



UNITED STATES
NUCLEAR REGULATORY COMMISSION
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June 20, 1997

J. Aaron Padgett
State of North Carolina
Department of Environment,
Health and Natural Resources
3825 Barrett Drive
Raleigh, North Carolina 27609-7221

Dear Mr. Padgett:

This letter is in response your letters dated April 23, 1997 and May 23, 1997 to SteriGenics International concerning the irradiator cable failure incident and additional follow-up actions. As of this time, review of the evidence seems to confirm a fatigue failure due to excessive wear rather than a tensile failure. We suggest focusing attention towards determining the major sources of friction/wear and categorizing their overall effects. The report compiled by Engineering Investigations and Testing, P.C., concluded that failure was a result of "incorrect fleet angle when the pneumatic cylinder was at the top of it's stroke and because of abrasion in the sheaves." In spite of these factors, the failure should have been prevented had the cable been periodically checked and/or replaced if signs of excessive wear were noticed. Lastly, the following points should also be addressed:

SteriGenics needs to provide a response in regards to the findings submitted from the Engineering Investigation and Testing, P.C. report concluding that the failure was due to "incorrect fleet angle and abrasion in the sheaves." This report should also explain why in the follow-up report dated November 17, 1996, Mr. Eric Beers, Vice President of Engineering for SteriGenics concluded that the design was "well within safety limits for the given application", despite the above findings.

SteriGenics proposed corrective action is monthly inspection of the hoist cables and replacement of the cables every two years regardless of whether they need replacing or not. In addition to the hoist cables, SteriGenics needs to establish an inspection frequency for other parts that may also be susceptible to failure due to wear (and justify the inspection frequency).

The hoist cables have a great deal of visible corrosion, as seen in the photos from the Engineering Investigating and Test, P.C., report. The ambient conditions in the irradiator area were never examined nor were temperature and humidity levels discussed by SteriGenics. Future action for SteriGenics should include determining the causes of corrosion and trying to minimize their effects.

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If you have any questions, please contact me at (301) 415-5799 or Mr. Steven Baggett at (301) 415-7273.

Sincerely,

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Eric B. Compton, Engineering Aide
Sealed Source Safety Section
Medical, Academic, and Commercial
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