1.0 Task Description

This task involves performing routine tank inspections in accordance with the latest DOT-adopted edition of API 653. Individuals performing routine inspections do not need to be an authorized inspector as defined in API 653 or API 510.

This task begins with the visual inspection of the tank. The task ends when the documentation is complete.

The performance of this covered task may require the performance of other covered tasks such as:

— Perform API 653 Inspection of In-service Breakout Tanks (reference Task 27.2);
— Perform API 510 Inspection of In-service Breakout Tanks (reference Task 27.3).

2.0 Knowledge Component

The purpose of this task is to evaluate the condition of a breakout tank by visually determining the condition of the tank and its components.

An individual performing this task must have knowledge of the following.

— The three primary types of atmospheric steel aboveground breakout tanks.

1) External/Open Top Floating Roof Tanks—An open-topped cylindrical aboveground steel shell equipped with a roof that floats on the surface of the stored liquid. The roof rises and falls with the liquid level in the tank. There is a rim seal system between the tank shell and roof to reduce rim evaporation.

   The roof has support legs hanging down into the liquid. At low liquid levels, the roof eventually lands and a vapor space forms between the liquid surface and the roof, similar to a fixed roof tank. The support legs are usually retractable to increase the working volume of the tank.

2) Fixed/Cone Roof Tank—A closed-top cylindrical aboveground steel shell with a cone roof supported principally either by rafters on girders and columns or by rafters on trusses with or without columns, a self-supporting cone roof that is supported only at its periphery, or a self-supporting dome roof formed to approximately a spherical surface that is supported only at its periphery.

3) Internal Floating Roof Tanks—These tanks are cone roof tanks with a floating roof inside that travels up and down along with the liquid level.

Terms applicable to this task are as follows.

chime ring bottom projection plate (chime ring)
The outside edge of the tank bottom that extends past the weld of the tank shell. The chime ring should be visually inspected for signs of settlement, corrosion, and evidence of leaks.

reinforcing plate/pad/repad
Steel reinforcement plates installed around shell openings appurtenances to provide the shell with added strength required for the installation of a shell appurtenance to the structure. Repads should be visually inspected for corrosion and coating condition.
roof
The top external surface of the tank. The roof shall be visually inspected for evidence of leaks and coating condition. External floating roof tanks should be inspected for excessive water or other material that may cause a condition that could affect the integrity of the tank.

secondary containment
An impoundment, such as a dike, that could contain spilled product on site. The impoundment may be constructed of concrete, earth, steel, or solid masonry and is designed to be liquid tight. Dikes should not be compromised by erosion, excavations, or excessive vegetation.

shell
The vertical, cylindrical walls of a tank. The shell shall be visually inspected for distortions, signs of settlement, corrosion and condition of coating, and insulation systems, if applicable.

shell appurtenances
Manways, reinforcement plates, nozzles, sampling ports, temperature probes, mixers, and auto-gauge systems. Shell appurtenances shall be visually inspected for corrosion, coating condition, and evidence of leaks.

tank foundation/ring wall
Perimeter concrete ring providing support for the tank shell. Foundations shall be inspected for signs of settlement and foundation condition. The foundation/ring wall may be made from concrete, earth, or other supportive materials.

telltale/weep hole
A threaded penetration of the reinforcing plate that is used to determine if the shell has developed a leak in the area where the reinforcing plate covers the shell. Weep holes should be inspected for evidence of leaks.

AOCs associated with the performance of this task include the following.

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<th>AOC Recognition</th>
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### 3.0 Skill Component

To demonstrate proficiency of this task, an individual must perform the following steps.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
<th>Explanation</th>
</tr>
</thead>
</table>
| **31** | Visually inspect for settlement around the perimeter of the tank and the condition of the foundation:  
- check that rainwater runoff from the shell drains away from tank,  
- inspect for broken concrete and cracks,  
- inspect for cavities under the foundation and vegetation against the bottom of the tank,  
- sheen on water in containment area. | Visual inspection of the foundation is performed to identify conditions such as settlement or lack of support under the tank shell/floor. Surface water should be kept away from the tank to prevent corrosion or erosion of the foundation. |
| **42** | Visually inspect the following items for evidence of leaks, corrosion, pitting, and distortion, as applicable:  
- mixer seals,  
- flanges,  
- manways/nozzles,  
- chime bottom projection plate,  
- roof/pontoons,  
- welds/rivets,  
- telltale/weep holes on reinforcing pads,  
- sheen on water in containment area, reinforcement plate/padding around appurtenances,  
- inspect for shell distortions—look for deflection or deformation of the shell,  
- insulation condition. | Visual inspection of the shell is performed to identify coating condition, areas of pitting, or corrosion and distortions. Leaks indicate an integrity issue, and immediate response according to operator’s policies is required. Response actions may include stopping operation and securing equipment, if safe to do so, immediately notifying the operator, and executing applicable emergency procedures. |
| **2** | Visually inspect the shell for the following defects:  
- external visual inspection for paint and corrosion defects,  
- inspect the chime area for corrosion,  
- reinforcement plate/padding around manways and/or valves,  
- inspect for shell distortions—look for deflection or deformation of the shell,  
- insulation condition (if applicable). | Visual inspection of the shell is performed to identify coating condition, areas of pitting, or corrosion and distortions. |
| **3** | Visually inspect for settlement around the perimeter of the tank and the condition of the foundation:  
- check that rainwater runoff from the shell drains away from tank,  
- inspect for broken concrete and cracks,  
- inspect for cavities under the foundation and vegetation against the bottom of the tank. | Visual inspection of the foundation is performed to identify conditions such as settlement or lack of support under the tank shell/floor. Surface water should be kept away from the tank to prevent corrosion or erosion of the foundation. |
| **43** | Visually inspect the secondary containment system for impoundment integrity. | The tank dike wall must be maintained so that the containment area capacity remains as designed. |
### Step 54

**Action:** Visually inspect the tank roof for the following, if applicable:
- coating condition, holes, pitting, and corrosion;
- standing or pooling water or product;
- floating roof out of level.
- roof supports and seals/gaps

**Explanation:**
- Large standing water areas on a floating roof indicate inadequate drainage design. Nonlevel roof indicates possible leaking pontoons. Floating roofs can sink and possibly impact the integrity of the tank floor if excessive weight from water/product on top of the roof is not removed.
- Significant sagging of a fixed-roof deck indicates potential rafter failure. [Verify all seal gaps are acceptable per operator’s procedures.](#)

### Step 65

**Action:** Document the findings of the inspection.

**Explanation:** Submit a completed inspection form according to operator’s procedures.
Task 27.2—Perform API 653 Inspection of In-service Breakout Tanks

1.0 Task Description

This task involves performing a detailed internal or external inspection of an in-service breakout tank in accordance with the latest DOT-approved edition of API 653. This inspection shall be performed by an authorized inspector only, as defined by API 653.

This task begins with the inspection of the tank. The task ends when the documentation is complete.

The performance of this covered task may require the performance of other covered tasks such as:

— Perform Routine Inspection of Breakout Tanks (API 653 Monthly or DOT Annual) (reference Task 27.1).

2.0 Knowledge Component

The purpose of this task is to complete a comprehensive inspection of an in-service breakout tank by an authorized inspector. An individual performing this task must provide documentation of the API Authorized Inspector Certification for API 653 (atmospheric and low-pressure steel aboveground tanks).

An individual performing this task must have knowledge of the following.

— The requirements detailed in the DOT-approved edition of API 653.

AOCs associated with the performance of this task include the following.

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3.0 Skill Component

The certificate demonstrates task performance proficiency.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Inspect the physical integrity of aboveground steel breakout tanks in accordance with the latest DOT-approved edition of API 653.</td>
<td>Authorized Inspector Certification required in accordance with the latest DOT-approved edition of API 653.</td>
</tr>
<tr>
<td>2</td>
<td>Document the findings of the inspection.</td>
<td>Conditions that are found to be unacceptable according to the latest DOT-approved edition of API 653 shall be documented and provided to the operator.</td>
</tr>
</tbody>
</table>
Task 27.3—Perform API 510 Inspection of In-service Breakout Tanks

1.0 Task Description

This task involves performing a detailed internal or external inspection of an in-service breakout tank in accordance with the latest DOT-approved edition of API 510. This inspection shall be performed by an authorized inspector only, as defined by API 510.

This task begins with the inspection of the tank. The task ends when the documentation is complete.

The performance of this covered task may require the performance of other covered tasks such as:
— Perform routine Inspection of Breakout Tanks (API 653 Monthly or DOT Annual) (reference Task 27.1).

2.0 Knowledge Component

The purpose of this task is to complete a comprehensive inspection of an in-service breakout tank by an authorized inspector. An individual performing this task must provide documentation of the API Authorized Inspector Certification for API 510 (LPG installations built to API 2510).

An individual performing this task must have knowledge of the following.
— The requirements detailed in the DOT-approved edition of API 510.

AOCs associated with the performance of this task include the following.

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3.0 Skill Component

The certificate demonstrates task performance proficiency.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Inspect the physical integrity of aboveground steel breakout tanks in accordance with the latest DOT-approved edition of API 510.</td>
<td>Authorized Inspector Certification required in accordance with the latest DOT-approved edition of API 510.</td>
</tr>
<tr>
<td>2</td>
<td>Document the findings of the inspection.</td>
<td>Conditions that are found to be unacceptable according to the latest DOT-approved edition of API 510 shall be documented and provided to the operator.</td>
</tr>
</tbody>
</table>