

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
REGION I
IRRADIATOR INSPECTION

(Field Notes)

Licensee <i>Ethicon, Inc. Somerville, New Jersey</i>	Facility				
License No. <i>29-02786-03</i>	Inspection Date <i>June, 29, 1981</i>				
Principal Inspector <i>C.A. Rowe</i>	Other Accompanying Persons <i>_____</i>				
Individuals Interviewed a. <i>Frank Schiller, Cobalt Facility Super Asst. RSO</i> b. <i>Vincent Furst, General Supervisor, Production</i> c. <i>Frank Thompson, Cobalt Facility Operator</i> d. <i>Dr. Matthew Wysocki, Research Scientist</i>	<table border="1"><tr><td>Titles <i>Supervisor, Production</i> <i>Maintenance</i></td><td>Date of Interview <i>6-29-81</i></td></tr><tr><td></td><td>Place of Interview <i>Ethicon, Inc. Somerville, N.J.</i></td></tr></table>	Titles <i>Supervisor, Production</i> <i>Maintenance</i>	Date of Interview <i>6-29-81</i>		Place of Interview <i>Ethicon, Inc. Somerville, N.J.</i>
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	Place of Interview <i>Ethicon, Inc. Somerville, N.J.</i>				
Name of RSO <i>E. J. Kendra</i>	Telephone No. of RSO <i>201-524-3913</i>				
Enforcement Action(s) <i>Clear & repetition</i>					

A. Scope of Program

1. Number of individuals occupationally exposed (4) operators
2. Type of Irradiator (eg. Pool, Pit, etc.) Pool
3. Number of Curies 728,000 of Co-60
4. Frequency of use: two shifts ~~times~~ per day

B. Exposure Evaluation

1. Personnel

- a. Film Badge yes
- b. Dosimeter No
- c. Other None

2. Facility

- a. Independent area radiation monitor yes
- b. Survey meter when enter HRA yes

C. Surveys

1. Radiation levels in unrestricted areas 0.02 mR/hr
2. Contamination smears in restricted area _____
3. Leak Tests
 - a. Frequency six months
 - b. Method adequate yes
4. Interlocks into HRA
 - a. Frequency of Testing Daily
 - b. Functional at time of inspection yes

c. Are they intentionally bypassed or deleted. Yes

No

(1) Procedure if yes

d. In accordance with license?

e. Adequate?

5. Routine maintenance of Hot cell equipment adequate. Yes No

D. Instrumentation

1. Adequate type and number: Yes No

2. Calibration as required: Yes No

E. Evaluation of Effluent

1. Liquid

2. Airborne

F. Training

1. Std. Procedures ✓

2. Emergency Procedures ✓

3. NRC Regulations ✓

G. Signs/Posting

1. CRM ✓

2. CHRA ✓

3. 19.11 ✓

H. Evaluation of Incoming Packages (20.205)

N/I

I. Disposal

N/A

J. Evaluation of Outgoing Shipments - (DOT)

N/I

K. Unusual Occurrences or Events

None since last inspection per T. Schiller.

L. Independent Measurements (Van, Inspector)

*Radiation levels in unrestricted areas. O.K.
Wipe samples in Facility
Water sample from pool,*

For irradiations not completely self-shielded containing:

379 Ci cobalt-60

1042 Ci iridium-192

1515 Ci cesium-137 or more, the following must be determined:

M. Control Devices

1. What control device will prevent entry of individuals into the irradiator when the source is exposed?

Door interlock

2. What control device will retract the source if an individual attempts entry?

Pad at entry door and door interlock

3. What control device prevents operation of the source if an individual is present in the irradiator?

Operator must enter cell and actuate time delay switch located at rear of cell assures visual check of area. Wire running length of cell interlocked if pulled prevents operation of the source


4. Do any of the above control devices prevent egress from the irradiator?

No

N. If the Entry Control Devices Fails:

1. What control device will retract the source?

- 1. Door interlock from control room initial interlock retracts source (This door provides access only to the resin bed and conveyor area,*
- 2. Entry pad interlocks at Door to cell followed by*
- 3. Door interlock on door to cell*

2. Are visible and audible alarm signals generated to warn individuals entering of the hazard, and to alert another knowledgeable individual? *yes*
0. If there is credible probability, the physical radiation barriers can fail: *Not credible probability*
1. What control device will cause the source to retract?
 2. Are visible and audible alarms signals generated to warn individuals entering of the hazard, and to alert another knowledgeable individual? 
- P. If the Source Is Stored In A Liquid Shield:
1. Is loss of liquid level adequately signaled for immediate action? *yes*
- Q. Exposing the Source
1. What device will automatically generate visible and audible alarm signals to alert individuals before exposing the source?
Klaxon and lights inside and outside the facility
 2. What clearly identified device can be activated from inside the irradiator which will prevent the source from becoming exposed?
Cable running the length of hot cell,
 3. Is there a procedure to assure that the area is clear of individuals prior to exposing the source?
yes, Key used to initiate console to raise

R. Physical Radiation Measurements

1. Is a physical radiation measurement made upon entry to the irradiator after source operation? *yes*

S. Tests of Entry Control Devices

1. Are tests of the entry control devices conducted each day prior to initial operation of the source? (Note: These tests are not required if operations are uninterruptedly continued from the previous day.) *yes*
2. Are records of these tests maintained? *yes*

T. Control of Portals Into Irradiator

1. What safety devices and administrative procedures are used to prevent entry by individuals through portals that convey materials in and out?
Portals are only large enough to allow totes to enter.
2. Are exit portals equipped to detect and signal presence of loose radiation sources and to automatically prevent them from being carried out? *yes*

U. Independent Measurements

1. Take water sample and split with licensee.
- a. Licensee results *N/A*
- b. IE:I Results

$< 2.9 \times 10^{-7} \text{ uCi/ml}$

2. Planchet or bottle source standard. *N/A*
 - a. Value
 - b. Licensee's results
3. Results of interlock checks
Interlocks tested and were functional
4. Is water continuously circulating through demineralizer? *Yes*
5. Results of surveys around demineralizer.
0.02 mpc/hr
6. Demineralized conductivity measurement *Not Done*
7. Results of PH check with litmus paper *Not Done*
8. Restricted area survey results with meter
< 0.02 mpc/hr
9. Restricted area survey results with wipes
No Contamination Detected

10. Unrestricted area survey results

< 0.02 mcl/hr

11. Results of check of liquid level indicator

functional

The licensee had received Information Notice No. 81-13 and Mr. Forst stated they were in process of formulating procedures for inspection and removal of product carrier boxes.