

# Corrosion Control and Monitoring in Seawater Injection Systems

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## Document History

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## Foreword

This AMPP standard practice provides guidance in controlling and monitoring for corrosion, bacteria, and water quality to corrosion engineers, field corrosion, production, technical, and operating personnel, and others involved in corrosion control of seawater injection systems. This standard includes descriptions of equipment and practices for controlling and monitoring corrosion in seawater injection systems. This standard does not cover all corrosion monitoring methods including but not limited to: Periodic External UT and Downhole inspection tools. More information on these methods can be found in other AMPP standards.

## Scope

This standard was originally adapted from a report produced by the former Corrosion Engineering Association (CEA), which operated in the United Kingdom under the auspices of NACE International and the Institute of Corrosion (ICorr).<sup>(1)</sup>

## Rationale

This standard was revised to make it grammatically clear and easily understood. The addition of a table with acceptable ranges for most common parameters measured was added to provide the reader with targets for their system. Two NACE (AMPP) standards were added as references. Other additions were made to add specificity to points that the previous versions were making.

In AMPP standards, the terms *shall* and *must* are used to state requirements and are considered mandatory. The term *should* is used to state something that is recommended, but is not considered mandatory. The term *may* is used to state something considered optional.

## Section 1: General

- 1.1 This standard covers aspects of corrosion control and monitoring in seawater injection systems.
- 1.2 Users of this standard should collect and evaluate all the pertinent information regarding the system before making any decisions about material selection, operating parameters, chemical programs, corrosion control, and monitoring programs. Some information to gather would include: composition and properties of the source water and reservoir brines and operational processes available.
- 1.3 Most seawater injection systems rely on coatings, liners, plastics, composite materials, and corrosion-resistant alloys (CRAs) to overcome potential corrosion problems prior to deoxygenation. The practices in this standard concentrate more on controlling and monitoring corrosion in facilities downstream from deoxygenation, but also address some of the aspects relevant to selection of appropriate mitigation and control methods for upstream service conditions. The standard also addresses materials selection for seawater injection systems.
- 1.4 This standard presents practices for controlling and monitoring corrosion in seawater injection systems. However, many of these practices can be applied to other types of water injection systems, such as:
  - a) Systems for reinjection of produced water;
  - b) Aquifer-sourced water injection systems; and
  - c) River or surface water injection systems.
- 1.5 Figure 1 shows a typical layout of a water injection system—in this case, an offshore application. The purpose of Figure 1 is to show equipment items typically associated with water injection systems and common fluid treatments and monitoring types and locations. It does not show all items of equipment or all possible fluid treatments or monitoring types that can be used in water injection systems.

<sup>(1)</sup> Institute of Corrosion (ICorr), Corrosion House, Vimy Court, Leighton Buzzard, Bedfordshire LU7 1FG, United Kingdom, [www.icorr.org](http://www.icorr.org).