

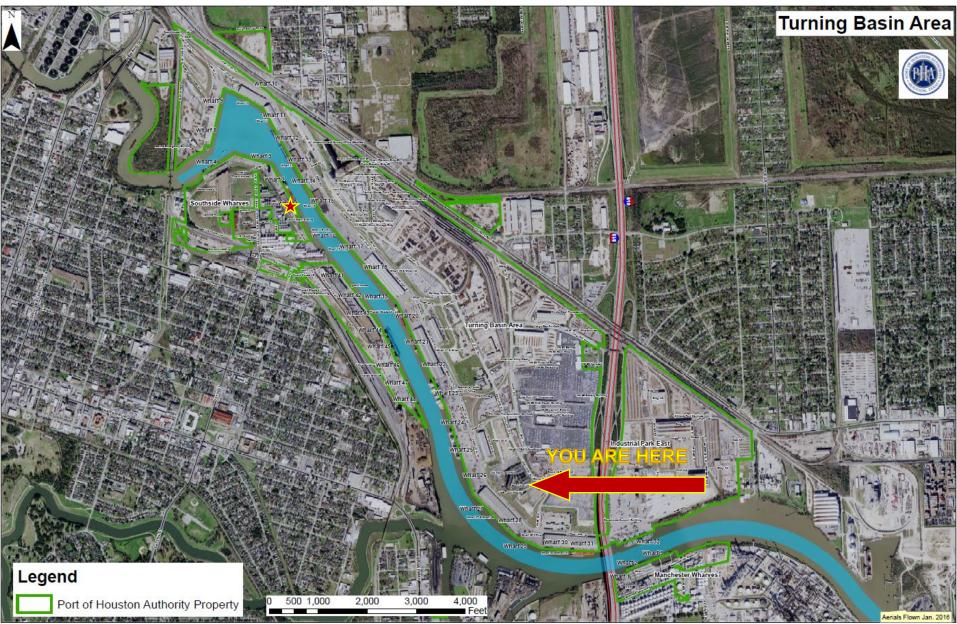
RFQ 882 - RFQ-CORROSION FICAP ON MARINE ASSETS

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RFQ - M2 Repair











Corrosion Condition Assessment Program (CCAP)



- Tool for inspection, assessment, and planning of corrosion protection-related aspects of PHA maritime assets
- Focuses on corrosion protection systems (e.g., impressed current cathodic protection) and steel elements
- Provides more complete indication of corrosion-related condition of assets
- Provides evaluation of existing corrosion protection system performance
- Facilitates development and implementation of effective corrosion protection strategies

CCAP Objectives



- Implement an Inspection and Condition Assessment Program for corrosion-protection systems and steel elements
 - Define corrosion protection components and elements in use on Port Houston maritime assets
 - Characterize the current condition based on inspection
 - Estimate expected remaining life
 - Report current and future condition (standardized reports and database input)
- Provide an overall framework for corrosion management for existing and new maritime assets at Port Houston
 - Develop process for in-depth performance analysis and service life prediction for components and elements of a maritime asset
 - Applications include:
 - Analysis of condition data and prediction of expected performance for corrosion protection systems
 - Facilitate quantitative analysis of cost-effectiveness of the different corrosion protection systems
 - Methodology for the Life Cycle Cost Analysis of corrosion protection measures for repair designs and design of new assets

FICAP Primary Scope – for reference



Baseline Inspection Primary Scope of FICAP Applies to: · New assets Applicable Components: · Existing assets with no inspection documentation Shoreline Structural Berthing Ancillary Objectives: • Develop inventory record Create standard inspection drawings Identify and quantify inspection elements · Inspect elements to set baseline condition Notes: · Assign component and asset ratings Immediate Action: Actions in response to conditions that may compromise structural integrity Deliverables: • Asset Inventory Record or facility operations, or lead to property or environmental damage Standard inspection drawings · Inspection Forms Repair/Other Action: Asset may require repairs or strengthening, or may be repurposed for alternative use, rebuilt, or removed from service (retired). Possible More Immediate Outcomes: No Action information or Action repairs needed specified frequency Routine Inspection **Engineering Analysis** In-depth Inspection · Existing assets with baseline Applies to: · New or existing assets requiring · New or existing assets requiring Applies to: Applies to: inspection further or special inspection engineering analysis Objectives: • Inspect elements to determine Objectives: Determine cause and Objectives: • Quantify structural capacity current condition significance of deterioration accounting for effect of defects · Assign component & asset · Collect detailed condition and · Load rating of asset ratings quantity information to develop · Service life analysis for asset Evaluate need for repairs or repair design Deliverables: • Inspection Forms · As needed for other situations strengthening ¥ Develop repair or strengthening Deliverables: • Inspection Report solution Possible More info. Immediate Repair quantities (where applic.) Outcomes: No Action or repairs Deliverables: • Engineering Report Action needed Possible Repair/ · Repair/strengthening solution No More Immed. Other Outcomes: (where applicable) Action info. Action Action Possible Repair/ No More Immed. Outcomes: Other Action info. Action Action

CCAP Overview



Inspection Planning

Applies to:

- · Facility-level development of inspection plan (assets and systems considered)
- · Asset-specific Baseline and Routine Inspection scope

Baseline Inspection

Applies to:

- Assets with new Corrosion Protection components
- Assets with existing Corrosion Protection components with no inspection documentation

Objectives:

- Develop corrosion protection inventory record
- Create standard inspection drawings
- Identify and quantify inspection elements
- · Inspect elements to set baseline condition
- · Assign component ratings
- Deliverables:
 Asset Inventory Record
 - Standard inspection drawings
 - Inspection Forms

Possible Outcomes:

specified frequency

No Action

More information or repairs needed

Immediate

Action

Primary Scope of CCAP

Applicable Components:

- ICCP
 - Organic coatings
- SACP
- · Inorganic coatings
- · Base metal

Notes:

Immediate Action: Actions in response to conditions that may compromise structural integrity

or facility operations, or lead to property or environmental damage

Repair/Other Action: Asset may require repairs or strengthening, or may be repurposed for

alternative use, rebuilt, or removed from service (retired).

Primary Scope

In-Depth Analysis: **Corrosion Management**

Routine Inspection Applies to: · Existing corrosion protection components with baseline inspection Objectives: Inspect elements to determine current condition · Assign component ratings Qualitative assessment of remaining life of protection system components Deliverables: • Inspection Forms Possible More info. Immediate Outcomes No Action or repairs Action needed

Remaining Service Life Analysis

Applies to:

Corrosion protection systems and steel elements

Objectives:

Service Life Analysis (Engineering Analysis) to predict remaining service life based on Baseline or Routine Inspection

Deliverables: • Estimated remaining service life

Possible Repair/ More Immed. Outcomes: Other Action info. Action Action

In-depth Inspection

Applies to:

Corrosion protection systems or assets requiring further or special inspection

Objectives:

- Determine cause and significance of deterioration
- Collect detailed condition and quantity information to support
- Engineering Analysis or to develop design solutions · As needed for other situations
- Deliverables: . Inspection Report
- · Repair quantities (where applic.)

Possible Repair/ No More Immed. Outcomes: Other Action Action Action

Engineering Analysis-Corrosion Management

Applies to:

· Corrosion protection systems or assets requiring engineering analysis

Objectives:

- · Service Life Analysis for entire asset · Quantify effect of defects or
- deterioration
- Evaluate need for repairs.
- strengthening, or corrosion protection · Life-cycle cost analysis to develop
- repair and corrosion protection solutions

Deliverables: · Engineering Report

Repair/strengthening/corrosion protection design (as applicable)

Possible Repair/ No More Outcomes:

Action

Immed. Other Action Action

