Attachment 3

Environmental Protection Agency | Planning and Standards Research Triangle Park NC 27711 | March 1979

Air

EPA

Kraft Pulping

Control of TRS Emissions from Existing Mills

EPA-450/2-78-003b

Kraft Pulping
Control of TRS Emissions from Existing Mills

Emission Standards and Engineering Division

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air, Noise, and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

March 1979

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Background Information and Final
Environmental Impact Statement

For Existing Kraft Pulp Mills

Type of Action: Administrative

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The limited information currently available on the health and welfare effects of TRS generally deals with hydrogen sulfide (H_2S). Adverse health effects are noticeable down to 20 ppmv, but this concentration is much higher than expected in the ambient air as a result of even uncontrolled TRS emissions from kraft pulp mills. H_2S at concentration down to a few parts per billion is recognized as an odor nuisance. The OSHA occupational exposure maximum is 10 ppmv, not to be exceeded at any time.

1.3 STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

In accordance with Section 111 of the Clean Air Act, standards of performance for eight affected facilities or emission sources in the kraft pulping industry have been promulgated (Subpart BB of 40 CFR Part 60). These sources are the recovery furnace (both straight kraft and cross-recovery furnaces)*, digester system, multiple-effect evaporator system, lime kiln, brown stock washer system, black liquor oxidation system, smelt dissolving tank, and condensate stripper system. Information and emission data collected during development of the proposed new source performance standards indicate that best demonstrated control technology can limit the TRS emissions to five parts per million by volume dry gas basis for all new sources except lime kilns and cross-recovery furnaces, which can be limited to 8 ppm and 25 ppm, respectively.

Water treatment ponds, however, are not covered by the proposed NSPS because data on actual TRS emissions are not available and accurate sampling methods for determining TRS and other odorous emissions from treatment ponds are not sufficiently developed or demonstrated. Therefore, water treatment ponds will not be covered in this document.

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*NOTE: Throughout the document, the term "recovery furnaces" will imply both straight kraft recovery furnaces and cross-recovery furnaces, unless otherwise specified.

1.4 EMISSION GUIDELINES

1.4.1 Recommended TRS Emission Limitations for the States

Emission guidelines for control of TRS emissions that may be achieved by application of best adequately demonstrated technology to existing facilities are listed in Table 1-1. These emission guidelines are less stringent in some cases than the standards proposed for new sources since the application of the best adequately demonstrated technology for new sources could result in excessive control costs at existing sources. However, emission guidelines do require the same type of control as judged to be best adequately demonstrated technology for new sources for the three major TRS sources (recovery furnace, digester system, and multiple-effect evaporator system). The justification for these emission guidelines are discussed more completely in Chapters 8 and 9.

Adoption of these guidelines would result in an overall nationwide TRS emission reduction of about 82 percent.

Table 1-1. TRS EMISSION GUIDELINES FOR EXISTING KRAFT PULP MILLS

Affected Facility	Emission Guidelines[1]
Recovery Furnace[2]	
Old Design Furnaces[3]	20 ppm
New Design Furnaces[4]	5 ppm
Cross Recovery Furnaces	25 ppm
Digester System	5 ppm
Multiple-Effect Evaporator System	5 ppm
Lime Kiln	20 ppm[5]
Brown Stock Washer System	No Control
Black Liquor Oxidation System	No Control
Condensate Stripper System	5 ppm
Smelt Dissolving Tank	0.0084 g/kg BLS

[1]Guidelines given are in terms of twelve-hour averages, e.g., from midnight to noon. These are not "running" averages, but are instead for discrete contiguous twelve-hour periods of time.

[2]One percent of all twelve-hour TRS averages per quarter year above the specified level, under conditions of proper operation and maintenance, in the absence of start-ups, shutdowns and malfunctions, are not considered to be excess emissions.

[3]Furnaces not constructed with air pollution control as an objective (see definitions on pages 6-7 and 10-3).

[4]Furnaces designed for low TRS emissions and having stated in their contracts that they were constructed with air pollution control as an objective (see definitions on pages 6-7 and 10-3).

[5]Two percent of all twelve-hour TRS averages per quarter year above 20 ppm, under conditions of proper operation and maintenance, in the absence of start-ups, shutdowns and malfunctions, are not considered to be excess emissions.