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Guidance on Practice for Corrosion Management

GP 06-10

BP GROUP
ENGINEERING TECHNICAL PRACTICES

Foreword

This is the first issue of Engineering Technical Practice (ETP) BP GP 06-10. This Guidance on Practice (GP) is based on parts of heritage documents from the merged BP companies as follows:

BP Amoco

Corrosion Management Assurance System 1999.

BP Amoco Corrosion Control System.

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Introduction

Each Business unit or operations unit shall develop, implement and maintain a Corrosion Management System to meet the requirements of the Group HSE Standard, "Integrity Management." The Standard requires the following: *"Mechanical and structural systems shall be operated, inspected, tested and maintained, consistent with accepted standards to ensure that equipment is fit for service, so as to avoid loss of containment and structural integrity."* Corrosion management forms a major component of integrity management programs in many BUs, but the nature of the corrosion threats, and therefore their detection, control, and monitoring and mitigation requirements may vary.

More specific guidance on the science of corrosion and on requirements for elements comprising corrosion management are described in relevant subject specific ETP GPs organized into general subject areas in as follows:

These are Group documents and may not comprise all the needed elements of a comprehensive Corrosion Management System. There may be relevant business segment guidance documents as well

Risk Assessment

Risk assessment processes and techniques are detailed in Western Hemisphere Risk Assessment Process, available from the Integrity Management Network.

Operating Guidelines

This category deals with the flow of liquid or gas streams containing entrained or potentially solids in piping. Operating guidelines can be applied to control or eliminate wall thickness losses.

GP 06-14 Guidance on Practice for Erosion Control.

Materials Selection

The documents in this category contain guidance on the selection and application of engineering materials in design and operations and define some specific limits of application of materials. Corrosion can be significantly reduced or and minimizes when appropriate design practices and techniques are applied. Reducing corrosion by design frequently requires a positive life cycle cost analysis, because corrosion resistant alloys (CRA) and non-metallic materials that can substantially reduce corrosion usually have higher initial costs than traditional carbon steel materials of construction. These are subject matters covered in the guidance documents in this category.

GP 06-20 Guidance on Practice for Materials for Sour Service.

GP 06-67 Guidance on Practice for the Effects of Equipment Design on Corrosion.

Paint and Protective Coatings

GP 06-60 Guidance on Practice for Coating of Metal Surfaces and Equipment.

GP 06-61 Guidance on Practice for Offshore Paints and Coatings.

GP 06-62 Guidance on Practice for Onshore Paints and Coatings.

GP 06-63 Guidance on Practice for Internal Coatings.

GP 06-25 Guidance on Practice for Design for the Prevention of Corrosion under Insulation and Fireproofing (CUI and CUF).

GP 52-55 Guidance on Practice for Thermal and Fire Protection Coatings.

GIS 52-551 Guidance on Industry Standard for Thermal and Fire Protection Coatings.

Pipeline Coatings

GP 06-40 Guidance on Practice for Pipeline Coating Selection.



- GIS 06-401** *Guidance on Industry Standard for Asphalt Enamel Pipeline Coating.*
GIS 06-402 *Guidance on Industry Standard for Coal Tar Enamel Pipeline Coating.*
GIS 06-403 *Guidance on Industry Standard for Cold Applied Tapes for Pipelines.*
GIS 06-404 *Guidance on Industry Standard for Fusion Bonded Epoxy Pipeline Coating.*
GIS 06-405 *Guidance on Industry Standard for Application of Three Layer Polyethylene and Polypropylene Pipeline Coating.*
GIS 06-407 *Guidance on Industry Standard for Field Applied Coating and Repairs for Pipelines.*
GIS 06-408 *Guidance on Industry Standard for Refurbishment of External Coatings on Pipelines.*

Cathodic Protection

- GP 06-31** *Guidance on Practice for Cathodic Protection.*
GIS 06-311 *Guidance on Industry Standard for Procurement and Installation of Cathodic Protection Systems.*
GP 06-32 *Guidance on Practice for Cathodic Protection of Onshore Pipelines.*
GP 06-33 *Guidance on Practice for Cathodic Protection of Onshore Structures and Equipment.*
GP 06-34 *Guidance on Practice for Cathodic Protection of Offshore Pipelines.*
GP 06-35 *Guidance on Practice for Cathodic Protection of Offshore Structures.*
GP 06-36 *Guidance on Practice for Cathodic Protection System Maintenance and Monitoring.*

Special chemical treatment

- GP 06-29** *Guidance on Practice for Corrosion Protection During Hydrotesting.*
GP 06-80 *Guidance on Practice for Boiler/Cooling Water Treatment and Handling.*

Corrosion Monitoring

There are numerous techniques for monitoring corrosion. Each of them has application limits and advantages as well as disadvantages. This document gives appropriate application guidance on all of the generally accepted monitoring techniques as well as the applicability of the data they provide.

GP 06-70 *Guidance on Practice for Corrosion Monitoring.*

Requirements for inspection, an important corrosion detection and monitoring function, are described in GP 32-40.

GP 36-10 provides detailed technical guidance for the selection of metallic materials.

This guidance is structured around the management concept of continuous improvement. A diagram demonstrating this concept and the major components of the Corrosion Management System is shown in Figure 1.

