

How Did We Come to Know about B.5.b?

It Passed by Our Unobservant Eyes Many Times

The United States anti-terrorism measure (B.5.b) was not announced publicly due to its nature of being an anti-terrorism measure, but if we had scrupulously researched trends in other countries regarding measures to tighten security, we might have become aware of it.

Since 9/11, the following anti-terrorism measures have been considered in the United States, and among these, the fact that portable equipment attracted attention is an example indicating that possibly we might have become aware of B.5.b.

1. Controversy over SFP Risk in US Congress
2. NRC SOARCA Project
3. Related Research by EPRI and ASME
4. ICM and Other legislative Trends
5. EUR

1. Controversy over Spent Fuel Pool Risk in the US Congress

Since 9/11, politicians in the United States have ardently expounded the risks associated with spent fuel pools and debates have arose on how to respond to these risks. (By looking at how this debate was developed, the rise of B.5.b might have been seen.)

For example, in 2006, Congress issued a request for a study to the National Research Council, which prepared and released the report “Safety and Security of Commercial Spent Nuclear Fuel Storage: Public Report Committee on the Safety and Security of Commercial Spent Nuclear Fuel Storage.”

Within the recommendations listed in this report, the “Provision of water spray systems that would be able to cool the fuel even if the pool or overlying building were severely damaged” and other B.5.b components were included.

2. NRC SOARCA Project

NRC (Nuclear Regulatory Commission)
SOARCA (State-of-the-Art Reactor Consequence Analyses)

Revision of NUREG-1150, large-scale risk research reported in 1990 (parameter study of SBO on whether B.5.b is present or not)

A large research project in which Sandia National Laboratories played a central part and a considerable number of engineers participated. Portions have been released on the NRC website (which we might have noticed if we had been more observant.)

Full particulars were released as NUREG-1935 in the summer of 2011 (Within an SBO originating due to an earthquake, it was assessed that hydrogen would leak from the top head flange of the Mark-1 and combust within the building. (i.e., it would have helped to have B.5.b))

3. Numerous Related-Reports by EPRI & ASME

ASME (The American Society of Mechanical Engineers)
EPRI (The Electric Power Research Institute)

Program on Technology Innovation: Potential Mitigation Strategies for Beyond Design Basis Conditions, 1012900, Final Report, November 2005 (Released in December 2006)

Nuclear Power Plant Risk Analysis and Management for Critical Asset Protection (RAMCAP) Trial Applications Summary Report 1011767 Final Report, December 2005 (Released in December 2006)

3. Numerous Related-Reports by EPRI & ASME (Cont'd)

Probabilistic Consequence Analysis of Security Threats—A Prototype Vulnerability Assessment Process for Nuclear Power Plants, 1007975, Final Report, April 2004 (Released)

Background: Since the events of September 11, 2001, the perceived increase in security threats to critical infrastructure in the U.S. has resulted in changes to security processes within many industries and municipalities. Significant security threats had previously been assessed by all Nuclear Power Plants (NPPs) through a process mandated by the Nuclear Regulatory Commission (NRC).

If the foreword or other sections of the aforementioned had been seen, “it would have been obvious that something is happening.”

4. ICM and Other Legislative Trends

ICM (Interim Safeguards and Security Compensatory Measures)

**Federal Register dated April 10, 2008: Legislative Bill 0CFR50.54 (hh) (“Loss of Large Area” requirement)
(Why, even though the legal requisite had come out, did we not think about what was going on behind the scenes or the specific requirements? Publishing legal requisites in the Federal Register is just the final step, but...)**

5. EUR

EUR(European Utility Requirements)
(Requirements for uses of light water nuclear power plants in Europe)

When C was revised in April 2001, AM making use of portable equipment had already been considered. (82 pages in Vol. 2 Chapter 1(safety requirements for all newly constructed plants))

Mobile equipment not permanently connected to the plant can be considered in the plant design to backup the Safety Functions* and to supplement them, when necessary, in the long term. In general, they will provide a substantial margin should the accident develop beyond DBC. In the long term, however, they can also be used to prove compliance with the safety objectives.

Use of site-based mobile light equipment includes items such as compressed air cylinders, compressors, small generators, etc. (it does not include mobile fire-fighting equipment, which is assumed to be available on a shorter timescale). The delay period is intended also to cover risks associated with their use (request delay, locating competent personnel, installation period, etc.).