

URANIUM IN AIRBORNE PARTICULATES AT FERNALD USING "DYNAWEB" FILTERS

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A polypropylene filter medium, Dynaweb-DW7301L, has replaced fiberglass as a filter used to monitor for uranium in airborne particulates at the Fernald Environmental Management Project (FEMP) site. Eight inch by ten inch filters can be used to sample the air at a flow rate of 1.3 cubic meters per minute (45 cfm) for a two week period at the air monitoring stations. The fiberglass filters could only be used for a one week sampling period since they would not allow the desired 1.3 cubic meters per minute flow rate to be maintained for two weeks.

The Dynaweb filters have a lower uranium content (background) than the glass fiber filters. This results in a lower detection limit for the determination of uranium in air. This becomes significant as the Fernald site is remediated and the uranium concentration in air approaches lower concentrations. The detection limit for total uranium using the Dynaweb is about 0.000005 pCi/cu. meter. This is about five times lower than the detection limit using the fiberglass.

The use of Dynaweb also eliminates the use of the large quantities of hydrofluoric acid which were required in the acid dissolution of the fiberglass filters. This results in a dissolution process that is safer, less time consuming, and less expensive.

The Dynaweb filters are being used at about 24 air monitoring stations located on-site, near the site fence line, and at locations in nearby communities. Dynaweb is also being used at air sampling stations surrounding buildings that are being demolished. Using the Dynaweb filters, in conjunction with an ignition/dissolution technique, and a laser phosphorescence method of total uranium determination, results in a timely and accurate uranium in air measurement.

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