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Guidance on Practice for Analyser Systems

GP 31-01

BP GROUP
ENGINEERING TECHNICAL PRACTICES

Foreword

This is the first issue of Engineering Technical Practice (ETP) GP 31-04. This Guidance on Practice (GP) is based on parts of heritage documents from the merged BP companies as follows:

Amoco (ACES)

A AR-FBD-PA-P	Architectural—Facility Buildings—Process Analyzer Shelters—Supply Specification
A PC-PA-00-E	Process Control—Process Analyzers—Engineering Specification
A PC-PA-00-G	Process Control—Process Analyzers—Guide
A PC-PA-00-P	Process Control—Process Analyzers—Supply Specification

ARCO (APCES)

Std 312-92	Analyzers
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British Petroleum (RPSE)

RP 30-02	Instrumentation and Control, Selection and use of Measurement Instrumentation
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Table of Contents

	Page
Foreword	2
1. Scope	4
2. Normative references	4
3. Symbols and abbreviations	4
4. General	4
4.1. Legislative regulations, local codes, and standards	4
4.2. Safety management	5
4.3. Specifier role	5
5. Required performance	5
6. Selection	6
7. Design	7
7.1. General requirements	7
7.2. Sampling systems	8
8. Installation	11
8.1. General	11
8.2. Impulse lines and sample systems	11
8.3. Analyser houses	11
8.4. Analysers	11
9. Operation and maintenance	11
10. Commissioning	12
10.1. General	12
10.2. Analyser house/shelter	12
10.3. Fast loop and sample system	12
10.4. Analyser	13
10.5. Sample handling system	13
10.6. Performance checks	13
11. Auditing and benchmarking	13
11.1. Auditing	13
11.2. Benchmarking	14



1. Scope

This document provides guidance on practice for design, installation, operation, and maintenance of analyser systems.

2. Normative references

The following normative documents contain requirements that, through reference in this text, constitute requirements of this technical practice. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this technical practice are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies.

BP Engineering Technical Practices (ETP)

GIS 31-011	Guidance on Industry Standard for Analyser Houses to IEC TR 61831
GIS 31-012	Guidance on Industry Standard for Analyser Sample Systems
GIS 31-013	Guidance on Industry Standard for Gas Chromatographs
GIS 31-014	Guidance on Industry Standard for Physical Property Analysers
GP 30-25	Guidance on practice for Field Instruments –General
GP 30-75	Guidance on Practice for Safety Instrumented Systems (SIS) – Management of the Safety Lifecycle
GP 31-02	Guidance on Practice for Analyser Validation
GP 31-03	Guidance on Practice for Continuous Emission Monitoring Systems
GP 31-04	Guidance on Practice for Analyser House Entry
GN 31-001	Analyser Function Audit Checklist

International Electrotechnical Commission (IEC)

IEC TR 61831	On-line analyser systems – Guide to design and installation.
IEC 61832	Analyser systems: Guide to technical enquiry and bid evaluation.
IEC 62010	Analyser Systems - A Guide to Maintenance Management

3. Symbols and abbreviations

For the purpose of this GP, the following symbols and abbreviations apply:

SHS Sample Handling System

SIL Safety Integrity Level.

EPA Environmental Protection Agency

4. General

4.1. Legislative regulations, local codes, and standards

- If analyser legislative requirements for an area conflict with guidance given in this GP, legislative requirements shall take precedence.
- Analyser equipment shall comply with local/national codes and standards.



- c. Continuous emissions monitoring systems shall be designed in accordance with GP 31-03.
- d. Specification of performance requirements should include expectations and assumptions of:
 - 1. Risk assessors.
 - 2. Safety teams.
 - 3. Maintenance crews.
 - 4. Auditors.
 - 5. System designer.
 - 6. Laboratory reproducibility.
 - 7. Process Operation Teams

4.2. Safety management

- a. Processes for competency of people, planning activities, documentation and verification should be in accordance with GP 30-75.
- b. Analyser systems or analysers requiring SIL 1 or higher integrity shall be in accordance with GP 30-75.

4.3. Specifier role

- a. Specifiers of analyser system performance requirements should have the following capabilities:
 - 1. Be experienced in design of analyser systems.
 - 2. Have a familiarity with other engineering disciplines (in particular, process, electrical, and instrumentation) and how they interact with one another.
 - 3. Have an understanding of site operations.
- b. Specifiers shall ensure that analyser systems comply with:
 - 1. Local and international codes and standards.
 - 2. Safety requirements for the site.

Compliance with local codes and standards is important. However, the Specifier's role is to ensure that the performance of the analyser system complies with the safety requirements for the site and not just the minimum to comply with code.

- c. Specifier's role shall include coordination and communication.
- d. Required level of performance for all parts of the analyser system shall be recorded.

5. Required performance

The following shall be reviewed and recorded to determine analyser system performance requirements:

- a. Legislative requirements for analyser systems.
- b. Hazardous area certification and local legal requirements i.e. local environmental protection agency etc.
- c. Operations expectations for the system. This review should include a discussion of required/expected repeatability/reproducibility and should determine what the analyser performance is required for i.e.

