

# Health Consultation

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AGATE LAKE SCRAPYARD

FAIRVIEW TOWNSHIP, CASS COUNTY, MINNESOTA

CERCLIS NO. MND980898068

JUNE 12, 2000

**U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES**  
**Public Health Service**  
**Agency for Toxic Substances and Disease Registry**  
**Division of Health Assessment and Consultation**  
**Atlanta, Georgia 30333**

## **Health Consultation: A Note of Explanation**

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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HEALTH CONSULTATION

AGATE LAKE SCRAPYARD

FAIRVIEW TOWNSHIP, CASS COUNTY, MINNESOTA

CERCLIS NO. MND980898068

Prepared by:

Minnesota Department of Health  
Under Cooperative Agreement with the  
Agency for Toxic Substances and Disease Registry

## FOREWORD

This document summarizes potential public health concerns at a hazardous waste site in Minnesota. It is based on a formal site evaluation prepared by the Minnesota Department of Health (MDH). A number of steps are necessary to do such an evaluation:

- **Evaluating exposure:** MDH scientists begin by reviewing available information about environmental conditions at the site. The first task is to find out how much contamination is present, where it's found on the site, and how people might be exposed to it. Usually, MDH does not collect its own environmental sampling data. We rely on information provided by the Minnesota Pollution Control Agency (MPCA), U.S. Environmental Protection Agency (EPA), and other government agencies, businesses, and the general public.
- **Evaluating health effects:** If there is evidence that people are being exposed—or could be exposed—to hazardous substances, MDH scientists will take steps to determine whether that exposure could be harmful to human health. The report focuses on public health—the health impact on the community as a whole—and is based on existing scientific information.
- **Developing recommendations:** In the evaluation report, MDH outlines its conclusions regarding any potential health threat posed by a site, and offers recommendations for reducing or eliminating human exposure to contaminants. The role of MDH in dealing with hazardous waste sites is primarily advisory. For that reason, the evaluation report will typically recommend actions to be taken by other agencies—including EPA and MPCA. However, if there is an immediate health threat, MDH will issue a public health advisory warning people of the danger, and will work to resolve the problem.
- **Soliciting community input:** The evaluation process is interactive. MDH starts by soliciting and evaluating information from various government agencies, the organizations responsible for cleaning up the site, and the community surrounding the site. Any conclusions about the site are shared with the groups and organizations that provided the information. Once an evaluation report has been prepared, MDH seeks feedback from the public. *If you have questions or comments about this report, we encourage you to contact us.*

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## I. Summary of Background and History

The Minnesota Department of Health (MDH), in cooperation with the federal Agency for Toxic Substances and Disease Registry (ATSDR) has completed this Public Consultation to evaluate the current status of cleanup actions and identify any remaining public health issues at the site.

The Agate Lake Scrapyard Site is located in rural Cass County, Minnesota, approximately 10 miles northwest of the city of Brainerd (Figure 1). It is bordered on the east by Agate Lake, and by woodlands to the north, south, and west. The property consists of about 160 acres, but only about 15 of these were used for scrapping operations and scrap storage. The central portion of the site, where the majority of the scrapping operations took place, has an elevation about 5 to 10 feet higher than that of Agate Lake. Present at lower elevation to the north, south, and west of this central portion are wetlands which appear to drain to the lake. The site was operated as a scrapyard from 1952 to 1982. The site's operator bought and sold scrap items such as automobiles, appliances, electrical transformers, and scrap metal. A home-made burner and a smelter were used to recover aluminum, copper, and lead. Recovered transformer oils, some of which contained polychlorinated biphenyls (PCBs), were combined with solvents and burned to fuel the smelter furnaces. Transformers and drummed solvents were also stored on-site.

In 1985, the site was placed on the Minnesota state Superfund list (the Permanent List of Priorities, or PLP), and in 1986 added to the EPA National Priority List (the federal Superfund list, or NPL). In 1986, the Minnesota Pollution Control Agency (MPCA) issued a Request for Response Action to the site operator and two other responsible parties (RPs) requesting that investigation and cleanup actions be undertaken. The two companies the MPCA was able to identify as RPs sold transformers and drummed solvents to the site operator. The Minnesota Department of Health (MDH) also issued a health advisory recommending that the residential well water not be used for drinking or cooking due to the presence of contaminants in the well.

In 1989, MDH prepared a Preliminary Health Assessment for the site. In 1993, a full Public Health Assessment was completed for the Agate Lake Scrapyard site, and the site was classified as a Public Health Hazard for the following reasons (MDH 1993):

- Metals, PCBs, and chlorinated dioxins and furans were present in surface materials in concentrations which could be harmful to human health if people were exposed to them;
- access to contaminated media was not completely restricted to prevent trespassing and possible human exposure to chemicals;

- physical hazards were present at the site; and
- past activities may have resulted in significant human exposure to persons at the site.

In 1983, a consultant for the RPs undertook cleanup actions at the site without MPCA knowledge or approval, removing transformers, five drums of transformer oils, and 51 drums of waste solvents and liquids. Some of the transformer oils tested for PCB content were found to contain PCBs ranging from non-detectable to 610,000 milligrams per kilogram (mg/kg). The smelter and burner were also dismantled at this time.

In addition to removal of these materials approximately 300 cubic yards of oil-soaked soil from the main transformer storage area was excavated and deposited along with layers of clean soils in a shallow gully located west of the site entrance road. This action was conducted without prior investigation of soil contaminant levels or the approval of the MPCA.

In 1986, a different environmental consulting firm was hired by the RPs to complete a Remedial Investigation (RI) and a Feasibility Study (FS) for the site. Further interim response actions were also conducted at that time. The firm conducted a preliminary cleanup at the site in June 1986, during which additional non-hazardous scrap materials and two drums of solvents were removed to facilitate the RI. In 1992, an ash pile and underlying soils from the former smelter location were removed, stabilized, and disposed of. The ash pile and soils had elevated levels of heavy metals, mainly lead. In 1993, a pile of asbestos insulation was also removed from the site. Other areas of contaminated soil were addressed as described below.

Shallow groundwater under the center portion of the site is contaminated with low levels of the solvent tetrachloroethylene (PCE). A groundwater monitoring network consisting of a total of eleven on-site monitoring wells was installed to evaluate the groundwater contamination; some wells which were not optimally located were later removed. The final well network is shown on the site map (Figure 2). Long term groundwater monitoring has shown that the contaminant plume is confined to a small area in the central portion of the site, and that contaminant levels in general have trended downward. The monitoring well network has since been abandoned.

The site was delisted from the NPL in August of 1997, and from the PLP in December of 1998. An MPCA requirement for delisting of the site was the filing of a "Declaration of Restrictions and Covenants" with the property deed, which restricts future development in the former operations area and prohibits the installation of wells in the immediate area of the ground water contamination. The purpose of this Health Consultation is to evaluate the completeness of cleanup actions and identify any remaining public health issues at the site.

### Site Visit

On June 1, 1999, Jim Kelly and Rich Soule of MDH, and Steve Schoff of MPCA conducted a site visit. The following observations were made:

- The site is remote and difficult to access, and can be reached only by following a dirt path through a low-lying, flood-prone area. Tire tracks were observed on the path, however.
- Debris and small pieces of scrap such as metal, auto parts, tires, railroad ties, wood, wire coating, electrical insulators, and demolition debris lie scattered across the site. There is not a significant amount of this material, with the exception of a large pile of bricks and several smaller piles of scrap metal. A few crushed drums were also noted. The former residence is still standing. Windows in the house are missing. Old furniture was observed in the interior of the house, as well as other old household goods. The condition of the floors and the structure itself is unknown.
- There were no signs of stressed vegetation or stained soil observed, and the site is covered with grass and small trees. Several holes or pits were observed across the site. These depressions may be former test pits, or may have been caused by subsidence due to settling of buried debris.
- All monitoring wells have been removed, and a sign has been placed at the location of former well OW6. The sign reads, "No groundwater well may be installed within a 100 foot radius from this point. Please contact the Minnesota Pollution Control Agency at 1-800-657-3864 for information." The sign is anchored in cement.

### Past Contaminant Source Areas

There were four distinct areas of contamination on the site: the main transformer storage area where transformer oil may have been spilled or leaked from the transformers, the gully where oil contaminated soil was disposed of, the ash piles and associated soil from the smelter operation and a localized area of groundwater contaminated with low levels of chlorinated solvents. These areas are shown on Figure 3.

### Soil

As a part of the RI work, surficial soil samples were collected from the top 6 inches of soil throughout the former operations area (CRA 1994). Samples were also collected from the 12 to 18 inch depth for possible analysis. Samples from these locations were analyzed for PCBs, and samples from five of the locations were analyzed for dioxins and furans. PCBs were detected at up to 89 mg/kg, although only two samples out of 36 showed levels of PCBs above 1 mg/kg. Earlier spot sampling had shown three other shallow samples with levels of PCBs over 1 mg/kg. The most toxic type of dioxin, 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD), was not detected in any of the five soil samples tested for dioxins and furans. Low levels of other dioxins and furans were detected.

In 1993, soil cleanup was completed with the excavation and removal from the site of 248 tons of PCB impacted soils. Confirmation samples from the excavated areas showed the PCB site cleanup level of 1 mg/kg had been met. One area of elevated PCB contamination, around sample CB-4, was not excavated during the PCB cleanup even though at 4 mg/kg it exceeded the site cleanup level. However, this area was excavated and removed from the site during the cleanup of lead contaminated soil described below. The excavated areas were backfilled with clean soil and seeded.

The PCB cleanup level is above the current MPCA Soil Reference Value (SRV) for PCBs in residential soil of 0.6 mg/kg. The MPCA SRVs were developed to be protective of human health from incidental ingestion, dermal contact, and inhalation of contaminated soil. The SRV for PCBs is based on its potential ability to cause cancer or other adverse effects. The actual confirmation sample data was not available for review, so it is not clear if concentrations of PCBs remaining on the site are below the current SRV for residential soil. It is not known if any of the confirmation samples were analyzed for dioxins or furans.

Lead was detected in shallow soil at levels as high as 1,600 mg/kg in the former smelter area. The ash and soil directly beneath the former smelter was removed in 1992. After the initial cleanup, lead concentrations in soil were measured using an x-ray fluorimeter (XRF) to help delineate the areal extent of lead contamination around the former smelter location. This data was used to determine the extent of the final soil lead excavation. Laboratory analysis of excavation confirmation samples showed levels of lead to be well below the site cleanup level of 300 mg/kg, with 51 mg/kg being the highest level detected. This cleanup level is below the MPCA's current SRV for lead in residential soil of 400 mg/kg. The excavations were backfilled and seeded.

Six soil samples were obtained from three locations in the gully, where contaminated soil from the transformer storage area (along with clean soil) was placed in 1983. Three samples were taken at a depth of 1 to 2 feet, and three were from 3 to 4 feet. One of the 3- to 4-foot samples contained 2 mg/kg PCBs; PCBs were detected in the laboratory blank. Methyl ethyl ketone and benzene were found in one sample, but were also present in the laboratory blank. Metals were not found at appreciable concentrations in any of the samples. Dioxins and furans were tested for in one 3- to 4-foot gully soil sample, but were not detected. Taken together, these results are problematic in that it is not clear if the samples were representative of the contaminated soil placed in the gully. No surficial samples were collected, and the detections of PCBs and other contaminants in the laboratory blanks indicate the data quality was questionable.

### Geology

The geology of the Agate Lake site is important because it controls the groundwater flow and runoff from the site. The majority of the site area is composed of sandy materials. There are

some lowland marshy areas that are predominantly fine grained materials and some gravel and silty layers at depth, but the vast majority of the site is composed of sand.

#### Site Hydrogeology

The local and regional groundwater flow is generally to the east or southeast toward Agate Lake and the much larger Gull Lake. Groundwater gradients are generally low and the hydraulic conductivity of the sandy aquifer materials is relatively high. The combination of these factors results in a groundwater flow velocity on the order of tens of feet per year.

The eleven monitoring wells installed over time for the RI appear to be sufficient to characterize the extent of the groundwater contaminant plume at this site. The plume has a relatively consistent, easterly flow, and appears stable. Data from nested sets of wells on site indicated that there is little or no vertical gradient. Flow is therefore driven by very flat horizontal gradients that are consistent with the regional flow in the area.

The monitoring wells have been sampled on many occasions over a period of several years, and the site operator's private well was tested three times. Metals were not detected at levels above federal or state drinking water standards in any of the samples, and PCBs were not detected in any of the samples. Long term groundwater monitoring on site has shown that VOC groundwater contamination is present at fairly low levels and remains localized in the central portion of the site under the former operations area, within an approximately 100 foot radius of monitoring well OW6. The overall trend of the PCE contamination detected in this well is downward, although the final sample from OW6 contained PCE at 18 micrograms per liter ( $\mu\text{g/l}$ ), which is more than twice the MDH Health Risk Limit (HRL) PCE in groundwater ( $7 \mu\text{g/l}$ ). The previous two samples had detections of PCE at or below the HRL, however. Since groundwater flow is slow and likely discharges to Agate Lake, no off-site impacts to drinking water wells are expected.

HRLs for potential carcinogens (such as PCE) are levels that would be expected to result in a negligible excess cancer risk if the contaminated water is ingested for a lifetime. MDH considers an excess cancer risk to be negligible if the expected excess risk is no greater than one additional cancer case in 100,000 exposed people.

There was only one well that was used while the operator lived at the site. This well yielded a sample containing  $16 \mu\text{g/l}$  PCE in 1984, it was not found to be contaminated in 1986 sampling, and yielded low levels of PCE in 1987 sampling. It is unknown if specific samples, which were analyzed for metals, were filtered or unfiltered (it is only known that winter samples were unfiltered, and the use of filtration was not reported for the others). This is noted because the levels of metals in filtered samples can be much lower than in unfiltered samples. The residence has since been abandoned, and the well was sealed in 1994.

### Surface Water

The site is a low upland area bounded by surface water on three sides. Agate Lake is on the east and south and a wetland that appears to drain into Agate Lake is on the west. Because the site is predominantly sandy, there is likely to be little runoff that drains to the surface water or other off-site areas.

Three surface water samples from Agate Lake were analyzed as a part of the RI. These samples were obtained approximately 10 feet offshore, directly east of the former site operator's home. This sampling location was thought to be in an area of groundwater discharge. The samples were analyzed for VOCs. One of the samples was found to contain 65  $\mu\text{g/l}$  methyl ethyl ketone, 16  $\mu\text{g/l}$  toluene, and 1.1  $\mu\text{g/l}$  methyl isobutyl ketone. However, methyl ethyl ketone and toluene were also present in the laboratory blank.

A March 1986 Agate Lake water sample obtained by the MPCA 30 feet offshore to the north-northeast of the site operator's house contained 0.24  $\mu\text{g/l}$  chloroform. Chloroform was not detected at the site, and may be a lab contaminant. This water sample was not analyzed for PCBs.

It is unknown if surface water contamination is, or was, present in Agate Lake. Because the lake is not used for drinking water and the chemicals detected are volatile in nature (that is, they readily evaporate from surface water), these suspect results are not considered as a cause for concern.

### Sediments

Seven sediment samples taken from Agate Lake by MPCA in December 1982 and June 1983 were analyzed for PCBs. Five of the samples were taken about 20 to 30 yards offshore; three of these were taken to the south of the on-site house, one directly east of the house, and one northeast of the house. Of these five samples, the sample taken directly east of and one of those taken to the south of the on-site house did not contain detectable PCB concentrations, while the other three samples contained 0.19, 0.22, and 0.48 mg/kg PCB. Two sediment samples were obtained from across Agate Lake, on its northeast side. These samples contained 0.40 and 0.43 mg/kg PCB.

Since PCBs are expected to bind tightly to sediments or other organic matter (ATSDR, 1995), any PCBs from possible groundwater discharge, or more likely surface-water runoff would not be expected to move far into the wetlands or Agate Lake before being bound to sediments. Any PCBs attached to sediments or particulates are not likely to move very much and should become buried with time.

### Biota

In 1983, the MPCA analyzed composite samples of unskinned fillets from five northern pike and two walleye taken from Agate Lake. The fish were analyzed to determine their PCB content. No PCBs were detected in the northern pike composite, and the total amount of PCB detected in the walleye composite was 0.06  $\mu\text{g/g}$ .

In the same fish samples, mercury was detected at 0.76  $\mu\text{g/g}$  in northern pike and 0.86  $\mu\text{g/g}$  in walleye. Although the mercury levels are not likely to be related to the Agate Lake Scrapyard site, these findings are discussed further in later sections of this report.

### Physical Hazards

Physical hazards remain on portions of the site due to the presence of scrap materials, such as rusted metal, wood, glass, etc. The abandoned house, as well as several deep depressions also represent a substantial physical hazard. The site is relatively isolated, although access is possible via a remote dirt road or via Agate Lake.

### Land Use

The site is currently vacant land. The land use near the site is recreational and rural residential. Several hundred acres of public forest and adjacent wetlands near the site are likely used for deer, duck, and grouse hunting. A number of dwellings, 2 small resorts, and a golf course are located on the east side of Agate Lake, across the lake from the site. All homes in this area draw water from private wells. There is no apparent agricultural use of the land near the site, with the possible exception of private gardens. The site, due to its location on a lake in a major recreational area, may be attractive for future residential or recreational development.

## II. DISCUSSION

Past activities on site may have resulted in human exposure to contaminants in soil or ash via incidental ingestion, inhalation of airborne dusts, or skin contact. The number of people potentially exposed to soil contaminants is likely to be limited to a small number of people who have had access to the site. It is unknown if any activities resulted in human exposures to contaminants in the soil, and the extent of any such potential exposure cannot be predicted.

Cleanup actions at the site have resulted in the removal of the majority of waste materials and hundreds of tons of contaminated soil. The soil cleanup levels for the site, 1 mg/kg for PCBs and 300 mg/kg for lead are slightly above and below, respectively, current residential SRVs for these contaminants. Confirmation results for the excavation of lead contaminated soil indicate that residual lead contamination levels are well below current SRVs. Actual

confirmation results for PCB impacted areas were not available. Only limited PCB samples were collected in the former gully area, and the quality of the data is suspect. Residual PCB impacts could remain at the site at levels slightly above the current residential SRV. Dioxins and furans may be generated from the burning of PCB containing wastes (ATSDR 1998). Only limited testing for dioxins and furans has been conducted, and it appears no post-cleanup testing for dioxins and furans was conducted. Significant exposure to residual levels of contaminants appears to be unlikely given the remote location of the site, the vacant land use, and the fact that the main contaminated areas were covered with clean soil and seeded after excavation.

In terms of groundwater, the site is like an island surrounded by wetlands and Agate Lake. Groundwater leaves the site to the east and discharges into the lake. Bedrock beneath the site lies approximately 130 feet below the ground surface and does not function as a productive aquifer. Groundwater velocity in the surficial aquifer was estimated in the RI to be in the range of 0.1 to 10 feet per year. It is unlikely that groundwater contaminants from the site would reach off-site wells, because groundwater under the site likely discharges to Agate Lake or the wetlands.

Presently, there is no use of the contaminated groundwater which is localized under the area of past site operations. If water from a shallow private well located in this area were to be used for drinking water and household uses in the future, humans may be exposed to low levels of PCE. A deed restriction filed with the property deed, however, should prevent future exposure to PCE contaminated groundwater by prohibiting the installation of new wells in the plume area. In addition, a permanent sign was installed at the site describing this prohibition. The potential effect on the localized groundwater contamination of placing wells around the plume is unknown. Wells installed for residential or other uses outside of the former operations area could in theory draw in contaminated groundwater and potentially become impacted. The majority of the groundwater contamination is believed to be centered immediately around the former OW6, however. The 100 foot radius well prohibition area around OW6 was created as a precautionary measure (MDH 1999).

Available data on shallow groundwater under the site's central portion suggest that past users of the former residential well were exposed to low levels of PCE (at levels which may at times exceeded the HRL), and possibly a few other VOCs. Because a 1984 water sample from the private well was found to contain 16.0  $\mu\text{g/l}$  PCE and 45  $\mu\text{g/l}$  of PCE was detected in a monitoring well located approximately 75 feet upgradient of the residential well, MDH issued an advisory recommending that the well water not be used for drinking or cooking purposes. Following that advisory, the site's operator used bottled water for drinking and cooking. Water from this well continued to serve for other household purposes (for example, washing or showering) while the site's operators lived near the former site operations area.

Individuals who used the site's residential well before the 1984 MDH advisory was issued may have ingested low levels of PCE. It is not known when PCE first reached the residential well,

how long well users may have been exposed to contaminants in the shallow groundwater. Therefore it is not known what levels of PCE may have been present while the site's operators used the well water in the time before the MDH advisory.

Past site operations and on-site activities may also have resulted in human exposure to airborne contaminants through inhalation. Before 1983, when operation of the smelters ceased, contaminants were probably dispersed on and near the site via smelter emissions. Smelter emissions may have contained dioxins, furans, heavy metals, and other unknown contaminants.

When water from the former on-site residential well contaminated with VOCs was used, people may have inhaled VOCs evaporating from the water. Individuals on site could have inhaled suspended ash particles containing contaminants. Asbestos fibers could also have been inhaled. The inhalation exposure route is unlikely to be significant in off-site areas. Skin contact with contaminants in wastes, soil, and groundwater also may have occurred.

The number of people potentially exposed in these ways was likely to have been small and limited to those who had access to the site. The extent of any such potential exposure cannot be known because of a lack of air-quality data, a lack of data on levels of contaminants in waste materials, and a lack of exposure data.

Fish are taken from Agate Lake for human consumption. If Agate Lake waters or fish were contaminated by site contaminants, regular fish consumption could be a route of human exposure. In 1983, the Minnesota Department of Natural Resources (DNR) collected fish from the lake and MPCA had the samples analyzed. Composite samples of unskinned fillets from five northern pike and two walleye taken from Agate Lake were analyzed for mercury, PCBs and dioxin. No PCBs were detected in the northern pike composite, and the total amount of PCB detected in the walleye composite was low.

The PCBs in Agate Lake fish samples cannot be linked to the site. If PCBs from the site have reached Agate Lake since the 1983 fish testing, the sampling in 1983 may not be sufficient to estimate current PCB concentrations in Agate Lake fish. Periodic fish kills in Agate Lake (due to winter freeze out occurring roughly every five years) suggests PCB bioaccumulation in lake fish will be limited to the time between lake freeze outs.

Northern pike and walleye samples were found to contain high levels of mercury; however, this is not believed to be related to the site's operations. The fish consumption advisory program at MDH recommends that sport anglers limit their consumption of northern pike and walleye to one meal per week on a limited basis, two meals per month over the fishing season, and to one meal per month on a year-long basis. Women of childbearing age, and young children are advised to even further limit their consumption of northern pike and walleye. This advice is based solely upon the mercury in the fish samples, and does not reflect an impact by the site. This advice is available in the Minnesota Fish Consumption Advisory (MDH 1998).

Contaminants from the site could reach the surrounding wetlands and Agate Lake via groundwater discharge. The concentrations of VOCs detected in the ground water suggest that VOC concentrations in Agate Lake will be negligible after dilution and volatilization.

#### Agency for Toxic Substance and Disease Registry (ATSDR) Child Health Initiative

ATSDR's Child Health Initiative recognizes that the unique vulnerabilities of infants and children make them of special concern to communities faced with contamination of their water, soil, air, or food. Children are at greater risk than adults from certain kinds of exposures to hazardous substances at waste disposal sites. They are more likely to be exposed because they play outdoors and they often bring food into contaminated areas. They are shorter than adults, which means they breathe dust, soil, and heavy vapors close to the ground. Children are also smaller, resulting in higher doses of chemical exposure per body weight. The developing body systems of children can sustain permanent damage if toxic exposures occur during critical growth stages. Most importantly, children depend completely on adults for risk identification and management decisions, housing decisions, and access to medical care.

Based on the relatively remote location of the site, the low number of residential dwellings in close proximity, and the fact that residual contamination is likely not exposed at the surface, it appears that in its current state the site does not present an increased risk to children from soil or groundwater contamination. Fetuses, infants, and children may be at greater risk from exposure to PCBs, which are developmental toxicants. Such exposure could result if residual PCB contamination is exposed at the surface, or potentially through consumption of fish from Agate Lake. Physical hazards (debris, an abandoned house, etc.) also remain at the site.

### III. CONCLUSIONS

Based upon information reviewed, MDH has concluded that residual soil and groundwater contamination at the Agate Lake Scrapyard site are unlikely to pose a public health threat. The site is classified as posing no apparent public health hazard. Some residual soil contamination may remain at levels in excess of current SRVs, and there are physical hazards remaining at the site. Past activities at the site may have resulted in significant exposure to persons living at the site.

Although access is difficult, people may trespass onto the site. Physical hazards present at the site may therefore continue to pose a risk of accident and injury. Significant exposure to residual levels of contaminants (mainly below grade) which may remain on the site is unlikely given the current land use. Past on-site exposure to individuals involved in the operations of the scrapyard business or those frequently in the area of the operations cannot be quantified. Therefore, it is not possible to predict potential health risks to persons who may have been exposed to hazardous materials at the site during past site operations.

Shallow groundwater under the site's former operations area may not be considered safe for regular, long-term human consumption. Average measured levels of VOCs in the former residential well do not suggest health threats exist to former users. Currently, there is no use of groundwater in the immediate vicinity of the site. In addition, a deed restriction placed on the property deed, as well as a physical sign posted on the site prohibit the installation of new wells in the former operations area.

Sport fish from Agate Lake pose a potential health concern for fish consumers due to mercury which is unrelated to the site. Available data on PCB content of fish in Agate Lake (from 1983) may not be representative of current PCB levels in Agate Lake fish, regardless of the source of the PCBs.

#### IV. RECOMMENDATIONS AND PUBLIC HEALTH ACTION PLAN

MDH will share the results of this public health consultation with interested parties. Additionally, MDH makes the following recommendations:

1. Due to the unknown effects on the contaminated groundwater plume of potential wells installed on other portions of the site, the shallow groundwater under the site should not be used for potable purposes without regular monitoring for VOCs including PCE and its breakdown products. MDH supports the use of institutional controls to prevent installation of potable wells into the contaminated area of groundwater at the site.
2. Remaining physical hazards at the site should be removed, or the site secured to prevent unauthorized entry.
3. Should redevelopment of the site be proposed, an environmental contingency plan and a health and safety plan should be prepared to protect on-site workers and properly manage any waste materials or residual contaminated soil not removed during previous cleanup efforts. Soil cleanup levels (SRVs) appropriate for the proposed land use should be applied for all contaminants of concern.
4. Anglers consuming fish from Agate Lake should be aware of the fish consumption advisory (available from MDH) for the lake and should follow the guidance provided in the Minnesota Fish Consumption Advisory.

## V. REFERENCES

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Agency for Toxic Substance and Disease Registry (ATSDR). Toxicological Profile for Chlorinated Dibenzo-p-Dioxins. December 1998.

Conestoga-Rovers & Associates (CRA). Preliminary Close Out Report / Response Action Final Report. November 1994.

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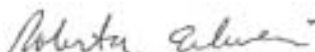
Minnesota Department of Health (MDH). Personal correspondence from Jim Pennino, MPCA. June 1999.

## PREPARER OF REPORT

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## CERTIFICATION

This Health Consultation for the Former Agate lake Scrapyard Site was prepared by the Minnesota Department of Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the Health Consultation was initiated.



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Technical Project Officer  
Superfund Site Assessment Branch (SSAB)  
Division of Health Assessment and Consultation (DHAC)

The Division of Health Assessment and Consultation (DHAC), ATSDR, has reviewed this Health Consultation and concurs with its findings.

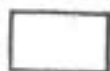


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Richard E. Gillig, M.C.P.  
Chief, SPS, SSAB, DHAC, ATSDR



**Figure 1 Site Location**



Former Scrapyard Area



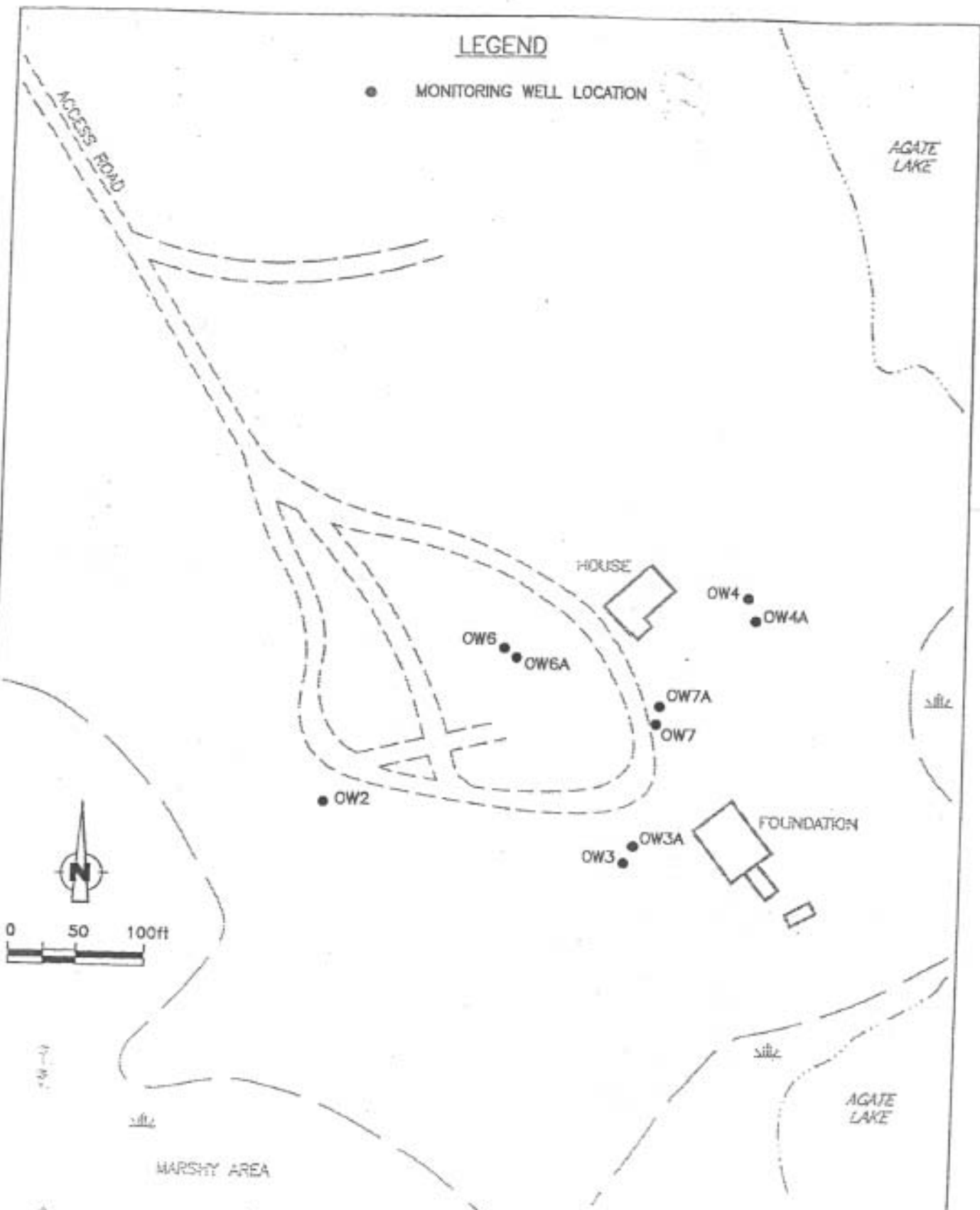
Structures (Mostly Homes)

SCALE 1:24,000

From Wilson Bay and Gull Lake  
USGS 7.5' Quadrangles

**LEGEND**

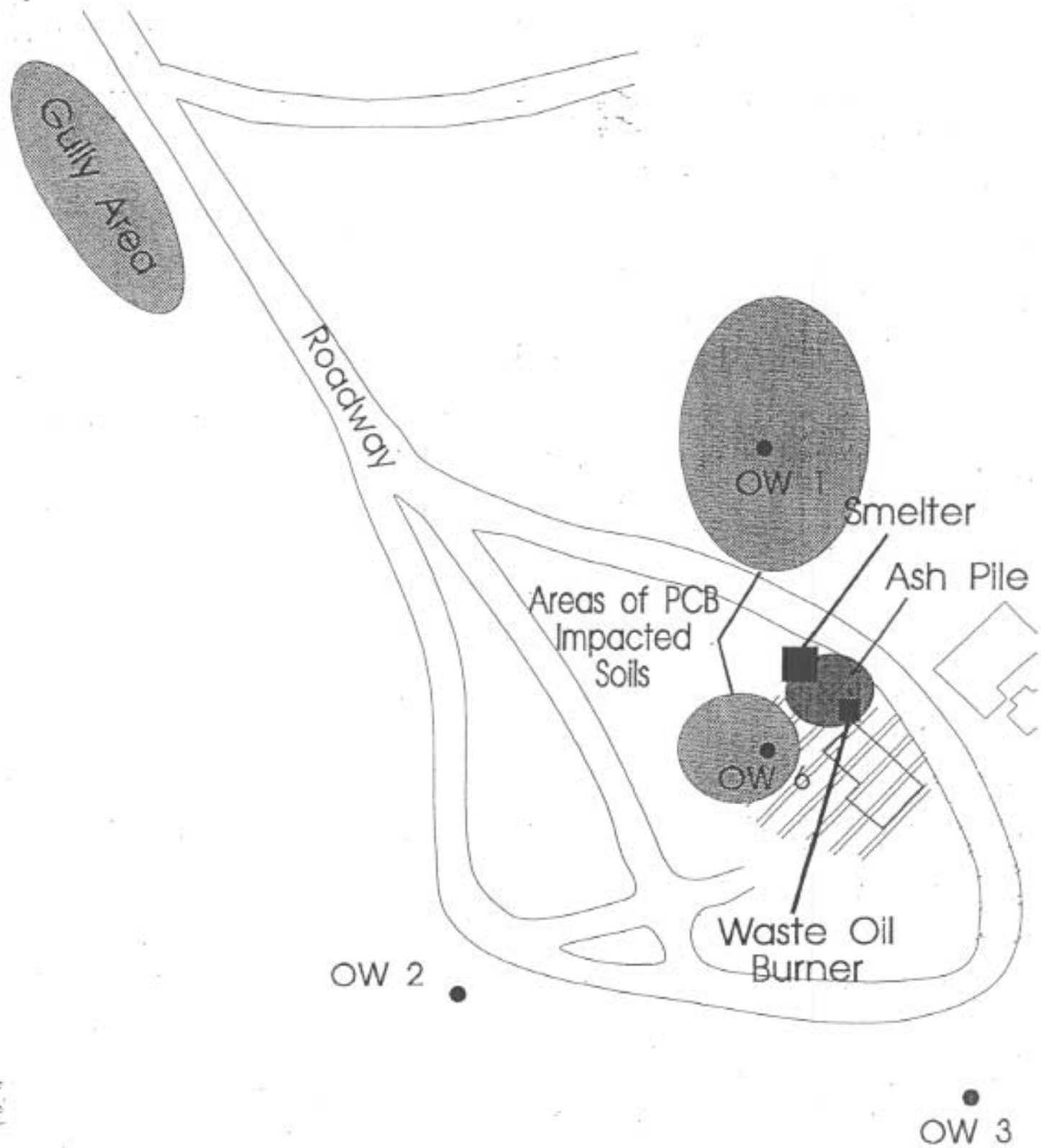
● MONITORING WELL LOCATION





**Figure 2 Site Map**

MONITORING WELL LOCATIONS  
*Agate Lake Scrapyard*

**CRA**



**Figure 3 Contaminant Source Areas**

- Monitoring Well
-  Areas Of Impacted Surface Soil
-  Approximate Area of Impacted Groundwater