D I A L
Diagnostic Instrumentation & Analysis Laboratory
Mississippi State, MS 39762-5932

Support of the Plasma Hearth Process (PHP) Demonstration Program

Mississippi State University and Idaho Falls, ID. - Workers at DIAL are collaborating with K. Carney of Argonne National Laboratory - West in support of the Process Instrumentation and Controls Project for the PHP facility. The PHP program will be the first demonstration of plasma torch remediation of surrogate mixed waste, spiked surrogate mixed waste and actual waste. The PHP system is located within the transient reactor facility (TREAT) on the ANL-W site.

Particulate, metals, and radionuclide loadings measured upstream of HEPA filters allow for an assessment of solids carry-over from the vitrifier. Quantification of major gas molecules such as CO_2, CO, NO_2, NO, and HCl allow for an analysis of the organic feed conversion from the hearth and the secondary combustion chamber. The CO_2 and CO concentrations are also related to the combustion efficiency of the secondary burner.

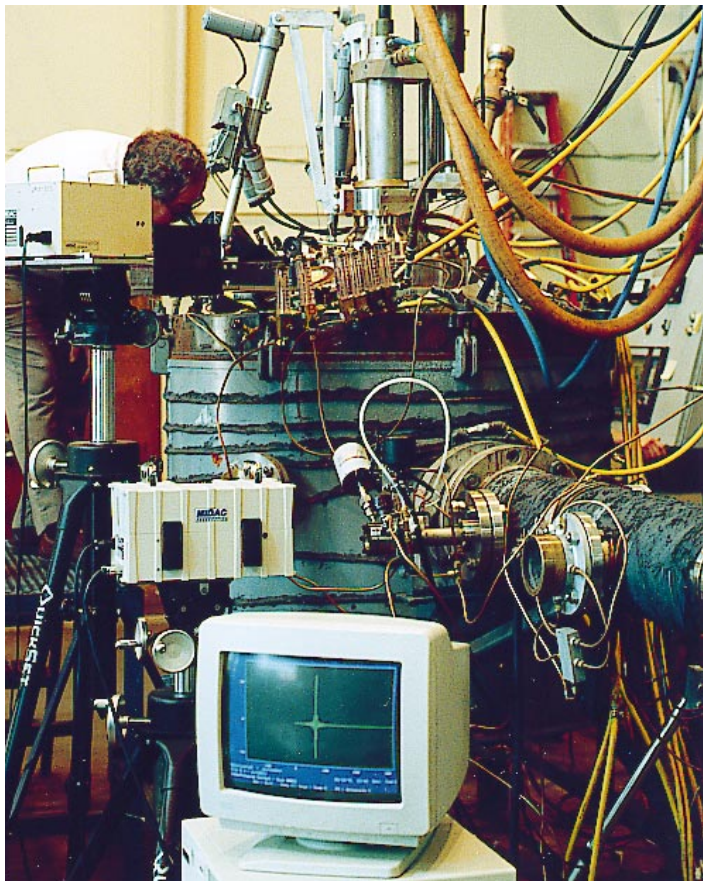
DIAL is supporting the Process Instrument and Controls Project by transferring technology associated with the following non-intrusive diagnostic instruments:

Fourier Transform Infrared (FTIR) Spectroscopy
Laser-induced Breakdown Spectroscopy (LIBS)
Two-Color Laser Transmissometer (TCLT)
Non-dispersive Infrared (NDIR) Monitors

Detailed system components, specialized (analysis) software, and on-site personnel support are being provided.

An example is shown in the photograph where the optical penetrations for the PHP facility were undergoing testing on the DIAL 150 kw plasma torch facility. Pressure and temperature integrity testing was performed prior to the DIAL shakedown tests at ANL-West. The FTIR centerburst intensity (photo) remained constant over a five hour period indicating that the windows remained clear and free of particulate matter.

Installation of the DIAL instruments at the PHP is currently in progress. Shakedown testing of the PHP air pollution control devices is scheduled for the middle of June with plasma hearth testing thereafter.



Additional information may be obtained from:

DIAL
Post Office Box MM
Mississippi State, MS 39762-5932
Telephone 662-325-7390
FAX 662-325-8465
dial@dial.msstate.edu