



# MANAGEMENT OF PETROLEUM STORAGE TANKS AND CONTAINERS

ENVIRONMENTAL GUIDELINES



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## **ACTIVITY DESCRIPTION**

This environmental guideline describes the management of underground and aboveground petroleum storage tanks and containers. Both underground storage tanks (USTs) and aboveground storage tanks (ASTs) are utilized at DEN for the storage of petroleum products related to vehicle and equipment fueling and maintenance, as well as for product storage associated with oil and gas production wells. In addition, numerous smaller and portable containers are used to store petroleum products in support of fueling and maintenance activities for vehicles and other equipment. This guideline addresses compliance with federal regulations at 40 CFR 112 (SPCC regulation) and 40 CFR 280/281 (UST regulation), as well as relevant or counterpart state requirements located in Colorado Oil & Gas Conservation Commission regulations, Colorado Division of Oil and Public Safety (OPS) regulations, and locally applicable International Fire Code (IFC) requirements.

## **POTENTIAL ENVIRONMENTAL RISKS**

The following environmental concerns are associated with these activities:

- Oil and petroleum product spills, leaks, and other accidental discharges
- Contamination of groundwater, surface water, and soil
- Air emissions
- Fire

Potential consequences from performing the activity incorrectly:

- Property damage, personal injury, or damage to the environment
- Remediation costs
- Regulatory and judicial enforcement actions and related [financial & non-financial] penalties

## **RECOMMENDED OPERATING CONTROLS**

### Prohibited Activities

Depending on tank/container size:

- Installing and operating an UST/AST without a state application and state registration.
- Operating an UST/AST not in accordance with regulatory requirements.
- Removal of an UST/AST without taking proper closure-related actions.
- Installing, changing the use of, or removing a tank system at DEN without notifying the state Division of Oil and Public Safety (OPS) and DEN Environmental Services.

### General Considerations

- Each airport tenant, contractor, and operator conducting petroleum storage operations is responsible for understanding the applicable regulations and managing their activities accordingly; this Environmental Guideline is meant as guidance and does not supersede any regulations.
- Every potentially applicable facility must be evaluated for compliance requirements.



- Petroleum storage facilities with containers 55 gallons and larger should be evaluated for 40 CFR 112 requirements and the need to prepare a Spill Prevention, Control, and Countermeasure (SPCC) Plan or a Facility Response Plan.
- Owners/operators of regulated UST systems are subject to additional requirements, effective January 1, 2010, that mandate certification of UST operations personnel, monthly inspections of UST systems, and annual compliance verification. (see below)

## Training Requirements

- Training on SPCC Plan requirements is required for all oil-handling personnel at SPCC-qualifying facilities if they conduct operations with SPCC-regulated containers and activities. See DEN Spill Prevention, Control, and Countermeasure (SPCC) Plan Training for DEN-owned and -operated SPCC-regulated facilities.
- Employee training programs shall inform personnel at all levels of responsibility who are involved in industrial activities that may impact stormwater runoff. Stormwater pollution prevention (SWPP) training shall address topics such as spill response, good housekeeping, and material management practices.
- Certification as either a Class A, Class B, or Class C operator is required for UST operations personnel. Certification must occur through a state-approved provider (for Class A and B) and, for Class C, can be provided by a certified A or B operator. Certification is due by January 1, 2010, or within 30 days of an employee assuming responsibilities related to UST operations.

## Storage and Materials Management

- Transfer petroleum products in paved areas where feasible; areas paved in concrete should be utilized if the liquid is asphalt reactive.
- Avoid entirely or minimize the transfer of petroleum products in areas near drain inlets; use temporary covers on storm drains when handling petroleum products outside to prevent spills from reaching the stormwater system.
- Store drums/containers on pallets or within berms or secondary containment devices to prevent leaks and spills from entering stormwater runoff and to enable easier inspection and detection of leaks.
- Utilize methods to contain and absorb petroleum products from leaks, spills, and hose disconnects that occur during transfers; dispose of spill cleanup residue properly.
- Ensure adequate spill cleanup supplies are stocked in the areas where petroleum product transfers take place.
- Ensure MSDSs are readily available to employees who handle, transfer, or are otherwise involved in the management of petroleum products.
- Protect petroleum products stored outside from exposure that could compromise containers; use overhead cover, storage cabinets, etc.
- Provide safeguards against accidental or intentional releases by restricting access to storage areas, implementing an inspection and maintenance program, practicing good housekeeping procedures, and using covered bins or dumpsters specifically dedicated for petroleum product spill residue. Note: for gasoline spills, cleanup residues must be handled as hazardous waste (see EG 301-6.04 Management of Hazardous Waste).
- Maintain legible labels and markings on all containers and tanks; labels on all containers must have the name of the owner of the container, an associated contact telephone number, an appropriate hazard warning, and must clearly indicate the contents. In addition, the name on the label must match the name on the corresponding MSDS.



- Ensure that there is adequate secondary containment for all bulk storage containers, and that all containers, secondary containment, and berms are in good operating condition.
- Refer to the appropriate SPCC Plan for guidance on specific requirements, if applicable.
- Outdoor storage and handling of hazardous materials shall be in accordance with procedures established in any stormwater permit and stormwater management plan that is applicable to the facility

## **PLANNING REQUIREMENTS**

- Construct and operate tank systems pursuant to applicable regulatory requirements and industry standards (e.g., OPS and IFC requirements, Steel Tank Institute standards). Ensure that Professional Engineer (PE)-required systems and controls described in SPCC Plans are in place.
- Maintain adequate supplies of spill response equipment and materials in locations where spills or accidental releases are likely to occur.
- Install and maintain adequate secondary containment around all bulk oil storage containers. Secondary containment design must consider precipitation impacts. Locations where tanks store fuel and where fuel is transferred to or from other equipment (such as generators or vehicles) are considered “loading areas” and may require general secondary containment during the fueling transfer to and from these tanks. (Note: A vehicle defueling operational area, where fuel is removed from a vehicle and often returned to an on-site AST or UST, is also considered a “loading area” and would be subject to the general secondary containment requirements of 40 CFR 112.7(c) if the facility is an SPCC-qualifying facility.)
- Fueling and fuel storage areas should be designed and operated to prevent the uncontrolled accumulation and runoff of precipitation and associated contamination (e.g., berms, overhead covers). Process or procedural controls are required to prevent uncontrolled discharges to stormwater or to any sewer.
- Provide protection (e.g., traffic bollards, adequate lighting, fencing) from physical damage and vandalism to petroleum transfer or storage areas.
- Petroleum storage areas should be designed and have mechanisms or procedures in place to determine whether a spill or release from a petroleum storage tank has occurred and to prevent loss of spilled or released materials.
- Cathodic protection of coated and bare steel systems in contact with soils must be addressed. This pertains to buried tanks, AST bottoms in contact with soils, and buried piping. (See Cathodic Protection Corrosion Prevention on Buried Tanks and Piping.)
- Evaluate container vents and dispensers for air permit requirements per Colorado Department of Public Health and Environment - Air Quality Control Division - Air Pollutant Emission Notice (APEN) submission program.

## **STORAGE TANK REQUIREMENTS - ABOVE GROUND**

- Use absorbent materials and spot cleaning for small spills; collect and properly dispose of all material used to clean up a spill or leak.
  - Refer to Spill Response
- Maintain records of inventories of the types of substances and quantities stored and used, and leak or spill reports per federal, state, and local regulations.



- Notify DEN Environmental Services of any petroleum storage containers/tanks installed with volumes over 50 gallons. Maintain an inventory of applicable petroleum containers on site, categorized by petroleum type, capacity, and location.

## **STORAGE TANK REQUIREMENTS - UNDERGROUND**

- Maintain active underground storage tanks in compliance with all applicable regulations. Removal/closure shall be conducted in compliance with applicable regulations (refer to 7 CCR 1101-14).
- Maintain records of inventories of the types of substances and quantities stored and used, leak testing results, and spill reports.

## **EMERGENCY RESPONSE**

If a spill occurs, refer to Environmental Guideline Spill Response.

- Call DEN Communications Center immediately at 303-342-4200 for all spills.

## **INSPECTION AND MAINTENANCE REQUIREMENTS**

Periodically inspect storage tanks, connecting piping, valves, and associated pumping equipment in accordance with manufacturer's specifications and other requirements that are codified in regulation, site plans, or guidance documents. For example, monthly inspections and ullage recording are required for OPS-regulated ASTs, monthly inspections are required for all SPCC-regulated ASTs, and buried lines associated with ASTs are required to be tightness-tested annually. For USTs, monthly and annual inspections by a certified operator are required (effective January 1, 2010), annual testing is required for underground pipelines associated with certain USTs, and cathodic protection systems must be in proper operation.

Prior to releasing accumulated precipitation from a secondary containment area, the water must be inspected for signs of oil contamination (e.g., sheen). If none exists, the water can be removed from the secondary containment area and allowed to discharge to the ground surface. For SPCC-regulated bulk storage AST systems, written records documenting this inspection and discharge procedure must be maintained at the facility.

## **EXPECTED RECORDS AND OUTPUTS**

### **Petroleum Storage Tank Installation Plans**

- Installation applications are prepared, submitted, and maintained by the installation contractor. Submit copies of plans and drawings to DEN Environmental Services.

### **UST and AST registration records and permits**

- Operators are required to maintain applicable registrations on site for the life of the tank(s).

### **APEN submittals and required air permit(s)**



- Operators are required to maintain all air permit records on site (may require data gathering and management).

#### Inspection records

- Inspect storage tanks in accordance with manufacturer, regulatory, and plan requirements.
- Operators are required to maintain inspection records for three years (under SPCC Plan requirement).

#### Tank inventory records

- Operators should maintain records on tank inventories at all times.

#### SPCC Plan

- As applicable, operator must maintain the SPCC Plan on site.
- SPCC Plans must be reviewed and updated every five years, or sooner, if a change in operations or equipment materially affects spill potential.

#### SPCC Plan records

- Operator should maintain records as described in their site-specific SPCC Plan.

#### Evidence of training on SPCC Plan, SWPP Plan, and Operator SOPs, as applicable

- While formal certifications are not always necessary, some form of “proof of training” (such as sign-in sheets and handouts) is expected and should be maintained on file by the operator.

#### Cathodic protection records

- Operator should maintain records for the life of protected systems

#### Installation design reports

#### Annual test reports

#### Facility Response Plan

- Facilities with over one million gallons of petroleum storage and with the potential to contaminate navigable waterways.

## REFERENCES

### Contacts

- DEN Communications Center (for spill reporting): 303-342-4200
- DEN Environmental Services (Main Line): 303-342-2730; [DIA.Environmental@flydenver.com](mailto:DIA.Environmental@flydenver.com)
- Jerry Williams, DEN Environmental Services: 303-342-2087; [Jerry.Williams@flydenver.com](mailto:Jerry.Williams@flydenver.com)

### Guidance Materials

- USEPA SPCC Guidance documents



- DEN Stormwater Management Plan

## Training Materials

- None

## Related Environmental Documents

- Spill Response
- DEN Spill Prevention, Control, and Countermeasure (SPCC) Plan Training
- Stormwater Management Plan
- DEN Spill Prevention, Control, and Countermeasure Plan
- DEN SPCC Compliance Work Instruction
- Spill Prevention, Control, and Countermeasure Plan – Oil and Gas Operations
- Storage Tank Monitoring

## Applicable Regulations

- 40 CFR 110.3 Discharge of Oil
- 40 CFR 112 Oil Pollution Prevention (SPCC OPA/Plans)
- 40 CFR 117.3 Determination of Reportable Quantities for a Hazardous Substance
- 40 CFR 280/281 RCRA Underground Storage Tank Regulations
- 40 CFR 122-124 NPDES Regulations for Storm Water Discharge
- 5 CCR 1001-5 and 1001-9 State Air Quality Regulations
- 7 CCR 1101-14 State storage tanks regulations (AST and UST)
- 40 CFR 401 Effluent Limitation Guidelines
- Denver International Airport Rules and Regulations
- Denver Wastewater Management Division Rules and Regulations