RADIATION MONITORING EQUIPMENT

Table 3. Instrument Sets

Instrument Sets	
Instrument	**Description**
AN/PDR-77 RADIAC Set	The AN/PDR-77 shall accept a maximum of eight different probes. Each probe is automatically recognized and has unique calibration information stored in non-volatile memory. The AN/PDR-77 comes with three probes. A 123cm^2 Zinc Sulfide (ZnS) alpha probe, a two Geiger tube beta and/or gamma probe, and a 5-inch Sodium Iodide (NaI) low-energy X ray probe able to measure and find surface contamination levels of Plutonium and Americium (Am)-241 in μCi/m^2. An accessory kit is available that contains a GM pancake probe and a 1” x 1.5” NaI micro-R probe.
Violinist III - FIDLER Instrument Set	Includes the FIDLER, high-voltage power supply, pre-amplifier, and the Violinist III. The Violinist III consists of a battery operated 256-channel analyzer and a pre-programmed microprocessor. When calibrated appropriately, it measures and determines surface contamination levels of Plutonium and Am-241 in μCi/m^2.
Ranger	Includes the FIDLER (Field Instrument for the Detection of Low-Energy Radiation), a positioning determining system (GPS) , and a hand-held data collection platform (4096 MCA and PDA). The FIDLER is specifically designed to detect the low-energy (17- and 60- keV) photons associated with plutonium and americium. The system can be used as a stand-alone data collection unit (storing data on internal compact-flash cards) or as a system consisting of a base station and mobile field units. The mobile units send FIDLER radiation data along with the positional data to the base station for subsequent graphical display. The surface radiation ground deposition values are displayed in near real time. Ranging is typically limited to near line of sight, roughly about 5 miles, but dense vegetation, buildings, and hills can affect the signal. The current system can also use various other low-resolution gamma detectors coupled to the MCA unit allowing for identification and determination of surface contamination from numerous radionuclides.
Berkeley Nucleonic Corp SAM-935	The SAM-935, as equipped for AF units, have an external 2 x 2 NaI(Tl) detector with a multi-channel analyzer capable of isotope identification based on discrete energy photon emissions.