

SERVICE DELIVERY STANDARD

for providers of

Pre-commission and remedial cleaning of Closed Heating and Cooling Water Systems



1.0 Introduction

This standard is intended to cover the principles involved in the development and execution by the service provider of a suitable programme for the pre-commission or remedial cleaning of closed heating and cooling water systems.

Routine control of water quality following cleaning works is covered by the CSCA **Service Delivery Standard** 'Maintenance Water Treatment' for Closed Heating and Cooling Systems.

2.0 Scope

The scope of a suitable cleaning strategy should include:

- Communication and Management
- Allocation of responsibilities
- Training and competence of all personnel involved:
 - own staff
 - clients
 - sub-contractors
- Control measures (for implementation and monitoring of the cleaning procedures)
- Control of sub-contractors
- Internal Auditing
- Record Keeping
- Reviews (as applicable)

3.0 Management Overview

The service provider should have detailed procedures to define their operational approach to proposing, developing and managing cleaning application strategies which are adequate to secure the elimination of e.g. construction debris, mill scale, corrosion products, settled solids, mineral scales and microbiological fouling etc. – in accordance with the agreed predefined limits.

4.0 Survey Procedures

A significant amount of information needs to be gathered in order to design an appropriate cleaning programme.

4.1 A site survey should be carried out in order to obtain system design and operational data; and (for remedial cleaning projects) to obtain information about the current condition of the system and to review the system treatment history. The survey/information gathering should include as appropriate:-

Mechanical and operational aspects of the system

- e.g. system volume
- Recirculation rate
- Critical heat exchangers
- System metallurgy

- o Plant manufacturers data
- o Temperatures
- o Operating pressure
- o Fill water analysis (note seasonal variances)
- o Items of ancillary equipment such as pre-treatment plant; filtration equipment; dosing and monitoring equipment should be included, together with information concerning their current condition.
- o The safe handling of chemicals and consideration of any environmental restrictions concerning the subsequent disposal of the cleaning fluids must also be considered.

4.2 The Service Provider should have appropriate forms or processes to carry out the survey. An example is attached as *Appendix 1*.

4.3 Only competent personnel who have experience and knowledge of closed heating and/or cooling systems, and of cleaning programmes, should undertake these surveys.

4.4 Any survey process should be available for external audit:

NOTE 1: It may be the case that all the required data is either not made available or is not known. Where this is the case any proposals to clean the system must contain relevant caveats to protect the interests of both the prospective service provider and the system owner/operator. The proposals should indicate, where applicable, how the missing data may be gathered going forward.

NOTE 2: Health and Safety issues arising from a site survey, e.g. condition of chemical storage tanks, pumps and control equipment, should be highlighted even if their ownership or management is not part of the bid.

5.0 Programme Design Procedures

Only competent personnel should use survey information to prepare technical cleaning recommendations for inclusion within tender documentations.

The cleaning programme should include (as appropriate):

5.1 Devising the cleaning schedule e.g. flushing/appropriate velocities
- Chemicals/application of

5.2 Design of the monitoring regime e.g. analytical test methods
- testing frequency
- control limits

5.3 Identification of suitable sampling points

5.4 Correct interpretation of results and appropriate responsive action

5.5 Adequate documentation (see BG29 sections 4.1.2 and 4.1.3)

5.6 Definition and agreement (with client) of desired outcome.

NOTE 1: The Service provider should be able to produce a rationale as to why the particular chemicals have been chosen. Evidence of product efficacy should also be made available to the client.

NOTE 2: The service provider will normally be expected to produce a detailed **METHOD STATEMENT** which takes into account all of the above mentioned aspects.

NOTE 3: The method statement should clarify where input/actions are required from the client e.g. water supply, power supply, weekend access.

6.0 Programme Initiation and Execution procedures

6.1 The current management processes (i.e. both client's and service provider's) should be reviewed to determine if they are suitable and sufficient for the project in hand.

6.2 The exact scope of service supply should be defined and agreed with the client; items excluded from the scope of service should be itemised where appropriate.

6.3 Key performance outcomes should be agreed with the client.

6.4 A Customer Service Agreement signed by both parties should ideally be produced to ensure that the roles and expectations of the service provider and the customer are mutually understood, and, where appropriate, the customer should be given the necessary instruction in any aspects of the cleaning programme that they may be required to implement and control (this may conveniently be done via the written *METHOD STATEMENT*). The method statement should include (as appropriate):

- Explanation of the cleaning schedule
- Volumes of the chemicals to be provided
- Allocation, agreement and documentation of responsibility
- Agreement over lines of communication and reportage
- Documenting the programme as it proceeds, and subsequent maintenance of the record.

6.5 The service provider should identify all training needs and verify the competence of all personnel involved, including the client staff, and any aspects of the service or supply that has been outsourced.

7.0 Cleaning Programme Reviews

Extended cleaning programmes will normally need to be periodically reviewed to ensure they are delivering the desired outcomes.

The frequency of such reviews will depend on the changeability of conditions of the plant/system being cleaned and the duration of the project.

In any event, the frequency of the review should be recorded and adhered to.

Any such review should be recorded.

8.0 Cleaning Programme Verification

It is the service provider's responsibility to ensure that the cleaning programme is being executed and managed to the agreed standard and is being delivered as defined by the Customer Service Agreement.

The service provider should operate an internal auditing programme to verify that:

- A written method statement is available
- The required monitoring has been carried out

- The designated control limits have been employed
- The test results have been correctly interpreted
- The correct responsive actions have been applied
- The key results have been independently witnessed and signed for
- Correct records are being maintained.

9. Reporting and Communication

Any service to a system should be recorded either using a paper reporting system or an electronic data logging system. Where possible a signature from the customer should be obtained as verification the work has taken place.

Any report so produced should be distributed by an appropriate method (post, fax or email) to a designated representative of the customer and copy records kept by the service provider for a minimum recommended period of 3 years from the termination of the project.