United States Department of Agriculture
Agricultural Research Service
Radiological Safety Staff
6303 Ivy Lane
Greenbelt, Maryland
20770-1433

MAY 21 1992

71-5362

Charles E. MacDonald, Chief
Transportation Branch
Division of Safeguards and Transportation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. MacDonald:

This refers to Certificate of Compliance No. 5362 for the Natick Model Irradiator packaging which has an expiration date of November 30, 1991, and which has a renewal application pending from this office dated October 22, 1991. In compliance with your letter dated March 11, 1992, the following additional items are being submitted for the renewal application:

1. Six copies of the Lockheed Nuclear Products Drawing No. 442-2096, Rev. 0 which is referenced in Certificate of Compliance No. 5362, Revision No. 3. The drawing that you asked for was very large, and by the time is was reduced and faxed to us from Philadelphia, the quality had degraded quite a bit. If the quality of the drawings is not satisfactory, please let us know, and we may be able to send you larger copies of better quality.

2. Operating Procedures
3. Maintenance Program
4. Quality Assurance

John Jensen is the Director of the USDA Radiological Safety Staff which is a department wide Radiation Safety Officer position. He has the ultimate responsibility for maintenance of records of the quality of the packaging for shipping activities. More specifically, I am the Health Physicist on his staff who is currently maintaining these records. Our address is: USDA, ARS, RSS, 6303 Ivy Lane, Room 535, Greenbelt, MD 20770. If you need any additional information or if you have any questions about our program, call me at (301) 344-0192.

Sincerely,

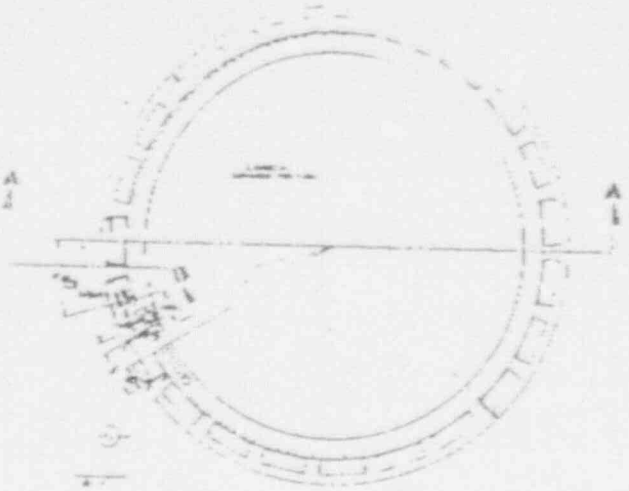
Daniel R. Sharp

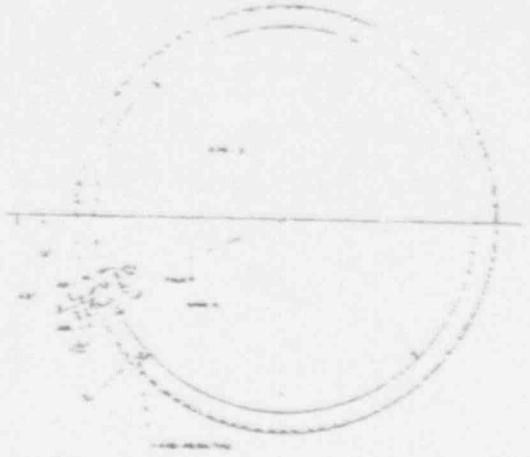
Daniel R. Sharp,
Health Physicist

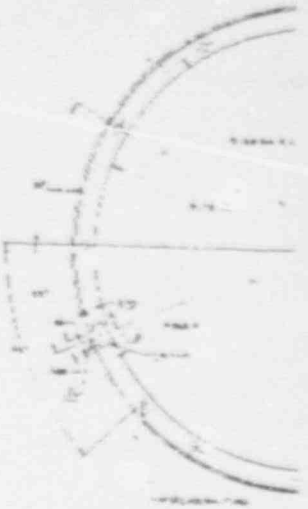
9 enclosures:
6 copies of Lockheed Products Drawing No. 444-2096, Rev. 0,
operating procedure
maintenance program
quality assurance program

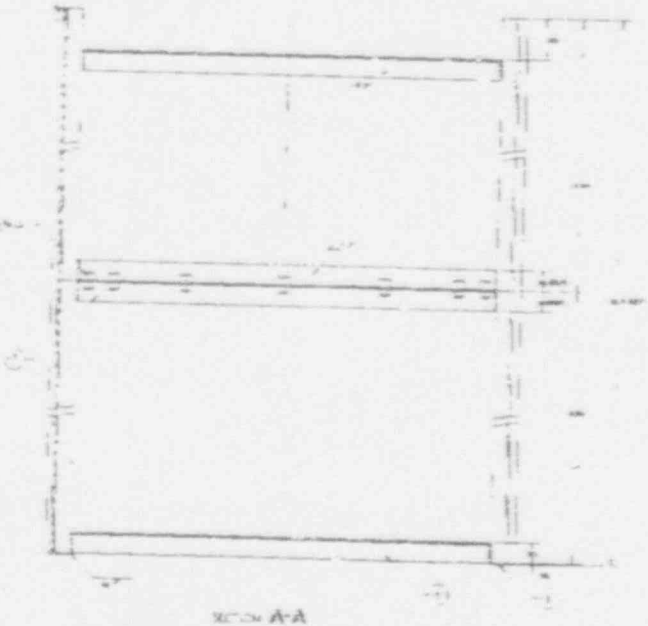
NTO
1/1

442-2076



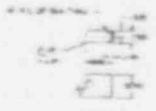


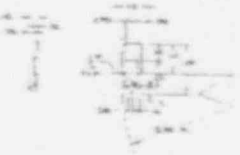


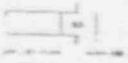


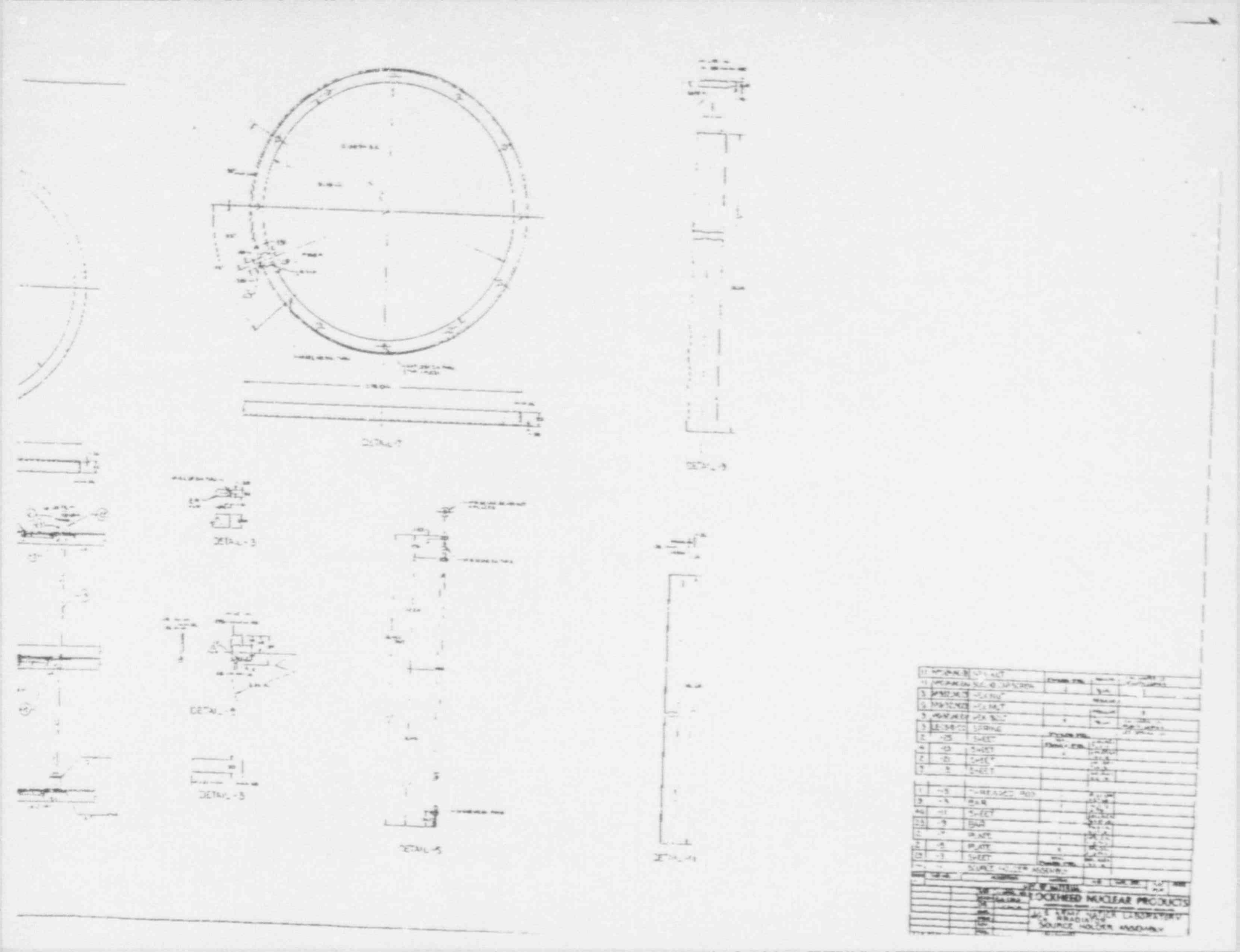
SECTION A-A

SECTION B-B









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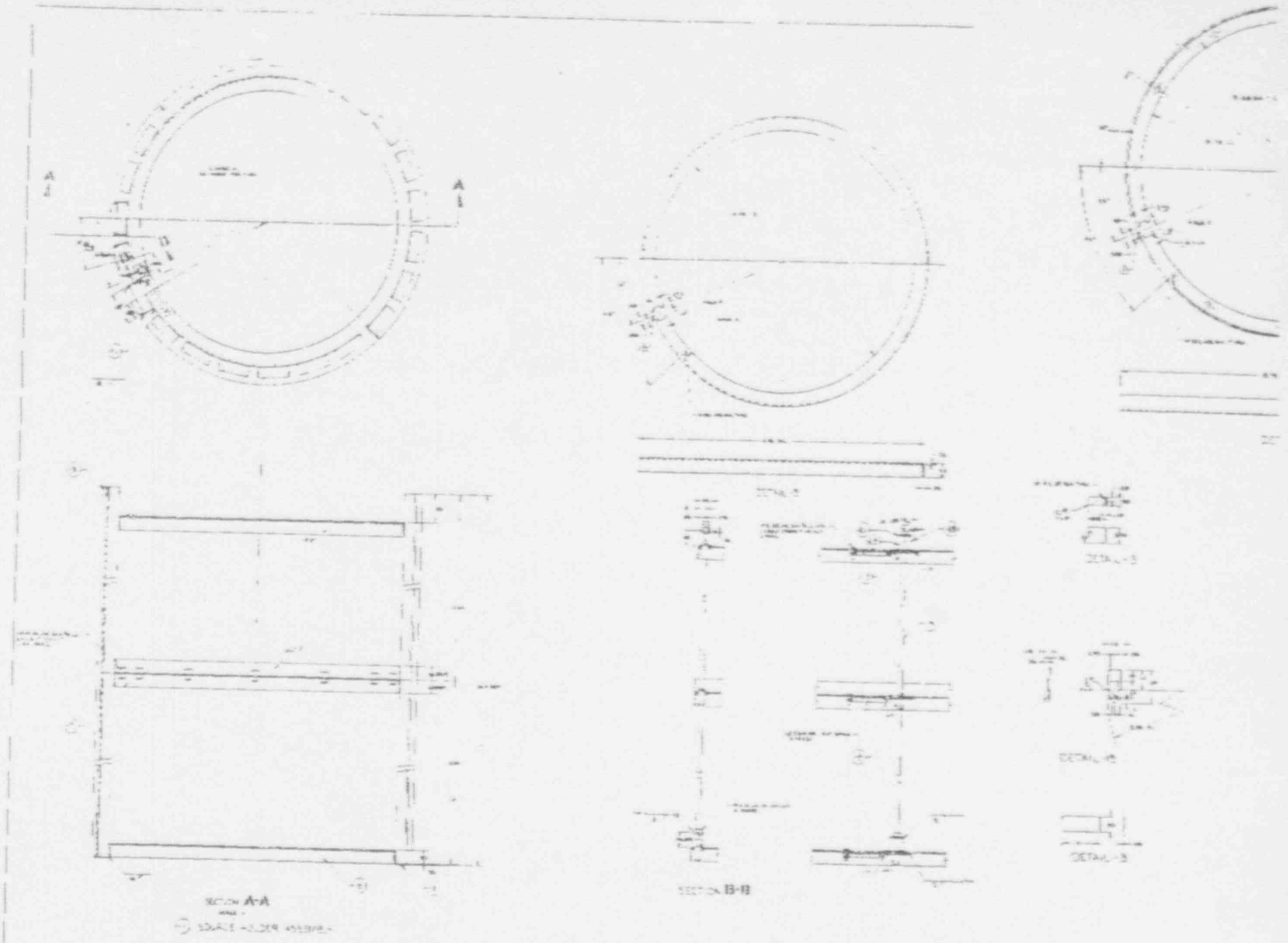

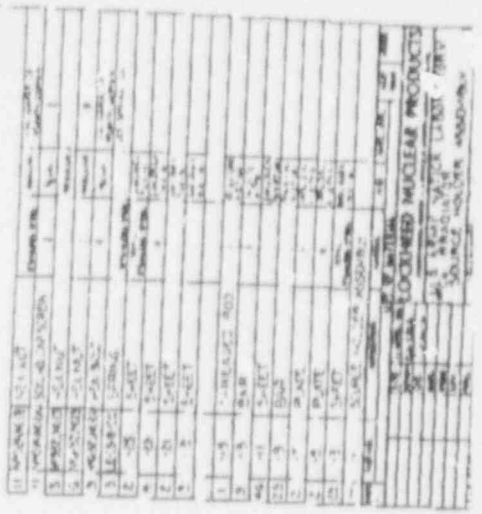

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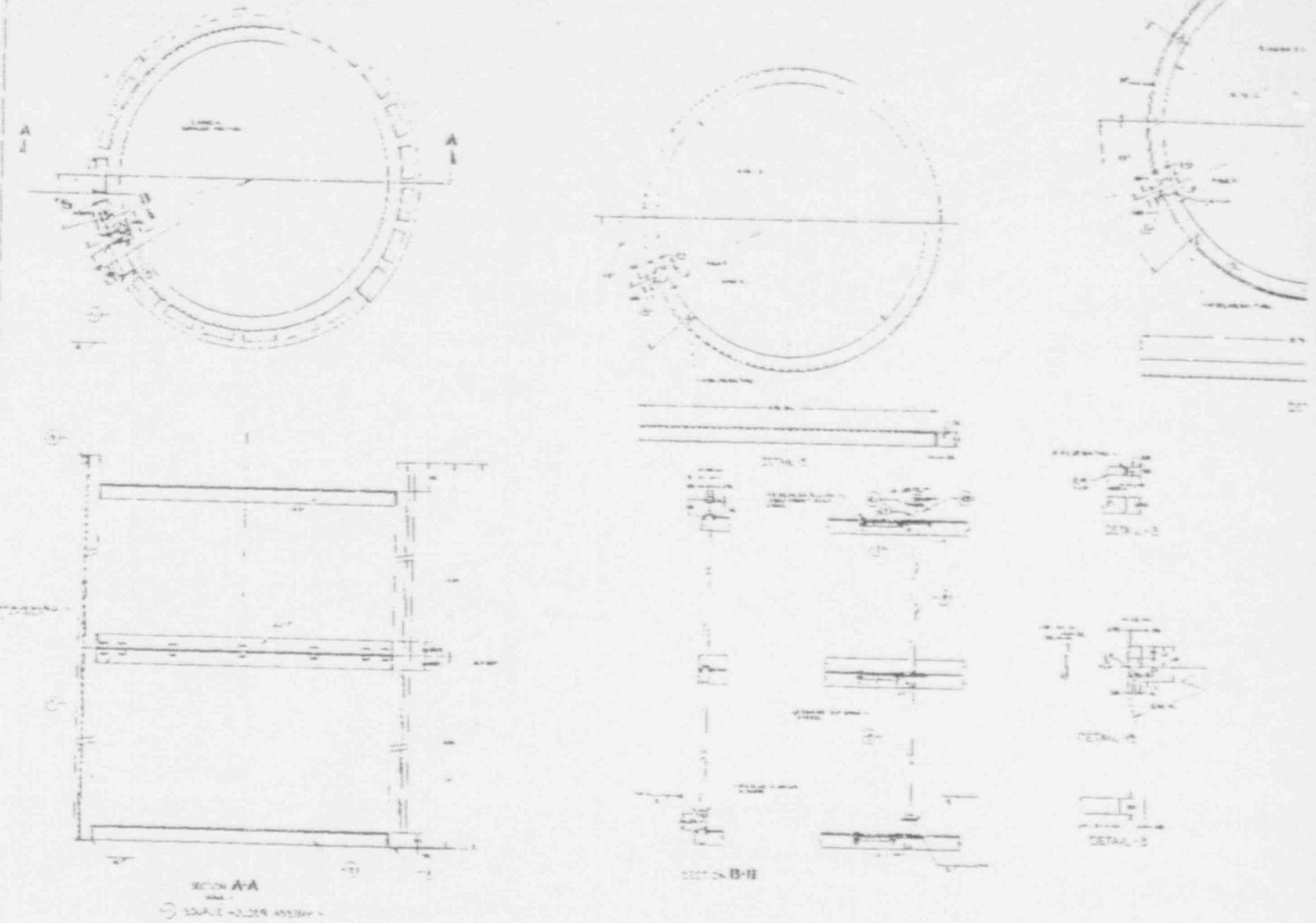

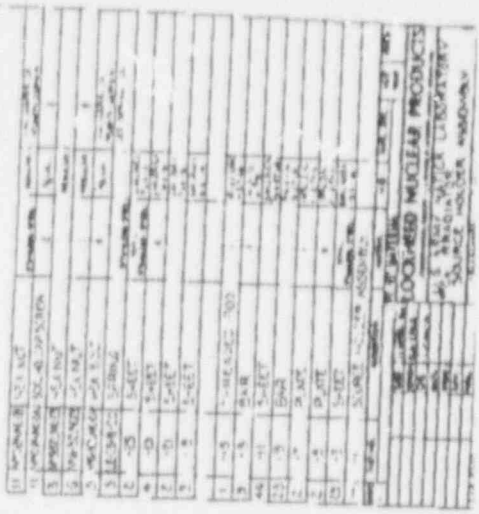

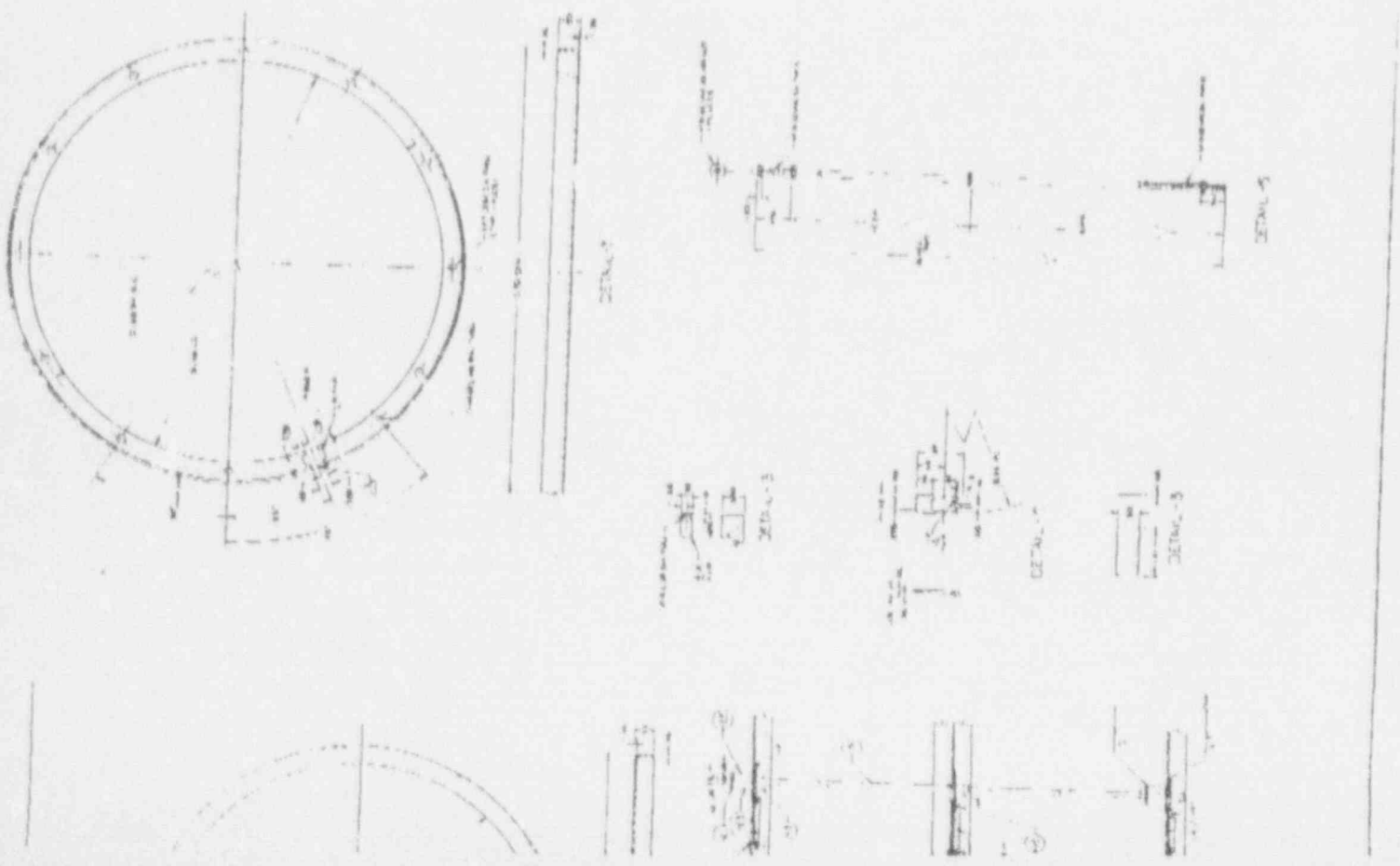

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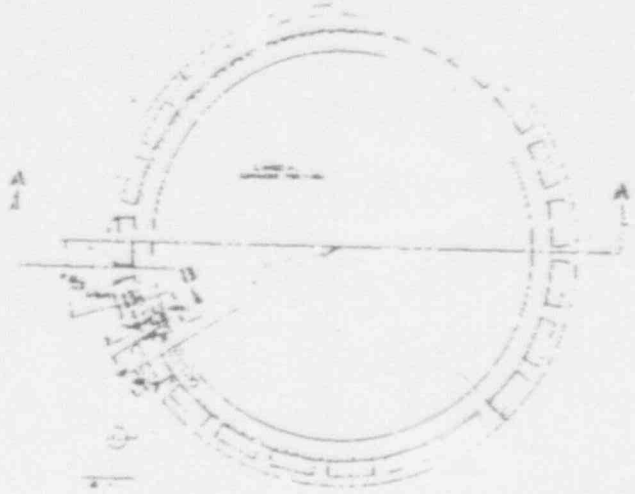

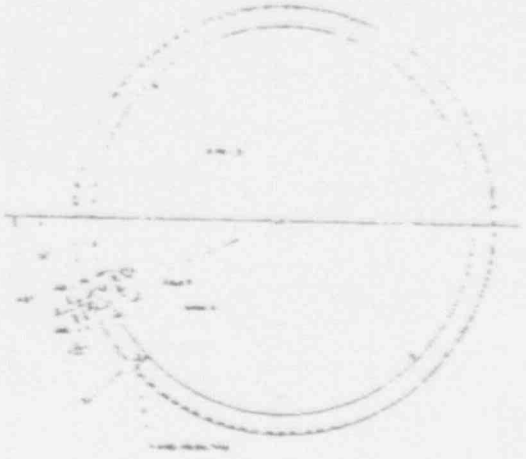

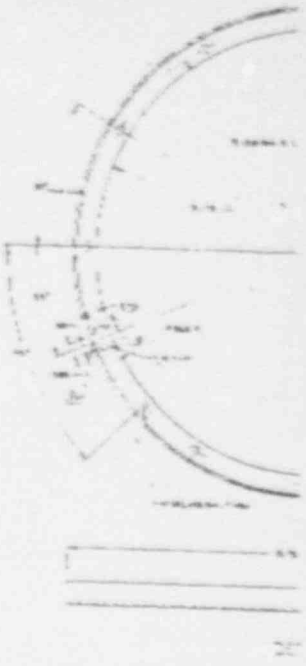

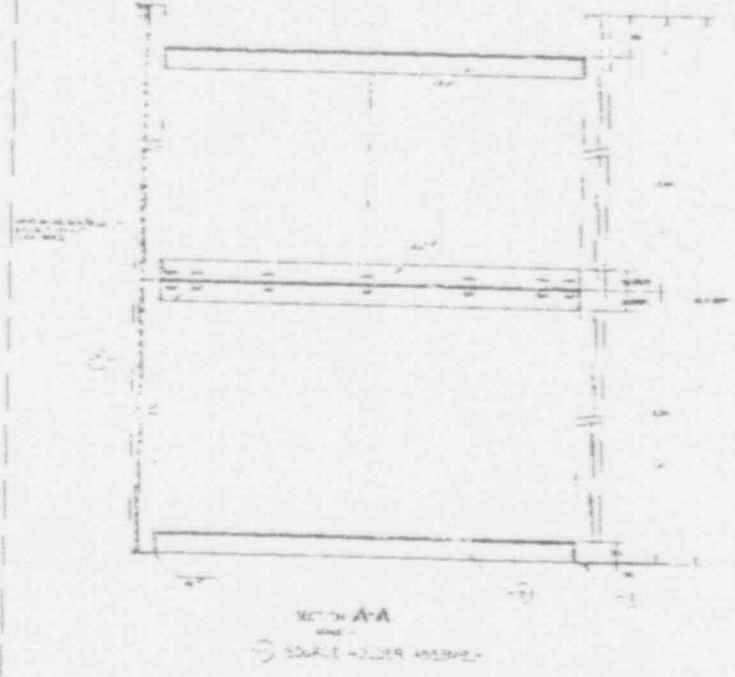

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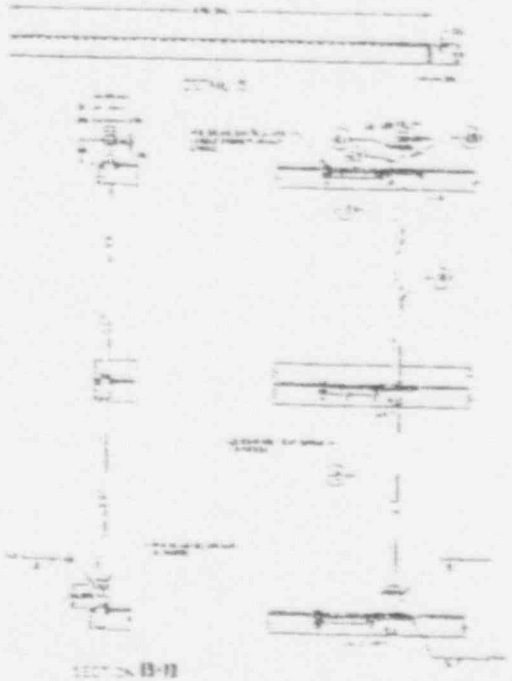

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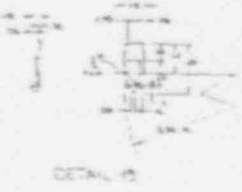

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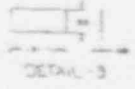

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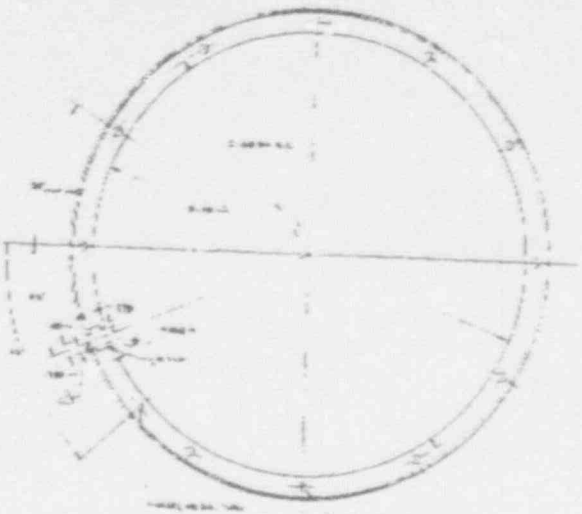

DETAIL-2

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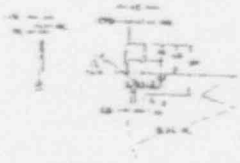
DETAIL-3



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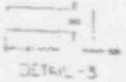

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DETAIL-11

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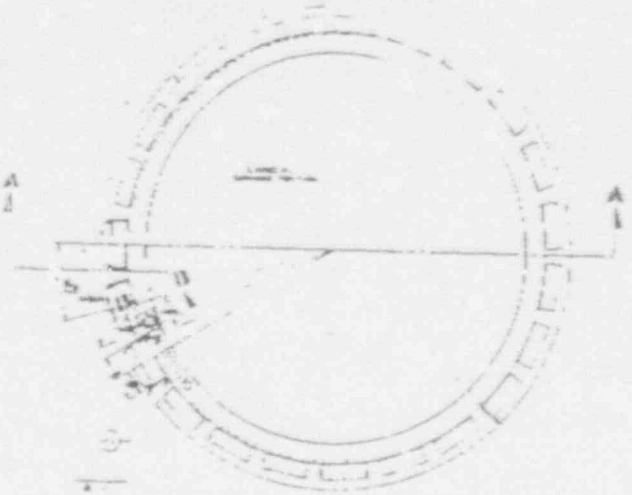
LOCKHEED NUCLEAR PRODUCTS

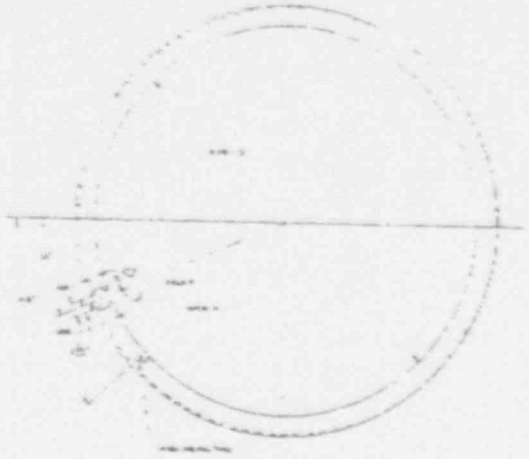
LAWRENCE LIVERMORE LABORATORY

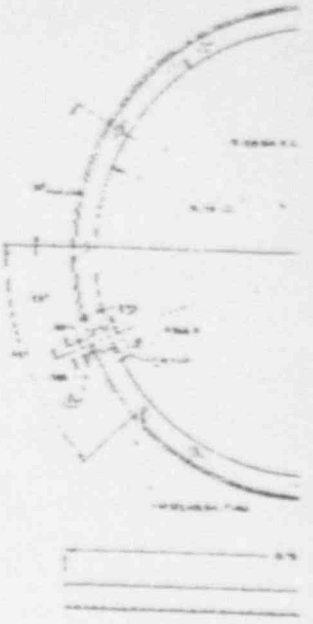
IRRADIATOR

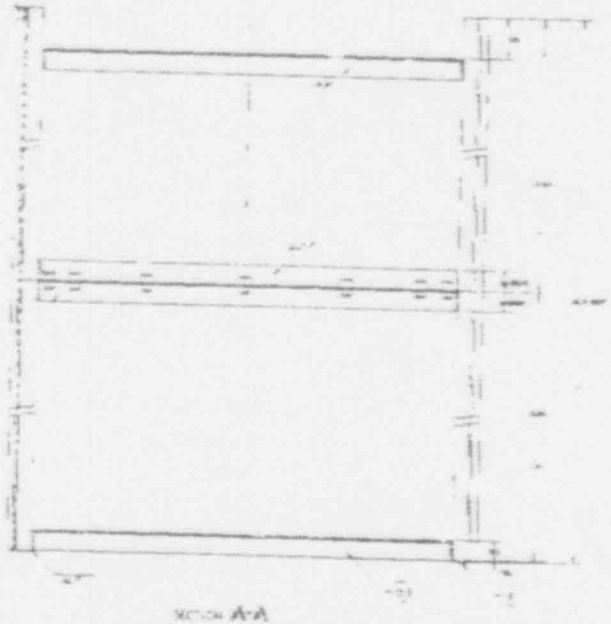
SOURCE HOLDER ASSEMBLY

442-2076



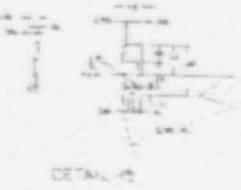






SECTION A-A

SECTION B-B



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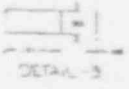

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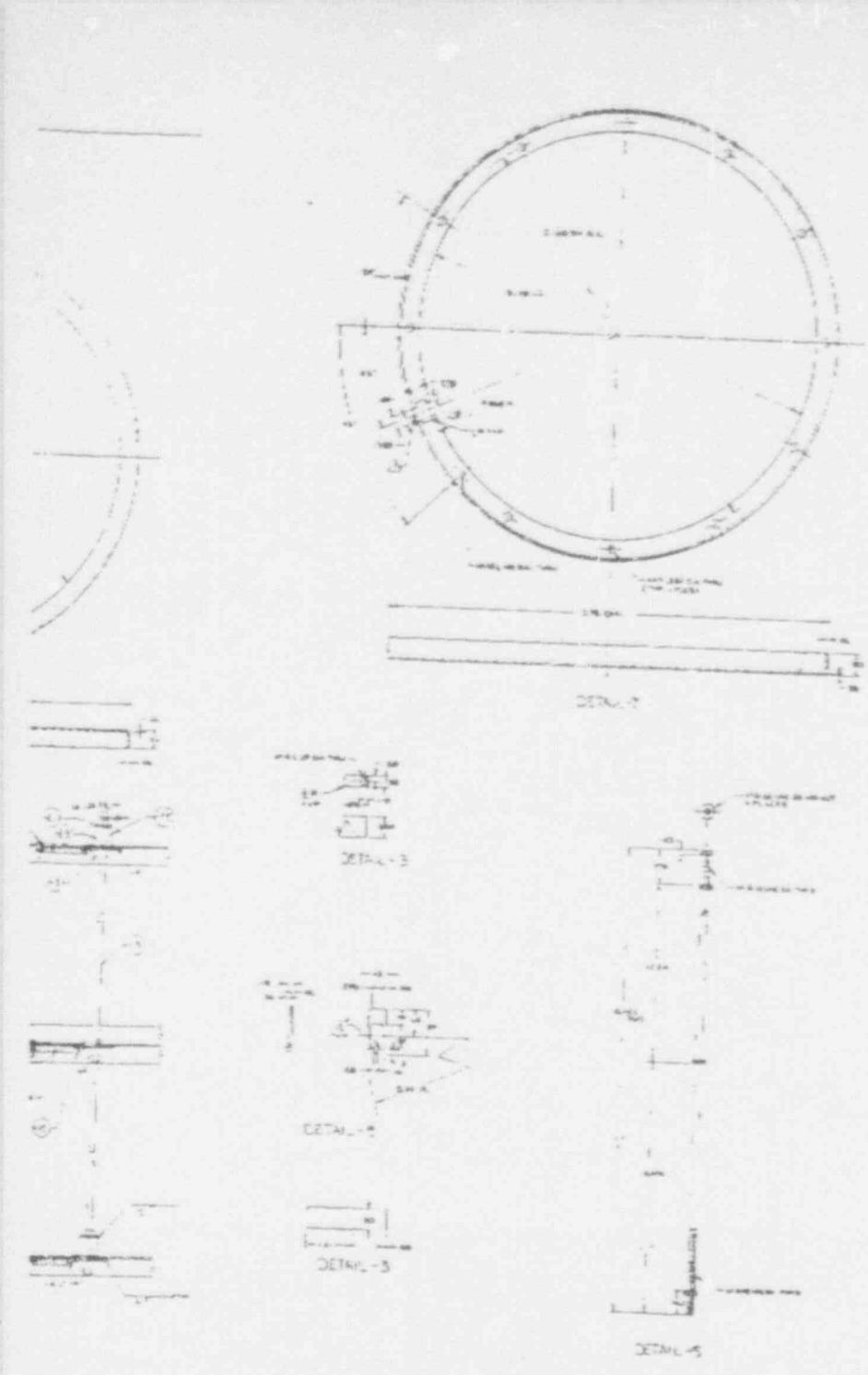
DETAIL-2
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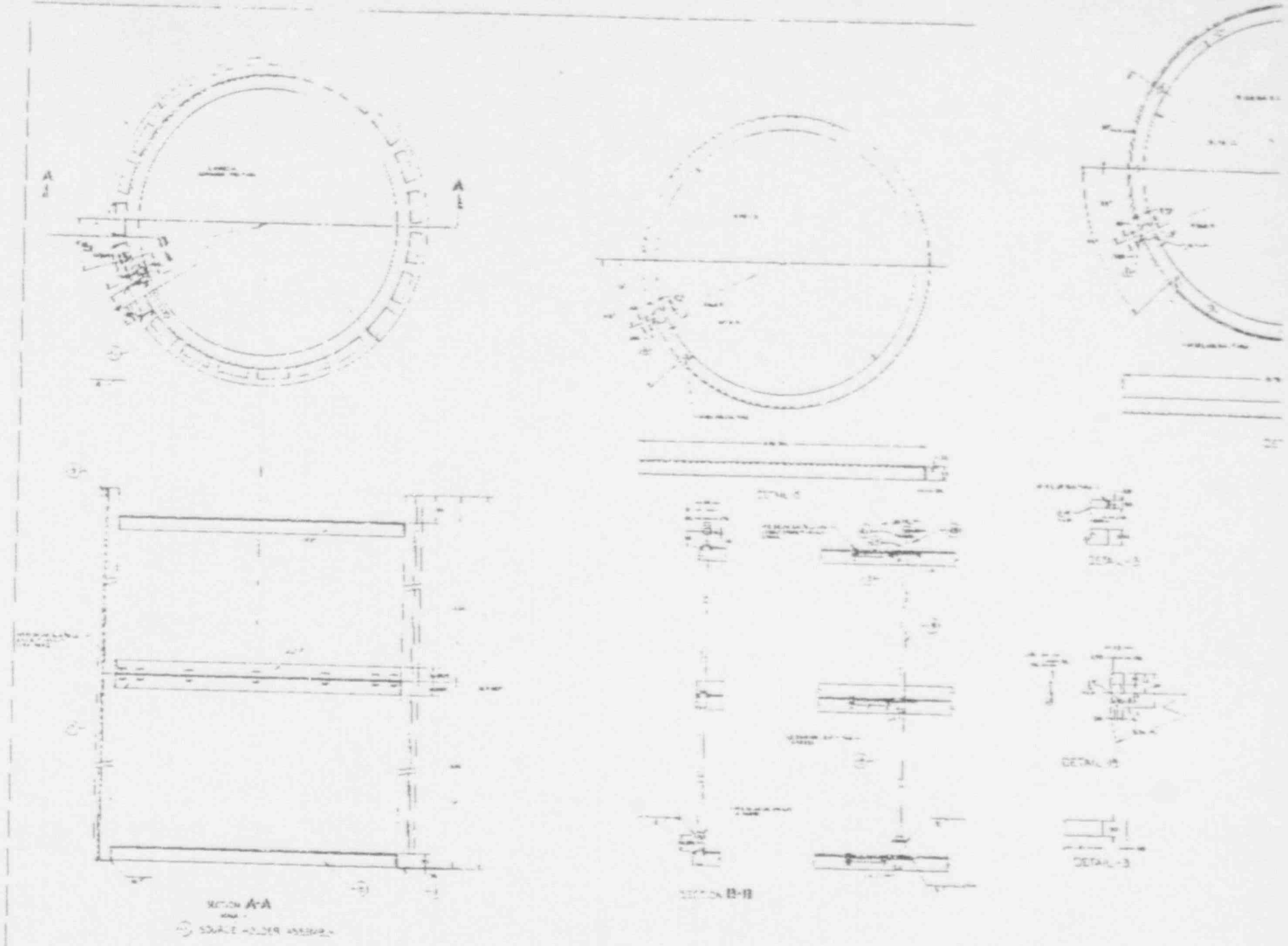
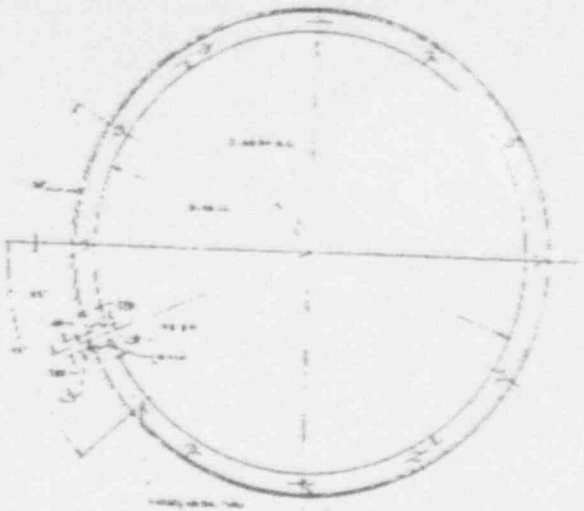
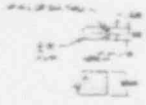
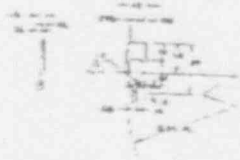
LOCKHEED NUCLEAR PRODUCTS

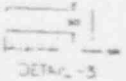
442-207 E

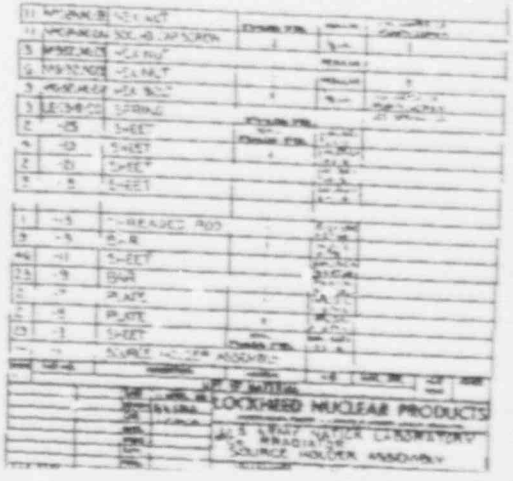











LOCKHEED NUCLEAR PRODUCTS

Standard Operating Procedure

For: Operation of ERRC ^{137}Cesium Gamma Radiation Source

Location: Hazardous Operations Building, Laboratory A

Contact: D. W. Thayer Telephone ext 6582, 6539

NORMAL SEQUENCE OF OPERATION

1. Turn main power switch and control power switch to on position.
2. Turn key lock switch to "MANUAL" position.
3. Drawer should be in "UP" position ("UP" light on); If not, press "Raise" button to bring drawer up.
4. Open shield doors and open sample door.
5. To minimize gamma ray exposure to hands and arms use hook to extend lead shield over space between drawer and frame.
6. **DO NOT** for any reason allow any part of your head to get into the gamma path directly above the space between the drawer and frame.
7. Insert samples into sample chamber. Insert thermal-couple into control sample or as close as possible to the actual sample.
8. Return lead shield to its original position completely within the drawer.
9. Close sample chamber door, being careful that it is fully latched.
10. Close shield doors. **DO NOT SLAM!**
11. Temperature Control With Liquid Nitrogen:
    a. Turn the temperature control switch on and set the desired operating temperature.
    b. Turn on the liquid nitrogen valve at manifold for use of outside tank. If using small tank ensure that valve between building line and portable trailer is closed, then open valve on tank. (Otherwise, the tank which has the greatest pressure will fill the other.) **SEE DETAILED INSTRUCTIONS FOR USE OF THE SMALL TANK.**
    c. Turn on the liquid nitrogen switch on the control panel.
12. Set "Elapsed Time" indicator to read "0".
13. Set "Preset Time" to desired source exposure time.
14. Turn "Key Lock" switch to "**Timer**" position.

15. Press "Lower" button and drawer will go to the irradiate position and stay there until the elapsed time equals the preset time. At the preset time, the drawer will automatically return to the up position.

16. Turn off the liquid nitrogen switch on the control panel before opening the sample door.

IN CASE OF EMERGENCY

1. The operator shall immediately suspend all operations and evacuate all personnel except those investigating the emergency.

2. The operator shall promptly notify responsible user Dr. D. W. Thayer at ext. 6582 or 215/641-9412 (home); ARS Radiation Safety Officer J. Jensen at 301/344-0193 or 301/344-2211; and ERRC Radiation Safety Officer H. Farrell at ext. 6608 or 215/659-6410 (home). Additional authorized users who may be contacted in the absence of Dr. Thayer are the following:

Ackerman, Stanley	- X6457	or	215/887-9698
Boyd, Glenn	- X6539	or	215/660-9344
Fox, Jay	- X6457	or	215/646-8976
Lakritz, Leon	- X6441	or	609/228-2237
Maerker, Gerhard	- X6446	or	215/836-5299

3. No further action shall be taken until cause of emergency is determined, evaluated, and remedial action is prescribed by RSO.

4. If the radiation alarm is sounding, all personnel should immediately evacuate the area. If the level of radiation exceeds 2 millirem/h, the area should be roped off and posted with "Radiation Hazard" signs at approximately 20-foot intervals. A survey meter should be used to determine if laboratory A and/or surrounding area has a radiation level exceeding 2 millirem/h.

5. A complete report shall be prepared detailing the circumstances of the emergency, identification of persons involved, observed radiation levels, and duration of exposure, as well as results of area survey and related details.

Requirements in Event of Fire

1. In case of fire in immediate area or adjacent building, operation of irradiator shall be suspended and the irradiator shall be closed and locked.

2. Only authorized persons shall be permitted in area by responsible user.

3. Fire company shall be promptly notified.

4. Firemen shall be advised of potential hazard by responsible user.

5. The entire area shall be surveyed for contamination and the irradiator surveyed for any loss or change of shielding integrity before the area is opened to reconstruction or returned to service.

   If the level of radiation exceeds 2 millirem/h, the area should be roped off and posted with "Radiation Hazard" signs at approximately 20-foot intervals. A survey meter should be used to determine if laboratory A and/or surrounding area has a radiation level exceeding 2 millirem/h.

United States Department of Agriculture
Agricultural Research Service
North Atlantic Area
Eastern Regional Research Center
600 East Mermaid Lane
Philadelphia, Pennsylvania
19118

October 30, 1990

SUBJECT: Maintenance and Repair of Radiation Source

TO: Authorized Users of ERRC Cesium-137 Radiation Source

FROM: D. W. Thayer, Research Leader

If you are the "authorized user" present during repair or maintenance of the radiation source, have the repair person enter a complete description of the repairs and/or general maintenance into the Maintenance Records Log Book. This entry should be dated and signed by the repairperson. If any parts are replaced, they should be listed. If any substitutions of parts are made, they should be specified. (Please note that you may not authorize or permit any changes to be made in the design or function of any of the safety interlocks or primary control circuits. This does not mean that equal or better switches cannot be used.)

The Facility Maintenance Contractor is responsible for providing routine maintenance of the instrument at six-month intervals. The attached form indicates the items that should be included during the six-month maintenance work. These forms will be found in the right-hand drawer of the desk and can be used for such maintenance records by taping it into the log book.

Enclosure

cc:
J. Jensen
H. Farrell
E. Keenan
T. Niederriter

ERRC CESIUM-137 RADIATION SOURCE
LAB A HAZARDOUS OPERATIONS BUILDING, 6-Mos Mtce

Item Description	Date Completed	Completed By
1. Replace Microswitches		
a. S4 type E1950H		
b. S5 type E1950H		
c. S6 type E1950H		
d. S7 type E1950H		
e. S8 type BZ2RW899-A2		
f. S9 type BZ2RW899-A2		
g. S10 type BZ2RW855-A2-S		
h. S11 type BZ2RW855-A2-S		
i. S12 type 6HM1-1		
j. S13 type 6HM1-1		
2. Inspect door hinges, lubricate if necessary		
3. Inspect sprockets and chains for wear; Replace if necessary Coat w/thin film of machine oil		
4. Lubricate pillow-blocks at fittings w/bearing grease.		
5. Inspect set screws on sprockets & tighten if necessary.		
6. Check gearbox lubrication oil.		

United States Department of Agriculture
Agricultural Research Service
Radiological Safety Staff
6303 Ivy Lane
Greenbelt, Maryland
20770-1433

AUG 2 1 1991

SUBJECT: Implementation of Type-B Radioactive Material Shipment Quality Assurance Program

TO: Radiological Safety Committee

FROM: John Jensen
Director

In accordance with NRC 10 CFR 71, and in accordance with the USDA's NRC "Quality Assurance Program Approval for Radioactive Material Packages," the Radiological Safety Staff is implementing a plan for the packaging and shipment of Type-B radioactive materials, which consists of the enclosed documents.

If you have any questions, please contact me on 344-0193.

3 Enclosures:
File and Document Management
USDA Quality Assurance Program for Packing and Shipment of Radioactive Material
US NRC Quality Assurance Program Approval for Radioactive Material Packages

Type-B File and Document Management

THE RADIOLOGICAL SAFETY STAFF'S TYPE-B QUALITY ASSURANCE PROGRAM IMPLEMENTATION CALLS FOR THE FOLLOWING FILES:

1. **QA Program** containing:
   a. the "USDA Quality Assurance Program for Packaging a Shipment of Radioactive Materials;"
   b. the original or a copy of the NRC "Quality Assurance Program Approval for Radioactive Material Packages" certificate;
   c. the "Key to NRC Title 10 Part 71"
   d. the "Type-B file and Document Management" (this document)
   e. implementation notices or memoranda

2. **Master Copies of the Type-B forms**:
   a. "USDA Quality Assurance Protocol for Type-B Shipments"
   b. "Receipt of Type-B Container Report"
   c. "Quality Assurance Personnel Report"
   d. "NRC-71.87 Routine Determination Report"
   e. "NRC-71.47 External Radiation Report"
   f. "Type-B Shipment Physical Measurements Report"
   g. a change sheet noting revisions of the Type-B forms

3. **Superseded Forms** file

4. **Receipt Documentation** file containing "Receipt of Type-B Container Reports"

5. **Type-B Container Certification** file

6. **Radioactive Safety Staff Shipment Number Log**

7. **Correspondence** file

8. Separate **Type-B shipment** files ordered by RSS Shipment Number

9. **Audit** file

10. Any other files that may need to be instituted.

United States Department of Agriculture
Agricultural Research Service
Radiological Safety Staff
6505 Belcrest Road
Hyattsville, Maryland
20782

December 19, 1989

U. S. Nuclear Regulatory Commission
Office of Nuclear Material Safety and Safegards
Safeguards and Transportation Division
Transportation Branch
Washington, DC 20555

Gentlemen:

Enclosed is a description of the USDA Quality Assurance Program for Packaging of Radioactive Materials for Transport which contains no change in substance from the Quality Assurance Program No. 0238 approved by NRC.

It is required that this QA Program be approved as required by 10 CFR Part 71.

If additional information is required, we will supply it upon request.

Sincerely,

T. Howell

Thomas Howell
Acting Director

Enclosure

7001020172
4PP

USDA Quality Assurance Program for Packaging an Shipment of Radioactive Materials

1. General

The U.S. Department of Agriculture uses only packages that have been designed, fabricated, tested, and approved for use by other persons and for which USDA has received a certification from the U.S. Department of Transportation or the U.S. Nuclear Regulatory Comm ion. Packages are used as originally furnished by the supplier and a not modified. When damaged they are restored to their original condition. The services of the package supplier are engaged as required. Certified packages are used to transfer irradiators containing more than Type A quantities of special form radioactive material from one laboratory to another, to disposal sites, or to vendors for reconditioning or reloading. Such shipments, however, are made infrequently. All shipments are made with the prior approval and under the direction of the Radiological Safety Staff (RSS).

2. Organization

The final responsibility for the Quality Assurance (QA) program for Part 71 Requirements and auditing rest with the USDA's Radiological Safety Committee (RSC). Design and fabrication, except repair, shall not be conducted under this QA program. The Radiological Safety Officer (RSO) is responsible for overall implementation of the program, instructions, certification, and document control. The qualified responsible user approved by RSC is responsible for handling, packaging, shipping, storing, inspecting and furnishing records to the RSO. See last page for organizational chart.

3. Quality Assurance Program

The Radiological Safety Committee establishes and the Radiological Safety Staff (RSS) implements the QA program. Training, in the form of written instructions, prior to engagement for all QA functions is required. QA program revisions will be made according to written procedures with RSS approve. The QA program will insure that all quality control procedures, engineering procedures, and specific provisions of the package design approval are satisfied. The QA program will emphasize control of the characteristics of the package which are critical to safety.

The Radiological Safety Staff will assure that all radioactive material shipping packages are designed and manufactured under a QA program approved by the NRC and/or DOT for all packages designed or fabricated after the effective date of the QA program. This requirement will be satisfied by receiving a certification to this effect from the manufacturer.

4. Document Control

All documents related to a specific shipping package will be controlled through the use of written procedures. All document changes will be performed according to established written procedures. The Radiological Safety Staff will ensure that all QA functions are conducted in accordance with the latest applicable changes to these documents.

5. Handling, Storage and Shipping

Written safety procedures concerning the handling, loading, storage and shipping of packages for certain special form radioactive material will be followed. Shipments will not be made unless all certifications, acceptance, and final inspection have been completed. Work instructions will be provided for handling, packaging, labeling, storage and shipping operations. The Committee approved responsible user shall supervise and/or perform the critical handling, storage, and shipping operations.

6. Inspection, Test, and Operation Status

Inspection, test, and operating status of packages for certain special form radioactive material will be indicated and controlled by written procedures. Status will be indicated by tag, label, marking or other suitable means. Only shipping packages as originally received (and restored if repairs are required) from supplier will be used. The responsible user, as directed by the RSS, shall inspect the package prior to shipment to ensure that it is in proper condition for shipment in accordance with written procedures. The RSS will ensure that these functions are performed.

7. Quality Assurance Records

Records of package approvals (including certifications by DOT or NRC), procurement, inspections, written instructions, shipping papers, and records of shipments will be maintained. Descriptions of equipment and written procedures will also be maintained. The records will be identifiable and retrievable. The records will be maintained by the Radiological Safety Staff.

8. Audits

The Chairman, Radiological Safety Committee, or his designee on the committee will audit the QA program. Such persons do not have day to day responsibility in the QA program. Copies of all reports and correspondence relative to our QA program will be directed to the person. The Radiological Safety Officer's semiannual reports to the Radiological Safety Committee will include a full description of all activities conducted under the QA program for the period.

9. Specific Provisions

As mentioned previously, only packages designed, fabricated, tested, and approved for use by other persons and for which certifications from DOT have been received by the USDA will be used.

RSS
December 19, 1989