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FIBER OPTICS FOR IN-SITU MONITORING

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MEMORANDUM

SUBJECT: Fiber Optics for In-Situ Monitoring

FROM: Marcia Williams, Director
Office of Solid Waste (WH-562)

TO: Erich Bretthauer, Director
Environmental Monitoring Systems Laboratory/Las Vegas

Thank you for the report you provided recently, describing and providing the status of fiber optics applications for in-situ monitoring. While we have recently had to make some difficult short-term priority choices, this subject remains of substantive interest to us in OSW as a means of field monitoring at waste management facilities.

There are several potential applications for developing and improving advanced field monitoring techniques. Our future efforts in OSW are directed toward a continuum of control, based upon waste-specific/site-specific interactions. Ash monofills (a single, consistent waste at a site) are a cogent example, one for which a near-term solution is needed. In this particular application, the contaminating constituents are, generally, lead and cadmium. Simplified detection of releases of constituents such as these would perhaps enable us to define corrective action before significant contamination problems occur.

Another application of interest to us is in biotechnology, where the sensor might be deployed to detect degradation products of the bio process, or to detect "toxic conditions prior to undertaking in situ treatment. Other potential applications include the use of fiber optic sensors for detecting air emissions (e.g., from land treatment areas) or serving as a monitor in geologic repositories (e.g., an air sniffer in a salt dome).

With our ever-increasing need for field monitoring at hazardous waste sites, fiber optics technology does show promise. We would like to see one (or more) of our applications become part of your fiber optics research program.

cc: Tom Devine
Norbert Dee
Meg Kelly
John Skinner
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