

SAFETY INSPECTION

DMB COPY

1. LICENSEE
MASON & HANBER - SILAS MASON
COMPANY, INC.
IOWA ARMY AMMUNITION PLANT
MIDDLETOWN IA 52638

2. REGIONAL OFFICE
U.S. NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT BLD
GLEN ELLYN, IL 60137

3. DOCKET NUMBER(S)
030-18662

4. LICENSE NUMBER(S)
14-24479-01

5. DATE OF INSPECTION
15 MARCH 1988

Licensee:
The inspection was an examination of the activities conducted under your license as they relate to radiation safety and to compliance with the Nuclear Regulatory Commission's (NRC) rules and regulations and the conditions of your license. The inspection consisted of selective examinations of procedures and representative records, interviews, with personnel, and observations by the inspector. The findings as a result of this inspection are as follows:

- 1. Within the scope of this inspection, no violations were observed.
- 2. The inspector also verified the steps you have taken to correct the violations identified during the last inspection. We have no further questions on those actions at this time.
- 3. During this inspection certain of your activities, as checked below, were in violation of NRC requirements.
THIS IS A NOTICE OF VIOLATION which is required to be posted in accordance with 10 CFR 19.11.
 - A. _____ was not properly posted to indicate the presence of a _____ 10 CFR 20.203(b), (c), (d), (e) or 34.42.
 - B. Containers located in _____ were not properly labeled to indicate the presence of radioactive material. 10 CFR 20.203(f)(1), or (f)(2).
 - C. _____ of sealed sources were not performed at the proper frequencies. 10 CFR _____ License Condition Number _____.
 - D. Records of _____ were not properly maintained. 10 CFR _____ or License Condition Number _____.
 - E. Documents were not properly posted or otherwise made available. 10 CFR 19.11.
 - F. Reports or notifications of _____ were not made in accordance with 10 CFR _____ or License Condition Number _____.
 - H. _____
 - I. _____
 - J. _____
 - K. _____

I hereby state that within 30 days the actions described by me to the inspector will be taken to correct the violations identified in the items checked above. This statement of corrective actions is made in accordance with the requirements of 10 CFR 2.204. No further response will be submitted unless required by the NRC.

Joe E. Hansen TPO. 3/15/88

William P. Reusch 15 MARCH 1988

B-4

8803290016 880315
REG3 LIC30

IE07011

INDUSTRIAL RADIOGRAPHY INSPECTION FIELD NOTES

Inspection Report No. 87001

License No. 14-24479-01

Licensee (name and address)

Docket No. 030-18662

MASON & HANGER - SELAS MASON Company Inc.

✓ IOWA Army AMMUNITION PLANT

MIDDLETOWN, IA 52638

Licensee Contact J.E. SHANNAN ^{RADIATION} ~~SAFETY~~ OFFICER

Telephone No. (319) 753-7308

Last Amendment No. Basic License

Date of Amendment 8 APRIL 1985

Priority C

Category 1

Program Codes: 03310 - Fixed
 03320 - Temporary

Date of Inspection 3/14 AND 15/88

Type of Inspection: Announced Unannounced Normal
 Initial Special Reinspection

Next Inspection Date MARCH 1989

Normal Reduced Extended

Summary of Findings and Action:

- No Violation, Clear 591 issued
- Violation(s), 591 issued
- Action on Previous Violation
- Regional Action
- Headquarters Action

Persons contacted:

JOE SHANNAN - RADIATION PROTECTION OFFICER

DAVID SCHEMENAUER - ASSISTANT RADIATION PROTECTION OFFICER

Those present at exit interview:

JOE SHANNAN AND DAVID SCHEMENAUER

Inspector William P. Reubold
(Signature)

22 MARCH 1988
(Date Signed)

Approved S.R. Lasak (for DJS)
(Signature)

3/22/88
(Date Signed)

* N.A. = NOT APPLICABLE

1. ORGANIZATION

a. Management Structure

JIM GARNJOBST - PRESIDENT
ROBERT REID - QUALITY CONTROL MANAGER

JOE SHANNON - RADIATION SAFETY OFFICER

b. Administrative structure meets license requirements.

Yes () No [L/C] [34.11(e)]

Remarks.

c. Individuals identified in the license as being responsible for the programs still hold those positions. Yes () No

Remarks.

d. Radiography Personnel

Radiographers

Radiographer's Assistants

ROY SMITH	PAULINE OSBORNE	NONE
RON JOHNSON	CARA BERGER	
JENNY BROBSTEN	PAUL CLEM	
BILL POTSEL		

(continue d., if needed, on paragraph 22.)

2. INSPECTION HISTORY

a. Item(s) of noncompliance or deviations noted during last inspection conducted on 10/86 () Yes No

Corrected by letter dated _____

b. Requirement Severity Corrected Status

(continue b., if needed, on paragraph 22.)

c. If any item(s) of noncompliance or deviations noted during last inspection were not corrected, explain.

(continue c., if needed, on paragraph 22.)

3. SCOPE OF PROGRAM

RADIOGRAPHY IS PERFORMED TUESDAY THROUGH FRIDAY, OF EACH WEEK. ROY SMITH, RON JOHNSON, DENNY BROBSTON, BILL PATERSON, AND PAULINE OSBORNE ARE THE INDIVIDUALS WHO USUALLY PERFORM RADIOGRAPHY. A 633 CURIE COBALT-60 SOURCE IS USED IN BUILDING 3A100. A 820 CURIE COBALT-60 SOURCE IS USED IN BUILDING 300. A 125 MULLICURIE CESIUM-137

4. TRAINING, RETRAINING AND SUPERVISION OF RADIOGRAPHY PERSONNEL (OVER)

a. Radiographers and Assistants named in license. () Yes No

b. ~~Radiographer's Assistant under direct supervision of a Radiographer.~~ () Yes, () No [34.44] *N.A.*
Remarks.

c. Approved training program. Yes () No

d. Deficiencies noted. () Yes No [L/C]
Remarks.

e. Training provided by. JOE SHANNON & DAVID SCHEMENAUER

f. Written tests. Yes () No

g. Oral tests. Yes () No

h. Radiographers completed ^{IN HOUSE} ~~field~~ examination. [34.31a)(4) and (b)(3)] Yes () No

i. Record of test results. Yes () No [34.31(c)]
Remarks.

j. Test results reviewed by NRC inspector. Yes () No

k. Radiographer completed on-the-job training. [34.11(b)(3)]
 Yes () No
Remarks.

l. Retraining program required by License Condition. Yes () No

m. Periodic training. Yes () No

Item 3 - SOURCE IS USED FOR SURVEY METER CALIBRATION.

ALL RADIOGRAPHY IS PERFORMED IN THE BUILDINGS
3A100 OR 310. RADIOGRAPHY IS NOT PERFORMED
OUTSIDE OF THE BUILDINGS.

n. Retraining program implemented: Yes () No [L/C]
Remarks.

o. Records of retraining reviewed. Yes () No

p. Instruction to workers in accordance with 19.12.
 Yes () No
Remarks.

5. INTERNAL AUDITS OR INSPECTIONS

a. Audits or inspections conducted at 3-month intervals in accordance with 34.11(d). Yes () No [L/C]
Remarks.

b. Records maintained. Yes () No [L/C]
Remarks.

6. INSPECTION AND MAINTENANCE OF DEVICES, CONTAINERS, AND CHANGERS

a. Included in Operating and Emergency Procedures.
 Yes () No [34.32(j)]
Remarks.

b. Equipment check prior to use each day. Yes () No [34.28(a)]
Remarks.

c. Equipment check at 3-month intervals. Yes () No [34.28(b)]
Remarks.

d. Record of results maintained. Yes () No [34.28(b)]
Remarks.

7. NRC REGULATIONS, LICENSE AND OPERATING AND EMERGENCY PROCEDURES

a. Parts 19, 20, and 34; the license; and Operating and Emergency Procedures furnished to all radiographers and radiographer's assistants. Yes () No [34.31(a)(2)]
Remarks.

- b. Operating and Emergency Procedures approved by NRC. (34.11(c))
 Yes () No

8. UTILIZATION LOG

- a. Utilization log maintained. Yes () No [34.27]
 Remarks.
- b. Utilization log contains all required information. Yes
 () No [34.27(a),(b),(c)]
 Remarks.

9. QUARTERLY INVENTORIES

- a. Quarterly physical inventories conducted. Yes () No
 [34.26]
 Remarks.
- b. Quarterly inventories contain all information. Yes () No
 [34.26]
 Remarks.
- c. Materials possessed authorized by the license. Yes () No
 Remarks.
- d. Byproduct Material inventory on. 8 FEBRUARY 1988

Source Changer Model #	Quantity	Isotope	Source S/N	Camera Model	S/N
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-N.A.-	820 CURIES	COBALT-60	2107	TECH OPS 520	
WHOLE CAMERA RETURNED TO GAMMA INDUSTRIES WHEN THE SOURCE IS EXCHANGED.	633 CURIES	COBALT-60	1875	11	

e. Procurement and use of byproduct material in accordance with license requirements. Yes () No [L/C]
 Remarks.

10. MATERIALS, FACILITIES AND EQUIPMENT

- a. Fixed Facility.

- 1) As described in application dated 12 SEPT. 1984, Report-dated _____, or _____

(a). Cell(s) interlocked [20.203(c)(2)(i)] () Yes (X) No

(b). Cell(s) controlled in accordance with 20.203(c)(2)(ii) or (iii). [34.29(b)] (X) Yes () No
Remarks.

(2) Entrance controlled in accordance with 20.203(c)(2).
(X) Yes () No [20.203(c)(2)]
Remarks.

(3) Exit in accordance with 20.203(c)(3). (X) Yes () No
[20.203(c)(3)]
Remarks.

(4) Surveillance or locked to prevent unauthorized entry.
(X) Yes () No [20.203(c)(4), 34.41]
Remarks.

(5) Visible and audible signals to warn of the presence of radiation: (X) Yes () No [34.29(b)]
(a) Alarms operated correctly; i.e., visible due to radiation; audible when entrance attempted during source exposure. [34.29(b)]
Remarks.

(6) Alarm system tested at 3 month intervals. (X) Yes () No
[34.29(c)]
Remarks.

(7) Record of alarm system test. (X) Yes () No [34.29(c)]
Remarks.

(8) Radiographic exposure devices and storage containers meet radiation level limits of 34.21. (X) Yes () No [34.21]
Remarks.

b. Storage Area.

(1) Sources locked in device. (X) Yes () No [34.22(a)]
Remarks.

(2) Storage devices meet radiation levels Yes () No
[34.21]
Remarks.

(3) Devices secured to prevent unauthorized removal from an
unrestricted area. Yes () No [20.207]
Remarks.

c. Field Location

(1) Field work authorized. () Yes () No [L/C]
Remarks.

N.A.

(2) Field inspection conducted. () Yes () No

(3) Proper postings (signs) ropes, etc., available as required
by regulations or license. () Yes () No
Remarks.

d. Survey Meters

(1) Calibrated and operable meters available and used:
 Yes () No [34.43(c)]
Remarks.

(2) Type and number available.

VICTOREEN 592 B - 5 METERS
" 440 - 2 "
" 400 - 2 "
G.E. SMITH & ASSOCIATES GS 15 - 2 METERS
EBERLINE - 1 METER

(3) 2 mR/hr through 1 R/hr can be measured. Yes () No
[34.24]
Remarks.

(4) Calibrated by. DAVID SCHEMENAUER Assistant R.S.O.

(5) Calibration method authorized. Yes () No [L/C]
Remarks.

(6) Calibrated at 3-month intervals. Yes () No [34.24]
Remarks.

e. Special Equipment (shields, collimators, etc.)

Remarks. - SHIELDS & COLLIMATORS ARE USED.

11. PERSONNEL MONITORING

a. Film or TLD badge supplier. LANDSWERK Frequency MONTHLY [LIC]

b. Reports reviewed by: JOE SHANNAN - RSO
DAVID SCHEMENAUER - RSD Frequency: AS RECEIVED.

c. NRC inspector reviewed personnel monitoring records for period 12/1987 to 1/88.

d. License exposure limit. 1.25 R/Quarter X 3 R/Quarter

e. NRC forms or equivalent.

(1) NRC-4. () Yes () No Complete.* () Yes () No N.A.
* Must be completed before individuals receive more than 1.25 rems per calendar quarter.

(2) NRC-5. () Yes () No Complete. () Yes () No
[20.401(a)]

f. Maximum quarterly exposure. 120 millirem Average. 10 millirem

g. Each individual assigned film badge and dosimeter. () Yes
() No [34.33(a)]

Remarks.

LANDSWERK — 0 to 200 MILLIREM
Model L50
EBERLINE Model 862

h. Dosimeter type. KECIVEN Range.
Model 541R

i. Annual check of dosimeter for correct response. () Yes () No
[34.33(c)]

Remarks.

j. Dosimeter recharged at start of each shift. () Yes () No
[34.33(a)]

Remarks.

k. Dosimeter dose recorded daily. () Yes () No [34.33(b)]

Remarks.

12. LEAK TESTS

a. Leak test method approved. Yes () No [34.25(c)]
Remarks.

b. Model of leak test kit. LICENSEE ANALYZES OWN
N.A. LEAK TEST SAMPLES - ITEM 10.5

c. Test at 6-month intervals. Yes () No [34.25(b)]
Remarks. APPLICATION DATED 9/12/84

d. Record of leak test results maintained. Yes () No [34.25(c)]

e. Records reviewed by NRC inspector for period AUG 87 to FEB 88.
Remarks.

13. SURVEYS

a. Area of facility survey conducted to show compliance with 20.105. Yes () No [20.201(b)]
Remarks.

b. Area of facility survey recorded. Yes () No [20.401(b)]
Remarks.

c. NRC inspector reviewed records for period JAN '87 to MARCH '88

d. Maximum radiation levels in unrestricted areas.
Remarks: LESS THAN 0.5 mR/hr

~~e. Survey after each exposure: () Yes () No [34.43(b)]~~ N.A.
Remarks.

f. Survey includes guide tube. Yes () No [34.43(b)]
Remarks.

g. Record of final survey before securing device at place-of-storage. Yes () No
Remarks.

14. POSTING AND LABELING

- a. High Radiation Area posted as required. (X) Yes () No
[20.203(c)(1)]
Remarks.
- b. Radiation Area posted as required. (X) Yes () No [20.203(b)]
Remarks.
- c. Use or storage area posted "Caution - Radioactive Material".
(X) Yes () No [20.203(e)(1)]
Remarks.
- d. Containers or devices properly labeled. (X) Yes () No
[20.203(f)]
Remarks.
- e. Posting of "Notice to Workers". (X) Yes () No [19.11(a) or (b)]
Remarks.
- f. Posting of "Notice to Employees". (X) Yes () No [19.11(c)]
Remarks.

15. CONFIRMATORY MEASUREMENTS

- a. Confirmatory measurements made by inspector. (X) Yes () No
G-M GAMMA INDUSTRIES SMAC MODEL 252B SERIAL 2009, NRC 013116
- b. Survey instrument. _____ NRC Serial No. _____
EBOLINE PIC 6A SERIAL 2301 NRC 073122
Last date of calibration. *G-M CALIBRATED 1/29/88*
ION CHAMBER CALIBRATED
- c. Describe type and results of measurements and compare these with
licensee's measurements. *SEE ATTACHED SHEET*

16. RECEIVING AND SHIPPING OF RADIOACTIVE MATERIALS

- a. Procedures for picking up, receiving, and opening of packages.
(X) Yes () No [20.205]
Remarks.

- b. Written procedures. Yes () No
- c. Shipping incidents since last inspection. () Yes No
- d. Survey of packages when received. Yes () No [20.205(c)(1)]
Remarks.
- e. Record of survey of packages. Yes () No [20.401(b)]
Remarks.
- f. Shipment of sources since last inspection. Yes () No
- (1) Only container authorized by licensee has been used.
 Yes () No
Remarks.
- (2) Shipping papers and package labeling properly completed.
 Yes () No [71.5]
Remarks.
- (3) Licensed material transferred in accordance with [30.41].
 Yes () No
Remarks.
- (4) Record of receipt and transfer. Yes () No [30.51]
Remarks.

17. TRANSPORTATION (10 CFR 71.5a and 49 CFR 171-178)

	<u>Yes</u>	<u>N/A</u>	<u>Vio.</u>
a. Licensee makes shipments of RAM? Such shipments are:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> delivered to Common Carriers?			
<input type="checkbox"/> transported in licensee's own vehicle as private carrier?			
<input type="checkbox"/> both?			
If a. above is "Yes," complete following items:			
b. Are Authorized Packages used? [173.415-416]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Types used:			
DOT-7A, Type A [173.415]			
Performance test records on file? DOT-55 [173.416(a)]	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Licensee aware of b/30/85 Cutoff on use?

- () Certified [173.416(b)]
- NRC COC's on file? [71.12(c)(1)]
- Registered with NRC as user? [71.12(c)(3)]
- Documented NRC-Approved Q/A program? [71.12(b)]
- NRC Q/A Approval No. 0316
- () Other _____

USED PACKAGE USA/5800 B/REV6
 PACKAGE (X) () ()
 CAN'T FIND USER INFORMATION ON PREVIOUS (X) () ()
 (X) () ()

OLD CERTIFICATION EXPIRED AUGUST 31, 1977

- c. Special Form Material Performance test records available for each source design [173.476(a)] (X) () ()
- d. Packages labeled as required? [172.403(a)(b)(c)(e)(f)] () (X) ()
- () Excepted () WI () YII () YIII ()
- Surveys performed to select correct label category and compliance with radiation limits? (175.475(f)). () () ()
- e. Packages marked with required, i.e., proper shipping name, Spec. No., COC No., etc. [172.300 thru 172.310] () () ()
- f. Shipping papers prepared for each shipments? [172.200] () () ()
- Such papers contain required information [172.203(d)] () () ()
- g. For licensee Private Carrier Shipments: Vehicles placarded as required? [172.500, 172.504] () () ()
- Cargo blocked, braced, tied down in vehicle? [177.842(d)] () () ()
- Any incidents reported to DOT? [171.15-16] () () ()
- h. Licensee carries shipping papers that are readily accessible when transporting RAM. () () ()

No PACKAGES WERE READY FOR SHIPMENT
 HAD SHIPPING PAPERS FOR AUG 1977 SHIPMENT.
 MADE BEFORE PACKAGE CERTIFICATION EXPIRED.

18. NOTIFICATION AND REPORTS

- a. Licensee in compliance with 19.13 (reports to individuals).
 (X) Yes () No [19.13]
 Remarks.
- b. Licensee in compliance with 20.405 (overexposures).
 (X) Yes () No [20.405(a)]
 Remarks.

c. Licensee in compliance with 20.403 (incidents).

Yes () No [20.403]
Remarks.

d. Licensee in compliance with 20.402 (theft or loss).

Yes () No [20.402(a)] or [20.402(b)]
Remarks.

e. Annual Report to Commission. (X) Yes () No [20.407]

Remarks.

f. ~~Termination Report to Commission. () Yes () No [20.408]~~ *N.A.*

Remarks.

19. LICENSE CONDITIONS

a. All License Conditions reviewed during inspection. (X) Yes
() No

b. Activities were conducted in accordance with License Conditions
except as noted elsewhere in this report. (X) Yes () No
Remarks.

20. BULLETINS AND INFORMATION NOTICES

a. Bulletins and Information Notices issued during current year.
() Yes () No

b. Bulletins and Information Notices received by licensee. () Yes
() No

c. Licensee took appropriate action in response to Bulletins and
Information Notices. () Yes () No
Remarks.

21. LIST OF VIOLATION(S)

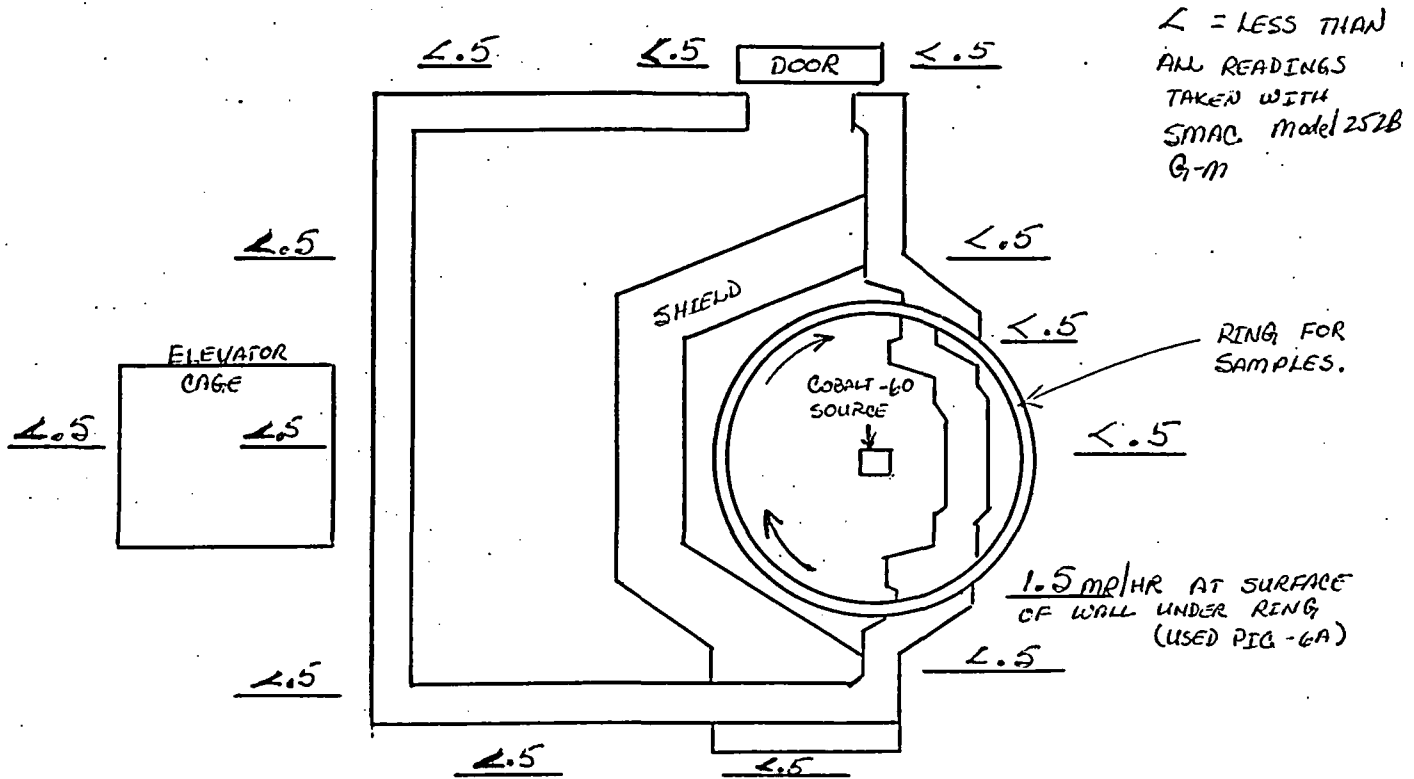
No APPARENT VIOLATIONS

22. CONTINUATION OF PREVIOUS PARAGRAPHS - USE BACK OF PAGE IF NECESSARY

Date 15 MARCH 1988

RADIATION SURVEY - Bldg. 3-10

Instrument



Basement Readings - 1 N.A.
2 _____
3 _____

X-Ray Machine N.A. MA N.A. Kvp N.A.

- | | |
|-----------------------------|------------------------------------|
| 1. S. O. P. <u>O.K.</u> | 6. Warning Lights <u>O.K.</u> |
| 2. Film Badges <u>O.K.</u> | 7. Interlocks <u>O.K.</u> |
| 3. Elevator <u>N.A.</u> | 8. Elevator Interlocks <u>N.A.</u> |
| 4. Signs <u>O.K.</u> | 9. Emergency Switches <u>O.K.</u> |
| 5. Control Room <u>O.K.</u> | 10. Basement <u>N.A.</u> |

REMARKS:

BACKGROUND RADIATION LEVELS WERE ~~0 MR/HR~~ 0 MR/HR (USING SMAC).
10 MR/HR WAS THE HIGHEST MEASURED AT THE SURFACE OF THE CAMERA IN BUILDING 3-10.
8 MR/HR WAS THE HIGHEST MEASURED AT THE SURFACE OF THE CAMERA IN BUILDING 3A-100.
20 MR/HR WAS THE HIGHEST MEASURED AT THE SURFACE OF THE ~~SHIELD~~ SHIELD FOR THE CESIUM-137 CALIBRATION SOURCE.

Signature

Trial Program for Materials Performance Indicators
 (Effective from June 15 - September 30, 1987)

1. Failure of Radiation Safety Committee (or certain key members of) to meet or discuss meaningful issues. () Yes () No (X) N/A
2. RSO unable to perform his or her duties due to other unrelated tasks assigned to him or her. () Yes (X) No () N/A
3. Licensee does not have sufficient technologist/authorized user/radiation staffing for licensed program workload. () Yes (X) No () N/A
4. Numerous customer complaints regarding manufacturers or distributors (AMS, SUMMA, SYNCOR, Mallinckrodt, etc.) () Yes () No (X) N/A
5. Numerous safety-related allegations which have been substantiated. () Yes () No (X) N/A
6. Significant number of diagnostic misadministrations (greater than one per thousand procedures). () Yes () No (X) N/A
7. Radiation exposures approaching 10 CFR Part 20 limits. () Yes (X) No () N/A
8. Frequent or excessive contamination within restricted areas (greater than 10 x NMSS guidance for release to unrestricted areas). () Yes (X) No () N/A
9. Excessive missed surveillances (leak testing, inventories, surveys, etc., greater than 50% per year). () Yes (X) No () No
10. Financial instability of licensee (shoe-string operation, one or two-man operation such that cost of cleanup is significant to continued operations of the facility). () Yes (X) No () N/A
11. Lack of senior management involvement in licensed activities. () Yes (X) No () N/A
12. Inadequate consulting services (consultant not findings problems but NRC does). () Yes () No (X) N/A
13. Radiation Safety Committee give "rubber stamp approvals" to users and/or uses of licensed materials or issues permits for indefinite periods of time. () Yes () No (X) N/A

14. Excessive number of repeat violations (three or more). () Yes
(X) No () N/A
15. Numerous 10 CFR 20.402, 20.403, and 20.405 reportable events. () Yes
(X) No () N/A

Inspector(s) Comments/Suggestions:

No comments or suggestions

Inspector(s) Signature: W.P. Reinhold Date: 22 March 1988

Action Required as deemed by Region III management (telephone contact, licensee management meeting, reduced inspection frequency):

Action Taken:

Section Chief Signature: _____ Date: _____