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Niehaus et al.

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[54] **PUMP APPARATUS FOR FLUID SAMPLING AND COLLECTION, AND THE LIKE**

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[57] ABSTRACT

A liquid pump apparatus is disclosed for pumping groundwater samples, contaminants or other fluids from a well, monitoring site, tank, vessel, or the like. The pump apparatus is applicable in systems including dedicated wellhead assemblies permanently installed at such wells or monitoring sites in order to minimize cross-contamination from site to site. Another application of the pump apparatus for recovery, collection and control system for cleanup of leachate or other liquid material or contaminated groundwater from a landsite is also disclosed. The pump apparatus according to the invention includes check valve means adapted to accommodate vertical, horizontal, non-vertical, or even inverted pump orientations, without requiring a high level of static head in order to function properly.

Related U.S. Application Data

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[51] Int. Cl.⁵ **F04B 47/08**

[52] U.S. Cl. **417/394; 417/478**

[58] Field of Search **417/478, 394**

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2 Claims, 15 Drawing Sheets

