**North Carolina Department of Labor**
**Occupational Safety and Health Division**

**Raleigh, North Carolina**

October 30, 1976

Field Information System | Operational Procedure Notice 21

***Subject***: 1910.95(b)(1), Feasible Engineering Controls for Textile Equipment

A. **1910.95(b)(1)**: When employees are subjected to sound levels exceeding those listed in Table G-16, feasible administrative or engineering controls shall be utilized.
B. **Discussion**.

   The following textile equipment noise engineering controls will be used by NC-OSHA Safety Officers and Industrial Hygienists to determine if employers have implemented all feasible engineering controls on textile equipment. The following textile equipment is discussed:

   - Opening, picking, and carding equipment.
   - Draw frames.
   - Roving frames.
   - Spinning frames.
   - Twisters.
   - Winders.

C. **Policy Interpretations**.

   These controls are considered feasible and should be implemented by the employer in order to be in compliance. This list of controls will be updated when additional engineering controls are available.

Signed on Original
Michael R. Peeler
OSHA Standards Engineer

Signed on Original
R. P. Boylston
Director

Textile Equipment - Engineering Noise Controls

1. Noise in opening, picking, and carding areas.

Noise levels found in typical opening, picking, and carding operations do not exceed the OSHA standard. There are occasional noise problems associated with material handling equipment or ventilation systems that can be reduced by placing mufflers on air discharge and ventilation system openings.

2. Draw frame noise reduction.
    - Fiber gears.
    - Acoustical insulation for the top cover, head and enclosure, and fan enclosure.
    - Properly adjust gears.
    - Replace worn gears and bearings.
    - Increase lubrication.
3. Roving frame noise reduction.
    - Replace bobbin and spindle gears with fiber gears.
    - Properly adjust gears.
    - Replace worn gears and bearings.
    - Increase lubrication.
4. Spinning frame noise reduction.

    The following noise sources have been identified on spinning frames and are listed from the major to minor noise source.

    - Spindle-bobbin system
    - Ring-traveler system
    - Vacuum-end-collection system
    - Gears
    - Idler pulleys
    - Drive tapes
    - Drive cylinder
    - Spindle-Bobbin system.
        - Elastomeric spindle mounts which reduce spindle rail radiated noise. (developed by Lord Kinematics, Woodlake Office Park, Suite 221, 2531 Briarcliff Road, Atlanta, Georgia 30329, Attention Mr. Earnest H. Atkinson.
        - Replace spindles.

          This is normally only necessary on older type spindles using no rubber in their construction or mounting such as the common oil lubricated or oil based spindles.

          In rooms presently operating at 94dBA or less, the existing oil lubricated or oil based spindles will not normally have to be

replaced. Two quiet spindles are the Roberts ball-bearing spindle with rubber bushings and the Platt-Saco-Lowell Hartford spindle.

- Ring-Traveler system noise.
  - Elastomeric ring-holder developed by Platt-Saco-Lowell, P. O. Drawer 2327, Greenville, S. C. 29602.
  - Replace worn rings.
- Vacuum end collection system noise.
  - Avoid air exhaust at ear level or directed at ear level.
  - Provide acoustic absorption in the fan housing or exhaust path (18" fiberglass lined duct muffler).
  - Seal air leaks in fan housing.
- Gear noise from drafting mechanisms on end of frame.
  - Properly adjust gears
  - Replace worn gears and bearings.
  - Lubricate.
  - Seal holes in gear housing.
  - Nonmetal gears.
  - Insulate gear housing.
- Idler pulley noise.
  - Replace idler pulleys
  - Modify idler mounting or pulley
- Drive tape noise.

  Switch to narrower tapes which are 3/8" in width (marketed by Habasit (Type TO) and Siegling (formerly Extremultus) do a good job).

- Drive cylinder noise.
  - Replace bad bearings.
  - Align cylinders.

5. Twister noise reduction.

   Specific controls not known at present time.

6. Winder Noise reduction.
   - Air noise.
     - Add mufflers.
     - Add acoustical enclosures.
   - Gear noise.
     - Install fiber gears and acoustical insulation for gear housings.
     - Properly adjust gears.
     - Replace worn gears and bearings.

- Increase lubrication.