



# Assessment of potential contamination and acid drainage generation in uranium mining zones of Peña Blanca, Chihuahua, Mexico

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**Abstract** Potential pollution of mining environmental liabilities' locations can be preliminarily and efficiently assessed by the potential generation of acid mine drainage and indices of contamination. This research evaluates the potential pollution by potentially toxic elements at locations with uranium mining liability evidence, using the net acid generation test and determining the background values to estimate acid mine drainage and indices of contamination. Sixty soil samples were collected, and the mineralogy and potentially toxic elements' total contents were determined by x-ray diffraction and optical spectrometry. The findings suggest that the soils related to a specific lithology might not present potential acid mine drainage generation but potential soil and sediment contamination. Future research is recommended on applying leaching tests to identify which

potentially toxic elements are effectively being solubilized. Finally, it can be concluded that the study area's potential contamination is relatively low overall.

**Keywords** Potentially toxic elements · Background levels · Environmental pollution · Index of contamination · Net acid generation

## Abbreviations

AMD	Acid mine drainage
ANC	Acid-neutralizing capacity
IC	Indices of contamination
MEL	Mining environmental liabilities
MPA	Maximum potential acidity
NAF	Non-acid forming
NAG	Net acid generation
NAPP	Net acid-producing potential
PAF	Potentially acid forming

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