

A powerless classification system? When the geological disposal option (re)defines radioactive waste categories¹

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Acknowledgments: The author would like to thank Denia Djokic from the Belfer Center for Science and International Affairs (Harvard University) for our exciting talks about the consequences of the classification of nuclear waste in the USA and elsewhere in the world and for her valuable and constructive comments on the paper.

Abstract

What is the difference between classical waste, radioactive waste, or a potential resource? Why does the International Atomic Energy Agency (IAEA) distinguish spent nuclear fuel from radioactive waste? How does *naming* an object affect the way it is or how it could be managed? This paper aims to examine classification systems for radioactive waste in several national contexts. We study how relevant actors classify radioactive objects and normatively prescribe their management.

This paper relies on two assumptions commonly found in the field of Science and Technology Studies. First, government practices about radioactive waste (management) are considered as “episodes of co-production” in which ontologies (i.e. high-level radioactive waste as it is) and their legitimate representation (high-level radioactive waste as it should be managed) are mutually constituted (Jasanoff, 2004). Second, naming is a powerful action (Bowker and Star, 2000). Although the classification of things is a common activity, it is not a neutral one. Classification systems for radioactive wastes can be considered as instruments which constraint the scope of the action and declare what it is (im)possible to do with the radioactive object. In this sense, they also reveal the nature of the relationships between the various actors engaged in the problem of radioactive waste management.

This paper compares and describes the established classification systems of the IAEA, France, Canada and Belgium. It highlights national specificities regarding the number and the type of categories and criteria of classification, and more specifically examines classification-building practices in Belgium to identify how classifying radioactive objects explicitly and implicitly distributes actors’ roles and allow the identification of relevant actors that manage these wastes.

In doing so, this paper highlights how the IAEA classification system for radioactive waste and national classification systems systematically associate and impose the “high-level radioactive waste” category with the “geological disposal” option. In STS words, we can say that the high-level radioactive waste category *produces* the geological disposal option. We also underline how uncertainties remain about what to do with radioactive wastes in blurred, un-stabilized categories that are classified and named differently by different actors. Examples of “blurred” categories are wastes whose differences are “covered up, merged, or removed altogether” (Bowker and Star, 2000) and include once-through spent nuclear fuel from uranium oxide in the USA, spent nuclear fuel from mixed oxide fuel (MOX) in France, and both in Belgium. Should these categories be managed as a waste, or as a resource? Should their common fate be the geological disposal option? Revealing the power(lessness) of a top-down classification system to manage radioactive waste, we sustain that these uncertainties could reverse the dynamic of imagining a final long-term repository option for a particular category: part of the definition of high-level radioactive waste could be that its disposal option is a geological repository. In this sense, the geological disposal option could *produce* high-level radioactive waste.

¹This paper pushes forward some of the first author’s reflections on this topic published in Parotte (2018).