Continuous, real-time analysis of radioactive waste achieved at PNNL

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An improved monitoring system for providing continuous analysis of high-level radioactive waste has been developed by Pacific Northwest National Laboratory researchers and reported at the national meeting of the American Chemical Society.

The system features on-line Raman spectroscopy that quickly generates real-time data and analysis. PNNL researcher, Samuel Bryan, says the monitoring system is capable of simultaneously and continuously quantifying the levels of all the chemically-significant anions within the waste, such as nitrate, nitrite, phosphate, carbonate, chromate, hydroxide, sulfate and aluminate. The total sodium ion concentration was determined independently by modeling inputs from on-line conductivity and density meters.

The system is adaptable to monitoring in a variety of harsh environments. Bryan notes that system components and analytical tools of the process monitor can be tailored to monitor a variety of complex mixtures such as pulp and paper processing liquids, electroplating solutions, as well as radioactive tank wastes.

Samuel Bryan will make his presentation at the 232nd ACS National Meeting in San Francisco, CA, Wednesday, September 13.

Source: Pacific Northwest National Laboratory