

## **Comparative Facility Characterisation for Decommissioning among Several Countries: Evaluation for Regulatory Input**

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**Abstract.** The purpose of this report is to describe, compare and evaluate the pros and cons of different methods for radiological characterisation of land areas after decommissioning of nuclear facilities. Specifically, it describes and examines the applied methods for the final status survey used in France, Germany, Spain, the United Kingdom (UK), and the United States (US). The Swedish Radiation Authority (Strålsäkerhetsmyndigheten, SSM) has authorised this comparison and evaluation for dissemination to industry and other interested parties. The information from the five countries in the study came from several kinds of sources. Professional network referrals identified subject matter experts in each of the five countries who were then contacted. The contacts provided electronic documents or online links to the publicly available information. The online links often led to additional world-wide-web searches and more information. In addition, some information was provided by private communication in e-mails. Other experts provided electronic proceedings of a conference or symposium.

The information was compared and evaluated on for each country according to each of ten attributes:

1. Regulatory basis;
2. Scope;
3. Applicability;
4. Flexibility;
5. Transparency;
6. Roles and responsibilities of parties involved;
7. Quality program;
8. Detail of measurements descriptions;
9. Mathematical approaches;
10. Available assessment tools.

A summary comparison across all countries for each attribute is presented in a table. Overall, it appears that each country has a goal of clearing lands from nuclear facilities at a risk of a fatality from residual radioactivity of on the order of one-in-a-million per year. However, their approaches vary in a number of aspects, and evaluation of these different approaches should take into account the regulatory culture of the respective country.

High level considerations for developing regulations and guidance for implementation of final status surveys take into account the regulatory framework, stakeholder involvement, and the Data Quality Objectives structure for the development. Concluding remarks note that development of such guidance does not require starting anew. Rather, established guidance that has proven effective, efficient and useful such as MARSSIM and EURSSEM can be adopted or at least used as a starting basis.