

PART FIVE: PRIMARY UNNATURAL HAZARDS

The next section is concerned with man-made or technological hazards considered to be among the top three in Le Sueur County.

FIRE

Urban fires are blazes spreading through structures, posing danger and destruction to property. These fires include any instance of uncontrolled burning which results in structural damage to residential, commercial, industrial, institutional or other properties in developed areas. Fires can occur in any community, and pose a threat year round.

Generalized Vulnerability to Fires

All structures and buildings of every nature (residential, commercial, industrial, etc.) throughout Le Sueur County are equally vulnerable to fire, and nearly every jurisdiction within the county has already experienced the effects that fire can have. Fires can occur at any time of the year, and can be particularly damaging to structures nearby or connected to one another, which makes the possibility of the fire spreading much more pronounced. Places that are frequented by the very young or the elderly are not necessarily more prone to fire, but can be more dangerous if a fire were to occur because these two groups of people are among the most frequent victims of fire.

In 2002, fire departments responded to 401,000 home fires in the United States, which claimed the lives of an estimated 2,670 people (not including firefighters) and injured another 14,050. Approximately 79% of all U.S. fire deaths occurred in homes (Karter 2003). In 2003, fires in Minnesota caused more than \$154.4 million in property damage and dollar loss in residential properties increased 13% from 2002. (2003 Preliminary Fire in Minnesota).

Many communities in Le Sueur County have indicated a concern with the possibility of fire events. The cities of Cleveland, Elysian, Le Center, Le Sueur, Montgomery, New Prague, and Waterville have all indicated a medium level of concern, while the City of Kasota has indicated a low concern.

Le Sueur County History of Fire

Le Sueur County reported 79 fire runs in 2002. The fire rate in Le Sueur County was 1 fire for every 391 people. The total county dollar loss was \$206,000.00 with an average dollar loss per fire of \$3,169.00. Residential fires account for a majority of fire calls and commercial and industrial fires account for a greater percentage of the total dollar losses.

In 2004, Le Sueur County reported a total of 89 fire runs, which showed a fire rate of 1 fire for every 357 residents. The total dollar loss was nearly half a million dollars, and the average dollar loss per fire was \$6,525.000.



Le Sueur County Fire Hazard Risk Assessment

Hazard:	Fire
Location	Buildings Countywide
Historic Events	79 Fire Calls in 2001 (1 for every 391 county residents)
Likely to happen now?	Yes
How often?	Potential exists at all times
Where would event occur?	Any building/structure in Le Sueur County
Severity of event?	Fire could spread and damage/destroy multiple buildings
When would hazard likely occur?	Any time of year
What other hazards could occur at the same time?	Exposure to hazardous materials, water system failure
Economic impacts	Could be harmful to business if damaging enough, average loss due to fire in Le Sueur County in 2002 was \$3,169.00
Loss of life impacts	Particularly dangerous to the elderly or the very young and firefighters, compounded if exposure to hazardous materials were to occur
Risk Level VH – Very High H – High L – Limited M – Minimal	Citizens/People: H Animals/Livestock: H Housing: VH Critical Structures: H Infrastructure: L Total: H
<i>Risk Assessment</i>	
Unlikely – 1 Occasional – 2 Likely – 3 Highly Likely – 4	<u>Frequency of Occurrence</u> 3
More than 12 hours – 1 6-12 hours – 2 3-6 hours – 3 Minimal-None – 4	<u>Warning Time</u> 4
Limited – 1 Minor – 2 Major – 3 Substantial – 4	<u>Potential Severity</u> 1
Minimal – 1 Limited – 2 High – 3 Very High – 4	<u>Risk Level</u> 3
(Total divided by 4) Very Low – 1 Low – 2 Moderate – 3 High – 4	<u>Overall Priority</u> 2.75 Low/Moderate

Vulnerability to Fire and Specific Areas of Concern

All structures and buildings of every nature (residential, commercial, industrial, etc.) throughout Le Sueur County are equally vulnerable to fire, and nearly every jurisdiction within the county has already experienced the effects that fire can have. Fires can occur at any time of the year, and can be particularly damaging to structures nearby or connected to one another, which makes the possibility of the fire spreading much more pronounced. Places that are frequented by the very young or the elderly are not necessarily more prone to fire, but can be more dangerous if a fire were to occur because these two groups of people are among the most frequent victims of fire. In 2002, Le Sueur and Kasota were the two cities in Le Sueur County with the highest number of fire runs (19 and 18, respectively), likely due to their larger size than other jurisdictions. The size of the communities also makes them more vulnerable to future fires, as well as the increased numbers of buildings that could be affected. Also, Cleveland lacks a water tower, so they are particularly vulnerable to fire because they lack the proper water systems to deal with a fire event as effectively as possible. The City of Le Center has indicated the possibility of fire as a primary concern in the downtown area where many businesses are connected with common walls. The City of Kilkenny has indicated a concern of fire hazards, due to many homes being located very close to each other.

Potential Impacts and Cascading Effects

Potential impacts due to fire include the loss of life, physical injuries, property and structural damage to any extent, toxicity from smoke and chemicals, and an increased strain on city water systems. Essential public facilities (such as city halls or police stations) may be damaged or destroyed, as well as critical utilities such as electric and gas lines. Damage to or destruction of community water systems may also pose a public health risk until they can be repaired or replaced.

Fire Gaps and Deficiencies

- It is common in Le Sueur County for buildings in downtown areas to share walls with other buildings, making the threat of a downtown fire very serious. T
- The Minnesota State Building Code has yet to be adopted in some jurisdictions and without its adoption there may be buildings in Le Sueur County structurally incapable of withstanding fire.
- Cleveland does not have a water tower, so a major blaze is a serious concern.
- The City of Le Center downtown area has many businesses that share common walls, making the threat of fire a more pressing concern.
- The City of Kilkenny has many homes located very closely to one another, increasing the vulnerability of the homes to a fire event.

ACTIONABLE MITIGATION STEPS:

Actionable Mitigation Steps are more elaborately explained with project, timeframe, responsible jurisdictions/staff, possible funding sources, and priority level in the Action Plan section of this document. Suggested areas of focus are denoted in parentheses.

1. Adopt and Maintain Building and Fire Codes (Le Center, New Prague, Kasota, Kilkenny) – The city administrator and planning coordinator will work to have the Council incorporate the code within the city plans. Building and fire codes will work towards making structures increasingly fire-resistant, with fewer materials can be hazardous if they should ever catch fire.
2. Aggressively Train Fire Department Personnel (Elysian, Le Center, New Prague, Waterville) – Fire chief with assistance from the state will provide additional training for firefighters during the year 2006.
3. Consider Offering Specialized Training Classes (Countywide) – Fire departments could offer classes for residents regarding topics which often lead to fires, such as chimney cleaning and holiday hazards.
4. Create and Maintain Mutual Aid Agreements (Le Center, Waterville, Cleveland, Montgomery). Cities will work together to share equipment capacity. This increases effectiveness and efficiency of the use of tax dollars.
5. Utilization of Local Zoning Ordinances (Countywide) – Locally enacted zoning regulates density, use, bulk, and height of structures, as well as setback requirements that can assist in preventing fires from “jumping” from one structure to the next. It is recommended that all Le Sueur County cities review and update their zoning ordinances so that they work towards mitigating fire hazards.

HAZARDOUS MATERIALS

For mitigation planning, hazardous materials may be defined simply as any materials that may have negative impacts on human health. That is, exposure to hazardous materials may result in injury, sickness or death. The impacts of hazardous materials may be short-term with negative effects in seconds, minutes or hours or long-term with negative effects in days, weeks, or in some cases years after exposure.

Hazardous materials vary widely in their toxicity to humans. Some hazardous materials are highly toxic so that even brief exposure to small amounts may be dangerous or fatal. Other hazardous materials are much less toxic and negative effects may occur only after exposure to large amounts over longer time periods. The technical term “toxic”, which is widely used to describe hazardous materials, is simply a synonym for the more common terms “poison” and “poisonous.”

Hazardous chemicals are widely used in heavy industry, manufacturing, agriculture, mining, the oil and gas industry, forestry and transportation as well as in medical facilities and commercial, public and residential buildings. There are literally hundreds of thousands of chemicals that may be hazardous to human health at least to some extent. A typical single family home may contain dozens of potentially hazardous materials including fuels, paints, solvents, cleaning chemicals, pesticides, herbicides, medicines and others.

However, for mitigation planning purposes, small quantities of slightly or moderately hazardous materials being used by end users are rarely the focus of interest. Rather, interest is focused primarily on larger quantities of hazardous materials in industrial use and on hazardous materials being transported, where potential for accident spills are high. Situations involving extremely hazardous materials or large quantities of hazardous materials in locations where accidents may result insignificant public health risk are of special concern for planning purposes.

For mitigation planning purposes, the toxicity of particular hazardous materials is an important measure of the potential impact of hazardous materials on affected communities, but not the only important measure. Other characteristics of hazardous materials, especially the quantity of material and the ease of dispersal of the material may be just as important, as or more important than toxicity, in governing the level of potential threat to a community. For example, a small quantity of a very toxic solid hazardous material in a research laboratory may pose a much smaller level of risk for a community than a large quantity of a less toxic gaseous material in an industrial site upwind from a populated area.

The severity of any hazardous material release incident for an affected community depends on several factors, including:

1. The toxicity of the hazard material,
2. The quantity of the hazardous material released,
3. The dispersal characteristics of the hazardous material,
4. The local conditions such as wind direction and topography, and the efficacy of response and recovery actions.

Le Sueur County Hazardous Material Risk Assessment

Hazard:	Hazardous Materials
Location	Specific locations throughout county
Historic Events	None on record
Likely to happen now?	Unlikely
How often?	Infrequently
Where would event occur?	Specific locations throughout county identified as having significant amounts of hazardous material, or on roads within county used for transporting hazardous materials, City of Le Sueur and City of New Prague due to size and location near Highway 169, also risk in rural areas often used for clandestine methamphetamine labs.
Severity of event?	A major event could have a significant impact on human and animal life
When would hazard likely occur?	Any time of year
What other hazards could occur at the same time?	Fire, storm, terrorist attack
Economic impacts	Potential evacuation/shut down of area where spill or accident occurred, costs incurred to mitigate damages
Loss of life impacts	Potential for loss of life depending on specific material and degree of exposure
Risk Level VH – Very High H – High L – Limited M – Minimal	Citizens/People: H Animals/Livestock: VH Housing: L Critical Structures: L Infrastructure: L Total: L/H
<i>Risk Assessment</i>	
Unlikely – 1 Occasional – 2 Likely – 3 Highly Likely – 4	<u>Frequency of Occurrence</u> 1
More than 12 hours – 1 6-12 hours – 2 3-6 hours – 3 Minimal-None – 4	<u>Warning Time</u> 4
Limited – 1 Minor – 2 Major – 3 Substantial – 4	<u>Potential Severity</u> 3
Minimal – 1 Limited – 2 High – 3 Very High – 4	<u>Risk Level</u> 2.5
(Total divided by 4) Very Low – 1 Low – 2 Moderate – 3 High – 4	<u>Overall Priority</u> 2.625 Low/Moderate

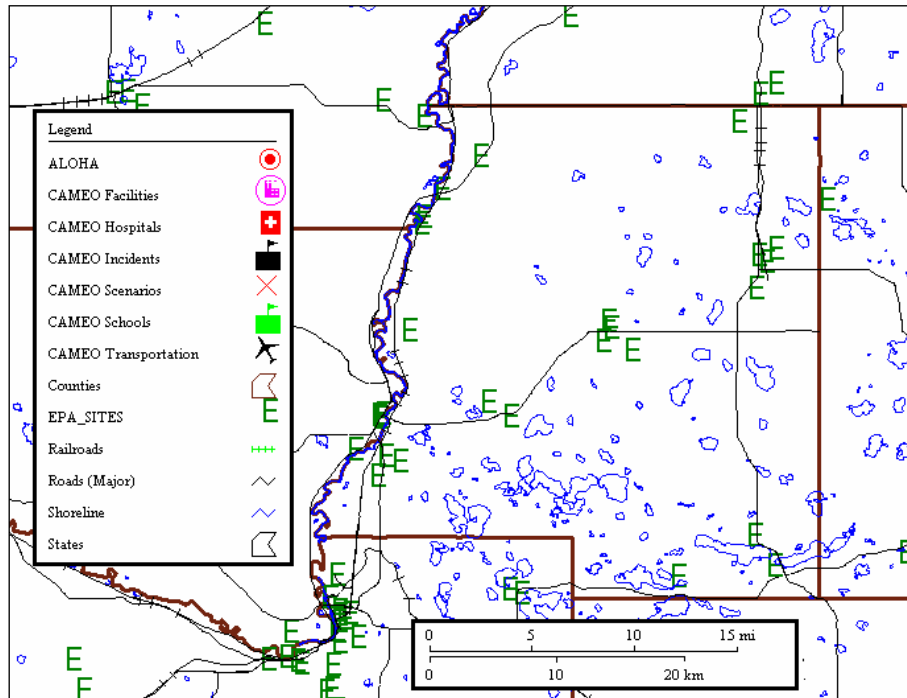
Vulnerability to Hazardous Materials and Specific Areas of Concern

Hazardous materials are conveyed by road, rail, aircraft and pipeline, and each presents differing levels of risk of unwanted release of the hazardous materials. Transported products include hazardous materials moving from producers to users, moving between storage and use facilities, and hazardous waste moving from generators to treatment and disposal facilities. New Prague has some concern regarding hazardous material because they have noted that there is a lot of semi traffic that passes through the community, and some industries within the town that utilize hazardous materials in their production operations. The City of Le Center has indicated a concern of hazardous material events due to their industrial park that is located within the city limits. The City of Kilkenny has indicated concern with hazardous materials stemming from agricultural accidents/spills, as well as from the location of possible clandestine methamphetamine labs within or nearby to the community. The City of Elysian has indicated concern with hazardous material events due to accidents occurring on Highway 60, which bisects the business district of the community.

Hazardous Material Storage Facilities

The road system in Le Sueur County provides a network to transport both hazardous and non-hazardous material throughout the region and between local communities. Risk of hazardous materials events vary based on the classification of the road and its proximity to people and property. According to the most recent findings at the Minnesota Department of Transportation, more than half of all accidents involving hazardous materials have occurred on the state roadways. Roads are a major concern in Le Sueur County, due to the lack of information available regarding what is traveling on the road system on a daily basis. The risk of a major event is most severe in the City of LeSueur and the City of New Prague, due to the concentrated population and location along Highway 169. According to the most recent findings at the Minnesota Department of Transportation, more than half of all accidents involving hazardous materials have occurred on state roadways. Roads are a major concern in Le Sueur County, due to the lack of information available regarding what is traveling on the road system on a daily basis.

Le Sueur County Hazardous Waste Sites



History of Hazardous Materials

Hazardous materials exist as part of everyday life in Le Sueur County, and these materials generally make life easier and more comfortable for residents throughout the county. The challenge is to safely use, store, and transport hazardous materials in such a way that it will not harm the community, and also to prepare a rapid and effective response to an unwanted release of such materials if and when it should occur. An unwanted release of hazardous material (accidental or otherwise) could occur at any time and location within the county. Le Sueur County has not experienced a major hazardous materials spill or accident to date. Minor incidents have occurred but these have had little or no impact on the community at large. The likelihood of a major event is considered to be marginal, but an isolated minor accident is a constant concern.

Concerns of Hazardous Materials and Illegal Methamphetamine Labs

A clandestine drug lab (or clan lab) is a collection of materials and ingredients used to manufacture illegal drugs. Methamphetamine is the drug most commonly made in Minnesota labs. In addition to the dangers of active drug labs and possible harm caused by lab residues in uncleaned, former labs, methamphetamine use and manufacture is associated with:

- Increased crime, particularly property crimes, personal violence, child abuse and endangerment,
- Increased demand for medical and social services, including, foster- and short-term care, drug and psychiatric treatment, and various public health services
- Increased demands on jails and jail services, fire departments and law enforcement agencies,
- Additional strain on parents, educators, and communities

Vulnerability to Methamphetamine Labs

The production of methamphetamine is a relatively simple process and can be carried out by individuals without special knowledge or expertise in chemistry. Most of these labs (75%) were located away from the largest Minnesota cities, in rural or semi-rural areas such as those in Le Sueur County.

History of Methamphetamine Labs

Minnesota officials reported 475 methamphetamine labs and methamphetamine related events (dumps of methamphetamine chemicals, ammonia thefts, precursor chemical stashes and purchases) to MDH for 2003. Incidents of methamphetamine production have occurred in Le Sueur County.

Forms of Hazardous Material Exposure Associated with Clandestine Drug Labs

1. Toxic Gas. The primary toxic gases generated during the manufacture of methamphetamine are hydriodic acid vapors and phosphine gas. Hydriodic acid vapors are present during primarily the first phase of d-methamphetamine production. Unlike more sophisticated methamphetamine manufacturers, some chemists typically do not use condenser tubes, which allow vapors to cool and condense product back into the reaction vessel. Instead, they allow hydriodic acid vapors to boil out of the reaction vessel. These vapors can also result from the simple presence of hydriodic acid. Similar to the fumes of ammonia, hydriodic acid vapors will emanate from moderate quantities of the original hydriodic acid. For example, hydriodic acid could remain in sink traps, open containers, or other materials or equipment, releasing toxic fumes that can cause nausea. Prolonged exposure to hydriodic acid vapors can cause internal chemical burns and permanent respiratory damage.

2. Explosions and Chemical Fires. In addition to the unstable properties of phosphine gas, some of the precursors used in d-methamphetamine production are flammable or reactive and can also cause explosions and chemical fires. For example, friction can ignite deposits of red phosphorous left on equipment or the surrounding area. If individuals dismantle equipment, the red phosphorous residue may not only spark but also ignite gases remaining in the reaction vessel, intensifying the problem. Explosions can result because of mislabeling or the purchase of the wrong chemicals. There is a reported case in which d-methamphetamine clandestine lab cooks were sold potassium chlorate instead of ephedrine. Since both substances are white powders and appear similar, the cooks treated the powder as if it was ephedrine. When the potassium chlorate was combined with red phosphorus the results were a violent chemical reaction that exploded. These explosions often result in chemical fires and have the potential to initiate a chain reaction of explosions and additional fires due to the proximity of precursor chemicals and other flammable materials stored at the clandestine lab site.

3. Dump Sites. After completion of the final d-methamphetamine production phase, clandestine lab workers are left with large quantities of hazardous waste. Five to six pounds of hazardous waste are generated for each pound of finished product.

The location of the discarded waste is referred to as a "dumpsite," which can vary from an open pit in a farm field, to a deep shaft underneath a basement, or to storage in a garage. However, many of these dumpsites have similar contents.

Waste Commonly Found at Dump Sites

- Compressed Gas Cylinders - 20-pound propane cylinders are used to transport anhydrous ammonia, ether or other pressurized bottles.
- Discarded Clothing, Shoes, Gloves - lab workers frequently discard gloves and other clothing because contaminated clothing can be used as evidence to substantiate their involvement.
- Dust Masks
- Household Products - Automobile products that contain methanol or ether, containers of alcohol, Coleman fuel, drain cleaner, lye, acetone, toluene, batteries, gun scrubber, salt, iodine.
- Coffee Filters - Used to strain out tablet residue, red phosphorous, iodine crystals and other material in the manufacturing process.
- Freon Cans and Containers - sodium hydroxide makes up the bulk of the waste at the dumpsites. Whether the liquid waste is left in containers that corrode and leak over time or simply dumped onto the ground, this contaminating liquid can both sterilize the ground soil and contaminate local water tables.
- In addition, sealed cans containing residual Freon and other hazardous fluids are commonly found at dumpsites. Freon cans often expand when temperatures exceed Freon's 73° F boiling point, becoming an explosive hazard due to internal pressure.

Potential Impacts and Cascading Effects

Hazardous materials can have a large variety of potential impacts, including the loss of human and animal life as well as injuries. There may also be the associated issues of necessary evacuation and/or containment of the affected area, loss of life (human and animal), and loss of property due to contamination or fire/explosion. There is also significant vulnerability of city water and sewer systems to hazardous material impacts should such materials be introduced into the systems, as well as the lowering of property values in areas either directly affected by or nearby to hazardous materials. In any event where exposure to hazardous materials occurs, the impacts will largely be determined by many variables, including: the amount of exposure, the type of hazardous materials involved and its particular qualities (whether it is a solid, liquid, or gas, if it is combustible, etc), the location of the event (i.e. proximity to people, water sources, etc.), temperature, wind speed, weather conditions, etc.

Hazardous Materials Gaps and Deficiencies

- Many cities have no containment plan in place in the event of a hazardous waste spill, and cities have little or no control over potential highway and railway accidents.
- As for methamphetamine labs, abandoned barns and structures throughout the county are inviting to individuals seeking to create illegal drugs.

ACTIONABLE MITIGATION STEPS:

Actionable Mitigation Steps are more elaborately explained with project, timeframe, responsible jurisdictions/staff, possible funding sources, and priority level in the Action Plan section of this document. Suggested areas of focus are denoted in parentheses.

1. Train the Fire Departments in Hazardous Materials (Le Center, Kasota, Elysian) – Request city and county assistance in providing such training to personnel.
2. Create Public Evacuation Plan (Le Center) – City staff (i.e. public works, fire and police) will create a plan to be review by both internal and external personnel.
3. Public Education About Methamphetamine Labs (Countywide) – City emergency responders will be provided with educational material from the State, non-profits, and other safety units to distribute to youth, communities at risk, and vulnerable people. Distribution material will be in print primarily, while videotapes and presentation will update city staff. Currently, regional emergency management provides verbal presentations for emergency responders, youth groups, and elected officials.
4. Utilization of Emergency Warning System (Countywide) – Local radio and television stations provide Emergency Broadcast System messages. Such messages could be used if the need to warn residents of a major or dangerous hazardous material event arises.
5. Legislative Actions (County, New Prague and Region) monitor new legislative actions that provide resources to mitigate the damage of methamphetamine labs. Jurisdictions will need to determine methods of paying for clean-up costs (i.e. public or private property owners). The County will have a primary role in learning of such policy changes or adoptions.
6. Enforce On-Site Safety Procedures and Maintain an Accurate MSDS (Material Safety Data Sheet) list (Le Center, Montgomery, Le Sueur) – Fire Chief or an appointment will continue to work on these issues.
7. Cooperation with State Agencies (Countywide) – Le Sueur County will work directly with appropriate state agencies to address the needs for responding to and mitigating the impacts of a hazardous material release event.

WASTEWATER TREATMENT FAILURE/ WATER SUPPLY CONTAMINATION

Definitions

Wastewater Treatment Failure- Wastewater treatment uses microbes to decompose organic matter in sewage. If too much untreated sewage or other organic matter is added to a lake or stream, dissolved oxygen levels will drop too low to support sensitive species of fish and other aquatic life. Wastewater treatment systems are designed to digest much of the organic matter before the wastewater is released so that this will not occur.

Water Supply Contamination- Water supply contamination is the introduction of point and non-point source pollutants into public ground water and/or surface water supplies. Although minimal, water supply contamination does pose a threat in the county. Microbiological and chemical contaminants can enter water supplies. Chemicals can leach through soils from leaking underground storage tanks, feedlots and waste disposal sites. Human wastes and pesticides can also be carried to lakes and streams during heavy rains or snow melt.

Le Sueur County Wastewater Treatment Plant Failure/Water Supply Contamination Risk Assessment

Hazard:	Wastewater Treatment Plant Failure/Water Supply Contamination
Location	Countywide, individual cities, point and non-point sources
Historic Events	None on record
Likely to happen now?	Unlikely
How often?	Infrequently
Where would event occur?	Anywhere in Le Sueur County
Severity of event?	Water supply of large population of people could be contaminated and rendered unsafe for use/drinking
When would hazard likely occur?	Any time of year
What other hazards could occur at the same time?	Infectious diseases, terrorist attack
Economic impacts	Expense for repair or replacement of systems, and of shipping safe water in during the interim
Loss of life impacts	Depending on amount and type of contamination, could be life-threatening
Risk Level VH – Very High H – High L – Limited M – Minimal	Citizens/People: L Animals/Livestock: L Housing: M Critical Structures: L Infrastructure: L Total: L
Risk Assessment	
Unlikely – 1 Occasional – 2 Likely – 3 Highly Likely – 4	Frequency of Occurrence 1
More than 12 hours – 1	Warning Time

6-12 hours – 2 3-6 hours – 3 Minimal-None – 4	3
Limited – 1 Minor – 2 Major – 3 Substantial – 4	<u>Potential Severity</u> 3
Minimal – 1 Limited – 2 High – 3 Very High – 4	<u>Risk Level</u> 1
(Total divided by 4) Very Low – 1 Low – 2 Moderate – 3 High – 4	<u>Overall Priority</u> 2 Low

Vulnerabilities to Water Treatment Failure

Problems impacting Le Sueur County water systems could possibly include (but are not limited to) the following:

Inadequate collection systems -- Even though they are designed to accommodate additional influx of wastewater, occasionally existing systems cannot handle the extra flow. Groundwater, for example, can enter the sewer system through leaking manhole walls, defective piping or sewer connections. Or water runoff from roofs, cellars, parking area drains, cooling water discharges from the plant itself can make the inflow too great for the treatment facility to handle.

Sludge disposal -- The end result of a well-designed and operated WWTP is both treated wastewater and a waste sludge. Waste sludge goes through a number of steps - including disinfecting -- prior to disposal in landfills, incinerators, or for re-use (such as composting).

Storage, transporting, handling hazardous chemicals - The disinfecting process for sludge disposal involves the use of many highly toxic and explosive chemicals such as chlorine, sulfur dioxide, and bromine chlorides. Safety measures are critical for wastewater treatment plants.

Storage tanks -- Wastewater treatment plants typically maintain gasoline or fuel oil onsite that is stored in aboveground or underground storage tanks. Pumping stations often use drums, aboveground storage tanks and underground storage tanks for chemical storage.

On-Site Individual Sewage Treatment Systems -- Homeowners living in unincorporated Le Sueur County without access to municipal water treatment systems must rely on their own "mini treatment plant" to meet wastewater disposal needs. When properly constructed and maintained, on-site wastewater treatment systems can provide years of safe, reliable service for rural homeowners.

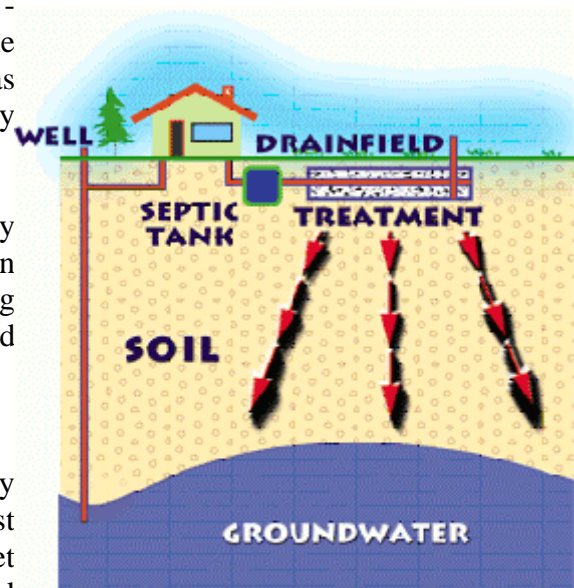


Image courtesy of the US EPA
www.epa.gov/safewater/dwa/electronic/swp.septic.pdf

Vulnerability to Water Supply Contamination

The sources of drinking water include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

Microbial Contaminants such as viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations or wildlife.

Inorganic Contaminants such as salts and metals, which can be naturally occurring or as a result from urban stormwater run-off, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

Organic Chemical Contaminants including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and may come from gas stations, urban stormwater run-off or septic systems.

Pesticides and Herbicides which may come from a variety of sources such as agriculture, urban stormwater run-off or residential uses.

Some people are more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections.

Water-Related Concerns

The City of New Prague has indicated a medium level of concern with the possibility of a water-related hazard event. The City of Cleveland has indicated concern with the lack of a water tower makes other hazards, such as fires, more dangerous.

Potential Impacts and Cascading Effects

Potential impacts of wastewater treatment facility failure or contamination include the loss of water supply or a reduced water supply capacity, and the possible loss of life or sickness caused by contaminated water. Sanitary sewer systems may also backup, and physical damage may occur to treatment facilities and water towers, possibly necessitating repair or replacement and forcing the jurisdiction to absorb these associated costs.

Water-Related Gaps and Deficiencies

- Many jurisdictions feel that water wells, towers, and other facilities are not adequately secured against vandalism and accidents such as drowning, as well as being subject to possible terrorist attack.
- Some cities feel they do not have enough water capacity in general, let alone enough to put out major fires.
- In Cleveland, the lack of a water tower makes other hazards, such as fire or explosions, more dangerous.

ACTIONABLE MITIGATION STEPS:

Actionable Mitigation Steps are more elaborately explained with project, timeframe, responsible jurisdictions/staff, possible funding sources, and priority level in the Action Plan section of this document. Suggested areas of focus are denoted in parentheses.

1. Secure Water Systems and Eliminate Windows (New Prague) – City public works and police chief will assess water system safety and implement measures to maintain safety including elimination of low windows.
2. New and Safe Structures (New Prague) - City administrator will work with engineer to develop measures to build newer and safer water towers, wells, and treatment systems to replace low capacity ones with approval of the city councils.
3. Require Certified Operators and Inspections (Countywide) – The Minnesota Pollution Control Agency (MPCA) requires routine inspection of all public wastewater systems. Operators of such systems are required to have state training to maintain their certified operator status. All jurisdictions should monitor their facilities to ensure these requirements are being met.