

(TA Luft, 1964). Plants with emissions exceeding 55 pounds per hour were required to continuously monitor PM concentration in mg/acm “as soon as a suitable instrument becomes available.” The requirements in TA Luft of 1964 initiated field studies of continuous PM emission monitoring instrumentation. Several field-based research projects were completed by the German federal government in the years following the German Federal Law of Environmental Protection (BlmSchG, March 15, 1974). These field studies were completed to correct deficiencies found in the measurement technology and formed the basis for the German’s instrument approval process (see Section 2.3). Additional legislative rules detailed the monitoring requirements for power plants (13th BlmSchV, 1983) and waste incinerators (17th BlmSchV, 1990) (Breton, 1989, Martin, 1994, Jockel, 1998, and Jockel, 1999).

In the United States in 1975, the EPA promulgated Performance Specification - 1 (PS-1), Specifications and Test Procedures for Opacity Continuous Emission Monitoring Systems in Stationary Sources, to govern the design, performance, and installation of COMS (40 FR 64250, October 6, 1975). In 1983, the EPA amended PS-1 (48 FR 13322, March 30, 1983), and in 2000, the EPA amended PS-1 again by incorporating ASTM D6216-98 design and monitor manufacturer performance specifications (65 FR 48914, August 10, 2000).

Continuous particulate mass monitoring was proposed as an EPA regulatory requirement April 19, 1996, as part of the proposed Hazardous Waste Combustion MACT emission standard (61 FR 17358). As part of the Hazardous Waste Combustion MACT, the EPA proposed PS-11, Specifications and Test Procedures for Particulate Matter Continuous Emission Monitoring Systems in Stationary Sources, to evaluate the acceptability of a PM CEMS. The Portland Cement Manufacturing MACT Final Rule in section 63.1250(k) (64 FR 31898, June 14, 1999) makes mandatory the use of PM CEMSs although not until the EPA has finalized PS-11.

2.2 PAST STUDIES

During the 1970s, the EPA sponsored several studies to examine the applicability of transmissometers to sources and the potential to correlate opacity to PM mass concentrations. Some of those studies are summarized below. Into the 1980s, philosophies changed within the EPA, and continuous PM monitoring was not a priority. Work on the PM CEMS in this country stopped until new initiatives started in the mid 1990s.

Note: PS11 was finalized in Jan. of 2004