## TSC Category
Engineering Construction, Operations and Maintenance

### TSC Description
Execute non-destructive structural tests to ensure integrity and reliability of structural components against standards and product specifications based on determined test methods, criteria, equipment, and timeframe.

<table>
<thead>
<tr>
<th>TSC Proficiency Description</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
<th>Level 6</th>
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<td>EGS-QUA-2020-1.1-1</td>
<td>EGS-QUA-3020-1.1-1</td>
<td>EGS-QUA-4020-1.1-1</td>
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<tr>
<td>Prepare inspection areas for structural testing</td>
<td>Conduct structural testing on equipment and systems according to test plans and procedures</td>
<td>Analyse structural testing results and determine nature and extent of defects and required follow-up actions</td>
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### Knowledge
- Methods of structural and non-destructive (NDT) testing
- Types of structural and non-destructive testing (NDT) techniques
- Types of visual assessment techniques relevant to structural tests
- Types of discontinuities and their consequences
- Relevant Workplace Safety and Health (WSH) regulations and requirements and personal protective equipment (PPE)
- Methods of structural and non-destructive testing (NDT)
- Physical properties of materials
- Electrical conductivity
- Magnetic permeability
- Procedures for carrying out testing
- Tools, equipment, techniques and systems verification checks necessary to carry out testing
- Interpretation of NDT results
- Types of flaws and defects identifiable through NDT
- Maintenance and storage procedures for testing equipment
- Hazards and safety precautions associated with testing
- Defect characterisations
- Influence of various parameters on different tests and measurements
- Engineering services industry, national and international standards, regulatory codes and practices
- Methods and procedures for reporting test results
- Non-destructive testing (NDT) codes, standards and specifications
- NDT certification requirements
- Effect of damage in relation to the integrity of the component to withstand stresses
- Repair methods and material characteristics for timber, fibre-reinforced plastics and metal surfaces and structures
- Techniques for reinforcement and support
- Methods of testing to re-establish integrity
- Pre-delivery procedures

### Abilities
- Identify inspection areas for testing using
- Select appropriate test and methodology to be used
- Interpret codes, standards, specifications and procedures for NDT
<table>
<thead>
<tr>
<th>appropriate procedures and tools</th>
<th>Select testing equipment in accordance with quality standards and procedures</th>
<th>Detect defects to assess and classify them in accordance with national and international codes and standards</th>
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<tbody>
<tr>
<td>Select and use suitable personal protective equipment appropriate to the job requirements</td>
<td>Carry out structural testing in accordance with legal and safety requirements</td>
<td>Confirm defects in accordance with organisational procedures and industry practices</td>
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<tr>
<td>Prepare inspection areas for structural tests in accordance with the relevant legal and safety requirements</td>
<td>Check structural testing equipment for defects, then maintain and store equipment in accordance with quality standards and manufacturer’s instructions</td>
<td>Report test results to relevant stakeholders in accordance with organisational procedures and customer service requirements</td>
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<tr>
<td>Visually assess inspection areas for obvious discontinuities</td>
<td>Review test results to identify flaws and defects for rectification</td>
<td>Analyse the structural and piping defects to determine next actions</td>
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<td>Adhere to relevant WSH risk control measures when conducting structural tests</td>
<td>Suggest potential safety hazards resulting from identified faults</td>
<td>Determine specifications for repair and replacement work in accordance with delivery requirements</td>
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<tr>
<td>Check equipment for defects, then maintain and store equipment in accordance with quality standards and manufacturer’s instructions</td>
<td>Update documents according to approved format and is legible, accurate and complete</td>
<td>Conduct training for NDT Level I and II personnel for certification in the various NDT methods</td>
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<td>Communicate new NDT inspection procedures to stakeholders</td>
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