Above/Below Ground Storage Tanks and SPCC Planning
March 9, 2016

Presented by
Mark Panian, CHMM
Wenck Associates, Inc.
Risk:
MPCA 2014 Enforcement Data

2014  2013  2012


Legend:
- Stipulation Agreement
- Administrative Penalty Order
- Citation
Work is underway to clean up what the town considers a significant spill after as many as 100 gallons of liquid asphalt leaked into catch basins near a business park. The incident occurred after sealer ran off parking lots shortly after application when it started to rain.

The sealant was not considered to be significantly toxic, but the sheer volume of the spill had officials concerned.

The town learned of the leaking asphalt material when Highway Department received an anonymous call.

Officials arrived at the scene and were met by work crews. "The first thing out of their mouth was that they had contacted their insurance company."

The material was running off the lot into storm drains that lead to the Merrimack River.

The incident went unreported to the DEP.
Environmental regulators were notified of an estimated 220,000-gallon oil spill contained inside an asphalt plant. Workers discovered the spill.

The floor of the tank failed, forming a hole, which spilled hot asphalt oil into a containment area. The oil flowed downhill, forming a pool about 2 feet deep. “We attempted to recover as much of it as we can while it was still flowing”.

It was a large enough quantity that it took some considerable effort to clean up the site. The liquid asphalt was contained inside the property.
Risk: Incident for Discussion

A trucking company has reached an agreement with the Minnesota Pollution Control Agency (MPCA) resolving the company’s failures to report petroleum spills.

MPCA staff investigated a complaint that petroleum had been spilled at a site. At the time of the investigation, the company was operating double-walled aboveground tank for storing and dispensing diesel fuel. The company had never notified the MPCA of the storage tank's existence within 30 days of its installation. Nor was the tank clearly labeled, showing the substance stored and the tank's capacity, as Minnesota rules require.

There was also an overfill of approximately 50 gallons when it transferred diesel fuel to a tanker truck. The spill was not reported as required by law. The spill was reported only after city staff observed and reported evidence of the spill.

They failed to report another spill when one of its trucks hit a stoplight post at an intersection. The incident resulted in a spill to the soil of about 40 gallons of diesel fuel from the truck’s damaged saddle tank.

As a result of the settlement, the transfer company has developed a spill-response plan, submitted documentation verifying that it will immediately report releases to the Minnesota Duty Officer, trained its staff on spill-reporting requirements and spill-response procedures, and submitted documentation that it has properly cleaned up and managed the soil at its facility. The company also paid a $10,000 civil penalty to the MPCA.

Source: MPCA
Above/Below Ground Storage Tanks and SPCC Planning

Two Governing Bodies in Minnesota

1. U.S. EPA
   Spill Prevention, Control and Countermeasures (SPCC) Plan Rules

2. MPCA Regulations
   Above Ground Storage Tank (AST) Rules
   Minnesota Statutes
SPCC Plan Annual Review

1. Review Written Plan
   A. Site Contacts
   B. New Tanks and Equipment
   C. **Integrity Testing**
   D. Update Drawings
      i. Containers \( \geq 55 \) gallons and USTs
      ii. Transfer stations and connection points
      iii. Piping
      iv. Spill Kits
      v. Drainage Structures and Flow Directions

2. Portable Asphalt Plants

3. Update the Plan
   A. Administrative vs. P.E. Certification
   B. Management Approval
   C. 5-Year / 6-Month
SPCC Plan Annual Review

1. Monthly Inspections – Use for Comp. Annual Site Review

2. Site Review
   A. Drainage
      i. Seasonal
      ii. Erosion
      iii. Structures
   B. Secondary Containment
      i. Material Accumulation
      ii. Integrity (Cracks, Earthen Structures)
      iii. Volume
   C. Plant Start Up: Maintenance, Fueling, Portable Containers
   D. Tanks
      i. Tank Gauges: test sensors and liquid level equipment
      ii. Check interstitial space
      iii. Supports
      iv. Vents
      v. Insulation
      vi. Valves (positioning, locking, etc.)
   E. Piping
Aboveground Storage Tank Applicability

SPCC Applicability

**Counted**
55-gallons or greater

**Not Counted**
5-gallon container
30-gallon drum
Permanently Closed

EPA
SPCC Plan Monthly Inspections

Cause of Releases
(Source: U.S. EPA OSC Readiness Training)

- Delivery: 32%
- Piping: 35%
- Dispenser: 12%
- Other: 16%
- Tank: 5%

“other” includes: fuel filters, outlet valves and human spills.
SPCC Plan Monthly Inspections Probability of Tank Failure
(Source: U.S. EPA OSC Readiness Training)
SPCC Plan Monthly Inspections
Probability of Tank Failure
(Source: U.S. EPA OSC Readiness Training)
SPCC Plan Annual Review

Integrity Testing

1. ASTs require:
   - Integrity testing on a regular schedule
   - Visual inspection must be combined with another testing technique such as: ultrasonic, radiographic, acoustic emissions, hydrostatic.

2. Type of integrity testing and inspections must consider applicable industry standards.
   - Steel Tank Institutes (STI) – Shop Fabricated
   - American Petroleum Institute (API) – Field Erected
<table>
<thead>
<tr>
<th>TANK CONFIGURATION</th>
<th>TANK HAS CRDM?</th>
<th>AST CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>AST in contact with ground</td>
<td>no</td>
<td>2 or 3</td>
</tr>
<tr>
<td>Elevated tank with spill control and with no part of AST in contact with ground</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Vertical tank with RPB and spill control</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Vertical tank with double bottom and spill control</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Vertical tank with RPB under tank and spill control</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Double-wall AST</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>AST with secondary containment dike/berm</td>
<td>yes</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AST Type and Size (U.S. gallons)</th>
<th>Category 1</th>
<th>Category 2</th>
<th>Category 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shop-Fabricated ASTs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 - 1100 (0-4164 liters)</td>
<td>P</td>
<td>P</td>
<td>P, E&amp;L(10)</td>
</tr>
<tr>
<td>1101 - 5,000 (4168-18,927 liters)</td>
<td>P</td>
<td>P, E&amp;L(10)</td>
<td>[P, E&amp;L(5), I(10)] or [P, L(2), E(5)]</td>
</tr>
<tr>
<td>5,001 - 30,000 (18,931-113,562 liters)</td>
<td>P, E(20)</td>
<td>[P, E(10), I(20)] or [P, E(5), L(10)]</td>
<td>[P, E&amp;L(5), I(10)] or [P, L(1), E(5)]</td>
</tr>
<tr>
<td>Portable Containers</td>
<td>P</td>
<td>P</td>
<td>P**</td>
</tr>
</tbody>
</table>
SPCC Plan Annual Training

1. MAPA Training

2. Train-the-Trainer
   A. Team
   B. Classroom
      i. Applicability
      ii. Covered Containers – Inventory
      iii. Figures
      iv. Inspections
      v. Security
      vi. Documentation (next slide)
   C. Site Walk – Make it a Monthly Inspection
Recordkeeping

1. Copy of SPCC Plan
   A. PE Certification
   B. Drawings
2. Tank Specifications
3. Secondary Containment Information
   A. Volume Calculations
   B. Permeability Information for Earthen Materials
4. Inspection Records
5. Tank integrity tests / certification (internal / external tank inspections)
7. Training
EPA issued Version 2.0 of the SPCC guidance on August 28, 2013

921 Pages
EPA Top SPCC Violations

▲ Container incompatibility. Ex) underground storage tanks as aboveground storage tanks and using heating oil tanks to store gasoline.

▲ Containment drain valves left open.

▲ Poor integrity of tanks.

▲ No or inoperative overfill device(s).

▲ Failure to address facility tanker trucks/refuelers in the SPCC Plan.

▲ Small containers located in buildings that don’t have proper secondary containment.

▲ Improper maintenance and inspection of containment structures.

▲ Poor piping support.

▲ Buried piping after August 16, 2002, that has not complied with cathodic protection requirements.

▲ Poor double-wall piping.

http://envirodailyadvisor.blr.com/2013/04/epas-top-12spcc-violations/#
Case Study: Compliance Violations

Kinder Morgan  Jan 2016

▲ Fined $745,000 for violations by the Pennsylvania Department of Environmental Protection.

▲ $575,000 stems from a spill of 8,000 gallons of fuel grade ethanol along the Delaware River. Company did report but failed to do so within timelines required under state law.

▲ $175,000 after site inspection where they had allowed stormwater to accumulate in containment dykes surrounding storage tanks.

*https://stateimpact.npr.org/pennsylvania/2016/01/05/dep-fines-kinder-morgan-for-philadelphia-storage-tank-violations/
Case Study: Compliance Violations

D.C. Department of General Services Nov 2015

▲ Fined $10,000 for violations by the EPA.
▲ Violated tank regulations at Robert F. Kennedy Stadium.
▲ Failed to conduct monthly monitoring of a 1,000 gasoline tank at the stadium.

*http://yosemite.epa.gov/OPA/ADMPRESS.NSF/d0cf6618525a9efb85257359003fb69d/12490ec803ca248f85257f010051d4fe!OpenDocument
Case Study:
Compliance Violations

Waste Oil Recycler: Newark, CA Aug 2015

▲ Fined $90,000 for violations by the EPA.
▲ Failed to provide secondary containment around oil storage area
▲ Failed to secure and control access to oil handling, processing and storage areas
▲ Failed to use safe containers and good engineering practices, including liquid level alarms to avoid discharges.

*http://www.emergency-response-planning.com/blog/epa-fines-multiple-companies-for-spcc-plan-violations*
Aboveground Storage Tank Rules

How are tanks regulated?

Minnesota Rules 7151
- Liquid Substances
- Labeling
- Secondary Containment
- Transfer Safeguards
- Corrosion Protection
- Overfill Protection
- Monitoring / Inspection
- Leak Detection

Minnesota Statutes
- Registration (116.48)
- Spill Planning
- Release Notification

Major Facility Permit
Minnesota Statute 116.48

Tank Registration / Notification (30 Days)

AST Notification of Installation or Change in Status Form
Aboveground Storage Tanks (AST) Program
Tanks and Piping: Installation, New Information, Closure

Notify the Minnesota Pollution Control Agency (MPCA) within 30 days after bringing tank system into use or making a change in status or information. Keep a copy for your records. **Unsigned and incomplete forms will be returned.** Guidance on page 3.

Questions: Call 651-757-2429 or 1-800-657-3864 during normal business hours.

Use this form for:
- Installing or replacing of tank or piping
- Changing information, such as site name, address, owner, or stored substance
- Changing tank status, such as closing or removing a tank

Ways to notify:
- Fax: 651-297-2343 or 651-297-8683, Attn: Joann Henry
- Mail: Attn: Joann Henry at above address
- Email: joann.henry@state.mn.us (form must be signed before scanning and emailing)

<table>
<thead>
<tr>
<th>MPCA Use Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site #:</td>
</tr>
<tr>
<td>County:</td>
</tr>
<tr>
<td>Date rec'd:</td>
</tr>
</tbody>
</table>
Minnesota Statute 116.48
Tank Database


Minnesota Pollution Control Agency

Minnesota tank site search

Find registered tank sites in Minnesota: locations, details of tank installation and construction, and installed safety measures.

Site type:  ○ Leak site
           ○ Tank site

Site ID:

Site name:

Street:

City:

Zip:

County:   - Select County -

Search  |  Reset
Aboveground Storage Tank Rules

Exemptions

MN Rules

- ▲ ASTs ≤ 1,100 gallons
- ▲ ASTs on site ≤ 30 days (tanker trucks/railcars)
- ▲ Operational Equipment
- ▲ Indoor Tanks
- ▲ Tote Tanks
- ▲ Wastewater Treatment
- ▲ Hazardous Waste
- ▲ Water Tanks
- ▲ Septic Tank

MN Statute (registration)

- ▲ Asphalt cement
- ▲ ASTs <500 gallons
- ▲ Heating oil ASTs ≤1,100-gallons
- ▲ Solids and Gases
- ▲ Temporary Tanks
- ▲ Tote Tanks
- ▲ Agricultural Tanks
# Aboveground Storage Tank Rules

## Asphalt Cement ASTs

### Requirements

- Label tanks (content, unique #, capacity)
- Label piping
- Signage
  - Name and number of owner / operator
  - Post in conspicuous place
- Secondary containment
- Weekly and monthly visual monitoring
- External inspection (field erected – API 653)

## Asphalt Cement ASTs

### Exemptions

- Registration not required
- Corrosion protection not required
- Substance transfer safeguards not required
- Overfill protection
- Leak detection
- Internal inspections (field erected)
Aboveground Storage Tank Rules

Temporary Storage Tanks

▲ Tanks located on site >30 days & <1 yr.
▲ Exempt from Mn. Rules except
   Labeling ("Temporary Storage" & date)
   Signage
   Containment

Out of Service ASTs

▲ Not active for one year
   Maintain as active
   Remove Product, Disconnect Piping, Clean, Label
Hot Mix Asphalt Facility Compliance Audit

Consider completing to help ensure you are meeting MPCA requirements

https://www.pca.state.mn.us/sites/default/files/ea-s5-14.doc

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**Hot Mix Asphalt Plants Compliance Audit**

Asphalt Cement and Petroleum Storage Tanks Environmental Audits

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Minnesota Pollution Control Agency (MPCA) compliance audit checklists are designed to assist businesses and MPCA staff with the interpretation of Minnesota’s environmental laws and rules. Because the laws and rules are numerous and often complicated, this checklist cannot be a complete guide to all your compliance obligations. If you have questions about the checklist, your obligations, or its conditions that you discover as you complete this evaluation, please contact:

Small Business Environmental Assistance Program (SBEAP)
651-202-6143 or 1-800-657-3938
http://www.pca.state.mn.us/programs/sbap-sectors.html

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**Date of Audit:**

---

**Company Name:**

---

**Authorized Representative Name:**

---

**Title:**

---

**Asphalt Cement (AC) Tanks**

**Registration**

The MPCA does not require the registration of asphalt cement above ground storage tanks (ASTs) unless their contents are liquid at a temperature of 60 degrees Fahrenheit and a pressure of 14.7 pounds per square inch absolute. Based on this information from Minn. Stat. § 116B.6, subd. 6, asphalt cement ASTs do not have to be registered:

- **YES** Our asphalt cement tank(s) are not liquid at 60 degrees F. and a pressure of 14.7 pounds per square inch.
- **NO** Our asphalt cement tank(s) are liquid at 60 degrees F. and a pressure of 14.7 pounds per square inch. We do need to register our tanks as required by Minn. Stat. § 116B.6, subd. 6.
Aboveground Storage Tank Rules

Secondary Containment:

▲ Volume (110%)
▲ Clay, Synthetic Liner, Concrete, Steel
▲ Double Wall Tank
▲ Temporary Tanks and Pre November 1998 Native Soils Can be used

<table>
<thead>
<tr>
<th></th>
<th>Type A (gas)</th>
<th>Type B (diesel)</th>
<th>Type C (Asphalt Cement)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;10 ft. to GW</td>
<td>$1 \times 10^{-5}\text{cm/sec}$</td>
<td>$1 \times 10^{-4}\text{cm/sec}$</td>
<td>$1 \times 10^{-3}\text{cm/sec}$</td>
</tr>
<tr>
<td>≥10 ft. to GW</td>
<td>$1 \times 10^{-4}\text{cm/sec}$</td>
<td>$1 \times 10^{-3}\text{cm/sec}$</td>
<td>No Standard</td>
</tr>
</tbody>
</table>
Aboveground Storage Tank Rules

Overfill Protection:

▲ High level alarm (max 95% capacity)
▲ Automatic shut off (stop substance flow)
▲ Permanently mounted sight glass / gauge (visible to transfer attendant)
▲ Manual gauge monitored during transfer
Aboveground Storage Tank Rules

Transfer Area Requirements:

- Spill Safeguards for Hose Connections
  - Spill Boxes
  - Containment Areas
  - Buckets
- Not required for hand-held nozzles
Aboveground Storage Tank Rules

Monitoring / Visual Inspections:

- Transfers
- Weekly for releases
  - Not required for double wall tanks
- Monthly: visual check of tanks, pipe, valves, pumps, secondary containment
AST Major Facility Permits

If your facility has > 1 million gallons of liquid substance storage capacity you need an AST Major Facility Permit.

▲ Asphalt cement is not exempt from total liquid substance storage capacity if facility has >1 million gallons, and will be regulated under Major Facility Permit regulations.

First Time Permits:

▲ As of October 6, 2015, all permit issuance, reissuance and modification applications must be submitted using the AST program’s online service.

▲ Storage capacity includes indoor tanks.

▲ Permits are individual permits negotiated with MPCA.

▲ There is no permit application fee.

▲ Application must be submitted and permit issued prior to initiating construction of any AST that would increase total storage capacity to over 1 million gallons at the facility.

▲ MPCA’s goal to issue permits in 90 days. Could be 6 months

▲ Standard term of an AST permit is 10 years.
Aboveground Storage Tank Rules

Labeling Rules:

▲ Label Tanks to Clearly Identify the Following
  - Contents
  - Capacity
  - Unique Number

▲ Label Lines for Loading and Unloading
  - Identify which line is connected to which tank

▲ Posted Information
  - Required if site not attended full time
  - Post name, address, phone number of owner/operator
Underground Storage Tank Applicability

Some types of USTs are exempt from the regulations:

- Tanks with a capacity of 110 gallons or less
- Farm and residential tanks with capacity of 1,100 gallons or less, storing motor fuel for non-commercial purposes
- Tanks with a capacity of 1,100 gallons or less, storing heating oil for consumptive use on the premises
- Tanks that contain a minimum concentration of regulated substances
- Flow-through process tanks
- Oil-water separators

Source: Flynn Environmental
In July 2015 the EPA published the 2015 underground storage tank regulation and the 2015 state program approval regulation. This was the first major revision to the UST regulations since 1988.

States will have 3 years to reapply in order to retain their State Program Approval (SPA) status. Owners and operators in these states must continue to follow their state requirements until the state changes its requirements or until the states' SPA status changes.

Minnesota currently holds SPA approval and current requirements should be followed. State of Minnesota will need to re-apply for coverage prior to 2018.
Changes to UST Regulations

Changes to the EPA Rule include:

▲ Adding secondary containment requirements for new and replaced tanks and piping
▲ Adding operator training requirements
▲ Adding periodic operation and maintenance requirements for UST systems
▲ Adding requirements to ensure UST system compatibility before storing certain biofuel blends
▲ Removing past deferrals for emergency generator tanks, airport hydrant systems, and field-constructed tanks
▲ Updating codes of practice
▲ Making editorial and technical corrections
Visit the MPCA UST Webpage:

For up to date MN UST information

Underground storage tank systems

In Minnesota, there are about 18,000 regulated underground storage tanks (USTs) currently in use. The Underground Storage Tank Program was created to help prevent contamination caused by leaking tanks. The program focuses on technical assistance and compliance to achieve this objective.

Rules

1. The MPCA promulgated UST rules in 1991. The rules were amended following the Energy Policy Act of 2005 (Act) and became effective on March 24, 2008. The UST rules were again amended in 2009 to address expanded training requirements. The following fact sheets summarize what’s new for tank owners and tank contractors:

- What Tank Owners Need to Know about the New UST Rules
- What Tank Contractors Need to Know about the New UST Rules
- Copy of final adopted rule language

In this section:

- Exam for Class A and B operators of underground storage tanks
- Underground storage tank operator exam: Frequently asked questions
- Underground storage tank operator requirements

Compliance and assistance
For a summary of EPA Requirements

Review the EPA “Musts for USTs Guide”:
What if there is a spill??

▲ Ensure your own personal safety
▲ Attempt to stop the release at its source
▲ Contain/prevent spill from spreading (refer to SPCC Plan)
▲ Notify:
  • If there is a threat to life or property call 911
  • If <5 gallons notify personnel outlined in SPCC Plan
  • If >5 gallons notify personnel outlined in SPCC Plan as well as MN State Duty Officer.
  • If federally reportable call the National Response Center
▲ Document Spill
MINNESOTA DUTY OFFICER

BCA Operations Center

651-649-5451  1-800-422-0798
TDD: 1-800-627-3529  Satellite Phone: 1-254-543-6490

About the Duty Officer

The Minnesota Duty Officer Program provides a single answering point for local and state agencies to request state-level assistance for emergencies, serious accidents or incidents, or for reporting hazardous materials and petroleum spills. The duty officer is available 24 hours per day, seven days per week.

*If there is an immediate threat to life or property, call 911 first.*

When to Call the Duty Officer

Examples of incidents the duty officer can assist with include (but are not limited to):

- Natural disasters (tornado, fire, flood etc)
- Requests for National Guard
- Hazardous materials incidents
- Search and rescue assistance
- AMBER Alerts
- Requests for Civil Air Patrol
- Radiological incidents
- Aircraft accidents/incidents
- Pipeline leaks or breaks
- Substances released into the air

Agency Resources Available

- Department of Agriculture
- Department of Commerce
- Department of Education
- Department of Health
- Department of Human Services
- Department of Military Affairs
- Department of Natural Resources
- Department of Transportation
- Minnesota Office of Enterprise Technology
- Minnesota Pollution Control Agency

State Agencies

- Department of Public Safety
  - Bureau of Criminal Apprehension
  - Homeland Security and Emergency Management
  - Minnesota Joint Analysis Center
  - Minnesota State Patrol
  - Office of Pipeline Safety
  - State Fire Marshal
  - Other state agencies not listed

Other Resources

- Minnesota Arson Hotline
- Local bomb squads
- Chemical assessment teams
- Emergency response teams
- Fire and rescue mutual aid
- Amateur radio (ARES/RACES)
- Minnesota voluntary organizations
- Fire chiefs assistance teams
- Search-and-rescue dogs
- Interagency Fire Center
- U.S. Air Force Search and Rescue Center
Emergency Notification
If there is a spill of a hazardous material or a petroleum product in Minnesota, you must call:

Local Authorities  Call 9-1-1 FIRST, when there is a threat to life or property

Minnesota Duty Officer  If there is a public safety or environmental threat and/or if state agency notification for reportable spills is required

The National Response Center  1-800-424-8802

When a federal notification is required

The following information (if available) will be requested by the Minnesota Duty Officer:
- Name of caller
- Date, time and location of the incident
- Telephone number for call-backs at the scene or facility
- Whether local officials (fire, police, sheriff) have been notified of incident

Additional information will be requested in the following special circumstances:

Making Notification of Spills/Incidents
- Materials and quantity involved in incident
- Incident location (physical address, intersection, etc.)
- Responsible party of incident (property/business owner)
- Telephone number of responsible party
- Any surface waters or sewers impacted
- What has happened and present situation

Requesting State Assistance for Incidents
- Type of assistance requested (informational, specialized team assets, etc).
- Name of requesting agency/facility
- Materials, quantity and personnel involved in the incident
- Whether all local, county, mutual aid resources been utilized
Questions & Comments

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