UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406

Request No. RIR-89-008

MEMORANDUM FOR: Chester W. White, Director
Office of Investigations Field Office, Region I

FROM: William T. Russell
Regional Administrator

REQUEST FOR INVESTIGATION

Radiation Technology Incorporated (RTI)
Lake Denmark Road
Rockaway, New Jersey

Docket No. 030-07022

License No. 29-13613-02

William T. Russell
Regional Administrator

May 2, 1989
Date

A. Request

What is the matter that is being requested for investigation?

It is requested that an investigation be performed to determine the veracity of statements made by licensee management, particularly the Radiation Safety Officer (RSO) JOHN RUSSEN, at an Enforcement Conference on April 26, 1989. In several instances, the information provided by the licensee and RUSSEN differs considerably from certain inspection findings; and differs from statements made to the inspector MARLENE TAYLOR and the investigator ERNEST WILSON by a RTI operator, MICHAEL AYRES in an interview on April 11, 1989.

An NRC inspection of RTI's facility on March 21 and 23, 1989, identified several apparent violations, including failure to maintain the irradiator entry control device (the access door lock) fully operational in the period between February 5 and 13, 1989, while performing irradiation activities, as required by 10 CFR 20.203(c)(6). In the course of this inspection, one of the irradiator operators (MICHAEL AYRES) provided information to the inspector (MARLENE TAYLOR) and an investigator (ERNEST WILSON) indicating that the Radiation Safety Officer (JOHN RUSSEN) was previously informed by AYRES that, though considered locked, the access door to the irradiator cell was able to be opened without use of the key by two other operators (SMITH and KEIM) on separate occasions.

E/1

EXHIBIT 1

PAGE 1 OF 15 PAGE(S)

At an Enforcement Conference with RTI on April 26, 1989, licensee management, including RUSSEN, were asked several times if they had any information that indicated that the irradiation cell had been entered by personnel without use of the key (a fact that would indicate that management knew that the lock mechanism was defective). In response, all management personnel, including RUSSEN, denied that they were aware of such an event.

While of less import relative to immediate health and safety, information provided by licensee management at the Enforcement Conference relative to certain other inspection findings and information provided by AYRES also differs considerably, as indicated in the attached list of discrepant information compiled at this conference.

B. Purpose of the Investigation

1. What is the basis for the belief that the violation of a regulatory requirement is more likely to have been intentional or to have resulted from careless disregard or reckless indifference than from error or oversight?

   Both the inspector and investigator believe AYRES to be credible and truthful in his recollection and assertion of events. The events in question are recent, i.e., they occurred since about February 1989. Since AYRES was the subject of a previous OI investigation, he is acutely aware of penalties for providing false information.

   Since AYRES was distinct in his recollection of events and identified other operators who were allegedly aware that the access door lock to the irradiator cell was defective, it is more likely than not, that certain information provided in the Enforcement Conference by licensee management, particularly JOHN RUSSEN, may not be completely accurate. The staff believes that if RUSSEN or others had prior knowledge that the lock mechanism was defective, then the election to continue operations may have been a willful violation of regulatory requirements, and relevant statements made to the NRC at the Enforcement Conference may have been false, inaccurate or misleading.

2. What are the potential regulatory requirements that may have been violated?

   a. Radiation Technology Incorporated may have willfully and deliberately continued irradiator operations with an entry control device (irradiator cell access door lock) that was not functioning properly in direct violation of 10 CFR 20.203(c)(6).

   b. Radiation Technology Incorporated or certain employees, may have provided false, incomplete or inaccurate information to the NRC contrary to 10 CFR 30.9 or the Atomic Energy Act.

3. If no violation is suspected, what is the specific regulatory concern?

Not Applicable

4. Why is an investigation needed for regulatory action and what is the regulatory impact on the matter, if true?

Radiation Technology Incorporated was previously the subject of several OI investigations that revealed that the licensee made material false statements and provided falsified records to the NRC; and attempted fraud and conspiracy to prevent the NRC from effectively regulating RTI's licensed activities. Several former RTI management personnel were indicted and convicted for criminal offenses as a result of these investigations.

Different personnel are currently involved with the operations and management of RTI's facility in Rockaway, New Jersey. However, the possible willful violation of regulatory requirements, particularly with regard to the access control device; and the possibility that certain licensee management personnel may have provided a false or inaccurate account of events pertaining to these violations is sufficient to cause concern about the licensee's integrity, ability to perform licensed activities without compromising public health and safety, and commitment to conduct licensed activities in conformance with the applicable regulatory requirements.

An investigation is needed to (1) determine if licensee management personnel, including the RSO, had prior knowledge that the irradiator cell access control device (door lock mechanism) was not properly functioning before it was discovered as defective by audit conducted on February 13, 1989; (2) determine if irradiator operators had ever gained access to the irradiator cell without use of the required access key, and if so, if management (including the RSO) was aware of such events; (3) determine if information provided by the licensee, including the RSO, at the Enforcement Conference on April 26, 1989, was false or misleading relative to events concerning the proper functioning of the access control device.

C. Requestor's Priority

1. Is the priority of the investigation high, normal, or low?

High

2. What is the estimated date when the results of the investigation are needed?

It is requested that an investigation be initiated as soon as possible, preferably by May 5 but no later than May 12, 1989.

EXHIBIT 1
PAGE 3 OF 15 PAGE(S)

3. What is the basis for the date and the impact of not meeting this date?

An Enforcement Conference has already been held with Radiation Technology Incorporated. In light of the previous enforcement history, if it is determined that the licensee willfully violated NRC regulations; or provided false, inaccurate, or misleading information in response to the NRC's inquiry, the Commission will have to consider immediate enforcement options. Such options in this case could include immediate revocation or suspension of licensed activities.

D. Contact

Staff Members: John R. White; Marlene J. Taylor

E. Other Relevant Information

Enforcement Conference Briefing Package, dated April 17, 1989, including Inspection Report No. 030-07022/89-001 (attached)

Discrepant information noted from the Enforcement Conference conducted April 26, 1989, as compiled by Marlene Taylor (attached)

RTI's position relative to the violations identified in the Enforcement Conference conducted on April 26, 1989, as compiled by John R. White (attached)

Draft Memorandum of Interview With Michael A. Ayres, as developed by OI Investigator Ernest Wilson (attached)

William T. Russell
Regional Administrator

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EXHIBIT 1
PAGE 4 OF 15 PAGE(S)

RADIATION TECHNOLOGY INCORPORATED
DISCREPANCIES

ISSUE: REPAIR OF DOOR HANDLE

INSPECTION: AYERS stated the cell door knob came loose about 1 to 2 weeks prior to week of 2/5/89. The knob was tightened and appeared to be fixed. During the week of 2/5/89 the door knob again came loose. The knob was tightened again. AYERS stated that he saw that the inside door knob had been damaged and that both sides were turning at the same time. This caused the latch not to connect properly with the solenoid in the door jamb which allowed the cell to be opened without the use of the key. AYERS stated that he identified the malfunctioning door problem to SHAPIRO during the 2/14/89 audit. SHAPIRO suspended operations until a new knob was placed on the door.

AYERS INTERVIEW: AYERS was not sure if it was 1 or 2 weeks prior to the audit when he noticed that the door knob was loose. AYERS told SINGLETON & RUSSEN of the problem. AYERS & RUSSEN tightened the faceplate around the knob. This corrected the problem. A couple of days later AYERS noticed that the knob was loose again. AYERS informed SINGLETON & RUSSEN again of the problem. AYERS & RUSSEN tightened the screws inside the door knob. This corrected the problem. Again in a couple of days AYERS noticed that the knob was loose and that the entire knob could be turned. AYERS informed SINGLETON & RUSSEN of this problem. AYERS stated that RUSSEN told him to fix it. So AYERS tightened the screws in the faceplate and in the knob like they (he & RUSSEN) did before. AYERS stated that the same problem occurred at least 1 more time prior to the audit. On that occassion AYERS did not notify RUSSEN of the problem because he thought that RUSSEN would just tell him to fix it. AYERS fixed the knob by tightening the screws in the faceplate and in the knob. During the 2/14/89 audit SHAPIRO asked AYERS what would happen if he (SHAPIRO) tried to open the cell door. AYERS informed SHAPIRO that the knob was not functioning properly and that the door could be opened. SHAPIRO tested the door and was able to open it without using the required key. Operations were immediately suspended. RUSSEN checked the door knob and suspended operations until the handle was fixed. AYERS stated that the knob had to be cut from the door which took about 2 hours. AYERS also stated that before a new lock was purchased the knob from the back door of Bldg. 62 was removed and tried on the cell door. This did not work since the latch was not long enough to trip the solenoid. FRANK GIACANO (Material Handler) went to the store to buy a new door knob which would work on the cell door. This took several hours.

ENFORCEMENT CONFERENCE:

VARAKLIS & RUSSEN stated that only the faceplate of the knod was loose and this was brought to RUSSEN's attention the week of 2/5/89 by only 1 operator (AYERS). This was tightened by RUSSEN & AYERS. This was the first time the problem was brought to their attention. During 2/14/89 audit SHAPIRO was able to open cell door, after exerting great force, without using the key. Operations were suspended immediately. A Materials Handler was sent to buy a new handle. A new door handle was installed and operations resumed within 2 hours.

EXHIBIT 1

PAGE 6 OF 15 PAGE(S)

ISSUE: RECORD OF DOOR HANDLE NOT FUNCTIONING

INSPECTION: Operator (AYERS) that reported the problem stated that he did not document it in the Operator's Log Book as he should nave. In 2/14/89 audit SHAPIRO informed AYERS that all problems are to be documented in the log book.

AYERS INTERVIEW: He did not document any of the instances with the malfunctioning door handle. He stated that he was reprimanded by SHAPIRO during his 2/14/89 audit for not documenting the incidents with the door handle.

ENFORCEMENT CONFERENCE: VARAKLIS, SHAPIRO, & RUSSEN stated that there are no records other than those on 2/14/89 indicating that there was a problem with the door handle prior to that date.

EXHIBIT 1
PAGE 7 OF 15 PAGE(S)

ISSUE: ENTRY INTO THE CELL WITHOUT USING THE REQUIRED KEY

INSPECTION: Information not known at time of the inspection.

AYERS INTERVIEW: AYERS stated that after the inspection he was told by someone that 2 operators (SMITH & KEIM) had entered the cell without using the irradiator key because they had left the survey meter with the attached key inside the cell. The entries occurred on two seperate occassions during the period of time from 2/5/89 to 2/14/89. This was the period of time in which the door handle was malfunctioning. AYERS immediately told RUSSEN what he had heard regarding the operators entries into the cell.

ENFORCEMENT CONFERENCE: VARAKLIS, SHAPIRO, & RUSSEN denied that any operator had gained access into the cell, with the source either in the up or down position, without the use of the irradiator key. They also stated that all entries are recorded on the computor.

ISSUE: FIXING THE CONSOLE KEY SWITCH

INSPECTION: Log entry for 2/1/89 indicates that there was a problem with the console key switch. Other log entries indicated that this problem repeated itself on several other occassions. The operator (AYERS) stated that the console key switch was removed and switched with the 90 second actuation (cell key switch) key switch located in the cell. On 3/9/89 The operator (AYERS) stated that the Startup horn sounded immediately after the cell key switch was activated. The switch was found to be locked in the "on" position. AYERS stated that he contacted RUSSEN. AYERS stated that RUSSEN disconnected the wires to the cell key switch and installed a toggle switch so operations could continue. This procedure was approved in a meeting attended by RUSSEN, SHAPIRO & VARAKLIS. RUSSEN sent a memo dated 3/9/89 documenting the change to all operators. On 3/10/89 the toggle switch was removed and another key switch was installed.

AYERS INTERVIEW: Not addressed

ENFORCEMENT CONFERENCE: RUSSEN stated that he was not around when the problem occurred in 2/89. RUSSEN stated that SINGLETON was on duty when there was a problem in 2/89. RUSSEN stated that SINGLETON was having a problem with the console key switch. SINGLETON talked to JOHN WALLACE in South Carolina regarding how to fix the key switch. WALLACE told SINGLETON to take the switch out and clean it then it should be ok. SINGLETON did this, replaced the switch in the console and found that it operated properly. RUSSEN stated that SINGLETON documented everything in the Supervisor's Log Book. RUSSEN stated that on 3/9/89 there was a problem with the cell key switch. In a meeting attended by Varaklis, SHARPIRO, & RUSSEN it was decided to install a toggle switch in place of the key switch so that operations could continue. A toggle switch was installed on 3/9/89. A new key switch was installed on 3/10/89.

ISSUE: ADDITIONAL PROBLEM WITH THE CELL KEY SWITCH

INSPECTION: Not addressed

AYERS INTERVIEW: AYERS stated that on 4/1//89 there was a problem on D. KEIM's shift with the cell key switch. AYERS stated that KEIM was unable to initiate operations. AYERS stated that KEIM notified both RUSSEN and himself about the problem. AYERS stated that KEIM told RUSSEN that the problem involved the cell key switch. RUSSEN told KEIM that he did not think it was since it was a new switch. AYERS reported to work at approximately 0600 hours and discovered that the plastic cam in the cell key switch had been damaged by the high radiation fields present in the irradiator cell during operations. AYERS gave the damaged cam to RUSSEN. RUSSEN told AYERS that they would continue to have this problem with the cell key switch unless a more durable type was used.

ENFORCEMENT CONFERENCE: RUSSEN stated that there have been no problems with the cell key switch, other than the one that occurred on 3/9/89.

EXHIBIT 1

PAGE 10 OF 15 PAGE(S)

APPENDIX A

PROPOSED NOTICE OF VIOLATION

AND RTI, INCORPORATED'S POSITION AS STATED

IN THE ENFORCEMENT CONFERENCE ON APRIL 25, 1989

A. 10 CFR 20.203 (c)(6) requires that each entrance or access point to a high radiation area be equipped with entry control devices which will function automatically to prevent any individual from inadvertently entering the area when such radiation levels exist; and that no operations shall be conducted unless such entry control devices are functioning properly.

Contrary to the above, during the week of February 5, 1989 the lock mechanism on the personnel access door was malfunctioning such that access to the high radiation area could have inadvertently occurred; and management, though informed and knowledgeable of the safety device failure, did not take effective corrective action, and permitted continued operation of the irradiator system until February 14, 1989, when the problem was identified by a internal safety audit.

The licensee denies this violation. The RSO (RUSSEN) contends that nothing more serious than a loose cover plate was ever reported by the operator (AYRES) in the period between February 5 and 13, 1989; and that in these instances (2) he (RUSSEN) made the repairs. RUSSEN stated that the door lock was fully functional until February 13, 1989. At that time, the RTI auditor (SHAPIRO) stated that he vigorously shook the door and gained access without use of the key while the irradiator was operating. SHAPIRO stated that he contacted RUSSEN and directed him to shut down the irradiator until the door lock system was repaired. RUSSEN stated that when he observed the door lock, the inside knob was physically damaged, apparently from being slammed against the adjacent wall. RUSSEN opined that the damage was sufficient to render the door lock unusable. He indicated that action was taken to replace the door lock mechanism before returning the irradiator to service.

This statement is in conflict with information reported by AYRES to the NRC inspector TAYLOR.

EXHIBIT 1

PAGE 11 OF 15 PAGE(S)

B. License Condition 22 requires that the licensee follow the written instructions contained in the following: Procedure 9.100 "Irradiator Start-up", Procedure 9.102 "Irradiator Interlock Testing", and Procedure 9.500 "Preventative Maintenance". All changes to these procedures must be approved, prior to implementation, by the Commission.

Procedure 9.100 submitted with letter dated May 25, 1989, requires the 90 second start-up time delay (cell start-up key switch) to be activated with the machine key.

Contrary to the above, on February 9, 1989, the licensee removed the 90 second start-up time delay (cell start-up key switch) and installed a toggle switch for the purpose of continuing irradiator operations without the prior approval from the Commission. This change in procedure and hardware remained in effect until February 10, 1989.

The licensee accepts this violation. VARAKLIS stated that licensee management gave deliberate consideration to whether replacement of the cell key switch with a toggle switch was in violation of the license by reviewing the license condition and application. However, he stated the the licensee did not review the actual procedures that were cited in the license condition and consequently failed to recognize that use of the machine key for activation of the cell key switch was specifically identified. SHAPIRO and VARAKLIS indicated that had they reviewed the procedure that they would have informed the NRC prior to replacing the cell key switch with a toggle switch.

C. 10 CFR 20.408(b) and 20.409(b) requires the licensee to report to the Commission, and to the individual involved, of the radiation exposure of each individual who has terminated employment. Such report shall be furnished within 30 days after the exposure of the individual has been determined by the licensee or 90 days after the date of termination of employment or work assignment, whichever is earlier.

Contrary to the above, as of March 21, 1989, the licensee had not provided this information to all individuals that had terminated their employment or who had been reassigned. Reports were not sent to the individuals until March 22, 1989, upon identification of the requirement by the NRC, though the violation was previously identified by the licensee's third-party audit program on December 21, 1989.

The licensee accepts this violation. RUSSEN stated that he was responsible for preparing the documentation to the former employees but failed to perform as required. He states that as of this date, all of the letters have been sent to the employees and the NRC as required. He further stated that he now has [illegible]ork assigned to assist with this task.

D. License Condition 20.A. requires that within ten working days of the filing of each quarterly third-party audit report, the licensee shall provide to the Commission a written description of any corrective actions in response to the audit findings.

Contrary to the above, as of March 23, 1989, the licensee has not submitted to the Commission a response to the December 21, 1988 third-party audit.

The licensee accepts this violation. RUSSEN stated that he did not recall getting of copy of the third-party audit findings for review; and subsequently failed to review the findings and submit corrective actions as required. The licensee's corrective actions have since been submitted to the NRC as required. SHAPIRO outlined a new administrative system involving a Radiation Safety Committee protocol for reviewing and tracking the corrective measures for all audit findings.

E. License Condition 15 requires that after installation of cobalt 60 source s greater than the quantity for which a previous radiation survey has been conducted, and prior to initiation of the irradiation program, a radiation survey shall be conducted to determine maximum radiation levels in each area adjoining the irradiation room. A detailed report of the survey is to be sent to the Commission no later than 30 days following the installation of the source(s).

Contrary to the above, area radiation surveys were not conducted following the installation of additional cobalt 60 source(s) and prior to the initiation of the irradiation program on August 15, and November 22 and 23, 1988.

The licensee accepts this violation. However, VARAKLIS stated that relative to the sources that were loaded on or about August 15, the accumulated activity was less than was previously installed in the pool in 1983. Consequently, a survey was not technically required for that installation. VARAKLIS admitted that the source installation performed November 23 and 24, 1988 did increase the accumulated activity to 1.3 million curies, and consequently did require a more comprehensive survey than was performed.

F. Condition 26 of the license requires that licensed material be possessed and used in accordance with statements, representations and procedures contained in an application dated June 2, 1987, and letters dated April 8, 1988, May 25, 1988, June 7, 1988, and September 8, 1988.

1. Item 5 of the "Access Control Devices" section contained in the letter dated April 8, 1988, requires a needle gauge in the control room to monitor the irradiator pool water level.

Contrary to the above, as of March 23, 1989, the licensee had not installed a needle gauge to monitor the irradiator pool water level.

The licensee denies this violation. VARAKLIS contends that a letter dated May 25, 1988 (also referenced in Condition 26) was intended as a change to the device previously described in the letter dated April 8, 1988.

2. Item 4 of the "Access Control Devices" section contained in the letter dated April 8, 1988, requires that a radiation monitor be mounted over the storage pool that would alarm if high radiation levels existed. The alarm was to be audible in the control room and the storage pool room.

Contrary to the above, as of March 23, 1989, the audible alarm installed above the storage pool was only audible in the storage pool room.

The licensee accepts this violation. The alarm systems has been subsequently changed so that it is now audible in the control room.

3. Section D of Item 10.1 contained in letter dated April 8, 1988, states that the Radiation Safety Officer is responsible for ensuring full compliance with all elements of the Radiation Protection Program for the plant. The correct operation of the Maze Access Control, specifically, the electric latch that locks the cell door shut while the irradiator is in the exposed position is a required safety feature and an element of the plant's Radiation Protection Program.

Contrary to the above, on or about February 5, 1989, the Radiation Safety Officer failed to assure all elements of the Radiation Protection Program were effectively established, implemented and maintained relative to the malfunctioning of the lock mechanism on the Maze Access Door.

The licensee denies this violation. The licensee reasons are the same as specified for for Violation A.

EXHIBIT 1

PAGE 14 OF 15 PAGE(S)

4. Procedure .0.2.E.3. submitted in letter dated June 7, 1988, requires that the monitor on the water treatment system be verified for proper operation monthly by comparison to a portable survey instrument.

Contrary to the above, as of March 23, 1989, the monitor on the water treatment system was not checked for proper operation on a monthly basis by comparison to a portable survey instrument.

The licensee denies this violation. VARAKLIS and RUSSEN contend that though a specific survey to compare the indication of the radiation monitoring system with a portable instrument was not performed and documented on a monthly basis as technically required, the water treatment system was surveyed weekly sufficient to meet the intent of this requirement.

5. Procedure 4.500 submitted in letter dated May 20, 1989, describes various preventative maintenance procedures that must be conducted and their required frequency.

Contrary to the above, as of March 23, 1989, the licensee had not performing all the required preventative maintenance procedures. Specifically, no quarterly or semiannual checks had been performed as required, and not all of the monthly checks were performed. In addition, records indicated that preventative maintenance was not initiated until January 20, 1989, though the irradiator had been in operation since August 1988.

The licensee accepts this violation. However, RUSSEN indicated that there are no semiannual checks required by procedure, even though a semiannual preventative maintenance reporting form is maintained. VARAKLIS indicated that the preventative maintenance system was an evolving program and thus not implemented until January 1989.

EXHIBIT 1
PAGE 15 OF 15 PAGE(S)