

Historic produced water spill site characterization

Visual inspection

- Vegetation damage
- Salt tolerant vegetation
- Salt crusts
- Sodic soils
- Erosion
- Corrosion of surface steel products

Geophysical survey

- EM31 or equivalent (penetrates to 15-20 ft)
 - Soil coring for ground truthing of geophysics and depth characterization
 - Composite samples by depth: 0-6", 6-12", then every foot thereafter
 - Saturated paste analysis: EC, SAR, TDS, pH, B, cation/anion balance
- Resistivity surveys for large complex sites
 - Penetrates to larger depths
 - Reduces soil coring requirements

Drainage analysis

- Slope
- Stratigraphy (permeability)
- Drainage gradients
- Environmental receptors

Threat to groundwater (relative weight shown in parentheses)

- Chloride mass (10)
- Aquifer thickness (7)
- Depth to groundwater (3)
- Annual precipitation (2)
- Evaporation index (2)
- Surface soil type (4)
- Slope (1)
- Vadose zone material (> 3ft) (5)
- Aquifer hydraulic conductivity (4)
- Width of contamination perpendicular to direction of groundwater flow (3)