

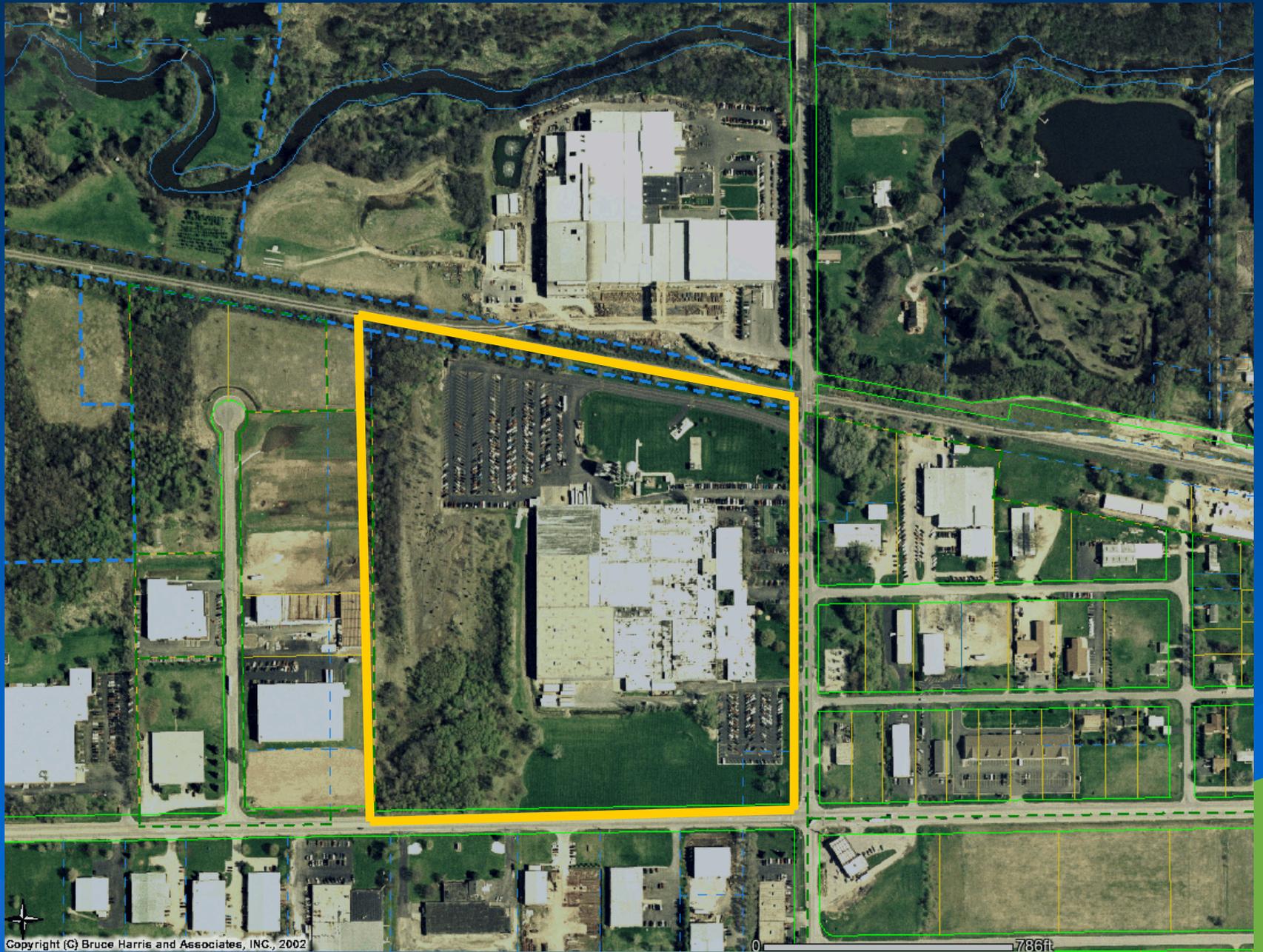
Trichloroethylene (TCE)

Groundwater Contamination Spring Grove

McHenry County Department of Health
Division of Environmental Health

May 2006

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Presentation Overview

- **Background Information**
- **What is the Process when Groundwater Contamination is Identified?**
- **Agencies Involved / Agency Roles**
- **Overview Site Specific Information**

Characteristics of Trichloroethylene (TCE)

- Primary Use – Solvent for cleaning metal parts
- Found in household products (spot removers, adhesives, typewriter correction fluid, paint removers)
- Used to make other chemicals
- Volatile organic compound – Evaporates easily
- Non-Flammable, colorless liquid
- Sweet odor; sweet, burning taste
- Denser than water, moderately soluble in water
- Heavier than air

What Happens to TCE in the Environment?

- Vapors
 - Largest source emissions from factories
 - Breaks down quickly
- Evaporates quickly from surface water or from soil surface
- When it percolates into soil can be persistent and move quickly through soil
- TCE can remain persistent in groundwater
 - Groundwater flow path
 - Amount of water movement
 - Geology

Maximum Contaminant Levels

- **Established by:**
Environmental Protection Agency (EPA)
 - Trichloroethylene (TCE) - Maximum contaminant level in community water (5 parts per billion)

Potential Health Effects

- Rashes, skin irritation
 - Headaches
 - Dizziness
 - Nausea
 - Vomiting
 - Liver damage
 - Kidney damage
 - Central nervous system damage

Depends on:

- Amount of exposure
- Length of exposure
- Route of exposure
- Individual characteristics
- Presence of other chemicals

Is TCE Carcinogenic?

- Some studies suggest TCE may cause cancer in humans
- International Agency for Research on Cancer states
 - TCE probably carcinogenic to humans.

Background Information – Contamination Site

- 1) April, 2006 McHenry County Dept. of Health was notified of potential groundwater contamination of TCE at Intermatic/Scot Forge.**
- 2) Health Dept. has consulted with EPA, Village of Spring Grove, Scot Forge, Intermatic and their Environmental Consultants.**
- 3) Environmental assessment of both sites (soil, water) essentially completed.**

What Happens When Groundwater Contamination is Detected?

1. Eliminate the Source
2. Assess Route / Extent of Contamination
 - Onsite & Offsite, Soil, Groundwater, Etc.
3. Evaluate Potential for Exposure to Humans
4. Remediation / Corrective Measure Taken

Agencies Involved / Agency Roles

Environmental Protection Agency

- Groundwater Contamination Over-site Agency
- Voluntary Site Remediation Program
- Establish Maximum Contaminant Level (MCLs)

Illinois Department of Public Health

- Non-Community Public Water Supplies

McHenry County Dept. of Health

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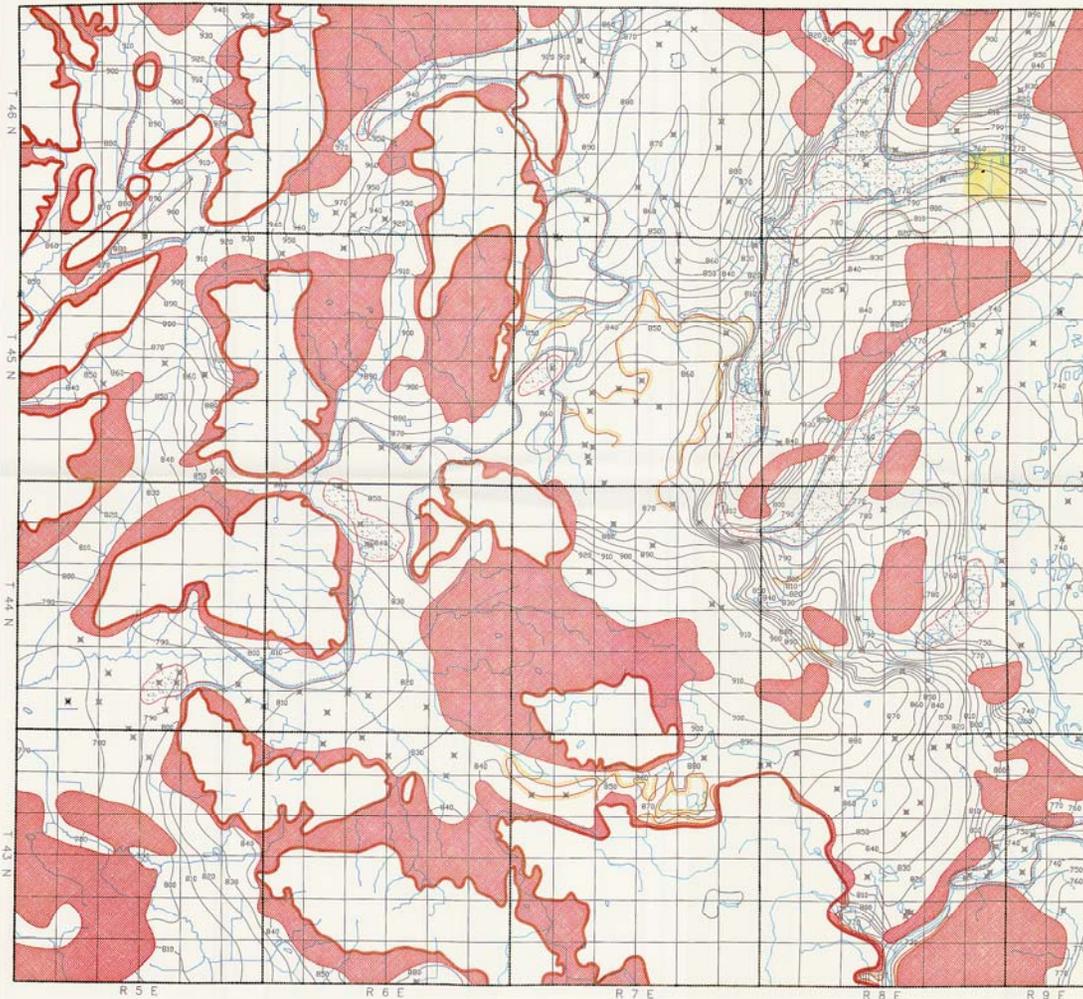
Eliminate the Contamination Source

- **TCE used at Intermatic**
- **Storage / Distribution / Method of TCE changed / updated over years**
- **Exact location / mode of contamination unknown**
- **Use of TCE discontinued**

Assess Contamination Route and Extent

CHARACTERISTICS OF GROUNDWATER

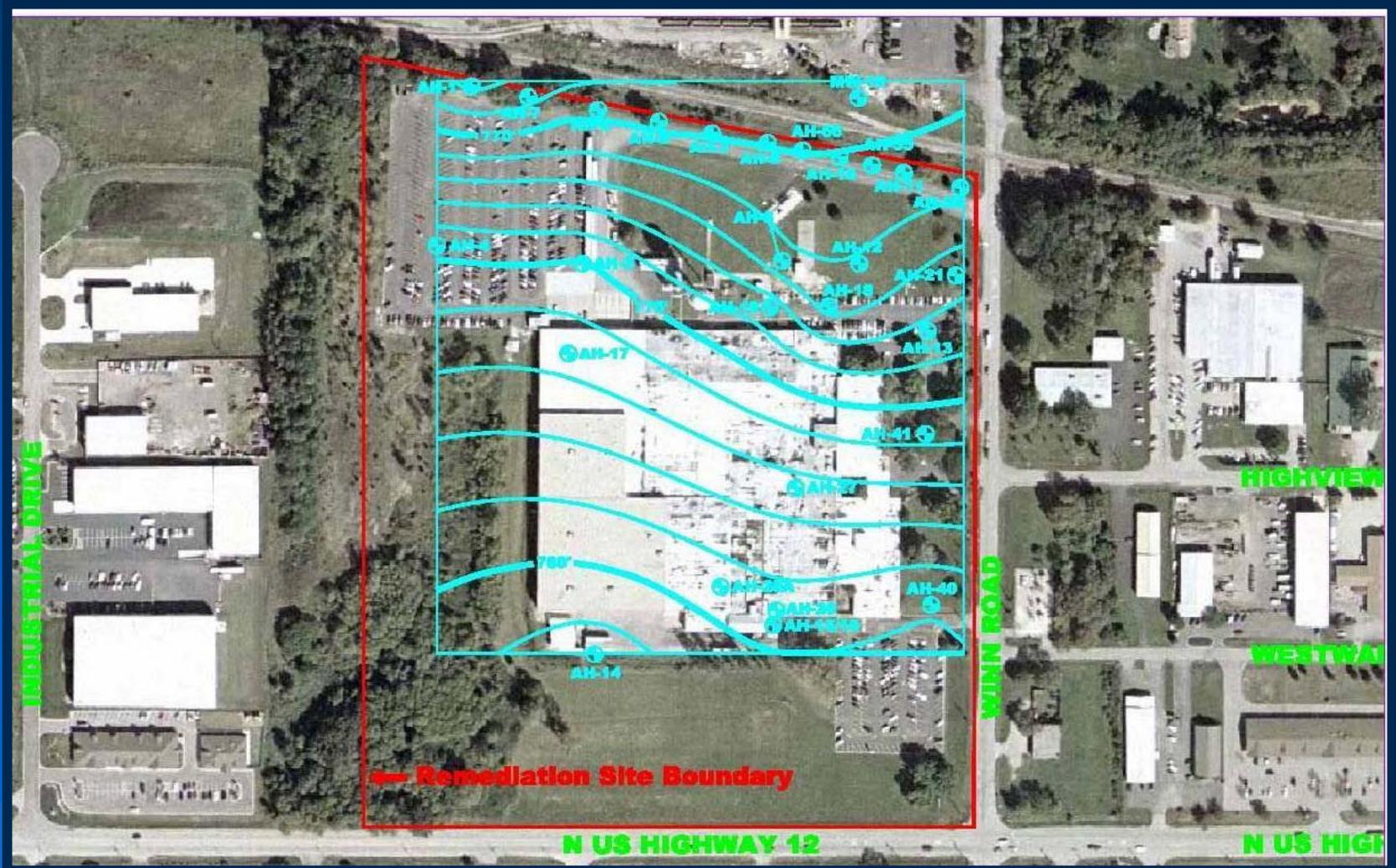
Plate 1. Potentiometric Surface of Aquifer 1, Fall 1994



- Flow path
- Predictable
- Shallow groundwater tends to flow toward surface bodies of water - discharge point.

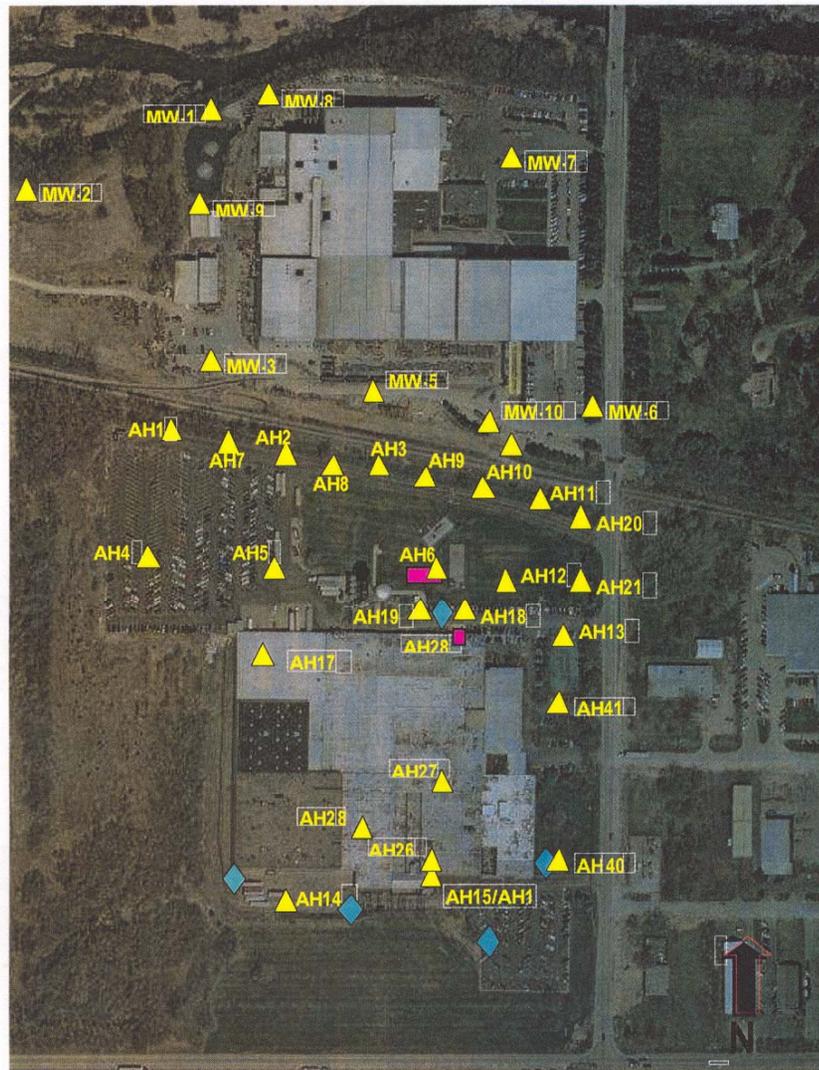
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Site Specific Hydrogeology



SOURCE: Atwell – Hicks Engineering

Monitoring Well / Soil Sample Locations



- ▲ Existing Monitoring Well Location
- Soil Boring Areas
- ◆ Attempted CPT Sampling Location

SOURCE:
Atwell – Hicks Engineering

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Elevated Levels



SOURCE:
Atwell – Hicks Engineering

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Water Well Sample Locations



Potential for Human Exposure



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- No contamination of any water wells
- Short flow path
- Discharge point at creek
- Remediation / Future monitoring

Remediation & Corrective Measures

- **Voluntary Site Remediation Program**
- **Preparation / submission of report - environmental assessment**
- **Prepare and submit plan for remediation**
- **Review / acceptance from IEPA**
- **Initiate corrective action**
- **Monitor progress**

Additional Information

- ✓ McHenry County Dept. of Health
815.334.4585
- ✓ Centers for Disease Control and Prevention
www.cdc.gov
- ✓ Agency for Toxic Substances and Disease Registry
www.ATSDR.cdc.gov
- ✓ Illinois Environmental Protection Agency
www.epa.state.il.us
www.epa.gov

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