

Performance parameters definition Quality assurance



Mette Tjener Andersson

Head of DANETV, DHI

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Performance parameter definition



- Very important – basis for test design
- Can be difficult to set – main task in verification protocol
- Two main categories:
 - Cleaning technologies
 - Monitoring technologies

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Application definition



- Define the matrix for which the technology is verified
 - Example; groundwater, drinking water, pool water
- Define the purpose of the technology on the specified matrix
 - Example; monitor hydrocarbons, remove arsenic, clean for re-use
- Describe the main processes of the technology
 - Example; remove arsenic by addition of iron(II)...

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Performance parameters – desk study



- Regulatory requirements
 - Example: max 5 µg/L arsenic in drinking water
- Application based needs / user needs
 - Example: detection limit below quality criteria
- Vendor information on technology – claims
 - Example: "Our technology can measure both hydrocarbons and chlorinated compounds in one analyse"
- Performance of compatible technologies – state of the art
 - Example: competitor claims his technology has a repeatability of 95 %

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Selection of performance parameters to be verified



- Performance parameters is selected based on desk study

Monitoring technologies	Cleaning technologies
Limit of detection	Cleaning effects
Range of application	Variation of effects
Precision (repeatability and reproducibility)	
Trueness	
Robustness	

- Some parameters can be included as operational parameters
 - Example: consumption of iron, use of power, by-products
- Relevant ranges are defined for both performance parameters and operational parameters -> To ease test design

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Additional verification parameters



- Evaluation of quality of user manual
- Required resources
 - Example; space, power supply, steam, labour
- Occupational health and environment
 - Use of hazardous chemicals, waste product
- Key environmental aspects
 - Examples: Use of resources during production, longevity, reuseability, end of life,

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Quality assurance



Quality of reports

Document	Responsible	External expert	Internal expert
Verification protocol	Verification Body	Review	Review
↳ Test plan	Test Body		Review
TESTING			
↳ Test report	Test Body		Review
Verification report	Verification Body	Review	Review

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Quality control during testing



- Test system control (Control of the test system as used in a specific test)
 - Examples:
 - Include blank samples
 - Have stock solutions analysed
 - Reference analyses / reference tests
 - Evaluation of stability of operational and/or on-line analytical equipment
- Test performance audit (Quantitative evaluation of a measurement system as used in a specific test)
 - Examples:
 - Detection limit, precision and trueness e.g. on reference analyses or analyses on stock solution (during time of performed analyses)
 - Results from proficiency tests on relevant parameters from analytical laboratories
 - Control of calibration of online measurement devices
- Test system audit
 - Internal audit performed by certified auditor

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