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Radiological Assessment of Natural and Artificial Radionuclides in Mission (Texas) Surface Soils via Gamma-ray Spectroscopy KAREEM WAHID, MOHAMMAD HANNAN, NAM NGUYEN, University of Texas Pan American — Residents living near decommissioned chemical facilities in the city of Mission, Texas have been noted to complain of physiological abnormalities and health related problems associated with low dose radiation exposure. The purpose of this study was to quantify radioactivity levels in the entire Mission area by measuring natural and anthropogenic radionuclide concentrations in 30 representative surface soil samples through high-resolution gamma-ray spectroscopy. The mean specific activity concentrations for these radionuclides were similar to other comparable locations and followed an approximately normal distribution across the samples. In addition, radiological impact assessment factors such as the absorbed dose rate, annual effective dose, radium equivalent activity, and external radiation hazard index were calculated and found to be lower than recommended values, thereby signifying that there seems to be no potential radiological threat associated with Mission surface soils.

Kareem Wahid
University of Texas Pan American

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