

Aboveground Storage Tank Inspection

This Standard Operating Procedure describes the steps that campus units that manage aboveground oil storage tanks (ASTs) or containers must follow to perform visual tank inspections. Checklists are attached.

Monthly Tank Inspection (e.g., Aboveground Storage Tanks, Generator Tanks):

- **Use and complete the Aboveground Storage Tank Monthly Inspection Checklist** – Designate a knowledgeable individual to inspect tanks according to the attached checklist or an equivalent method pre-approved by the Division of Safety and Compliance.
- **Monthly** – Inspect aboveground tanks and associated valves, piping, and appurtenances. Visually assess the general condition of the tank or container and its appurtenances such as flange joints, expansion joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces. Also observe shells for signs of leaks or potential leaks, such as cracks, holes, rust, bulges, dents, residues, stains or other visual evidence.
- For oil/fuel containers that lack secondary containment and cannot be inspected or viewed on all sides for the presence of leaks, **accurately inventory** quantities at least monthly. Reconcile the amount of product used with the amount of product purchased to account for all inventory and confirm that product is not slowly leaking from the container.
- **Keep written procedures** and a **record of inspections**, inventories and tests, signed by the appropriate supervisor or designated inspector, with the SPCC Plan at your unit for at least **3 years**. Certified inspector integrity tests records should be retained for the life of the tank.
- **Report problems** to the Unit Coordinator for corrective action.
- If you witness or discover a release of a petroleum product notify the appropriate personnel in accordance with SOP-1 Spill Reporting Procedures for University Personnel and Students.

AST Inspection Checklist Guidance (Adopted from the Steel Tank Institute (STI) SP0001 inspection standard):

- For equipment not included in the STI SP0001 inspection standard, follow the manufacturer recommended inspection/testing schedules and procedures.
- The monthly AST Inspection is intended for monitoring the external AST condition and its containment structure. This visual inspection does not require a certified inspector. It shall be performed by an owner's inspector who is familiar with the site and can identify changes and developing problems.
- Upon discovery of water in the primary tank, secondary containment area, interstice, or spill container, remove promptly or take other corrective action. Before discharge to the environment, inspect the liquid for regulated products or other contaminants and dispose of it properly.
- (*) designates an item in a non-conformance status. This indicates that action is required to address a problem.
- Non-conforming items **important to tank or containment integrity** require evaluation by an engineer experienced in AST design, a certified inspector, or a tank manufacturer who will determine the corrective action. Note the non-conformance and corresponding corrective action in the comment section.
- Retain the completed checklists for at least 3 years.
- **In the event of severe weather (snow, ice, wind storms) or maintenance (such as painting) that could affect the operation of critical components (e.g., normal and emergency vents, valves), an inspection of these components is required immediately following the event.**

Monthly AST Inspection Checklist

Unit: _____ **Inspection Date:** _____

Inspector Name: _____

Container/System: _____

(*) designates an item in a non-conformance status. This indicates that action is required to address a problem.

Item	Status	Comments
1.0 Tank Containment		
Water in primary tank, secondary containment, interstice, or spill container?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
Debris or fire hazard in containment?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
Drain valves operable and in a closed position?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
Containment egress pathways clear and gates/doors operable?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
Secondary containment or ground is damaged or stained?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
2.0 Leak Detection		
Visible signs of leakage around the tank, concrete pad, containment, ringwall or ground?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
Valve seals or gaskets are leaking?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
Cracks in hosing present?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
3.0 Tank Attachments and Appurtances		
Ladder and platform structure secure with no sign of severe corrosion or damage?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
Tank Liquid level gauge and alarms readable and in good condition?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
All tank openings are properly sealed?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
Vents are obstructed?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
Pipelines or supports are damaged or deteriorated?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
Buried pipelines exposed?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	

4.0 Tank Structure		
Tank is dented, bulging, rusted, damaged, or deteriorated?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
Bolts, rivets, or seams are cracked or damaged?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
Tank supports are deteriorated or buckled?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
Tank foundations have eroded or settled?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
Double-walled tanks – Space between inner and outer walls is free of oil?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
5.0 Other Conditions		
Oil/water separator is functioning properly?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
Are there other conditions that should be addressed for continued safe operation or that may affect the site SPCC plan?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
Security fencing, gates, locks, lighting are functional?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	

Deficiencies and corrective actions must be documented on this inspection form. All leaks must be reported to the Division of Safety and Compliance at 217.265.9828.

Remarks _____

Signature (*Inspector or Supervisor*) _____ Date: _____

Annual Aboveground Storage Tank Inspection:

- **Use and complete the Aboveground Storage Tank Annual Inspection Checklist** – Designate a knowledgeable individual to inspect tanks according to the attached checklist or an equivalent method pre-approved by the Division of Safety and Compliance.

Annually:

1. Inspect the AST shell and associated piping, valves, and pumps including inspection of the coating for Paint Failure.
 2. Inspect earthen containment structures including examination for holes, washout, and cracking in addition to liner degradation and tank settling.
 3. Inspect concrete containment structures and tank foundations/supports including examination for holes, washout, settling, paint failure, in addition to examination for corrosion and leakage.
 4. Inspect steel containment structures and tank foundations/supports including examination for washout, settling, cracking, and for paint failure, in addition to examination for corrosion and leakage.
 5. Inspect cathodic protection system, if applicable, including the wire connections for galvanic systems and visual inspection of the operational components (power switch, meters, and alarms) of impressed current systems.
 6. Remove promptly upon discovery standing water or liquid in the primary tank, secondary containment area, interstice, or spill container. Before discharge to the environment, inspect the liquid for regulated products or other contaminants and dispose of it properly.
- **Keep written procedures** and a **record of inspections**, inventories and tests, signed by the appropriate supervisor or designated inspector, with the SPCC Plan at your unit for at least **3 years**. Records produced as a result of certified inspections should be retained for the life of the tank.
 - **Report problems** to the Unit Coordinator for corrective action.
 - If you witness or discover a release of a petroleum product notify the appropriate personnel in accordance with SOP-1 Spill Reporting Procedures for University Personnel and Students.

AST Inspection Checklist Guidance (Adopted from STI SP0001 inspection standard):

- For equipment not included in the STI SP0001 inspection standard, follow the manufacturer recommended inspection/testing schedules and procedures.
- The annual AST Inspection is intended for monitoring the external AST condition and its containment structure. This visual inspection does not require a certified inspector. It shall be performed by an owner's inspector who is familiar with the site and can identify changes and developing problems.
- Upon discovery of water in the primary tank, secondary containment area, interstice, or spill container, remove promptly or take other corrective action. Before discharge to the environment, inspect the liquid for regulated products or other contaminants and disposed of it properly.
- (*) designates an item in a non-conformance status. This indicates that action is required to address a problem.
- Non-conforming items important to tank or containment integrity require evaluation by an engineer experienced in AST design, a certified inspector, or a tank manufacturer who will determine the corrective action. Note the non-conformance and corresponding corrective action in the comment section.
- Retain the completed checklists for at least 3 years.
- **In the event of severe weather (snow, ice, wind storms) or maintenance (such as painting) that could affect the operation of critical components (normal and emergency vents, valves), an inspection of these components is required immediately following the event.**

Annual AST Inspection Checklist

Unit: _____ Inspection Date: _____

Inspector Name: _____

Container/System: _____

(*) designates an item in a non-conformance status. This indicates that action is required to address a problem.

Item	Status	Comments
1.0 Tank Containment		
Containment structure in satisfactory condition?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
Drainage pipes/valves fit for continued service?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
2.0 Tank Foundation and Supports		
Evidence of tank settlement or foundation washout?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
Cracking or spalling of concrete pad or ring wall?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
Tank supports in satisfactory condition?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
Water able to drain away from tank?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
Grounding strap secured and in good condition?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
3.0 Cathodic Protection		
CP system functional?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
Rectifier Reading:	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
4.0 Tank External Coating		
Evidence of paint failure?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
5.0 Tank Shell/Heads		
Noticeable shell/head distortions, buckling, denting or bulging?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
Evidence of shell/head corrosion or cracking?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
6.0 Tank Manways, Piping and Equipment within Secondary Containment		
Flanged connection bolts tight and fully engaged with no sign of wear or corrosion?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	

Item	Status	Comments
7.0 Tank Roof		
Standing water on roof?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
Evidence of coating cracking, crazing, peeling, blistering?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
Holes in roof?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
8.0 Venting		
Vents free of obstructions?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
Emergency vent operable? Lift as required?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
9.0 Insulated Roofs		
Insulation missing?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
Are there noticeable areas of moisture on the insulation?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
Mold on insulation?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
Insulation exhibiting damage?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	
Is the insulation sufficiently protected from water intrusion?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
10.0 Level and Overfill Prevention Instrumentation of Shop-Fabricated Tanks		
Has the tank liquid level sensing device been tested to ensure proper operation?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
Does the tank liquid level sensing device operate as required?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
Are overfill prevention devices in proper working condition?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
11.0 Electrical Equipment		
Are tank grounding lines in good condition?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
Is electrical wiring for control boxes/lights in good condition?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	

Deficiencies and corrective actions must be documented on this inspection form. All leaks must be reported to the Division of Safety and Compliance at 217.265.9828.

Remarks _____

Signature (*Inspector or Supervisor*) _____ Date: _____

Short-Term Container Inspection (e.g., drums 55 gallons or more):

“Short-term” containers are containers 55 gallons or greater that are used for storage of oil for less than 10 years. Short-term containers must be visually inspected at least monthly and the visual inspection must be documented.

- **Use and complete the Short-Term Container Inspection Checklist** – Designate an individual to conduct container inspections according to the attached checklist or an equivalent method pre-approved by the Division of Safety and Compliance.
- At least monthly – Inspect the top, bottom and sides of the container to observe for exterior dents, bulges, holes, missing bungs or caps, rust or other signs that might indicate leakage or potential leakage of contents.
- Ensure that the container is not in contact with the ground surface. If in contact with ground, note on checklist and immediately notify the Division of Safety and Compliance.
- Remove from service any “short-term” container that appears to pose risk of oil discharge and replace with an approved container if a substitute container.
- Remove from service all “short-term” containers **prior to ten years of age**.
- Document the inspection on the attached Short-Term Container Inspection Checklist (SOP-5b) and keep with the SPCC Plan at your unit for at least **3 years**.
- Report problems to the unit coordinator for corrective action.

Short-Term Container Inspection Guidance:

- The monthly Short-Term Container Inspection is intended for monitoring the external AST condition and its containment structure. This visual inspection does not require a certified inspector. Designated facility personnel who is familiar with the site and can identify changes and developing problems may perform the inspections.
- (*) designates an item in a non-conformance status. This indicates that action is required to address a problem.
- If 55-gallon drums are found to have non-conforming items that are **important to containment integrity, the drum must be replaced**.
- Retain the completed checklists for at least 3 years.

Monthly Inspection Checklist – Portable Containers

University Unit: _____ Storage Location (bldg/room): _____

Container/System (drum, contents, etc): _____

(*) designates an item in a non-conformance status. This indicates that action is required to address a problem.

Item	Inspection Date:	Inspection Date:	Inspection Date:
1.0 Tank Containment / Storage Area			
ASTs within designated storage area?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*
Debris, spills or other fire hazard in containment or storage area?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No
Water in outdoor secondary containment?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No
Drain valves operable and in a closed position?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*
Containment egress pathways clear and gates/doors operable?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*
Secondary containment or ground is damaged or stained?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No
2.0 Leak Detection			
Visible signs of leakage around the container, storage area or ground?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No
3.0 Container			
Noticeable container distortions, buckling, denting, bulging or leaking?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No
4.0 Inspector			
Inspector Signature			

Deficiencies and corrective actions must be documented on this inspection form. All leaks must be reported to the Division of Safety and Compliance at 217.265.9828.

Remarks _____

Transformer and other Oil-Filled Operational Equipment Inspection:

“Oil-filled operational equipment” is equipment that includes an oil storage container which is present solely to support the function of the apparatus or the device. Oil-filled operational equipment is not considered a bulk storage container, and does not include oil-filled manufacturing equipment (flow-through process).

Examples of oil-filled operational equipment include, but are not limited to:

- hydraulic systems
- lubricating systems
- gear boxes
- machining coolant systems
- heat transfer systems
- transformers
- circuit breakers
- electrical switches
- wind turbines

Oil-filled operational equipment must be visually inspected at least annually and the visual inspection must be documented.

- **Use and complete the Oil-filled Operational Equipment Inspection Checklist** – Designate an individual to conduct container inspections according to the attached checklist or an equivalent method pre-approved by the Division of Safety and Compliance.
- At least annually – Inspect the equipment to observe for exterior dents, bulges, holes, missing bungs or caps, rust or other signs that might indicate leakage or potential leakage of contents.
- Remove from service or maintenance any oil-filled operational equipment that appears to pose risk of oil discharge.
- **Keep written procedures** and a **record of inspections**, inventories and tests, signed by the appropriate supervisor or designated inspector, with the SPCC Plan at your unit for at least **3 years**.
- **Report problems** to the Unit Coordinator for corrective action.
- If you witness or discover a release of a petroleum product notify the appropriate personnel in accordance with SOP-1 Spill Reporting Procedures for University Personnel and Students.

Annual Inspection Checklist – Oil-Filled Equipment

University Unit: _____ Storage Location (bldg/room): _____

Container/System (drum, contents, etc): _____

(*) designates an item in a non-conformance status. This indicates that action is required to address a problem.

Item	Inspection Date:	Inspection Date:	Inspection Date:
1.0 Containment / Storage Area			
ASTs within designated storage area?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*
Debris, spills or other fire hazard in containment or storage area?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No
Water in outdoor secondary containment?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No
Drain valves operable and in a closed position?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*
Containment egress pathways clear and gates/doors operable?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*
Secondary containment or ground is damaged or stained?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No
2.0 Leak Detection			
Visible signs of leakage around the container, storage area or ground?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No
Valve seals or gaskets are leaking?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No
Visible signs of leakage around the tank, concrete pad, containment, ringwall or ground?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No
Cracks in hosing present?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No
3.0 Container/Equipment			
Noticeable container distortions, buckling, denting, bulging or leaking?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No
Equipment is dented, bulging, damaged, or deteriorated?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No

4.0 Other Conditions			
Are there other conditions that should be addressed for continued safe operation or that may affect the site SPCC plan?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No
Ladder and platform structure secure with no sign of severe corrosion or damage?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*
Security fencing, gates, locks, lighting are functional?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*
5.0 Inspector			
Inspector Signature			

Deficiencies and corrective actions must be documented on this inspection form. All leaks must be reported to the Division of Safety and Compliance at 217.265.9828.

Remarks _____

