REGION I FORM 111
(Revised August 78)

U.S. NUCLEAR REGULATORY COMMISSION

OFFICE OF INSPECTION AND ENFORCEMENT

REGION I

IRRADIATOR INSPECTION

(Field Notes)

Licensee Hydrodyn, Inc. 25 Eastmans Road Parsippany, New Jersey	Facility Irradiator used for sterilization of materials
License No. 29-15364-01	Inspection Date December 12, 1980
Principal Inspector C. Rowe	Other Accompanying Persons N/A

Individuals Interviewed	Titles	Date of Interview
a. J. R. Seltz	President, RSO	12/10/80
b. C. Rowe	Insp. RSO	
c. Several employees		Place of Interview
d.		Hydrodyn, Inc. 25 Eastmans Road Parsippany, NJ
	e.	
	f.	
	g.	
	h.	

Name of RSO George R. Seltz	Telephone No. of RSO 201-887-4210

Enforcement Action(s)

None indicated

JKennin 12/23/80

A. Scope of Program

1. Number of individuals occupationally exposed 3.

2. Type of Irradiator (eg. Pool, Pit, etc.) Pool.

3. Number of Curies 1,390,000 of Co-60.

4. Frequency of use: 3 shifts (24hr) ~~times~~ per day.

B. Exposure Evaluation

1. Personnel

   a. Film Badge ✓

   b. Dosimeter ✓

   c. Other N/A

2. Facility

   a. Independent area radiation monitor yes

   b. Survey meter when enter HRA yes

C. Surveys

1. Radiation levels in unrestricted areas weekly

2. Contamination smears in restricted area weekly

3. Leak Tests

   a. Frequency 6 months

   b. Method adequate yes

4. Interlocks into HRA

   a. Frequency of Testing weekly

   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)

Planned receipt of shipment - receive from [illegible], 1980

E.K.

I. Disposal

None since last inspection

J. Evaluation of Outgoing Shipments - (DOT)

N/A

K. Unusual Occurrences or Events

None per R.S.O.

L. Independent Measurements (Van, Inspector)

Independent measurements made on selected pkgs upon selected areas. Tape samples taken in appropriate areas. Pertinent samples taken and analyzed.

For irradiatiors not completely self-shielded containing:

379 Ci colbalt-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?
Access door is locked.

2. What control device will retract the source if an individual attempts entry?
Access door is interlocked to automatically cause source to stored position if [redacted] source exposed or opened.

3. What control device prevents operation of the source if an individual is present in the irradiator?
Fail safe safety switch [redacted] located in irradiation room must be pushed and door closed and key inserted to cause within 30 seconds, audible-visible light in room & warn room must be vacated. Emergency call-cord length of cord in cell which prevents raising source if pushed.

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?
Stop push-button located on console automatically causes source to stored position. Indicator lights on console would alert operator if source was exposed or opened.

2. Are visible and audible alarm signals generated to warn individuals entering of the hazard, and to alert another knowledgeable individual? Yes.

O. If there is credible probability, the physical radiation barriers can fail:

1. What control device will cause the source to retract?

Low pool water level causes source to return to stored position

2. Are visible and audible alarms signals generated to warn individuals entering of the hazard, and to alert another knowledgeable individual? Yes

P. <u>If the Source Is Stored In A Liquid Shield:</u>

1. Is loss of liquid level adequately signaled for immediate action? Yes

Q. <u>Exposing the Source</u>

1. What device will automatically generate visible and audible alarm signals to alert individuals before exposing the source?

Activation of in-cell safety switch by insertion of key

2. What clearly identified device can be activated from inside the irradiator which will prevent the source from becoming exposed?

Emergency cable which runs around the interior wall of the irradiation room

3. Is there a procedure to assure that the area is clear of individuals prior to exposing the source?

Yes. Operator must key the in cell safety switch which is located in a position to exit cell which causes the cell to be inspected for any individuals in cell.

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?
N/A
No conveyor system at present. Materials are hand carried through entrance door for each irradiation

2. Are exit portals equipped to detect and signal presence of loose radiation sources and to automatically prevent them from being carried out?
N/A

U. Independent Measurements

1. Take water sample and split with licensee.

   a. Licensee results

   b. IE:I Results

2. Planchet or bottle source standard.

   a. Value

   b. Licensee's results

3. Results of interlock checks

   Working

4. Is water continuously circulating through demineralizer?

   Yes

5. Results of surveys around demineralizer.

   No detectable levels above BKG

6. Demineralized conductivity measurement

   Not made by inspector

7. Results of PH check with litmus paper

   Not made by inspector

8. Restricted area survey results with meter

   Radiation level encountered was 0.3 mr/hr

   General area BKG 0.05 mr/hr

9. Restricted area survey results with wipes

10. Unrestricted area survey results

0.02 mR/hr

11. Results of check of liquid level indicator

Operational

INSPECTION REPORT NUMBER ______________

APPENDIX C - SUPPLEMENTARY INFO

Licensee: ______________________________ License no: ______________

[ ] Uncorrected/repeated noncompliance

[ ] Unresolved items

[ ] Unusual occurrence, conditions, etc

[✓] Inspector's comments

[ ] Basis for change of Category or Priority

Licensee has recently experienced tube rotation problems. See Memo-to-file.
Presently has four qualified operators for facility.
Reviewed following records during inspection
Exposure - minimal
Training - OK
Survey Results - OK
Leak Test - OK
Source Receipt - OK
Licensee increased irradiator load by 393,540 Ci on 10/1/80.
Reviewed radiation level survey report and verified results by independent measurements.
General impression: Good Program