A variety of corrective actions have been assembled to mitigate the materials issues. Current guidelines and recommended practices represent the results of extensive research and development as well as feedback from field applications. These approaches are summarized and the programmatic aspects described.

The resolution of the conditions that led to the Davis-Besse event is in process. The status of the actions to date is provided, as well as expected future actions by U.S. industry. In addition, insights into industry efforts to envelop potential future threats are presented. These efforts are key in allowing the industry to sustain recently achieved capacity factors and economic performance.

Study of Irradiated Skin Allografts and their Use on Burnt Patients

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Preserved human skin allografts can be used for burn wound coverage. This kind of tissue stays stored in a tissue bank that provides safe and effective allografts without the risk of infection disease transmission. Thus, even with the careful donor selection, captation, and preservation process, the skin grafts should be sterilized. The use of ionizing radiation to sterilize them is a safe technology, a cold sterilization process without toxic chemical residues. The Tissue Bank of the "Instituto Central do Hospital das Clínicas da Universidade de São Paulo" (Brazil) began this year the use of sterilized skin allografts by gamma radiation on burnt patients. The irradiation, a dose of 25kGy, took place at IPEN/CNEN–SP ("Instituto de Pesquisas Energéticas e Nucleares/Comissão Nacional de Energia Atômica–São Paulo"). The 0,15mm thick skin strips were preserved in glycerol 85%. In this concentration glycerol has bacteriostatic properties; however, it is effective only after certain time of preservation. The ionizing radiation sterilization reduces the period for implantation in patients. The objective of this study was to evaluate the histological structure and biomechanics properties of irradiated skin allografts. The biomechanics tests, stress-strain data, were made on Instron Universal Machine installed in IPEN. The results indicate the maintenance of biomechanics characteristics and the structure of the irradiated samples. Moreover, the coverage with that skin showed good results in relation to non-irradiated skin allograft.

Production of Medical Radionuclides at Russian Nuclear Institutes

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Several nuclear institutes within Russia and other former Soviet Union countries are making great strides in the development of irradiation techniques and radiochemistry processes for the production of critical medical radionuclides. Most of these facilities are concentrating on radionuclides that are in short supply or that have inadequate backup to their current production sources. This development work has been done with private money and research money from the U.S. government. Many of these government programs involve funding from non-proliferation programs supporting facilities or scientists that were formerly involved in weapons production. These radionuclides include Sr-82 produced at INR in Troitsk, and I-125 from the Karpov Institute in Obninsk. High quality Mo-99 is also being produced using an aqueous reactor at the Kurchatov Institute in Moscow. These important medical radionuclides are being imported and used in the Americas now or will be in the near future. A discussion of the irradiation processes and radiochemistry techniques will be presented.