11

INVER GROVE HEIGHTS SOUTHERN WATER SYSTEM

PRELIMINARY COST ESTIMATE

EXTENSION OF EXISTING SYSTEM

(ASHER TO ASHER LOOP, WITH BOOSTER PUMP)

DESCRIPTION OF ITEM	UNIT	EST. QUANTITY	UNIT PRICE	EXTENSION
24" Watermain & Appurtenances L.F.		8,150	\$55.00	\$448,250.00
20" Watermain & Appurtenances L.F.		1,700	\$45.72	\$77,724.00
16" Watermain & Appurtenances L.F.		4,500	\$30.25	\$136,125.00
12" Watermain & Appurtenances L.F.		4,450	\$23.17	\$103,106.50
8" Watermain & Appurtenances L.F.		3,250	\$16.35	\$53,137.50
16" Watermain & Appurtenances L.F. (in parallel with 8" Main)		9,490	\$26.59	\$252,339.10
8" Watermain & Appurtenances L.F. (in parallel with 16" Main)		9,490	\$13.13	\$124,603.70
6" Hydrants & Gate Valves with Boxes	Unit	91	\$1,730.00	\$157,430.00
1" Service Lines (incl. 750' to Malcomb), Connections & Curb Stops with Boxes	Unit	64	\$711.25	\$45,520.00
16" Jacked Cased Crossings	L.F.	305	\$180.00	\$54,900.00
8" Jacked Cased Crossings	L.F.	555	\$100.00	\$55,500.00
24" Cased Crossing for Future Lafayette Freeway	L.F.	200	\$100.00	\$20,000.00
Service Line Augered Highway Crossing	L.S.	1	\$2,200.00	\$2,200.00
Paving Removal & Replacement	S.Y.	1,280	\$13.38	\$17,126.40
Misc. & Surface Restoration	L.S.	1	\$50,000.00	\$50,000.00
Air Relief Valves, Knife Valves & Manholes	Unit	4	\$4,875.00	\$19,500.00
Booster Pump Station	Unit	1	\$22,000.00	\$22,000.00
TOTAL CONSTRUCTION COST				\$1,639,462.20
CONTINGENCIES, ENGINEERING ADMINISTRATION & LEGAL				30% \$491,838.66

ATTACHMENT 12

INVER GROVE HEIGHTS SOUTHERN WATER SYSTEM

COST ESTIMATE

OPERATION AND MAINTENANCE

(Asher to Asher Loop, with Booster Pump)

	<u>\$/Year</u>
Power (Pumping), \$.065/kwh	850
Distribution system, \$.65/ft./yr.*	<u>29,500</u>
Total Annual O & M Costs	30,350

* Distribution system costs include hydrant flushing and maintenance, service turn on - turn off, valve maintenance, and main breaks. Based upon City of Minneapolis statistics.

ADMINISTRATIVE RECORD INDEX
PINE BEND SANITARY LANDFILL/CROSBY AMERICAN DEMOLITION LANDFILL SUPERFUND SITE
INVER GROVE HEIGHTS, MN

PINE BEND SANITARY LANDFILL

DATE	TITLE	RECIPIENT	DOCUMENT TYPE
85/04/21	Response Order by Consent		Other
85/09/00	Evaluation Report	MPCA	Report/Study
85/09/00	List of Alternative Response Actions	MPCA	Report/Study
85/09/00	QAPP	MPCA	Report/Study
85/09/00	RI Work Plan	MPCA	Report/Study
87/12/00	RI Investigation Report	MPCA	Report/Study
89/01/00	Preliminary FS: Downgradient Water Users Operable Unit	MPCA	Report/Study
90/10/23	Amended Response Order by Consent		Other
90/10/25	Feasibility Study: Southern Water System	MPCA	Report/Study
90/11/00	Addendum 1 to the Feasibility Study, Southern Water Supply	MPCA	Report/Study
91/04/22	Addendum 2 to the Feasibility Study, Southern Water System	MPCA	Report/Study
91/05/15	Public Meeting: Proposed Plan Permanent Alternate Water Supply		Other
91/06/00	Questionnaire to Impacted Citizens Concerning the Alternate Water Supply Alternatives		Other
91/08/12	Updated RI Final Report	MPCA	Report/Study

CROSBY AMERICAN DEMOLITION LANDFILL

DATE	TITLE	RECIPIENT	DOCUMENT TYPE
85/04/23	Response Order by Consent		Other
85/06/24	Evaluation Report	MPCA	Report/Study
85/06/24	QAPP	MPCA	Report/Study



85/06/24	RI Work Plan	MPCA	Report/Study
88/04/00	RI/FS Report	MPCA	Report/Study
90/08/29	Determinations That Actions Will Not Be Taken In the Manner and Time Requested		Enforcement Document
90/10/25	Feasibility Study: Southern Water System	MPCA	Report/Study
90/11/00	Addendum 1 to the Feasibility Study, Southern Water Supply	MPCA	Report/Study
91/04/22	Addendum 2 to the Feasibility Study, Southern Water System	MPCA	Report/Study
91/05/15	Public Meeting: Proposed Plan Permanent Alternate Water Supply		Other
91/06/00	Questionnaire to Impacted Citizens Concerning the Alternate Water Supply Alternatives		Other

ADMINISTRATIVE RECORD INDEX SUPPLEMENT
PINE BEND SANITARY LANDFILL/CROSBY DEMOLITION LANDFILL
SUPERFUND SITE, INVER GROVE HEIGHTS, MINNESOTA

DATE	TITLE	RECIPIENT	TYPE
90/03/08	40 CFR 300.430, 55 FR No. 46		Regulations
91/04/12	Water Division Review of Draft Proposed Plan	Waste Mgmt. Division	Memorandum
88/00/10	Guidance on Conducting Remedial Investigations and Feasibility Studies Under CERCLA - OSWER Dir. 9355.3-01		Guidance
89/00/07	Guidance on Preparing Superfund Decision Documents - OSWER Dir. 9355.3-02		Guidance