Applying knowledge to improve water quality
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Hydraulic Conductivity Response to Acute and Chronic Exposure to Slightly Saline, Highly Sodic Water

Coalbed methane (CBM) development involves the extraction of methane, essentially natural gas, from coal seams. CBM is a non-conventional hydrocarbon resource that is rapidly expanding across the western United States. In the Powder River Basin of Montana and Wyoming, a by-product of CBM extraction is sodic water discharged to the surface. Montana State University conducted a study in the northern portion of the basin to quantify hydraulic conductivity of soils subjected to acute and chronic exposure to slightly saline, strongly sodic coal seam water. Preliminary results indicate that chronic exposure of potentially dispersive soils to sodic water can significantly reduce soil infiltration capacity and hydraulic conductivity. Additionally, acute, short-term exposure of potentially dispersive soils to sodic water can result in an immediate reduction in hydraulic conductivity.

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