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Guidance on Practice for In Service Inspection and Testing of Onshore Civil/Structural Facilities

GP 32-46

BP GROUP
ENGINEERING TECHNICAL PRACTICES

Foreword

This is the first issue of Engineering Technical Practice (ETP) BP GP 32-46. This Guidance on Practice (GP) is based on parts of heritage documents from the merged BP companies as follows:

British Petroleum

RP 32-4

Inspection & Testing of In-Service Civil and Mechanical Plant -
Technical Guidance, Sections B10 - B13.

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1. Scope

- a. This GP provides specific guidance for in service inspection and testing of onshore civil/structural facilities.
- b. Within the scope of this GP are the following:
 - 1. Major steel and concrete framework structures for process units and equipment.
 - 2. Steel and concrete pipe-rack structures.
 - 3. Process area paving.
 - 4. Personnel safety structural items (e.g., handrails, gratings, and ladders).
 - 5. Buildings.
 - 6. Security fencing.
 - 7. Road and rail infrastructure and bridges.
 - 8. Buried drains, sewer systems, and culverts (outside scope of piping systems).
 - 9. Cooling towers.
 - 10. Settling ponds, fire water ponds.
 - 11. Tank bunds and dikes, flood protection walls.
 - 12. Chimney stacks that are not integral part of heaters and boilers.
 - 13. Flare stack structural items (e.g., lattice steelwork, guys, anchors, and foundations).
 - 14. Microwave and telecom towers and other miscellaneous tall structures.
 - 15. Marine structures.
- c. Outside scope of this GP are the following:
 - 1. Structural supports that are integral to equipment (e.g., vessel skirts, saddles, support legs, piping spring supports) (refer to equipment specific GP 32-4X series).
 - 2. Integral steel chimney stacks (refer to GP 32-45).
 - 3. Storage tanks and foundations (refer to GP 32-44).
 - 4. Flare tips and associated hydrocarbon and utility piping (refer to GP 32-49).
 - 5. Marine loading arms (refer to GP 32-49).
 - 6. Lifting equipment (refer to GP 32-49).
 - 7. Single point moorings (refer to GP 32-49).
 - 8. Offshore fixed structures (refer to GP 66-XX series).
 - 9. Offshore floating structures (refer to GP 65-XX series).

BP experience indicates that some onshore civil/structural facilities and structures are not inspected and maintained in service in accordance with criticality to plant safety and reliability.

Many of these items have been identified in accident and hazard studies as capable of initiating major events (e.g., structural collapse onto live plant, heavy vehicles falling onto hydrocarbon piping, blocked process sewers causing backup into plants, storm water flooding, and security breaches).

Occupational safety implications of inadequate inspection and maintenance of personnel safety items, such as platforms, ladders, handrails, and grating, is more



obvious. Nevertheless, failure of civil equipment/structural facilities has led to fatalities.

2. Normative references

The following normative documents contain requirements that, through reference in this text, constitute requirements of this technical practice. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this technical practice are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies.

BP

GP 32-30	Guidance on Practice for In Service Inspection and Testing of Equipment - Management Principles.
GP 32-40	Guidance on Practice for In Service Inspection and Testing of Equipment - Common Requirements.
GP 32-44	Guidance on Practice for In Service Inspection and Testing of Above Ground Atmospheric and Low Pressure Storage Tanks.
GP 32-45	Guidance on Practice for In Service Inspection and Testing of Fired Boilers and Heaters.
GP 32-49	Guidance on Practice for In Service Inspection and Testing of Special and Other Equipment.
GP 65-XX	Guidance on Practice for Floating Offshore Structures.
GP 66-XX	Guidance on Practice for Fixed Offshore Structures.

3. Symbols and abbreviations

For the purpose of this GP, the following symbols and abbreviations apply:

CCTV	Closed circuit television.
IA	Inspection Authority.
TA	Technical Authority.

4. Site Technical Practices and inspection procedures

4.1. General

This GP shall be read and interpreted in conjunction with GP 32-30 and GP 32-40.

4.2. Site Technical Practices

- This GP shall be adopted, modified, or supplemented by Sites into Site Technical Practices (STPs) for each relevant category of equipment within the scope.
- The STPs shall be approved by the Site Engineering Authority and form the basis for the development of equipment specific inspection and maintenance procedures.

4.3. Inspection and maintenance procedures

- Site inspection and maintenance procedures shall:
 - Be developed for relevant equipment categories as per clauses 4.4.to 4.15.

