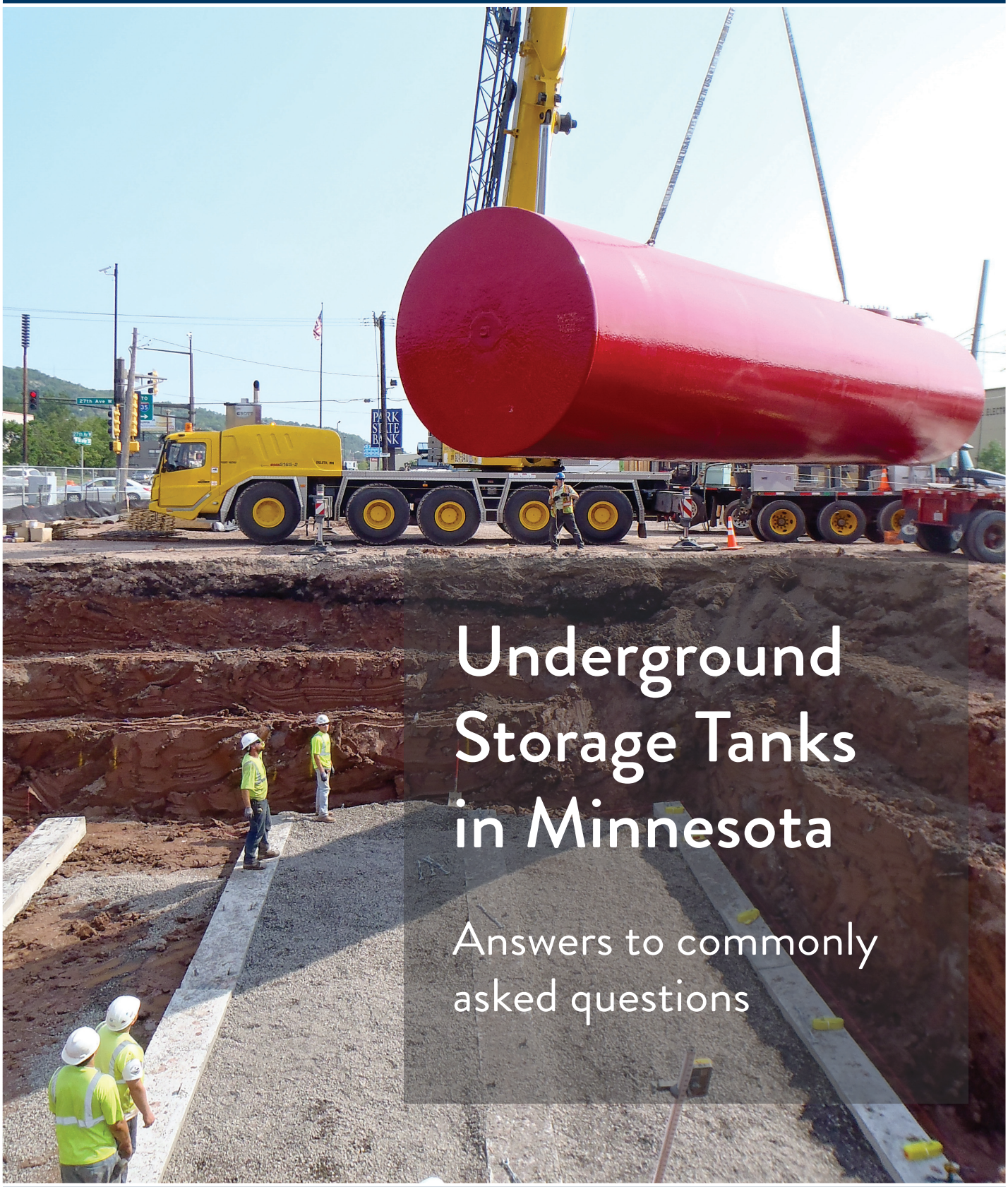

Underground Storage Tanks in Minnesota

Answers to commonly asked questions

MINNESOTA POLLUTION CONTROL AGENCY

t-u1-51

Most common underground storage tank violations

After evaluating thousands of inspection records, below are the most common violations MPCA tank inspectors cite:

- Cathodic protection testing not conducted on steel tanks and/or piping annually (for impressed current, see question 111), or every three years (for sacrificial anodes, see questions 101 and 102)
- Spill buckets not maintained free of liquid and debris (see question 129)
- Piping tightness not tested annually (see question 88 and 89)
- Line leak detectors not function tested annually (see questions 88 and 90)
- Owners and operators doing tank leak detection with automatic tank gauges not obtaining monthly passing leak tests due to low product levels in tanks (see question 46)
- Owners and operators doing tank leak detection with automatic tank gauges not keeping one “passing” tank leak test per tank per month (see question 48)
- Owners and operators doing pipe leak detection with electronic line leak detectors not recording and keeping leak test results (see question 92)

To all Tank Owners and Operators in Minnesota

The MPCA's Underground Storage Tank (UST) program is responsible for preventing contamination of our state's water resources by adopting regulations for how substances are stored and conducting inspections to ensure compliance with those regulations. We developed this resource to help owners and operators comply with regulations.

Minnesota is receiving more substantial rain events on an annual basis. This makes it important to be mindful of storage tank maintenance and monitoring. Excess rain can fill tank sumps, dispenser sumps, and spill buckets making them not as effective for containing a release. Excess precipitation in these areas can also have a detrimental effect of tank system structures by increasing corrosion or causing specific tank equipment to function improperly if in contact with water for an extended period of time.

This manual provides owners and operators of UST systems with a working resource for answering the most frequently asked questions about UST requirements. These questions were gathered from UST program staffers who have been asked these questions many times over the years.

We have also included a glossary of commonly used terms and an appendix that provides fact sheets and MPCA contact information. The MPCA maintains a large collection of fact sheets which can be found on the MPCA's website. The fact sheets included in this manual provide more detailed information about topics covered in this manual.

This manual contains a site information worksheet which helps you identify the components of your storage tank facility. The worksheet directs you to the sections in the manual that apply to your specific system.

Many different regulations from several different regulatory agencies apply to storing and dispensing petroleum products and hazardous substances. The intent of this manual is to focus on one set of UST regulations — those of the MPCA.

This manual is intended only as a "plain English" guidance to aid the public in understanding and implementing MPCA regulatory requirements. It is not intended to supplement or replace any statutory or regulatory requirements. In the event of any inadvertent conflict between this guidance and Minnesota's statutes and rules, the statutes and regulations take precedent.

This manual can be copied as necessary and is available on the MPCA's website at **www.pca.state.mn.us/storage-tank-publications**. The MPCA thanks you in advance for your efforts to protect the environment.

Regards,

MPCA Tanks Program

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Site information worksheet

See following page for additional information on completing this worksheet.
Numbers in the right column refer to questions in the manual with additional information on the topic.

		Question
A. **MPCA**	Site ID number	16, 21, 22, 23
B. **Site location**	Name	16
	Address	
	Phone number	
C. **Site owner**	Owner name	16, 18, 29, 30, 31
	Owner address	
	Owner phone number	
D. **Tank status**	Active tanks on site	19, 24, 31, 33-40
	Inactive tanks on site	5, 6, 8, 36-39
E. **Tank information**	Tank number	
	Capacity	10-14
	Product stored	11-14
	Tank type	
	Double-walled?	
	Piping type	
	Double-walled?	
	Dispenser type	84, 87

		Question
F. **Tank leak detection**	Check type that applies	
	☐ ATG	46-54
	☐ SIR	55-69
	☐ Manual gauge	70-79, 98, 99
	☐ Interstitial monitoring	80-83
G. **Piping leak detection**	Check type that applies	
	☐ Mechanical	89-91
	☐ Electronic	92-93
	☐ Interstitial	94-97
	☐ Suction	84-86
H. **Corrosion protection**	Check type that applies	
	☐ Sacrificial anode	100-109
	☐ Impressed current	110-117
	☐ Internal lining	118-122
	☐ Jacketed	123
	☐ Fiberglass (n/a)	
I. **Overfill protection**	Check type that applies	
	☐ Automatic shut-off	144-152
	☐ Ball float valve	144-152
	☐ Overfill alarm	144-152
J. **Vapor recovery**		144-152
K. **Other requirements and reference material**	Monthly sump inspections	124-131
	Annual inspections	132-152
	Unusual operating conditions	153-156
	Compatibility	16, 24-28

Site information worksheet guide

Much of the information you need to complete the Site Information Worksheet can be found on the online at **www.pca.state.mn.us/tanks-search**.

You can also reach this page by going to **www.pca.state.mn.us** and entering "tanks site search" in the search box. Click on the link for "Petroleum tanks and leaks site search".

To search the tank database, enter as much of the information on your site as possible, then submit the search. If the database is unable to identify your site, try submitting just the city name and search the list of possible sites until you find your site. (Searching by zip code instead of city name can make searches of large cities easier.) If you need assistance in locating your site, contact the MPCA at the 800-657-3864 and ask to speak with the tank program.

Click on the site ID number to pull up your site information. If you also click on the tank number you should be able to pull up the specifics about each tank.

Be aware that this database is only as accurate as the data that has been submitted. The MPCA is constantly updating data with information that is found during field inspections or provided by updated notification forms from owners. Use this data only as a guide to help you complete the Site Information Worksheet. Please refer to the information contained in the section below to help you verify that the information in the database is correct.

If you determine that the information in the database is inaccurate, please call the MPCA at 800-657-3864 and ask to speak with someone in the tank program or contact your tank service provider.

A. MPCA – Site ID number

Your site ID number can be found by using the MPCA tank database or by calling an MPCA inspector.

B. Site location

This is the physical location of the tanks. This should be a street address and not a PO box or rural route number. If unsure of actual location, contact your local fire department for the emergency response address for your tank site.

C. Site owner

This is the name and address of the tank owner.

D. Tank status

Active – indicate in this box the tanks on site that are currently being used.

Closed – indicate in this box the tanks on site that are no longer being used (if applicable).

E. Tank information

Tank number – assign a number to each tank. This number can correspond with the tank number that is used in your leak detection records.

Capacity – fill in the size of each tank in gallons.

Product stored – specify the product stored (gasoline, diesel, E85, jet fuel, etc.)

Tank type – Since the tank is buried, you are going to have to depend on your records or your tank contractor to tell you what kind of material your tank is made from. Common tank types are:

- **sti-P3®** – This is a steel tank with a protective coating on the outside of it.

- **Fiberglass** – As the name implies, this tank is made from fiberglass material. The most recognizable feature of a fiberglass tank is that it is rounded on each end while the ends of a steel tank are flat.
- **ACT-100®** – sometimes referred to as a composite tank. This is a steel inner tank covered by a heavy layer of urethane resin.
- **Bare steel** – this tank is made of bare steel that either does not have a protective coating or has a coating of tar or asphalt. Bare steel tanks generally are found at sites where the tanks were installed prior to 1985. Some bare steel tanks were later lined on the inside with a coating. It is important that you know if your tank is lined or not. Check with your tank contractor to find out if your bare steel tank is lined or not.

Also specify whether the tank is double-walled. If your records do not specify whether the tanks are double-walled, contact your tank contractor to help make this determination.

Piping type – Checking your records or contacting your tank contractor is the best way to determine what kind of piping each tank has. Sometimes it is possible to determine what kind of piping you have on your tank system by opening up tank sumps or by looking under dispensers. There are 3 basic pipe types:

- **Steel** – There are two types of steel pipes – bare steel and coated steel (green in color).
- **Fiberglass piping** – A rigid pipe made of fiberglass, sometimes referred to as "FRP" pipe (fiberglass reinforced plastic).
- **Flexible piping** – Unlike fiberglass piping, flexible piping can bend. Almost always, flexible piping is used with double-wall piping systems, and there are sumps at each end of the piping. By looking in the sump you should be able to see if the piping is flexible piping or not. Most flexible piping is bright green, blue, or yellow in color.

Specify whether your piping is double-walled. If your records do not specify this, contact your tank contractor to help make this determination.

Dispenser type – There are two types of dispensers used to distribute product from the tank:

- **Pressurized** – In a pressurized piping system, a pump at the top of the tank pushes fuel under pressure to the dispensers.
- **Suction** – In a suction system, the pump is located within the dispenser and pulls fuel from the tank with suction. You can generally see the suction pump, pulley, and belt inside the dispenser if you remove the dispenser access cover.

F. Tank leak detection

Common tank leak detection methods:

- **Automatic Tank Gauge (ATG)** – An electronic instrument that consists of a monitor and a probe installed in a tank that measures inventory and determines if the tank is leaking.
- **Statistical Inventory Reconciliation (SIR)** – A leak detection method that uses daily tank level measurements, and sale and delivery data to determine if a tank is leaking. SIR, which is conducted by a SIR vendor, accomplishes this by computer analysis of daily inventory data.
- **Manual tank gauging** – This method of leak detection can be used on USTs with a capacity of 1,000 gallons or less. It involves measuring the product level in the tank before and after a specific time period (ranging from 36 to 58 hours depending on the size of the tank) and analyzing the difference in beginning and ending measurements.

- **Interstitial** – Interstitial monitoring is a method of leak detection for double-walled tanks. With this method, the space between the walls of the tank (interstice) is monitored either manually (with a gauge stick) or electronically (with a leak sensor).

G. Piping leak detection

Methods of piping leak detection:

- **Mechanical Line Leak Detector (MLLD)** – MLLDs are mounted on the submersible pump that restricts flow of product if a leak is detected (photo 4).
- **Electronic Line Leak Detector (ELLD)** – ELLDs use a sensor in the pipe to detect a leak (photo 5).
- **Interstitial sensor** – also referred to as the sump sensor, often used with double-walled piping (photo 6).

All pressurized piping is required to have an MLLD or an ELLD. Piping installed after December 22, 2007, must use interstitial monitoring as the primary method of line leak detection. Tanks filled with piping under gravity (such as a used oil tank), or safe suction piping (question 82) are exempt from piping leak detection requirements.

H. Corrosion protection

Often it is difficult to determine what type of corrosion protection is installed on a tank or its piping, if it was installed at all. Refer to your tank system records, MPCA records, or your tank service provider to determine which method you have.

The most common types of corrosion protection are:

- **Sacrificial anode** – a dielectric coating and anodes connected to the tank to protect it from corrosion.
- **Impressed current** – anodes buried in the ground next to the tank carry an electric current which protects the tank from corrosion.
- **Internal lining** – lining applied to the interior of the tank after it was installed.
- **Isolation** from contact with soil – the tank is constructed in such a way as to prevent soil from touching it. These tanks are often called composite or Act-100 tanks.
- **Fiberglass** – a tank made of fiberglass does not require corrosion protection.

I. Overfill protection

Three basic types of overfill protection is installed on tanks. They are:

- **Automatic shutoff valve** – This device is installed in the fill pipe, and can be identified by looking down the fill pipe. If you have an automatic shutoff valve installed, you can see the inside diameter of the fill pipe is partially blocked by the valve, which should be set at the 95% level of the tank (photo 12).
- **Ball float valve** – This is installed where the vent pipe connects to the tank and extends down into the tank. Since the vent pipe/tank connection is usually buried, it is difficult to determine if a ball float valve is installed. Your tank service provider may be able to help you determine this.
- **Overfill alarm** – The alarm must activate when the tank is 90% full. The alarm **must** be installed outside where the delivery person can hear it and shut down the delivery (photo 11).

J. Vapor recovery

Required at all retail sites selling gasoline within the seven-county metro area. (Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington counties).

K. Other requirements and reference materials

- Monthly Sump Inspections
- Annual Inspections
- Containment Sump and Spill Bucket Three Year Integrity Testing
- Unusual Operating Conditions
- Compatibility

Testing/inspection frequencies

Automatic tank gauge alarms **(new requirement)**	Monthly
Dispenser sump visual inspection	Monthly
Riser caps and drop tubes **(new requirement)**	Monthly
Spill bucket visual inspection	Monthly
Tank leak detection	Monthly
Tank sump visual inspection	Monthly
Tank water levels monitored **(new requirement)**	Monthly
Impressed current rectifier check	Every 60 Days
Automatic tank gauge certification* **(new requirement)**	Annually
Automatic tank gauge probe function test* **(new requirement)**	Annually
Handheld tank gauging equipment inspection* **(new requirement)**	Annually
Impressed current cathodic protection test (tank and/or piping)	Annually
Piping leak detection (pressurized) • 0.1 gallons per hour or • 0.2 gallons per hour	Annually Monthly
Line leak detector function test* (mechanical and electronic)	Annually
Sump sensor test*	Annually
Tank interstitial sensor test*	Annually
Visual inspections of containment sumps, spill buckets, and hand held leak detection materials* **(new requirement)**	Annually
Containment sumps used for interstitial monitoring integrity test* (tank and/or dispenser) **(new requirement)**	Every 3 years
Overfill protection function test* **(new requirement)**	Every 3 years
Piping leak detection* (non-safe suction)	Every 3 years
Sacrificial anode cathodic protection test* (tank and/or piping)	Every 3 years
Spill buckets integrity test* **(new requirement)**	Every 3 years
Internal lining inspection*	Every 5 years

** Must be performed by an agency-approved tester*

Photographs

Photo 1: Examples of Automatic Tank Gauges (ATGs)

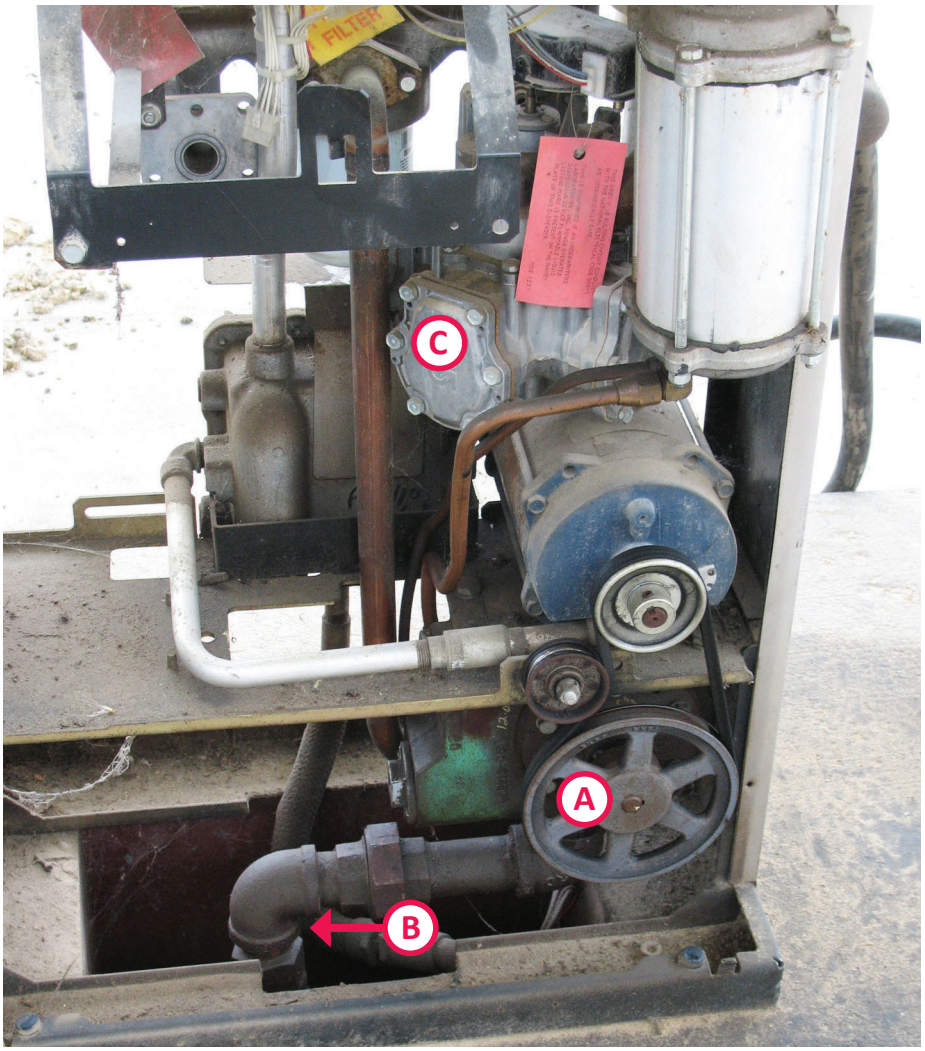


Photo 2: Safe suction dispenser indicated by the presence of the pump (A) in the dispenser and a check valve (B) on the piping. Gaskets (C) on meters can degrade and start leaking over time.

Photo 3: Pressurized dispenser. The shear valves (A) are located at the point where the piping is even with the concrete. The fuel filters (B) and the piping unions (C) are above the shear valves and are susceptible to leaking, especially in cold weather. Gaskets (D) on meters can degrade and start leaking over time. The pumps supplying the pressurized dispenser are located at the tank.

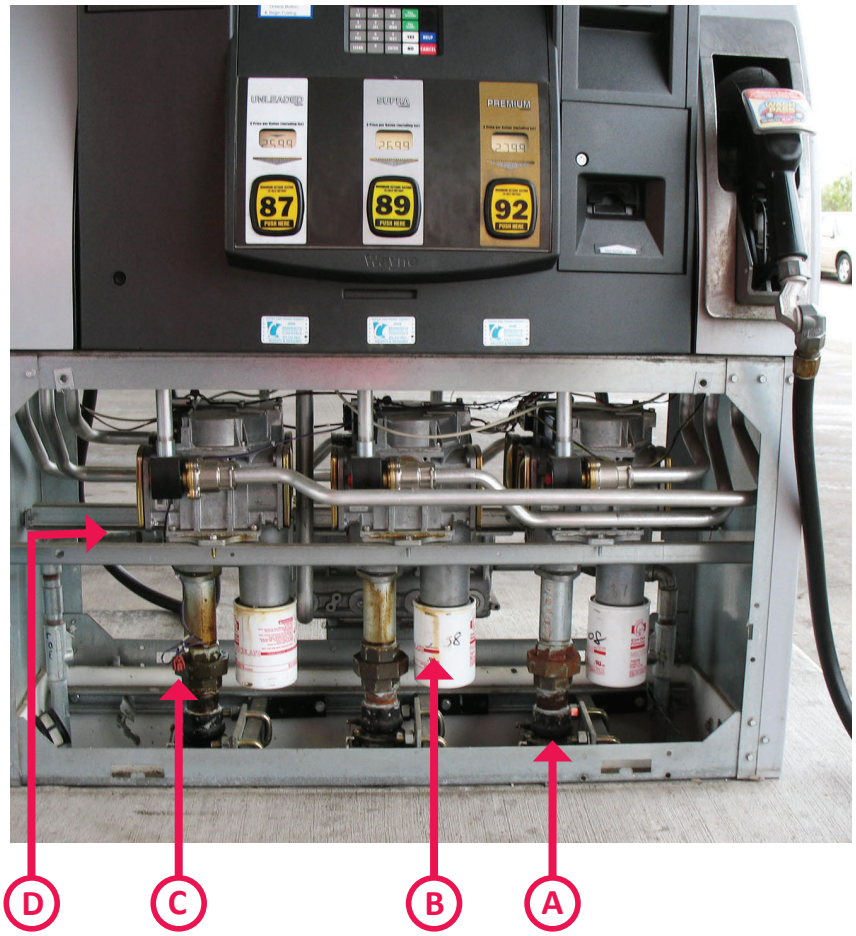


Photo 4: Examples of mechanical line leak detectors (MLLDs).

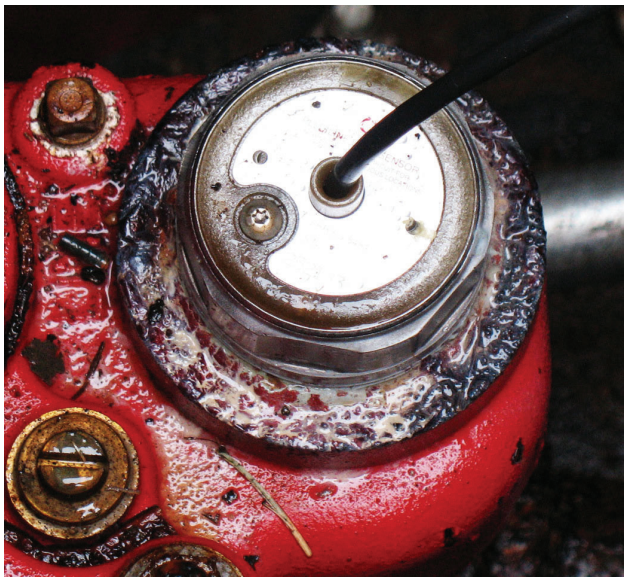


Photo 5: Example of an electronic line leak detector (ELLD).

Photo 6: Examples of sump sensors.

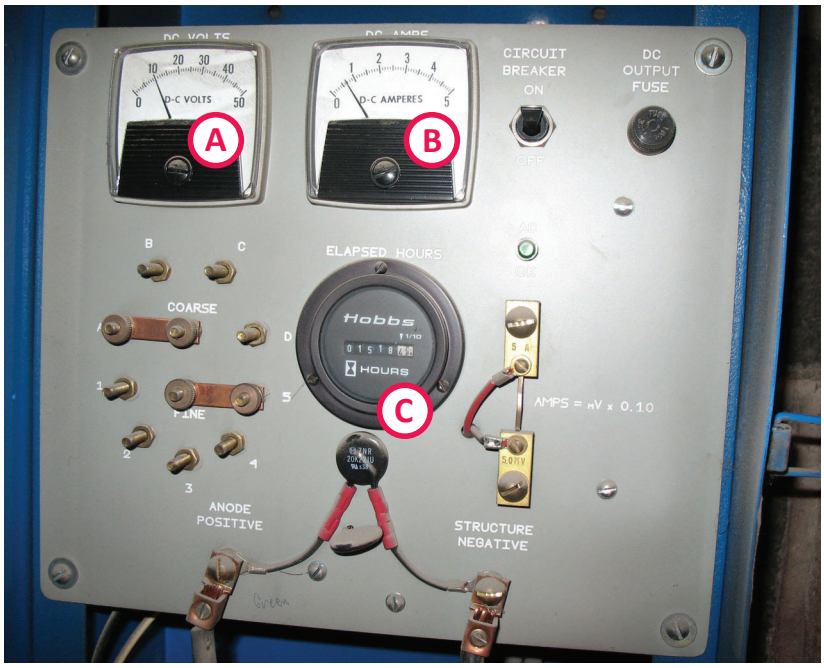


Photo 7: A common rectifier for an impressed current cathodic protection system. The photo shows the volt meter (A) and ampere meter (B). Neither meter should read zero if the rectifier is functioning properly. Some rectifiers also have an hour meter (C).

Photo 8: Contained tank sump showing the submersible pump. Rubber boots (A) seal the sump at all penetration points. These are susceptible to cracking and tearing.

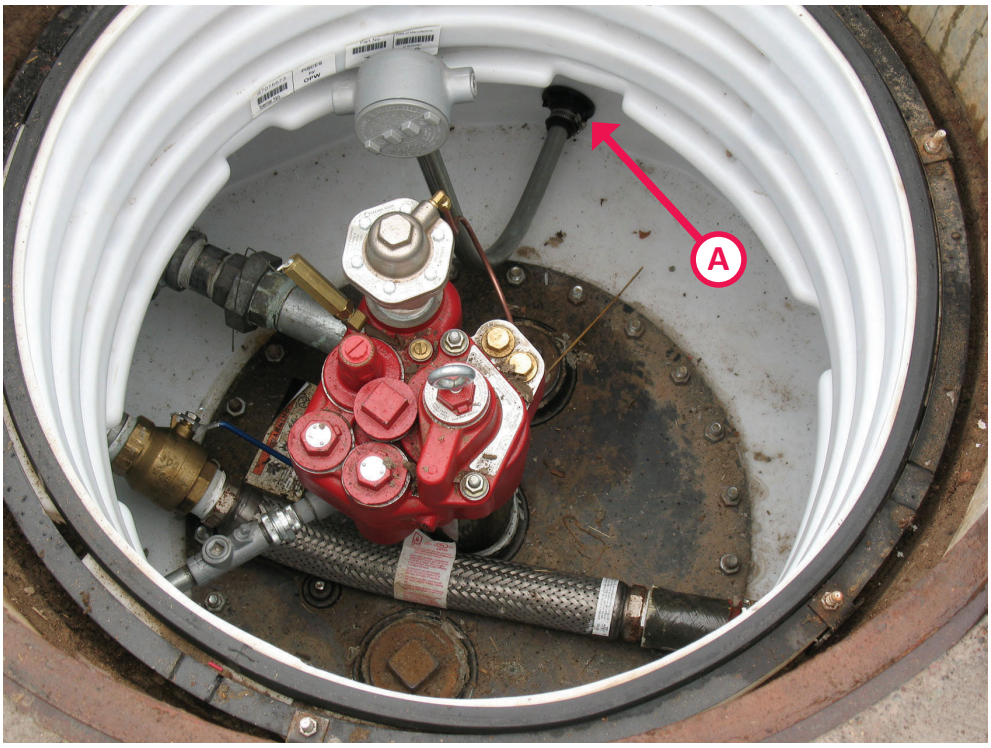
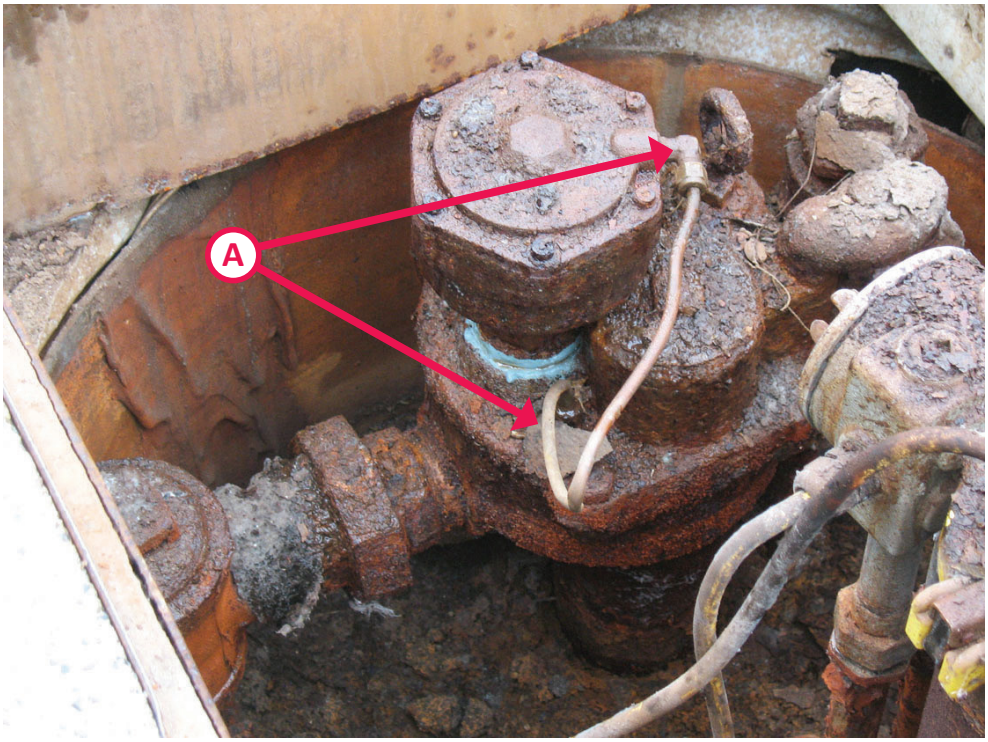


Photo 9: Uncontained tank sump showing the submersible pump, which has a mechanical line leak detector. The copper line (**A**) is susceptible to leaking.



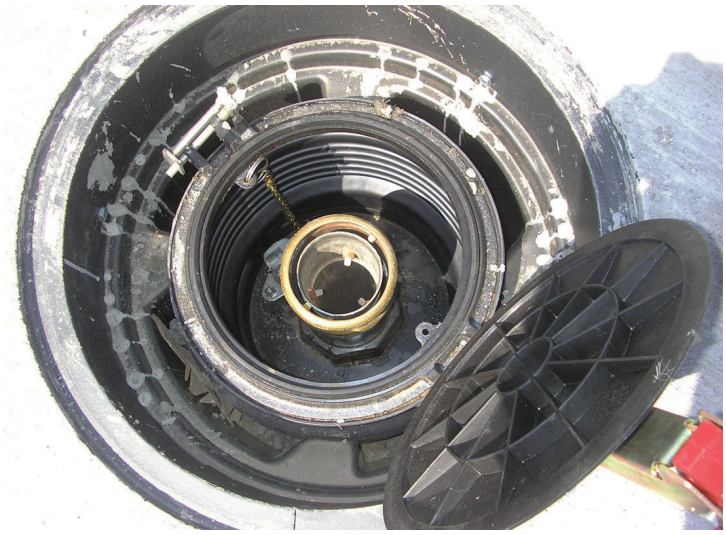


Photo 10: Spill bucket

Photo 11: Examples of overfill alarms. Some alarms only come with horns (left) and some also feature warning lights (right).

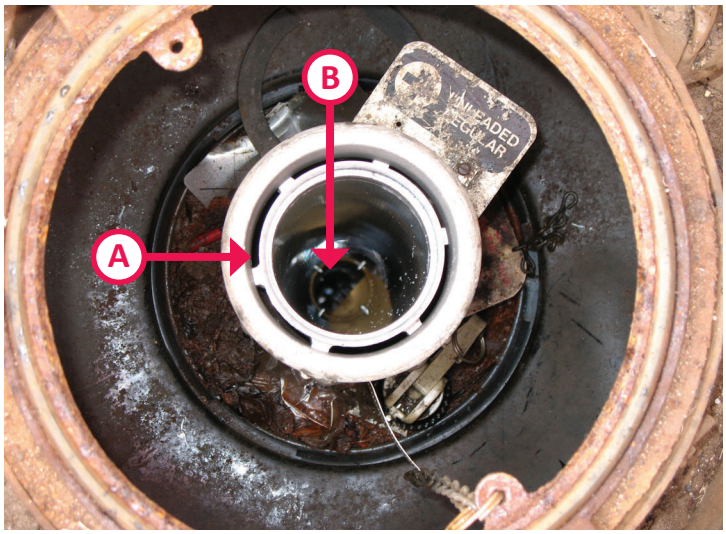


Photo 12: Coaxial stage one vapor recovery. The space (A) between the inner drop tube and the outer drop tube allows the vapors to be recovered while product is added to the tank. The automatic shutoff (flapper) valve overfill protection is shown as an obstruction partway down the drop tube (B). It is located below the top of the tank.

Photo 13: Dual point vapor recovery. Vapors are recovered from the riser on the left. A probe cover sump is on the right. A ballfloat is the overfill protection.

Photo 14a: The small vent cover (**A**) is a regular rain cover for diesel tank systems, which do not require stage one vapor recovery. The rest of the vent pipe covers are pressure vacuum covers.

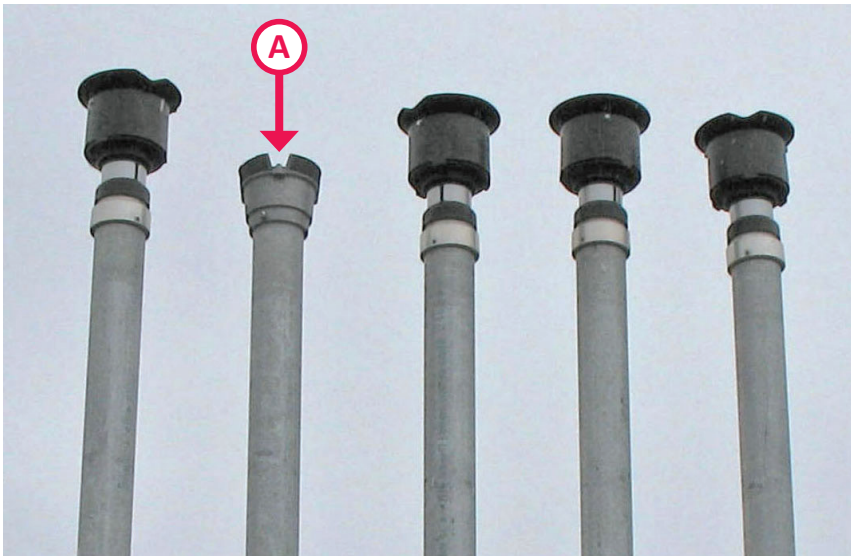


Photo 14b: Close up of the pressure vacuum vent covers.

MPCA tanks regulation at a glance

1. What is the purpose of the MPCA storage tanks program?

The MPCA storage tanks program protects the waters of the state from contamination due to leaks of petroleum, hazardous substances, and other potentially harmful substances. This is done by ensuring underground storage tank systems comply with MPCA storage tank requirements. The MPCA educates storage tank owners about rules, conducts routine inspections of tank systems, and issues enforcement actions for violation of the rules.

2. The inspector from Weights and Measures checked my dispensers and fuel the other day. Is the MPCA affiliated with Weights and Measures?

No. Weights and Measures is part of the Minnesota's Department of Commerce and is responsible for regulating fuel quality, metering accuracy, fuel pricing, and other consumer-related issues.

The MPCA is a separate state agency that conducts its own inspections of underground storage tank systems. MPCA inspections include checking leak detection and corrosion protection records, spill and overfill prevention equipment, and general maintenance. MPCA tanks inspectors are based in offices throughout the state and conduct inspections on a regular basis. The MPCA also inspects aboveground tanks. The federal Environmental Protection Agency (EPA) occasionally inspects storage tank sites in Minnesota as well.

3. Is a license or certification required to operate an underground storage tank?

Yes. People who own or operate underground storage tanks must pass an MPCA online exam and have the option of taking online training courses. The specific class and exam taken will depend on the individual's job duties and the site's tank system components. More details on training and certification can be found at **www.pca.state.mn.us/waste/underground-storage-tank-systems** or by contacting the MPCA at 800-657-3864 and asking to speak to a storage tank inspector.

Documenting compliance

Recordkeeping is one of the most important aspects of maintaining your system. Records, such as cathodic protection testing, leak detection records, monthly visual sump inspection sheets, and certifications must be made available upon MPCA request. Records must be kept at the site or may be at an alternate location, such as a corporate office, provided that the records are immediately available. Recordkeeping can also be helpful to tank repair contractors who need to troubleshoot the system, leading to timelier and cheaper repairs.

4. What records must I keep for my tank system, and how long must I keep them?

You must keep the following records:

- Operator certification and/or training records – until termination of employee.
- Tank leak detection results – 5 years.
- Piping leak detection results – 5 years.
- Cathodic protection test results – 3 years.
- 60-day rectifier check results for impressed current systems – 3 years.
- Record of monthly submersible pump, dispenser, and spill bucket inspection results – 5 years.
- Record of all maintenance and repairs made to tank systems – retain for life of tank system.
- Annual leak detection certifications – 5 years.
- 3 year integrity testing of containment sumps and spill buckets – 5 years.
- 3 year functionality test of overfill protection – 5 years.
- Internal lining inspection results for internally-lined tanks – retain for life of tank system.

Be sure to review the records to ensure each test is "passing" and the inspection or repair reports indicate that the UST system is in compliance.

5. Where should I keep my records?

Records should be kept at the tank site and be immediately available for inspection. Records can, however, be kept at an alternate location as long as they are immediately available for inspection.

6. Is it acceptable to store my records on the ATG monitor?

No. Records can be stored in a separate physical location, photocopied, emailed to a computer hard drive, or sent from the ATG monitor to a computer. Damage to the ATG monitor could result in the loss of all records if the records are not stored in a secondary location.

7. Are there any requirements for how I organize my records?

No. However, the MPCA recommends keeping records in a single, organized file. Keeping records in separate files or in a disorganized manner increases the risk of records being lost. It will also increase the duration of a MPCA inspection because the inspector must sort through files.

8. Should I make copies of my records?

It is a good idea to make and keep copies of all records, especially ATG leak test printouts. The ink on these printouts fades over time and will eventually become unreadable. Photocopying them will ensure a legible copy is maintained.

9. If I sell my station, should my records be transferred to the new owner?

Yes. Tank records provide a history of the tank and therefore should stay with the tank site.

Exemptions from underground storage tank regulations

Due to different sizes, construction, and uses of underground tanks, different regulations apply to different tanks. With the exception of heating oil tanks, most tanks containing petroleum products or hazardous substances are fully regulated, but some exemptions apply in specific situations, as described below.

10. I have a 1,000-gallon heating oil tank for my shop. Is this tank regulated?

If the tank is used only for heating the building where it is located, then it is not subject to MPCA regulations. Tanks of 1,100 gallons or less that are used strictly for heating the building are exempt. This means the tank does not have to be registered and leak detection requirements do not apply, although the MPCA strongly recommends that the product level in the tank be routinely checked to help prevent contamination by a leaking tank or pipe.

A heating oil tank is subject to Fire Code regulations which are administered by the State Fire Marshal's Office (SFMO). These regulations are usually enforced through the local fire department or, in some cases, a Fire Marshal. The telephone number for the SFMO is 651-201-7200.

11. I have a 1,000-gallon used oil tank at my station. I use the oil for heating the building. Is this tank regulated?

If this tank is used only for heating the building where it is located, it is not subject to MPCA regulations as long as the used oil has not been removed for disposal – for example, pumped out for disposal or recycling. Used oil tanks of 1,100 gallons or less that are used only for heating the building where they are stored are exempt. This means the tank does not need to be registered and leak detection requirements do not apply. The MPCA strongly recommends, however, that the product level in the tank be routinely checked to help prevent contamination by a leaking tank or pipe.

Used oil tanks are fully regulated if excess used oil is picked up by an oil recycler. It does not matter if the tank is used for heating purposes or not.

This tank is subject to Fire Code regulations which are administered by the State Fire Marshal's Office (SFMO). These regulations are usually enforced through the local fire department or, in some cases, a Fire Marshal. The telephone number for the SFMO is 651-201-7200.

12. The local fire inspector stopped by and told me I need an emergency shut-off switch outside. Is this required?

Yes. The MPCA follows the Minnesota State Fire Code that requires emergency shut-off switches that are readily available and visible to persons dispensing fuel to shut down the tank system in the event of an emergency.

13. The church I attend has an 8,000 gallon heating oil tank. Is this tank regulated?

Yes. Heating oil tanks larger than 1,100 gallons are partially regulated by the MPCA. This tank must be registered, and the MPCA must be notified if the tank is to be removed or if new piping or corrosion protection equipment is added to the tank. MPCA-certified contractors must perform any of the above work on the tank. If this tank was installed after August 1, 1985, the tank must be protected from corrosion or constructed of material that will not corrode, such as fiberglass. Any piping installed on this tank after June 1, 1991, must be protected from corrosion as well. Although it's not required, the MPCA recommends

testing the corrosion protection system periodically. Leak detection is not required on this tank, but the MPCA recommends that product level in the tank be routinely checked to help prevent contamination by a leaking tank or pipe.

14. I have a 4,000-gallon tank for an emergency generator. Is this a regulated tank?

Yes. Emergency generator tanks are fully regulated. Fully regulated tanks are required to have all the necessary testing done as stated in our rules.

15. I would like to install a 4,000-gallon tank to use for storage of fuel for emergency power generation. Does this tank have to be double-walled?

Yes. Tanks installed after December 22, 2007, that are larger than 110 gallons and used for storing fuel for emergency power generation must be double-walled. This requirement applies even if the tank is "dual use," meaning it is used both for emergency power generation and heating.

Registration and notification procedures

Tanks must be registered with the MPCA and the MPCA must be notified of changes in the tank system. This section answers common questions about the notification process.

16. What do I need to notify the MPCA Tanks Program about?

Copies of these forms can be found in the Appendix or by visiting the MPCA's website. For assistance contact a UST tank inspector at the nearest MPCA office or call the MPCA toll free at: 800-657-3864.

10-Day Advance Notice form

- Used for installation, replacement, or repair of a UST system including:
  - Tanks, piping, linings, containment sumps, and corrosion protection systems.
  - Permanent closure.
  - Inspection of a lining on an internally lined tanks as well as retrofit tanks.
- Excludes dispensers and exposed components below grade that can be visually inspected.
- If the scheduled start date of the job changes by more than 48 hours, the MPCA must be re-notified of this change. Even though these notifications are often given by the MPCA-certified contractor performing the work, the tank owner or operator is responsible for making sure that notifications are submitted to the MPCA.

30-Day Notification form for Underground Storage Tanks – used for:

- A notification form must be submitted within 30 days after bringing the tank systems into use for the following:
  - Installations
  - Tank/pipe replacements
  - Dispenser replacements
  - Change or replacement of any tank component
  - Permanent closure
- This requires both an owner and tank contractor signature.

This form may be submitted online and/or emailed to: undergroundstoragetanks.pca@state.mn.us.

UST Change in Status form

- A change in status form must be submitted within 30 days after making a change in status or information, including the following:
  - Ownership change
  - Address change
  - Temporary closure
  - Change in stored product
  - 30-day advance notice to store biofuels (ethanol content greater than 10% and biodiesel content greater than 20%.

This form may be filled out by the owner and submitted online and/or emailed to undergroundstoragetanks.pca@state.mn.us.

Compatibility form (30 Days Prior to Activation)

- All UST systems must be compatible with the product that is being stored.
- UST systems that encounter biofuels must demonstrate compatibility before introducing said product. (Ethanol content greater than 10% and biodiesel content greater than 20%.)
- Owner/operator must submit a completed compatibility form to the MPCA if their system is described above.
- Owner/operator may upgrade their system with secondarily contained retrofit systems in order to be compliant.

17. What does the MPCA mean when they refer to exposed components below grade?

The components that are exposed below grade and can be visually inspected include the following and do not require a 10-Day Advance Notice form:

- Pipe sections that are visible after the work is completed
- Repair or replaced secondary containment sump boots where piping and containment sumps are not altered/removed.
- Automatic shutoff overfill protection devices
- Spill buckets
- Drop tubes
- Overfill alarms
- Automatic tank gauge probes
- Vapor recovery equipment
- Vent lines where work is performed above the ground surface.

18. I just bought a gas station. Who should I notify and when?

You are required to file a "**UST Change in Status**" form (described in question 16) within 30 days after taking possession of the gas station or tank systems. The form is available in the Appendix of this book or on the MPCA website. For assistance contact a storage tank inspector at the nearest MPCA office or call the MPCA toll free at: 800-657-3864.This form must be completed and sent back to the MPCA at the address on top of the form. The seller is also required to submit written notice to the buyer of their responsibility to notify the MPCA.

19. Do I have to notify the MPCA if I make a change to my tank system?

Yes. The MPCA must be notified of changes including change in product stored, changes in leak detection method or equipment, or changes of corrosion protection within 30 days of the change, using the "30-Day Notification Form for Underground Storage Tanks".

20. Do I have to notify the MPCA if I close my tank?

Yes. The MPCA must be notified within 30 days after the change, using the "30-Day Notification Form for Underground Storage Tanks".

21. Do I have to register my tank?

If your tank is larger than 110 gallons, contains a petroleum product or a hazardous substance, and the product is or was used for commercial use, such as commercial motor vehicles or equipment, the tank must be registered with the MPCA.

Farm or residential tanks of 1,100 gallons or larger used for storing motor fuel for noncommercial purposes are fully regulated.

If you have questions regarding the registration status of your tank(s), call your nearest MPCA office or contact the MPCA toll free at 800-657-3864.

22. When do I have to register my tank?

Once the tank is installed, it must be registered within 30 days using the "30-Day Notification Form for Underground Storage Tanks". Both the owner and the MPCA-certified contractor who installed the tank must sign the UST Notification form.

23. Is there a cost to register my tank?

No. The MPCA does not charge a fee to register tanks. However, check with the community where your facility is located, since a local permit or license fee may be required.

24. I'm replacing product piping and dispensers. Do I have to notify the MPCA?

Yes. You must notify the MPCA:

- 10 days in advance of the replacement.
- 30 days after the completion of the work.
- 30 days prior to site activation for compatibility if storing biofuels greater than E10 or B20.

Use the appropriate forms discussed in question 16.

You are also required to submit a "30-Day Notification Form for Underground Storage Tanks" to the MPCA if you replace product dispensers, even if no other changes are made to the associated product piping.

25. I bought a gas station and I want to sell E85. What is required to ensure my tank system is compatible with E85?

Consult with your MPCA-certified contractor to ensure your tank system is compatible with the products you are storing.

26. What are my options if my tank system is not compatible with the product I want to store?

You have the following options in order to upgrade your tank system to meet compatibility:

- Permanently close the existing tank system and install a new tank system
- Install a retrofit tank inside an existing incompatible tank
- In some instances, just certain tank components such as leak detectors, tank probes, dispensers, etc. need to be replaced to meet the compatibility requirement.

27. Who do I talk to about installing a retrofit tank?

Contact your tank contractor for more information.

28. If I install a retrofit tank, can I keep the existing piping?

No. A retrofit tank is considered a new tank and the piping must be replaced. The new piping must meet the compatibility of the product stored and be double-walled. If the existing piping is double-walled, capable of doing interstitial monitoring, and compatible with the product stored then the piping does not have to be replaced.

Owning, leasing, or purchasing property with a tank

There are many things to consider when purchasing property with a tank. This section answers common questions about owning, leasing and purchasing property with a tank.

29. Who is responsible for compliance with MPCA storage regulations at my site?

MPCA rules state that both owners and operators of tank sites are responsible for maintaining compliance with tank regulations. This means you are responsible whether you own, lease, or operate a tank system. All of these parties can be held responsible simultaneously for violations of tank rules.

30. Is a certification required to operate an underground storage tank?

Yes. Owners and operators of underground storage tanks must pass an MPCA online exam. The specific class and exam taken will depend on the individual's job duties. More details on training and certification can be found at **www.pca.state.mn.us waste/ underground-storage-tank-systems**. If you have questions regarding the required certification, call your nearest MPCA office or contact the MPCA toll free at 800-657-3864 and ask for a storage tank inspector.

31. I am thinking about buying a tank site. What should I know before I decide to buy it?

The current owner and operator are both responsible for addressing contamination and tank compliance issues, even if those issues existed before the site was purchased. (Minnesota Statute §115C.021 states "a person is responsible for a release from a tank if the person is an owner or operator of the tank at any time during or after the release.")

Prior to purchase, it is advisable to request information from the current owner regarding the condition of the tanks and piping, any installation or upgrade work that has been performed, leak detection records, and corrosion protection test records. You should also ask whether or not a petroleum release has occurred from the tank system.

Contact the MPCA if you have any regulatory questions about the purchase of a tank facility or if you need specific information about a particular site. The MPCA maintains a database that includes general information about tank systems and any leaks that have been reported.

32. The gas station I'm planning to buy has been closed for a while. What do I need to do to start using the tanks again?

Regulations differ depending on how long the station has been closed.

If the station has been closed for less than one year, you must ensure that the system is in compliance before it is brought back into service. If you purchase the site, you will be responsible to correct compliance issues. A tank service provider can help you determine whether the site is in compliance. MPCA must be notified within 30 days after the tanks are brought back into service, using the 30-day Notification Form for Underground Storage Tanks.

You must receive MPCA approval before you can put the tanks back into service if they've been closed for one year or more.

The MPCA will advise you as to what testing must be conducted to ensure the UST has not degraded while it was out of service. Unless an extension has been applied for and granted by the MPCA, the tanks must be permanently closed. Permanent closure means either removing the tanks or filling them in place. Local ordinances or fire codes may have more stringent requirements than the MPCA.

Tanks that are inactive for 5 years or more cannot be placed back into service and must be permanently closed.

MPCA inspectors may affix an "Orange Tag" to the fill pipes of inactive tanks they encounter. The tags contain MPCA contact information.

Working on tank systems

Prior to having work performed on your UST systems, you need to be aware that only MPCA-certified tank contractors are allowed to work on your tank system. Owners and operators also need to be aware that certain activities may require you to upgrade your tank system to bring it into compliance with tank requirements. This section answers common questions about this process.

33. I am planning to install a new tank. Who can install it?

If your tank is regulated under MPCA rules, only MPCA-certified contractors can install a new tank. A list of MPCA-certified contractors can be found online at **www.pca.state.mn.us/waste/underground-storage-tank-systems**.

34. Who can install and repair piping on my tanks?

If your tank system is regulated under MPCA rules, only MPCA-certified contractors can install or repair piping.

35. I'd like to install a new tank. Does the system need secondary containment?

Yes. Except for heating oil tanks, all new tanks must be secondarily contained. If you're installing a new tank, you must also replace the piping. Any new or replacement piping needs to be double-walled and have liquid-tight containment sumps under the dispenser and at the submersible pumps. Your MPCA-certified contractor should be familiar with these requirements.

36. Do I need to add secondary containment for my existing system?

No. Unless you are making certain repairs or upgrades to an existing system, you are not required to add secondary containment. Some examples of when secondary containment is required on an existing system are:

- If an existing piping run has leaked.
- If an existing piping run has failed due to corrosion or has developed corrosion pitting.
- If replacing more than 10 feet of existing piping.
- If removing or replacing submersible pump head.
- Replacing dispensers if work is done below the shear valve (pressurized piping) or piping union (suction piping).
- Replacing dispenser islands or disturbing base material directly below the dispenser.
- Adding a new piping segment, regardless of length.

Secondary containment means a tank and/or piping has an outer containment wall (double-walled) and components in sumps are contained. Secondary containment captures any leaks and prevents petroleum and hazardous substances from releasing to the environment.

37. I am installing new containment sumps. Do they need to be double-walled?

Unlike tanks or piping, containment sumps are designed to continuously hold a product, therefore you are not required to install double-walled containment sumps. Refer to your tank contractor to discuss what works best for your tank system.

38. I'm replacing my shear valves. Are there any new requirements for shear valves?

New and replacement shear valves are required to be a double poppet design. Double poppet shear valves reduce the risk of a release and fire if your dispenser is damaged in an accident. Additionally, the manufacturer's requirements must be followed for anchoring the shear valves to function properly. When installing the shear valves, the shear points on the valve must be positioned within ½ inch of the top of the concrete island or base material beneath the dispenser.

39. I am planning to remove my underground tanks. Who can remove them?

An MPCA-certified supervisor must be on-site during the removal of a regulated tank system. Actual removal work can be conducted either by an MPCA-certified contractor or any general contractor as long as an MPCA-certified supervisor is onsite during all critical junctures. If your tank was used solely for heating, it is partially regulated, depending on the size of the tank. Contact the MPCA with questions regarding removal of heating oil tanks.

40. I am planning on replacing my dispensers. Who can replace my dispensers?

Only an MPCA-certified contractor can install or replace dispensers. The MPCA must be notified after the project using the forms described in question 16.

Checking for leaks

Regulated tanks and piping must be checked for leaks periodically and you must retain records to document compliance, as described below. Leak testing generally must be conducted once a month, but some piping designs allow testing to be conducted once a year. Records of leak testing must be kept for 5 years.

41. I have a tank smaller than 1,100 gallons. Do I need to conduct leak detection on it?

Yes. If your tank is larger than 110 gallons and is used for petroleum or hazardous substance storage, then your tank is regulated and you must provide leak detection. However, if your tank is 1,100 gallons or smaller and is used for private residential use, it is exempt.

42. I have a small used oil tank that I stick every once in a while to see if it needs to be pumped. Is this adequate leak detection?

No. Sticking your tanks "every once in a while" is not precise enough to detect small leaks. You must use an approved form of monthly leak detection on this tank.

43. What's the easiest approved leak detection method to use for my small used oil tank?

Manual tank gauging can be used as leak detection for tanks 1,000 gallons or less for the life of the tank. This method involves shutting the tank down once a week by not adding or removing product for a minimum of 36 hours, then checking the tank for a change in product level between starting and ending levels. For complete instructions on manual tank gauging, refer to the "Manual Tank Gauging section" of this book.

44. I have a 1,000-gallon gas tank, and I'm open for business Monday through Friday. What is the easiest approved leak detection method to use for this tank?

If you can shut down the tank for a minimum of 36 hours once a week, not adding or removing product, then you can use manual tank gauging described in the previous question. This method involves shutting the tank down once a week for a period of time and measuring product level while the tank is out of use.

45. I have a 1,000-gallon gas tank, and I'm open for business 7 days a week, so I can't meet the minimum shut-down time for manual tank gauging. What are my options?

You must use another form of leak detection, like an automatic tank gauge or Statistical Inventory Reconciliation (SIR). If the tank is double-walled, you may use interstitial monitoring. If the tank(s) were installed after December 22, 2007, you are required to use interstitial monitoring.

Automatic Tank Gauges (ATG) used for leak detection

46. What is an automatic tank gauge (ATG)? (See photo 1.)

An ATG is an electronic instrument installed in an underground tank system that measures inventory and determines if the tank is leaking. Each ATG contains a probe wired to an electronic monitor. The monitor usually has a printer for printing results, a screen that displays results, and an alarm that sounds if there is a problem. This method can be used as the primary method of leak detection only for tanks installed before December 22, 2007. Tanks installed after December 22, 2007, must use interstitial monitoring as the primary form of leak detection, although an ATG may be used as secondary leak detection method.

The ATG must be operated according to manufacturer's recommendations and third-party certifications. Special conditions on the use of an ATG may apply on some systems; for example, there may be restrictions on whether the ATG can be used with manifolded tank systems. Depending on the ATG, leak detection tests can either be static (4 or more hours of shutdown time is needed) or continuous (no extended shutdown time needed due to testing being conducted during the periods when the pump is not running). Both types of tests are acceptable.

47. My automatic tank gauge gives me an inventory printout every day. Is this all I need for leak detection?

No. In addition to tracking inventory, you must also obtain a valid "passed" leak test at least once a month for each tank. To ensure you obtain at least one monthly "passed" result, MPCA recommends that you perform a leak test more often than once a month (daily or weekly).

48. My automatic tank gauge prints out a leak test result every day. Do I need to keep all these printouts?

No. The minimum requirement is to keep one "passed" result per tank per month. These records must be kept for at least 5 years. The ink on these printouts fades over time and will eventually become unreadable, so it is a good idea to make and keep photocopies of the test results or store them electronically, such as on a computer hard drive.

49. Will my automatic tank gauge sound an alarm if it finds a leak?

Not necessarily. You must look at ATG printouts to determine if the tank is leaking. A "failed" leak test result could mean that the tank has a leak.

50. If my automatic tank gauge reports a "failed" or "invalid" leak test, what do I do?

A "failed" leak test could mean the tank is leaking. Run another test as soon as possible, preferably the next night. If that also fails, you must investigate the cause of the failed results. The investigation can be done by your tank service provider. **If a leak is found, or if the cause of the "failed" result cannot be determined, you must immediately report a suspected release to the Minnesota Duty Officer at 800-422-0798.** Failing to do so may result in penalties and increased cleanup costs. Your tank service provider can help you determine the cause of a "failed" leak test.

An "invalid" result could mean different things, such as low product level, pumping activity during the leak test, traffic vibrations, a recent fuel delivery or a malfunctioning probe. Run another leak test as soon as possible. If you cannot determine why the results are "invalid," your tank service provider can help you determine the cause of an "invalid" leak test.

51. Do I need to test my automatic tank gauge each year?

An agency-approved tester must certify the ATG annually to make sure the date and time are correct on the monitor, that the gauge is functional and calibrated properly, alarms are functioning, and the test results are readable. Power outages and lightning strikes can damage ATGs by resetting clocks or the timing of leak tests. Incorrect dates on leak detection receipts are a violation of tank rules.

52. Do I need to keep records of my leak tests?

You must obtain and retain at least one "passed" leak test per tank per month for a minimum of 5 years. The ink on these printouts fades over time and will eventually become unreadable, so it is a good idea to make and keep copies of the test results.

53. Once a MPCA inspector checks my tank leak test records, can I throw them away?

No. You must retain these results to prove compliance with leak detection requirements for a minimum of 5 years. Such records can also be useful to you if you ever decide to sell the station as proof of compliance with leak detection requirements.

54. Do I have to check my tanks for water?

Yes. Once a month, you must check your tanks for water. The presence of water can be an indication that the tank has a leak. ATGs do this automatically, but most people use water finding paste on a gauge stick to check for water because the ATG sometimes fails to detect water properly. Contact your service provider or fuel delivery company who can help you determine which type of paste will work for your tank.

Statistical Inventory Reconciliation (SIR) as leak detection

55. What is statistical inventory reconciliation?

Statistical inventory reconciliation, or SIR, is a leak detection method that uses daily tank level measurements and sale and delivery data to determine if a tank is leaking. SIR accomplishes this by computer analysis of daily inventory data by an SIR vendor. Those who use SIR must measure their tanks each operating day, read the gallons pumped from each dispenser, and record the data. At the end of the month, these records are sent to an approved SIR vendor, where the records are analyzed for trends to determine if a leak could be occurring. SIR methods provide leak detection for both the tank and the associated piping. Because of this, additional tank testing and line tightness testing is not required, unless the SIR method indicates that a leak exists and further confirmation is required. **An annual function test of electronic or mechanical line leak detectors must still be completed.** In order to use SIR, you must use an approved SIR vendor and follow their procedures. This method can be used as the primary method of leak detection only for tanks installed before December 22, 2007. Tanks installed after December 22, 2007, must use interstitial monitoring as the primary form of leak detection, although SIR may be used as a secondary leak detection method.

56. My tanks are on a SIR program. Do I need to keep all monthly results?

Yes. A copy of the monthly SIR results for each tank must be kept on file for at least 5 years. **Be sure to review your results carefully and make sure all tanks "pass". The vendor will not necessarily notify you if one or more tanks "fail".**

57. Do I need to report if the SIR result for my tank says it failed or is inconclusive?

Yes. A result that says "fail" must be reported immediately to the Minnesota Duty Officer at 800-422-0798. Failing to do so may result in penalties and increased cleanup costs.

A result of "inconclusive" means the vendor could not verify that the tank was tight. **If you get "inconclusive" results 2 months in a row, it must be treated as a "fail" and must be reported to the Minnesota Duty Officer at 800-422-0798 immediately as a suspected release.** Failing to do so may result in penalties and increased cleanup costs.

58. What else should I be aware of regarding SIR?

Some SIR vendors start over at zero for overages or shortages each month. This means a cumulative shortage for the previous month of 250 gallons, for example, is not carried over to the next month. Dropping shortages at the end of a month and starting over at zero may conceal a persistent small leak. For this reason, it is a good idea to track monthly overages and shortages using inventory control for trends that do not balance out, such as several months of shortages in a row.

Also, be sure all your dispensers are properly calibrated so your data is as accurate as possible.

59. Can I use my automatic tank gauge instead of a gauge stick for taking tank measurements?

Yes. ATG measurements can be used in place of actual stick measurements; however, periodically compare measurements from the tank gauge with an actual stick measurement to make sure the gauge reads correctly. Your ATG must be tested annually by an agency-approved tester to ensure you are receiving accurate readings. You still need to physically check each dispenser for gallons pumped each operating day.

60. How can I make measurements if I don't have an automatic tank gauge?

Measurements can be made using a gauge stick. The measurements must be made with a stick that is not worn, warped, or broken. Your gauge stick must be inspected annually by an agency-approved tester to ensure you are receiving accurate readings. If you do not have a stick or your stick is in poor condition, contact your tank service provider for a new stick.

When taking measurements with a gauging stick, do not drop the stick into the tank. Dropping the stick into the tank can damage the tank and the stick.

61. How accurate must I be with my gauge stick measurements?

Measurements must be made to the nearest **1/8 inch**.

Stick readings must be converted to gallons using a tank conversion chart designed specifically for your tank, which shows gallons in **1/8-inch** increments. Tanks of different sizes have different conversion charts. If you do not have a tank chart, contact your tank service provider or SIR vendor.

62. What time of the day do I take the measurements?

Any time, but you must take all measurements at approximately the same time each operating day. No fuel can be sold between the time you measure the tanks and read the volume pumped on the dispensers. The best time to measure the tanks is prior to opening or after closing when fewer customers are present.

63. Do I have to check my tanks for water?

Yes. Once a month, you must check your tanks for water. The presence of water can be an indication that the tank has a leak. ATGs do this automatically, but most people use water finding paste on a gauge stick to check for water. Contact your tank service provider or fuel delivery company to help you determine which type of paste will work for your tank.

64. How often do I have to submit data to my SIR vendor?

Generally, data must be submitted to your SIR vendor every month. **Passing results must be received every 30 days.** The easiest way to submit data is to send it electronically to the SIR vendor. Coordinate with your SIR vendor to establish acceptable procedures for data submission.

65. If I use SIR for my tanks, does that also count for leak detection on my piping?

Partially. Because SIR analyzes inventory, sales, and delivery data in the entire tank system, the tank and piping are both analyzed for leaks. Additional tank or line tightness testing is not required. **If you have pressurized piping, the line leak detectors must still be tested annually for accurate functioning.** Most MPCA-certified contractors can conduct this test.

66. Can I continue to use SIR in the future for my tank systems?

Yes. SIR is currently one of the approved monthly tank leak detection monitoring options. Interstitial monitoring must be the primary form of tank leak detection for tanks installed after December 22, 2007. However, SIR may be used as a secondary form of leak detection.

67. Can I switch to SIR as my primary form of leak detection?

Yes. If you are unable to get passing leak test results using your ATG, you may switch to using SIR as a form of leak detection. Tanks installed after December 22, 2007, must use interstitial monitoring as the primary form of leak detection, although SIR may be used as a secondary leak detection method.

68. Who can provide SIR for my tank system?

SIR vendors must use methods that have received third-party certification through companies that use EPA-approved testing protocol. In order to provide services to Minnesota tank owners and operators, hese companies must also agree to abide by conditions required by the MPCA. For a list of MPCA-approved SIR vendors, visit the MPCA website or see the list included in the appendix.

69. Can I use SIR with my blender dispensers?

Maybe. Coordinate with your tank service provider and SIR vendor to determine how the dispenser influences the result.

Also, to ensure your data is as accurate as possible, be sure all your dispensers are calibrated properly. Most MPCA-certified contractors can check dispensers for calibration.

Manual tank gauging as leak detection

70. What is manual tank gauging?

This method of leak detection involves measuring the product level in the tank before and after a specific time period (ranging from 36 to 58 hours depending on the size of the tank). This is referred to as a "static test."

A static test means that product is neither added nor removed during that time period. Static tests must be performed at least once per week for each tank using manual tank gauging. This leak-detection method can be used exclusively for tanks 1,000 gallons or less in capacity, and for which the required shut-down time can be met. If the minimum shut-down time cannot be met, then another leak detection method, such as SIR, must be used.

Manual tank gauging can be used for tanks 1,000 gallons or less. Tanks installed after December 22, 2007 must use interstitial monitoring as the primary form of leak detection, although manual tank gauging may be used as a secondary leak detection method. Complete manual tank gauging instructions and data sheets can be found in the appendix.

71. Can I use manual tank gauging for a 2,000-gallon tank?

No. All tanks over 1,000 gallons must use a different approved form of tank leak detection.

Tanks installed after December 22, 2007 must use interstitial monitoring as the primary form of leak detection, although manual tank gauging may be used as a secondary leak detection method.

72. How often do I need to measure the tanks using manual tank gauging?

Tanks must be measured every week. Typically, readings are taken over a weekend when no product is added or removed.

73. How accurate must I be with my readings?

Measurements must be made to the nearest **1/8 inch**.

Stick readings must be converted to gallons using a tank conversion chart designed specifically for your tank which shows gallons in **1/8-inch** increments. Tanks of different sizes have different conversion charts. If you do not have a tank chart, contact your tank service provider to request a tank chart sized for your tank(s).

74. Does my manual tank gauging stick need to be inspected?

Yes. Your gauge stick must be inspected annually by an agency-approved tester to ensure you are taking accurate readings.

75. Can I use my automatic tank gauge instead of a gauge stick for taking tank measurements?

Yes. Tank gauge measurements can be used in place of actual stick measurements; however, you should periodically compare measurements from the tank gauge with an actual stick measurement to make sure the gauge is reading correctly.

76. If I am unable to meet the minimum shutdown time required for my tank, will I be able to use manual tank gauging?

No. You will need to use a different form of leak detection suitable for your tank system, such as SIR or an ATG. Sites with small used oil tanks or stations that operate more than five days a week, for example, may not be able to meet the minimum shut-down time and have to use another method of leak detection.

77. If I use manual tank gauging on my tanks, do I need to provide leak detection for my piping?

Yes, unless your piping meets the definition of "safe suction" or the tank is filled by gravity, such as a used oil tank.

78. Do I have to check my tanks for water?

Yes. Once a month you must check your tanks for water. ATGs do this automatically, but most people use gauge sticks with water finding paste to check for water because the ATG sometimes fails to detect water properly. The presence of water can be an indication that the tank has a leak. Contact your tank service provider or fuel delivery company to help you determine which type of paste will work for your tank.

79. If my results show a "fail" because the results exceed the test limits for the month, do I need to report this as a leak?

Not immediately. If your results indicate a monthly fail, then you should re-check all stick measurements, delivery amounts, etc., to verify that there are no mistakes in that month's record. If no issues are found upon investigation, immediately repeat the leak test. Take extra precautions while performing the next leak detection measurements. **If the second test also fails by exceeding the allowed amount, then a potential leak must be reported to the Minnesota Duty Officer at 800-422-0798**. Failing to do so may result in penalties and increased cleanup costs. A tank tightness test can be conducted to help determine whether the tank is leaking. Contact your tank service provider for a tank tightness test.

Interstitial monitoring as leak detection

80. What is interstitial monitoring?

Interstitial monitoring is a method of leak detection for double-walled tanks. The interstitial space is the space between the primary inner wall and the secondary outer wall of the tank. With this method, the space between the walls of the tank is monitored either manually (with a gauge stick) or electronically (with a leak sensor). Tanks installed after December 22, 2007, must be double-walled and must use interstitial monitoring as the primary form of tank leak detection.

81. Can I use interstitial monitoring as my only form of tank leak detection?

Yes. Monitoring your double-walled tank by checking the interstitial space at least once a month satisfies tank leak detection requirements. The space can be checked manually or with a sensor. You must keep a written record of monthly checks.

It is acceptable to use interstitial monitoring in conjunction with other leak detection methods, such as an ATG or SIR. For tanks installed after December 22, 2007, interstitial monitoring must be conducted no matter what other forms of leak detection are used.

82. Do I have to test my interstitial monitoring sensor for proper functioning?

Yes, these sensors must be tested annually by an agency-approved tester. If you are testing the interstitial space manually, consult your MPCA-certified contractor to determine proper testing procedures for your interstitial sensor.

83. What records must I maintain?

You must keep a record of monthly monitoring results and annual sensor tests for at least 5 years.

Piping leak detection methods – suction piping

If designed properly, suction piping poses less threat to the environment because fuel is not forced into the ground if the piping fails. Piping that meets the definition of "safe suction" as described below is exempt from leak detection requirements.

84. What is suction piping? (See photo 2.)

In a suction system, the pump is located within the dispenser and pulls fuel from the tank with suction. A check valve is used to keep product from flowing back to the tank through the pipe. You can generally see the suction pump, pulley, and belt inside the dispenser if you remove the dispenser access cover.

85. I have suction pumps in my dispensers. Do I need to have my piping tightness tested?

Possibly. It depends on where the check valve is located in each piping run. If the check valve is located at the dispenser and there is not an additional check valve at the tank, and the piping slopes back to the tank, then you do not need line tests on that particular piping run. This type of setup is called a "safe" or "European safe" suction system because if there is a leak in the pipe, the vacuum in the pipe sucks air into the pipe and the fuel drains back into the tank.

If there is a check valve at the tank, or the piping slopes away from the tank, then a line tightness test is required every 3 years unless you use SIR or double-walled piping with interstitial monitoring.

If you are not sure where the check valve is located, contact a MPCA-certified contractor to make that determination and change the valve location if necessary. The contractor can determine if the piping is "safe suction." Keep a description of this for future inspections.

86. I have mounded tanks and suction piping. Is my piping considered "safe suction"?

Piping for tank systems mounded above ground level would not qualify as "safe suction". Such a system requires a line tightness test every 3 years unless you use SIR or interstitial monitoring with double-walled piping.

A marina with a tank uphill from the dispenser must be treated as a mounded system.

Piping leak detection methods – pressurized piping

Pressurized piping generally has more testing requirements than suction piping. Pressurized piping can be made of different materials and have different leak detection equipment and testing methods. This section answers questions about ways in which leak detection can be conducted.

87. What is pressurized piping? (See photos 3, 8, & 9.)

In a pressurized piping system, a pump at the tank pushes fuel under pressure to the dispensers.

88. What leak tests must I do on my pressurized piping?

Pressurized piping must have both of the following forms of leak detection:

1. Periodic – annual (0.1 gallon per hour) or monthly (0.2 gallon per hour) "precision" or "tightness" test; and

2. Continuous – 3 gallon per hour leak detection for catastrophic leaks.

Mechanical line leak detectors

89. I have pressurized piping with a mechanical line leak detector. Do I have to do annual tightness testing of my piping? (See photo 4.)

Yes. An agency-approved tester must conduct an annual line tightness test that can detect at least a 0.1 gallon per hour leak. Records of these test results must be kept for at least 5 years.

90. What else must I test if I have a mechanical line leak detector?

The line leak detector must be tested at least annually for proper functioning by an agency-approved tester to ensure it can detect a 3 gallon per hour (gph) leak. Retain a record of the tests for at least 5 years.

91. Customers have been complaining that my pumps are running slowly. What does this mean?

This may mean a leak is occurring. Leak detectors react or "trip" to suspected leaks by restricting the flow of product. A slow-running pump indicates that the leak detector senses a leak. Shut down the pump of the tank system with the possible leak and contact your tank service provider, who can help determine if a leak is occurring.

On some occasions, when outside air temperatures are very cold in the winter, fuel contracts in the piping overnight. This can cause the leak detectors to "trip." Cycling the pump off and then on should reset the leak detector. If there is no leak, the pump should then function normally. If it does not, shut down the pump immediately and contact your tank service provider.

If a leak detector trips repeatedly or trips in non-winter months, shut down the pump and call your tank service provider to help determine whether your piping is leaking. **If the piping is found to be leaking or, if you cannot determine whether or not there is a leak, report the situation immediately to the Minnesota Duty Officer at 800-422-0798.** Failing to do so may result in penalties and increased cleanup costs.

Electronic line leak detectors

92. I have pressurized piping and an electronic line leak detector. (See photo 5.) Do I have to do annual line tightness testing of my piping?

No, not if the line leak detector can detect at least a 0.2 gallon per hour (gph) leak monthly. A 0.2 gph line testing at standard operating pressure monthly is acceptable for line tightness testing. If the leak detector generates a 0.2 "leak test" printout, retain

one “passed” test per line per month for 5 years. If the detector does not generate a leak test printout, check the line leak detector display box and record the line status by hand monthly.

93. Do I need to have my electronic leak detectors tested annually?

Yes. Electronic line leak detectors must be tested by an agency-approved tester annually to make sure they are functioning properly. Most agency-approved testers can conduct this test. Retain a record of the tests for at least 5 years.

Interstitial monitoring (double-walled piping)

94. I have pressurized double-walled piping with contained sumps. What do I do for leak detection on the piping? (See photo 6.)

All pressurized piping must have a continuous line leak detector (LLD), either mechanical (photo 4) or electronic (photo 5). In order to perform interstitial monitoring on your double-walled piping, your sumps must have liquid-tight sides and bottoms. If your tanks were installed after December 22, 2007, the sumps must have either a sump sensor or you must conduct monthly visual inspections of the containment sumps. You may have sump sensors to indicate that there is liquid in the sumps, but sump sensors cannot be used as the only method of line leak detection. The sensor must continuously monitor the system for the presence of a liquid and activate an alarm to alert personnel of the presence of a liquid.

Sump sensors and mechanical/electronic line leak detectors must be tested annually for proper function.

95. Where must the sump sensor be located?

Sensors must be located within **1 inch** of the lowest point of the sump unless the manufacturer has a different specification.

96. Do I have to test the sump sensor annually?

Yes. The sensor must be tested or “tripped” annually to ensure it activates a leak alarm. Most MPCA-certified contractors can do this test. Keep a record of the test for 5 years.

97. My sump keeps filling with water. What should I do?

If you are not doing interstitial monitoring of your double-walled piping, sumps installed prior to December 22, 2007, are not required to be liquid tight. These sumps may have water in them, provided the water is removed during monthly sump inspections so that you can inspect the components in the sump.

If you’re doing interstitial monitoring of double-walled piping (required if piping installed after December 22, 2007), your sumps must be liquid tight. Repairs should be made to the sump to prevent water from entering and interfering with leak detection. Any damaged equipment must be repaired. Have your tank service provider check to see if new boots are needed around the electrical or piping penetration points or if a gasket should be installed around the sump cover.

Removing soil from around the edge of the sump lid can also help prevent water from entering the sump.

Statistical Inventory Reconciliation (SIR)

98. I use SIR for leak detection on my tanks. Does this also count for piping leak detection?

Partially. SIR can perform tightness testing on the piping. However, due to the delay in receiving SIR test results, piping must also be monitored continuously with a line leak detector for catastrophic leaks greater than 3 gallons per hour. An electronic or mechanical line leak detector can detect, shut-off, or restrict such leaks. These line leak detectors must be tested at least annually for proper functioning.

99. Do I need to keep records of leak tests done on my piping?

Yes. You must keep these records in your file for at least 5 years.

Corrosion protection for underground storage tank systems

All metallic underground storage tanks and piping must be protected from corrosion. Corrosion protection is generally added at the time the tanks and piping are installed. With the exception of heating oil tanks, corrosion protection systems on USTs must be maintained. Non-metallic tanks, such as fiberglass, do not require corrosion protection testing. The following section answers common questions about corrosion protection.

With increased rainfall amounts occurring more frequently, owners and operators must ensure there is not a buildup of water in tank sumps, dispenser sumps, spill buckets, and the tank system itself. Water in these areas could allow for corrosion to occur on tank system components and could lead to a significant release of product into the environment due to the failure of the corroded tank system components. Tank components would also have to be replaced more frequently if they come into contact with water due to corrosion.

Sacrificial anode systems

100. What is a sacrificial anode system?

This is a tank system with an anode of zinc or magnesium attached to underground storage tanks and metal piping to protect them from corrosion. The anodes will corrode instead of the exposed steel tank systems.

101. I have a single-walled sti-P3® tank which came from the factory with anodes for cathodic protection. Do I need to test the cathodic protection on this tank in the future?

Yes. You must have the cathodic protection on metallic tanks and piping with sacrificial anodes tested at least every 3 years by a certified cathodic protection tester. Copies of test results must be submitted to the MPCA within 30 days of the test. You must keep a copy of results of the last 3 tests; however, the MPCA recommends that these test results be kept for the life of the tank system.

Both pressurized and suction piping made of metal require a corrosion test every 3 years.

102. I have a double-walled sti-P3® tank. Do I need to test the cathodic protection on this tank in the future?

Yes. Double-walled sti-P3® tanks have the same testing requirements as single-walled sti-P3® tanks and must be tested every 3 years. The same applies to double-walled steel piping.

103. I am not sure what kind of tank I have. Do I need to test the corrosion protection on this tank in the future?

Possibly. If you don't know what kind of tank you have, check with the company that installed the tank or your tank service provider to find out what kind of tank it is and whether testing is required.

104. Who can test my sti-P3® tanks for cathodic protection?

A tester certified by either the Steel Tank Institute (STI) or National Association of Corrosion Engineers (NACE) can conduct corrosion testing on your system.

105. I heard there is a cathodic protection testing program for some sti-P3® tanks called the "Watchdog® Program". How can I find out if my tanks are in this program?

The "Watchdog® Program" was set up by the Steel Tank Institute (STI) for sti-P3® tanks installed between October 1, 1988, and February 3, 1993. If your tank was installed during this time, this program will provide free testing of cathodic protection on those tanks every 3 years. However, if your tanks

were not registered with the STI when they were installed, or if you didn't respond to the questionnaires that the STI sent out asking if you wanted to participate in the "Watchdog® Program," your tanks may not be included and you are therefore responsible for arranging for the cathodic protection testing of your system. Keep the last 3 test results on file and submit a copy of each test to the MPCA.

The Watchdog® Program only covers the cathodic protection testing of tanks. You must make other arrangements to test the piping.

106. I have steel piping protected with sacrificial anodes. Do I have to test my pipes for corrosion?

Yes. Steel piping must be tested every 3 years by a certified cathodic protection tester. The same requirements apply to double-walled steel piping.

107. My tanks are covered by the "Watchdog® Program" through the Steel Tank Institute. Is my piping covered under the Watchdog® Program?

No. The "Watchdog® Program" was set up to test only sti-P3® tanks. You must make other arrangements to test the piping.

108. I have non-metallic piping. Do I have to worry about corrosion protection?

Yes. Non-metallic piping usually contains steel fittings and couplings where the non-metallic piping connects to the submersible pump or dispenser. It is important to make sure the metal portion of any piping has corrosion protection. The easiest way to provide corrosion protection is to ensure the metal portion of the piping is not in contact with soil. If this is not possible, corrosion protection must be added.

109. What should be done if the cathodic protection test showed that I do not have adequate cathodic protection?

Unless the cathodic protection system is repaired, the tank may develop a hole due to corrosion, resulting in a leak and expensive clean-up costs. The cathodic protection system must be repaired by an MPCA-certified contractor, cathodic protection tester, or corrosion expert. The cathodic protection repairs must be done in accordance with industry standards or designed by a corrosion expert. The cathodic protection system must be repaired and retested within 60 days. Review your test results carefully – if your site receives a failing test, discuss the results with the certified tester.

Impressed current systems

110. What is impressed current? (See photo 7.)

This is a method of applying cathodic protection to tanks and piping using electricity. Anodes are buried around the tank system and connected to a rectifier. An electric current is applied to the anodes, preventing corrosion from developing on the tank system. The rectifier is an electrical power control box with a volt and ampere meter. It is usually located in a utility room near an electrical circuit breaker panel. Sometimes the rectifier may also be located outdoors.

111. I have older tanks and piping that have impressed current for cathodic protection. Do I need to have the impressed current system tested?

Yes, tanks and piping using impressed current must have a cathodic protection test conducted every year by a certified tester. These test results must be submitted to the MPCA within 30 days of the test. You are required to keep a copy of the results of the last 3 tests, but the MPCA recommends you keep all test results for the life of the tank system. Both pressurized and suction piping with an impressed current system require a cathodic protection test every year.

112. Do I need to do anything else with my impressed current system?

Yes. You must visually check the rectifier at least every 60 days to make sure the unit is functioning properly by recording the voltage and amperage readings on the rectifier. When recording the voltage and amperage readings, compare them with past readings. Significant changes in readings may indicate cathodic protection system problems. Retain rectifier check records for at least 3 years; the MPCA recommends you keep all these records for the life of the system.

113. One of the 2 gauges on my rectifier has a zero reading. Do I still have cathodic protection because the other gauge has a reading? (See photo 7.)

No. A gauge with the needle pointing at "0" indicates the impressed current system is not functioning and your tank system is corroding. This may cause the tank or piping systems to corrode and possibly cause a costly leak. Contact a corrosion expert immediately to find out what is wrong with the system and repair it.

114. I am thinking about putting impressed current onto my existing tanks and piping because my sacrificial anodes no longer protect them. Who can install the impressed current system?

Impressed current systems must be installed by a corrosion expert. Corrosion experts have years of education and experience, and specialize in corrosion protection. Impressed current systems are very complex, and most tank service providers are not qualified to install them.

115. I'm thinking about re-opening a closed station that has an impressed current system. What do I need to know?

The impressed current system must have received a "passing" cathodic protection test within the past year, and the cathodic protection system is required to have operated continuously with no interruptions. If electricity has been shut off to the facility, or a cathodic protection test has not been conducted within the past year, product cannot be added to the tanks until the system has been assessed by a corrosion expert. They will determine if the system can be repaired or if a new system needs to be installed.

The MPCA must give written approval before product is added unless it can be shown that the tanks have been closed less than 1 year.

116. What should I do if the certified cathodic protection tester says my impressed current system failed the cathodic protection testing?

The impressed current system must be repaired by a corrosion expert as soon as possible, or your tank system may fail due to corrosion and cause a costly leak. Review your test results carefully. Many sites receive a "failed" result, but unless you review the results you may not be aware of it. Always discuss results with the person who did the test.

117. Who can make repairs or adjustments to the settings on an impressed current system?

Due to the complex nature of impressed current systems, only corrosion experts can make repairs or adjustments to the settings on the systems.

Internal lining

118. What is internal lining?

An internal lining is a coating applied and bonded to the entire inside surface of a tank. Some tanks were internally lined to prevent corrosion on the inside of the tank. Tanks that are lined are first cleaned and internally inspected. An internal inspection includes

tests to determine wall thickness and identify corrosion pits and holes to determine if the lining is sound enough to keep the tank in operation.

119. I have a tank that was internally lined. Do I need to have the lining inspected at some point?

Yes. You must have a qualified lining inspector inspect the lining within 10 years after the initial lining was completed. An inspection includes thorough cleaning of the lining, visual inspection of the lining, ultrasonic thickness testing of the tank's steel shell, holiday (spark) testing for lining continuity, lining thickness measurements, and lining hardness testing. After the 10 year inspection, you must have an internal inspection every 5 years. The inspection must be conducted by physical entry. Camera inspections alone are not adequate. If the lining was repaired, you must conduct a precision tightness test to the 0.1 gallon per hour leak rate within 30 days of the repair.

You must notify the MPCA at least 10 days prior to an internal lining inspection. Retain records of internal inspections, any repairs made and tightness testing results for the life of the tank system. A complete record of the inspection must be submitted to the MPCA within 30 days.

120. What if the internal inspection shows that the lining has failed?

If an inspection shows that more than 5% of the lining has failed, the tank must be taken out of service immediately and product can no longer be added to the tank. The tank must be permanently closed by removing it from the ground, or by filling it in place with Fire Marshal approval. If more than 5% of the internal lining has failed, repairs cannot be performed.

121. If my lining fails, can I add another method of corrosion protection and still use the tanks?

No. If the lining fails, no other method of corrosion protection can be used on the tank and piping. The tank must be permanently closed if more than 5% of the lining fails.

122. My tank has both cathodic protection (sacrificial anode or impressed current) and an internal lining. What if either the lining or cathodic protection failed?

If the impressed current or sacrificial anode system fails, you must have an internal lining inspection conducted. You may continue to use the tank as long as an internal lining inspection shows that the lining has not failed. Internal lining inspections must be conducted every 5 years even after repair of the cathodic protection system.

If the internal lining has failed, the tank must be permanently closed. You cannot use another form of cathodic protection (sacrificial anode or impressed current).

Jacketed tanks

123. I have jacketed steel (sometimes called composite) tanks. Do I need to do cathodic protection testing on them?

Possibly. The jacketed tank is tested for holidays or voids in the protective covering before installation. Consult your owner's manual or the MPCA-certified contractor who installed the tanks to determine if any additional cathodic protection testing is required.

MPCA rules require monthly, annual, and 3-year maintenance inspections to be performed. Owners and operators are required to retain a record of these inspections. The purpose of the inspections is to look for maintenance issues and test the functionality of leak detection components, spill containment, and overfill protection devices.

Visually inspecting your system

MPCA rules require you to visually inspect tank systems on a monthly basis and retain a record of the inspections. The purpose of the inspections is to look for leaks and maintenance issues. This section discusses common questions about monthly inspections.

With increased rainfall amounts occurring more frequently, it is important to ensure that the UST system is being thoroughly inspected for any leaks and maintenance issues. A failure to check the system monthly or after a significant rainfall may result in a fuel/water mixture releasing into the environment.

124. I've heard that I'm supposed to visually inspect my tank system once a month. What areas must I inspect?

At least once a month, you must visually inspect your tank system for leaks and other maintenance issues. The areas to examine are:

- Submersible pump sumps – the area under the access cover on top of the tank where the submersible pump is found in pressurized piping systems (photos 8 & 9).
- Dispensers (commonly referred to as "pumps") – the area inside and under the fuel dispensers (photos 2 & 3).
- Spill buckets – the point where product is delivered to the tank (photo 10).
- Riser caps secure (fill ports, ATG probe, vapor recovery riser).
- Check fill ports for obstructions.
- Release detection equipment alarms/ unusual operating conditions.
- Ensure release detection testing is passing.
- Monitor water on tank bottoms.
- Remove liquid and debris to allow visual inspection.

In each of these areas, look for leaks, drips, or any accumulated liquid or debris. Any liquid and debris must be removed and properly managed. Investigate the source of the liquid and take corrective action to prevent liquids from accumulating.

Keep a record of the inspections, including the date, initials of the person doing the inspection and any action taken. An example form can be found in the appendix.

The following sections describe what to look for in each of these locations.

125. What if I find a fuel leak or drip?

Report a leak immediately to the Minnesota Duty Officer at 800-422-0798. Failing to do this may result in penalties and increased cleanup costs. More information about duty officer reporting can be found on the back cover.

Submersible sumps

126. Where are my submersible sumps?

Submersible sumps are underneath the largest round or square covers over the tops of each tank. Some sumps are "contained," meaning there is a plastic container around the pump head (photo 8). Contained sumps generally have a plastic cover under the driveway cover that you must remove to inspect the sump. Others are not contained meaning they have dirt or gravel bottoms (photo 9). If you need help locating your submersible sumps, call your tank service provider.

127. What should I look for when inspecting submersible sumps?

Look for the following:

- Fuel leaks
  - Focus on the copper line on mechanical line leak detectors. The line can become loose and result in large leaks (photo 9).
- Make sure the sump does not contain liquid or debris.
- In all sumps, ensure all electrical components are contained in an explosion proof environment and that electrical boxes are not damaged.
- If you have a sump sensor, make sure it is positioned correctly. If it is submerged in liquid and no alarm has sounded, the sensor must be repaired (photo 6).
- If you have contained sumps, check that the rubber boots at the penetration points of the contained sumps are not torn or damaged (photo 8).
- In uncontained sumps, ensure that metal connections or flex connectors on fiberglass pipes are not in contact with soil.
- In uncontained sumps, ensure all components are visible for inspection.
- For double-walled piping, ensure that the outer wall of the piping "opens" in to the sump. Sealed piping will mask leaks because leaked fuel cannot flow back to the plastic container to be detected.

Dispensers

128. What should I look for during inspections of my dispensers? (See photos 2 & 3.)

Look for the following:

- Fuel leaks
  - Focus on pipe unions (connectors) and fuel filters.
  - It helps to activate the pump when looking for leaks – some leaks only show up when the pump is running and the pipe is pressurized.
- If you have contained sumps, check that the rubber boots at the penetration points of the contained sumps are not torn or damaged.
- In uncontained sumps, make sure that metal connections or flex connectors on pipes are not in contact with soil.
- Ensure that shear valves are installed and properly anchored – anchoring bolts can loosen over time.
- Ensure that old fuel filters are disposed of properly and aren't left under the dispenser.

When changing fuel filters, use sorbent pads or a container to catch the fuel that spills out of the filter. Make sure that fuel is not spilled to the soil or containment sump. Activate the pump and inspect the new filter while under pressure to ensure that it does not leak.

Spill buckets

129. What should I look for when inspecting my spill buckets? (See photo 10.)

Look for the following:

- Ensure that liquid and debris have not accumulated in the spill bucket.
- Ensure that all gaskets, covers, and latches are in place and function properly.
- Check that there are no cracks in plastic spill buckets and that metal spill buckets are not rusting.
- Make sure that the drop tube is in place and that it is not obstructed by gauge sticks or other foreign objects.
- Make sure ATG riser cover is sealed.

If you find a crack or hole in your spill bucket or notice a drop tube is not in place, contact your tank service provider to make necessary repairs.

Tip: Some spill buckets have drains in them. Do not activate the drain. Small particles of debris can be stuck in the drains causing them to fail. When this happens water in the spill bucket can drain into the tank. It's best to leave drains closed.

Additional information on monthly visual inspections

130. Where is a leak most likely to be found when conducting monthly visual inspections?

Although you should examine all tank system components, leaks are most frequently found by MPCA inspectors in the following locations:

- Fuel filters can leak because they were improperly installed. Use caution, avoid spills when changing filters, and ensure that the filter does not leak once the line is pressurized. Filters can also leak in extremely cold weather (photo 3).
- Other components in the product dispensers. For example, gaskets on meters degrade over time (photos 2 & 3).
- Piping unions can begin to weep or drip with age. Piping unions are located at dispensers and submersible pump sumps (photo 3).
- The 1/4-inch copper line coming out of the line leak detector on the submersible pump head. Lines can loosen or break due to vibration of the pump motor (photo 9).

131. Are there exceptions to the monthly submersible sump inspection requirement?

Yes. If you have contained sumps and a sump sensor that either continuously alerts the tank operator to the presence of liquid or shuts down the pump, you do not need to inspect submersible sumps on a monthly basis. At minimum, sumps must be inspected by an agency-approved tester annually. However, the MPCA recommends inspecting submersible sumps more often, in case the sensor malfunctions. Sump sensors must be tested for proper functioning at least once a year, and a record of the test retained for at least 5 years. Spill buckets are exempt from monthly inspections if the tank system receives deliveries more than 30 days apart. Owners and operators must inspect the spill bucket immediately before the delivery and immediately after the delivery. Owners and operators must keep delivery records to verify infrequent deliveries.

MPCA rules require an annual maintenance inspection to be completed by an agency-approved tester. This section discusses common questions about annual inspections.

Annual testing

An annual maintenance inspection ensures that a UST system can withstand increased rainfall amounts that may result in a fuel/water mixture to release into the environment.

132. I've heard that parts of my tank system need to be inspected annually. What needs to be inspected?

The following tank system components must be inspected annually by an agency-approved tester:

- Electronic, mechanical and handheld release detection equipment for proper functionality. These inspections include:
  - Automatic tank gauges – test alarms, verify system calibration, and test battery backup.
  - ATG probes and sensors (interstitial and sump) – inspect for residual build up, ensure floats are functional, ensure the probe shaft is not damaged, ensure sensor and probe wiring is in good working order, and test the alarm functionality and communication with the ATG
  - Gauge sticks for wear and legibility.
  - Mechanical and electronic line leak detectors.
- Containment sumps and spill buckets:
  - Ensure all boots, sump walls, and sump bottoms are in good working order.
  - The interstitial sensor on double-walled spill buckets and containment sumps must be function tested to ensure is it properly operating.

Sump integrity testing and overfill functionality testing

MPCA rules require containment sumps, spill buckets, and overfill protection devices to be tested every 3 years by an agency-approved tester to ensure they are liquid tight. This section discusses common questions about 3-year inspections.

Three-year testing

The required 3-year inspections are more in depth than the annual inspections and are necessary to determine whether or not a facilities equipment is capable of handling any releases. With increased rainfall amounts, it's important to have an agency-approved tester ensure the facilities equipment is liquid tight.

133. I've heard that parts of my tank system need to be inspected every 3 years. What needs to be inspected?

The following tank system components must be inspected every 3 years by an agency-approved tester:

- Spill buckets
- Containment sumps used for interstitial monitoring
- Overfill protection devices

Spill buckets

134. Do my spill buckets need to be tested?

Yes. Your spill buckets must be tested for integrity tested every 3 years by an agency-approved tester to ensure they are liquid tight. Common methods used to test integrity of the spill buckets include hydrostatic or vacuum testing.

135. What do I need to do if my spill bucket does not pass an integrity test?

Have your agency-approved tester investigate possible causes for the test failing, such as making sure the drain is functioning properly. Once the investigation is complete, retest the spill bucket. If it still fails, the spill bucket must be replaced.

136. Who can replace my spill buckets?

Only MPCA-certified contractors can replace spill buckets.

137. I am getting new spill buckets. Do they have to be double-walled?

Not necessarily. MPCA rules do not require double-walled spill buckets. Talk to your tank contractor to discuss what works best for your facility. Double-walled spill buckets are exempt from 3-year integrity testing as described in question 138.

138. Do I need to have an integrity test performed on my double-walled spill buckets?

No. On a monthly basis, you must check the sensor to ensure the interstitial space does not have liquid in it. On an annual basis, an agency-approved tester must test the automatic leak-sensing device to ensure that the interstitial monitor is operating properly per the manufacturer's test requirements.

Containment sumps

139. Do my containment sumps need to be integrity tested every 3 years?

Most likely yes. Containment sumps installed after December 22, 2007, must be used for interstitial monitoring and need to be integrity tested by an agency-approved tester to ensure that they are liquid tight. Sumps that were installed prior to December 22, 2007, and are not being used for interstitial monitoring do not need to do the integrity test unless interstitial monitoring is being used to meet periodic leak detection requirements. Containment sumps included in this requirement are STP sumps, dispenser sumps, and transition sumps if they are part of the double-walled pipe system.

140. What do I need to do if my containment sump does not pass an integrity test?

Have your agency-approved tester investigate possible causes for the test failing, such as making sure the piping boots are in good working order. Once the investigation is complete, retest the containment sump. If it still fails, the containment sump must be repaired or replaced.

141. Who can replace my containment sumps?

Only MPCA-certified contractors can replace containment sumps.

142. I am getting new containment sumps. Do they have to be double-walled?

Not necessarily. MPCA rules do not require double-walled containment sumps. Talk to your tank contractor to discuss what works best for your facility. Double-walled containment sumps are exempt from 3-year integrity testing as described in question 143.

143. Do I need to hydro test or vacuum test my double-walled containment sumps?

No. On a monthly basis you must check the sensor to ensure the interstitial space does not have liquid in it. On an annual basis an agency-approved tester must test the automatic leak-sensing device to ensure that the interstitial monitor is operating properly.

Overfill protection

144. What types of overfill protection are there?

There are 3 types of overfill prevention equipment. Your tank must have at least 1 of the 3:

- **Automatic shutoff (flapper) valve** – this device is installed in the fill pipe and can be identified by looking down the fill pipe. If you have an automatic shutoff valve installed, you can see the inside diameter of the fill pipe partially blocked by the valve. Automatic shutoff valves should be set to activate when the tank is 95% full (photo 12).
- **Outdoor audible alarm** – an alarm must activate when the tank is 90% full. The alarm **must be installed outside** where the delivery person can hear it and shut down the delivery. An automatic tank gauge that alarms indoors is not sufficient (photo 11).
- **Ball float valve** – this is installed where the vent pipe connects to the tank and extends down into the tank. A ball float valve works by plugging the vent line when the tank is 90% full. Since the vent pipe/tank connection is usually buried, it is difficult to determine if a ball float valve is installed.
  - **Ball floats can no longer be replaced, repaired, or installed as a form of overfill protection.**
  - **Ball floats cannot be used in conjunction with suction systems with air eliminators, co-axial stage one vapor recovery, automatic shutoff valves, remote fills, or pressure fills.**

Contact your tank service provider if you are not sure of your overfill prevention equipment.

145. Do I need to maintain my overfill protection?

Yes. Occasionally check to make sure the overfill device is working properly. For example, automatic shutoff valves are sometimes obstructed by broken gauge sticks. Overfill alarms can be disabled by bird nests. Occasionally check to ensure that automatic tank gauge probe caps are not damaged or loose. Loose caps can cause catastrophic failure of the ball float valve and lead to an overfill.

146. Does my overfill protection device need to be tested?

Yes. Your overfill protection device must be tested for functionality and to ensure it is set at the correct level every 3 years by an MPCA-approved tester.

147. I have an audible alarm and an automatic shutoff valve for overfill protection. Do I need to have both of these devices tested every 3 years by an agency-approved tester?

No. You only need to have your primary form of overfill protection tested.

148. I have a ball float for overfill protection that is easily accessible. Can I continue using this as overfill protection?

If the ball float passes a visual inspection every 3 years, then yes. If at any point the ball float fails a functionality test, it must be replaced with either an automatic shutoff valve or an audible alarm. If the ball float is replaced, it must be completely removed from the tank system.

149. I have a ball float for overfill protection that is not accessible without breaking concrete. How will an agency-approved tester test my device every 3 years?

Concrete will have to be broken to test this device. If you do not wish to break concrete, you may install an audible alarm at your site as your primary form of overfill protection and have that device tested every 3 years instead. You will not be required to test or remove the ball floats if you install an audible alarm because both devices are set to activate at 90% full.

150. I have a ball float for overfill protection. Can I install an automatic shutoff valve for overfill protection so I don't have to remove or test the ball float?

No. Ball floats and automatic shutoff valves cannot be installed on the same UST system because these 2 types of devices are set to activate at different levels. You may install an audible alarm for overfill protection instead. Your overfill protection device must be tested for functionality every 3 years by an agency-approved tester.

151. My tanks are mounded above ground level, so fuel is pumped under pressure into my tank from the delivery truck. What overfill prevention device will work best for my tanks?

An audible alarm is the only overfill prevention option for a mounded tank system. For pressurized fills, an automatic shutoff valve will not work, and use of a ball float valve will result in excessive pressure in the tank during filling, which could damage or rupture the tank.

152. I have a small waste oil tank that I fill only a few gallons at a time. Do I need overfill protection on this tank?

No. Tanks filled less than 25 gallons at a time are exempt from overfill protection requirements.

Unusual operating conditions and investigation

153. When I checked my ATG monitor this morning, there was an alarm going off that said "Leak Test Failed". What should I do?

All alarms pertaining to failing leak tests must be immediately investigated by the owner/operator. Conduct a visual inspection of the exposed below grade components and interstitial areas. **If a release is evident, immediately stop operation of the leaking component or tank system and have the product cleaned up when it is safe to do so. Call the Minnesota Duty Officer (1-800-422-0798) to report the release within 24 hours of the release.** Have a MPCA-certified contractor repair or replace the leaking component.

Repeat the leak test if a release is not evident after inspecting exposed below grade components and interstitial areas. If the test passes, you may resume operation as normal. If the test fails, you must have an agency-approved tester check the leak detector and conduct a tightness test on the suspected leaking component within 7 days of the unusual operating condition. If the tightness test passes, you may resume operation as normal. **If the tightness test fails, immediately stop operation of the leaking component or tank system and have the product cleaned up when it is safe to do so. Call the Minnesota Duty Officer (1-800-422-0798) to report the release within 24 hours of the release.** Have a MPCA-certified contractor repair or replace the leaking or defective component.

154. My ATG monitor printout says I have water in my tank. What should I do?

Water in your tanks can cause significant damage to vehicles, generators, and the tank itself. If your ATG monitor printout displays water in your tank, contact your tank contractor.

155. Customers are complaining that fuel is dispensing slowly. Does this mean that my tank system has a release?

Not necessarily. You must investigate the reason for restricted flow of fuel. Slow pumping may be a result of the line leak detector sensing a leak in the piping. It is possible to reset the line leak detector by releasing the handle on the nozzle and letting it sit for about 30 seconds. If that does not work, consult your tank contractor to investigate further.

Slow fuel flow could indicate that the fuel filter is clogged.

156. I have an alarm going off on my ATG monitor stating that there is liquid present in a sump. What do I need to do?

Make sure the sumps are free of liquid and that the sump sensor is placed properly within 1 inch of the bottom of the sump. If there is liquid present, use a water paste to determine if it is water, a regulated substance, or a mixture of the two. Consult with your tank contractor for proper disposal of the liquid, locate the source of the liquid, and conduct repairs if necessary.

Capturing vapors from tank systems

In certain situations, equipment must be installed to recover vapors during the filling of tanks, as described below.

157. What is the purpose of Stage I vapor recovery? (See photos 12, 13, & 14.)

Stage I vapor recovery captures up to 95% of petroleum vapors released from a tank containing gasoline or E85 during fuel delivery. This helps keep these vapors out of the air we breathe. Vapor recovery is accomplished through installation of special equipment on the tank system.

158. Is the MPCA the only agency that requires vapor recovery?

No. The federal Environmental Protection Agency (EPA) also requires vapor recovery. The EPA will likely increase vapor recovery requirements in the future, which may result in sites not currently required to have vapor recovery to install it. The EPA's website has information about EPA vapor recovery requirements.

159. What tanks are required to have Stage I vapor recovery?

Stage I vapor recovery is required for tanks containing gasoline or E85 at retail locations in Minnesota's seven-county metro area (Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington counties).

Taking a tank out of service

Certain requirements must be met if you quit using a tank, even if you only quit using it temporarily. This section describes the requirements.

160. What if I decide to quit using a tank?

Within 30 days after taking a tank out of service, the MPCA must be notified using the notification form found in the appendix. After 90 days, you must ensure the tank is empty (no more than 1 inch of material), secure fill points and dispensers, and maintain corrosion protection.

161. Can the tank stay in the ground even if it is not used?

Yes, but only for a limited period of time. After 1 year, inactive tanks must be permanently closed (removed or filled in place). A temporary extension can be applied for and may be granted by the MPCA depending on the specific site and whether or not the site is in compliance with applicable requirements. To apply for an extension, complete the MPCA's "Application for Extension of Temporary Closure" form.

162. Where do I get an "Application for Extension of Temporary Closure" form?

The application can be found on the MPCA's website or by contacting the MPCA at 800-657-3864 and asking for a tank inspector.

163. Can I reopen a site if it has been closed for more than a year?

Maybe. If an extension to the temporary closure period was granted by the MPCA, you must request and receive written permission from the MPCA to bring the tank back into service. If an extension was not applied for, you must first apply for an extension to the temporary closure period. The MPCA will grant or deny the extension based on the specific site and whether or not the site is in compliance with applicable requirements. If the MPCA does not grant an extension and does not give written permission to open the tank, the tank must be permanently closed by either removing it from the ground or filling it in place with fire marshal approval.

The major consideration as to whether or not a tank may be placed back into service is the condition of the cathodic protection system on the tank and/or piping and if it has been tested and maintained.

Permanently taking a tank out of service

Certain requirements must be met if you quit using a tank permanently, as described below.

164. I want to remove the tanks at my site. What are my options?

Tanks can be permanently closed either by removing the tanks from the ground or by filling them in place with an inert solid with fire marshal approval. Piping and vent lines must be permanently closed as well.

Permanent closures can only be conducted by MPCA-certified contractors. The MPCA must be notified 10 days in advance of permanent closure. Soil samples must be taken from the tank basin by a qualified technician and the results assessed for contamination by a qualified lab.

Any contamination found during the removal or found in the soil samples must be reported immediately to the Minnesota Duty Officer at 800-422-0798. The tank owner is responsible for this report, but in many cases the company you hire will make the report for you. The MPCA will notify you if corrective action to address the contamination is necessary.

165. Will the MPCA require removal of the tanks at my site?

Yes, if the tanks have been closed for more than 1 year and the MPCA did not issue an extension, the tanks must be permanently closed. If the MPCA does issue an extension, inactive tanks must be removed after 5 years.

Glossary of terms

Anode

A bar or bag of metal, usually zinc or magnesium, attached to underground storage tanks and metal piping to protect them from corrosion. If installed correctly, the anode will corrode instead of the tank or piping.

Audible alarm

A device connected to a probe inside an underground storage tank through an automatic tank gauge. A float on the probe detects product level inside the tank and triggers an audible or visible alarm outdoors, alerting a delivery person that the tank is 90% full.

Automatic shutoff

A device installed in the drop tube of a tank fill pipe. It is usually set to activate at 95% of the tank capacity. When product reaches that level, a float restricts delivery of additional product. It is also called a "flapper valve."

Automatic tank gauge

Also called an "ATG," this leak detector includes a probe in each tank or tank compartment, and an electronic monitor installed inside the facility which does leak testing on each tank. Automatic tank gauges record product inventory, product temperature, water levels, ullage (amount of space in a tank above the product level of the tank) and delivery gallons, and will perform regular tank leak tests. Some ATGs also conduct line leak tests if connected to electronic line leak detectors.

Ball float valve

A device installed at the connection of the vent pipe to the tank. It extends into the tank and should be set to activate at 90% of tank capacity. Ball float valves use a ball inside a wire cage that floats up with rising product level, blocking the vent line when the tank is 90% full. When this occurs, the delivery person is alerted by a "jump" in the delivery hose due to the sudden pressure increase in the tank from the blocked vent. The hose jumping is a signal to shut down the delivery.

Cathodic protection

A means of protecting metal tanks and piping from corrosion. It can be provided by attaching sacrificial anodes, usually zinc or magnesium, directly to the tank or piping. Another means of providing cathodic protection is to send a DC current from buried anodes through the soil to the tank. The current flowing to the tank stops the tank from corroding. This type of cathodic protection is called impressed current.

Cathodic protection tester

A person who has demonstrated an understanding of the principles and measurements of all common types of cathodic protection systems as applied to buried or submerged metal piping and tank systems. The individual has passed a cathodic protection test given by the National Association of Corrosion Engineers or the Steel Tank Institute. They must also have education and experience in soil resistivity, stray current, structure-to-soil potential, and component electrical isolation measurements of buried metal piping and tank systems.

Certified contractor

All contractors that remove, repair or install regulated underground storage tank systems in Minnesota must be certified by the MPCA. A contractor is certified by employing a certified supervisor, completing an application and showing proof of proper insurance coverage. Both contractor and supervisor must be able to show proof to owners/operators of UST systems prior to performing work on those systems. The MPCA maintains a list of all currently certified contractors in Minnesota. Not all certified contractors are certified to do corrosion testing, tightness testing, or other types of tank work.

Check valve

Installed in the pipe of suction pump dispensing systems, a check valve allows product to flow in only one direction and is designed to hold product in the line to maintain prime. If installed only at the dispenser, any leaks in the piping between the tank and dispenser will cause the product in the line to drain back into the tank, provided the line slopes back to the tank.

Contained sump

A sump with secondary containment around a submersible pump or under a dispenser which is designed to contain leaks and drips from equipment. Contained sumps generally have a plastic cover that must be removed to inspect the sump.

Copper/copper sulfate reference cell

Used by cathodic protection testers to check the level of cathodic protection on a tank or pipe. There are both portable reference cells and permanently installed cells. These are used with volt meters to determine whether the tanks and pipe meet the required -0.85 volts (850 millivolts) level of cathodic protection.

Corrosion expert

An expert who, by reason of thorough knowledge of the physical sciences and the principles of engineering and mathematics acquired by a professional education and related practical experience, is qualified to engage in the practice of corrosion control on buried or submerged metal piping systems and metal tanks. Corrosion experts must be accredited or certified by the National Association of Corrosion Engineers (NACE), or be a registered professional engineer who has certification or licensing that includes the above requirements.

Corrosion protection

A method of protecting metal tanks and piping from corrosion. It can be provided by the application of coatings, jackets, or secondary walls and/or the installation of cathodic protection using sacrificial anodes or impressed current.

Double-walled

Can apply to tanks, piping, sumps, and spill buckets. It means that the tank or piping has a secondary shell or wall that keeps the primary product wall from coming into contact with the soil. It provides protection in the event of a leak past the primary wall of the tank or pipe. There is usually a space called an “interstitial” space between the walls that can be monitored for the presence of liquid.

Environmental Protection Agency

Also known as the EPA, this is the U. S. agency responsible for oversight of the environment. The regional office that covers Minnesota is located in Chicago.

Flapper valve

Also known as an automatic shutoff, this device is installed in the fill pipe drop tube of an underground storage tank. It is usually set to activate at 95% of tank capacity. When product reaches that level, a float restricts additional product from being delivered to the tank.

Function check

An annual test required for all leak detection devices to ensure that they function as they are designed to.

Hazardous substance

A substance as defined in Minnesota rule chapter 7150.0030. The list includes but is not limited to antifreeze, xylene, and many solvents.
All hazardous substance tank systems must have secondary containment around the tanks and piping.

Impressed current

One method of applying cathodic protection to tanks and piping by burying zinc or magnesium anodes and running a DC current from a rectifier through the anodes and into the soils around the tank systems.

Internal lining

Some tanks were internally lined to prevent corrosion on the inside of the tank, and to plug corrosion pits that develop from the exterior. Tanks that are internally lined are first cleaned and internally inspected. The internal inspection includes tests to determine wall thickness and identification of corrosion pits.

Interstitial space

The space in between a primary and secondary wall of a double-walled pipe, tank, sump, or spill bucket. This space may be monitored to detect leaks from the pipe or tank.

Leak test

A check performed to determine if a leak is occurring from a tank system. Leak test methods must be conducted according to MPCA rules.

Line leak detector

Installed on pressurized piping lines, line leak detectors (LLDs) must be able to detect large leaks of 3 gallons per hour (gph) or greater. Mechanical line leak detectors are installed at the submersible pump head and usually work by restricting the flow of product when they sense a pressure drop equivalent to 3 gallons per hour or greater. Electronic line leak detectors work by detecting pressure increases or decreases that may indicate leaks. Some electronic units are capable of performing 0.2 gph and 0.1 gph line tightness tests as well.

Line tightness test

An annual 0.1 gallon per hour (gph) test conducted on pressurized piping to ensure it is not leaking.

Minnesota Duty Officer

A state office within the Minnesota Department of Public Safety that receives calls reporting spills and leaks of various products, including petroleum. Tank owners or operators who suspect a tank or piping is leaking must report this to the Duty Officer immediately. They will be asked questions regarding the spill or leak. The information is then forwarded to the MPCA. The 24-hour telephone number for the Duty Officer is 800-422-0798 or 651-649-5451.

Overfill prevention

Equipment that acts to prevent overfills of underground storage tank systems. This equipment includes ball float valves, automatic shutoffs and alarms.

Pressurized piping

A piping system supplied by a submersible pump, which delivers product under pressure, since the product in this piping system is dispensed from the tank under pressure.

Rectifier

Installed as part of an impressed current system that provides cathodic protection for tanks and piping, a rectifier transforms AC current to DC current, which is then routed through the anode bed around the tank systems. The rectifier is an electrical power control box with a volt and ampere meter. Voltage and amperage meters on the rectifier must be checked and recorded at least every 60 days, and the cathodic protection tested annually.

Repair

Correction or restoration to operating condition of an underground storage tank or appurtenance.

Piping repair includes installation of a single run of **up to 10 feet** of new piping to replace existing piping.

Piping replacement involves installation of a single run of **more than 10 feet** of new piping to replace existing piping.

Dispenser repair includes installation of a new dispenser to replace an existing dispenser, as long as work is performed entirely **on or above** any shear valves and check valves.

Dispenser replacement is work performed **beneath** any shear valves or check valves or on any flexible connectors or unburied risers.

Replace or replacement

Installation of a new underground storage tank or appurtenance in substantially the same location as another tank or appurtenance in lieu of that tank or appurtenance, not including installation of new piping in connection with certain repairs as described in the definition of “repair.”

Safe or European suction

A piping system with a suction pump that has a check valve installed at the dispenser only, and a piping run that slopes toward the tank.

Shortage

Refers to the number of gallons left after subtracting book inventory (start gallons + delivery amounts – gallons pumped) from actual stick inventory. If actual stick inventory is less than book inventory, there is a shortage for the day. At the end of the month, all daily overages and shortages are added together to get a monthly overage/shortage.

Spill containment

Installed at the fill pipe to contain spills that occur during delivery of product to a tank. This equipment usually ranges from 5 to 25 gallons in size and must be able to contain the contents of the delivery hose.

Static test

Conducted as part of manual tank gauging for leak detection. A static test involves shutting down the tank for a minimum number of hours (36 to 58 hours depending on tank size) during which product is not removed from or added to the tank, and checking the product level before and after the shutdown time. If the resulting variance in product levels exceeds allowed standards, then the tank is suspected of leaking.

Statistical Inventory Reconciliation (SIR)

Statistical Inventory Reconciliation or SIR is a monthly leak-detection method. It involves performing daily inventory control and then submitting these records to an SIR vendor as required to be analyzed for potential leaks. The vendor performs that analysis and sends the results back to the owner/operator. These results indicate whether the tank system passes or fails for a given test period. SIR provides leak detection for both tank and piping. However, SIR cannot test the function of the line leak detectors.

Statistical Inventory Reconciliation (SIR) vendor

Statistical Inventory Reconciliation or SIR vendors are companies that provide SIR leak detection services.

Steel Tank Institute (STI)

An industry organization that provides services to and for steel tank manufacturers. STI provides the standards that most underground steel tanks must meet.

sti-P3® tank

Underground tanks manufactured to standards developed by the Steel Tank Institute (STI). Sti-P3® tanks are coated and have anodes attached to prevent exterior corrosion from occurring. In addition, the steel tank is isolated from the metal piping by neoprene bushings in the tank top fittings (bungs) to help ensure adequate cathodic protection.

Submersible pump sump

The area where the submersible pump on an underground storage tank is found. Submersible sumps are generally found under the largest square or round cover at ground level. The submersible pump extends down to the tank and pushes fuel to the dispensers.

Suction piping

A piping system supplied by a suction pump installed at the dispenser. Since the product in the piping for this system is pulled from the tank and is not under pressure, leak detection requirements are less stringent than for a pressurized system. If the check valve on this system is located at the dispenser only (safe or European suction), then no leak detection is required. If there is a check valve located at the tank or at the tank and dispenser, a line tightness test must be conducted at least every 3 years.

Sump sensor

An electronic device installed in a contained sump to provide a means of monitoring for leaks. Sump sensors are designed to detect liquids and either shut down or restrict the flow of product or trigger an alarm.

Tank chart

A chart that shows measurements, usually in 1/8-inch increments, and the corresponding amount in gallons. All new tanks should come with a tank chart. If you have an older tank without one, contact your tank contractor or manufacturer of the tank. They will need to know diameter and length of the tank.

Tank tightness test

A test performed on tanks to determine if a leak is occurring. There are different test methods, but all must be able to detect at least a 0.1 gallon per hour (gph) leak rate. Some methods can detect leak rates of less than 0.1 gph.

Total gallons pumped

The number of gallons pumped from each tank in a particular period of time. This number is used in a formula to determine if a tank is leaking and is part of using daily inventory control as leak detection.

Underground storage tank (UST)

A tank system with 10% or more of its volume (tank and piping) buried in earthen material.

Volt meter

An instrument used to perform cathodic protection tests on metal tanks and piping. The volt meter is used with a copper/copper sulfate reference cell to determine if there is adequate cathodic protection to prevent corrosion of the tank or piping.

Watchdog® Program

A program offered by the Steel Tank Institute (STI) for tanks installed between October 1, 1988 and February 3, 1993. It provides free cathodic protection testing for sti-P3® tanks. The program does not include testing metal piping installed on those tanks.

Water finding paste

A substance that can be applied to gauge sticks to help determine the level of water in a tank. The paste turns color when it comes in contact with water. This allows the operator to more accurately measure the levels of these liquids. Ethanol blended fuels require special water finding paste.

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MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

Monthly walkthrough inspection form

Underground Storage Tanks (UST) Program

Doc Type: Compliance Certification

Purpose: This form is to be used to document the monthly walkthrough inspections.

Facility information

Facility name: _____

Facility address: _____ Facility ID#: _____

City: _____ State: _____ Zip code: _____

Testing information

1. Tank number							
2. Product stored							
3. Tank volume, gallons							
Spill buckets							
4. Is the spill bucket cover in good condition?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
5. Is the spill bucket free of fuel, water or debris?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
6. Is the spill bucket free of cracks, holes, bulges, or other defects?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
7. Is the riser cap secure and in good condition?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
8. Is the drop tube free of obstructions?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
9. If the spill bucket is double-walled is the interstice free of leaks?	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	
10. If "No" answered for any line from 4-9 have corrective actions been completed?*	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	
Dispensers							
11. Is the dispenser sump free of fuel, water or debris?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
12. Is the dispenser sump free of cracks, holes, bulges, or other defects?	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	
13. Are the piping, flexible connectors and meters free of leaks or seeps?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
14. Is hanging hardware free of leaks or seeps?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
15. If the dispenser sump is double-walled is the interstice free of leaks?	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	
16. Are shear valves securely anchored?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
17. If "No" answered for any line from 11-16 have corrective actions been completed?*	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	
Submersible turbine pump sumps							
18. Is the STP sump free of fuel, water or debris?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
19. Is the STP sump free of cracks, holes, bulges or other defects?	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	
20. Are the STP components, piping and flexible connectors free of leaks or seeps?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
21. If the STP sump is double-walled is the interstice free of leaks?	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	
22. If "No" answered for any line from 18-21 have corrective actions been completed?*	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	

Release detection equipment						
23. Is the release detection equipment operating with any alarms?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
24. Is the release detection equipment operating with any unusual operating conditions?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
25. Do release detection records indicate a passing test?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
26. Are release detection records current?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
27. Is the gauging stick in good condition?	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA
28. Has the UST been checked for the presence of water?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
29. What is the level of water in the UST?						
30. If Yes answered for lines 23 – 24 or No answered for lines 25 – 28, have corrective actions been completed?*	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA

**Describe corrective actions taken in the comments section.*

Comments:

Company: _____ Print Inspectors name: _____

Date (mm/dd/yyyy): _____ Signature: _____

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

UST notification form

Underground Storage Tanks (UST) Program

Installation, closure, tanks, piping, dispensers

Doc Type: Permitting Registration Form

Notify the Minnesota Pollution Control Agency (MPCA) **within 30 days after** bringing tank system into use. Keep a copy for your records. **Incomplete forms will be returned. Guidance on pages 5-6.**

Use this form for:

- Installation or replacement of tank, piping, or dispensers
- Removals or permanent closures

Submittal: To submit this form, save it to your computer and send to the MPCA, using the submit button at the end of the form; or attach it to an email message, using "Notification form" as the subject line to undergroundtanks.pca@state.mn.us. Ensure all necessary signatures are acquired. Email the completed document to those who need to sign and certify it. Complete the Site assessor/sampler section for permanent closures, removals, or product change to a non-regulated substance. All questions with an asterisk(*) are **required** fields.

Site information

*Site name: _____ Site number (if known): _____

*Address: _____

*City: _____ State: MN *Zip code: _____ *County: _____

*Contact name: _____ *Phone: _____

*Email address: _____

Is this site located on Native American lands? ☐ Yes ☐ No Is this the initial notification for this site? ☐ Yes ☐ No

Type of facility: ☐ Service station ☐ Government ☐ Education ☐ Industry/Factory ☐ Auto dealer ☐ Utility
☐ Bulk plant ☐ Resort ☐ Office building ☐ Other (specify): _____

Owner information

*Name: _____

*Address: _____

*City: _____ *State: _____ *Zip code: _____

*Contact name: _____ *Phone: _____

*Email address: _____

A. Action (Enter date [mm/dd/yyyy] of action under tank number)

1. Tank number *See Guidance – page 5*				
2. Install new tank				
3. Install new piping				
4. Install new tank and piping				
5. Install new dispenser				
6. Change tank information				
7. Change piping, pump, or dispenser information				
8. Current tank status *See Guidance – page 5*	Status: Date:	Status: Date:	Status: Date:	Status: Date:
9. If tank has been removed, list tank sludge disposal company and Hazardous Waste Generator ID#				

B. Tank information

1. Tank number *See Guidance – page 5*				
2. Capacity	Gallons:	Gallons:	Gallons:	Gallons:
3. Stored substance *See Guidance – page 5*	Type: Select from list: *Specify:*	Type: Select from list: *Specify:*	Type: Select from list: *Specify:*	Type Select from list: *Specify:*
4. Compartmental tank only *See Guidance – page 5*				
Compartment 1	Gallons: Type: Select from list: *Specify:*	Gallons: Type: Select from list: *Specify:*	Gallons: Type: Select from list: *Specify:*	Gallons: Type: Select from list: *Specify:*
Compartment 2	Gallons: Type: Select from list: *Specify:*	Gallons: Type: Select from list: *Specify:*	Gallons: Type: Select from list: *Specify:*	Gallons: Type: Select from list: *Specify:*
Compartment 3	Gallons: Type: Select from list: *Specify:*	Gallons: Type: Select from list: *Specify:*	Gallons: Type: Select from list: *Specify:*	Gallons: Type: Select from list: *Specify:*
5. Special use	☐ Heating only	☐ Heating only	☐ Heating only	☐ Heating only
6. Tank type *See Guidance – page 5*	Type: Select from list: *Specify:*	Type: Select from list: *Specify:*	Type Select from list: *Specify:*	Type: Select from list: *Specify:*
7. Tank manufacturer				
8. Tank model				
9. Tank corrosion protection *See Guidance – page 5*	Select from the list:	Select from the list:	Select from the list:	Select from the list:
10. Spill bucket containment	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
11. Spill bucket manufacturer and model				
12. Spill bucket – single wall or double wall	☐ Single ☐ Double	☐ Single ☐ Double	☐ Single ☐ Double	☐ Single ☐ Double
13. Overfill prevention type *See Guidance – page 5*	Select form list:	Select form list:	Select form list:	Select form list:
14. Overfill equipment manufacturer and model				
15. Stage 1 vapor recovery for gasoline tanks	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
16. Stage 1 vapor recovery	☐ 2 point ☐ Coax	☐ 2 point ☐ Coax	☐ 2 point ☐ Coax	☐ 2 point ☐ Coax
17. Primary method of tank release detection *See Guidance – page 5*	Select from list:	Select from list:	Select from list:	Select from list:
18. Automatic tank gauge manufacturer and model				
19. Automatic tank gauge probe model				
20. Tank interstitial sensor manufacturer and model				

C. Piping, pump, and dispenser information:

1. Tank number *See Guidance – page 5*				
2. Piping type *See Guidance – page 5*	Type: Select from list: *Specify:*	Type: Select from list: *Specify:*	Type: Select from list: *Specify:*	Type: Select from list: *Specify:*
3. Piping manufacturer and model				
4. Pipe sealant/adhesive manufacturer and model				
5. Flexible connector manufacturer and model				
6. Shear valve manufacturer and model				
7. Shear valve dual pop-it	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
8. Piping corrosion protection *See Guidance – page 6*	Select form list:	Select form list:	Select form list:	Select form list:
9. Primary method of piping release detection *See Guidance – page 6*	Select from list:	Select from list:	Select from list:	Select from list:
10. Line leak detector manufacturer & model				
11. Piping interstitial sensor manufacturer & model				
12. Dispensing type *See Guidance – page 6*	Select from list:	Select from list:	Select from list:	Select from list:
13. Submersible pump containment *See Guidance – page 6*	Type: Select from list: *Specify:*	Type: Select from list: *Specify:*	Type: Select from list: *Specify:*	Type: Select from list: *Specify:*
14. STP containment manufacturer and model				
15. Submersible turbine pump manufacturer and model				
16. Suction pump manufacturer and model				
17. Dispenser manufacturer and model				
18. Dispenser containment *See Guidance – page 6*	Type: Select from list: *Specify:*	Type: Select from list: *Specify:*	Type: Select from list: *Specify:*	Type: Select from list: *Specify:*
19. Break-away manufacturer and model				
20. Swivel manufacturer and model				
21. Nozzle manufacturer and model				
22. Hose manufacturer and model				

Comments:

Certification

Complete the following steps to complete the certification:

1. The Tank supervisor and contractor should complete the applicable section below, save the form, and forward on to Owner to certify.
2. Complete the Site assessor/sampler section if applicable. Save the form and forward to the Site assessor to complete their section if needed.
3. Once the Contractor and Supervisor have certified the document and the Site assessor/sampler information is completed (if required), the Owner should complete the applicable section and click the submit button. The signatures are needed for the form to be accepted.

Tank contractor

I certify that all work was performed as specified by the manufacturer's instructions; that all work was performed according to the applicable codes of practice in Minn. R. ch. 7150.0205; that all work was performed according to applicable state and federal regulations, including this chapter; and that I am in compliance with contractor certification requirements imposed by Minn. R. ch. 7105.

By typing my name below, I certify the above statements to be true and correct, to the best of my knowledge, and that this information can be used for the purpose of processing this form.

☐* I agree

Licensed tank supervisor on site during tank work:

*Name: _____
(This document has been electronically signed.)

*Title: _____

*Date (mm/dd/yyyy): _____

*MPCA supervisor #: _____

☐ * I agree

Licensed tank contractor or authorized representative:

*Name: _____
(This document has been electronically signed.)

*Title: _____

*Date (mm/dd/yyyy): _____

*MPCA contractor #: _____

Site assessor/sampler *(if applicable)*

Minn. R. 7150.0420 requires a site assessment be conducted at the removal or closure in place of regulated USTs or if the product stored is changed from a regulated to non-regulated substance. Please complete the following information to identify who conducted the site assessment. Contamination must be reported. ***State Duty Officer: 1-800-422-0798*** *or* ***651-649-5451****.*

Name: _____ Title: _____

Date (mm/dd/yyyy): _____

Company name: _____

Mailing address: _____

City: _____ State: _____ Zip code: _____

Contact name: _____ Email address: _____

Tank owner

I certify that the information submitted is accurate and complete to the best of my knowledge; that installation of tanks, piping, and dispensers is according to Minn. R. ch. 7150.0100 and 7150.0205, including secondary containment of new and replacement tanks, piping, and dispensers; and that all tanks and piping have release detection according to Minn. R. ch. 7150. 0300 to 7150.0340. I advise that the information submitted is accurate and complete to the best of my knowledge; that the permanent closure of tank systems and change in status to storage of non-regulated substances is according to Minn. R. ch. 7150.0410 (for owners purchasing tanks after March 1, 2008, only). I certify that all tank operators, including lessees, have read this chapter and have sufficient knowledge in the operation and maintenance of underground storage tank systems.

By typing my name below, I certify the above statements to be true and correct, to the best of my knowledge, and that this information can be used for the purpose of processing this form.

☐* I agree

Owner or authorized representative

*Name: _____
(This document has been electronically signed.)

*Title: _____

*Date (mm/dd/yyyy): _____

Guidance for UST notification form

A. 1. Tank number:

Enter tank number. If filling out form electronically, this number will automatically be added to B-1 and C-1.

A. 8. Current tank status:

Choose from drop-down menu or list below.
If status has changed, enter date.

Active
Abandoned
Closed in Place
Removed
Temporarily Closed

B. 1. Tank number:

Enter tank number. If filling out form electronically, this number will automatically be added to B-1 after you have typed it into A-1 (Select "print preview" or "print" to activate automatic feature).

B. 3. Stored substance:

Choose from drop-down menu or list below.
If asked to specify in Box 1, describe substance in Box 2. If this tank is compartmental, leave blank.

Gasoline, Aviation
Gasoline, E10
Gasoline, E20
Gasoline, Non-oxygenated
Diesel, B2/5
Diesel, Petroleum
Biodiesel, B100
Fuel Oil #2 (light)
Fuel Oil #6 (heavy)
Kerosene
Mineral Spirits
Jet Fuel
Mineral Oil
Lubricating Oil
Used Oil
Petroleum, Other (specify)
Ethanol, E100
Ethanol, E95 (denatured)
Ethanol, E85
Chemical, Antifreeze
Chemical, Acidic (specify)
Chemical, Caustic (specify)
Chemical, Other (specify)
Other Substance (specify)

B. 4. Compartmental tank only:

Identify capacity and substance for each compartment. Choose substance from drop-down menu or use list in B.3 above. If asked to specify in Box 2, describe substance in Box 3.

B. 6. Tank type:

Choose from drop-down menu or list below.
If "Other" is chosen, describe tank type in Box 2.

Steel, Single Walled
Steel, Double Walled
STIP3, Single Walled
STIP3, Double Walled
Jacketed Steel, Single Walled
Jacketed Steel with Interstitial Monitoring, Single Walled
Jacketed Steel, Double Walled
Fiberglass, Single Walled
Fiberglass, Double Walled
Other (specify)

B. 9. Tank corrosion protection:

Choose from drop-down menu or list below.

Sacrificial Anode
Impressed Current
Internal Lining
None
Not needed *(use if Tank Type is any Jacketed Steel type or any Fiberglass type)*

B. 12. Overfill prevention type:

Choose from drop-down menu or list below.

Fill pipe flapper valve
Vent pipe ball float
Audible high level alarm
None

B. 17. Primary method of tank release detection:

Choose from drop-down menu or list below.

Automatic tank gauging (ATG)
Inventory control
Statistical inventory control (SIR)
Manual tank gauging
Interstitial monitoring

C. 1. Tank number:

Enter tank number. If filling out form electronically, this number will automatically be added to C-1 after you have typed it into A-1.

C. 2. Piping type:

Choose from drop-down menu or list below.
If "Other" is chosen, describe piping type in Box 2.

Steel, Single Walled *(includes coated, wrapped, and galvanized)*
Steel, Double Walled
Jacketed Steel, Single Walled
Jacketed Steel with Interstitial Monitoring, Single Walled
Jacketed Steel, Double Walled
Fiberglass, Single Walled
Fiberglass, Double Walled
Copper
Flexible Nonmetallic, Single Walled
Flexible Nonmetallic, Double Walled
Other (specify)
None *(use if tank has no piping)*

C. 8. Piping corrosion protection:

Choose from drop-down menu or list below.

Sacrificial Anode
Impressed Current
None
Not needed *(use if Piping Type is any Jacketed Steel type, any Fiberglass type, or any Flexible Nonmetallic type)*

C. 9. Primary method of piping release detection:

Choose from drop-down menu or list below.

Automatic line-leak detector
3-year tightness testing *(use if other suction dispensing)*
Interstitial monitoring
Not needed *(use if safe suction dispensing)*

C. 12. Type of dispensing:

Choose from drop-down menu or list below.

Submersible pump
Safe suction pump
Other suction pump
Gravity

C. 13. Submersible pump containment:

Choose from drop-down menu or list below.
If "Other" is chosen, describe containment type in Box 2.

Synthetic
Other (specify)
None

C. 18. Dispenser containment:

Choose from drop-down menu or list below.
If "Other" is chosen, describe containment type in Box 2.

Synthetic
Other (specify)
None

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

UST change in status form

Underground Storage Tanks (UST) Program

New information

Doc Type: Permitting Registration Form

Notify the Minnesota Pollution Control Agency (MPCA) **within 30 days after** making a change in status or information. This form is not for tank installations or removals. Keep a copy for your records. **Incomplete forms will be returned.**

Use this form for:

- Change in information, such as site name, address, owner, or tank contents
- Change in tank status – not for removals
- Notification of intent to store biofuels

Submittal: To submit this form, Tank owner or authorized representative should save the form to their computer and send to the MPCA by using the submit button at the end of the form, or attach the form to an email message, using "Change in status" as the subject line to undergroundtanks.pca@state.mn.us. If form is completed by a Contractor, the Contractor should email the form to the Tank owner or authorized representative to certify and submit. All questions with an asterisk(*) are **required** fields.

Site information

*Site name: _____ Site number (if known): _____

*Address: _____

*City: _____ State: MN *Zip code: _____ *County: _____

*Contact name: _____ *Phone: _____

*Email address: _____

Owner information

*Name: _____

*Address: _____

*City: _____ *State: _____ *Zip code: _____

*Contact name: _____ *Phone: _____

*Email address: _____

Action

Directions: Enter tank number (row 1) and tank capacity (row 2). If compartmental tank, use slashes to identify (e.g., Tank #001 = 2,000/8,000 = Gas/Diesel. Enter date [mm/dd/yyyy] of applicable action (row 3-8). If product change (row 7), enter product (e.g., Gas, Diesel) and enter date product changed. If status change (row 8), select status (e.g., Active, Temporarily closed) and enter date status changed.

1.	Tank number				
2.	Tank capacity (gallons)				
3.	Change owner				
4.	Change owner address				
5.	Change facility name				
6.	Change facility address				
7.	Change product	Product: Date:	Product: Date:	Product: Date:	Product: Date:
8.	Change tank status	Status: Date:	Status: Date:	Status: Date:	Status: Date:

Certification

An electronic signature is required for this form to be submitted. If this form is completed by a Contractor, the Contractor should forward this document via email to the owner/representative to sign and submit.

By typing my name below, I certify the above statements to be true and correct, to the best of my knowledge, and that this information can be used for the purpose of processing this form.

*☐ I agree **Tank owner or authorized representative**

*Name: _____ *Title: _____

(This document has been electronically signed.)

*Date (mm/dd/yyyy): _____

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MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

UST manual tank gauging form

Underground Storage Tank (UST) Program

Doc Type: Monitoring Results

Facility information

Facility name: _____ Month/Year: ____ / ____

Address: _____

City: _____ State: _____ Zip code: _____

Tank number: _____ Tank size: _____ Product: _____

Week 1 – Test results

Test	Date (mm/dd/yyyy)	Time	Gauge stick readings (to nearest 1/8") 1	2	Average	Gallons in tank (converted from stick readings)	Gallons at start of test - Gallons at end of test = Weekly net gain or loss
Test start:							(+)(-) gals.
Test end:							Weekly test result is:
Test duration:		Total hours	*(see bottom of form for minimum test time)*				☐ Pass ☐ Fail

Week 2 – Test results

Test	Date (mm/dd/yyyy)	Time	Gauge stick readings (to nearest 1/8") 1	2	Average	Gallons in tank (converted from stick readings)	Gallons at start of test - Gallons at end of test = Weekly net gain or loss
Test start:							(+)(-) gals.
Test end:							Weekly test result is:
Test duration:		Total hours	*(see bottom of form for minimum test time)*				☐ Pass ☐ Fail

Week 3 – Test results

Test	Date (mm/dd/yyyy)	Time	Gauge stick readings (to nearest 1/8") 1	2	Average	Gallons in tank (converted from stick readings)	Gallons at start of test - Gallons at end of test = Weekly net gain or loss
Test start:							(+)(-) gals.
Test end:							Weekly test result is:
Test duration:		Total hours	*(see bottom of form for minimum test time)*				☐ Pass ☐ Fail

Week 4 – Test results

Test	Date (mm/dd/yyyy)	Time	Gauge stick readings (to nearest 1/8") 1	2	Average	Gallons in tank (converted from stick readings)	Gallons at start of test - Gallons at end of test = Weekly net gain or loss
Test start:							(+)(-) gals.
Test end:							Weekly test result is:
Test duration:		Total hours	*(see bottom of form for minimum test time)*				☐ Pass ☐ Fail

Monthly reconciliation

Test for the month	Total gain or loss of product
Week 1:	(+)(-) gals.
Week 2:	(+)(-) gals.
Week 3:	(+)(-) gals.
Week 4:	(+)(-) gals.
Monthly average:	**(+)(-) gals.**

(The monthly average is the sum of the weekly averages divided by four.)

The monthly test result indicates (check one):

☐ ***Pass***

☐ ***Fail***

Water check:

Date: _____

Inches: _____

Standards **Duration**

Weekly and monthly standards			Test duration
Tank capacity (gallons)	**Weekly variance**	**Monthly variance**	**Hours required for test**
Less than 550	10 gals.	5 gals.	36 hours
551 – 1000 (64" dia.tank)	9 gals.	4 gals.	44 hours
551 – 1000 (48" dia.tank)	12 gals.	6 gals.	58 hours

*.

Instructions for tanks installed after December 22, 2007

a. Must use interstitial monitoring as the primary form of leak detection.

Instructions for tanks installed on or before December 22, 2007

a. For tanks of 1,000 gallons capacity or smaller, *Manual tank gauging* may be used indefinitely as the only method of release detection.

b. *Manual tank gauging* may **not** be used for tanks larger than 1,000 gallons capacity.

Conducted weekly, *Manual tank gauging* monitors the product level in a tank for a period of at least 36 hours during which nothing is added to or removed from the tank. See the chart on the reverse side of this page for minimum test period for each size of tank.

Take two (2) consecutive gauge readings to the nearest one-eighth (1/8) inch and record them under numbers 1 and 2 in the "Test Start" row. Enter the average of the two readings in the "Test Start" row under "Average." From the tank chart appropriate for this tank, determine the gallonage that corresponds to this gauge stick reading and place it in the "Test Start" row under "Gallons in Tank."

At the end of the test period, repeat these steps above but place the new numbers in the "Test End" row instead.

To take a proper gauge stick reading, carefully place the stick into the top of the tank through one of the tank openings until the end of the gauge stick makes contact with the tank bottom. Product finding paste is recommended so the test is accurate in determining the level of product in the tank. It is also required the tank be checked monthly for water. Water finding paste is used to determine the quantity of water present in the tank, if any. The presence of water may indicate a leaking tank. If equipped, electronic tank monitoring may also be used to determine product and water levels to perform this method.

Conversion charts are available from the tank manufacturer or your tank service provider. These charts may not express gallonage for fractions of an inch. If your stick reading includes a fraction, you may have to interpolate to obtain the correct gallonage that corresponds to your gauge stick reading.

Example:

*The gauge stick reads 17 3/8", but your conversion chart only lists gallonage figures for 17" and 18", not for fractions between. How do you find the gallonage for **17 3/8"?***

> If, according to the conversion chart, 17" of product corresponds to 220 gallons, and 18" of product corresponds to 236 gallons, multiply the difference (236 – 220 = **16**) by the extra fraction (**3/8**). In this case, 16 x 3/8 = **6** gallons. Add the 6 gallons to the lower gallonage number to obtain the gallonage for 17 3/8". In this case, add 6 gallons to 220 gallons and come up with **226** gallons. Therefore, a stick reading of 17 3/8" corresponds to 226 gallons of product in the tank.

At the end of the rest period, take two more stick readings and average them. Convert the average reading into gallons and compare this gallonage to the gallonage obtained from the stick reading at the start of the test. If the end gallonage is greater than the start gallonage, record the difference as a "**+**" difference. If the end gallonage is smaller than the start gallonage, record the difference as a "**-**" difference. This difference should be within the weekly test standards for your tank (listed on the reverse of this form).

To interpret test results for a given month, add the four weekly variances together and divide by four. Compare this average of the four weekly variances with the monthly standard listed on the reverse of this form.

Note: If your tank fails to conform to the monthly standard, review all stick measurements to verify that there are no mistakes. Take extra precautions while performing leak detection measurements the next month. If the next month's result also fails by exceeding the allowed amount, you must immediately report this as a suspected leak to the Minnesota Duty Officer at 800-422-0798. Failing to do so may result in fines and increased cleanup costs.

Questions:

Contact the Minnesota Pollution Control Agency at 651-296-6300 or 800-657-3864.

Underground Storage Tanks: Are you doing the Big Six?

The Minnesota Pollution Control Agency (MPCA) requires all regulated underground storage tank (UST) systems to comply with specific requirements. This fact sheet is designed to highlight the six main requirements for managing USTs. This is a guidance document for owners and operators, to be used as a compliance tool.

The Big Six requirements cover:

1. Tank leak detection
2. Line (pipe) leak detection
3. Corrosion testing
4. Tank maintenance/testing
5. Class A,B,C operator training
6. Record keeping

Tank leak detection

There are three main tank leak detection methods:

- Automatic tank gauging requires a passing leak test at least once a month.
- Monthly Statistical Inventory Reconciliation (SIR) with passing monthly results.
- Interstitial monitoring may be used if the tank is double-walled. (This method must be used on tanks installed after December 22, 2007.) A passing monthly test is required.

Line leak detection

Continuous –All pressure piping must have an automatic (mechanical or electronic) line leak detector. An annual function test is required by an agency-approved tester.

Pressure piping must also have **one** of the periodic methods described below:

- Periodic – Line tightness testing annually at 0.1 gph by an agency approved tester
- Periodic – Line tightness testing monthly at 0.2 gph (electronic line leak detector or SIR)
- Periodic – Interstitial Monitoring used with some double-walled piping applications (must be used on piping installed after December 22, 2007)
    - Sump sensor with monthly passing test results and an annual sensor test by an agency approved tester, or;
    - Monthly visual inspection of sump by owner/operator

Non-safe suction pipe- line tightness testing every three years at 0.1 gph by an agency approved-tester; or interstitial monitoring as described above.

Corrosion testing

Metal tanks or piping must have a cathodic protection test performed by a qualified cathodic protection tester. Impressed current must be tested annually. Rectifier readings must be recorded every 60 days. Sacrificial anode systems must be tested every three years.

Tank maintenance / testing

Once a month:

- All product dispensers, submersible sumps, spill buckets and risers must be visually inspected for leaks and maintenance issues.
- ensure there are no obstructions in the fill risers
- ensure tank bottoms are monitored for water
- ensure release detection equipment is operating correctly and proper records are being kept

Annually (by an agency-approved tester)

- ATG certification –test controllers, alarms and system configuration
- Test probes, sensors, and leak detectors for functionality and communication with controller
- Visually inspect spill buckets and containment sumps used for interstitial monitoring for deficiencies.

Every three years (by an agency-approved tester)

- Integrity test all spill buckets for liquid tightness tank system
- Integrity test containment sumps (STP, dispenser, transition) used for interstitial monitoring for liquid tightness. (Interstitial monitoring is required for all pressure piping and non-safe suction piping installed after December 22, 2007)
- Overfill protection devices must be inspected to ensure the device is set at the correct level and tested to assure the device is functioning properly

Class A, B, C operator training

All facilities must have class A, B and C operator. Class A and B operators are required to pass an MPCA test relating to the operation of their tank system.

Class B operators must be on site at least once a month to assure tank compliance requirements are being met. Class C operators (commonly known as the attendant/clerk) must be trained by the A or B operator on how to respond to spills, releases, and alarms.

For unattended card-lock facilities, the B operator must be on site weekly and a C operator is not required. Unattended card-lock facilities must post an emergency contact sign in lieu of the class C operator.

Record keeping

You must keep records on file to prove that you are in compliance with all testing, employee training, and inspection requirements. You must also retain records of all repairs made to the tank system.

Additional information

More detailed information is available on the MPCA tanks website at www.pca.state.mn.us/cleanup/ust.html.

You can also call the MPCA at 651-296-6300 or 1-800-657-3864 and ask for the UST Program

Class A, B, and C Operator

The Minnesota Pollution Control Agency (MPCA) has requirements for operators at underground storage tank facilities. Every facility must designate a Class A, Class B, and Class C operator, with the exception of unattended card-lock facilities, which only need a Class A and Class B operator. Facilities that have tanks used solely for heating purposes are exempt from these requirements.

All designated operators must be either the owner, operator, or an employee of the owner or operator.

Class A operator

This person has general oversight of operations at the facility, and has a broad understanding of the legal requirements related to owning and operating an underground storage tank (UST) system. This person is commonly viewed as the owner of a facility, but does not necessarily have to be the owner. The Class A operator would ensure that the appropriate individuals are assigned and trained to properly operate and maintain the UST system, maintain appropriate records, and properly respond to emergencies such as spills or releases.

The Class A operator will be tested on their general knowledge, so that they can make informed decisions regarding compliance and ensure the operation and maintenance tasks are being properly completed. Test topic areas include; spill prevention, overfill prevention, release detection, corrosion protection, emergency response, secondary containment requirements, equipment compatibility, notification requirements, release and suspected release reporting, environmental and regulatory consequences of releases, temporary and permanent closure requirements, and operator training requirements.

Class B operator

This person oversees the daily operations of the facility and has an in depth understanding of the tank system and how its components are properly operated and maintained. This person is commonly viewed as the manager or maintenance supervisor of a facility, but does not have to be. This individual monitors, maintains, and ensures that all methods and equipment complies with appropriate performance standards and applicable rules. The Class B operator is also responsible for record keeping and reporting requirements The Class B operator must be present on-site at least once per month. While on-site, the operator must validate that:

- Release detection is being conducted properly on tanks and piping.
- Monthly, annual and three year operation and maintenance inspections/testing is being complete and appropriate measures taken.
- Required reporting and record keeping is being performed.
- Spill, overfill, and corrosion protection systems are in place, tested, and operational.
- Unusual operating conditions or release detection system indications have been reported and investigated.

The Class B operator will only be tested on the tank system components and methods that are in place at the facility. Topic areas include spill prevention, overfill prevention, release detection, corrosion protection, emergency response, testing, inspections, equipment compatibility, reporting and record keeping, and training requirements for Class C operators.

Class C operator

This person controls the dispensing of fuel and is the first line of response in the case of a spill, alarm, or other emergency at the facility. This person would be trained in the proper procedures for responding to spills and alarms at the facility. This person is commonly viewed as an attendant, but does not have to be. Each individual that has control over dispensing activities must be designated and trained as a C operator. The Class C operator would notify

the Class B or A operator and appropriate emergency responders when necessary. At least one Class C operator must be present at all times during the operation of the tank system, with the exception of unattended facilities. The Class C operator is not required to pass an exam; however, he/she must be trained by the Class A or Class B operator in the appropriate emergency response procedures.

Unattended card-lock facility

Unattended card-lock facilities are those where the operation of the tank, including dispensing of fuel, is done without the on-site presence of a Class A, Class B, or Class C operator. Examples include unattended service stations, some fleet fueling facilities, and facilities with tanks that serve emergency generators. Facilities that are manned with a Class A, Class B, or Class C operator for at least 6 hours a day are not considered unattended card-facilities.

A Class A and B operator must be designated for these facilities and the B operator must be on site at least once a week. An emergency contact sign must be posted in a conspicuous location with the facility name, facility address, telephone numbers for the facility and local emergency response.

Designating operators

There are multiple ways to designate Class A and B operators:

- Designate separate people for Class A and Class B operator
- Designate the same person for Class A and Class B operator (also referred to as A/B operator)
- Designate multiple people for each operator class at one or multiple facilities
- Designate one person for multiple facilities

Training requirements

The MPCA highly recommends that the Class A and B operators attend training before taking the exam, however it is not required. Training is required in two circumstances: the operator failed the exam, or the facility is found to be out of compliance. Below are compliance problems that would require training:

- failure to properly operate and maintain cathodic protection systems
- failure to properly install and maintain spill and overfill prevention equipment
- failure to properly conduct release detection
- failure to conduct monthly, annual and three year inspections/testing properly
- failure to properly place tank in temporary closure

The MPCA approves instructors able to offer training courses. The list of approved training providers and courses is available at https://www.pca.state.mn.us/waste/operator-requirements-and-training.

Operators exams

Class A and B operators are required to take and pass an exam with a score of 75% or higher. The exam is administered online by the MPCA and can be found at https://www.pca.state.mn.us/waste/operator-requirements-and-training

MPCA will accept operator certification from other states. Owners/operators must submit certification and information to demonstrate the other state's examination is equivalent to the MPCA exam.

Need more information

Visit the UST Program at https://www.pca.state.mn.us/waste/underground-storage-tank-systems. The site has forms, fact sheets, and other information about USTs and UST requirements.

You can also call the MPCA at 651-296-6300 or 1-800-657-3864.

Statistical inventory reconciliation for underground storage tank systems

If your underground storage tank (UST)'s does not have leak detection, you can be cited for violations and fined. Leak detection violations can also keep you from getting reimbursement for cleanup costs. Without leak detection, you risk discovering a leak only after it becomes an environmental problem and a major financial burden.

If you use Statistical Inventory Reconciliation (SIR) for leak detection, then this document may help you perform SIR properly.

When is SIR allowed?

SIR is an approved form of tank leak detection and periodic line leak detection for regulated UST systems installed prior to December 22, 2007. UST systems installed after this date are required to have secondary containment with interstitial monitoring.

How does SIR work?

Data on tank inventory, deliveries, and dispensing is recorded by the tank owner on a regular basis. Data is sent to the SIR vendor for statistical analysis to determine if the tank system is leaking.

Important elements of SIR for tank and piping leak detection include:

- Proper selection of SIR vendor
- Proper collection and analysis of data
- Proper recordkeeping

Without these elements, you may fail to meet the leak detection requirements. Steps one through four on the following pages show you how to perform SIR correctly.

SIR methods have certain limitations regarding the size, monthly throughput and configuration of the system. For example, some versions of SIR cannot be used on manifolded tank systems. You should contact the SIR vendor to determine which system would fit your needs.

There are several important requirements for SIR. They are listed here.

What are the SIR requirements?

The tank owner must use an SIR vendor, method, version and analysis that has been certified by the National Work Group of Leak Detection Evaluations (NWGLDE). A list of NWGLDE approved SIR vendors can be found at is found at https://neiwpcc.org/nwglde/by-testing-method/statistical-inventory-reconciliation-test-method-quantitative/. A list of some common SIR vendors can be found at the end of this fact sheet.

Inventory data must be taken daily and must follow the SIR vendor's instructions, forms, and procedures. Tank contents, deliveries, and sales must be calculated.

SIR results must be obtained within the 30-day monitoring period (see Step 3)

The SIR version must report a quantitative result with a calculated leak rate (indicate pass, fail or inconclusive)

The SIR Version must be capable of detection a leak rate of 0.2 gph or a release of 150 gallons with 30 days.

The SIR version must use a threshold that does not exceed one-half the minimum detectable leak rate.

Do you have the right equipment?

Gauge stick or other gauges

The gauge stick used to measure the depth of liquid in an underground storage tank must be marked or notched to the 1/8 of an inch (with zero at the bottom end). Check your stick to be sure that the end is not worn or cut off and that the stick is not warped. The stick should be made of non-sparking material such as wood. Wooden sticks should be varnished to minimize the creeping of fuel above the actual fuel level reading on the stick. All handheld devices used to take fuel or water readings must be checked annually for functionality and that the handheld device is in good condition and can be read properly.

Instead of using a gauge stick, you may use an electronic tank monitor. Whatever measuring device is used, it must be capable of measuring the entire volume of the tank to the nearest 1/8 of an inch of product. It is important to make sure that the correct gauge chart from the manufacturer is used when converting tank volumes. Electronic monitoring devices (ATG's) and probes must be inspected annually for functionality and calibrated accordingly.

Pastes for finding water or fuel

You must check for water in the bottom of the tank at least once each month by using water-finding paste and record the water level. The paste changes color when it is exposed to water. Many operators improve their stick readings by using a fuel-finding paste on the stick. Fuel-finding paste changes color when it is exposed to fuel. An electronic tank monitor with a water float may also be used to monitor for water in lieu of water finding paste. Either way the tank water levels must be reported on the SIR vendor forms.

Forms

The SIR vendor will have forms that are specific to the needs of their system. These forms will have to be completed according to the instructions of the SIR method. Forms that are not completed properly will result in inconclusive results. This may lead to unnecessary tank tightness testing.

Here are the steps to follow to determine if SIR is the appropriate leak detection option for you.

Step 1 – Selecting an SIR vendor

When selecting an SIR vendor, you should look at many factors like cost, training, system limitations, and customer service. Remember that the SIR vendor is providing a service that will keep you in compliance with leak detection regulations. This service should be a partnership. If either partner fails to meet its obligation, the tank owner will be the one penalized for insufficient leak detection records.

When selecting an SIR vendor, you should analyze the following:

a) Is the SIR vendor certified by the National Work Group of Leak Detection Evaluations (NWGLDE)? A list of NWGLDE approved SIR vendors can be found at: https://neiwpcc.org/nwglde/by-testing-method/statistical-inventory-reconciliation-test-method-quantitative/.

b) Does the SIR method cover my specific tank situation? You should check with the vendor to make sure you comply with the limitations. Remember, it is the tank owner that is responsible for leak detection, not the SIR vendor.

c) Does the SIR vendor provide good training for method requirements? The SIR vendor should provide training on what data to collect and how to collect and record the data properly. You must understand system needs and what the system results mean.

d) What is the cost of the SIR system? You should look at the total cost, not just the monthly cost. Customer service and training are important parts of an effective SIR system. If inconclusive or failed results happen because of inadequate training, you will be responsible for expensive tank tightness tests.

Step 2 – Collecting data properly

Proper data gathering is the key for effective leak detection using SIR. The SIR vendor will provide you with training, instructions, and forms for this data- gathering task. Data gathering is the most important task when using SIR as a leak detection method

Collecting data properly requires the following actions:

a) Measure the tank contents every day. This data is usually put on a daily inventory worksheet. Remember to use the proper tank chart for data conversions.
b) Record the amount pumped every day. This is done at the same time that the contents of the tank are measured.
c) Record fuel deliveries. Failing to record deliveries properly on the correct day is the largest source of error for SIR analysis. Make sure that proper training on data gathering is incorporated into your SIR program.
d) Measure water once a month. This step must also be documented.

Tank owners should train all personnel who will be involved in data gathering in the proper procedures.

Step 3 – Sending data to the SIR vendor

Historically, the owner or operator sometimes obtained SIR results three to eight weeks after the 30-day monitoring period ended. This often occurred because of the time it took to fill out manual forms, mailing time and getting the results back from the vendor. This will no longer be acceptable.

Owners and operators using SIR to meet leak detection requirements must determine the leak status (pass or fail) within the 30-day monitoring period. That means the data gathered during the month must be submitted to the SIR vendor by very quickly and results must be obtained within the 30-day monitoring period. Contact your vendor to assure they can meet this requirement.

Most SIR vendors offer an electronic (on-line) data submittal to expedite the process. Owners and operators can enter inventory data daily, weekly, monthly or when it fits their schedule. The SIR vendor will than analyze the data and results can be obtained electronically from the vendor. Often the SIR vendor will have results available within minutes, but may take up to 48 hours, depending on the vendor. The owner can then save an electronic copy of the results to their computer or print the results for record retention

If electronic submittal of data is not an option for you, contact your SIR vendor to discuss options to assure you get results within the 30-day monitoring period. One option is to send data to the SIR vendor more frequently to get more frequent results. Another option is rolling data collection. For example, if the SIR vendor requires 30 days of data, tank owners and operators could submit data for 15 days and combine this with 15 days of previous inventory data for a combined 30 days of data. The Vendors would then have to send the results in a timely manner. Given the variability of the data requirements by each vendor, it is best to contact your SIR vendor to come up with a solution to meet your needs if electronic submittal of data is not an option.

Step 4 – Analyzing results and record keeping

Each SIR vendor has a particular way of showing the results of the SIR analysis. Regardless of the form used to show the results, you must know how to read the results so that you know if the tank system is tight or leaking.

Many vendors also provide suggestions for improving the quality of the data such as calibrating the equipment or making sure to record deliveries on the correct day. This information can be very useful for your operation if you know what to look for. Again, you should select a vendor because they provide good customer service not because they are inexpensive.

Analysis and record keeping should include the following steps:

a) Review the SIR results immediately after receiving them from the vendor.
b) If the results show a “pass” result, you need to file the results with your leak detection records.

c) If the results show a ”fail” result, you must report it to the Minnesota Duty Officer within 24 hours by calling 800-422-0798 or 651-649-5451. The telephones are answered 24 hours a day. Because SIR includes the tank and the pipe, confirmation of the source of a release is required. A tank tightness test and line tightness test of the tank and pipe would be required to confirm and isolate the release and perform corrective actions as necessary.

d) If the SIR results show an “inconclusive” result you may continue SIR for one additional month. During The next month, you should make sure your data gathering practices are perfect. If the next month’s result is also “inconclusive”, it must be reported as a suspected release and treat it as if were a failing test as indicated in (c) above.

e) Keep the SIR results for at least five years. These records are the only way to prove that you are performing leak detection properly. It can also help in the sale of property by showing that no releases have taken place.

SIR vendors

The MPCA has gathered the following information to show common SIR vendors in Minnesota. Please visit https://neiwpcc.org/nwglde/by-testing-method/statistical-inventory-reconciliation-test-method-quantitative/ for an updated list and details on each vendor.

Company	Website Address	Telephone	SIR Version
Minnesota Petroleum Marketers Association	http://www.mpmaonline.com/	800-864-3818	USTMAN SIR 95.2
Gilbarco/Veeder Root	https://www.gilbarco.com/us/	800-253-8054	USTMAN and more
EnviroSIR LLC	http://www.envirosir.com/pages/index.html	337-935-0205	EnviroSIR V1.0
Leighton O’Brien Technologies	https://www.leightonobrien.com/	888-275-3781	Monitor/Redone
National Environmental, LLC	www.tanknetics.com	800-520-4802	Tanknetics, V. 2.1
Total SIR	www.totalsir.com	800-533-2481	Version 2.0
Warren Rogers Associates Inc.	https://warrenrogers.com/	800-972-7472	SIRA 5.2 and 5.1

Need more information?

Visit the UST Program at https://www.pca.state.mn.us/waste/underground-storage-tank-systems. The site has forms, fact sheets, and other information about USTs and UST requirements.

You can also call the MPCA at 651-296-6300 or 1-800-657-3864.

Temporary and permanent closure of underground storage tanks

This fact sheet explains the requirements for temporary closure, extending temporary closure, returning a temporarily closed tank to active service, or taking the tank out of service permanently.

Temporary tank closure

A tank-containing product may stand idle for up to 90 days as long as the routine safeguards (corrosion protection and leak detection) are continued. If a tank will be idle for more than 90 days, the owner must:

- Notify the Minnesota Pollution Control Agency (MPCA) of the change of status to Temporarily Closed, by online submittal of the "UST Change in Status" form found on the UST Program website
- Empty the tank (one inch or less of liquid).
- Lock out the fill pipe and ensure the cap is tight to prevent water from entering the tank.
- Secure all pumps and dispensers.
- Leave the vent line open and functioning.
- For any cathodic protection system, continue to meet normal requirements for both tank and piping, i.e. test system every three years (sacrificial anode type) and keep power on, check rectifier bi-monthly, and test system annually (impressed current type).

Monthly leak detection and other maintenance activities are not required on a tank once it has been emptied.

An MPCA inspector who observes a tank, which is not in use, will place an "orange tag" on the fill pipe. The "orange tag" states that the tank should not be filled or put back into service before contacting the inspector.

Extended temporary closure

Temporarily closed tanks must be permanently closed (see below) at the end of one year, unless the owner has requested and received written MPCA approval to continue in temporary closure. Typical MPCA conditions for extended temporary closure will include:

- Compliance with temporary closure requirements (as stated above)
- Compliance with any active leak site investigations
- For any cathodic protection system, normal requirements have been met and will continue to be met.
- Completion of the "Application for Extension of Temporary closure" found on the UST program website.

Returning a tank to service

If a tank has been temporarily closed for more than one year, the owner must request and receive written MPCA approval to return the tank to service. Typical conditions for MPCA approval will include:

- Check for and remove any water in the tank.
- Test or inspect any cathodic protection system to make sure it is still working properly.
- Tank and line tightness testing, applicable containment testing, and over fill protection testing.
- Compliance with tank system testing and design and construction standards
- Notify the MPCA of the change of status to Active, using the "UST Change in Status" form.

Permanent tank closure

Proper procedures for permanently closing a tank are important, because an abandoned tank will eventually leak and collapse as the tank corrodes. There are two methods of permanent closure:

- **Removal**: the tank, piping, and vent line are removed from the ground.
- **Closure-in-place**: the tank and piping are filled with an inert solid material and left in the ground.

Requirements for permanent closure include:

- Use an MPCA certified contractor. A list of certified contractors is found on the UST Program Web site.
- At least ten days in advance of beginning work, notify the MPCA of the tank closure project by submitting the "Ten-day Advance Notice" form found on the UST Program Website
- For closure-in-place, contact the local fire chief who must also give approval.
- Empty and clean the tank and piping (remove any liquids and sludge's). The fact sheet "Fuel-related Wastes" has a list of contractors who perform these services.
- A tank that is removed must be disposed of properly. It may not be reused as a regulated aboveground tank, and may not be reused as a regulated underground tank unless it has been re-certified by the manufacturer and has secondary containment. A steel tank may be recycled as scrap metal.
- Conduct a site assessment for contamination.
- Within thirty days after completing work, notify the MPCA of the change in status to Removed or Closed-in-Place, by submitting "UST notification form" found on the UST Program website

If your tanks have been unused since prior to December 22, 1988, you may be eligible to have the tanks removed by the Petrofund Abandoned Tank Program. For more information, call the Petrofund at 1-800-638-0418.

What if contamination is found during closure?

The Petrofund administered by the Department of Commerce provides up to 90% reimbursement for costs related to cleanup of petroleum contamination from USTs that are eligible for this funding. If you have questions, you can visit the Petrofund website at https://mn.gov/commerce/industries/fuel/petrofund/ or call 800-638-0418.

What if the property is sold?

If property containing an active, temporarily closed or permanently closed tank is sold, the seller must notify the buyer of the existence of the tank, in writing, prior to closing the transaction. It is the buyer's duty to notify the MPCA of the change in ownership, by online submittal of the "UST Change in Status" form.

Keep in mind that if you purchase or lease property containing closed tanks, or take over a business which previously operated tanks, you become responsible for meeting and maintaining these tank closure requirements.

Need more information?

Visit the UST Program at https://www.pca.state.mn.us/waste/underground-storage-tank-systems. The site has forms, fact sheets, and other information about USTs and UST requirements.

You can also call the MPCA at 651-296-6300 or 1-800-657-3864

Biofuel compatibility with underground storage tank systems

Concern and issue

Minnesota leads the nation with the most facilities dispensing biofuels. The biofuel industry is expected to grow even further with increasing blends of ethanol and biodiesel entering the marketplace. National studies have shown certain metallic and non-metallic materials, which comprise a traditional underground storage tank (UST) system, may not be compatible with higher blends of ethanol and biodiesel.

The Minnesota Pollution Control Agency's (MPCA) mission is to protect and improve the environment and enhance human health. State agencies, including the Department of Agriculture, Department of Commerce, and the MPCA, support the Minnesota biofuels industry as a means to achieve cleaner air, promote energy independence, and stimulate economic development.

The MPCA is also responsible for ensuring compliance with applicable state and federal environmental regulations. For UST systems, this means keeping fuel products contained within the UST system and preventing releases to groundwater.

Phase separation

Ethanol blends well with gasoline but is very miscible (mixable) in water. When water intrudes a UST, the ethanol in the ethanol-gasoline blend will absorb the water. If enough water is present, it will overwhelm the ethanol's ability to remain blended with the gasoline.

Because ethanol mixes easier with water than gasoline, the ethanol will be drawn from the gasoline into the water at the bottom of the tank, separating from the gasoline. The product in the tank is no longer a blend of ethanol and gasoline, but two layers – a layer of gasoline on top, and an ethanol-water layer on the bottom. Phase separation can be a problem for vehicles and the storage tank systems.

Compatibility

All UST systems must be compatible with the substance stored. Biofuels can corrode soft metals such as aluminum, zinc, and the more cathodic metals such as brass, copper, and lead. It can act as a scouring agent on steel tanks and piping, which can loosen internal deposits and sludge. If internal corrosion exists, the biofuel can accelerate the corrosion and cause a failure of the metal tank or piping.

Biofuels may also degrade many non-metallic materials such as natural rubber, polyurethane, older adhesives, certain elastomers and polymers used in flexible piping, bushings, gaskets, meters, filters, and cork materials.

Tank leak detection equipment composed of certain materials may not be compatible with higher blends of biofuels. Because ethanol has a higher conductivity than gasoline, certain probes will not work in ethanol-blend fuels. Tank owners and operators should verify that the floats used are alcohol compatible and that the ATG system is properly calibrated for the ethanol blend.

All underground storage tank (UST) systems must be compatible with the substance stored and dispensed regardless of the blend level. Tank owners/operators who wish to store ethanol blends greater than 10% or biodiesel blends greater than 20% must demonstrate compatibility of equipment, that is either: 1) listed by a nationally recognized, independent testing laboratory for use with the fuel stored, or 2) approved by the manufacturer to be compatible with the fuel stored.

Converting or installing UST's to store higher biofuel blends

The conversion to ethanol blends greater than 10% and biodiesel blends greater than 20% will require time and effort to evaluate existing equipment and verify compatibility. 30 days prior to introducing a biofuel blend greater than E10 or B20, you must complete and submit the MPCA UST change in status form which can be found at https://www.pca.state.mn.us/sites/default/files/t-u5-04b.pdf. Within 30 days of introducing an ethanolblend greater than 10%, or biodiesel blend greater than 20%, you must complete and submit the MPCA Alternative Fuel Compatibility form which can be found at https://www.pca.state.mn.us/sites/default/files/t-u5-09.pdf

Please consult with your tank contractor when the conversion takes place and for assistance in filling out the form.

The process involved in converting an existing UST system to store higher blends of biofuels is critical. Many resources are available to help guide you through this process including the American Lung Association checklist and the NREL E85 handbook.

The following equipment/components/materials must be compatible with the biofuel blend you intend to store and dispense:

- Tank
- Piping
- Drop tube
- Spill bucket
- Overfill equipment
- Submersible pump
- Suction pump
- Leak detection, probe, float & sensors
- Line leak detector
- Interstitial sensors
- Sump sensors
- Sumps
- Grommets/boots
- Flex connectors
- Gaskets
- Bushings
- Couplings
- Pipe sealant
- Dispensers and hanging hardware

Additional information

You can find additional information concerning biofuel compatibility and converting to higher blends of biofuels at the following websites:

U.S. Environmental Protection Agency, Emerging Fuels and USTs– https://www.epa.gov/ust/emerging-fuels-and-underground-storage-tanks-usts

U.S. Environmental Protection Agency, Biofuels Compatibility Resources – https://www.epa.gov/ust/biofuels-compatibility-resources

American Lung Association of the Upper Midwest -http://www.cleanairchoice.org/fuels/e85.cfm

Association of State and Territorial Solid Waste Management Officials - http://www.astswmo.org/files/policies/Tanks/2016-05-ASTSWMO%20Compatibility%20Considerations%20for%20UST%20Systems_FinalReport-v2.pdf

National Renewable Energy Laboratory, E85 Handbook - https://afdc.energy.gov/files/u/publication/ethanol_handbook.pdf

Renewable Fuels Association, E15 Retailer Handbook - https://ethanolrfa.org/wp-content/uploads/2015/09/RFA-E15-Retailer-Handbook-Update-Jan-20131.pdf

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Contact information

If you have any questions about your tank system, you can call the closest MPCA regional office and ask to talk to someone in the Tanks Program or visit the MPCA Tanks Program webpage.

MPCA regional offices

Brainerd
218-828-2492

Detroit Lakes
218-847-1519

Duluth
218-723-4660

Mankato
507-389-5977

Marshall
507-537-7146

Rochester
507-285-7343

St. Paul
651-296-6300
800-657-3864 (toll free)

MPCA website

Visit the MPCA's tanks page at **www.pca.state.mn.us/tanks**. You can also reach this page by entering "storage tanks" in the search box and clicking on the link entitled "Storage tanks". The tanks page includes detailed information about the topics covered in this manual and is the best online MPCA resource for Minnesota's storage tank operators. Resources include:

- Searchable database to look up information about your tank system.
- Notification forms.
- How to report a spill or release.
- Underground storage tank (UST) systems, including an updated list of MPCA-certified contractors.
- Storage tank publications – All available fact sheets for the tanks program, including contractor certification, installation and closure, design and operation, and general requirements.

SPILL RESPONSE STEPS

Step 1: Stop the spill

The leak or spill should be stopped if this can be done safely. Hit the **EMERGENCY STOP** button (if available), or turn off nozzles or valves from the leaking container.

Step 2: Contain the spill

Contain the spill if it can be done safely. Soil, sand, or granular absorbents (floor-dry, kitty litter, etc.) can be used to build a berm around the flowing liquid on the ground. **Build the berm to keep the liquid from entering floor drains, curb drains, and parking lot drains!** Buckets, pails, or other containers can be used under leaking valves or punctured tanks.

State law requires companies to be prepared to respond to spills. Therefore, stocking basic spill-response equipment/supplies is expected.

Step 3: Recover the spill

Once contained, the liquid must be recovered. If company personnel are trained and can perform these tasks safely, recovery should begin immediately. Otherwise, a contractor may be needed. Some community fire departments are willing to help stabilize larger spills until a contractor arrives. If the spill has already reached water in a ditch, pond, or wetland, petroleum recovery should be started using oil-only absorbent pads.

Collect contaminated absorbents. Brooms can be used to sweep up granular absorbent material. Place into buckets, garbage cans, drums, or heavy-duty plastic bags. Remember to control ignition sources. On slippery roadways, fresh granular material such as sand or absorbents can then be respread on the roadway for traction. With the exception of used oil, waste generated from petroleum spills that have been reported and cleaned up immediately are exempt from Minnesota's Hazardous Waste Rules.

Step 4: Arrange for disposal of the wastes

Your business may have arrangements in place for a company to pick up and dispose of waste materials you "generate." If so, notify them of your disposal needs. If not, contact a facility and make the necessary arrangements.

Your responsibility under state law (Condensed, see rule citation for complete requirements):

- *MN Stat §115.061. Duty to Notify and Avoid Water Pollution:* Report petroleum spills over 5 gallons immediately and begin cleanup immediately. Report and recover any other materials which could cause pollution to waters of the state.
- *MN Stat.§ 115E: Oil and Hazardous Substance Discharge Preparedness:* Requires all handlers of oil and hazardous substances to prevent and prepare for spills of these substances. Handlers shall be prepared at all times to rapidly and thoroughly recover discharges.

For more information on spill prevention, cleanup, and disposal, call the MPCA at **800-657-3864** and ask for a member of the Emergency Response Team, or go to **www.pca.state.mn.us/waste/emergency-management-publications**.

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North, St. Paul, Minnesota 55155-4194
www.pca.state.mn.us • 800-657-3864

EMERGENCY NOTIFICATIONS

If you have a spill in Minnesota, you must call:

1. Call 911 when there is a threat to life, safety, or property

2. Company representatives

Persons authorized to implement your spill response plan: 24-hour name and number

- Business owner: _____ Ph: _____
- Shift or General Manager: _____ Ph: _____
- Spill response contractor: _____ Ph: _____

3. Minnesota Duty Officer: 1-800-422-0798 or 651-649-5451

Call the Minnesota Duty Officer to report a spill, request state assistance, or if there is a threat to public safety or the environment. Note: in Minnesota, a spill of 5 gallons or less of petroleum does not need to be reported but does need to be recovered and cleaned up.

4. The National Response Center: 1-800-424-8802

When federal notification is required.

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