

ENVIRONMENTAL REMEDIATION ACTIVITIES IN JAPAN FOLLOWING THE FUKUSHIMA DAI-ICHI REACTOR INCIDENT

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ABSTRACT

In March 2011, the Fukushima Dai-ichi reactor power plant was crippled by the Great Pacific earthquake and subsequent tsunami. Much of the focus in the news was on the reactor site itself as the utility company, the Japanese government, and experts from around the world worked to bring the damaged plants into a safe shutdown condition and stem the release of radioactivity to the environment. Much of the radioactivity released was carried out to sea with the prevailing winds. Still, as weather patterns changed and winds shifted, a significant plume of radioactive materials released from the plant deposited in the environment surrounding the plant, contaminating large land areas of the Fukushima Prefecture. The magnitude of the radiological impact to the surrounding environment is so large, the Japanese government has had to reevaluate the meaning of “acceptably clean.” In many respects, “acceptably clean” cannot be a one-size-fits-all standard. The economics costs of such an approach would make impossible what is already an enormous and costly environmental response and remediation task. Thus, the Japanese government has embarked upon an approach that is both situation-specific and reasonably achievable.

For example, the determination of acceptably clean for a nursery school or kindergarten play yard may be different from that determined for a parking lot. The acceptably clean level of residual radioactivity in the surface soil of a rice paddy is different from that in a forested area. The recognized exposure situation (scenario) thus plays a large role in the decision process. While sometimes complicated to grasp or implement, such an approach does prioritize national resources to address environment remediation based upon immediate and significant risks. In addition, the Japanese government is testing means and methods, including advanced or promising technologies, that could be proven to be effective in reducing the amount of radioactivity in the environment beyond a fixed, concentration based limit. Essentially, the definition of acceptably clean includes the concept of reasonably achievable, given the available technology, means and methods, and the cost to implement such. The Japanese government issued three technology demonstration contracts expressly designed to test and evaluate the available technologies, means, and methods, which, if implemented, might produce the greatest risk reduction from environmental contamination for the best value. Amec Foster Wheeler has teamed with the Japanese firm Obayashi to demonstrate the applicability and capabilities of the Orion *ScanPlot*SM and *ScanSort*SM technologies in radiologically impacted towns both inside and immediately outside of the 20 km restricted zone.

This presentation provides some unique images and informative insight into the environmental radioactive impacts in and around the exclusion zone. It will provide a look at one element of the Japanese government’s efforts to achieve the greatest risk reduction reasonably achievable.