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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 46870.2-2025

**Carbon dioxide capture - Part 2: Evaluation procedure to assure
and maintain stable performance of post-combustion CO₂
capture plant integrated with a power plant**

二氧化碳捕集 第2部分:电厂燃烧后CO₂捕集确保和维持稳定性能的评估程序
(English Translation)

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Table of Contents

Preface
Introduction
1 Scope
2 Normative References
3 Terms, Definitions, Abbreviations and Symbols
3.1 Terms and Definitions
3.2 Abbreviations
3.3 Symbol
4 Principles
4.1 General Rules
4.2 Reliability Performance
4.3 Ensure and maintain reliable performance
4.4 Program Overview
4.5 Guiding Principles
5 Basic Concepts of PCC Device Availability, Reliability, and Maintainability
5.1 General Rules
5.2 Spatial and Temporal Assessment Boundaries
5.3 Usability Assessment and Quantification
5.4 Reliability Assessment and Quantification
5.5 Maintainability Assessment and Quantification
5.6 Comprehensive Aspects of Availability, Reliability, and Maintainability
5.7 Unavailability (Three Categories)
6 Define reliability, availability, and maintainability during the basic design phase.
6.1 Overview
6.2 PCC Device Description
6.3 Basic Design Phase
7 Determine reliability and availability during the operational phase.
7.1 General Rule
7.2 Review of Execution Results
7.3 Basic Load Pattern for Operational Assessment and Reporting
7.4 Normal Operation (Transient and Steady-State)
7.5 Start-up and shutdown

- 7.6 Emergency Operations
- 7.7 Unavailable time
- 7.8 Equipment operator organization and training
- 8 Maintenance Instructions
 - 8.1 General Rules
 - 8.2 Maintainability and Downtime
 - 8.3 Maintenance Strategy
- 9 Key Performance Indicators (KPIs) for Availability Reports
 - 9.1 General Provisions
 - 9.2 PCC unit capacity availability and product CO₂ yield
 - 9.3 Plan compliance rate. 25%
 - 9.4 Time Feasibility
 - 9.5 Operating coefficient
- Appendix A (Informative) Detailed evaluation procedures for ensuring and maintaining the stable performance of post-combustion CO₂ capture systems in power plants
 - A.1 Overview
 - A.2 Process Step 1---PCC Device Definition
 - A.3 Process Step 2---Basic Design Phase
 - A.4 Process Step 3---Execution Phase
 - A.5 Process Step 4 - Reliability, Availability, and Maintainability (RAM) Analysis
 - A.6 Process Step 5 - Study of Key Factors and Failure Mechanisms
 - A.7 Process Step 6---Identification and Research
 - A.8 Support information regarding the impact of maintenance
- Appendix B (Informative) Reference Devices and Components Experience
 - B.1 General Rule
 - B.2 Guide to Using Data on Mature Industrial Equipment Components

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is Part 2 of GB/T 46870 "Carbon Dioxide Capture". GB/T 46870 has the following parts published.

---Part 1: Evaluation Methods for CO₂ Capture Performance After Combustion in Power

Plants;

---Part 2: Evaluation procedures for ensuring and maintaining stable performance of CO₂ capture after combustion in power plants.

This document is equivalent to ISO 27919-2:2021 "Carbon dioxide capture - Part 2: CO₂ capture, assurance and maintenance after combustion in power plants".

Stability performance evaluation procedure.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed and is under the jurisdiction of the National Technical Committee on Standardization of Environmental Management (SAC/TC207).

Introduction

To achieve the goal of mitigating climate change, reducing atmospheric CO₂ emissions is crucial. Incorporating CO₂ emissions into current emission reduction measures is essential.

Carbon capture and storage (CCS) technology increases the possibility of achieving the above goals at the lowest global economic cost. Carbon dioxide produced from the combustion of carbon-based fuels...

Capturing CO₂ from flue gas is the only technology that can directly treat emissions from power plants and other industrial sectors (such as cement and fertilizer production).

GB/T 46870 aims to develop evaluation guidelines and methods for post-combustion CO₂ capture (PCC) in power plants based on liquid chemical absorption processes.

The law is proposed to consist of the following parts.

---Part 1: Methodology for evaluating the performance of post-combustion CO₂ capture in power plants. The aim is to provide key performance data for power plant PCC (Potentially Charged Combustion) units.

Key performance indicators (KPIs) evaluation guidelines and methods.

---Part 2: Evaluation Procedures for Ensuring and Maintaining Stable Performance of Post-Combustion CO₂ Capture in Power Plants. The purpose is to address the PCC (Potential Performance Criteria) of power plants.

The device provides guidelines and methods for evaluating reliability, availability, and maintainability (RAM).

PCC is applicable to combustion-based thermal power plants. Figure 1 is a simplified block diagram of PCC.

Figure 1 Simplified block diagram of PCC

In typical power generation facilities, carbon-based fuels (such as coal, oil, natural gas, and biomass) are burned with air in a boiler to produce steam.

Steam drives a steam turbine or generator to produce electricity. In a gas turbine combined cycle system, combustion within the gas turbine drives power generation, while waste heat is utilized.

The steam produced by the boiler generates additional electricity. The main components of the flue gas emitted by the boiler or gas turbine are N₂, CO₂, H₂O, and O₂, with other trace elements...

The amount of pollutants varies depending on the fuel type. The PCC process is located downstream of conventional pollutant control units. PCC process based on chemical absorption.

Steam is typically drawn from the power plant's steam cycle, or the absorbent is regenerated using a low-grade heat source, depending on the absorbent used.

Liquid and process.

The economic and environmental value of a PCC unit depends on its technical performance and its ability to meet the requirements of the owner/stakeholder.

And maintain the ability to operate stably, specifically as follows.

---Owners of flue gas sources are concerned about continued CO₂ emission reduction;

---Owners of CO₂ products are concerned with being able to supply CO₂ at the desired capacity regardless of external conditions;

---CO₂ recipients are concerned about the availability of CO₂ products to ensure their own operational needs.

This document, based on ISO 27919-1 for evaluating Key Performance Indicators (KPIs), provides a method for integrating technical item evaluation with reliability and performance assessment.

A procedure that combines usability assessment with maintainability assessment methods under specific conditions.

Carbon dioxide capture, Part 2: CO₂ after power plant combustion Evaluation procedures for ensuring and maintaining stable performance in capture.

1 Scope

This document outlines the evaluation and reporting work for PCC units integrated with the main power plant (for projects undergoing basic design, and as part of...).

The feedback from the reference device or unit provides relevant definitions, guidelines, and