Environmental Technology Verification (ETV) - Towards mutual recognition

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Abstract: Environmental Technology Verification (ETV) is intended to promote market entry for new environmental technologies. Models have been developed to facilitate cooperation between different ETV programmes, thus enabling important advantages for the ETV customers in terms of international, mutual recognition of verifications. The models have been applied yielding verifications with validity under two and three ETV programmes.

Keywords: Environmental Technology Verification (ETV); joint verification; co-verification

Introduction

The objective of Environmental Technology Verification (ETV) is to promote innovative environmental technologies by providing technology developers, manufacturers and investors access to third-party validation of the performance of their technologies. This is used as to promote market entry of new technologies.

A verification body performs verification of a technology by testing against pre-defined performance claims. At the end of the verification process, a verification statement is issued. The statement contains a summary on the verification results and can be used by the vendor in marketing the technology. Furthermore, a more detailed verification report, and possibly even the full set of test data may be published.

Currently, national ETV programmes exist in Denmark, Canada, US, Japan, Republic of Philippines and Korea, while programmes are under development in the European Union (EU) and China. The EU ETV pre-programme is to be launched in September 2011.

An international working group with representatives from ETV programmes in Canada, EU and Philippines (observers are US and soon possibly Korea) is currently working on an internationally accepted standard ETV procedure in order to achieve mutual recognition of verifications done by different ETV programmes. The vision is to have an ETV standard published by the International Standardization Organization (ISO).

In the process towards mutual recognition, a EU project, AdvanceETV, produced verifications performed jointly between Danish/Nordic ETV programmes (DANETV[1] and NOWATECH[2]), US EPA ETV and ETV Canada. The presentation will describe co-operation between the national ETV programmes and present examples of

[1] Danish Centre for Verification of Climate and Environmental Technologies, Danish Ministry of Science, Technology and Innovation (DANETV, 2011).
[2] Nordic Water Technology Verification Centers, Nordic Innovation Centre (NOWATECH 2009)

verifications of water technologies. Both synergies and challenges of the co-operation will be presented.

Material and Methods

A verification involves steps such as those shown below with the procedure from the EU ETV pre-programme shown as an example (Figure 1.1).

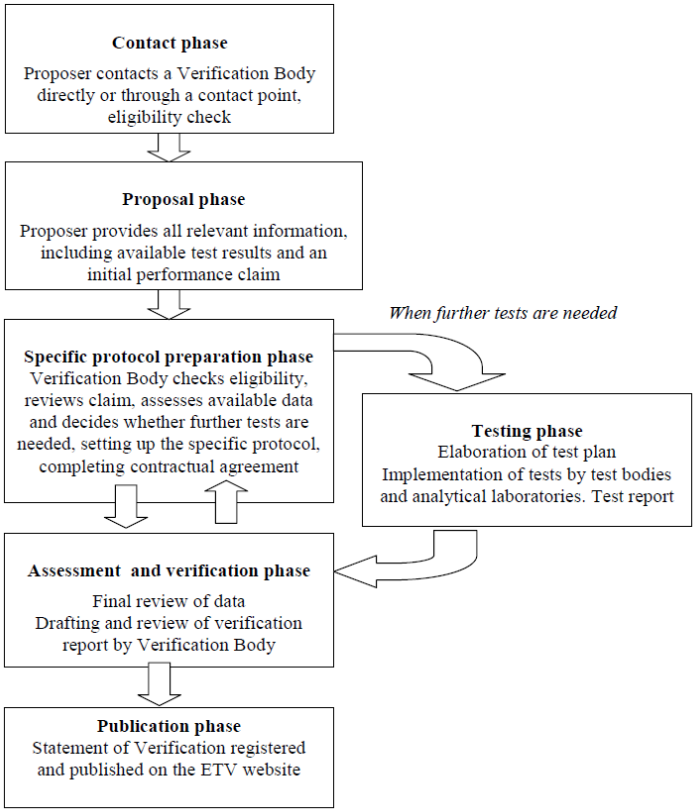

Figure 1.1 Steps in the EU ETV pre-programme verification procedure. EU (2011)

Several verifications were carried out in cooperation between two or more of the three programmes involved in AdvanceETV. Table 1.1 lists the verifications of products for water treatment and water quality monitoring.

Table 1.1 Cooperative environmental technology verifications in the area of water treatment and water quality monitoring.

Vendor	Application	Involved ETV programmes
Sorbisense A/S	Measurement of volatile organic contaminants in groundwater	NOWATECH, US EPA ETV
HACH-LANGE	Toxicity testing of effluent wastewater	DANETV, US EPA ETV, ETV Canada
Colifast AS	Automatic detection of total coliform bacteria or *Escherichia coli* in drinking water	US EPA ETV, ETV Canada, DANETV

Example 1:

Sorbisense A/S had a passive sampler verified for the measurement of volatile organic contaminants in groundwater. A technology-specific verification protocol and a product-specific test plan were prepared by DHI as part of NOWATECH, in

cooperation with Battelle[3] and US EPA ETV. The documents were based on existing protocols for similar technologies, and adapted to the product verified. Airtight tanks of stainless steel were constructed for the immersion of samplers in VOC containing water in the laboratory (Figure 1.2). The testing of the equipment in laboratory and in the field was performed by in DHI's laboratories in Hørsholm, Denmark and at two sites in the Copenhagen area. The reporting of the tests and the verification was done in cooperation between the verification and test centres, and Battelle performed a test site audit in Denmark. Finally, one joint verification statement was issued by the US and Danish partners.

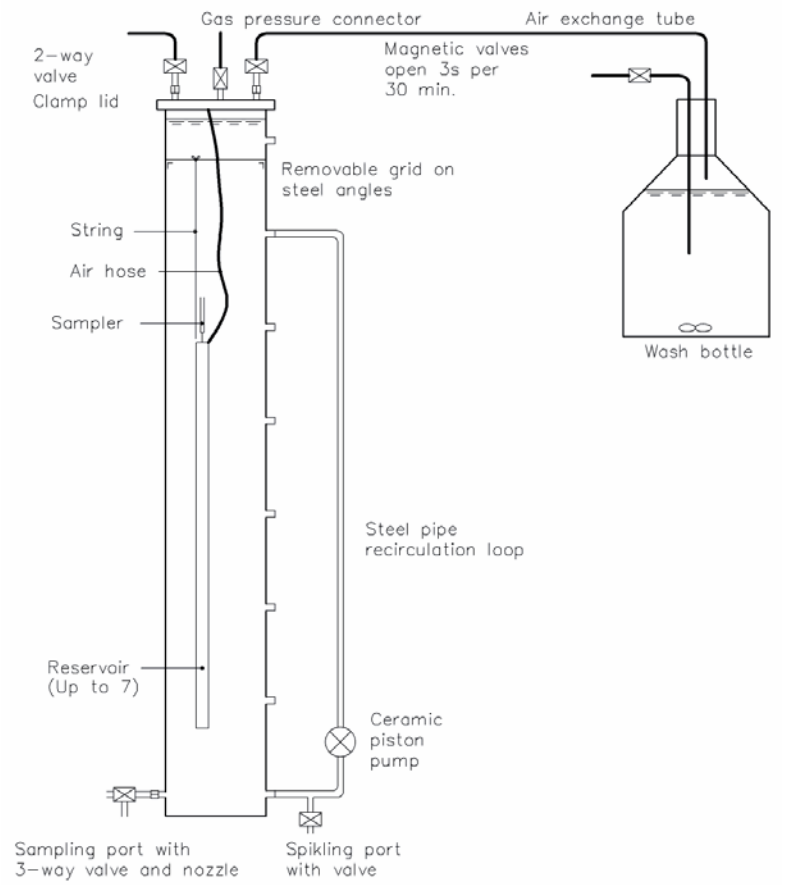

Figure 1.2 Sketch of standpipe for long-term verification of passive samplers.

Example 2:

HACH-LANGE had two products verified for testing of wastewater toxicity. A verification protocol and a test plan were prepared by DHI as part of DANETV, in cooperation with Battelle/US EPA ETV and ETV Canada. The testing of the equipment was performed in DHI's laboratories in Hørsholm, Denmark (Figure 1.4). The reporting of the tests and the verification was also done in cooperation between DANETV, Battelle/US EPA ETV and ETV Canada. Battelle and ETV Canada did intensive review of the produced data, and Battelle performed a test site audit in Denmark. Finally, one joint verification statement was signed by the three ETV programmes for each of the two tested technologies.

Reports with complete test and verification details have been published (DANETV, 2011).

[3] Battelle is the US EPA ETV programmes test centre for water technologies.

Figure 1.4 HACH-LANGE ECLOX Handheld Luminometer.

Results and Discussion

The cooperation between the ETV programmes was good and the differences in the programmes were identified and actions towards general agreement were taken. This was achieved by preparing a process document early on to identify differences in the ETV programmes and to list any special requirements. Also, when deviations to the test plan occurred information was given immediately to the partners. Extra time was added for sufficient review by all partners.

Based on the verifications performed in cooperation between the ETV programmes, two roadmaps have been developed under the AdvanceETV project. The roadmaps are designed respectively for joint verifications (were all programmes take intensive part in testing and verification as was the case for the HACH-LANGE and Sorbisense verifications) and co-verification (were one partner carry out the testing and verification and all programmes assessed and accepted the results). The two roadmaps will be published in final form in the autumn of 2011 and will harmonise joint verification and or co-verification processes (AdvanceETV, 2011).

For technology developers, this means that by purchasing an ETV for their product can now be made valid not as now only under one ETV programme, but by co-operation up front the verification statement can be valid under several of the operating ETV programmes and thereby give possibility to access several national and regional markets.

References

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