Process Technology North Jersey

Subsidiary of RTI Inc.

108 LAKE DENMARK ROAD, ROCKAWAY, NJ 07866
(201) 625-8400 • FAX: (201) 625-7820

September 1, 1989

Mail Control No. 106655
Docket No. 030-07022
License No. 29-13613-02

Mr. John Miller
Senior Health Physicist
U.S. Nuclear Regulatory Commissicn
Region 1
475 Allendale Road
King of Prussia, PA 19406

Dear Mr. Miller:

This confirms our telephone conversation of August 30, 1989. As per our license amendment letter dated Dececmber 12, 1988 Section 9.2A page 23, 4th paragraph, the "low" level float switch on the RTI 2102-B irradiator is not intended to give a "low water" indication. This switch is intended to initiate automatic makeup of pool water, which it does. The "low-low" float switch, however, is designed to give an indication in the control room. When the "low-low" float switch is activated a "Pool Water X-Low" indication is given in the control room, as you observed during your inspection of August 16 and 17. This alarm also does not allow entry into the irradiator maze. The water level monitoring system is currently operating according to the approved license conditions.

To ensure that all operators are aware of the function of each float switch, I have issued a memo detailing their fuction. The memo is currently posted in the control room.

We will not take any further action regarding this matter, as agreed by you. If you have any further comments or concerns, please contact me. Thank you.

Sincerely,

John D. Schlecht
Plant Manager

JDS:jk

B/42

Region 1 Form 198-F
(October 1988)

IRRADIATORS

LICENSEE: Process Technology of North Jersey
Subsidiary of RTE Incorporated

REPORT NO. 89-002

ADDRESS: 108 Lake Denmark Road
Rockaway, New Jersey 07866

LICENSEE CONTACT: John Singleton, Interim RSO Telephone No. (201) 625-8400

LICENSE NUMBER	DOCKET NUMBER	CATEGORY	PRIORITY	PROGRAM CODE
29-13613-02	030-07022	~~QB~~ E2	1	

INSPECTION DATE(S) August 16 & 17
INSPECTION LOCATION(S)
108 Lake Denmark Road
Rockaway, New Jersey

TYPE OF INSPECTION

- ☐ SPECIAL
- ☒ ROUTINE
- ☐ ANNOUNCED
- ☒ UNANNOUNCED
- ☒ DAYSHIFT
- ☒ BACKSHIFT

SUMMARY OF FINDINGS AND ACTION

- ☐ NO NONCOMPLIANCE, 591
- ☒ NO NONCOMPLIANCE LETTER
- ☐ NONCOMPLIANCE, 591
- ☐ NONCOMPLIANCE, LETTER
- ☐ ACTION ON PREVIOUS NONCOMPLIANCE, APPENDIX B
- ☐ SUPPLEMENTAL INFORMATION, APPENDIX C

PERSONS CONTACTED (Name, Title)

John Singleton, Interim RSO
John Sohlecht, Plant Manager
Andy Friedrich, Quality Control
Mike Ayres, Irradiator Operator
Bob Kem, Irradiator Operator
Richard Stout, Materials Handler
Paul Greleckl, Materials Handler

* attended exit meeting

John J. Miller 9/12/89
Inspector Signature, Date

J. Miller for R. Hasbun 9/12/89
Inspector Signature, Date

APPROVED

B/43

RESULTS

1. ORGANIZATION (C) NC

a. Describe the management structure. (C) NC

The Radiation Protection Organization has changed since the last inspection conducted on March 21 & 23, 1989. The Vice President - Operations and Engineering, who also held the position of Corporate Radiation Safety Officer, resigned effective July 31, 1989. In addition, the Plant Manager who also was the site Radiation Safety Officer resigned effective August 14, 1989. License No. 29-13613-02 was amended on July 28, 1989 to authorize John Singleton, Plant Superintendent as the Interim Radiation Safety Officer. John Schlecht is presently the Plant Manager and works closely with Mr. Singleton to assure the radiation safety program is properly implemented.

b. Describe the radiation protection organization. (C) NC

Condition 11.D. of License No. 29-13613-02 requires that during the period that Mr. Singleton serves as Interim RSO, Michael Buring must be at the Rockaway site for at least 24 hours per week. Since Mr. Singleton started serving as the Interim RSO on August 14, 1989, and the inspection was performed on August 16 & 17, 1989, this requirement was not inspected. The inspectors did note in the operators logs that Mr. Buring had been on site for training.

c. Individuals identified in the license as being responsible for the programs still hold these positions. (C) NC

d. Audit and/or Management Control program conducted as required. (C) NC NA NI

1. records maintained (y)n/na/ni
2. appropriate scope y/n/na/ni
3. deficiencies identified and corrected y/n/na/ni

Comments

The program is audited quarterly by an outside consultant, M. Slobodien, OHP. Audits were performed on 3/27/89, 6/22/89, and 8/13/89. Formal responses were drafted by the RSO to these audits. These responses were dated 4/4/89 and 7/14/89 and adequately addressed the findings.

In addition, internal Radiation Safety & Compliance audits were performed under the direction of the Vice President - Quality on May 5, 11, 23, June 26, and July 27, 1989.

	RESULTS	
2. Scope of Licensed Activities	(C)	NC
a. Describe the types of current activities.	C	NC

b. Describe the current workload in terms of the number of workers, number of shifts, or other appropriate information.

c. Describe any changes since the last inspection, and any which may be planned.

Comments

The licensee is currently operating the irradiator 24 hours per day, seven days per week. Five fully trained and qualified operators provide continuous coverage for each shift.

The inspectors performed a cursory review of the material being irradiated and did not identified ~~cost~~ any flammables or explosives.

RESULTS

3. TRAINING AND INSTRUCTIONS TO EMPLOYEES — (C) NC

a. Instruction to all persons working in a restricted area (19.12). — (C) NC NA NI

b. Additional required training for operators and other specified workers. — (C) NC NA NI

1. approved training program — (y)/n/na/ni
2. training provided by _____
3. operators completed on-the-job training — (y)/n/na/ni
4. tests are given
   a. written tests — (y)/n/na/ni
   b. oral — y/n/na/ni
   c. practical — y/n/na/ni
   d. records of tests maintained — (y)/n/na/ni
   e. deficiencies noted and corrected — (y)/n/na/ni
5. training records reviewed by NRC inspector for period _____ to _____
6. qualified operator on site during all irradiator operations — (y)/n/na/ni according to operators log

c. Periodic training is implemented as required. — C NC NA NI

1. records of retraining maintained — y/n/na/ni
2. Describe frequency and scope of periodic training:

Comments

Training records for the irradiator operators were reviewed by the inspectors. All the qualified operators had received forty hours of formal instruction, three months of on the job training, and successfully completed a written examination, prior to being permitted to operate the irradiator independently. In addition records indicated that the materials handlers had also successfully passed a written examinations.

The inspectors interviewed two materials handlers. Both individuals stated they had received radiation safety training and they had passed a written examination. While answering specific questions, both individuals exhibited knowledge about the irradiator commensurate with their duties.

RESULTS

4. MATERIALS, FACILITIES, AND EQUIPMENT — (C) NC

a. Materials inventory as authorized by license. (C) NC

Plant Mgr informed the inspector that there are 305 pencils in the irradiator pool
240 pencils in the R&D pool
≈300 Ci/piece

1. type and quantity authorized (y)n/na/ni
2. six-month inventory as required by license (y)n/na/ni
3. inventory records reviewed for the period March 1989 to August 17, 1989
4. current inventory: 1,287,240 Curies as of 12-1-88 (date)

b. Irradiator facility safety systems as required. C NC NA NI

1. posted as required by 20.203(c)(1) (yes)/no — posted in Spanish as well as English
2. interlocked as required by 20.203(c)(2)(i) (yes)/no
3. entrance controlled in accordance with 20.203(c)(2) (yes)/no
4. exit controlled in accordance with 20.203(c)(3) (yes)/no
5. entry control devices function as required by 20.203(c)(6) (yes)/no
6. visible and audible signals operate correctly to warn of the presence of radiation: 20.203(c)(6) (yes)/no
7. level control for liquid shield: 20.203(c)(6)(iii) (yes)/no
8. source exposure procedure used (yes)/no
9. control devices tested at intervals required by 20.203(c)(6)(vii) (yes)/no
10. product carriers inspected as required: LC yes/no ni
11. records of control devices tests maintained (yes)/no

Checked source, tested monitor over the R&D pool, alarm was audible in the control room

c. Inspector observed proper operation of the following: * See opposite side

1. personnel door interlock (pass)/fail/not tested
2. product conveyor door interlock pass/fail/not tested not applicable
3. maze radiation monitor (pass)/fail/not tested
4. exit portal radiation monitor pass/fail/not tested not applicable
5. visible and audible signals (pass)/fail/not tested
6. level control alarm for liquid shield (pass)/fail/not tested
7. clearance of cell at startup (pass)/fail/not tested
8. emergency shutdown switch in cell (pass)/fail/not tested
9. ventilation system interlock (pass)/fail/not tested

Other:
The space where the maze door has been blocked with a piece of plywood.

d. Postings and labelings as required (C) NC NA NI

1. 20.203(b) radiation area (y)n/na/ni — posted in Spanish as well as English
2. 20.203(e) use or storage areas with "Caution - Radioactive Material" y/n/na/ni
3. 20.203(f) containers and devices properly labeled y/n/na/ni
4. 19.11(a)(b) posting of documents y/n/na/(ni)
5. 19.11(c) posting of NRC-3 (y)/n/na/ni

RESULTS

5. INSTRUMENTS, EQUIPMENT, AND DEVICES (C) NC

a. calibrated and operable meters available and used properly. (C) NC NA NI
   1. number, type, and ranges (e.g 2, ion chamber, 1 R/hr)

Number	Type	Range
Ludlum	Model 5	SN 24397 calibrated 6/15/89

   2. 2 mR/hr through 1 R/hr can be measured (y)n/na/ni
   3. calibrated by: _____ (y)n/na/ni
   4. calibration method as authorized (y)n/na/ni
   5. calibration performed as required frequency: _____ (y)n/na/ni

b. Water treatment systems function as required. (C) NC NA NI
   1. conductivity and pH tested and maintained within license limits. (y)n/na/ni
   2. current water quality:
      conductivity _____ microsiemen/cm date: _____ input 900K Ω output ∞
      pH _____ date: _____
   3. ion-exchange resin ___ replaced ___ regenerated
      last date: 8-9-89

Records indicated that resistivity was maintained >100K Ω from 5/20/89 to 8/16/89

c. other special equipment (pool water monitors, ion-exchanage resins, ventilation systems, automatic fire extinguishing system, etc.) operable and available as described in license C NC NA NI

Describe:

Inspectors examined the remote handling tools that are used in the pool. All were constructed of hollow tubes and had holes drilled into them to assure that they will fill with water and maintain unit density between the sources and personnel

Comments

A quarterly functionability/operability test is performed on the the radiation monitor and probe near the R&D pool and the continuous monitor on the deionizer system. Using a check source, the instruments are tested to assure that they alarm at their preset levels. Records are maintained.

The inspectors reviewed the weekly, monthly and quarterly mainten. records. The records indicated that preventive maintenance has been performed on schedule.

RESULTS

6. RECEIPT AND TRANSFER OF MATERIALS (C) NC NA NI

a. Procedures for picking up, receiving, and opening of packages performed as required by 20.205. C NC (NA) NI

1. written procedures available y/n/na/ni
2. procedures approved in application y/n/na/ni
3. survey of packages when received y/n/na/ni
4. 20.401 records of survey of packages y/n/na/ni
5. 20.401 records of receipt of packages y/n/na/ni

b. Source loading procedures performed. (C) NC NA NI

1. date of last source load: Nov 22 & 23, 1988
2. radiation survey performed (y)n/na/ni
3. record of survey maintained (y)n/na/ni
4. report of survey sent to NRC y/n/na/ni

c. Licensed material transferred as required. C NC (NA) NI

1. 30.41 verification of recipient's license y/n/na/ni
2. 20.401, 30.51 records maintained y/n/na/ni
3. Licensee makes shipments of radioactive materials yes/no
   a. delivered by common carrier yes/no
   b. transported in licensee's own vehicle as a private carrier. yes/no

*IF ABOVE IS ANSWERED "YES", COMPLETE 6.A: TRANSPORTATION

Comments

6.A TRANSPORTATION		RESULTS C	NC	(NA)	NI
1.	Are authorized packages used	173.415-416	yes/no		
2.	Types of packages used (for example, DOT-7A)	173.415			
3.	Performance test records on file	173.416(a)	yes/no		
4.	Licensee aware of 6/30/85 cutoff on use ( ) certified	173.416(b)	yes/no		
5.	NRC COC's on file	71.12(c)(1)	yes/no		
6.	Registered with NRC as user	71.12(c)(3)	yes/no		
7.	Documented NRC-approved Q/A program?	71.12(b)	yes/no		
	NRC Q/A Approval number _____				
8.	Special Form Material Performance test records available for each source design	173.476(a)	yes/no/na		
9.	packages labeled as required	172.403 (a-f)	yes/no		
	a. Excepted				
	b. White I				
	c. Yellow II				
	d. Yellow III				
10.	surveys performed to select correct label category and compliance with radiation limits	175.475(1)	yes/no		
11.	Packages marked as required with	172.300-310	yes/no		
	a. shipping name		yes/no		
	b. Spec No.				
	c. Certificate of Compliance Number (COC No.) etc.				
12.	Shipping papers are prepared for each shipment	172.200	yes/no		
13.	Shipping papers contain required information	172.203(d)	yes/no		
14.	For private carrier shipments:				
	a. vehicles placarded as required	172.500,504	yes/no		
	b. cargo blocked, braced, tied down in vehicle	177.842(d)	yes/no		
	c. any incidents reported to DOT	171.15-16	yes/no		
15.	Licensee carries shipping papers that are readily accessible when transporting radioactive material				

Comments

RESULTS

7. PERSONNEL MONITORING — (C) NC NA NI

a. Personnel dosimetry assigned and worn. — (C) NC NA NI

1. whole-body badge used — (y)/n/na/ni
   a. ✓ film _____ TLD
   b. exchange frequency: monthly
   c. supplier Landauer
   d. supplier NVLAP accredited 20.202 — (y)/n/na/ni
2. workers observed wearing dosimetry — (y)/n/na/ni

b. Personnel dosimetry reports maintained. — (C) NC NA NI

1. records reviewed by management at a frequency of: _____ — y/n/na/ni
2. NRC inspector reviewed personnel monitoring records from 1/89 to 6/89 — y/n/na/ni
   a. whole body quarterly dose: typical M max ~~M~~ 80
   b. extremity quarterly dose: typical NA max NA
3. NRC forms or equivalent records completed — (y)/n/na/ni
   a. NRC-4 — y/n/na/(ni)
   b. NRC-5 — (y)/n/na/ni
4. Termination and annual reports to individuals and NRC, as required by 20.407 and 20.408 — y/n/na/(ni)

Comments

RESULTS

8. RADIATION SURVEYS AND LEAK TESTS — (C) NC NA NI

a. facility and unrestricted area surveys conducted. (C) NC NA NI

1. area or facility surveys recorded — (y)/n/na/ni
2. surveys performed as required — (y)/n/na/ni
   frequency: quarterly → direct measurement
3. appropriate instruments used — (y)/n/na/ni
4. NRC inspector reviewed survey records * contamination swipes
   for the period 3/89
   to 8/89
5. maximum radiation levels in unrestricted area: 0.6 mR hr^{-1}

b. Leak tests of sealed sources performed — (C) NC NA NI

1. performed by user and method approved — y/n/na/ni
2. leak testing method used:
   water sampling — (yes)/no monthly
   continuous monitoring of ionizers — (yes)/no
   periodic monitoring of ionizers — yes/no
   direct wiping of sources — yes/no
3. tested at six-month intervals 34.25(b) — (y)/n/na/ni
4. records maintained — (y)/n/na/ni
5. records reviewed by NRC inspector
   for the period 3/89 to 8/17/89

Comments

Inspectors noted that a survey performed on 6/19/89 measured radiation levels on roof from 28 to 120 mR hr^{-1} on roof. (With source up and no carriers in the irradiator cell). Inspectors performed an independent survey with the irradiator full of carriers and product and measured 20 mR hr^{-1} max on roof. The ladder providing access to the roof is locked out using a long piece of plywood and a padlock. The ladder is conservatively posted "Caution - High Radiation Area."

Radiation levels in front of the maze door are less than 2 mR hr^{-1} but greater than 0.6 mR hr^{-1}. The licensee has established a restricted area ~~not~~ in front of the maze door using signs and rope.

NaI detector used to count water samples 20% efficiency with DuPont Co-60 liquid stand MDA = 0.60 C$_i$/ml

RESULTS

9. EFFLUENT CONTROL AND WASTE DISPOSAL — (C) NC NA NI

a. Releases with the environment in accordance with requirements. — (C) NC NA NI

*leach field

1. liquid releases are made — (y)/n/na/ni
   to X sewer* ___ unrestricted areas
   a. evaluations are adequate — (y)/n/na/ni
   b. releases are within limits: 20.106, 20.303 — (y)/n/na/ni
   c. typical concentrations: <MDA 0.6 pCi/ml
2. records maintained — (y)/n/na/ni
3. describe disposal of water from the regeneration of ion-exchange resins, if applicable:
   released to drain ⇒ leach field (see above)

b. Waste disposal in accordance with requirements. C NC (NA) NI

1. Describe disposal of replaced resin, if applicable:
2. Describe any other methods of waste disposal:
3. Records of waste transfers maintained — y/n/na/ni

c. Burial of licensed material done in past. — Yes/No

1. location of past burials: ___
2. types of materials buried: ___
3. describe the types of surveys performed, results, etc:

d. 10 CFR Part 61 requirements reviewed — y/n/na/ni

Comments

Water from regeneration of ion-exchange resins are collected in hold-up tank. Contents of the tank are p.H. adjusted prior to release and sampled and assayed prior to release. Samples are assayed @ NaI detector, 20% efficiency using a Co-60 liquid sample from Dupont. Inspector independently calculat MDA and it was the same value used by licensee 0.6 pC:/ml

RESULTS

10. NOTIFICATIONS AND REPORTS — C NC (NA) NI

a. Licensee is in compliance with

1. reports of thefts or losses (20.402) y/n/na/ni
2. reports of incidents (20.403) y/n/na/ni

b. Licensee took appropriate action in response to the following Bulletins, Circulars, and Information Notices. y/n/na/ni

1. _____
2. _____
3. _____

Comments

The Plant Manager informed the inspectors that there had been no stolen or lost material since the last inspection. ~~Serious~~ substant. He had no reason to believe anyone had received a exposure. No reportable incidents

RESULTS

11. OTHER LICENSE CONDITIONS — C NC NA NI

List any other license conditions which were reviewed during the inspection, and describe the results.

a. C NC

b. C NC

c. C NC

Comments

7/17/89 © Quinto & Schlecht installed new doorknob. Schlecht stated there were no problems, but in light of the occurrences in the spring, they wanted to upgrade to an industrial doorknob.

7/8/89. Keim locked keys & meter in cell, called RSO to gain access

6/29/89 QA inspector noticed that the top piece of source rack was partially dismembered. Notified VP-Operations & Engineering. VP-Operations & Engineering & Plant Superintendent removed all source modules from rack, called in welding contractor, repaired rack, replaced modules. Swipes were taken on all tools before removal and they were negative. Safety interlock test was performed and the licensee ~~xxxx~~ resumed operation. The repair took less than 24 hours and ~~there~~ there was no reporting requirement.

6/12/89 Two operators noted high ozone. The following day a vent in the cell was discovered to be closed. The vent was opened and the ozone problem ceased.

RESULTS

12. INDEPENDENT AND CONFIRMATORY MEASUREMENTS (C) NC NA NI

a. Areas Surveyed	Results
roof above cell	20mR hr⁻¹ (max)
(with cell full of product & carriers)	

b. Survey Instruments Used

1. Type	a.	b.
2. NRC #	a.	b.
3. last calibration date	a.	b.

c. Pool Water Sample

NRC - measured concentration $< 6 \times 10^{-8}$ μCi/ml Co-60

Licensee - measured concentration
(attach NRC lab results to field notes)

Comments

APPENDIX A - DOCUMENTATION OF NONCOMPLIANCE

Requirement	Basis for noncompliance
1. 10 CFR _____ Lic Cond _____ clear	
2. 10 CFR _____ Lic Cond _____	
3. 10 CFR _____ Lic Cond _____	
4. 10 CFR _____ Lic Cond _____	
5. 10 CFR _____ Lic Cond _____	
6. 10 CFR _____ Lic Cond _____	

APPENDIX B - LICENSEE ACTION ON PREVIOUS INSPECTION FINDINGS

Identification and summary of action taken	Status

Report No: _____ Severity Level _____

Describe previous violation:

Corrective Action taken:

OPEN

CLOSED

Report No.: _____ Severity Level _____

Describe previous violation:

Corrective Action taken:

OPEN

CLOSED

Report No: _____ Severity Level _____

Describe previous violation:

Corrective action taken:

OPEN

CLOSED

Identification and summary of action taken	Status
Report No: _____ Severity Level _____	
Describe previous violation:	
Corrective action taken:	OPEN
	CLOSED
Report No: _____ Severity Level _____	
Describe previous violation:	
Corrective action taken:	OPEN
	CLOSED
Report No: _____ Severity Level _____	
Describe previous violation:	
Corrective action taken:	OPEN
	CLOSED

( ) Unusual occurrence, conditions, etc.

( ) Description of attachments to field notes

( ) Unresolved items

( ) Inspector's comments