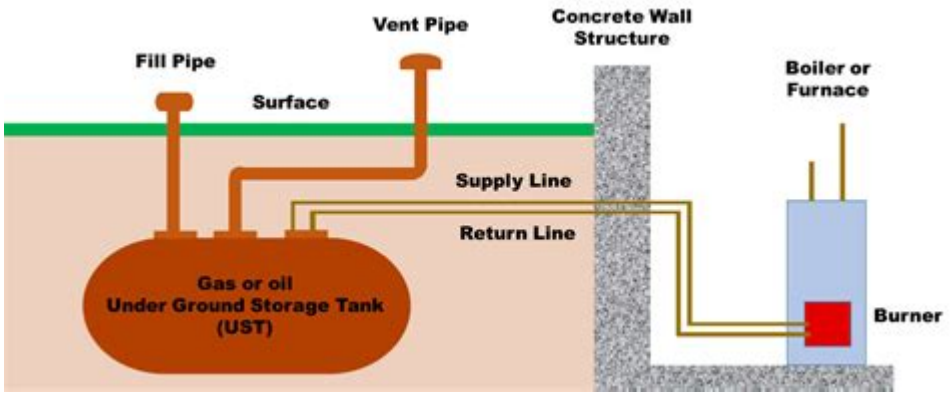
Underground Storage Tank Guide



Underground storage tanks (USTs) are critical components of many industries, particularly in the storage of fuels, chemicals, and hazardous materials. USTs are often utilized to store large volumes of liquid substances, and understanding the regulations, maintenance, and safety considerations associated with them is essential for businesses and environmental protection. This guide aims to provide a comprehensive overview of underground storage tanks, their types, regulations, maintenance best practices, and key considerations for their management.

Types of Underground Storage Tanks

Underground storage tanks come in various types, distinguished mainly by the materials they are constructed from and their intended use.

1. Material Composition

- Steel Tanks: Traditional USTs, often used for petroleum products. Vulnerable to corrosion if not properly protected.
- Fiberglass Tanks: Non-corrosive and resistant to many chemicals, making them ideal for a variety of applications.
- Composite Tanks: A combination of steel and fiberglass, offering the benefits of both materials.

2. Intended Use

- Fuel Storage: Primarily used in gas stations, airports, and industrial facilities for storing gasoline, diesel, or aviation fuel.
- Chemical Storage: Used to store various chemicals in agricultural, manufacturing, and other industries.
- Waste Storage: Employed in the safe disposal of hazardous waste materials.

Regulations Surrounding Underground Storage

Tanks

The management of underground storage tanks is heavily regulated to protect the environment and public health. In the U.S., these regulations are primarily governed by the Environmental Protection Agency (EPA) and state agencies.

1. Federal Regulations

- Resource Conservation and Recovery Act (RCRA): This act governs the disposal of solid and hazardous waste, including regulations for USTs.
- Underground Storage Tank Program: Established by the EPA, it outlines standards for the design, construction, operation, and closure of USTs.

2. State Regulations

- States may implement additional regulations that are more stringent than federal laws. It is essential for UST owners and operators to be aware of local requirements which may include:
- Licensing and registration of USTs
- Regular inspections and reporting
- Financial responsibility to cover potential leaks and spills

Key Components of Underground Storage Tanks

Understanding the key components of UST systems is crucial for effective management and maintenance.

1. Tank Structure

- Tank Body: The main structure that holds the stored liquid.
- End Caps and Fittings: Where the tank connects to the piping system.

2. Piping Systems

- Product Piping: Transfers the stored liquid to the dispensing area.
- Vent Piping: Allows for air exchange, preventing pressure buildup within the tank.

3. Leak Detection Systems

- Essential for monitoring leaks, which could cause environmental contamination. Common methods include:
- Automatic tank gauging (ATG)
- Interstitial monitoring
- Manual monitoring

Maintenance Best Practices

Regular maintenance is vital for the longevity and safety of underground storage tanks. Here are some best practices to consider:

1. Regular Inspections

- Conduct routine inspections to check for signs of corrosion, leaks, and structural integrity.
- Ensure that all components, such as pipes, fittings, and monitoring systems, are functional.

2. Leak Detection Compliance

- Implement and regularly test leak detection systems to identify potential leaks early.
- Maintain detailed records of monitoring results and any maintenance performed.

3. Corrosion Protection

- For steel tanks, use cathodic protection systems to reduce the risk of corrosion.
- Regularly inspect and maintain protective coatings on the tank surface.

4. Maintenance of Piping Systems

- Monitor and maintain piping systems to prevent leaks from fittings and joints.
- Inspect vents to ensure they are free from obstructions.

Closure and Removal of Underground Storage Tanks

When a UST is no longer in use, proper closure and removal procedures must be followed to prevent environmental hazards.

1. Temporary Closure

- Situations may arise where a tank is temporarily taken out of service. It is crucial to adhere to regulations, including:
- Removing all product from the tank
- Filling the tank with an inert material

2. Permanent Closure

- Permanent closure involves the complete removal of the tank from the ground. Steps include:
- Notifying the relevant authorities

- Excavating the tank and associated piping
- Proper disposal of any hazardous materials

Environmental Considerations

The management of underground storage tanks has significant environmental implications.

1. Preventing Contamination

- Leaks from USTs can lead to soil and groundwater contamination. Implementing robust leak detection and maintenance practices can mitigate these risks.

2. Remediation Measures

- In the event of a leak, immediate action must be taken to remediate the affected area, which may include:
- Contaminated soil removal
- Groundwater treatment systems
- Long-term monitoring

Conclusion

Understanding the complexities surrounding underground storage tanks is crucial for operators, businesses, and environmental stakeholders. By adhering to regulations, implementing best maintenance practices, and prioritizing safety, the risks associated with USTs can be effectively managed. This guide serves as a foundational resource for anyone involved with or impacted by underground storage tanks, ensuring a safer and more environmentally responsible approach to their use and management.

Frequently Asked Questions

What is an underground storage tank (UST)?

An underground storage tank (UST) is a tank and any underground piping connected to it that is used to contain regulated substances. These tanks are often used for storing petroleum products or hazardous waste.

What are the regulations surrounding underground storage tanks?

USTs are regulated by the Environmental Protection Agency (EPA) and state agencies. Regulations typically include requirements for installation, monitoring, maintenance, and reporting leaks or spills.

How can I tell if my property has an underground storage tank?

Signs that your property may have a UST include historical usage records, old permits, and physical indicators such as vent pipes or fill pipes. A professional site assessment can confirm the presence of a UST.

What are the risks associated with underground storage tanks?

The main risks include leaks that can contaminate soil and groundwater, which poses environmental and health hazards. Additionally, leaking USTs can lead to costly cleanup operations and legal liabilities.

How do I properly maintain an underground storage tank?

Proper maintenance includes regular inspections for leaks, corrosion protection, inventory control, and proper record-keeping. It is also important to ensure compliance with local, state, and federal regulations.

What should I do if I suspect a leak in my UST?

If you suspect a leak, you should immediately stop using the tank, report the suspected leak to the appropriate regulatory agency, and contact a qualified environmental professional for assessment and remediation.

Are there financial assistance programs for UST owners?

Yes, many states offer financial assistance programs for UST owners to help with compliance costs, leak detection systems, and cleanup efforts. It's advisable to check with local environmental agencies for specific programs available.

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