

RADIOACTIVE MATERIALS IN METAL SCRAP
AND
THE GENERAL LICENSE CONCEPT

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STATE PROGRAMS
U.S. NUCLEAR REGULATORY COMMISSION

Presented at the Governmental Health Physics Section Program,
35th Annual Meeting of the Health Physics Society
June 26, 1990, Anaheim, California

This paper does not represent agreed upon staff positions of the
U.S. Nuclear Regulatory Commission nor has the Commission approved
the technical content.

10 CFR 31.5 DEVICES

AEROSOL NEUTRALIZER	9,600
BETA BACKSCATTER GAUGE	7,000
ELECTRON CAPTURE DETECTOR	8,000
ELECTROSTATIC VOLTMETER	3,000
FUEL DENSITOMETER EMITTER	945
GAUGES	16,000
FILL LEVEL GAUGES	4,200
IN-FLIGHT BLADE INSPECTION	1,000
LIQUID SCINTILLATION SPECTROMETERS	7,000
SELF LUMINOUS SIGNS	180,000
STATIC ELIMINATORS	160,000
X-RAY FLUORESCENCE	720

THE 10 CFR GENERAL LICENSE POPULATION

- ° 35,000 GENERAL LICENSEES

- ° 400,000 10 CFR 31.5 DEVICES

- (VS. 4,000 IN 1959,
THE DATE OF PART 31.5)

16,000 GAUGES

1,900 Am-241 (0.5 - 5 Ci)

600 Co-60 (0.5 - 1 Ci)

8,500 Cs-137 (0.5 - 4 Ci)

1,600 Sr-90 (0.5 - 1 Ci)

1,600 Kr-85 (0.5 - 1 Ci)

1,800 OTHER

CURRENT NRC OVERSIGHT FOR GENERAL LICENSEES

- INITIAL INSPECTION OF GLs
- SUBSEQUENT INSPECTIONS FOR CAUSE ONLY
- FOR GLs NEVER INSPECTED, RANDOMLY SELECT FOR TELEPHONE CONTACTS
- COMMISSION IS CONSIDERING INCREASING OVERSIGHT OF GLs

SMELTING OF RADIOACTIVE SOURCES

* SINCE 1983, TEN (10) DOMESTIC INSTANCES OF THE
ACCIDENTAL SMELTING OF RADIOACTIVE SOURCES

* 6 Cs-137; 1 Co-60; 1 RA-226; 1 Acc.

DISCOVERIES OF RADIOACTIVE MATERIAL
IN METAL SCRAP

SELECTED DATA 1985 - APRIL 1990

44 CASES NOT INCLUDING SMELTINGS

NORM	32%
------	-----

RA	16%
----	-----

ACCELERATOR	4%
-------------	----

NRC	25%
-----	-----

UNKNOWN	21%
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DISCOVERIES OF RADIOACTIVE MATERIAL
IN METAL SCRAP
SELECTED DATA 1985 - APRIL 1990

11 CASES NOT INCLUDING SMELTINGS

Cs-137 4

Co-60 2

Sr-90 1

U/Th 4

TOTAL NRC 11 (25%)

NRC LICENSED SOURCES
IN METAL SCRAP
1985 - APRIL 1990

SMELTINGS	8
FOUND IN SCRAP FEED	11
TOTAL	<hr/> 19

19 NRC LICENSED SOURCES IN METAL SCRAP

10 CASES INVOLVING Cs-137 SOURCES

...1 CONFIRMED CASE INVOLVING GL SOURCES
(2-200 MCI GAUGES)

3 CASES - Co-60

1 CASE - SR-90

5 CASES - TH OR U

FOR 19 NRC SOURCES IN METAL SCRAP
ASSERTIONS THAT ARE DIFFICULT TO REFUTE:

- ° SOME OF THE OTHER 10 Cs-137
CASES INVOLVED GL SOURCES

- ° MOST OF THE U/TH CASES INVOLVED
GL SOURCES

PATHWAYS OF RADIOACTIVE MATERIALS
IN STEEL MAKING FURNACES

ELEMENT	LIKELY PATHWAY
Cs, Pb, Po	FLUE DUST
Co, Ir	STEEL
Ra, Am, Sr, Pu, U, Th	SLAG

SOME IMPACTS OF RADIOACTIVE MATERIALS
IN METAL SCRAP

FOR MILLS AND SCRAPYARDS:

- ° COSTS OF INSTALLING MONITORS (\$5K - \$30K+ PER UNIT)
- ° COSTS OF SEGREGATING/EVALUATING/RETURNING SCRAP (\$?)
- ° COSTS OF CLEANUP IF SMELTED (\$500K - \$2.2M+)

IMPACTS CONTINUED

FOR GOVERNMENT (I.E., TAXPAYER):

- ° NRC AND STATE RESOURCE EXPENDITURES FOR RESPONSES (\$?)

FOR WORKERS:

- ° ALTHOUGH SERIOUS EXPOSURES OF WORKERS ARE NOT KNOWN TO HAVE OCCURRED IN THE U.S., THEY ARE POSSIBLE (MEXICAN STEEL INCIDENT)

CONCLUSIONS

- ° RADIOACTIVE SOURCES WILL CONTINUE TO APPEAR IN METAL SCRAP FOR NEAR TERM
- ° NORM AND RA ARE MAJOR SOURCES, BUT NRC LICENSED MATERIAL ALSO APPEARS
- ° OF 19 KNOWN CASES, ONLY 1 CASE DOCUMENTED GL DEVICES
- ° PROBABLY OTHER GL INVOLVEMENT

CONCLUSIONS CONTINUED

• IS COSTLY TO METAL INDUSTRY

- PROTECTION

- CLEAN UP

REVIEW GROUP -
RADIOACTIVE DEVICES

Texas Department of Health

Bureau of Radiation Control

1100 West 49th Street
Austin, Texas 78756-3189



of Pages • 2

TO: <i>John Lubinski</i>	FROM: <i>Bob Free</i>
COMPANY/AGENCY: <i>NRC</i>	COMPANY/AGENCY: TDH/ERC
DEPARTMENT/DIVISION:	DEPARTMENT/DIVISION: Radiation Control
FAX/TELEPHONE #: <i>801/415/5369 / 301 415 7868</i>	FAX/TELEPHONE #: 512-234-6654 / 512-834-6688

Oregon's response

RADIOACTIVE DEVICE WORKING GROUP QUESTIONNAIRE

The Working Group reviewed information from a number of sources. They included; steel manufacturers, metal scrap processors and users of the radiological devices potentially encountered in scrap and waste streams. To approach a solution, the working group separated the problems into three groups. They are inadequate accounting, improper disposal and orphaned devices.

The working group also attempted to identify devices of greater concern and developed a table with assistance from agreement state and vendor participants.

Inadequate accounting includes the loss of devices due to inaccurate inventories or no inventory.

Improper disposal includes the disposal, knowingly or unknowingly, so that a device reaches an area that is no longer controlled to prevent exposure to members of the public. This may be non radiation workers within plants where devices are used or areas outside the boundaries of the facility where the source was to be used.

Orphaned devices include sources that are no longer in the control of a person licensed to possess or use them.

The following survey questions are categorized to address each of the problem areas. Please indicate a Yes, No or Undecided response by marking the box after each question with a Y, N or U. Feel free to use the space between statements or the back of the page for comments.

Inadequate accountability:

The following applies to devices identified as "higher concern".

Do you agree with the following statements?

1. Semiannual inventories would improve accountability.

☒

2. Annual reporting of inventories to regulatory agencies by users would improve accountability.

☒

3. Users must maintain current inventory records.

☒

4. General licensees must assign a Radiologically Responsible Person and a backup as contacts.

(The duties of the RRP will be to assure accuracy of inventory, sign off on or perform leak tests and report inventories and losses.)

☒

5. The durability of the label on the device should meet or exceed the durability of the device.

☐

6. The label should contain the currently required information and a serial number.

(Current rules require, on the label, instructions and precautions for safe installation, leak test requirements, testing on-off system, radioisotope, activity, date of assay as well as a statement indicating the devices are under NRC and Agreement state jurisdiction, that labels are to be maintained in a legible condition, removal of labels is prohibited. - the words "caution - radioactive material" are to be included and the name of the manufacturer or initial transferor.

☒

Improper Disposal:

Do you agree with the following statements?

7. Annual reporting of inventories should be required of users.

☒

8. Users must be able to demonstrate proper disposal or pay penalty.

☒ Penalties Require Lawmaking actions.
Don't require penalties

9. Regulatory agencies should review reports of device transfers and receipts.

☒
↑
MUST

10. Users should provide worker training to improve knowledge of health and safety risks, penalties for violations, identification and locations of devices.

☒ There should be worker training ... etc.

11. Distributors should provide disposal information to include options, costs, etc. to users at the time of initial transfer.

☒

Manufacturers and some agreement state representatives have suggested the creation of a national inventory for the devices included in the WG recommendations. The database for such an inventory would receive reports from regulatory agencies and would identify discrepancies from previous submittals.

In light of the preceding suggestion, do you agree with the following statements?

12. A national database is necessary to adequately track devices in distribution.

☒

13. A national database would benefit state regulatory programs' attempts to track devices?

☒

14. A national database for tracking devices of higher risk should be established by the NRC.

☒

would be nice, not essential.

Anticipated Orphaned Devices:

Do you agree with the following statements?

15. In addition to current labeling requirements, labels conspicuously identifying the device as radioactive should be affixed to devices in the most likely visible location if the device is lost.

☐

16. Labels should be permanently affixed to the device, e.g., embossed, engraved, etc. and the strength and durability of the label must meet or exceed that of the device.

☐

17. Innocent "finders" of orphaned devices should not be required to take responsibility for possession, storage and/or disposal of radioactive materials.

☒

absolutely

NRC should take the lead in the following proposed solutions:

18. Arrange for manufacturer to recycle or DOE/EPA disposal of orphaned sources (can be accomplished via MOU between NRC, DOE and EPA).

☒

absolutely

19. A fund should be established to pay for disposal of orphaned sources under certain circumstances.

Y

20. Develop nonuser training recommendations to improve safety and recognition of devices. The Institute of Scrap Recycling Inc. (ISRI) has done this for its membership, but its members do not include all recyclers.

Y

essential

The Working Group, with assistance from some agreement state representatives and vendors, attempted to derive a table expressing the isotopes and factors of concern for radioactive devices. The resulting table attached to this page is the result of the participants' work experience in dealing with radioactive devices.

The table represents isotopes of concern versus factors of concern and ranks the isotopes as high, medium or low level of concern.

The factors of concern are:

EXT

EXP = external exposure

INT.

EXP. = internal exposure

QTY = quantities most commonly encountered

DISP

DIFF = Disposal difficulty

T1/2 = half life

COST

DISP = cost of disposal

The Working Group has also attempted to identify activities of concern at this time two options are being considered. One is to use 1000 times the exempt quantity limits in 30.71 (10CFR 30.71) and the other is to use 1 mCi for the isotopes in the table with a limit to be determined later for the transuranics.

Please review the attached table and respond to the following:

21. Do you agree with the Working Group's ranking of isotopes of concern? Please indicate changes you would make.

Y

22. Do you agree with the "factors of concern? Please indicate your suggested changes.

☒ Exclude H-3
Be SURE to include Po-210 > than the small static bars (those sold "by the inch")

23. What suggestions would you make for activities of concern?

>1000x 10CFR 31 App B & '1mCi' for TRU

24. What other suggestions would you make?

You already know.

The questions and statements above lead to a possible set of recommendations that would address the three problems stated at the beginning of this questionnaire.

25. What comments would you offer relating to implementation of the implied solutions.

- Do mail surveys & analyse results
- Check vendor reports religiously
- Do field surveys if in the area of a G gauge licensee

The following questions are an attempt to gather information on issues for the solutions we have identified.

Compatibility with NRC rules is a major concern for these recommendations in terms of the way states accept and implement them because due consideration should be given to the transboundary impacts of placing radioactive devices into interstate commerce.

26. In light of the above statements, what compatibility level would you recommend?

2

27. With individual states taking independent action to control the problems mentioned at the beginning, do you feel that this would lead to one state's rules effectively overriding another state's rules when devices cross state boundaries?

NO

JUN 26 '86 01:30PM OHD RAD PROTECT SERV

P.8/8

28. What other reciprocity issues do you see as concerns?

Vendor's Concerns - 30 reg's.

Please complete the questionnaire and return it to Bob Free during the conference or mail it to:

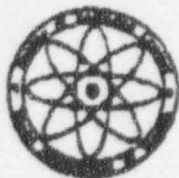
Robert Free
Bureau of Radiation Control
Texas Department of Health
1100 w.49th St.
Austin, TX 78756

REVIEW GROUP -
RADIOACTIVE DEVICES

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RESPONSES TO WG SURVEY

1	y	y	y	y	y	y	y	y	y	y	y	u	n
2	y	u	y	y	y	y	y	y	y	y	n	y	y
3	y	y	y	y	y	y	y	y	y	y	y	y	y
4	n	y	y	y	y	y	y	y	y	y	y	y	y
5	y	y	n	y	y	y	y	y	y	y	u	y	y
6	y	y	y	y	y	y	y	y	y	y	y	y	y
7	y	y	y	y	y	y	y	y	y	y	u	y	y
8	y	y	n	y	y	y	y	y	y	y	y	n	y
9	y	y	y	y	y	y	y	y	y	y	y	u	y
10	u	y	y	u	y	y	y	y	u	y	u	y	y
11	y	u	y	y	y	y	y	y	y	y	y	y	y
12	n	y	n	n	y	n	y	n	u	y	u	u	y
13	u	y	n	y	y	u	y	u	y	y	y	y	y
14	u	u	n	n	y	u	y	n	y	y	y	y	y
15	u	y	y	y	y	u	y	y	y	y	y	y	y
16	y	y	n	y	y	y	y	y	y	y	y	y	y
17	y	y	y	y	y	y	y	y	y	y	y	y	y
18	y	u	y	y	y	y	y	y	y	y	y	y	y
19	y	y	y	y	y	u	u	y	y	y	y	y	y
20	y	y	y	u	y	y	y	y	y	y	y	y	y
21	y	y	y	y	y	y	y	y	y	y	y	y	y
22	y	n	y	y	y	u	y	y	y	y	y	y	y
23	y	c	0	0	c	0	0	y	c	c	y	y	0
24	0	c	0	0	?	0	0	0	c	c	0	0	0
25	?	?	0	0	c	0	c	c	c	c	c	c	c
26	3	2	2	2	2	1	1	2	2	1	c	2	2
27	y	y	n	y	n	c	c	y	c	c	n	u	n
28	0	y	c	0	0	0	0	0	0	c	0	c	0

Y=YES

C=MADE COMMENT

N=NO

?= ASKED CLARIFICATION

U=UNDECIDED

1,2,3= COMPATIBILITY DIVISION RECOMMENDED

O=NO RESPONSE

RESPONSE TO SURVEY QUESTIONS:

1. Y= 11 N= 1 U= 1	14. Y= 7 N= 3 U= 3	27. Y= 4 C= 4 N= 4 U= 1
2. Y= 11 N= 1 U= 1	15. Y= 11 N= 0 U= 2	28. Y= 1 C= 3 N= 0 O= 9 U= 0
3. Y= 13 N= 0 U= 0	16. Y= 11 N= 2 U= 0	
4. Y= 12 N= 1 U= 0	17. Y= 13 N= 0 U= 0	
5. Y= 11 N= 1 U= 1	18. Y= 12 N= 0 U= 1	
6. Y= 13 N= 0 U= 0	19. Y= 11 N= 0 U= 2	
7. Y= 12 N= 0 U= 1	20. Y= 12 N= 0 U= 1	
8. Y= 11 N= 2 U= 0	21. Y= 13 N= 0 U= 0	
9. Y= 12 N= 0 U= 1	22. Y= 11 N= 1 U= 1	
10. Y= 9 N= 0 U= 4	23. Y= 4 O= 5 N= 0 C= 4 U= 0	
11. Y= 12 N= 0 U= 1	24. Y= N/A O= 9 N= N/A C= 3 U= N/A ?= 1	
12. Y= 5 N= 5 U= 3	25. Y= N/A O= 3 N= N/A C= 8 U= N/A ?= 2	
13. Y= 9 N= 1 U= 3	26. Y= N/A 1= 3 N= N/A 2= 8 U= N/A 3= 1 C= 1	

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The factors of concern are:

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COST	
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Please review the attached table and respond to the questions following it:

ISOTOPE	EXT. EXP.	INT. EXP.	QTY	DISP DIFF	T _{1/2}	COST DISP	OVERALL RATING	30.71 x1000 (mCi)
CS137	H	M	H	M	H	H	H	10
CO60	H	L	H	L	M	H	H	1
AM241	L	H	H	H	H	H	M	-
SR90	M	H	M	M	H	H	H	0.1
PU	L	H	H	H	H	H	H	-
IR192	H	L	H	L	L	H	M	10
H3	L	L	H	L	M	L	L	1000
N163	L	H	L	L	L	H	L	10
I125	L	M	L	L	L	M	L	1
KR85	L	L	H	L	L	L	L	100
PM147	L	L	L	L	M	L	L	10
PO210	L	L	M	L	L	L	L	0.1
ALL TRANS								-

LEGEND:

H = HIGH

M = MEDIUM

L = LOW

X = UNKNOWN

21. Do you agree with the Working Group's ranking of isotopes of concern? Please indicate changes you would make.

☐

22. Do you agree with the "factors of Concern? Please indicate your suggested changes.

☐

23. What suggestions would you make for activities of concern?

24. What other suggestions would you make?

The questions and statements above lead to a possible set of recommendations that would address the three problems stated at the beginning of this questionnaire.

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26. In light of the above statements, what compatibility level would you recommend?

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☐

28. What other reciprocity issues do you see as concerns?

INTER-OFFICE MEMORANDUM

REVIEW GROUP -
RADIOACTIVE DEVICES

TO Joel Lubman DATE 12/26/75
FROM Rita Aldrich

Attached is a copy of my notes, "Bullets"
for the workshop, & a summary of
what distinguishes specific & general licenses.

cc: Jim Yushko
Bob Free
Martha Dibblee

GA 705.2 (9-72)

N.Y. - DEPT. OF LABOR

"Bullets" For Workshop

- Radioactive sources and loose radioactive materials have been found in loads of ferrous and non-ferrous scrap, municipal waste and other inappropriate locations.
- Some of these sources and materials were required by regulation to be controlled and properly disposed of (although some were exempted from regulation and some were naturally occurring radioactive materials).
- The increasing use of radiation detectors has been effective in locating most sources before they were smelted or breached. However, considerable cost is involved in finding the source after a detector alarms, and in properly disposing of it.
- Some sources subject to regulation have escaped detection and been smelted, causing mills to incur millions of dollars in clean-up and other costs.
- Although radioactive materials which are not properly controlled also present exposure hazards, our experience indicates that no major health impacts have resulted from these incidents.
- The subject of today's workshop is achieving better control over regulated sources; primarily to prevent the costs associated with retrieving them from scrap and waste loads, and the much larger cost of clean-ups when sources are smelted or breached.

Exposures and Overexposures

Radiation Exposure Information and Reporting System

Mary L. Thomas
Office of Nuclear Regulatory Research

REIRS covers a period of time from 1974 and to the present.

Pre-1984

NUREG-0713 for the reactors

NUREG-0714 for the materials licensees

1984 NUREGs combined

Available as NUREG-0713 from 1984 to the present

Categories of licensees required to submit annual occupational exposure reports in accordance with 10 CFR 20.2206:

Commercial Nuclear Power Reactors

Industrial Radiographers

Fuel Processors and Fabricators

**Manufacturers and Distributors of
Byproduct Material**

**Independent Spent Fuel Storage
Installations**

Low Level Waste

**Geologic Repositories for High Level
Waste**

Gauge users do not fall into any of the seven 20.2206 categories.

1983 NUREG-0714, volumes 4 and 5 contains an overexposure for a gauge manufacturer.

REIRS does not cover the Agreement States.

If an Agreement State licensee possesses an NRC license and falls into one of the seven 20.2206 categories then the Agreement State licensee is required to submit annual occupational exposure data.

**OREGON'S
EXPERIENCES
DURING
ESTABLISHMENT OF
GENERAL LICENSE
REGISTRATION**

BACKGROUND

- **CONDUCTED INSPECTIONS BY MAIL**
- **IMPLEMENTED GL REGISTRATION FEES IN 1984**
- **PHYSICAL INSPECTIONS DONE WHEN FEASIBLE**
- **GENERAL LICENSES WERE DISCOURAGED**

- **GENERAL LICENSE
DEVICES USED AT
TEMPORARY SITES
REQUIRED SPECIFIC
LICENSE**
- **WE ERRED IN NOT
REQUIRING A LICENSE
FEE FOR LARGE GL PO-
210 FIXED GAUGES**

**THE PROGRAM TOOK
APPROXIMATELY ONE FTE
TO SET UP &
IMPLEMENT:**

**SUPPORT STAFF: 500 HRS
(DATA ENTRY)**

**RML MANAGER: 500 HRS
(STATUTES, RULES, DATABASE)**

**TECHNICAL STAFF: 500 HRS
(RULE REVIEW, DATA REVIEW)**

PROGRAMMING: 500 HRS

**OREGON'S ENTIRE
MATERIALS PROGRAM
BECAME SOURCE/DEVICE
BASED**

- **SPECIFIC SOURCES ARE
CHARGED BY THE
"PIECE"**
- **HEALING ARTS
LICENSES ARE
CHARGED BY USE**

- **FACILITY LICENSES
INCLUDE ONLY
INDUSTRIAL
RADIOGRAPHY &
BROAD SCOPE A**

STATISTICS

- OREGON HAS 99 GENERAL LICENSE DEVICES
- THERE ARE OVER 1800 RECORDS IN THE MATERIALS DATABASE
- WE HAVE 539 PORTABLE GAUGES
- WE HAVE 1294 SEALED SOURCES

DISADVANTAGES OF THE REGISTRATION/LICENSE SYSTEM

- **TIME CONSUMING &
LABOR INTENSIVE**
- **REQUIRES ACCURATE
DATA ENTRY STAFF**
- **REQUIRES FISCAL
DETAIL & ATTENTION
TO ADD ADDITIONAL
SOURCES**

ADVANTAGES OF THE REGISTRATION/LICENSE SYSTEM

- **WE KNOW THE
LOCATION, TYPE, AND
QUANTITY OF
MATERIALS**
- **OTHER AGENCIES
HAVE ACCESS TO OUR
DATA FOR FIRST
RESPONSES**

**SYSTEM
CONSIDERED
A SUCCESS!**

OREGON

EXPERIENCE WITH SCRAP ALARMS

- o 50 RESPONSES ANNUALLY
- o 0.2 FTE / \$20,000
- o NORM CONTAMINATION OF RAILCARS
IS A PROBLEM
 - CAUSE FALSE ALARMS
 - CAUSE REPEATED FALSE ALARMS



Organization of Agreement States

REVIEW GROUP -
RADIOACTIVE DEVICES

Richard A. Ratliff, P.E., Chair
Robert R. Kulikowski, Ph.D., Past Chair

T. R. Strong, Chair-Elect
Thomas Hill, Secretary

TO: Agreement State Radiation Program Directors
FROM: *RL* Richard A. Ratliff, P.E., Chair, Organization of Agreement States
DATE: December 14, 1995
SUBJECT: GL Work Group Questionnaire

As you are aware, the NRC and Organization of Agreement States have entered into a joint effort to review the regulation of generally, and some specifically, licensed devices. The review is for the purpose of making recommendations to provide greater control of these devices in order to prevent the economic and health and safety impacts that occur when they are encountered in the public domain.

A working group (WG) has been formed involving members from the Organization of Agreement States (OAS) and the Nuclear Regulatory Commission. Oregon, New York, North Carolina, and Texas are providing representatives from the OAS. The group is conducting public meetings and will host a public workshop to collect comments and suggestions from the regulated community, industries affected by the loss of control of the devices, and public representatives wishing to attend.

As part of the review effort, the WG asks that you respond to the attached questionnaire and return to the address shown below. The questionnaire is short and seeks your opinion on some of the issues identified by the WG. Your replies are valuable to the progress of the WG. Please take time to respond.

Thank you for your assistance. If you have any questions, please contact Bob Free of the Texas Bureau of Radiation Control at 512-834-6680.

Please Reply To: Robert E. Free
Bureau of Radiation Control
Texas Department of Health
1100 West 49th Street
Austin, TX 78756-3189
OR Internet Address: rfree@brc1.tdh.state.tx.us

9512190478 2 pp

The joint NRC/Agreement State working group on regulation of generally and specifically licensed devices (WG) is reviewing regulation and other controls on devices that impact the public and industrial facilities processing scrap materials. The WG is seeking information from the Agreement States regarding their individual concerns for these devices.

The problem identified by the WG is that there is inadequate inventory control and improper disposal by both general and specific licensees.

In order to gather information from your state the WG would appreciate your response, whether brief or detailed, to the following questions:

PART 1

1. Do you agree that there is a problem with the regulation/control of the devices described above?
2. Do you agree with the WG definition of the problem? If not, how would you define the problem?
3. Has your state addressed the problem of inadequate inventory control? If so, how is it implemented and enforced?
4. If your state has not addressed the problem could you propose an option to address it?
5. Has your state addressed the problem of improper disposal? If so, how is it implemented and enforced?
6. If your state has not addressed improper disposal, could you propose an option to address it?
7. If your state has NOT addressed either inadequate inventory control OR improper disposal, would you be in favor of implementing a solution derived by the WG?

If your state has a regulatory program that maintains statistical data or if you are willing to extract the data from existing files, please respond to the following questions:

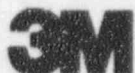
PART 2

1. Please provide a list of YOUR categories of specific and general licensees, e.g. nuclear gauges, static eliminators, small irradiators, etc.
2. Numbers of devices in each category.
3. Inspection data on noncompliances relating to control and accountability, marking and labeling, transfer and disposal.

3M Health Physics Services

3M Center, Building 220-3W-06
PO Box 33283
St. Paul, MN 55133-3283
612 736 0498
612 736 2285 Fax

REVIEW GROUP -
RADIOACTIVE DEVICES



December 1, 1995

USNRC

Office of Nuclear Materials Safety and Safeguards

M/S T-8P5

Washington, DC 20555-0001

FAX 301/415-5369

Attention: Joel Lubcnau, Co-chair

Joint Agreement State/NRC Working Group

Devices Containing Radioactive Materials

This is in response to your request of attendees at the October 24-25, 1995 meeting of the Joint Agreement State-NRC Working Group to Review Devices Containing Radioactive Materials to provide information on concerns and possible solutions to better control the use of such devices. I am providing information from the perspective of a user having 450 gauging devices, 350 Po-210 static eliminators, 150 tritium static measuring meters and 150 tritium exit signs used in 48 facilities located in 25 different states. Please note the data in the attached table. I have probably provided more observations than potential solutions, but hopefully they will be useful in your deliberations.

Sources of Concern

Given that the primary concern of the working group is lost sources that end up being recycled and smelted in a steel mill, the sources that should be addressed are Cs-137, Co-60, Cm-244 and Am-241. Pu-238 sources are also used, but not to a large extent. Determining source size threshold values below which there are no concerns may be appropriate. These will be dependent on the respective fractions of the melted activity that end up in the steel mill metal product output and in the waste stream, i.e., the baghouse. For example, if Cm-244, Am-241 or Pu-238 end up in the metal phase, the hazard will be minimized because of the low energy radiation emissions.

The Co-60 and the relatively few Cs-137 sources used in self shielded or pool type irradiators and some large Co-60 and Cs-137 sources in steel mills can definitely present life threatening problems. However, sources in industrial gauges do not provide a life threatening problem.

Although possible, it is unlikely that there would be a problem in the US with large radiography, medical therapy or gamma irradiator sources like those that have presented problems on the international scene. These devices are under much better control in the US.

9512120435 SPN

USNRC

December 1, 1995

Page 2

It is not obvious how sources containing Pm-147, Sr-90 and Tl-204 should be considered. As a minimum, source size threshold values should be determined. Again, these values will be dependent on the division of activity between the metal phase and the waste stream.

For purposes of discussion relative to concerns for inadvertent recycling of byproduct radioactive material sources, the tritium, Ni-63 and Po-210 and gaseous sources (Kr-85) used in gauges need not be included. Tritium is the least toxic of radioactive materials and in a steel mill will vaporize and quickly dilute to nonhazardous levels. Ni-63 sources are small and have very low beta radiation emissions. Po-210 is primarily an alpha emitter and thus presents no external radiation hazard. Further it has a short half of only 138 days. Although one might be concerned about internal exposures because Po-210 is an alpha emitter, experiences with Po-210 static eliminators would indicate that no exposures would be encountered in the recycling process. Po-210 vaporizes at relatively low temperatures. In a steel mill, it would definitely vaporize and as soon as it came into contact with a cool metal surface it would plate out and remain strongly affixed to that surface during its relatively quick decay to nonhazardous levels. Kr-85 is an inert gas and as soon as the source is ruptured either mechanically or by high temperatures it will quickly dilute to nonhazardous levels.

In summary, there are certain isotopes that probably do not need to be considered at all. For the isotopes of concern, threshold values could be determined below which there is no concern. Above this a tiered regulatory approach could be considered determining use, distribution requirements, etc., depending on the source isotope and activity and melting characteristics.

Recycling Facility Monitoring Considerations

Since there can be no guarantee that a radioactive source will never be inadvertently directed to a recycling facility, the recycling facility should assume it will happen and develop a program to detect them.

Recycling facility portal monitors will see most Cs-137 and Co-60 sources. It is doubtful that a portal monitor will detect sources such as Am-241, Cm-244, Pm-147, Sr-90 or Tl-204. If the recycling industry wants to detect these devices, some other monitoring methods will have to be employed.

Vendor/Customer Interaction

One of the major keys to better control of radioactive devices is good communication between gauge vendors and customers. Vendors should be communicating directly with customer safety/regulatory compliance organizations. Communicating only with local plant engineers or operations personnel doesn't normally suffice. The customer must be made aware of the presence of a radioactive source and radiation fields. Putting written information in the shipment package is not sufficient. It needs to be made known to the

USNRC

December 1, 1995

Page 3

customer safety/regulatory compliance organization prior to sale of the device so that all safety concerns and options are considered.

Although the hazard from most radioactive material gauging devices is minimal compared to other industrial hazards, the political, economical and corporate image problems associated with the loss and incorrect disposal of a gauge must be effectively communicated to customer personnel. Vendors shouldn't try to minimize the importance of the fact that the device contains a radioactive source. The vendor should instead emphasize the presence of the radioactive source and the importance of proper use of the device and an effective accountability program even though making the sale may be more difficult.

Labeling

Conspicuous labeling is essential. This may be difficult on very small devices but is very important. Some generally licensed devices are presently authorized to be distributed with small inconspicuous labels which are not the standard yellow and magenta labels. More attention needs to be paid to the durability of the label, including the adhesive, if that is how it is affixed. Routine checks to ensure that labels remain legible are extremely important. Time intervals between checks depend on the application. Some industrial environments are extremely dirty and checks may need to be performed monthly. As a minimum, checks should be performed semiannually.

Regulations and Licensing-Accountability-Responsible Person

Uniformity of regulations throughout all the states is important. Many companies have operations in multiple states.

Whether a device is specifically licensed or generally licensed probably is not the main issue, although there is presently less emphasis given to accounting for generally licensed devices. It is important that in any regulatory/licensing framework there are requirements for the device user to conduct an effective accountability program and to make a person, by name, liable for radioactive source accountability. In addition some incentive must be provided to make sure that the liable person effectively fulfills his/her responsibility. This could be in the form of more inspections by regulatory agencies, increased levels of fines for lost sources, formal written annual accountability reports, etc. Consideration should be given to requiring the user to retain an independent qualified third party to perform annual audits such as done in some European countries.

Waste Disposal

It appears that the mixed waste issue has been addressed by the NRC and EPA and that guidelines for acceptable waste disposal of steel and baghouse waste have been enacted. If not, this should be done so there is at least an acceptable method to dispose of the waste when a radioactive source melt occurs.

USNRC

December , 1995

Page 4

Contingency Fund

It appears that the recyclers and steel mills would like to see a contingency fund established by users and vendors to cover the cost of source melt cleanup when it occurs. This would very likely lead to the demise of the use of gauging devices containing radioactive sources.

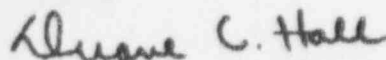
Responsibility for preventing a source from getting into the scrap metal cycle is not solely that of device vendors and users. Some responsibility also rests with the regulatory agencies and the recyclers. In any business, regardless of the type of materials received from a vendor, the recipient of material's assumes some responsibility for ensuring that the received materials comply with pre determined specifications agreed to by the vendor and customer. If there needs to be a contingency fund, it would appear appropriate that responsibility for that fund be shared by all entities involved.

Own or Lease Methods

Although there is some thought being given to requiring that radioactive source gauges be leased, experience with leasing of static eliminators would indicate that leasing is far from perfect and does not guarantee that devices will be properly accounted for. It also puts more liability on the vendors which may not be to their benefit.

If leasing programs were adopted and were well run they could minimize the frequency of lost devices. However, vendors would need to be given proper authority to ensure that users followed all the necessary rules. Vendor inspections of user facilities would probably be necessary, especially for long half-life material source devices. A provision to require vendors to report problems with their lessees to the appropriate regulatory agency with appropriate followup by the regulatory agency would have to be included in the regulatory framework.

Sincerely



Duane C. Hall, Manager
Ionizing Radiation

nrcacc.dot

3M RADIOACTIVE MATERIAL GAUGING SYSTEMS

STATES	NUMBER OF FACILITIES	NUMBER OF GAUGES	NUMBER OF PO-129 STATIC ELIMINATORS	NUMBER OF TRITIUM STATIC METERS	NUMBER OF TRITIUM EXIT SIGNS
1. Alabama *	2	70	0	4	0
2. Alaska	1	0	0	2	0
3. Arizona *	1	1	0	1	0
4. Arkansas *	1	1	0	0	0
5. California *	4	11	21	15	0
6. Illinois *	2	25	0	0	0
7. Indiana	1	10	0	1	0
8. Iowa *	1	16	0	5	0
9. Kentucky *	1	8	0	3	0
10. Massachusetts	1	1	0	0	0
11. Michigan	1	6	0	1	0
12. Minnesota	13	158	177	72	60
13. Missouri	3	34	2	17	2
14. New Jersey	1	3	0	2	0
15. New York *	2	4	30	7	14
16. North Dakota *	1	0	1	0	0
17. Oklahoma	1	5	28	4	0
18. Oregon *	1	10	50	2	72
19. Pennsylvania	1	8	1	0	0
20. South Carolina *	1	27	0	2	0
21. South Dakota	2	21	0	0	0
22. Texas *	2	22	0	5	0
23. West Virginia	1	1	3	1	0
24. Wisconsin	3	11	45	3	0
TOTALS	42	453	358	147	148

licpage.doc (11/28/95)

* Agreement States

12/21/95

15:23

3M HEALTH PHYSICS SVCS 220-34-26

206



November 30, 1995

U.S. Nuclear Regulatory Commission
Sealed Source and Device Branch
Division of Industrial and Medical Nuclear Safety
M/S T-8F5
Washington, DC 20555-0001

Attn: Joel Lubenau

Re: Working Group To Review Devices Containing Radioactive Materials

Dear Joel:

I would like to thank you for the opportunity to work with you and the other members of the working group. As one of the oldest manufacturers of fixed gauges we find that most of our customers have excellent control of and practice good safety with our products. However, as we know some don't. We find this most distressing. The Ohmart Corporation has always worked very hard to meet all of the requirements as a manufacturer and to educate our customers on the safe and proper use of the radioactive material that is used in our products. The vast majority of end users do apply this same philosophy and as a result only a very few of these devices find their way into the scrap metal waste stream. Unfortunately, the results of these few are very costly.

The problems, as we discussed, are twofold: lack of control that results in the source getting into the waste stream and the cost of clean up if it is smelted. The cost of clean up is high because the resulting waste from the bag houses is not classified by its real hazard or effect on the environment. There is no scientific reason that it could not be considered hazardous waste and put in existing RCRA type landfills. The hazards and effects of other components such as the heavy metal are much worse. I point this out because it is not reasonable to assume that any level of regulation or control will stop this from ever happening again. As a result I feel that a primary goal of the working group should be to work with the EPA and adopt reasonable guidelines for safe and cost effective disposal.

Notwithstanding the above comment, I do feel that some increase of control and awareness on the part of end users will help this problem in the future. Over the years we have been involved with several "discoveries" of gauges. Some were just abandoned as plants were shut down, others were "thrown away" because people were not educated enough to realize the need for controls. Any regulation must be worded

such that it affects manufacturers as they possess or distribute the material or the end users who is responsible to the appropriate licensing agency while the material is in his possession. Putting a vendor in a position that would require them to be an enforcement arm is not in anyone's best interest. For instance rules that say leak tests must only be done by the manufacturer would be unfair to any service company that wants to contract that service. It would also be unfair to the user if he were to have several manufacturers at a particular site and wanted one company to handle all of his leak test.

Some specific areas that could be addressed in this manner are:

1. The current general license in 10CFR31.5 is too broad. The controls required and hazards associated with laboratory equipment or scanning gauges that have just Krypton gas are very different from Cesium or Cobalt devices that are located in the piping of a process chemical plant. A classification should be added that would allow the receipt of the device without a specific license but still require the user to have more control. For instance, requiring the posting of NRC Form 3 and/or requiring some training as specified in 10CFR19.12 would add some general awareness. Some states have programs that require registration for which they charge a nominal annual fee. This would keep management aware that they have material on site.
2. It should be understood that this is not just a General License problem. I know of specifically licensed devices that were recovered in the scrap metal waste stream. More frequent inspection would help. Annual mail-in registrations of source inventories would be little additional burden.
3. The scrap and steel industries are doing a good job of trying to monitor incoming material and reject loads that may have radioactive material in them. The majority of these discoveries are NORM or other forms of unlicensed material. Training and workshops that involved manufacturers and regulators would help them identify potential problems with the types of items that are the real problems when smelted. I was told in confidence by a scrap hauler that he knew which yards had the tightest controls and avoided them if possible. At another yard I was told that passing coal trains would cause the monitor to trip so they would turn them off and forget to turn them back on.

As we learned in the first meeting this is a very important and complex issue. I think that we all agreed that the existing rules should have prevented any of these incidents from occurring. In fact, it is impossible to know how many incidents have been prevented because of the existing rules and controls. I would estimate that over 100 gauges a month are taken out of service and properly returned to the manufacturer or

other disposal agency. We have a system that is working but needs some refinement. Just adding regulations that agencies don't have the manpower or budget to enforce will not solve anything. Increasing the training and awareness of all of the stake holders is the way best to prevent these incidents.

I am looking forward to the next meeting in December. I hope it will be as informative and productive as the last.

Sincerely,

THE OHMART CORPORATION

A handwritten signature in cursive script, appearing to read "George W. Brown".

George W. Brown
Radiation Safety Officer
Training Manager

REVIEW GROUP -
RADIOACTIVE DEVICESTELECOPIER COMMUNICATION

Date: October 2, 1995
To: Joel Lubensau
From: Terry Devine, CRCPD, Ph. 502/227-4543, Fax. 502/227-7862
Nr. of Pages: 2 (including this page)

Re. the workshop on devices, I should mention that the recycling of material seems to be increasing steadily. Manufacturers have been dealing with multi-curie sources of most isotopes, and they might be prevailed upon to recycle large numbers of small devices. Such recycling would allow significant economies, relative to burial or licensing, in consolidation of sources during collection campaigns and in the records involved. I have asked Bebig and Isotope Products to provide estimates of cost per small source f.o.b., but they need encouragement from the regulators and insurers.

My contacts at manufacturers have said that the Cs or Co in some devices has decayed beyond further use, but it seems to me that recovered material could be reactivated or, as Bebig offers, isotopically enriched by centrifuge, at a price rapidly being overtaken by that of LLRW burial.

4511270385 200

Radioactive Materials and Devices Sought

CRCPD Notes of August 1995

As one of its services, the Conference of Radiation Control Program Directors, Inc., maintains a list of firms that recycle useful quantities of radioactive materials, or that have markets for working devices.

H ³	>1 kCi; Tom Cantey, Savannah River Lab, 803/725-7301 gas; Bebig Inc., Scott Kangas, 312/251-0611 Exit signs; John Lash, Chem-Nuclear, 803/239-1119, fax 803/541-7302 Exit signs; Self Powered Lighting, Joe Zandordino, 914/592-8230
Co ⁶⁰	J. L. Shepard & Assoc., 818/898-2361, fax 818/361-8095 Joe Tenorio, G.E. Vallejos Lab, 510/862-4256 25 kCi; Michael Borisky, 301/394-2218
Kr ⁸³	Qual-X Corp., Ari Mahon, 614/881-5343 Bebig Inc., Scott Kangas, 312/251-0611
Sr ⁹⁰ , Y ⁹⁰	>1 Ci; Bebig Inc., Scott Kangas, 312/251-0611 J. L. Shepard & Assoc., 818/898-2361, fax 818/361-8095 ~1 Ci; Jeff Cromwell 510/794-0806
Cs ¹³⁷	J. L. Shepard & Assoc., 818/898-2361, fax 818/361-8095 >3 Ci soluble compound; Karl Amisauer, Isotope Products 818/843-7000 >1 Ci nitrate; Bebig Inc., Scott Kangas, 312/251-0611 25-40 mCi needles or tubes; Jeff Cromwell 510/794-0806
Ru ¹⁰⁶ , Ce ¹⁴⁴ , Isotopes > Pb ²¹⁰	and other unusual radioisotopes; North American Scientific, Al Zirkas, 818/503-9201 >40 mCi; unsealed & soluble; Karl Amisauer, Isotope Products, 818/843-7000
Ra ²²⁶ Ra ²²⁸	>50 mg; Robert Schenter, Westinghouse Hanford, 509/376-3935, fax -6933 Al Zirkas, North American Scientific, 818/503-9201
Ac ²²⁷ , Th ²²⁹	Robert Schenter, Westinghouse Hanford, 509/376-3935
Th & U Ac or nitrate	NBSI, 713/641-0391
Th metal alloys	Bebig Inc., Scott Kangas, 312/251-0611
U	Nat., Dep., or Enr., but unirradiated; Tom Winn, 615/576-0630
Pu ²³⁸	~50 mCi soluble; Karl Amisauer, Isotope Products, 818/843-7000 ~1 mCi; Jim Williams, American Ecology, 713/624-1900
Pu ²³⁸ n sources Pu ²³⁹ Pu ²³⁹ n sources	Register with Sherry Jones, Los Alamos, 505/665-2712 Register with Tom Cantey, Savannah River, 803/725-7301, fax -8272 Sherry Jones, Los Alamos, 505/665-2712
Am ²⁴¹	>1 Ci sources; Allied Ecology, 510/463-9280 >1 Ci; Bebig Inc., Scott Kangas, 312/251-0611 ~1 Ci soluble; Karl Amisauer, Isotope Products, 818/843-7000 ~1 Ci; J. L. Shepard & Assoc., 818/898-2361, fax 818/361-8095 ~1 Ci; Jeff Cromwell 510/794-0806
Am ²⁴¹ n sources	Register with Sherry Jones, Los Alamos, 505/665-2712 >1 Ci; J.L. Shepard & Assoc., 818/898-2361, fax 818/361-8095
Am ²⁴¹ Be n sources	>1 Ci; Bebig Inc., Scott Kangas, 312/251-0611
Cf ²⁵²	J. L. Shepard & Assoc., 818/898-2361, fax 818/361-8095 Joe Tenorio, G.E. Vallejos Lab, 510/862-4256 Tom Winn, Oak Ridge Operations, 615/576-0630, fax -5401
TRU > Am	Tom Winn, Oak Ridge Operations, 615/576-0630, fax -5401
Medical devices	Carl Borra, Pan Am World Health Organization, 202/861-3222
Therapy devices	Troy Hedger, Alpha Omega Services Inc., 800/346-7894

A list is also maintained of unusual radionuclides or large amounts that are available for adoption.
For additions or corrections to these lists, please telephone Terry Devine, 502/227-4543.
This information is not to be construed as an endorsement by CRCPD of the services identified in these lists.



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION III
801 WARRENVILLE ROAD
LISLE, ILLINOIS 60532-4351

November 22, 1995

EA 95-184

Champion International Corporation
ATTN: Daniel J. Maheu, Vice President/
Operations Manager
601 North B Street
Hamilton, OH 45013

SUBJECT: NOTICE OF VIOLATION AND PROPOSED IMPOSITION OF CIVIL
PENALTY - \$2,500
(NRC INSPECTION REPORT NO. 99990003/95017(DRSS))

Dear Mr. Maheu:

This refers to the inspection conducted on August 14-15, 1995, at the Champion Hamilton Mill facility in Hamilton, Ohio. The purpose of the inspection was to review the circumstances surrounding the inadvertent disposal of a generally licensed gauge containing krypton-85. We notified you of the event on July 31, 1995, and you submitted a written report dated August 4, 1995. The report documenting our inspection was sent to you by letter dated September 18, 1995.

Based on the information developed during the inspection, and the information that you provided in your October 16, 1995 response to the inspection report, the NRC has determined that a violation of NRC requirements occurred. The violation involves the failure to properly dispose of generally licensed material in accordance with 10 CFR 31.5(c)(8). The violation is cited in Section A of the enclosed Notice of Violation and Proposed Imposition of Civil Penalty and the circumstances surrounding the violation are described in detail in the inspection report.

On July 31, 1995, the NRC notified you that a Taylor Betamike gauge containing krypton-85 was found in a truck of scrap metal located at Hamilton Scrap. The gauge was traced to Champion through the manufacturer's records, which indicated that a shutter test had been performed on the gauge on September 28, 1983. You determined that the gauge had apparently been removed from its installed location and stored in a remote storage area for a number of years. On or about July 17, 1995, in an effort to clean-up the location, the gauge was inadvertently placed in a shipment of scrap metal. The root cause of the violation appeared to be a lack of a centralized group or individual responsible for the oversight of the nuclear gauge program prior to December 1993.

Fortuitously, the actual safety consequence was minimal in this case. The gauge was found with a maximum radiation level of 3 mrem/hr, the shutter was closed, and the source holder was intact. The gauge was located in a truck full of scrap and was most likely previously stored at Hamilton Mill with unused metal in areas not normally occupied by plant employees. Therefore, it

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was unlikely that any individual received a radiation exposure in excess of regulatory limits. However, this violation is of significant regulatory concern because uncontrolled licensed materials entered the public domain. The NRC entrusts responsibility for radiation safety to the management of Champion International Corporation. Incumbent upon each NRC licensee is the responsibility to protect the public health and safety by ensuring that all licensed materials are controlled at all times. Therefore, this violation has been categorized in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600 (60 FR 34381; June 30, 1995) at Severity Level III.

In accordance with the Enforcement Policy, a base civil penalty in the amount of \$2,500 is considered for a Severity Level III violation. Although the NRC recognizes that application of the civil penalty assessment process would not result in a civil penalty in this case, the NRC is exercising discretion in accordance with Section VII.A.1(g) of the Enforcement Policy and is proposing a civil penalty of \$2,500. Discretion is being exercised because the loss of the gauge (which was not identified and reported by your staff) put uncontrolled radioactive material in the public domain.

Therefore, to emphasize the need to strictly control licensed material, I have been authorized, after consultation with the Director, Office of Enforcement, and the Deputy Executive Director for Nuclear Materials Safety, Safeguards, and Operations Support, to issue the enclosed Notice of Violation and Proposed Imposition of Civil Penalty (Notice) in the base amount of \$2,500 for the Severity Level III violation.

One violation, not assessed a civil penalty, is cited in Section B of the Notice. The violation involves the unauthorized removal of the installed krypton-85 gauge prior to its disposal. This violation is of concern because your staff was unaware of the proper procedures for handling licensed material.

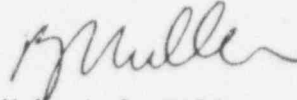
You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. In your response, you should document the specific actions taken and any additional actions you plan to prevent recurrence. After reviewing your response to this Notice, including your proposed corrective actions and the results of future inspections, the NRC will determine whether further NRC enforcement action is necessary to ensure compliance with NRC regulatory requirements.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response will be placed in the NRC Public Document Room (PDR). To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction.

Champion International Corporation - 3 -

The responses directed by this letter and the enclosed Notice are not subject to the clearance procedures of the Office of Management and Budget as required by the Paperwork Reduction Act of 1980, Pub. L. No. 96-511.

Sincerely, -



Hubert J. Miller
Regional Administrator

Docket No. 99990003
General License

Enclosure: Notice of Violation and
Proposed Imposition of Civil Penalty

Champion International Corporation

DISTRIBUTION:

PDR
LPDR
SECY
CA
JTaylor, EDO
HThompson, DEDS
JLieberman, OE
LChandler, OGC
JGoldberg, OGC
CPaperiello, NMSS
DCool, NMSS
Enforcement Coordinators
 RI, RII and RIV
EHayden, OPA
DWilliams, OIG
GCaputo, OI
RBangart, OSP
EJordan, AEOD
LTremper, OC
NMamish, OE
OE:EA (2)
NUDOCS
State of Ohio
RAO:RIII
SLO:RIII
PAO:RIII

NOTICE OF VIOLATION
AND
PROPOSED IMPOSITION OF CIVIL PENALTY

Champion International Corporation
Hamilton, Ohio

Docket No. 99990003
General Licensee
EA 95-184

During an NRC inspection conducted on August 14-15, 1995, violations of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600 (60 FR 34381; June 30, 1995), the Nuclear Regulatory Commission proposes to impose a civil penalty pursuant to Section 234 of the Atomic Energy Act of 1954, as amended (Act), 42 U.S.C. 2282, and 10 CFR 2.205. The particular violations and associated civil penalty are set forth below:

A. Violation Assessed a Civil Penalty

10 CFR 31.5(c)(8) requires, in part, that any person who acquires, receives, possesses, uses or transfers byproduct material in a device pursuant to a general license shall, except as provided in 10 CFR 31.5(c)(9), transfer or dispose of the device containing byproduct material only by transfer to persons holding a specific license pursuant to 10 CFR Parts 30 and 32 or from an Agreement State to receive the device.

Contrary to the above, on or about July 17, 1995, the licensee disposed of a Taylor krypton-85 gauge containing a nominal activity of 190 millicuries of krypton-85 (42.5 millicuries as of July 1995) and this disposal was not made to a person holding a specific license pursuant to 10 CFR Parts 30 and 32 or from an Agreement State to receive the device (the exceptions in 10 CFR 31.5(c)(9) did not apply). Specifically, the device was disposed of in a shipment of scrap metal to Hamilton Scrap, an unlicensed company. (01013)

This is a Severity Level III violation (Supplement VI).
Civil Penalty - \$2,500.

B. Violation Not Assessed a Civil Penalty

10 CFR 31.5(c)(3) requires, in part, that any person who acquires, receives, possesses, uses or transfers byproduct material in a device pursuant to a general license shall assure that removal from installation involving the radioactive material, its shielding or containment, are performed: (1) in accordance with the instructions provided by the labels; or (2) by a person holding a specific license pursuant to 10 CFR Parts 30 and 32 or from an Agreement State to perform such activities.

The label affixed to the licensee's Taylor krypton-85 gauge states, in part, that relocation involving shielding or containment of the radioactive material shall be performed by persons specifically licensed by the NRC or an Agreement State.

951130046

Contrary to the above, at an indeterminate time between September 28, 1983, and July 17, 1995, removal of the licensee's Taylor krypton-85 gauge containing a nominal activity of 190 millicuries of krypton-85 was not performed in accordance with the instructions provided by the labels or by a person holding a specific license pursuant to 10 CFR Parts 30 and 32 or from an Agreement State to perform such activities. Specifically, the licensee removed and relocated the gauge, including its shielding and containment, and does not hold a specific license pursuant to 10 CFR Parts 30 and 32 or from an Agreement State to perform such activities. (02014)

This is a Severity Level IV violation (Supplement VI).

Pursuant to the provisions of 10 CFR 2.201, Champion International Corporation (Licensee) is hereby required to submit a written statement or explanation to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, within 30 days of the date of this Notice of Violation and Proposed Imposition of Civil Penalty (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each alleged violation: (1) admission or denial of the alleged violation, (2) the reasons for the violation if admitted, and if denied, the reasons why, (3) the corrective steps that have been taken and the results achieved, (4) the corrective steps that will be taken to avoid further violations, and (5) the date when full compliance will be achieved. This reply may incorporate information previously submitted to the NRC to avoid repetition, but such incorporation must specifically reference, by citing page and paragraph numbers of, the previously submitted documents.

If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked or why such other action as may be proper should not be taken. Consideration may be given to extending the response time for good cause shown. Under the authority of Section 182 of the Act, 42 U.S.C. 2232, this response shall be submitted under oath or affirmation.

Within the same time as provided for the response required above under 10 CFR 2.201, the Licensee may pay the civil penalty by letter addressed to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, with a check, draft, money order, or electronic transfer payable to the Treasurer of the United States in the amount of the civil penalty proposed above, or may protest imposition of the civil penalty in whole or in part, by a written answer addressed to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission. Should the Licensee fail to answer within the time specified, an order imposing the civil penalty will be issued. Should the Licensee elect to file an answer in accordance with 10 CFR 2.205 protesting the civil penalty, in whole or in part, such answer should be clearly marked as an "Answer to a Notice of Violation" and may: (1) deny the violations listed in this Notice, in whole or in part, (2) demonstrate extenuating circumstances, (3) show error in this Notice, or (4) show other reasons why the penalty should not be imposed. In addition to protesting the civil

penalty in whole or in part, such answer may request remission or mitigation of the penalty.

In requesting mitigation of the proposed penalty, the factors addressed in Section VI.B.2 of the Enforcement Policy should be addressed. Any written answer in accordance with 10 CFR 2.205 should be set forth separately from the statement or explanation in reply pursuant to 10 CFR 2.201, but may incorporate parts of the 10 CFR 2.201 reply by specific reference (e.g., citing page and paragraph numbers) to avoid repetition. The attention of the Licensee is directed to the other provisions of 10 CFR 2.205, regarding the procedure for imposing a civil penalty.

Upon failure to pay any civil penalty due which subsequently has been determined in accordance with the applicable provisions of 10 CFR 2.205, this matter may be referred to the Attorney General, and the penalty, unless compromised, remitted, or mitigated, may be collected by civil action pursuant to Section 234c of the Act, 42 U.S.C. 2282c.

The response noted above (Reply to Notice of Violation, letter with payment of civil penalty, and Answer to a Notice of Violation) should be addressed to: James Lieberman, Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, One White Flint North, 11555 Rockville Pike, Rockville, MD 20852-2738, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region III, 801 Warrenville Road, Lisle, IL 60532-4351.

Because your response will be placed in the NRC Public Document Room (PDR), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction. However, if you find it necessary to include such information, you should clearly indicate the specific information that you desire not to be placed in the PDR, and provide the legal basis to support your request for withholding the information from the public.

Dated at Lisle, Illinois
this 22nd day of November 1995

REVIEW GROUP -
RADIOACTIVE DEVICES

28 Nov. 1995

To: Joel Lubenau

Fm: Elsa Nimmo

~~9512120421~~ 370



27 November 1995

Joel Lubensau
U.S. Nuclear Regulatory Commission
Sealed Source and Device Branch
Division of Industrial and Medical Nuclear Safety
M/S T-8F5
Washington, DC 20555-0001

Subject: Proposal for Improving the Control of Generally Licensed Devices

Dear Joel:

From the information presented by Jim Yusko at the October meeting, it is clear that the problem of radioactive material in metal scrap and in smelted metal cannot be solved solely by better control of Generally Licensed devices. Jim's data showed that naturally-occurring radioactive material and Specifically Licensed devices are involved in a major -- likely the major -- fraction of incidents. However, control of Generally Licensed devices can be improved and this letter will propose a way to accomplish that.

1. Set up a program to test the effects of enforcing the existing regulations. As noted at the October meeting, there has never been a consistent, prolonged, US-wide attempt to check compliance with the requirements that apply to Generally Licensed device users.

Some have suggested the addition of new requirements and restrictions on General Licensees and on those who distribute devices to them. The actual Generally Licensed device requirements -- both for those on the distribution side and those on the user side -- are comprehensive and quite well thought out. It is not obvious that any change to those particular regulations is required.

However, to set up a reasonable inspection and enforcement program, other regulatory and/or procedural changes are probably necessary, as described below.

- o The regulations may need to be modified to give the NRC the authority to:
 - o Inspect and enforce compliance with the existing regulations (e.g. those in 10 CFR 31.5), if such authority does not currently exist.
 - o Require Agreement State radiation control programs to have the same inspection and enforcement authority.
- o Either regulations or official procedures should be modified to describe the inspection program and to insure both the NRC and Agreement States follow it. Given the interstate nature of the device control problem, the efficacy of inspection and enforcement can't be established unless the NRC and Agreement States use their authority, and do so in a consistent manner.

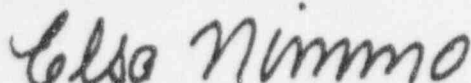
Some Agreement States already have programs for the inspection of compliance with General License requirements. These existing programs, the proposed 10 CFR 31.5(c)(11) as published in the 27 December 1991 Federal Register, and other proposals (e.g. detailed inspection and enforcement proposals solicited from "stakeholders" in the future), should be reviewed, with the idea that selected features from one or more of these sources may be suitable for general adoption.

2. If after a set period of time (3 - 5 years?), the program of consistent inspection and enforcement of the requirements for General Licensees reveals a continuing device control problem, the enforcement and General License program should be re-assessed.

Under these circumstances, it would be appropriate to reconsider what classes of devices should be approved for distribution to General Licensees in the future. Many possible dividing lines between potential Generally Licensed devices and Specifically Licensed device could be considered. The activity as a function of the radionuclide and the source form could be used as the criteria. For example, the activity limit for Generally Licensed devices could be set at a fraction (0.1? 0.5?) of the applicable activity in 49 CFR 173.435, taking into account whether the source involved is Special Form or not.

I hope these comments are useful to the ongoing discussions of improving device control.

Sincerely,
MEASUREX CORPORATION



Elsa Nimmo
Radiation Safety Officer

CC: Brendan Brady
John Preston

TN Technologies

A Thermo Instruments Company

November 29, 1995

Mr. Joel O. Lubenau
Office of Nuclear Material Safety and Safeguards
Mail Stop T-8F5
United States Nuclear Regulatory Commission
Washington D.C. 20555

Dear Mr. Lubenau and Working Group Members:

I recently reviewed the November 14, 1995, "Draft Minutes - NRC Working Group to Review Devices Containing Radioactive Materials." I have little additional comments to add to what was mentioned during the meeting. However, I wish to reiterate those areas I believe to be of most importance.

First let me say that the October meeting was very beneficial and informative for me as well as all parties involved. Due to scheduling conflicts, on my part, I will be unable to attend the December meeting and would appreciate being kept informed.

As I mentioned during the meeting (and as addressed on page 3 of the draft meeting minutes) it is important that Working Group (WG) not strictly focus on generally licensed (GL) gauges as being the primary or sole source of the scrap metal smeltings. There are many other devices which are both GL devices and specifically licensed that should be considered.

I concur with Dr. Paperiello's statement that "...whatever the solution will be, it will be a tough sell" - with regard to the potential additional regulatory efforts that may result based on recommendations of the WG. However, I firmly believe that regulatory agencies (federal and state) should strive to more effectively utilize existing avenues to address the entire issue of radioactive material accountability.

Specifically, initial efforts by government agencies should be to utilize manufacturer provided data (i.e., quarterly reports) combined with a more active inspection and enforcement program. I believe this to be a reasonable starting point without imposition of additional regulatory burden on the manufacturer.

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Page Two
Mr. Joel O. Lubenau
November 29, 1995

Those Agreement States which have had initiative to develop more aggressive general license rules, regulations, licensing, and inspection programs have shown tremendous progress in demonstrating accountability of GL devices and have valuable data that the NRC should consider. I encourage the NRC through the Office of State Programs to contact the Organization of Agreement States and the Conference of Radiation Control Program Directors for information and data collection.

For your information, the following is some statistical information:

**TN Technologies Inc.
General License Data**

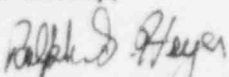
Number of GL records:	8449
100 mCi or less	7059
100 mCi < x < 500 mCi	626
500 mCi or more	764
Number of GL portable devices:	1089
Model 9266	658
Model 9277	388
Model 9290	43

Note:

1. The above numbers are within plus or minus five percent accuracy.
2. "Record" is a record of a source and not necessarily of a device.
3. The above data is for the period of 1975 to present.

Should you have any questions or require additional information please advise. I can be contacted by telephone: 512/388-9287, fax: 512/388-9333, or Internet: RSHEYER@AOL.COM.

Sincerely,



Ralph S. Heyer, Manager
Regulatory Affairs

November 15, 1995

NOTE TO: WG Members

FROM: Joel O. Lubenau, Co-chair *Joel O. Lubenau*
Joint Agreement State - NRC Working Group to Review the Regulation
of Devices Containing Radioactive Materials

SUBJECT: COMMUNICATIONS TO THE WG

Since the inception of the Working Group, several individuals have communicated their thoughts and suggestions to address the problem of maintaining control of radioactive devices. Attached are 4 such documents:

1. Letter from F. J. Bradley dated August 28, 1995.
2. Fax from Terry Devine dated October 2, 1995.
3. Fax from Martha Dibblee dated October 23, 1995.
4. Letter from Stan A. Huber dated October 27, 1995.

I apologize for the delay in sending you copies of these documents, particularly the first two. With the first meeting of the WG out of the way, I should be able to distribute similar correspondence to you on a more timely basis in the future. Also, please note that such communications will be routinely made available to the public by placing copies in the NRC Public Document Room (PDR).

Attachments: As stated

cc w/attachments:

WG Liaisons
M. Schwartz, OGC
F. Cameron, OGC
C Ryder, RES
NRC PDR

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Consultants to Nuclear Medicine • Radiology • Nuclear Industry

STAN A. HUBER CONSULTANTS, INC. □ 200 NORTH CEDAR ROAD □ NEW LENOX, IL 60451 □ (815) 485-6161 □ FAX (815) 485-4433

October 27, 1995

Joel O. Lubenau, CHP
Senior Health Physicist
Sealed Source and Device Branch
Div. of Industrial and Medical Nuclear Safety
Office of Nuclear Materials Safety and Safeguards
U.S. Nuclear Regulatory Commission
M/S T-8F5
Washington, DC 20555-0001

RE: Joint Agreement State - NRC Working Group to Review the Regulation of
Devices Containing Radioactive Materials

REF: October 24-25, 1995 Meeting

Dear Mr. Lubenau:

Thank you and Co-chair Robert Free, and the members of the Working Group, for inviting me and the other various stakeholder representatives, to participate in the above referenced meeting. In my thirty years experience in providing health physics, nuclear decontamination and rad-waste services, the Working Group meeting was one of the best outreaches and sincere exchanges of information and ideas among regulators, industry and other groups, in which I have had the pleasure to participate. This is a fine example of the way government should operate.

Assisting in working toward an optimum solution to the multi-faceted problem, without writing a book in the process, is not easy. However, I will attempt to be concise in offering a number of options or thoughts for consideration, as follows:

1. The General Problem

- 1.1 Inadequate control of licensed devices by both general licensees and specific licensees includes the end result of improper disposal. Loss or improper disposal of a nuclear device which can cause health/safety problems or serious financial loss is the ultimate demonstration of inadequate control.

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1.2 Inadequate control can be due to a number of factors which include:

- a.) Inadequate initial and continuing training of licensees (general or specific).
- b.) Inadequate reporting and/or usage of data reports on the national distribution of nuclear devices (NRC and Agreement States).
- c.) Inadequate follow-up checks of device inventories, compliance with leak test requirements and records of disposal to correlate with the national universe of nuclear devices/gauges in existence at any point in time. This is a dynamic flow, with new and recycled sources entering the U.S. inventory every week and old nuclear sources and devices leaving the U.S. inventory every week by way of disposal (proper or improper), or export.

2. The General Solution

The impressions I had from the two day NRC-State Working Group Public Meeting regarding general solution approaches are:

- 2.1 Existing regulations and proposed refinements of regulations are adequate to deal with the problem. However, the methods of licensing and of interpreting the regulations, and using the required device inventory data reports are another matter. Those methods and actions, along with new and continuing communications with the community of general and specific licensees will be critical to eliminating, or achieving a lowest possible number of improperly disposed nuclear devices/gauges.
- 2.2 The changes to be made do not need to be drastic, nor costly, nor rushed, nor necessarily all dependent upon the NRC or Agreement States for implementation. Indeed, these criteria seem to be embodied in the Charter of the Working Group.

3. Specific Solutions

- 3.1 One example of a specific partial solution involves the Statement of the Steel Manufacturers Association that was submitted to the Working Group. In that document it is stated that there is an economic disincentive for individual scrap dealers to identify lost sources due to high costs for disposal. It seems that the 123 steel plants which belong to the SMA could easily contribute \$2,000 each, for example, to create a \$246,000 pool of "Nuclear Device Bounty Reward" money to pay each scrap yard "finder" \$100 each for gauges that are identified and secured for pick-up by a licensed collection or transfer agent for proper return to the

manufacturer or, if necessary, disposal. The regulatory agency could then be called in to track the owner and make the owners or shippers pay for disposal or recycling transport costs and possible fines. If the device is non-traceable or damaged, etc. then either money from the SMA Bounty fund or from a federal or state agency may be needed for the more drastic or unusual cases. The point is that the \$246,000 pool could pay for a discovery of 2,460 nuclear devices and not be a hardship for any individual steel mill. The fund could be replenished as needed from periodic dues. This would convert a "disincentive" into an "incentive" at very low cost and with less involvement of regulatory agencies compared to the alternative of being concerned with smelted gauges, facility downtimes and facility decontamination and close-out surveys and more public relations hazards. If the SMA and Working Group is interested in this concept, I would be glad to describe specifics and collection facilities that could be used. It is much easier and less costly for an Association to set up such an incentive system for the special interests of its members, than it would be to expect any regulatory agency to administer such a function.

- 3.2 At the same time that the most affected parties can take some actions themselves toward corrective measures, it is true that the NRC and Agreement States need to evaluate what their roles should be in most efficiently and effectively establishing controls that are now lacking, and to maintain such controls from now on. It will take time, but the former lack of adequate controls will eventually work themselves out of the overall system of gauge and device turnover, most likely in the 10 to 30 year time frame. Good "retrofitting" of controls can reduce that time frame. Examples of specific regulatory agency retrofitting that could be effective at relatively low cost are:

3.2.1 Examine existing NRC and Agreement State databases, by license category code numbers or other methods, for a listing of:

- i) All known manufacturers of sealed source devices or gauges above 500 millicuries Cs-137 equivalent activity content. (About 15 years ago I was told by an NRC licensing "guru" that millicurie amount was the unwritten policy for maximum activity for general licensing consideration).
- ii) All known manufacturers of nuclear sources or devices below the 500 millicuries Cs-137 equivalent activity content level. Then, cull the short-lived devices such as Po-210 static eliminators, or low problem devices, such as H-3 exit signs, from this list.

- iii) Ask the aforementioned existing manufacturers of higher risk devices to detail or estimate how many nuclear devices they have distributed each year over their history and how many are returned for disposal, etc. Any information they can offer should be useful.
- 3.2.2 Examine NRC and Agreement State databases for general and specific licensed users to obtain an overview of the true numerical scope of potential uncontrolled sources or devices.
- 3.2.3 Examine existing licensing procedures of manufacturers and users to determine adequacy of options to assure proper disposal such as:
 - i) Leasing arrangements where ownership remains with the manufacturer. Lost or damaged sources are then reported by the manufacturer.
 - ii) Potential financial surety or bonding requirements for proper disposal.
 - iii) Potential need for user licensee written commitment to return device to manufacturer or licensed processor or disposal facility.
 - iv) Definition of specific recycle or return options that exist.
 - v) Require simple documentation of general licensee awareness of proper posting, labeling, inventory, leak test and return/disposal requirements. The fact that the manufacturer provides the information does not guarantee that the user received, understood, agrees, or continuously cares about the information.
 - vi) Consider the need for administrative control for each licensee to post facility sketch(es) showing the location(s) of each nuclear gauge or tracked device in their facility. This can aid in reducing problems resulting from personnel turnover; "institutional memory loss" with time; warning signage loss in harsh environments, demolition of facilities, and other factors leading to loss of control of gauges/devices.
- 3.4 Implement telephone contact procedures similar to those for Priority 7 Licensees, as issued by the NRC on 4/17/95. A copy of the procedures and simple report form is enclosed for reference.

Or, consider the North Carolina or other Agreement State similar phone contact systems. Breaking down this overall communication and tracking system among the NRC Regions and 29 Agreement States should make the overall accountability and "compliance encouragement" task achievable at lowest possible overall costs. The end result should also achieve greater overall awareness of the true scope of source accountability (or non-accountability) as well as much improved user awareness of the regulations and need for compliance, as well as demonstrate the existence of concerned regulators. The conduct of that survey will also be a part of the comprehensive measure of the success, or definition of needs for further improvement, of the regulatory program.

4. On the subject of NRC and Agreement State Compatibility, I believe this should be a Level I category of required compatibility with no flexibility for more stringent measures by individual states. Non-uniformity breeds confusion, loopholes and misunderstandings and the issues facing the Working Group certainly do not need to be made any more difficult.
5. On the subject of Cost and Fee Considerations, the reasoning of Agreement States (such as North Carolina's \$75 fee per licensee) could be examined to determine NRC and other agency fees needed to improve the control and accountability structure. Also, in item 3.1 in this letter, an example of low cost industry financing of a part of the problem/solution was also given.

If any parts of this letter need clarification or additional input, please contact me at any of the letterhead numbers. Again, thank you for an excellent meeting. I look forward to receiving the minutes and attendee list and to the future sessions.

Sincerely,

Stan A. Huber Consultants, Inc.



Stan A. Huber
President

SAH: ac

EXAMP ES OF VIOLATIONS THAT CAN BE CITED ON NRC FORM 591*

1. Inventories not performed at the required frequency, on one or two occasions, that did not result in any consequences (e.g., lost material).
2. Licensee observed eating, drinking, etc., in laboratories where megabecquerel (microcurie) quantities of radioactive materials are stored, but not used (survey should be performed to confirm the absence of contamination).
3. Failure to calibrate survey instruments, alarm ratemeters, and pocket dosimeters at the required frequency, on one or two occasions.
4. Failure to use a dedicated check source before each use of a survey instrument, on one or two occasions.
5. Failure to perform routine surveys (e.g., radiation, contamination, air flow checks, or fume hood monitoring) at the required frequency on a few occasions.
6. Rare failures of the radiation safety committee to meet at the required frequency.
7. Failure to have a quorum at all radiation safety committee meetings.
8. Rare failures to exchange film badges or thermoluminescent dosimeters monthly, but with no loss of dosimetry data.
9. Failure to have properly prepared shipping papers with shipment.
10. Failure to include the emergency phone number or reportable quantity (RQ) designation on shipping papers.
11. Occasional failure to meet all transportation (e.g., paperwork) requirements of 19 CFR.
12. Users of radioactive materials are adequately trained, but not as stated in the license application.
13. On rare occasions, dose calibrator tests are not performed as required.
14. Isolated cases of missed or late leak tests.
15. Missed dose calibrator tests.
16. Failure to appropriately post areas where radioactive material are stored or used.

* This list is not all-inclusive. Many Severity Level IV or V violations may be cited on an NRC Form 591. See the Enforcement Manual for additional guidance.

STANDARD RESPONSE TO LICENSEES CONTACTED BY TELEPHONE (VIOLATIONS)

License No. _____
Docket No. _____

Sir or Madam:

This refers to a telephone contact conducted on _____, 19__.

The contact was an examination of activities conducted under your license as they relate to radiation safety and to compliance with the Commission's rules and regulations and with the conditions of your license. The contact consisted of discussions with _____.

As a result of this examination of activities, regulatory concerns were noted and are specified below. These may be evaluated at an onsite inspection at your facility soon.

As you described on the telephone, the following apparent regulatory concerns were identified:

(List apparent violations - for any violation that appears to rise to Severity Level III, or otherwise to indicate lack of programmatic oversight, the region should promptly conduct an inspection and take enforcement action, as appropriate, based on the results of the inspection.)

You should examine your license and Nuclear Regulatory Commission regulations to determine how you can correct the apparent regulatory concerns that were discussed on the telephone. In addition, we would like to highlight the following items that licensees should pay particular attention to, as follows:

- a. maintaining awareness and control of licensed material
- b. proper transfers and disposal of radioactive sources
- c. promptly reporting losses or thefts of licensed materials

If you have any questions about this contact, you may contact us at (____)_____.

Sincerely,

_____, Chief
Nuclear Material Safety and
Safeguards (Branch or Section)

bcc
DCS/RSB (RIDS)

STANDARD RESPONSE TO REQUESTS FOR INFORMATION
Page 10

License No. _____
Docket No. _____

Sir or Madam:

This refers to a telephone contact conducted on _____, 19__.

The contact was an examination of activities conducted under your license, as they relate to radiation safety and to compliance with the Commission's rules and regulations and with the conditions of your license. The contact consisted of discussions with _____.

No regulatory concerns were identified.

If you have any questions about this contact, you may contact us at
(____)_____.

Sincerely,

_____, Chief
Nuclear Material Safety and
Safeguards (Branch or Section)

bcc
DCS/RSB (RIDS)

1. PROGRAM OBJECTIVES: In the past, there have been times when manpower limitations have required exempting priority 7 licensees from routine inspection by the U.S. Nuclear Regulatory Commission. As a result of this practice, the regions were left with a large number of licensees that had never been inspected. To improve general performance of these priority 7 licensees, this telephone contact procedure was developed so each licensee would be interviewed at least once during the duration of the license and at some periodic frequency thereafter, to be determined by the regional staff.

2. PROCEDURES

- a. Select license to interview at random (see Section 2800-04) from the computer listing of licenses that are not yet inspected or have only had an initial inspection. After this is done, select licensees that have had initial inspections (priority 7).
- b. Pull the license file and review the file to determine the person to contact for information needed to complete interview questionnaire (Enclosure 3).
- c. Telephone licensee and complete questionnaire. Note that not all licenses require each procedure mentioned in the questionnaire.
- d. If the licensee reports any problems, namely:
 1. doses in excess of the occupational dose limits specified in 10 CFR 20.1201, 20.1207, or 20.1208,
 2. lost licensed material,
 3. leak tests indicating source leakage,
 4. any event the licensee considered unusual, or
 5. change in ownership or bankruptcy proceedings,the person filling in the questionnaire should promptly notify the inspector's immediate supervisor. The supervisor and/or other regional management may determine if an inspection of the facility is required, or if a letter transmitting a Notice of Violation is sufficient. If an inspection is required, the caller should note that decision on the questionnaire, and give the questionnaire and file to the cognizant supervisor for further action. If a letter is sufficient, the caller should prepare a response back to the licensee (Enclosure 4).
- e. If the licensee responses confirm no problems are present, prepare the appropriate draft transmittal letter (Enclosure 5) for signature by the inspector's immediate supervisor.
- f. Send package to the inspector's immediate supervisor for review.

EVALUATION OF POSSESSION AND USE OF BYPRODUCT MATERIAL
(For use with priority 7 licensees only)

Name: _____
Address: _____

License Number: _____
Phone Number: () - _____
FAX Number: () - _____

1. Name and Title of person responsible for radiation safety program: _____
2. Describe how you safeguard the byproduct material from:
(a) use by unauthorized personnel: _____
(b) loss or theft: _____
3. Describe controls that prevent individuals who work in the area around the material from becoming exposed to radiation: _____

4. Do you have a personal monitoring program for your employees, such as film badges, dosimeters, etc.? Yes ☐ No ☐
If yes, what was the maximum dose received since _____? (year of last telephone contact or inspection) _____
5. Do you perform surveys to detect external radiation in the area around the byproduct material? Yes ☐ No ☐
If yes, how often are the surveys performed? _____
What instrument is used to perform the surveys? _____
When was this instrument last calibrated? _____
6. On what date was the last physical inventory of all byproduct material in your possession performed? ____/____/____.
Were all sources accounted for? Yes ☐ No ☐ N/A ☐
7. Do you perform leak tests on the sealed source? Yes ☐ No ☐ N/A ☐
If yes, how often are these leak tests performed? _____
Who evaluates the leak test results? _____
If no, describe the provisions you have made to have the leak tests done: _____

8. Describe your provisions for repair and maintenance of your device or source holder: _____

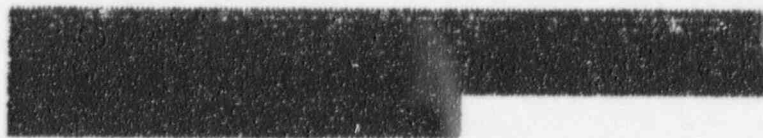
9. Describe any unusual events involving the byproduct material or device(s) in which it is used: _____

Name of person filling in questionnaire: _____ Date: ____/____/____
Title: _____



State of Oregon
Health Division
Radiation Protection Services
(503)731-4014
FAX: (503)731-4081

FAX



DATE: 10/23/95
TO: JOEL LUBENAU
FROM: MARTHA DIBBLEE

PAGES (including this cover page): 11

Message: Examples of how we have
managed GLs.

My WORKING (T.F.) PRIORITY

1. Any Cs 137, Co-60, Sr 90 or Am 241

Source > ImCi register for license.

2. Lease directly to possessor.

3. Ensure that mfg/agency can act
for LOCATION OF DEVICE/source

301 415 5369

INFORMATION BULLETIN FOR CRAP METAL DEALERS, STEEL MILLS,
SMELTERS AND OTHER METAL PROCESSORS

1. Review the potential for radioactive materials to be found in scrap material. Cost of clean up.
2. Types of radioactive material
 - Industrial sealed sources
 - NORM (foundry materials, fertilizer, rock, sand, pipe scale, etc)
 - Exempt sources
 - Consumer Products (especially those containing radium)
 - Contaminated steel in transport vehicle
3. Notifications - RCS, ODOE, PUC, OERS

Note: PUC was at one time looking into installing monitors, similar to those at OR Steel, at the ports of entry.
4. Options
 - Reject and return undisturbed (emphasize this is best and cheapest option) using DOT Exemption authorized through CRCPD
 - Remove material and process usable material; dispose of RAM properly
 - n.o.s. license required if radioactive material is to be onsite more than 7 days.
5. Recommended and/or Statutory Procedures
 - Set up RAM Monitoring system with licensed HP consultant assistance (NaI Scintillation detectors with proper size/configuration and proper orientation)
 - Contract with licensed HP consultant for at least annual recalibration and appropriate adjustment of alarm levels of detection system
 - Verify proper functioning of detector system at least monthly (or as recommended by manufacturer) with appropriate activity check source
 - Upon detection of source material and alarm system activation, take the following actions:
 - a. Report Incident to Duty Officer
 - b. Contact licensed HP consultant to assist in returning shipment to originating facility (Requires use of DOT exemption for shipping per 49 CFR requirements, available from RML Duty Officer)
 - c. If facility and HP consultant agree to remove material from shipment, receiving facility becomes responsible "possessor" of radioactive material and only the following options exist in statute:
 - 1) Arrange to ship RAM for disposal with assistance of licensed HP consultant within seven (7) days or
 - 2) Make application for RML license to possess radioactive materials within seven (7) days.

(503) 731-4014
FAX (503) 731-4081
DD-Nonvoice (503) 732-4031

Oregon

DEPARTMENT OF
HUMAN
RESOURCES

HEALTH DIVISION



ENFORCEMENT BULLETIN 95-3

To: All General Licensees

From: Martha Dibblee, Manager
Radioactive Materials Program

Please complete the enclosed Inspection by Mail form and FAX or mail to this office by June 30, 1995. Should you have any questions, please do not hesitate to contact me.

MGD:clh

1:\radf\bob\letters\letter.mxd 7/3/95-10:11

*This gets sent
once a year
during annual
registration*

John A. Kitzhaber
Governor



800 NE Oregon Street # 21
Portland, OR 97232-2162
(503) 731-4030 Emergency
(503) 252-7978 TDD
Emergency

24-26 (Rev. 12-94)

OREGON HEALTH DIVISION
RADIATION PROTECTION SERVICES
800 N.E. OREGON, #21, SUITE 705
PORTLAND, OREGON 97232

PHONE (503) 731-4014
FAX (503) 731-4081

ENFORCEMENT BULLETIN 95-3

INSPECTION BY MAIL

GENERAL LICENSE MEASURING DEVICE, DEPLETED URANIUM, OR IN VITRO LAB

Instructions: Please type or print. Mail or FAX the completed form to this office by June 30, 1995.

1. Licensee Name _____
2. Address _____
3. City, State, Zip _____
4. Phone Number () _____ 5. FAX Number () _____
6. License Number _____
7. License type: ☐ Fixed Gauge
☐ ECD (XRF or Gas Chromatograph Detector)
☐ In Vitro Lab
☐ Depleted Uranium
☐ Source Material

8. List persons who use general license devices or materials:
- _____
- _____
- _____

9. Describe how general license radioactive materials are used.
- _____
- _____
- _____

10. Describe the radiation safety training that personnel have had.
- _____
- _____
- _____

11. Corporate structure

Attach a current organizational chart. Describe any changes in the scope of your business including corporate take-overs or other significant corporate changes.

GENERAL LICENSE INSPECTION BY MAIL -- PAGE 3

12. Administrative Requirements

Do you have a copy of the General License Rules? ☐ yes ☐ no

Are all general license materials properly labelled? ☐ yes ☐ no

Did any general license device require leak testing? ☐ yes ☐ no

Were leak tests performed as required? ☐ yes ☐ no

Attach copies of leak test records with this form.

Were radiation surveys required for any devices? ☐ yes ☐ no

Attach copies of surveys with this form.

Were any general license materials transferred to another person? ☐ yes ☐ no

Attach copies of all transfers with this form.

13. Inventory

Complete the following chart showing all radioactive materials possessed and used. Attach extra pages if required. Key Device number to Safety Inspection Form on next page

<u>Manufacturer</u>	<u>Model no.</u>	<u>Isotope & Activity</u>	<u>Location</u>

14. Certificate

- (a) I certify that the information provided on this form is true and complete to the best of my knowledge and belief.
- (b) I have read and understand the provisions of the general license in OAR 333-102-120 (in vitro labs), 333-102-115 (measuring, gauging, or controlling devices), or 333-102-103 (depleted uranium), and I understand that I am required to comply with these provisions as to all radioactive material that I possess and use in Oregon under the general license.

Signature _____ Title _____

Print name _____ Date _____

COMMENTS OR QUESTIONS

GENERAL LICENSE DEVICE SAFETY INSPECTION FORM

Instructions: List all devices below. Provide the information for each device in columns labeled 1, 2, 3, and 4. Use another form for more devices.

DEVICES				CRITERIA
1	2	3	4	
				Record locations and device ID numbers
				Record device model numbers
				Is Radioactive Material ID label present on at least 1 side (should be both sides if both sides visible) of head containing source? (yes or no)
				Is information legible on ID label?
				If ID labels are not present or legible, certify (initial/yes) that repairs will be completed and provide estimated repair date.
				Record source serial numbers.
				Record isotopes & quantity (e.g. Cs-137, 100 mCi)
				Are devices operable? (yes means operable; no means not installed or not operable)
				Test "ON-OFF" mechanism manually. Do shutters move between open/en and closed/OFF position smoothly?
				Are GREEN radiation lamps ON & RED lamps OFF when shutters or sources are in closed/OFF position?
				Are RED radiation lamps ON & GREEN lamps OFF when shutters or sources are in open/ON position?
				Do all interlocks/safety features operate according to manufacturer's specifications?
				Record sealed source "leak test" interval (e.g. 6 months, 3 years)
				Record last "leak test" date
				Record last "leak test" result in microcuries

COMMENTS or QUESTIONS: _____

CERTIFICATE

I/we certify that the information above is accurate and true to my/our knowledge and belief.

Licensee: _____

License No. _____

Signed _____

Date _____

Print name _____

Title _____

(503) 731-4014
FAX (503) 731-4081
D-Nonvoice (503) 732-4031

Oregon

DEPARTMENT OF
HUMAN
RESOURCES

HEALTH DIVISION



TO: Oregon Radioactive Materials Licensees

FROM: Martha Dibblee, Manager
Radioactive Materials Program

RE: Radioactive Materials Inventory

ENFORCEMENT BULLETIN 94-6

Radioactive materials licensees must account for all radioactive material received, transferred, and disposed under administrative rules in OAR 333-100-055. Please review the attached form, which is a list of radioactive materials that are authorized on your radioactive materials license. Please enter the total number of sources and the total amount of radioactive material in the blanks provided.

Please mail or FAX (503 731 4081) the completed form as soon as possible, but no later than October 15, 1994. Responses received after this date cannot not be included in our current database update.

Should you have any questions, please do not hesitate to contact this office.

\\VAD\BOC\BREV\ENF94-6.094*12/9/94-9:13

Barbara Roberts
Governor



800 NE Oregon Street # 21
Portland, OR 97232-2162
(503) 731-4030 Emergency
(503) 252-7978 TDD
Emergency
24-26 (Rev. 1-92)

Page No. 12

09/20/94

ENTER THE
TOTAL NO.
SOURCESENTER THE
TOTAL
AMOUNT IN
MILLICURIES

** FACILITY NAME: Sulzer Bingham Pumps, Inc.

* LICENSE NUMBER ORE-0027-1

~~Co-60 Sealed Source~~
~~Co-60 Sealed Source~~
~~Ra-226 Sealed Source~~
~~Pf-192 Sealed Source~~
~~Ce-137 Sealed Source~~
~~Fe-55 Sealed Source~~
~~Co-109 Sealed Source~~

1	61,000 mci
1	3,000 mci
5	1,911 mci
1	20,000 mci
1	12.5 mci
1	2.5 mci
1	5 mci

✓ 9-27-94 *ph*

ACTUAL
 Example of
 response

RECEIVED

SEP 27 1994

RADIATION CONTROL SECTION

Oregon

DEPARTMENT OF
HUMAN
RESOURCES

HEALTH DIVISION

(503) 229-8797

FAX (503) 229-8994

Telephone (503) 229-6741

November 13, 1991

ENFORCEMENT BULLETIN 91-1

Results

TO: All general licensees who possess nuclear fixed gauging devices

FROM: Martha Dibblee, Manager, Radioactive Materials Licensing

SUBJECT: Inspection by Mail for General Licensees possessing nuclear gauges

The Oregon Health Division Radiation Control Section regulates nuclear fixed gauging devices in Oregon.

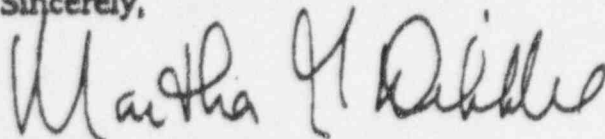
Our records show that you possess a generally licensed nuclear gauge. Please complete the following form, following instructions on the cover sheet.

The Inspection by Mail Form must be completed and returned to this office by December 31, 1991.

Thank you for your attention to this bulletin.

Should you have questions, you may contact this office at 503/229-5797.

Sincerely,



Martha G. Dibblee, Manager
Radioactive Materials Licensing
Radiation Control Section

MGD:clh
Enclosure

Barbara Roberts
Governor



1400 SW 5th Avenue
Portland, OR 97201
(503) 229-5599 Emergenc
(503) 252-7978 TDD
Emergency

SP by mail														
Accession														
11-13-92														
91-1														
1 NAME	2 Resp person	3 USE	4 Mfg Service	Service Procedures	5 Regulatory	Responsibility	Explained Responsibility	6 Inventory	How often	Accounting procedure	7 Lost	8 Leak TEST	9 RAM	10 Inst
Calib														
11 xchg	12 inventory	13 form prepared by	14 Date prepared	15 comment										
Ice Silica	OK	OK	OK	OK	NO	NO	NO	NO	NO	?	?	?	OK	NO
ibrom Miscel	OK	OK	OK	OK	OK	OK	OK	OK	OK	?	?	?	OK	NO
Angela Image	OK	OK	OK	OK	OK	OK	OK	OK	OK	?	?	?	OK	NO
ole Hydraulic	OK	OK	OK	OK	OK	OK	OK	OK	OK	?	?	?	OK	NO
ca-Coda	OK	OK	OK	OK	OK	OK	OK	OK	OK	?	?	?	OK	NO
Fluorog Rat	OK	OK	OK	OK	OK	OK	OK	OK	OK	?	?	?	OK	NO
mpson Timber	OK	OK	OK	OK	OK	OK	OK	OK	OK	?	?	?	OK	NO
y of Eugene	OK	OK	OK	OK	OK	OK	OK	OK	OK	?	?	?	OK	NO
strong World	OK	OK	OK	OK	OK	OK	OK	OK	OK	?	?	?	OK	NO
led &	OK	OK	OK	OK	OK	OK	OK	OK	OK	?	?	?	OK	NO
Trane Cooling	OK	OK	OK	OK	OK	OK	OK	OK	OK	?	?	?	OK	NO
129-1	OK	OK	OK	OK	OK	OK	OK	OK	OK	?	?	?	OK	NO
gabacuser	OK	OK	OK	OK	OK	OK	OK	OK	OK	?	?	?	OK	NO
her Products	OK	OK	OK	OK	OK	OK	OK	OK	OK	?	?	?	OK	NO
encom chuang	OK	OK	OK	OK	OK	OK	OK	OK	OK	?	?	?	OK	NO
12 Wainman	OK	OK	OK	OK	OK	OK	OK	OK	OK	?	?	?	OK	NO
Sic Casade	OK	OK	OK	OK	OK	OK	OK	OK	OK	?	?	?	OK	NO

sp by mail

[illegible]

TELECOPIER COMMUNICATION

Date: October 2, 1995
To: Joel Lubenau
From: Terry Devine, CRCPD, Ph. 502/227-4543, Fax. 502/227-7862
Nr. of Pages: 2 (Including this page)

Re. the workshop on devices, I should mention that the recycling of material seems to be increasing steadily. Manufacturers have been dealing with multi-curie sources of most isotopes, and they might be prevailed upon to recycle large numbers of small devices. Such recycling would allow significant economies, relative to burial or licensing, in consolidation of sources during collection campaigns and in the records involved. I have asked Bebig and Isotope Products to provide estimates of cost per small source f.o.b., but they need encouragement from the regulators and insurers.

My contacts at manufacturers have said that the Cs or Co in some devices has decayed beyond further use, but it seems to me that recovered material could be reactivated or, as Bebig offers, isotopically enriched by centrifuge, at a price rapidly being overtaken by that of LLRW burial.

9511270385 200

Radioactive Materials and Devices Sought

CRCPD Notes of August 1995

As one of its services, the Conference of Radiation Control Program Directors, Inc., maintains a list of firms that recycle useful quantities of radioactive materials, or that have markets for working devices.

H ³	>1 kCi; Tom Cantey, Savannah River Lab, 803/725-7301 gas; Babig Inc., Scott Kangas, 312/251-0611 Exit signs; John Lash, Chem-Nuclear, 803/259-1119, fax 803/541-7302 Exit signs; Self Powered Lighting, Joe Zandardino, 914/592-8230
Co ⁶⁰	J. L. Shepard & Assoc., 818/898-2361, fax 818/361-8095 Joe Tenorio, G.E. Vallejos Lab, 510/862-4256 25 kCi; Michael Borisky, 301/394-2218
Kr ⁸⁵	Qual-X Corp., Art Mahon, 614/881-5543 Babig Inc., Scott Kangas, 312/251-0611
Sr ⁹⁰ /Y ⁹⁰	>1 Ci; Babig Inc., Scott Kangas, 312/251-0611 J. L. Shepard & Assoc., 818/898-2361, fax 818/361-8095 ~1 Ci; Jeff Cromwell 510/794-0806
Cs ¹³⁷	J. L. Shepard & Assoc., 818/898-2361, fax 818/361-8095 >3 Ci soluble compound; Karl Amlauer, Isotope Products 818/843-7000 >1 Ci nitrate; Babig Inc., Scott Kangas, 312/251-0611 25-40 mCi needles or tubes; Jeff Cromwell 510/794-0806
Ru ¹⁰⁶ , Ce ¹⁴⁴ , Isotopes > Pb ²¹⁰	and other unusual radioisotopes; North American Scientific, Al Zirkes, 818/503-9201 >40 mCi; unsealed & soluble, Karl Amlauer, Isotope Products, 818/843-7000
Ra ²²⁶ Ra ²²⁸	>50 mg; Robert Schenter, Westinghouse Hanford, 509/376-3935, fax -6933 Al Zirkes, North American Scientific, 818/503-9201
Ac ²²⁷ , Th ²²⁹	Robert Schenter, Westinghouse Hanford, 509/376-3935
Th & U Ac or nitrate	NBSI, 713/641-0391
Th metal alloys	Babig Inc., Scott Kangas, 312/251-0611
U	Nat., Dep., or Enr., but unirradiated; Tom Winn, 615/576-0630
Pu ²³⁸	~50 mCi soluble; Karl Amlauer, Isotope Products, 818/843-7000 ~1 mCi; Jim Williams, American Ecology, 713/624-1900
Pu ²³⁸ n sources	Register with Sherry Jones, Los Alamos, 505/665-2712
Pu ²³⁹	Register with Tom Cantey, Savannah River, 803/725-7301, fax -8272
Pu ²³⁹ n sources	Sherry Jones, Los Alamos, 505/665-2712
Am ²⁴¹	>1 Ci sources; Allied Ecology, 510/463-9280 >1 Ci; Babig Inc., Scott Kangas, 312/251-0611 ~1 Ci soluble; Karl Amlauer, Isotope Products, 818/843-7000 ~1 Ci; J. L. Shepard & Assoc., 818/898-2361, fax 818/361-8095 ~1 Ci; Jeff Cromwell 510/794-0806
Am ²⁴¹ n sources	Register with Sherry Jones, Los Alamos, 505/665-2712
Am ²⁴¹ Be n sources	>1 Ci; J. L. Shepard & Assoc., 818/898-2361, fax 818/361-8095 >1 Ci; Babig Inc., Scott Kangas, 312/251-0611
Cf ²⁵²	J. L. Shepard & Assoc., 818/898-2361, fax 818/361-8095 Joe Tenorio, G.E. Vallejos Lab, 510/862-4256 Tom Winn, Oak Ridge Operations, 615/576-0630, fax -5401
TRU > Am	Tom Winn, Oak Ridge Operations, 615/576-0630, fax -5401
Medical devices	Carl Borras, Pan Am World Health Organization, 202/861-3222
Therapy devices	Troy Hedger, Alpha Omega Services Inc., 800/346-7894

A list is also maintained of unusual radionuclides or large amounts that are available for adoption.
For additions or corrections to these lists, please telephone Terry Devine, 502/227-4543.
This information is not to be construed as an endorsement by CRCPD of the services identified in these lists.

F. J. BRADLEY
HEALTH PHYSICS CONSULTANT
605 East 82nd Street
New York, New York 10028

Voice (212) 628-6580 Fax

August 28, 1995

Mr. Joel Lubenau
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Mr. *Joel* Lubenau:

I read your recent article with J. Yusko on contaminated scrap metal in the April 1995 Health Physics Journal. It was quite interesting and provides an excellent update and overview of a problem that I believed originally was an aberration when it occurred at Auburn Steel in 1983. Your data indicates otherwise. With Cesium-137 the predominant nuclide, one cannot ignore the fact that nuclear gauges are a prime culprit.

While attacking the problem at the scrap dealer and mill is important, I believe the licensed gauge owner has to be held accountable first and foremost. Since the gauge owners are unknown in many cases, whether the gauges were possessed under a specific or general license is unknown. But, there have been reports of melted gauges in both categories. I believe, however, that the GL regulation for uniformity's sake should be restricted to sources of less than one curie when the half life is five years or greater. As I had noted previously, with a specific activity of about 20 nanocuries per gram (assuming a melt of 50 tons), such contamination levels do not pose a great risk - even if all control measures fail.

The NRC should consider promulgation of a regulation for GL devices requiring registration and a triennial fee which would include a requirement to submit a leak test and a recent photograph of the gauge as well. It should also be made a compatibility requirement for Agreement States. This would establish a data base and could be used to track the gauge. New York State regulations, Code Rule 38, has always had a registration requirement and, until suspended by budgetary restrictions, an inspection program involving such gauges. However, there is no renewal provision for registered GL devices.

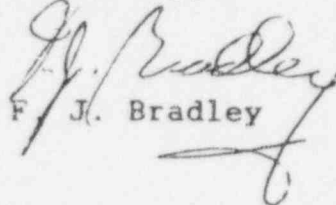
95112/0171 2pp

Possibly a hefty fine might make compliance easier for industry. The NRC civil penalty of \$250 against the Virginia Mining Company noted in your article stands with the \$100 fine that New York State levied against Radium Chemical Company for abandoning their radioactivity.

In addition, I have recently done some overseas consulting (Albania) where I noted that the privatization of the economy is opening up a whole new area of potential future problems since an infrastructure of licensing and inspecting private firms is totally lacking in the Eastern Bloc economies.

I would like to commend you and J. Yusko for highlighting a problem that continues to haunt us.

Sincerely,


F. J. Bradley

FJB/wp