A Barrier-Based Approach For Risk Informed Safety Culture Assessment For A Canadian Nuclear Power Station

William R. Nelson, Det Norske Veritas; Ronald Hallmark, Det Norske Veritas; Jean-Yves Joseph, Det Norske Veritas

Det Norske Veritas (U.S.A.), Inc. (DNV)
1400 Ravello Drive
Katy, Texas 77449 USA
Direct: +1 281.396.1719
Mobile: +1.832.814.2333
Jean-Yves.Joseph@dnv.com

ABSTRACT

One of the most important components of effective safety and risk management for nuclear power stations is a healthy safety culture. Unfortunately, there is substantial disagreement about what constitutes an effective safety culture, and accidents and near misses continue to occur even when substantial efforts are exerted to institute safety management and safety culture programs. It is therefore apparent that something is missing in standard safety management and safety culture programs. There is an urgent need for a safety culture assessment method that effectively integrates technical and organizational risk factors together, and which can be tied directly to objective measures of safety and risk. An approach was developed for risk informed safety culture assessment that combines two complementary paradigms for safety and risk management: loss prevention - for preventing and intervening in accidents, and critical function management - for achieving safety and performance goals. Combining these two paradigms makes it possible to provide more robust systems for safety management, and to support a healthy safety culture. This approach is being applied to a safety culture assessment in partnership with Bruce Power, a Canadian nuclear utility. The following paper presents the approach and shares lessons learned for its application in the process industries.