Paper#: K258

A Mathematical Approach for Information Disclosure and an Application to Establishment of the Regulatory System for Safety Management

Tadao Suzuki, Ph.D.
Associate Professor at Fukushima College
suzuki.tadao@fukushima-college.ac.jp

Kenji Shiba, DBA
Professor at Kansai University
kenshiba@kansai-u.ac.jp

Masumi Nakashima, Ph.D.
Professor at Fukushima College
nakashima.masumi@fukushima-college.ac.jp

ABSTRACT

In an effort to avoid repeating the Fukushima Dai-ichi Nuclear Plant accident, a disclosure method for unusual information on nuclear emergencies and radiological consequences is investigated from the perspective of mathematical analysis. Since such information involving so many factors is different from general information, there is a possibility of having a failure of local symmetry in the system which defines the information state function and we can not disclose such information. We call the extraordinary information anomalous information. Assuming that the information is regarded as anomalous information, we then examine why a third regulatory agency is needed as a way of disclosing such information. After researching how to establish a new system for safety management in the aftermath of past nuclear accidents and based on the implications from our mathematical interpretation, we propose a new system for assessing the safety culture of an operator by a regulatory body.

Keywords: Information disclosure; anomalous Information; mathematical analysis; safety management; third regulatory agency