



INFORMATION MEMO

Sanitary Sewer Toolkit: A Guide for Maintenance Policies and Procedures

*Learn how to avoid sanitary sewer backups through improved system maintenance and limit your liability with improved documentation if a backup does occur. **Red toolkit icons** mark links to model policies, forms, and public education pieces. Find related risk management information on inflow and infiltration, no-fault sewer backup coverage, discretionary immunity and Pollution Control Agency sewer system by-pass requirements.*



This toolbox icon marks the link to a downloadable tool.

RELEVANT LINKS:

Take action with Information Memo toolkits. They contain the forms, samples or models a city can use to take action on a process or project. Look for the toolkit icon so you can download that tool to use or modify it for your city.

I. Sewer backup claims

Sewer backup claims comprise a significant portion of liability costs for the League of Minnesota Cities Insurance Trust (LMCIT). Not only do sewer backup claims cost a lot of money, sewage in the basement tends to make property owners angry – with your city. In order to better understand how cities might prevent sewer claims, LMCIT conducted an analysis of sewer backup claims from 2003 – 2006.

A surprising result were the causes that did not rise to the top of the list: Weather related incidents like extraordinary rainfall or lift station failure due to weather events were not a major cause of sewer backups. And while aging infrastructure is an ongoing concern for cities throughout the state, physical condition of the sewer line was not quite as notable a cause of sewer backups as we anticipated.

The main findings were:

- More than 63 percent of paid claims were for an obstruction in the sewer line. Obstructions were the most prevalent and expensive cause of sewer backups among paid claims from 2003-2006.
- The second most prevalent and costly cause of sewer backups was lift station problems, which caused more than 15 percent of 2003-2006 paid claims. The total incurred cost for backups caused by lift station problems was \$1.1 million.
- Backups caused by the design/construction of the system had the second largest median cost per claim (damages), even though they occurred with the least frequency. The median is the middle of a distribution: half the scores are above the median and half are below the median. The median

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RELEVANT LINKS:

is less sensitive to extreme scores than the “arithmetic mean” and this makes it a better measure than the “mean” for highly skewed distributions. In the study, the median claim cost (damages only) for backups was nearly \$4,000 per claim.

- Sewer backup claims with multiple claimants were a great deal more costly than those with a single claimant.
- City liability primarily was due to maintenance and inspection issues of sewer lines. Total costs incurred due to maintenance and inspection issues were \$2.4 million.
- There was no difference in the cause of sewer backups for claims in which the city was liable (paid claims) and for claims in which the city was not liable (zero-pay claims).

A couple of reasons likely are rising damage costs. First, the increased number of homeowners who use their basements as added living area. These “finished” basements likely contain items of higher value than those of basements in years’ past. Another factor is that society generally is more aware of the potential health issues associated with mold in one’s home, consequently, there is an intensified need for more rigorous cleaning and replacement of certain materials following a sewer backup, and the costs associated with these activities will continue to increase as well.

II. Exercising reasonable care

Minnesota cities need to exercise reasonable care for sewer systems to avoid sewer back-up liability. This means cities must establish an inspection and maintenance program and emergency procedures.

This Sewer Toolkit was developed by the League of Minnesota Cities Insurance Trust (LMCIT) with two goals in mind:

- To help cities avoid sanitary sewer backups through improved system maintenance; and
- To assist cities in limiting their liability through improved documentation when a sewer backup does occur.

Frequently, the history and information about a city’s sanitary sewer system are stored in a long-term employee’s brain and not written down anywhere. The Sewer Toolkit will help your city put this information where it belongs – in a comprehensive sanitary sewer maintenance program.

RELEVANT LINKS:



LMC model, [Backflow Check Valve Agreement](#),
LMC model, [Backflow Check Valve Policy](#).

[LMCIT Sanitary Sewer Incentive Program](#).



LMC model, [Sanitary Sewer System Assessment Tool](#).

III. Sewer toolkit models

This section includes model assessments, policies and considerations for cities, and includes real samples from cities. The guides and models provide information necessary to develop sewer maintenance and emergency response and public use policies. These policies will help the city clearly explain what it does and why it does it.

The city might also want to consider installing sewer backflow check valves in certain potentially problematic lines as a proactive measure to reduce the chance of a sewer back up. A backflow check valve isolates the property's plumbing from the public sanitary sewer in the street. The check valve includes a flapper that shuts when water level in the public sewer line is high enough to flow back into the house.

The city should work with the property owner so it's understood that while a sewer backflow check valve offers protection against sanitary sewer backups, it is not foolproof. Even with a sewer backflow check valve, sanitary sewer backups may sometimes occur.

LMCIT has a sanitary sewer incentive program for those that insure through the Trust. The sanitary sewer incentive program provides cities greater control in the mandatory, out-of-pocket deductibles they pay for claims and lawsuits related to sanitary sewer backups. Elements discussed in this section help cities qualify for this program.

A. Sanitary sewer system assessment

The Sanitary Sewer System Assessment tool will guide your city through the first step in developing a comprehensive maintenance program: identifying and documenting all of the components in your city's sanitary sewer system. It can also serve as a record of the established programs and practices related to that system.

1. Purpose of assessment

Completing the system assessment provides the city with comprehensive, up to date information on its municipal sanitary sewer system. It is very difficult to effectively operate and maintain your sanitary sewer system if you have no information about the components of that system. Too frequently, the history and information about a city's sanitary sewer system are stored in an employee's brain and not written down anywhere. The greatest benefit to completing this tool will be having up to date information about all aspects of the city's sanitary sewer system and program elements in one place available for anyone needing that information.

RELEVANT LINKS:

[Minn. Stat. § 466.03, subd. 6.](#)

See Section VI-A, *Keep good records.*

See LMC information memo, [LMCIT Liability Coverage Guide, Section III-R-2, No-fault sewer back-up coverage.](#)



LMC model, [Sanitary Sewer Maintenance Policy.](#)

Cities that do the assessment will be a step ahead should Capacity, Management, Operation, and Maintenance (CMOM) rules proposed in 2004 eventually become law. CMOM refers to rules that were proposed by the Environmental Protection Agency regulating municipal wastewater systems. They are part of a larger EPA program to eliminate the environmental effects of sanitary sewer overflows. The proposed CMOM rules expand the duties of owners/operators of municipal wastewater collection systems. Cities that have system documentation in place prior to adoption of the proposed CMOM rules will find complying with the deadlines in the rules less burdensome.

This system assessment along with other documentation and policies can help support a city's immunity defense. State law says cities are immune from liability for discretionary policy decisions based upon the weighing of political, social, safety, and economic factors. This is called discretionary immunity.

The League of Minnesota Cities Insurance Trust (LMCIT) offers member cities no-fault sanitary sewer backup coverage. The completed assessment is a comprehensive piece of system and program documentation that can be submitted to LMCIT underwriters for use in determining a city's qualifications for no-fault sanitary sewer backup coverage.

2. Who should complete the assessment

This document should be completed by the employee(s) or contractor who is most familiar with the city's sanitary sewer system components. It should be completed in the manner that is most effective and efficient for your city. One person could complete the entire assessment document over time, the various sections could be given to different employees and then compiled upon completion, or perhaps this would be an appropriate assignment for an intern in the public works or wastewater area.

3. How to use the assessment

Keep the assessment and use it as a reference tool for your city's sanitary sewer system infrastructure, policies and practices. Remember, like any other policy, this is a living document and should be reviewed and updated periodically.

B. Sanitary sewer maintenance policy

Policies for maintenance activities help plan for use of the City's resources, establish priorities for this type of work, and provide an explanation as to how the City performed the maintenance. This is particularly true for sanitary sewer system maintenance. Having and following a written policy is very helpful in defending claims.

RELEVANT LINKS:

1. Maintenance policy considerations

Generally, Minnesota courts have held that in order to be responsible for the damages from a sanitary sewer backup, the City must be found negligent. To prove negligence, it must be shown that there was a defect that caused or contributed to a backup in the City's sanitary sewer system, the City had notice of the defect, and the City failed to correct it within a reasonable time. Notice may be actual (i.e., a resident calling the City to report a problem) or constructive. Constructive notice is when the City should have known of the existing problem.

On occasion, a city uses the practice of "no sanitary sewer system maintenance whatsoever" as a defense. The rationale behind this behavior is explained as follows: "If the City doesn't know about the problem, the City doesn't have to take any action to correct it. Therefore, if a sewer backup occurs my City won't be found negligent because we didn't know about the issue in the first place." Any attempt to be willfully ignorant of conditions is likely to fail in court as a defense

Similarly, it is not safe to assume that complete lack of action will put the City in a defensible position if issues crop up with the sanitary sewer system. The City will be liable if it was negligent and it will be considered negligent if the City's actions weren't reasonable. Unfortunately, no "standard of reasonableness" exists in state law, federal law or case law.

Information that does help establish a "standard of reasonableness" is found in litigated sanitary sewer backup claims handled by the League of Minnesota Cities Insurance Trust (LMCIT) over the past several years. Claims information reveals that in most Minnesota cities vitrified clay pipes are typically cleaned every 3-5 years. This tells us that a City would probably be considered reasonable if it maintained all vitrified clay pipe within the sanitary sewer system every 3-5 years.

Another method of establishing the "standard of reasonableness" in a City is to periodically survey neighboring or similar cities and find the timeline on which they maintain sanitary sewer mains. If your City has a maintenance schedule similar to those of cities in your area, you would likely be considered reasonable for purposes of sanitary sewer maintenance.

RELEVANT LINKS:

See Section III-D, *Public use of sanitary sewer system ordinance*.

[Minn. Stat. § 466.03, subd. 6.](#)

2. Develop a policy

Develop a policy, not an ordinance. Ordinances have the purpose of regulating people or property. They have the force and effect of law and provide a penalty if violated. Not following an ordinance is in essence breaking the law. Minnesota Statutes contain the procedural requirements for the adoption of ordinances in most cities. The City must ensure that ordinances meet certain requirements and follow a certain form. Many cities codify ordinances for ease keeping them up to date. Once codified, the city ordinances are collectively referred to as the “city code.”

When considering the city’s sanitary sewer system, an ordinance should be used to establish requirements related to the public’s use of that system. It would likely address the use of sump pumps, connections from private property to the public system, wastes that property owners are prohibited from putting into the system, etc.

A policy is a document typically used by a city to establish directives and guidelines for employees. Policies may be effectively used to guide many activities at the city, such as personnel management, street sweeping or snow plowing. Because policies are easier to update and can be more flexible as to how and when things get accomplished, policies are preferred over ordinances for managing city programs and procedures.

When considering a municipal sanitary sewer system, a policy should be used to define how the city intends to use employees and equipment to maintain its municipal sanitary sewer system. This might include regular cleaning of sewer mains, and more frequent inspection and maintenance of problem areas in the system, etc.

A policy can help the City explain what it does and why it does it. It can also be used to support a finding that the City exercised reasonable care. As explained earlier, Minnesota courts have generally held that in order to be responsible for the damages from a sanitary sewer backup, the City must be found negligent. To prove negligence, it must be shown that there was a defect that caused or contributed to a backup in the City’s sanitary sewer system, the City had notice of the defect, and the City failed to correct it within a reasonable time.

A policy can also help support a city’s immunity defense. State law says cities are immune from liability for discretionary policy decisions based upon the weighing of political, social, safety, and economic factors. This is called discretionary immunity.

RELEVANT LINKS:

[Christopherson v. City of Albert Lea](#), 623 N.W. 2d 272, (Minn. Ct. App. 2001).

See Section VI-A, *Keep good records*.

Minnesota Court of Appeals found that a city had discretionary immunity from a sanitary sewer backup claim. The city was immune from suit because of policy based decisions the city made about how and when to maintain its sanitary sewer system. This is a very clear example of why a city should have a sanitary sewer maintenance policy.

a. Write the policy down

A written policy is important because it provides the City with a consistent and documented method of performing system maintenance. It provides guidance on how to carry out maintenance activities, identifies equipment needed for the level of maintenance established by the policy, and assists in long-term planning for employees and equipment. By contrast, an unwritten policy is uncertain and hard to prove. City officials and employees may actually disagree on what an unwritten policy is or requires.

When developing policy language, the City should involve those employees who actually do the work. Be sure the timelines and expectations established in the policy are reasonable from both a budget and workload perspective. A policy is not going to be of value to the City if it cannot generally be followed as written.

b. Request council action

In some cities, the council reviews the sewer maintenance policy and makes a motion to adopt it; in other cities the council makes a motion delegating authority for development of such a policy to a department or employee. The council may or may not wish to review the final policy for comment and adoption. The practice differs from city to city. The important thing to note is that documented action on the part of the city council related to the sanitary sewer maintenance policy will help support that the policy was a discretionary decision.

c. Review the policy

Like any policy, this should be considered a “living document” and should be reviewed periodically to determine if it needs to be changed. If the goals established in the policy go unmet on a repeated basis, the City should consider reevaluating and perhaps adjusting those goals. The employees who perform sanitary sewer maintenance should be consulted when reviewing the policy to ensure that the policy is workable as written.

d. Share the policy

The provisions of the policy should be communicated to all stakeholders at the City. Public works employees and others responsible for carrying out or answering calls about the terms of the policy need to know what it says.

RELEVANT LINKS:



LMC model, *Sanitary Sewer Maintenance Policy*.

The City may benefit by making citizens aware of the policy through City newsletters, newspapers, utility bill stuffers, web site, etc. By publicizing the policy, the City is making a good faith effort to educate citizens so they know what to expect in terms of level of service for sanitary sewer maintenance.

e. Follow the policy

It's not enough to have a well written policy. Policy makers and supervisors need to ensure that established policies are followed. Proper documentation of activities described in your policy (inspection dates and times, response to backups, etc.) helps the City prove that established policy is being followed.

3. Sanitary sewer maintenance policy overview

A basic sanitary sewer maintenance policy has many components. Cities should use this overview together with the League model sanitary sewer maintenance policy in drafting a policy tailored to their own system.

a. Purpose

The purpose of a sanitary sewer maintenance policy should include written intent to provide effective/efficient maintenance by evaluating political, social, safety, and economic concerns, among other things. The purpose may also state the procedures identified in the policy are intended to maintain the sanitary sewer system to prevent sewer backups. A policy, when implemented, may also extend the service life of various components of the sanitary sewer system.

To ensure flexibility within the policy, it is important to clarify that the timelines and procedures in this policy are goals. While the City should make a good faith effort to meet the guidelines in the policy, it is a good practice to note there may be times when procedures are not going to be completed within established timeframes. Perhaps include examples of circumstances that may prevent the City from meeting one or more goals stated in the policy – things like budget constraints, critical equipment failure, or weather and other emergencies.

The purpose should indicate who at the City has the authority to override provisions of this policy (e.g., public works director, utility superintendent, administrator, City Council, etc.). Such exceptions to the policy should only occur on an infrequent and temporary basis. In the event that policy overrides are necessary on a recurring schedule, the City should re-evaluate the policy.

RELEVANT LINKS:

If the City does not intend to maintain the entire sanitary sewer system on its own, the policy should be used as a guide for the services to be provided by a contractor or another party.

b. Routine maintenance and inspection

This section of the policy should clearly define those parts of the sanitary sewer system for which the City is responsible and those parts of the sanitary sewer system for which another party (property owner, etc.) is responsible. Identify who is responsible for maintenance of sewer mains, connections, private sewer lines, grease traps, etc.

It is important to develop a regular schedule of maintenance and inspection for your City's sanitary sewer system. When determining a schedule, remember that in the event of a sanitary sewer backup, the City will be liable if it was negligent and it will be considered negligent if the City's actions weren't reasonable. Unfortunately, no definition of "standard of reasonableness" exists in state law, federal law or case law.

Another method of establishing the "standard of reasonableness" in a City is to periodically survey neighboring or similar cities and find the timeline on which they maintain sanitary sewer mains. If your City has a maintenance schedule similar to those of cities in your area, you would likely be considered reasonable for purposes of sanitary sewer maintenance.

Keep in mind that neither of these methods of establishing "reasonableness" addresses problem areas or special needs within a sanitary sewer system. If a City knows of sanitary sewer components that need more frequent servicing than provided for in the maintenance policy, it should act on that knowledge. Once the City has knowledge of a need for increased maintenance, it is unlikely to be considered reasonable if that need is ignored. However, in the shorter term the City might be protected by discretionary immunity if the City knows of a situation and clearly documents the factors weighed in determining not to act on a long-term solution immediately.

The section on routine maintenance might also recognize that some parts of the system will need more maintenance and other parts may need less maintenance than provided for in the routine maintenance schedule for most of the sanitary sewer system. One way to accomplish this is to use a map or schedule noting system components that receive ordinary routine maintenance on a fixed schedule as Category 1. System components needing less frequent maintenance could be Category 2 and those needing more frequent maintenance could be Category 3.

See Section VI-A, *Keep good records.*

RELEVANT LINKS:

When a sewer main or facility is identified as anything other than Category 1, the reasons why maintenance is needed on a different schedule should be documented. In addition, the policy should note who is responsible for assigning the appropriate maintenance categories to the various system components. Such determinations should be assessed periodically in the event that sewer mains and facilities need to be moved from one category to another.

Depending on City resources, the sanitary sewer maintenance schedule within the policy may include some, all or more than the following. Maintenance schedules developed should clearly note when and/or how often each activity will take place.

(1) Sanitary sewer mains

- Clean sanitary sewer mains with jetter.
- Clean sanitary sewer mains with rodder.
- Attach proofer to show sanitary sewer mains are clear.
- Inspect sanitary sewer mains by looking down manholes.
- Televiser sanitary sewer mains.
- Root removal in areas with many trees and root problems.
- Document all activities.
- Other (describe your City's method of cleaning sanitary sewer mains).
- Identify problem areas/components.

(2) Lift stations

- Easy availability of original manuals with manufacturers' recommended maintenance schedules for all lift station equipment.
- Operating procedures for manipulating pump operations (manually or automatically) during wet weather to increase in-line storage of wet weather flows.
- Setting wet well operating levels to limit pump start/stops.
- Cleaning wet well.
- Calibrating flow meters or conducting draw down tests.
- Regular rotation of lead, lag, and backup pumps.
- Regular inspections of lift station, alarm systems and electrical components.
- Maintenance of operation logs and general records for all lift station activities, including inspections.
- Clean force mains.
- Identify problem areas/components.

RELEVANT LINKS:

(3) Problem areas

- Have a system to designate problem components or areas (e.g. history of back-ups, known roots or grease, off-set in sanitary sewer main connection).
- Clearly define actions (Once a problem area is identified, what is done to address the issue and minimize the likelihood of future sanitary sewer backups?).
- Maintain those areas more often than the regular schedule.
- Keep a list of problem areas and a process to indicate when an area may no longer be considered a problem.
- Document all activities.
- Identify likely sources of prohibited discharge such as food processing plants, commercial and industrial, health care facilities, schools and daycares and correctional facilities.

(4) Personnel responsibilities and requirements

This section should identify the employee(s) the City wants to exercise discretion in decision making and define when and how the City wants them to do it. This will increase the odds that statutory discretionary immunity will apply to both the written policy and decisions made by employees when the written policy confers decision making authority to those employees.

Also use this section to clarify any personnel policy provisions that are specific to the responsibilities associated with maintenance and inspection of the sanitary sewer system.

- Address employee training on routine maintenance, proper use of equipment, and emergency response procedures.
- Many cities establish general work hour requirements in personnel policies and/or union contracts. However, those cities without documented work hour expectations may want to use this section to set forth expectations for employees who will be responsible for sanitary sewer maintenance. In doing so it is important to include language that allows the City to be flexible depending on circumstances. Be aware of wage and hour laws so provisions in this policy do not contradict state or federal law.
- Note that routine sanitary sewer maintenance operations will only be conducted when weather conditions do not threaten the safety of employees or equipment.

RELEVANT LINKS:

[Minn. Stat. § 541.05, subd. 1.](#)

[Minn. Stat. § 541.051, subd. 1.](#)



LMC model, *Sanitary Sewer Emergency Response Policy*.

(5) Documentation

- Develop procedures that are flexible and realistic.
- Train employees on why records are important and how to complete appropriate records. Consider using model forms developed by LMCIT.
- Keep records of all City actions regarding the inspection and maintenance activities, including: (1) daily logs of employees' actions, (2) scheduled maintenance activities, and (3) emergency response activities.
- Retain records for a minimum of six years. Claims brought after that time (more than six years after the date of accident or injury) are likely to be barred by the statute of limitations set forth in state law.
- Retain records of televised mains for at least 12 years. Claims brought after that time (more than 12 years after the date a system was constructed or modified) are likely to be barred by the "improvement to real property" statute of limitations set forth in state law.
- Retain "as-builts" and all other plans and diagrams related to the design and construction of your system for as long as the system components depicted in the diagram are in place and in use. At a minimum, even if a system component is replaced, records of the original system should be retained for at least 12 years after the system was first constructed.

C. Sanitary sewer emergency response policy

The emergency response policy should address those steps the City will take to respond to an emergency such as a sanitary sewer backup. It may or may not establish goals or guidelines for the time of response. In the event the City does set a goal, that goal should not define a timeframe in which the problem is fixed, but rather should address expectations for how soon after receiving a call a City employee is expected to respond to the complaint or problem.

Although written records of each emergency response will be prepared and maintained, this policy may or may not establish parameters for timely completion of such records. As with all areas of the City's policy, the policy for documentation of emergency response should be realistic and not impose strict or difficult standards that cannot reasonably be met.

While not required, some cities choose to reimburse property owners for professional cleaning costs associated with a sanitary sewer backup; others choose to compensate residents with a pre-determined dollar amount regardless of liability. Because there is some risk involved in these practices, it is important to clearly define the parameters for such a program:

RELEVANT LINKS:

[Minn. Stat. § 412.221, subd. 22.](#)



Sample, *Sanitary Sewer System Public Use Ordinances: [Paynesville](#) and [Delano](#).*

See Section VI-B, *Address inflow and infiltration.*

- Clarify if the payment will be given to the company performing the service or directly to the property owner.
- Note any restrictions on who can perform cleaning services.
- Have the property owner provide documented proof (receipts, etc.) of the services obtained.
- Require the property owner to submit a claim to their insurance company.
- Consider those circumstances under which the City would not provide reimbursement or payment to a resident (100 year rainfall, electrical failure at a lift station, etc.)
- If payment is given to a resident in response to a sewer backup but is not a reimbursement, the City must ensure that the payment qualifies as an appropriate public expenditure. The City should establish an ordinance stating that the payment in response to a sewer backup is part of the service that residents in the City of _____ are charged for on their municipal utility/sewer bill.
- Be sure to note that providing a payment or reimbursement is not an admission of liability on the part of the City nor is the City obligated to pay any other costs.

D. Public use of sanitary sewer system ordinance

Minnesota statutes require any city with a municipal sanitary sewer system to have an ordinance addressing the public's use of that system.

Again, it is important to note that an ordinance is not the same as a policy. Ordinances have the purpose of regulating people or property. They have the force and effect of law and provide a penalty if violated. Not following an ordinance is breaking the law.

The language for an ordinance regulating public use of a municipal sanitary sewer system is quite similar from city to city. Those items typically addressed in a city's sewer use ordinance include sewer rates, prohibited discharges, and, more recently, home inspection programs to regulate illegal inflow.

Inflow occurs when clear water gets into the sanitary system through basement sump pumps and foundation drains that are illegally connected to the system. Inflow uses up system capacity and can cause sewer backups during a heavy rainfall. In addition, there is a cost associated with processing water that doesn't need to be treated.

RELEVANT LINKS:



Sample, *Fats, Oil and Grease Program Compliance and Best Management Practices Manual*, City of Duluth.

A number of cities in Minnesota have established home inspection programs in an effort to control issues related to inflow. Home inspections are a good way to determine whether residents have illegal connections to the sanitary sewer system. In order to establish such an inspection program, the city sewer ordinance should contain a provision requiring residents to submit to an inspection by either (1) a qualified city representative; or (2) a licensed inspector/plumber of the resident's choosing. The city could assess a service fee to residents refusing to allow the inspection and/or neglecting to fix the illegal connection.

A city should consult with its city attorney before enacting or amending any ordinance. In addition, because of privacy concerns, the city should consult with its city attorney before starting any home-to-home inspection program.

A city may also consider enacting or amending an ordinance to address fats, oils, and grease (FOG). Large amounts of oil and grease in the wastewater can cause significant trouble in the collection system pipes. It decreases pipe capacity and, therefore, requires that piping systems be cleaned more often and/or some piping to be replaced sooner than otherwise expected. Oil and grease also hamper effective treatment at the wastewater treatment plant.

Some member cities implement a FOG program for all commercial establishments that house a food service facility. The program is designed to work collaboratively with those establishments in an effort to reduce the level of FOG entering the city's wastewater collection and transmission system.

IV. Sanitary sewer maintenance and response forms

The sewer toolkit forms help cities document the actions taken by staff during system maintenance or when responding to a sewer backup. Good documentation can be an effective method of limiting liability; it can prove a city is following established policies. In addition, documentation is a great internal management tool for tracking who did what, when.

A. Cab cards

You may reproduce these cards and place them in your city vehicles. They offer handy references for employees on what to do, what to say and what not to say to property owners in the case of a sewer backup. A special card offers different tips if a property owner is suing the city.



LMC model, *Cab Cards for City Vehicles*.

RELEVANT LINKS:

29 C.F.R. § 1910.146.
See Section VI-C, *Follow all confined space entry regulations.*



OSHA model, *Confined Space Pre-Entry Checklist.*



LMC model, *Lift Station Report Form.*



LMC model, *Preventive Maintenance Checklist.*



LMC model, *Sanitary Sewer Manhole Inspection Form.*



LMC model, *Sanitary Sewer Service Report Form.*

B. Confined space pre-entry checklist

Federal Occupational Safety and Health Administration (OSHA) standards set out practices and procedures to protect employees from the hazards of entry into permit-required confined spaces. The check-list is based on Appendix D to the federal rule, which presents examples of permits whose elements are considered to comply with the requirements set out in the rule.

C. Lift station report

Lift stations are an important component of the city's overall system, and one within its control. It is important to monitor lift stations and create a record of maintenance and maintenance checks.

D. Preventive maintenance checklists

Preventive maintenance should be done on sewer lines on a periodic basis. Common schedules, depending on the line, may be routine jetting/ cleaning of vitrified clay pipe lines once every 3-5 years. PVC lines may not need to be jetted/ cleaned as frequently. But all sanitary sewer lines should be on some cleaning/ inspection schedule. Problem lines may have their own individual maintenance schedule. Lift stations require much more frequent maintenance than sewer lines and will have their own maintenance and inspection schedules. The form may be modified for any of these periodic uses and purposes.

E. Sanitary sewer manhole inspection

Manholes are an important element of your infrastructure maintenance and inspection efforts. They can be sources of infiltration (ground water seeping into the sanitary sewer system) from the cover, walls, joints, and pipe connections. Manhole inspections should be conducted on a routine basis. This can show a need to replace or repair your infrastructure.

F. Service report

Recording the date, time, place, reasons and resolutions of sewer service calls is important documentation for your overall sewer maintenance plans and is a useful internal management tool. This type of record may be an effective method of limiting liability by showing the city is following established policies.

RELEVANT LINKS:

Flushable Wipes Education
WCCO News, *'Flushable' Wet Wipes Wreaking Havoc on Sewer Systems*. Online video clip. CBS Minnesota, (April 19, 2016).

Water Environment Federation, *Will it Flush?* Online video clip. YouTube, (Jan. 4, 2012).



LMC model, *Sanitary Sewer Article for City Newsletter*.



LMC model, *Sanitary Sewer Backup Brochure*.



LMC model, *Sanitary Sewer Backup Letter to Residents*.

V. Public educational materials

Sewer toolkit public education materials will help the property owner understand the key role they play in preventing sanitary sewer backups. It is important to reach out to the public in a variety of ways, such as newsletters, brochures, website messages, and letters, to ensure reaching the widest possible audience for your messages. The use of social media is quick and can reach many community members when issues arise and need immediate attention. These items inform property owners of their responsibilities when using the city's sewer system as well as what they should do in the event of a sewer backup. Public notification of sewer backups, as well as general maintenance practices, is important in the reduction of sewer backups. Educating the public on items such as "flushable wipes" could help with public understanding and overall reduction in backups.

A. Sanitary sewer newsletter article

If your city publishes a newsletter this can be a good way of publishing some lengthier information. It can be timed for certain annual events, like reminding residents of inflow regulations in the spring and summer when rains are likely. Even though all properties may receive the newsletter, it may not be read. Placing your messages in multiple ways is important to reach the greatest number of people.

B. Sanitary sewer backup brochure

A brochure is a compact and visually appealing method of getting out your message. It can be available in city hall for distribution or on a self-serve rack. It may be a good medium for including in a welcome packet to new residents, or in a city booth at community events.

C. Sanitary sewer backup letter to residents

Individually addressed and delivered materials, such as a letter, can transmit specific information and target properties on problem lines. The model contains a resident card on sewer backup procedures for them to save and use.

RELEVANT LINKS:



LMC model, [Sanitary Sewer Utility Bill Stuffer](#).



LMC model, [Web Content for City Sanitary Sewer Departments](#).

LMC Information Memo, [Computer and Network Loss Control](#), Section III-L, Website and social media policies.

D. Sanitary sewer utility bill stuffer

Periodic sanitary sewer bill stuffers on sewer backups can keep resident awareness high of the city's backup procedures, including updated city contact points, and tips on what residents can do to minimize their chance of having a backup by proper maintenance of their portion of the sewer lines, and proper disposal of items that can lead to backups.

E. Sanitary sewer department web content

Your city website can be an effective method of educating the public about city operations and programs. The toolkit's model website content is designed to help you develop (or expand) web content about your city's sanitary sewer system. Keep in mind that these are only examples – the information should be customized in the way that most effectively shares your city's message and best meets your city's needs.

If you don't find what you are looking for, there are many cities in Minnesota that do a great job of sharing information on their web sites. Just enter www.google.com on your website browser, enter the name of a city and explore the information others have to offer about their sanitary sewer systems.

F. Sanitary sewer and social media

Social media has become more popular to reach many citizens quickly and efficiently. Social media can be used to notify the public about such things as sewer backups, general maintenance, and areas to avoid because of a sewer issue. A social media policy is critical to manage the city's social media use.

VI. Other sanitary sewer risk management practices

A. Keep good records

1. Policy and planning decisions

Keeping records of policy and planning decisions helps implement the policy or plan and helps evaluate implementation and effectiveness of the policy or plan. For instance, maintenance policies may provide guidelines for a public works operation. They provide guidance and direction to city employee, they describe an expectation for level of service, and can be used as a tool to measure performance. Good records of policy and planning decisions also assist in long range planning and provide the framework for future procedures, purchase of equipment, and expansion of services.

RELEVANT LINKS:

[Minn. Stat. § 466.03, subd. 6.](#)

Keeping records of policy and planning decisions helps preserve the discretionary immunity record. Policy or planning adoption should include records that show a weighing of social, political, economic and safety factors. In addition, even if the city is not immune from liability pursuant to discretionary immunity, the existence of and adherence to a policy helps to prove that the city exercise ordinary and reasonable care, and is therefore not liable.

The fact that immunity does not exist does not mean the city is automatically liable or negligent. Immunity presupposes duty and breach of duty. If there is no duty and no evidence of breach of duty there is nothing for which the city is liable. If the city is not liable there is no liability from which the city needs to be immune. This means that even without immunity the city may be able to get out of the case before trial or have a successful result at trial if it has good records showing it is not liable or negligent. The mere fact that an accident occurred is not enough to establish negligence.

2. Discretionary immunity

State law says a city is immune from liability for: “any claim based upon the performance or failure to exercise or perform a discretionary function or duty whether or not the discretion is abused.” As a practical matter, the more it looks like discretion was abused the more likely a court may determine that discretion was not exercised.

Statutory discretionary immunity exists because local governments must make decisions. They must make decisions on how to best spend taxpayers’ money and to prioritize the use of limited financial, personnel and other resources. Cities are constantly making decisions about what services, programs or facilities should be offered or provided and decisions concerning what services, programs or facilities should be improved. These decisions often have timetables attached to them. In addition, there are frequently competing policy considerations concerning what a city should do.

Discretionary immunity recognizes that difficult decisions sometimes need to be made. If a city is likely to be “darned if it does and darned if it doesn’t,” immunity should apply because the city is making decisions that involve a weighing of competing political, social, economic or safety factors.

RELEVANT LINKS:

Statutory discretionary immunity has its roots in the doctrine of the separation of powers. The separation of powers doctrine requires that courts (the judicial branch of government) should not be second-guessing policy or planning decisions made by city council (legislative branch) or by those to whom the city council has delegated policy making or planning authority or difficult decisions that must be made by city administrators or other supervisory level policy making city officials (executive branch).

a. Discretionary functions and duties

Statutory immunity protects planning level decisions but does not ordinarily protect operational level decisions. Statutory immunity does not protect decisions based on technical knowledge or professional judgments rather than planning or policymaking.

Some decisions made by city officials or city employees, including public works department employees, that involve the exercise of professional judgment may also be protected by “Common Law Official Immunity.” Official Immunity can protect discretionary decisions at both the planning and operational level. For example, a city decision to have only one portable emergency generator to power its lift stations in the event of a power outage may be related to weighing the potential need, (i.e., total number of lift stations, no history of widespread power outages etc.) with the budgetary cost of purchasing and maintaining more than one generator. Whereas, a public works employee’s decision about where best to deploy that one generator when more than one lift station is without power may be protected by common law official immunity. Records to support both decisions are helpful

In determining whether a decision is a planning-level or policy-making decision there are several important factors that must be looked at.

First of all, you must look at the decision being made. Discretionary immunity can apply to all types of decisions in many different areas including, but not limited to, land use, personnel, permits and licensing, and streets and roads (including but not limited to, street construction, inspection or maintenance policies or plans and decisions related to the signing of streets and roads). Discretionary immunity can also apply to decisions related to capital expenditures and use of staff and policies related to responses to emergencies.

RELEVANT LINKS:

Another factor that must be considered is who is making the decision. The higher up you go the easier it is to prove the decision was made in a policy making or planning level. However, not all decisions made by the city council, mayor or city administrator are automatically entitled to discretionary immunity. Similarly, some decisions made by lower level employees may also be discretionary. The operative principal is that statutory discretionary immunity protects planning level decisions

Another factor that courts look at to determine whether or not a decision is at the “planning level” is whether or not the decision or policy involves a weighing of social, political, economic or safety considerations. A good example of a discretionary decision would be a city’s snow plowing policy. Many cities have such policies and they frequently involve the weighing of social, political, economic or safety considerations. Social factors would include the effect of salt, sand and chemicals on the environment, the need for people to get to work or school year-round and providing access to all citizens to all city facilities. Political factors may include voters’ expectations of a certain level of services, downtown merchants’ expectations of service, and voters’ expectations to be able to park their car on the street.

In addition, snow plowing policies almost always involve the weighing of safety considerations, including the safety of a plow operator and the safety of the general public. For safety reasons, cities may schedule particular times when snow removal should be done and place restrictions on the number of hours that a plow operator may operate a plow without taking at least ten to twelve hours off between shifts. Finally, snow plowing policies frequently involve a weighing of economic considerations such as the budget for snow removal and whether or not the city will authorize over time and the city’s long term need to purchase and maintain snow removal equipment.

b. Creating and preserving records that support immunity

After you decide that a decision is likely to be discretionary because it is a planning decision that involves a weighing of competing social, political, economic or public safety concerns, you must think about how to best create and preserve a record documenting the decision and decision-making process. If an actual policy decision is made by the city council, a resolution setting forth the policy or plan can be prepared. The “whereas” sections of the resolution should document some of the social, political, economic or other factors supporting the council decision.

RELEVANT LINKS:

Accurate and complete minutes are also excellent records for showing a city council's exercises of discretion. If the city council ratifies or approves a plan or policy drafted, created or prepared by others (i.e., department supervisor or city advisory boards), the council meeting minutes should reflect that policy or plan development authority was delegated to the person or entity making the decision and that the city council reviewed the decision made or recommended.

In addition, the records showing that those with policy or plan development authority weighed competing political, social, economic and/or safety factors should be included in the minutes as should the city council's ratification or approval of the discretionary decision. If the city council does not need to ratify or approve the final plan or policy, a discretionary immunity record should be made showing that the city council delegated plan or policy development to the decision-making person, department or board. This directive should be reflected in council minutes and should clearly indicate that the city council expects that the decision maker will weigh political, social, economic, safety and other factors when creating, developing or changing the plan or policy.

Sometimes decisions protected by statutory discretionary immunity may be made by the city administration staff, department heads or others to whom policy or plan development authority has been granted. In these cases, the person exercising discretionary policy or plan development authority must create the discretionary immunity record. This record is likely to include correspondence or memos indicating who directed them, or if not explicitly directed by others to develop a plan or policy why plan or policy development in a given area is within the implicit authority given to them by their position or job description. They should also keep notes of their decision-making process. Those notes can be reduced or summarized in either a memo introducing the plan or policy or in a "preamble" to the policy itself. If the policy or plan needs to be reviewed or approved by a supervisor or others, the person(s) completing that review or approval should in a memo or other written document acknowledge that they completed a review and agree with the policy or plan. In all cases, it is usually a good idea for the policy or plan to be a written policy.

Similarly, records that may support or bolster common law official immunity might include incident or response reports, memos and other documents that set forth the exercise of professional judgment. It is helpful if these records are prepared at the time of or shortly after key decisions involving professional judgment and discretion were made. The decision maker(s) should set forth in detail the available information, weighing of competing considerations and the exercise of professional judgment that went into making the decision at the time it was made. Sometimes decisions must be made quickly and with limited information.

RELEVANT LINKS:

City officials and employees can wait until after the emergency is over before starting to create records. All records of decisions made, actions taken and reasons for both should be prepared as soon as possible after the emergency is over or the decision was made and while the details of the process are still freshly in the mind(s) of the decision maker(s).

B. Address inflow and infiltration

Inflow and infiltration are major causes of sanitary sewer overflows that release raw sewage into lakes, streams, streets, and basements. Sewer back-ups into basements may result in protracted litigation and potential liability for cities. Sanitary sewer overflows may also have significant environmental costs. In addition, excess storm water entering the sanitary sewer system through inflow and infiltration may result in increased wastewater treatment costs, which are passed on to the ratepayers. These costs make it imperative for cities to address inflow and infiltration problems.

Inflow occurs when rainwater is misdirected into the sanitary sewer system instead of storm sewers. As much as 40 percent of inflow comes from rain leaders and sump pumps that are improperly connected to the sanitary sewer system. The remedy for inflow is to remove improper connections to the sanitary sewer system.

Infiltration occurs when ground water seeps into the sanitary sewer system through cracks or leaks in sewer pipes. The cracks or leaks may be caused by age related deterioration, loose joints, damage or root infiltration. The remedy for infiltration is repairing or replacing the leaking infrastructure.

1. Actions to reduce inflow and infiltration

a. Develop a plan

The plan should identify the inflow and infiltration problems and ways to remedy them. The plan should include: (1) enacting a sanitary sewer ordinance; (2) conducting routine testing and inspections to determine where inflow and infiltration problems exist; and, (3) conducting routine maintenance to repair or replace failing infrastructure.

b. Enact a sanitary sewer ordinance

Your sanitary sewer ordinance should address inflow and infiltration problems. The ordinance should make it illegal to connect sump pumps, floor drains, and rain leaders to the sanitary sewer system. The ordinance may also include provisions for conducting inspections and penalties to ensure that residents comply with the ordinance. The city should consult the city attorney before enacting the sanitary sewer ordinance.

See Section III-D, *Public use access ordinances*.

RELEVANT LINKS:

c. Test with smoke and dye

Smoke testing is an effective method for locating inflow and infiltration problems. Smoke is blown into the system and escapes through openings in the system. The escaping smoke will mark leaks in pipes and illegal connections to the system. Because of the potential for smoke to enter residences, it is important to notify residents when conducting smoke testing.

Dye testing is an effective method for testing for inflow problems. Dye is poured into storm water locations such as drain tiles and sump pumps. If the dye ends up in the sanitary sewer system, there is an improper connection to the system. Because of privacy concerns, the city should consult the city attorney before conducting dye testing.

d. Televising lines

The city can determine where storm water is entering the sanitary sewer system by televising lines when it rains. Televising lines is also an effective method of locating illegal connections.

e. Home inspections

Home inspections are a good way to determine whether residents are illegally connected to the sanitary sewer system. In order to establish such an inspection program, the city sewer ordinance should contain a provision requiring residents to submit to an inspection by (1) a qualified city representative; or (2) a licensed plumber of the resident's choosing. The city could assess a service fee to residents refusing to allow the inspection and/or neglecting to fix the illegal connection. Because of privacy concerns, the city should consult the city attorney prior to conducting home-to-home inspections.

f. Manhole inspections

The city should visually inspect manholes for signs of infiltration from the cover, walls, joints, and pipe connections. Manhole inspections should be conducted on a routine basis.



LMC model, *Sanitary Sewer Manhole Inspection Form*.

g. Repair and replace infrastructure

The city's inflow and infiltration plan should include a schedule for repairing and replacing sewer lines and manholes that have infiltration problems. Repair of these facilities may be accomplished through slip lining, spot repairs or replacement. The city's repair and replacement schedule should prioritize repair and replacement activities, taking into account the city's budget, problem areas, and equipment and manpower limitations.

h. Notify and educate the public

The city should notify and educate the public about inflow and infiltration problems and the steps the city is taking to address those problems. Residents can be educated about inflow and infiltration reduction efforts through mailings included with utility bills, newspaper announcements, and on the city's web site. Informed residents will understand the nature and impact of inflow and infiltration problems and therefore be more likely to voluntarily correct illegal connections and consent to city inspections.

2. Legal defenses for sewer backups caused by inflow and infiltration

Sewer back-ups caused by inflow and infiltration problems often result in costly property damage claims. The best defense is eliminating the inflow and infiltration problems, however cities have a number of legal defenses to sewer back-up claims.

a. No negligence

The city will not be liable for a sewer back-up if it exercised reasonable care. In order to prove the city was negligent, the plaintiff must establish that: (1) there was a defect in the city's line; (2) the city knew or should have known of the defect; and, (3) the city failed to remedy the defect within a reasonable time after gaining knowledge of the defect.

The plaintiff must prove all three elements to be successful on a sewer back-up claim. If the city can show that despite a regular inspection and maintenance program, it did not have knowledge of the inflow and infiltration problem that caused the plaintiff's back-up, then the city will likely prevail. A successful defense requires documentation of routine inspection and maintenance activities.

RELEVANT LINKS:

[Minn. Stat. § 466.03, subd. 6.](#)

b. Act of God

The city will not be liable for a sewer back-up if it can show that the back-up was caused by an act of god or nature and not by any negligence on the part of the city. For example, if the city can show that the sewer back-up was caused by a 100-year storm event and not by the city's failure to adequately address known inflow and infiltration problems, then the city will prevail because the back-up was caused by an act of god.

c. Statutory immunity

The city will not be liable for a sewer back-up if it can show it is entitled to statutory immunity. The immunity protects policy-level decisions that require city officials to balance social, political, and economic considerations. In order to obtain the immunity from a sewer back-up claim caused by inflow and/or infiltration, the city must show it had a policy for addressing inflow and infiltration problems; and, it considered social, political, and economic factors in creating the policy, such as the nature and extent of the inflow and infiltration problem, the public works department budget, the cost of making repairs, improvements to the sanitary sewer system, and the available manpower and equipment resources. Ideally, the city's decision-making process should be documented in public works department records, engineering reports, and city council minutes.

C. Follow all confined space entry regulations

Confined spaces are enclosed spaces that are large enough for workers to enter and perform work assignments, but have limited openings to enter and exit and are not designed for continuous employee occupancy. Specific hazards of a confined space include one or more of the following characteristics:

- Contains or has the potential to contain a hazardous atmosphere.
- Contains an engulfing potential.
- Contains a hazardous internal configuration.
- Contains other recognized safety or health hazards.

Workers and emergency responders can be injured because of the failure to recognize that a confined space is a potential hazard. Planned entry and rescue procedures are the two major components of a safe confined space entry.

RELEVANT LINKS:

[29 C.F.R. § 1910.146.](#)

1. Federal versus Minnesota regulations

The Federal Occupational Safety and Health (OSHA) Confined Spaces Standard regulations contain practices and procedures to protect employees in general industry from the hazards of entering confined spaces that cause immediate danger to life and health. The Federal Standard was updated and became effective February 1, 1999. Minnesota OSHA adopted the Federal Standard as of December 1, 1999. This means that with the exception of the construction industry, Minnesota Confined Space Entry Rules 5205.10001040 are no longer applicable.

The Minnesota Rules and the Federal Confined Space Entry Standards were both developed to protect employees, however there are some significant differences in the requirements. The most notable difference that the new Federal Standard has over the previously used Minnesota Rules include different definitions and classifications of confined spaces, more employee involvement, and additional rescue procedure evaluating and training requirements.

[29 C.F.R. § 1910.146.](#)

2. Highlights of federal requirements

The Federal OSHA Confined Spaces Standard should be used as a basis for developing a formal confined space entry written program. Some of the basic components and requirements of the standard are outlined as follows:

- When one or more of the characteristics listed above are present, the space is considered a “Permit-Required Confined Space.”
- A “Non-Permit Confined Space” is defined as a space that does not contain or, with respect to atmosphere hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

[29 C.F.R. § 1910.146 \(c\)\(1\).](#)

a. Initial assessment

The employer must evaluate the workplace to determine if any spaces are considered permit-required confined spaces. All permit-required confined spaces must have a sign posted indicating the existence and location of the danger posed by the space.

[29 C.F.R. § 1910.146\(c\)\(8\).](#)

If the employer decides that employees will not enter permit-required confined spaces, the employer must take effective measures to prevent employees from entering the space. In addition to the evaluation and posting of signs, the employer must:

RELEVANT LINKS:

- Inform the contractor that the workplace contains permit spaces and that permit space entry is allowed only through compliance with a permit space program meeting the requirements.
- Apprise the contractor of the elements, including the hazards identified and the host employer's experience with the space that make it a permit space.
- Apprise the contractor of any precautions or procedures that the host employer has implemented for the protection of employees in or near permit spaces where contractor personnel will be working.
- Coordinate entry operations with the contractor, when both host employer personnel and contractor personnel will be working in or near permit spaces.
- Debrief the contractor at the conclusion of the entry operations regarding the permit space program followed and regarding any hazards confronted or created in permit spaces during entry operations.

b. Training

Initial and refresher training must be provided to all affected employees with the necessary understanding, skills, and knowledge to perform the job safely. Refresher training should be conducted in the following circumstances:

[29 C.F.R. § 1910.146\(g\).](#)

- Before the employee is first assigned duties.
- Before there is a change in assigned duties.
- Whenever there is a change in permit space operations that presents a hazard about which an employee has not previously been trained.
- Whenever the employer has reason to believe either that there are deviations from the permit space entry procedures, or that there are inadequacies in the employee's knowledge or use of these procedures.

c. Written program

[29 C.F.R. § 1910.146\(c\)\(4\).](#)

If the employer decides that employees will enter permit-required confined spaces, the employer must develop and implement a written permit space entry program.

The written program must address the topics of preventing unauthorized entry, identifying and evaluating confined space hazards, and establishing procedures and practices for safe entry, including testing and monitoring. Under the program, the employer must:

RELEVANT LINKS:



OSHA model, *Confined Space Pre-Entry Checklist*.

[29 C.F.R. § 1910.146\(e\)](#).

- Provide specified equipment to employees involved in confined space entry;
- Have an attendant stationed outside permit spaces during entry;
- Establish a procedure to summon rescuers and prevent unauthorized personnel from attempting rescue;
- Develop a system for preparing, issuing, using, and canceling entry permits; and
- Have procedures in place for coordinated entry when employees of more than one employer are involved.

3. Permits

The standard requires a permit system, an employer's written procedure for preparing and issuing permits for entry, and for returning the permit space to service following termination of entry. An entry permit must include the following:

- The permit space to be entered;
- The purpose of the entry;
- The date and length of the permit;
- A list of authorized entrants;
- The names of current attendants and the entry supervisor;
- A list of hazards in the permit space;
- A list of measures to isolate the permit space and eliminate or control the hazards;
- The acceptable entry conditions;
- The results of test (initialed by the person(s) performing it);
- The rescue and emergency services available and the means to summon them;
- The communication procedures for attendants and entrants;
- Any required equipment (respirators, alarms, etc.);
- Any other necessary information; and
- Any additional permits (such as hot works permits).

The entry supervisor must authorize entry, prepare and sign written permits, order corrective measures, if necessary, and cancel permits when work is complete. Permits must be available to all permit space entrants at the time of entry and should extend only for the length of the task. Permits must be retained for one year.

RELEVANT LINKS:

[29 C.F.R. § 1910.46\(d\)\(4\).](#)

[29 C.F.R. § 1910.134.](#)

[29 C.F.R. § 1910.146\(k\)\(3\).](#)

[29 C.F.R. § 1910.146\(k\)\(1\).](#)

4. Personal protective equipment

Personal Protective Equipment must be provided if engineering and work practice controls do not adequately protect employees. All equipment must be provided to the employee at no cost, maintained properly, and used properly by employees.

The entry permit should state what equipment, including PPE, testing equipment, communications equipment, alarm systems, and rescue equipment, is required for entry into the space.

If the confined space is determined to have an atmosphere that is immediately dangerous to life or health (IDLH), the use of respirators or self-contained breathing apparatuses may be required. This would require that a formal OSHA Respiratory Protection program be implemented according to 29 C.F.R. §1910.134.

5. Retrieval systems

Non-entry rescue retrieval systems are required unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. This requires authorized entrant's use a chest or full body harness, with a retrieval line attached at the center of the entrant's back near shoulder level or above the entrant's head. Wristlets may be used instead only if a full body harness is demonstrated to be unfeasible or creates a greater hazard, and it can be demonstrated that they are the safest and most effective alternative.

The other end of the retrieval line must be attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary. A mechanical device must be available to retrieve personnel from vertical type permit spaces more than 5 feet deep.

6. Rescue and emergency procedures

Confined space rescue personnel may be either on-site employees or an off-site service. It is not acceptable for the confined space entry emergency procedure be to simply call the fire department without taking steps to be sure that the responders are qualified and equipped to perform a rescue.

An employer must be able to demonstrate that the chosen rescue procedure is effective for the hazards of any specific permit-required confined space. This means that if a confined space has an atmosphere that is determined to be immediately dangerous to life or health (IDLH), the rescue team must be standing by at the confined space. If there is no potential for an IDLH atmosphere, a trained rescue team with a timely response time may be acceptable.

RELEVANT LINKS:

[29 C.F.R. § 1910.146\(k\)\(2\).](#)

[29 C.F.R. § 1910.145\(k\)\(1\).](#)

[29 C.F.R. § 1910.146\(c\)\(5\).](#)

There are specific requirements for personnel designated to rescue employees from permit spaces.

a. On-site team responsibilities

- Be properly equipped;
- Receive the same training as authorized entrants, plus training in the use of personal protection and rescue equipment and in first aid, including cardiopulmonary resuscitation (CPR); and
- Practice simulated rescues at least once every 12 months.

b. Outside rescue service responsibilities

- Be made aware of the hazards of the confined spaces;
- Have access to comparable permit space to develop rescue plans; and
- Practice rescues.

c. Other requirements

The confined space standard specifies alternative protection procedures that may be used for permit spaces where the only hazard is atmospheric and ventilation alone can control the hazard. To qualify for alternative procedures, employers must:

- Ensure that it is safe to remove the entrance cover;
- Determine that ventilation alone is sufficient to maintain the permit space safe for entry and that work to be performed within the permit-required space must introduce no additional hazards;
- Gather monitoring and inspection data to support the above requirements;
- If entry is necessary to conduct initial data gathering, perform such entry under the full permit program; and
- Document the determinations and supporting data and make them available to employees.

Entry into the space can take place after:

- It has been determined it is safe to remove the entrance cover;
- Openings are guarded to protect against falling and falling objects;
- Internal atmospheric testing;
- Air remains without hazard whenever any employee is inside the space;
- Continuous forced air ventilation has eliminated any hazardous atmosphere; and
- Space is tested periodically.

RELEVANT LINKS:

[29 C.F.R. § 1910.146\(c\)\(8\) and \(9\).](#)

[29 C.F.R. § 1910, subp. G.](#)
[29 C.F.R. § 1910, subp. Z.](#)

[ANSI/ASSE Z117.1 Safety Requirements for Confined Spaces](#), available from the [American National Standards Institute](#) (2009).

[Minnesota Safety Council](#)
651.291.9150
800.444.9150

[LMCIT Loss Control Consultant Services](#)
651.281.1200
800.925.1122

Employees must exit immediately if a hazardous atmosphere is detected during entry and the space must be evaluated to determine how the hazardous atmosphere developed.

7. Contractors

When an employer arranges to have employees of another employer (contractor) perform work that involves permit space entry; specific actions still need to be taken. The employer must:

- Inform the contractor that the workplace contains confined spaces and that permit space entry is allowed only through compliance with the OSHA Confined Space Entry Standard;
- Provide the contractor with information on permit space, the permit space program and procedures, and likely hazards that the contractor might encounter;
- Coordinate with the host employer any joint entries; and
- Debrief the contractor at the conclusion of the entry operation.

In addition, when hiring a contractor to perform any work, especially confined space entry, a proper formal written contract should be developed. The contract should clearly define the roles of each party, require OSHA standards be followed and provide for proof of proper and adequate worker's compensation and liability insurance.

8. Further assistance on confined entry

In addition to the federal confined spaces standard discussed in this section, cities may find it helpful to review federal OSHA standards on occupational health and environmental control, and toxic and hazardous substances. The American National Standards Institute (ANSI) also has safety requirements for confined spaces. The Minnesota Safety Council and your LMCIT loss control consult are available for your questions and assistance.

VII. Sanitary sewer system by-pass

On occasion, circumstances may require a city to bypass their sanitary sewer system. Because the requirements for sewer bypass are very specific, we include the following information from the Minnesota Pollution Control Agency (MPCA).

RELEVANT LINKS:

Minnesota Pollution Control Agency, [Facts about Sewage Bypass](#) (July 2015).

Minnesota Pollution Control Agency website on [Scheduled Maintenance Bypassing Review Guidelines](#).

Minnesota Pollution Control Agency website on [Emergency Response Team](#).

Minnesota Department of Public Safety, [Minnesota Duty Officer - BCA Operations Center](#).

Minnesota Pollution Control Agency website on [Floods: Minimizing pollution and health risks](#).



Minnesota Pollution Control Agency model, [Release Sampling Report](#).

A. Facts about sewage by-passes

From time to time it may become necessary to release untreated or partially treated wastewater to the environment. This type of discharge is known as a sewage bypass. Learn what causes them, how to prevent them, the dangers to the environment, and bypassing in floods.

B. Scheduled maintenance by-passes

The MPCA guidelines recommended criteria for wastewater treatment facilities that need to perform maintenance on their system but do not have “system reliability” (duplicate treatment units) and who request approval in advance to bypass untreated or partially treated domestic wastewater.

C. Emergency by-passes

The MPCA has an Emergency Response Team whose members are responsible for organizing the MPCA’s efforts for oil and hazardous material emergencies such as chemical fires, train derailments, pipeline breaks, tanker truck accidents or petroleum vapors in a sewer.

Situations that cause emergency sewer bypasses may also require state-level assistance from other agencies or resources. The Bureau of Criminal Apprehension’s Minnesota Duty Officer Program provides a single answering point for local and state agencies to request state-level assistance for emergencies, serious accidents or incidents, or for reporting hazardous materials and petroleum spills. The duty officer is available 24 hours each day, seven days each week.

Flooding poses many problems for cities and industries and the continued operation of wastewater treatment facilities. The MPCA provides guidance for wastewater-treatment facility operators both in preparing for potential floods and in working to recover operation after their facilities have been affected by a flood.

D. Documentation

The MPCA has a report form that can be used to assist in the documentation of wastewater treatment and disposal sampling.

RELEVANT LINKS:

LMCIT
651.281.1200
800.925.1122

[LMCIT Loss Control
Consultant Services.](#)

VIII. Further assistance

The League of Minnesota Cities Insurance Trust loss control staff is happy to help you with questions on controlling sewer backup losses. Field Loss Control Consultants may give individual city evaluations and consultations on sewer backup prevention.