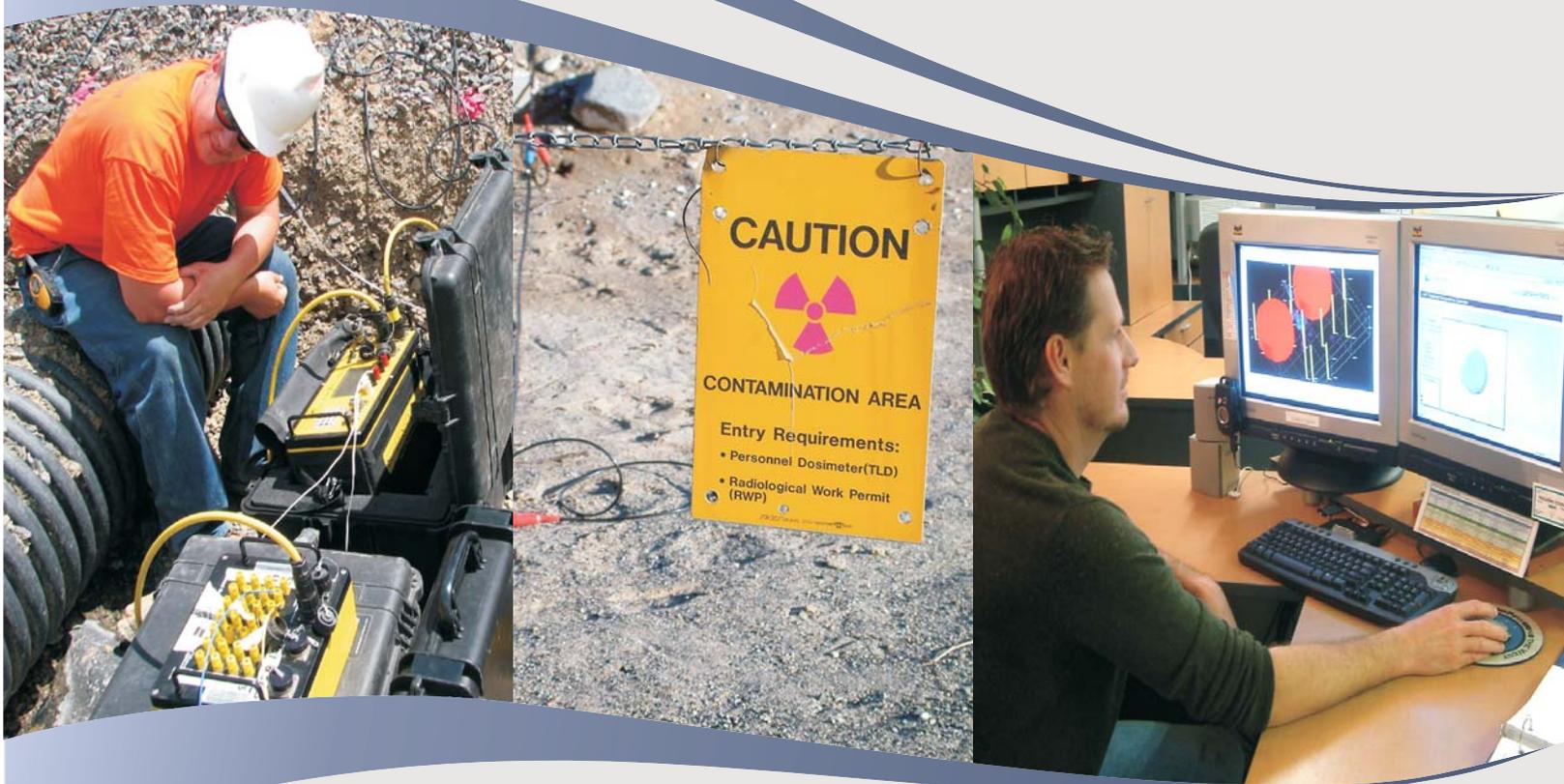


# Contaminant Leak Detection & Monitoring



- Contaminant Source Identification
- Locate Subsurface Fluid Flow Pathways
- Characterize Subsurface Plumes
- Real-time Corrective Action Monitoring

**We Image the Subsurface.  
Your Environment Benefits.**

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Tucson, AZ • Richland, WA



# Contaminant Leak Detection & Monitoring

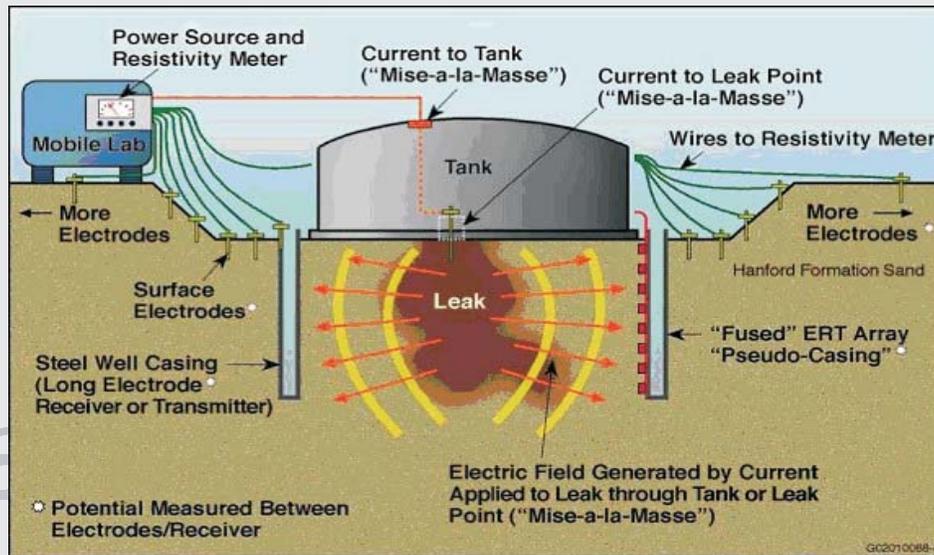


Subsurface Leak Detection and Monitoring (LDM) using High Resolution Resistivity (HRR) is used in the management of earth material processing, waste storage, and the detection of leaks in containment structures such as landfills, mine tailings, and liquid waste tanks. Time based monitoring for changes in the electrical resistivity of the subsurface lithology that surrounds these structures can yield significant information relating to remediation, environmental regulation, and economic impact.

information is readily integrated with the data acquired using a network of electrodes and or monitoring wells. The net result is an enhanced real time knowledge base to help make better decisions.

hydroGEOPHYSICS, Inc. (HGI) currently operates monitoring systems on underground storage tanks at the Hanford facility in Richland, Washington USA. HRR is similar to conventional galvanic resistivity methods but has improved lateral and vertical resolution as well as sensitivity.

For example, characterization and monitoring of a landfill operation and or other types of waste containment structures informs stakeholders of potential leaks or current plumes beneath those structures. With this knowledge, remedial action can be taken to minimize potential environmental damage and maximize compliance with environmental laws and regulations.



The figure at center is a schematic diagram of HGI's monitoring system currently deployed at the Hanford facility. In a blind test on a mock tank, the system detected every release from the tank. In contrast, nuclear borehole logging - which was considered the best available technology at the time - detected zero releases.

Similarly, information about the subsurface variations in resistivity during a remediation program can be used to adjust procedures and processes in order to improve efficiency, stay in compliance, and reduce costs. Remediation of releases from containment structures can be avoided altogether through subsurface monitoring to detect a leak or breach before it requires an expensive cleanup.

In addition, the scientists at HGI were able to estimate the volume of the material released to within 14% of the actual volume released.

When deployed as a subsurface monitoring system, HRR LDM provides stakeholders, managers, and operators with information on subsurface hydrogeological conditions in nearly real time 24 hours a day 365 days a year. This

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