

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 030-19025/86001(DRSS)

Docket No. 030-19025

Licensee: Radiation Sterilizers, Inc.  
3000 Sand Hill Road, 2-190  
Menlo Park, CA 94025

Inspection At: 711 E. Cooper Court  
Schaumburg, IL 60195

Inspector: *Colleen C. Casey*  
C. C. Casey  
Radiation Specialist

Approved By: *D. J. Sreniawski*  
D. J. Sreniawski, Chief  
Nuclear Materials Safety  
Section 2

*June 3, 1986*  
Date

*June 3, 1986*  
Date

Special Inspection Summary

Inspection on March 19 through April 14, 1986 (Report No. 030-19025/86001(DRSS))

Areas Inspected: This was an unannounced special safety inspection initiated by three allegations received on March 6, 1986. The inspection included a review of operating procedures, representative records, facility tour, and interviews with personnel.

Results: One of the allegations was substantiated; however, no violations were identified.

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04-19644-01 PDR

## DETAILS

### 1. Persons Contacted

\*Thomas Mates, General Manager  
Pete Robles, Production Manager  
David Hatfield, Shift Operator  
Don Gutowsky, Lineman

\*Attended exit interview.

### 2. Purpose of Inspection

This was an unannounced special field inspection to review allegations concerning the radiation safety program at Radiation Sterilizers, Inc. (RSI). RSI utilizes approximately 1.3 million curies of cobalt-60 in a walk-in type pool irradiator in Schaumburg, IL.

### 3. Specific Allegations and NRC Findings

Allegation: One radiation monitor was shielded with lead shot so that the monitor would not alarm.

#### Findings:

A facilities tour on March 19, 1986 showed that lead shot was placed around both the cell and maze GM detectors (see Attachments 1 and 2). According to Pete Robles, the shot was placed on the detectors several months earlier when "empties" (low density material or no product) were being irradiated. The "empties" caused false alarm shutdown of the irradiator due to the high (scatter) radiation levels detected by the GM probes. The lead shot decreased the detector sensitivity to permit operation of the irradiator but not enough to compromise safety, in that the probes would still have been able to detect a Co-60 pencil accidentally brought out. This explanation was corroborated in a letter from Thomas Mates to NRC dated April 3, 1986 (Attachment 4).

The allegation was substantiated, no violations were identified.

Allegation: A second radiation monitor continuously malfunctioned.

#### Findings:

A facilities tour and operations checks on March 19 and 20, 1986 showed that the cell monitor only read out when the sources were in the shielded position (down in the pool) as per design. This is not a malfunction because the cell monitor is used to detect any source in the "up,"

unshielded, position when the other control panel instruments indicate the sources are "down" and shielded (see Attachment 3). When the sources are "down" and shielded, the cell monitor readout is normally a background level of radiation. The maze monitor readout is also background when the sources are "down" but changes to numbers showing elevated radiation levels when the sources come "up." Both monitors were functioning on the dates of the site inspection, March 19 and 20, 1986. These monitors are Xetex 501 1R models with A-1 or A-2 probes and were last calibrated August 21, 1984.

The allegation was not substantiated, no violations were identified.

Allegation: Only one operator was scheduled to work when two were required.

Findings:

On May 13, 1985, Region III conducted a special inspection at RSI - Schaumburg to review four allegations, one of which concerned only one operator working when two were required. That allegation was substantiated and one violation identified (Inspection Report No. 030-19025/85002). In a letter dated July 2, 1985, RSI responded to this violation with certain corrective actions to ensure that the two operator requirement would be met.

On January 15, 1986, Region III authorized amendment No. 6 to the RSI license, in accordance with a letter from RSI dated September 6, 1985. This amendment authorized RSI to conduct licensed activities "with at least one trained responsible operator on duty whenever the system is being used," instead of two operators. On the date of the site inspection, Thomas Mates stated that although only one operator is currently required to be present during irradiator use, he still schedules two operators whenever possible. A review of payroll records, the irradiator logbook and timesheets between August 26 through December 30, 1985 showed that two operators always worked each of two 12 hour shifts every day.

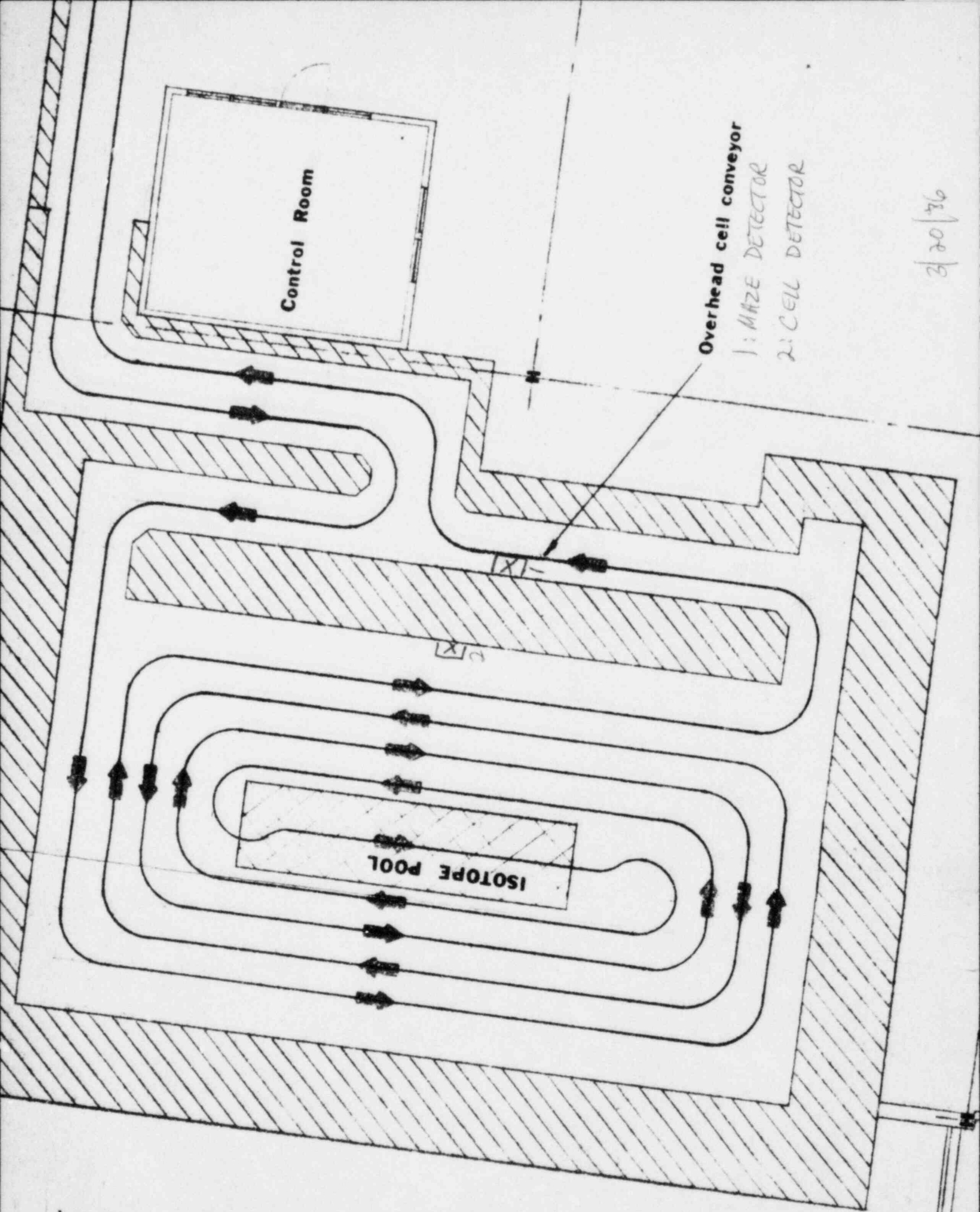
The allegation was not substantiated, no violations were identified.

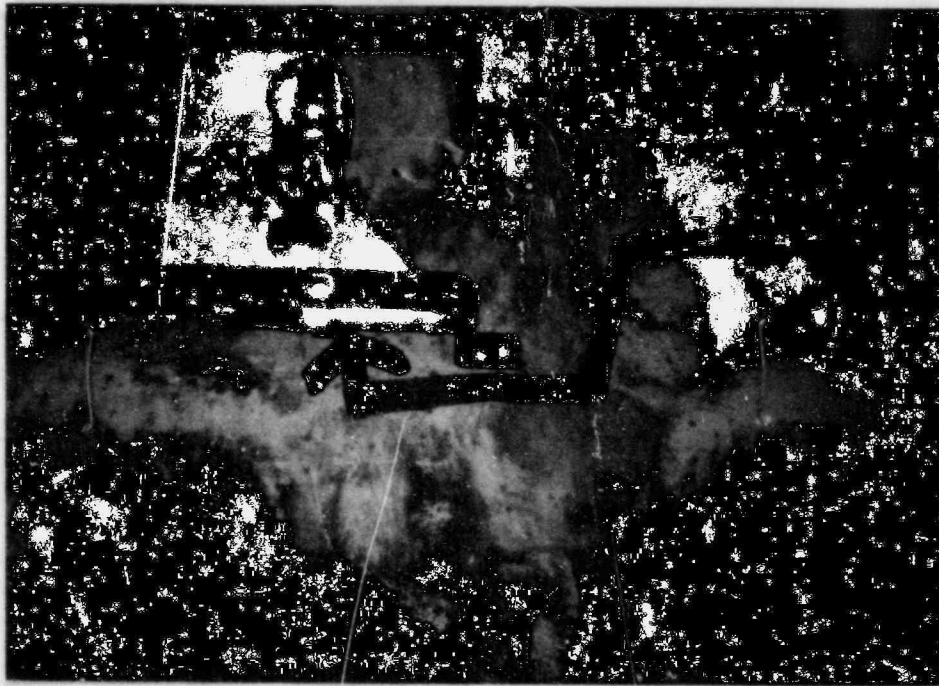
4. Exit Interview

At the conclusion of this special inspection, an exit interview was held with Mr. Thomas Mates to discuss the allegations and NRC findings.

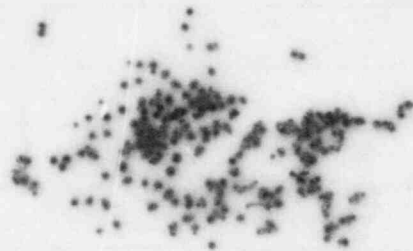
Attachments:

1. RSI Schaumburg Facility  
Diagram
2. Photos of Lead Shot and  
Detectors
3. Photos of Cell Monitor and  
Maze Monitor Functioning
4. Letter from RSI to NRC,  
Dated 4/3/86

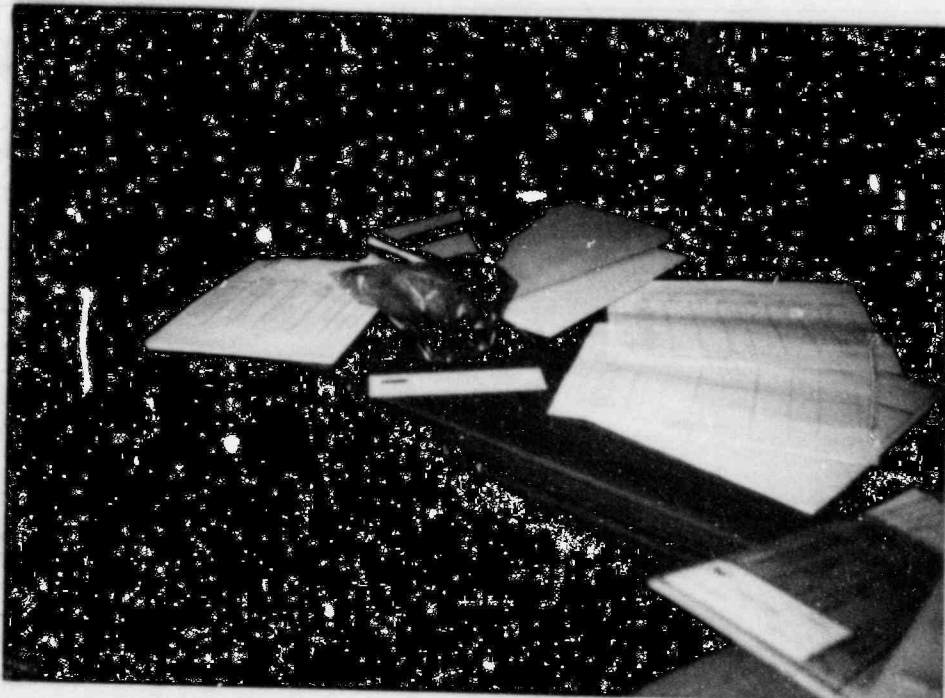




← MAZE  
DETECTOR,  
SHOT REMOVED.



← SAMPLE OF  
LEAD SHOT USED

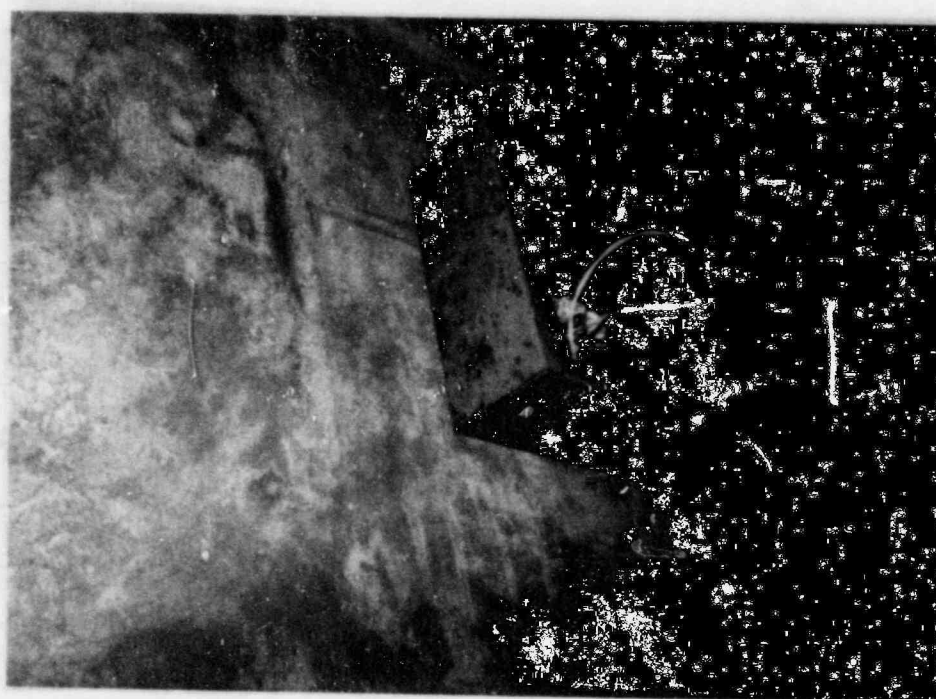


← THIS BAG  
CONTAINED ~3.4  
POUNDS OF LEAD  
SHOT, WRAPPED  
AROUND MAZE  
DETECTOR AND  
SECURED WITH  
DUCT TAPE -  
IT WAS REMOVED  
DURING 3/19/86  
INSPECTION

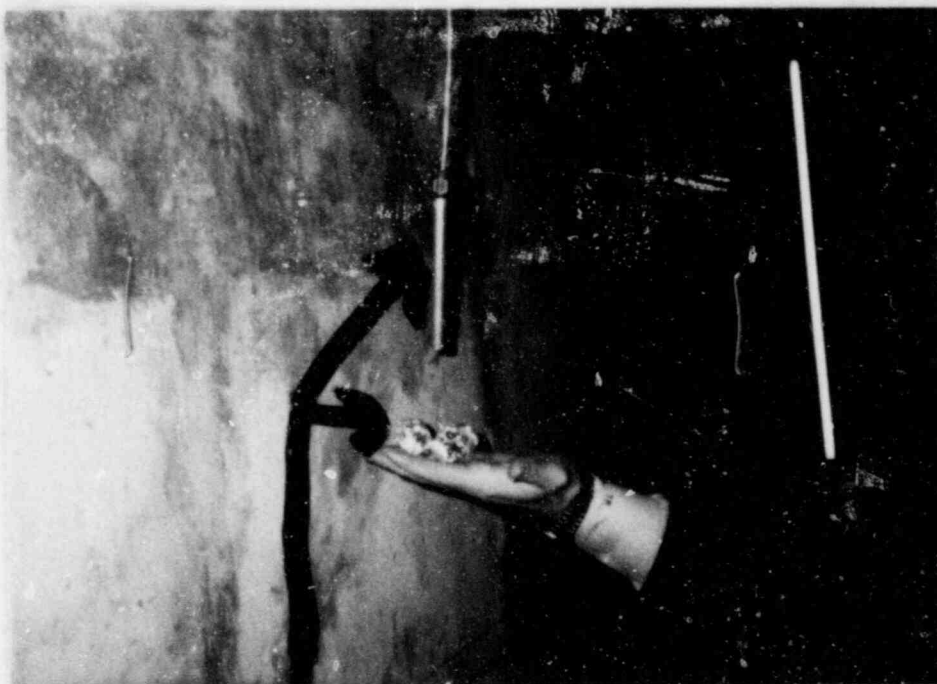




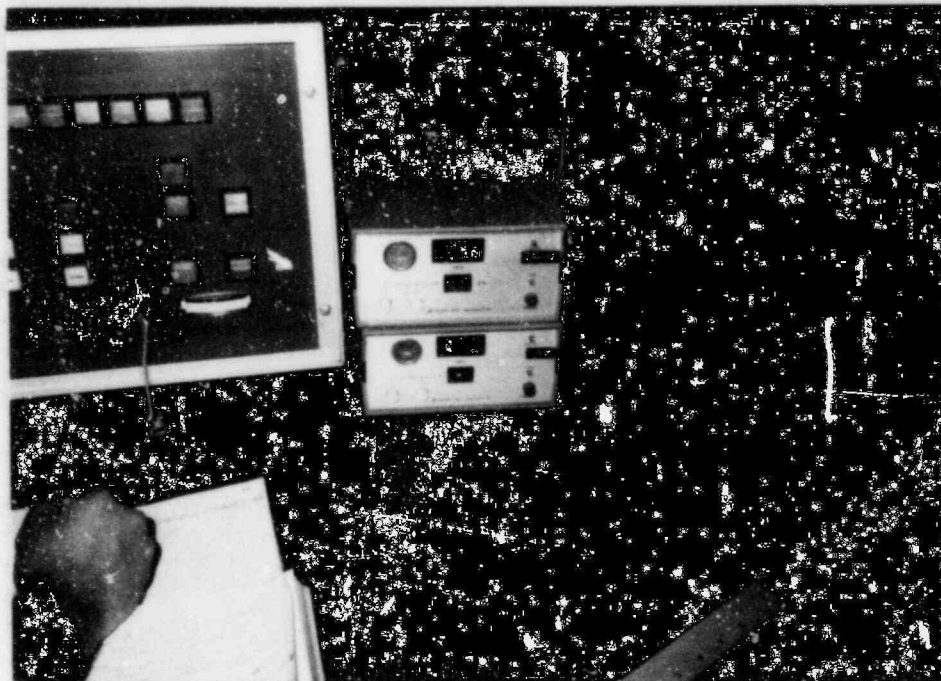
← CELL DETECTOR  
BOX



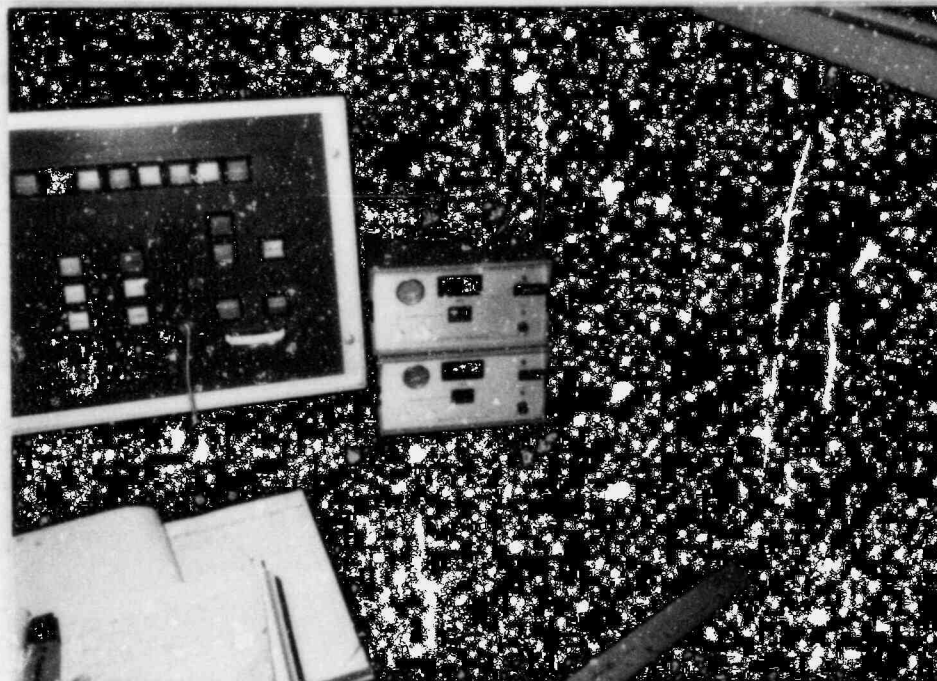
← CELL DETECTOR  
G.M. PROBE LAYS  
ON BOTTOM OF BOX,  
SURROUNDED BY  
FOIL WRAPPED  
PACKETS OF  
LEAD SHOT



↑ TOM MATES, RSI GENERAL MANAGER,  
HOLDING FOIL WRAPPED LEAD SHOT; CELL  
DETECTOR G.M. PROBE IS HANGING ABOVE.



← CELL AND  
MAZE MONITORS,  
SOURCES DOWN  
(SHIELDED);  
NOTE READOUTS



← CELL AND  
MAZE MONITORS,  
SOURCES UP,  
EXPOSED...  
NOTE CELL  
MONITOR DISPLAY  
IS BLANK