RFQ 882 - RFQ-CORROSION FICAP ON MARINE ASSETS
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RFQ – M2 Repair
Typical corrosion issue
West Retaining Wall (1948)

Typical corrosion issue
East Retaining Wall (1963)

Typical corrosion issue
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
- **Applies to:**
  - New assets
  - Existing assets with no inspection documentation
- **Objectives:**
  - Develop inventory record
  - Create standard inspection drawings
  - Identify and quantify inspection elements
  - Inspect elements to set baseline condition
  - Assign component and asset ratings
- **Deliverables:**
  - Asset Inventory Record
  - Standard inspection drawings
  - Inspection Forms
- **Possible Outcomes:**
  - No Action
  - More information or repairs needed
  - Immediate Action

### Primary Scope of FICAP
- **Applicable Components:**
  - Structural
  - Shoreline
  - Berthing
  - Ancillary

### 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).
CCAP Overview

Primary Scope of CCAP
Applicable Components:
- ICCP
- SACP
- Organic coatings
- 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).

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: No Action, More information or repairs needed, Immediate Action

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 Outcomes: No Action, More info or repairs needed, Immediate Action

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 Outcomes: No Action, More info, Repair/Other Action, Immediate 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 applicable)

Possible Outcomes: No Action, More info, Repair/Other Action, Immediate 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 Outcomes: No Action, More info, Repair/Other Action, Immediate Action