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Dennis R. Lawyer  
US Nuclear Regulatory Commission  
Division of Nuclear Materials Safety  
Region I  
475 Allendale Road  
King of Prussia, PA 19406

November 21, 2005

Dear Mr. Lawyer:

I am writing to follow up on your inspection of PGT conducted last week. Unfortunately, we were not able to find records of the radiation safety program audits after 2001. The 2005 audit has since been conducted, and I have enclosed a copy for your review.

I understand that conducting annual audits of our radiation safety program and keeping records for three years is a license requirement. It is PGT's sincere intention to be in compliance with all aspects of NRC regulations, and as RSO I will, of course, takes steps to ensure that this non-compliance never happens again.

Sincerely,

Christopher E. Cox  
President & RSO

## Radiation Safety Program Audit Form

Audit Form is adapted from NUREG-1556, Vol. 12, Draft Report, Appendix K, 7/99

Audit Report No. 2005-01

License Nos: 29-12783-04E,  
29-12783-02G, 29-12783-01

Licensee's name and mailing address:

**Princeton Gamma-Tech Instruments. Inc.**  
**1026 Route 518**  
**Rocky Hill, NJ 08553**

Audit of activities at (Address):

**Princeton Gamma-Tech Instruments. Inc.**  
**1026 Route 518**  
**Rocky Hill, NJ 08553**

Contact at Audit Location: Christopher Cox

Telephone No. 609-924-7310

Date of this Audit November 17, 2005

Summary of Findings and Action:

☐ No Deficiencies:

☒ Deficiencies: See comments below

☐ Action on previous deficiencies

Recommendations:

There were no records of the radiation safety program audits after 2001. It is recommended that the RSO and Assistant RSO set dates for future audits (e.g., 2006) so that they are not overlooked.

Auditor: Christopher Cox CE. Cox Date November 17, 2005

Reviewer: David Carpenter David Carpenter Date November 17, 2005

## Radiation Safety Program Audit Form

### Audit History

- A. Last audit of this location conducted: 2-7-2001
- B. Problems/deficiencies identified during last two audits or two years, whichever is longer ☒ Y ☐ N
- C. Open problems/deficiencies from previous audits:
- | Status                  | Requirement. | Prob./Def. | Corrective Action Taken (Y/N) | Open/Closed |
|-------------------------|--------------|------------|-------------------------------|-------------|
| Posting safety surveys: | Overdue.     |            | Corrected.                    | Closed      |
- D. Any previous problem/deficiency not corrected or repeated ☒ Y ☐ N ☐ N/A
- Explain: Program audit overdue.

### Organization and Scope of Program

- A. Briefly describe organizational structure
1. Structure is as described in license documents ☒ Y ☐ N
  2. Multiple authorized locations of use ☐ Y ☒ N
  3. Briefly describe scope of activities involving byproduct material, frequency of use, staff size, etc. ☒ Y\* ☐ N
- B. Radiation Safety Officer ☒ Y ☐ N
1. Authorized on license ☒ Y ☐ N
  2. Fulfills duties as RSO ☒ Y ☐ N
- C. Use only by authorized individuals ☒ Y ☐ N

Remarks:

\*A3: Use/Possession and Distribution Licenses. Approx 30 badged and trained personnel, approx 70 sealed sources to check instrumentation, and some installed in generally licensed devices. 6 areas posted for Radioactive Materials present.

## Radiation Safety Program Audit Form

### Training, Retraining, and Instructions to Workers

- A. Instructions to workers [10 CFR 19.12] [X] Y [ ] N
- B. Training program required [X] Y [ ] N
- C. Training records maintained [X] Y [ ] N
- D. Evaluation of individuals' understanding of procedures and regulations based on interviews, observation of selected workers
1. Each has an up-to-date copy of the licensee's safe use and emergency procedures [X] Y [ ] N
2. Adequate understanding of:
- Current safe use procedures [X] Y [ ] N
- Emergency procedures [X] Y [ ] N
- E. Part 20  
Workers cognizant of requirements for:
1. Radiation Safety Program [10 CFR 20.1101] [X] Y [ ] N
2. Annual dose limits [2.1301, 1302] [X] Y [ ] N
3. Forms 4 and 5 [X] Y [ ] N
4. 10% monitoring threshold [20.1502] [X] Y [ ] N
5. Dose limits to embryo/fetus and declared pregnant women [20.1208] [X] Y [ ] N
6. Procedures for opening packages [20.1906] [X] Y [ ] N

Remarks:

## Radiation Safety Program Audit Form

### Internal Audits, Reviews or Inspections

A. Audits are conducted [X] Y [ ] N

1. Audits conducted by: RSO
2. Frequency: Annual, but no records since 2001

B. Content and implementation of the radiation protection program reviewed annually [20.1101(c)] [X] Y [ ] N

C. Records maintained [20.2102] [ ] Y [X] N

### Facilities

A. Facilities as described in license application

Remarks: **Yes. Room drawings and location information in areas where radioactive materials are used.**

### Materials

A. Isotopes, quantities, and use as authorized on license [X] Y [ ] N

Remarks:

### Contamination Checks and Leak Tests

A. Leak test performed as described in correspondence with NRC (consultant; leak test kit; licensee performed) [X] Y [ ] N

B. Frequency: every 6 months or other interval, as approved by NRC or Agreement State [X] Y [ ] N

C. Contamination checks performed prior to distribution [X] Y [ ] N

D. Records with appropriate information maintained [X] Y [ ] N

Remarks: **Wipe test certificates on file.**

## Radiation Safety Program Audit Form

### Inventories

- A. Conducted at 6-month intervals [X] Y [ ] N
- B. Records with appropriate information maintained [X] Y [ ] N

Remarks: **Supporting documentation on file in the Safety Office.**

### Radiation Surveys and Measurements

- A. Instruments and equipment:
1. Appropriate operable survey instrumentation  
Possessed or readily available [X] Y [ ] N
  2. Calibrated as required [20.1501] [X] Y [ ] N
  3. Calibration records maintained [20.2103(a)] [X] Y [ ] N
- B. Briefly describe survey measurement requirements [20.1501(a)]:  
**Radiation exposure levels and wipe tests are performed quarterly or as needed.**
- C. Performed as required [20.1501(a)] [X] Y [ ] N
1. Radiation levels within regulatory limits [X] Y [ ] N
  2. Correction action taken and documented [X] Y [ ] N
- D. Records maintained [20.2103] [X] Y [ ] N
- E. Protection of members of the public
1. Adequate surveys made to demonstrate either (a) that the TEDE to the individual likely to receive the highest dose does not exceed 100 mrem in a year, or (b) that if an individual were continuously present in an unrestricted area, the external dose would not exceed 2 mrem in any hour and 50 mrem in a year [20.1301(a)(1), 1302(b)] [X] Y [ ] N
  2. Unrestricted area radiation levels do not exceed 2 mrem in any one hour [20.1301(a)(2)] [X] Y [ ] N

## Radiation Safety Program Audit Form

3. Records maintained [20.2103, 2107] ☒ Y ☐ N

Remarks: **PGT's radiation safety goal is to have background readings in all unrestricted areas.**

### Receipt and Transfer of Radioactive Material (Includes Waste Disposal)

- A. Describe how packages are received and by whom: ☒ Y ☐ N
- B. Written package opening procedures established and followed [20.1906(e)] ☒ Y ☐ N
- C. If package shows evidence of degradation, monitor for contamination and radiation levels ☒ Y ☐ N
- D. Monitoring of degraded packages performed within time specified [20.1906(c)] ☒ Y ☐ N ☐ N/A
- E. Transfer(s) between licensees (including commercial distribution and "disposal") performed per [10 CFR 30.41] ☒ Y ☐ N ☐ N/A
- F. Records of receipt/transfer maintained [20.2103(a), 3051] ☒ Y ☐ N
- G. Transfers within licensee's authorized users or locations performed as required [L/C] ☒ Y ☐ N ☐ N/A
- H. Package receipt/distribution activities evaluated for compliance with 20.1301 [20.1302] ☒ Y ☐ N ☐ N/A
- Remarks;

### Transportation ( 10 CFR 71.5(A) and 49 CFR 170-189) ☐ N/A

- A. Licensee shipments are:
1. delivered to common carriers ☒ Y ☐ N ☐ N/A
  2. transported in licensee's own private vehicle ☐ Y ☒ N ☐ N/A
- B. Packages:
1. Authorized packages used [49 CFR 173.415, 416(b)] ☒ Y ☐ N ☐ N/A
  2. Closed and sealed during transport [173.475(f)] ☒ Y ☐ N
- C. Shipping Papers ☐ N/A

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1. Prepared and used [172.200(a)] ☒ Y ☐ N

2. Proper {Shipping name, Hazard Class, UN Number, Quantity, Package Type, Nuclide, RQ, Radioactive Material, Physical and Chemical Form, Activity, Category of Label, T1, Shipper's Name, Certification and Signature, Emergency Response Phone Number "Cargo Aircraft Only" (if applicable)} [172.200-204] ☒ Y ☐ N

3. Readily accessible during transport [177.718(e)] ☒ Y ☐ N

### D. Vehicles

1. Cargo blocked and braced [177.842(d)] ☒ Y ☐ N ☐ N/A

2. Placarded, if needed [172.504] ☐ Y ☐ N ☒ N/A

3. Proper overpacks, if used (shipping name, UN Number labeled, statement indicating that inner package complies with specification package) [173.25] ☒ Y ☐ N ☐ N/A

E. Any incidents reported to DOT [171.15, 16] ☐ Y ☒ N

Remarks:

### Personnel Radiation Protection

A. ALARA considerations are incorporated into the Radiation Protection Program [20.1101(b)] ☒ Y ☐ N

B. Adequate documentation of determination that unmonitored occupationally individuals are not likely to receive >10% of allowable limit [20.1502(a)] ☒ Y ☐ N ☐ N/A

**OR**

C. External dosimetry provided and required ☒ Y ☐ N ☐ N/A

1. Supplier: Landaur Frequency: Monthly

2. Supplier is NVLAP-approved [20.1501(c)] ☒ Y ☐ N

3. Dosimeters exchanged at required frequency [L/C] ☒ Y ☐ N



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D. Occupational intake monitored and assessed [20.1502(b)] ☐ Y ☐ N ☒ N/A

E. Reports ☐ N/A

1. Reviewed by David Carpenter Frequency: Monthly

2. Auditor reviewed personnel monitoring records for period 2003 to 2005

3. Prior dose determined for individuals likely to receive doses [20.2104] ☒ Y ☐ N ☐ N/A

4. Maximum exposures (one person in 3 years): **100-250 mrem**

5. NRC Forms or equivalent [20.2104(d), 2106(c)]

a. NRC-4 "Cumulative Occupational Exposure History" ☒ Y ☐ N

Complete: ☒ Y ☐ N

b. NRC-5 "Occupational Exposure record for a Monitoring Period" ☒ Y ☐ N

Complete: ☒ Y ☐ N

6. Worker declared her pregnancy in writing during inspection period (review records) ☐ Y ☐ N ☒ N/A

If yes, determine compliance with [20.1208] ☐ Y ☐ N

Check for records per [20.2106(e)] ☐ Y ☐ N

F. Records of exposures, surveys, monitoring and evaluations maintained [20.2102, 2103, 2105, L/C] ☒ Y ☐ N

Remarks:

### Auditor's Independent Measurements ( if Made)

**N/A - Survey measurements performed by NRC personnel on 11-16-05**

A. Survey instrument \_\_\_\_\_ Serial No. \_\_\_\_\_ Last calibration: \_\_\_\_\_

B. Auditor's measurements compared to licensee's ☐ Y ☐ N

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C. Describe the type, location, and results of measurements:

### Notification and reports

☐ N/A

- A. Licensee in compliance with [19.13, 30.50] (reports to individuals, public and occupational, monitored to show compliance with Part 20) ☒ Y ☐ N ☐ N/A
- B. Licensee in compliance with [20.2201, 30.50] (theft or loss) ☐ Y ☐ N ☒ None
- C. Licensee in compliance with [20.2202, 30.50] (incidents) ☐ Y ☐ N ☒ None
- D. Licensee in compliance with [20.2203, 30.50] (overexposures and high radiation levels) ☐ Y ☐ N ☒ None
- E. Licensee aware of telephone number for NRC Emergency Operations Center [(301) 816-5100] ☒ Y ☐ N
- F. Licensee in compliance with [21.21] (failure to comply or existence of a defect and its evaluation) ☒ Y ☐ N

### Posting and Labeling

- A. NRC-3 "Notice to Workers" is posted [19.11] ☒ Y ☐ N
- B. Parts 19, 20, 21, Section 206 of Energy Reorganization Act, Procedures adopted pursuant to Part 21, and license documents are posted, or a notice indicating where documents can be examined is posted [19.11, 21.6] ☒ Y ☐ N
- C. Other posting and labeling per [20.1902, 1904] and the license is not exempted by [20.1903, 1905] ☒ Y ☐ N

Remarks:

### Recordkeeping for Decommissioning (if needed)

- A. Records of information important to the safe and effective decommissioning of the facility maintained in an independent and identifiable location until license termination ☐ Y ☐ N ☒ N/A
- B. Records include all information outlined in [30.35(g)] ☐ Y ☐ N ☒ N/A

## Radiation Safety Program Audit Form

Remarks:

### Bulletins and Information Notices

- A. Receipt of NRC Bulletins, NRC Information Notices, NMSS Newsletters, etc. [X] Y [ ] N
- B. Appropriate action taken in response to Bulletins, Information Notices, etc. [X] Y [ ] N

Remarks: **PGT Safety Dept. will updates it's program thru bulletin information that it receives.**

### Special license Conditions or Issues

**[X] N/A**

- A. Review special issue conditions or other issues, and describe findings: [ ] Y [ ] N [ ] N/A
- B. Problems/deficiencies identified at licensee facilities other than at audit location: [ ] Y [ ] N [ ] N/A
- C. Evaluation of compliance: [ ] Y [ ] N

Remarks:

### Continuation of Report Items

**[X] N/A**

(If more space is needed, use separate sheets and attach to report.)

### Problems or Deficiencies Noted: Recommendations

*Note:* Briefly state (1) the requirement and (2) how and when violated. Provide recommendations for improvement.

Requirement for annual audit of radiation safety program and maintenance of audit records: No audit records since 2001. Recommend that RSO and ARSO set audit date at the beginning of each year to avoid audit requirement being overlooked.

### Evaluation of Other Factors

- A. Senior licensee management is appropriately involved with the radiation safety program and/or Radiation Safety Officer (RSO) oversight. [X] Y [ ] N
- B. RSO has sufficient time to perform his/her radiation safety

## Radiation Safety Program Audit Form

duties and is not too busy with other assignments ☒ Y ☐ N

C. Licensee has sufficient staff ☒ Y ☐ N

Remarks/recommendations:

The radiation safety program is generally in good order. Documentation is well maintained and any problems are addressed immediately with corrective action upon discovery. However, the requirement for annual audits and the maintenance of audit records has not been fulfilled since 2001. To avoid this failure reoccurring, the RSO and ARSO should schedule an audit date for each coming year in advance.