

Oil Storage and Data Centers - What to Know

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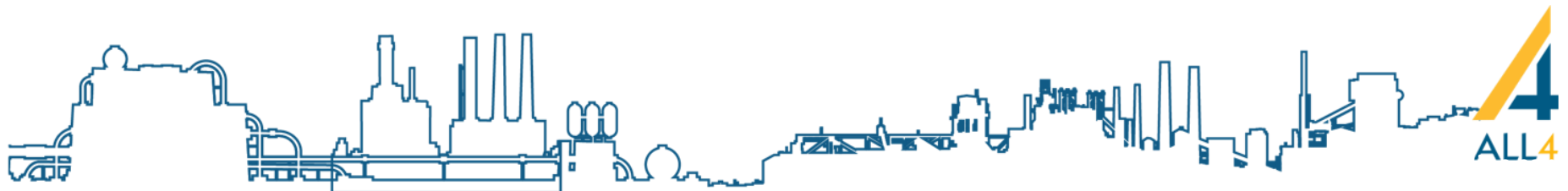
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October 27, 2021

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Logistics

Thank you for attending!

Questions?

- ❑ Please enter questions in the text box
- ❑ We will address questions at the end

Will I get a copy of the slides?

- ❑ Yes, we will post webinar recording and slide deck on our website
- ❑ Link will be emailed to participants

Webinar Series

Third session of our data center webinar series!

Potential topics for future sessions:

- ❑ On-Going Environmental Compliance
- ❑ Regulated Waste Management (e.g., Hazardous, Universal)
- ❑ Refrigerants

Check out our other sessions if you missed them!

<https://www.all4inc.com/insights-webinars/environmental-roadmap-to-building-and-operating-a-data-center/>

<https://www.all4inc.com/recording-air-quality-permitting-and-planning-for-data-centers/>

Today's Agenda

- ❑ Introduction to oil storage and data centers
- ❑ Oil storage and data center planning/design
- ❑ Spill Prevention, Control, and Countermeasure (SPCC) Plans
- ❑ Examples of State nuances
- ❑ Lessons Learned



Not on the Menu

- ❑ Underground Storage Tank (UST) requirements
- ❑ Portable, mobile, and construction oil containers and equipment
- ❑ Deep dive on State-specific storage tank requirements
- ❑ Storage tanks containing substances other than oil (e.g., urea)

Lingo

- ❑ 40 CFR Part 112 – Oil Pollution Prevention
 - Completely buried tank
 - Bulk storage container
 - Oil
 - Oil-filled operational equipment (OFOE)
 - Secondary containment
 - Navigable waters

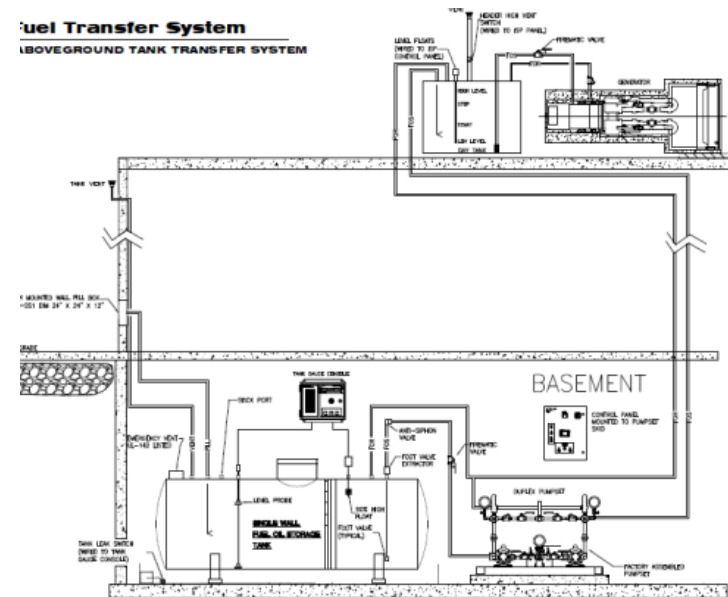


Oil Storage and Data Centers

- ❑ Emergency Generator Fuel Storage
 - Central/Bulk Storage Tanks
 - Day Tanks
 - Subbase (belly) Tanks
- ❑ Oil-filled Operational Equipment (OFOE)
 - Transformer Mineral Oil
 - Engine Crankcase Oil
 - Elevator Hydraulic Fluid



<https://globecore.com/mixing-different-types-transformer-oil/>



<http://www.ispfuelsystems.com/fuel-transfer-systems/>

Oil Storage and Data Center Planning/Design

What to consider during data center design?



Oil Storage Design Considerations

- ❑ Tank capacity
 - Anticipated runtime
 - Available real estate
 - Access to fuel
- ❑ Tank type and quantity (AST/UST, bulk/belly)
 - Aesthetics and preferences
 - Land space
 - Regulatory differences
- ❑ Additional Considerations:
 - Location of data center (e.g., proximity to water, geological formations/soils)
 - Site security

Aboveground Storage Tanks

- ❑ Emergency Generator Fuel Storage
 - Central/Bulk Storage Tanks
 - Day Tanks
 - Subbase (belly) Tanks



<https://www.generac.com/industrial/all-about/natural-gas-fuel/natural-gas-performance/saying-goodbye-to-fuel-storage>



<https://www.onsitepoweradvisor.com/2014/02/21/easy-sub-base-specification/>

Underground Storage Tanks

- ❑ Central/Bulk Storage Tanks
- ❑ Most USTs are **exempt from SPCC regulations**
- ❑ Requirements under 40 CFR Part 280:
 - General operating requirements
 - Notification and recordkeeping requirements
 - Release detection and response
 - Release reporting
 - Financial responsibility
 - Operator training



<https://www.tanksdirect.com/blog/data-centers-and-storage-tanks/>

Pros and Cons of AST/UST

AST Pros vs. UST	AST Cons vs. UST
Easier to detect a leak	Take up more space
Easier to remove	Less aesthetically pleasing
Geology may limit UST install	Limits on AST locations
Easier to inspect	Greater risk of damage
Fewer testing requirements	
Lower cost of installation	

Spill Prevention, Control, and Countermeasure (SPCC)

- ❑ 40 CFR Part 112, Oil Pollution Prevention: Federal rule that addresses requirements for SPCC Plans
- ❑ Primary objective: prevent oil spills from contaminating surface water bodies
- ❑ Legal authority for SPCC regulations under Section 311(j)(1)(C) of the Clean Water Act as amended by the Oil Pollution Act of 1990



SPCC Applicability

- ❑ SPCC Plan is required if:
 - 1) The facility can “reasonably be expected to discharge harmful amounts of oil into navigable waters of the United States or adjoining shorelines”; **AND**
 - 2) The facility meets at least one of the following storage capacity criteria:
 - Aboveground oil storage capacity greater than 1,320 gallons; or
 - Federally regulated underground storage capacity greater than 42,000 gallons.
- ❑ Is your facility a “Qualified Facility” based upon total capacity and discharge history?

SPCC Applicability

□ Types of SPCC Plans:

- Tier I (for Qualified Facilities): < 10,000-gallon aggregate aboveground storage with no single tank larger than 5,000 gallons
- Tier II (for Qualified Facilities): < 10,000-gallon with tank(s) larger than 5,000 gallons
- PE Certified: $\geq$ 10,000 gallons



What defines an “Oil Storage Container” under SPCC?

- ❑ Any oil storage container of 55 gallons or greater including:
 - Oil Storage: tanks, drums, containers
 - OFOE



General SPCC Requirements

- ❑ Secondary containment
- ❑ Inspections
- ❑ Maintenance
- ❑ Recordkeeping
- ❑ Notifications
- ❑ Training
- ❑ Fuel transfer procedures
- ❑ SPCC Plan renewals and technical amendments

Secondary Containment

- ❑ All areas and equipment with the potential for a discharge at a regulated facility are subject to the general secondary containment provisions at 40 CFR §112.7(c)
- ❑ Types:
 - Double walled aboveground storage tanks
 - Dikes, berms, retaining walls
 - Sorbent materials (i.e., spill kits)
 - Sumps



Source: New Pig

Inspections, Testing, and Maintenance

- Different requirements for different types of containers
- AST tank testing and inspection frequencies often based on industry standards – e.g., Steel Tank Institute (STI) “Standard for the Inspection of Aboveground Storage Tanks”, *SP001*



Recordkeeping

- ❑ SPCC Plans – maintain at all times
- ❑ Written procedures, training records (both initial and annual), signed inspection records and tests performed on storage tanks – 3 years
- ❑ Formal inspection, repair, and modification records – life of all containers



Notifications

- ❑ Notifications are often required after spills
- ❑ The most common types of spills are:
 - Damage to or release from oil delivery equipment during loading/unloading operations;
 - Overfill at fill ports;
 - Spillage during transfer between containers;
 - Leaking/failure of drums or containers;
 - Leaking/failure of piping or pumps; and/or
 - Storage tank failure
- ❑ Depending on spill specifics, different degrees of response are required!



Training

- ❑ Facilities must train oil-handling personnel in:
 - Operation and maintenance of equipment
 - Spill prevention protocols
 - Spill response procedures
 - Applicable regulations
 - General facility operations
 - Contents of the facility SPCC Plan
 - Lessons learned



Fuel Transfer Procedures

□ Procedure

- Delivery driver responsible for procedure
- Facility responsible to ensure procedure is followed

□ Key items

- Before delivery
 - Wheel chocks in place
 - Check volume in tank to make sure there is room for amount to be delivered
 - Ground the truck
- During delivery
 - Driver stays close and within view of unloading hoses
- After delivery
 - Check for spills and confirm tank enclosures/fill ports are locked



SPCC Updates and Renewals

- ❑ SPCC Plans should be reviewed annually and every five years at a minimum
- ❑ SPCC Plans - update after any changes that materially affect the potential for a discharge of oil
- ❑ Technical amendments (e.g., removing or adding tanks) must be certified by a registered Professional Engineer (P.E.) for P.E. SPCC Plans
 - Includes changes to containment and tanks above 55 gallons
 - Updates to plans must be made within 180 days

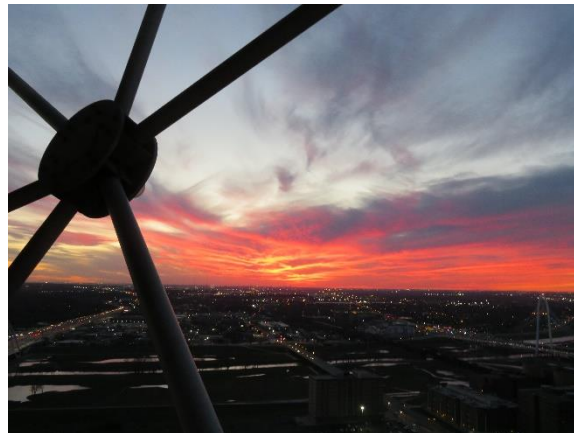
Common SPCC Violations

- ❑ Untrained personnel
- ❑ Failure to report a spill
- ❑ Lack of an adequate SPCC Plan
- ❑ Failure to update an SPCC Plan after site changes
- ❑ Inadequate secondary containment
- ❑ Inadequate recordkeeping
- ❑ Lack of procedures and control measures to prevent a spill from reaching the surface water bodies
- ❑ Transfer of responsibilities after construction phase
 - Missing spill kits
 - Missed inspections

Example State Requirements



- ❑ Virginia
- ❑ Texas
- ❑ California



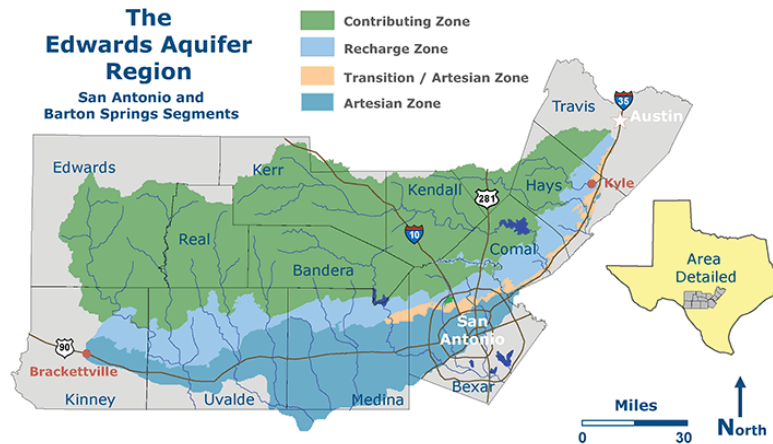
AGGREGATE FACILITY CAPACITY - Gallons		0 to ≤ 660	>660 to < 25K	≥ 25K to < 1MM	≥ 1MM
AST REQUIREMENT	Regulatory Reference 9VAC25-91				
Excluded from Regulation	30.A.3	X			
Registration of Tank(s) w/DEQ	100.A		X	X	X
Re-registration every 5 years	100.F		X	X	X
Registration of Tank(s) w/Local Officials	100.G		X	X	X
Closure Assessment	120		X	X	X
Record-keeping	150			X	X
Inventory Control Testing	130.B.1			X	X
Secondary Containment	130.B.2			X	X
Safe Fill & Shutdown	130.B.3			X	X
Pressure Testing of Pipes	130.B.4			X	X
Visual Daily & Weekly Inspection of Tanks	130.B.5			X	X
Training of Individuals	130.B.6			X	X
Leak Detection	130.B.7			X	X
Formal Inspection (new tanks)	130.C.1				X
Formal Re-inspection	130.C.2				X
Safe Fill & Shutdown & High Level Alarm	130.C.3				X
Cathodic Protection of Piping	130.C.4				X
Performance Standards for ASTs Newly Installed, Retrofitted, or Brought Into Use	140			X	X
Oil Discharge Contingency Plan (22 items)	170			X	X
Groundwater Characterization & Monitoring	180 & 190				X

Virginia



Texas

- ❑ Regulated ASTs contain petroleum products. Only ASTs with a capacity greater than 1,100 gallons are regulated
- ❑ If you own one or more regulated ASTs, then you must:
 - Register each AST with the TCEQ — even if it is empty or unused
 - At least 30 days before beginning work on ASTs, notify TCEQ
 - Comply with installation requirements on the Edwards Aquifer
 - Within 30 days of any changes at your AST facility, notify TCEQ



California

- ❑ Aboveground Petroleum Storage Act (APSA)
 - Implements inspection requirements and fees in addition to what is required under SPCC regulations
 - Relationship with local government/fire marshal

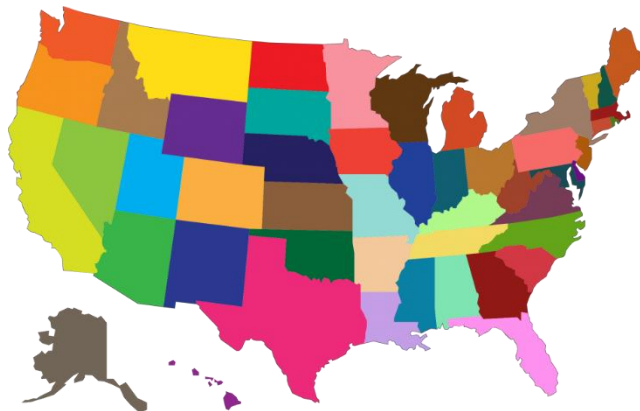


Other States

❑ Maryland

- Regulations in development to add requirements for both ASTs and USTs, including:
 - Establishment of an AST registration system; and
 - Establishment of walkthrough inspection requirements for USTs

❑ Important to know your state's regulations!



Lessons Learned

- ❑ Plan for full data center build-out early
- ❑ Regulations vary by State
 - Registration/permitting thresholds
 - Reporting procedures
 - Definitions
- ❑ Coordinate with County/Fire Marshal

What lessons have you learned?

Stay Tuned...



Regulated
Waste
Management



On-Going
Compliance



Refrigerants



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Questions or Comments?

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