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Report of Investigation

Radiation Technology, Incorporated:

Determining the Veracity of Statements Made by
Licensee Management

Office of Investigations

Reported by OI: RI

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Title: RADIATION TECHNOLOGY, INCORPORATED:

DETERMINING THE VERACITY OF STATEMENTS MADE BY LICENSEE MANAGEMENT

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Rockaway, New Jersey 07866

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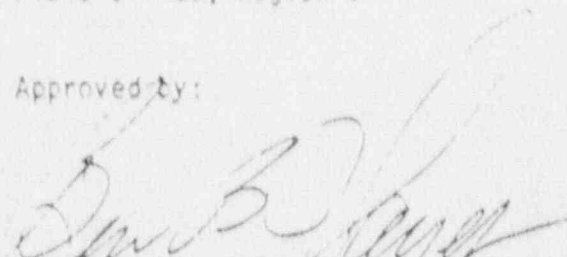

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SYNOPSIS

Based upon a written request dated May 2, 1989, from the Regional Administrator, Region 1, the Office of Investigations (OI) was requested to determine: (1) the veracity of statements made by licensee management, particularly the Radiation Safety Officer (RSO), at an Enforcement Conference (EC) held on April 26, 1989; (2) if licensee management, including the RSO, had prior knowledge that the irradiator cell access control device (door lock mechanism) was not properly functioning before being discovered during a licensee internal audit on February 13, 1989; and (3) if the irradiator operators had ever gained access to the irradiator cell without use of the required access key and, if so, whether management was aware of such events.

Radiation Technology, Inc. (RTI), Rockaway, New Jersey, which now does business as Process Technology North Jersey, is licensed by the Nuclear Regulatory Commission (NRC) to perform irradiation activities using Cobalt 60 at its facility in Rockaway, New Jersey. The cobalt-60 is stored in the irradiator pool in the cell area. The cell area is accessible by only one means, through the cell maze personnel access door, which by regulation, must be equipped with certain control and safety devices that create positive control over each individual entry. Further, license conditions mandate licensee responsibility for the actions of its employees; that the Chief Executive Officer (CEO)/President run the corporation in a safe manner; and that the RSO ensure full compliance with all elements of the radiation protection program, a portion of which involves the proper functioning of the cell maze access door.

A safety inspection conducted by the NRC on March 21 and 23, 1989, resulted in the documentation of 10 "apparent violations," 2 of which were pertinent to this OI investigation: the failure to maintain high radiation area entry control device (personnel access door) in accordance with regulations; and the failure of the RSO to perform assigned duties in accordance with license conditions. As part of this inspection, OI assisted in the interview of one irradiator operator (Operator No. 1) on April 11, 1989, which gleaned information to the effect that the RSO had been previously informed that the access door to the cell could be opened without using the required latch key, even though it was considered locked. Operator No. 1 indicated that he told the RSO that two other operators (Operators No. 2 and No. 3) had entered the door in this manner, contrary to the design of the access control device system. Operator No. 1 subsequently admitted that his original information was, in part, false, in that Operators No. 2 and No. 3 actually entered the cell by climbing through an opening above the access door.

An EC was conducted on April 26, 1989, wherein RTI management, in the persons of the CEO/President, two Vice Presidents, and the RSO, denied or failed to acknowledge in response to NRC questions, that they possessed any information or knowledge that the irradiator cell had been entered by persons without use of the required key. Also, the RSO informed the NRC that an exchange of the irradiator console and cell start-up key switches never took place, which was contrary to what had been reported by Operator No. 1.

Testimonial and documentary evidence acquired during this investigation determined that Operator No. 1 did force the access door open without the use

of the required key at least once prior to an internal audit on February 13, 1989, and that Operator No. 1 informed the RSO and plant superintendent of the incident during the week preceding the audit. The audit resulted in the shutdown of the irradiator by the RSO and the installation of a similar door knob assembly. The RSO was further informed by Operator No. 1 before the audit that the door knob latch assembly was loose, that the inside door knob was damaged from apparently being slammed against the maze wall, and that Operator No. 1 gained entry by forcing the loosened knob and pushing open the door.

The RSO testified that he was told by Operator No. 1 on at least two occasions prior to the February 13 audit, that he (Operator No. 1) had forced open the access door due to the looseness of the latch assembly. However, on each of these two occasions, the RSO testified that he and Operator No. 1 tightened the knob latch assembly, and that they were both satisfied that the door latch worked properly and prevented personnel from gaining access to the cell. Additional testimony by Operator No. 1 indicated that the door knob assembly continued to intermittently loosen approximately three more times (without entry being made into the cell), and that, these instances were also reported to the RSO before the audit. The RSO testified that the operator, on one of these occasions, reported the damage to the inside knob, however, the RSO admitted that he did not, as he should have, inspect the door to witness the reported damage. The RSO also testified that he provided "wrong" information at the EC when he stated that he was not aware of the damage to the inside door knob until February 13th.

Testimonial and documentary evidence gathered during this investigation also disclosed that Operators No. 2 and No. 3 gained access to the irradiator cell by climbing over the locked access door and dropping down into the cell maze because they had left the irradiator key inside the cell. The RSO testified he was aware of these events prior to the EC and "definitely" discussed the matter with the Vice President of Operations/Engineering, who also attended the EC.

The RSO testified that an NRC question of whether RTI management had any knowledge or information of individuals gaining keyless access to the cell was asked at the EC. The RSO readily acknowledged that he answered "No" to that question, even though he had been informed of such entries. However, the RSO testified that he assumed the NRC was well aware of Operator No. 1 being able to force the door open prior to the internal audit and his "No" answer was to keyless entries other than what the NRC was already aware of. The RSO stated he did not report the climbing method of keyless entries, because "they never came to mind," since he considered the focus of the NRC questions to be on the door knob latch mechanism and the possibility of forced entries. The RSO said he did provide inaccurate information ("a wrong answer, a guess") to questions regarding the computer printout records of the irradiator, which RTI relied on at the EC to confirm their claim that they were unaware of forced entries through the cell access door. He subsequently corrected this erroneous information in a letter to NRC.

The Vice President of Quality attended the EC and testified during this investigation that he was told by Operator No. 1, prior to the February 13 audit, that the access door would "probably open" if forced due to the damage. The Vice President of Quality said he did not reveal this at the EC, because

he was not sure if the operator had actually been able to open the door by using force. Additionally, he stated he was aware of one of the climbing incidents, but did not mention it at the EC as a keyless entry, because the focus of the EC was on the possible violation of the safety interlocks.

The Vice President of Operations/Engineering attended the EC and initially testified during this investigation, as he had at the EC, that he was not aware of any keyless forced entries or other keyless entry incidents prior to the EC. However, during a subsequent OI interview, he admitted that he had been told by Operator No. 1, two days before the EC, that Operator No. 1 had forced open the access door without using the key prior to the internal audit (February 13th). Additionally, notes in the Vice President's own handwriting corroborate this fact. The Vice President claimed that he had made an "honest mistake" and had forgotten about this fact at the EC and during his first OI interview. It was determined, however, that this Vice President was sent a copy of an internal memorandum, dated two days prior to the EC, regarding the climbing incidents.

The CEO/President was in attendance at the April 26, 1989, EC and testified during the investigation that he was not aware of any keyless entries of the cell door until after the EC. He maintained that he did not become aware of keyless entries until May 1989, despite two memoranda, dated April 17 and April 24, 1989, which were routed to the CEO, depicting one forced entry and the climbing incidents respectively. The April 17 memorandum was prepared for the CEO by the RSO, at management's direction, which the RSO believes came from the Vice President of Operations/Engineering.

The RSO testified that he provided a "wrong" answer during the EC to the question of whether or not the exchange of the console key switch for the cell start-up switch ever took place. He stated at the EC that the exchange did not occur. However, the RSO said he later learned that it had occurred and remembered that he had known about it at the time it took place. The RSO said he did not recollect the exchange while at the EC.

Based upon the testimonial and documentary evidence acquired during this investigation, it is concluded that the licensee, acting with careless disregard for regulations, violated the requirements of 10 CFR 20.203 by allowing it to be possible for three separate operators to gain keyless access to the irradiator cell by forcing the "locked" door open and by climbing over the cell door during the period of September 1988 to February 13, 1989. Furthermore, it is concluded that the RSO and plant superintendent acted with careless disregard for regulations and safety (10 CFR 20.203) by allowing irradiation operations to continue with a less than fully functional door lock mechanism.

It is also concluded, based on testimonial and documentary evidence, that the CEO/President; the Vice President of Operations/Engineering; the Vice President of Quality; and the RSO acted with careless disregard and violated 10 CFR 30.9 when they denied or failed to acknowledge at the EC that they had any knowledge or information concerning keyless entries of the cell door. Also, tangential to the specific denial of the RSO, is the RSO's admission during this investigation that he provided inaccurate information ("a wrong statement, a guess") at the EC when he told NRC that the computer shows "all entries" of the cell door, regardless of whether the source is up (unshielded)

or down (shielded). It is concluded that this is of particular significance inasmuch as testimony during the investigation disclosed that the licensees relied on the computer records to substantiate their claim at the EC that they had no knowledge of keyless entries.

Based upon testimonial and documentary evidence, and supported by an admission, it is also concluded that the RSO willfully uttered a falsehood to the EC relative to when he was first made aware of possible damage to the inside door knob on the cell door.

Finally, based on testimonial evidence and an admission by operator No. 1, it is concluded that he intentionally provided false information to the NRC regarding the manner in which the cell door had been breached by Operator No. 2 and 3.

ACCOUNTABILITY

portions of this report of investigation (Case No. 1-89-06
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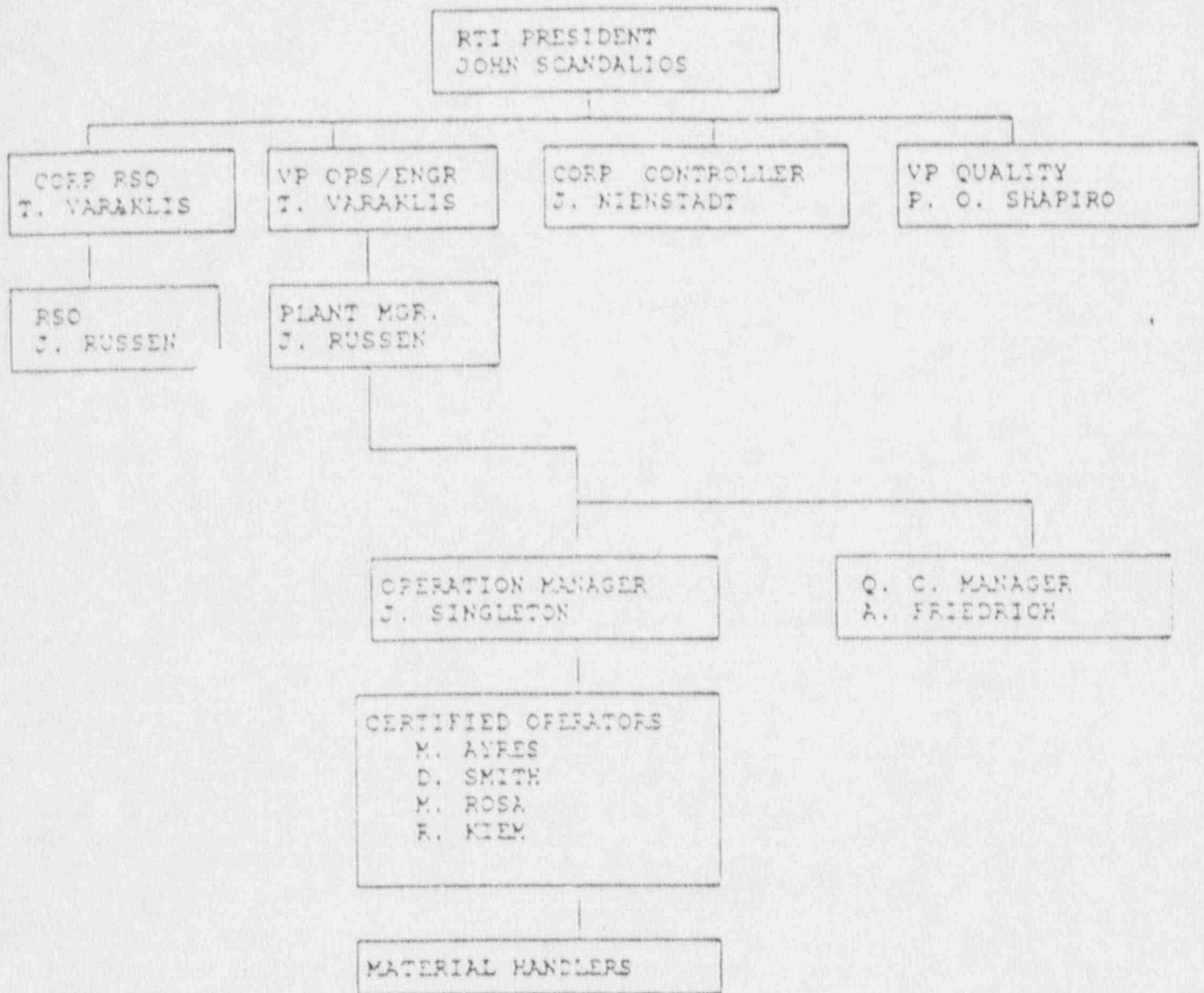
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DETAILS OF INVESTIGATION

Purpose of Investigation

Based upon a written request from William T. RUSSELL, Regional Administrator, Nuclear Regulatory Commission (NRC), Region I, King of Prussia, Pennsylvania, dated May 2, 1989, the Office of Investigations (OI), was requested to determine: (1) the veracity of statements made by licensee management, particularly the Radiation Safety Officer (RSO), at an Enforcement Conference (EC) held on April 26, 1989; (2) if licensee management, including the RSO, had prior knowledge that the irradiator cell access control device (door lock mechanism) was not properly functioning before being discovered during an internal licensee audit; and (3) if the irradiator operators had ever gained access to the irradiator cell without use of the required access key and, if so, whether management was aware of such events. The request for investigation is Exhibit 1.

Background

Radiation Technology Incorporated (RTI), Rockaway, New Jersey, now doing business as Process Technology North Jersey, is licensed (Exhibit 2) by the NRC to perform irradiation activities at the North Jersey facility located at 108 Lake Denmark Road, Rockaway, New Jersey. License No. 29-13613-02 authorizes RTI to use, receive, acquire, possess, and transfer various byproduct materials as listed in the license, including Cobalt-60, which is used for service irradiation in the RTI model 2101 Irradiator and stored in the irradiator pool in the cell area. The cell is accessible by only one means, through the cell maze personnel access door (cell door), which is required to be equipped with various control and safety devices in accordance with Title 10 of the Code of Federal Regulations (CFR). License conditions also mandate that the licensee be responsible for the conduct of the irradiator program and the actions of employees; the Chief Executive Officer (CEO)/President be responsible for running the corporation in a safe manner in full compliance with regulations; and the RSO be responsible for ensuring full compliance with all elements of the radiation protection program for the plant (Exhibit 3, an excerpt from license Condition 26, Amendment letter dated December 12, 1988, part 10.1.).

During an NRC Routine Safety Inspection, conducted on March 21 and 23, 1989 (Exhibit 4, Inspection Report No. 030-07022/89-001), NRC Inspector Marlene J. TAYLOR found 10 apparent violations, 2 of which were pertinent to this investigation: the alleged failure to maintain high radiation area entry control device in accordance with 10 CFR 20.203; and alleged failure of the RSO to perform assigned duties as represented by License Condition 26, supra.

Included in the NRC inspection was an interview with RTI irradiator operator, Michael A. AYRES, conducted by the reporting Investigator and M. TAYLOR on April 11, 1989 (Exhibit 5). The interview gleaned information to the effect that the RSO of RTI had previously been informed by AYRES that the cell door, during a specific period of time, though considered locked, could be opened without use of the required key and, in fact, had been entered in such a fashion by irradiator operators.

A notice of the EC, dated April 17, 1989, was sent to RTI and indicated that the failure of the lock mechanism on the cell door would be a topic of discussion (Exhibit 6).

At the EC held at NPC, Region 1, on April 26, 1989, RTI management was asked several times if they had any information that indicated that the irradiator cell had been entered by persons without use of the required key. In response, RTI management denied or failed to acknowledge that they possessed any information or knowledge of such an event. A report of the EC was prepared by M. TAYLOR (Exhibit 7).

Initial Interview of Michael A. AYRES (Operator No. 1)

AYRES, Shift Supervisor/Irradiator Operator, RTI, was interviewed by the reporting Investigator and M. TAYLOR, on April 11, 1989, in Rockaway, New Jersey (Exhibit 5). AYRES was notified that the interview would center on NRC concerns involving the reported malfunctioning door knob on the personnel access door to the irradiator cell, as well as RTI's procedures to deal with same. AYRES explained the following chronology of events regarding the door knob:

He reported that, in about late January 1989, he found that the door knob on the access door had become "a little loose," and if ignored, he thought it might continue to loosen to the point of becoming "useless." AYRES reported that within five minutes or so, he personally went to the PSO, John RUSSEN, and reported the looseness of the door knob. AYRES also recalled personally advising the Plant Superintendent, John SINGLETON, of the problem at or about the same time. AYRES disclosed that he and RUSSEN immediately went to the access door, where RUSSEN used a screwdriver to tighten the screws in the face plate which accomplished the goal of securing the knob. AYRES indicated that the problem was solved and the door knob functioned properly. The loosening of the knob occurred again a few days to a week later on AYRES' shift. AYRES reported that he again notified SINGLETON in person by indicating to him that "the knob was loose and needed tightening again," to which AYRES recalled SINGLETON retorting, "not again!" AYRES then notified RUSSEN directly and they proceeded to tighten the door knob, this time by securing the inner screws of the latch mechanism. AYRES, RUSSEN, and SINGLETON agreed that the knob was once again functional and no further corrective action was warranted, according to AYRES.

AYRES recalled that this loosening and tightening scenario occurred one or two additional times [making a total of three or four occurrences] between the 5th and 13th of February; he recalled being told to "fix it" or "handle it" by RUSSEN after the first two times. AYRES stressed that if he thought it was a safety concern, which he did not, he would have called the NRC. However, AYRES stated that the interlock system consisting of the electronic key latch, the top portion of the access door (microswitch), and the cell key switch were all operating properly and, as he considered it, were independent of the door knob.

AYRES disclosed that during RTI's internal audit of February 13, 1989, the Vice President of Quality, Paul SHAPIRO, in a controlled test, was able to forcefully push open the access door without using the irradiator key due to the looseness of the door knob latch; however, the backup access control

system worked properly and the source immediately dropped into the shielded position. AYRES explained that repeatedly tightening the screws in the door knob must have resulted in greater fatigue and loosening of the screws on each occasion until the 13th. AYRES noted that when RUSSEN observed this occurrence on the 13th, he (RUSSEN) immediately ordered the irradiator shut down until the door knob was replaced. The irradiator remained shut down for two to three hours while the new door knob was installed.

AYRES opined that management did not willfully permit operation of the irradiator while knowing that the door knob latch was inoperable. AYRES stated that, at the very worst, the door still functioned at least intermittently. AYRES did not believe RUSSEN was aware of the door failing to securely latch on occasion until the 13th of February. AYRES stated that he did not articulate to RUSSEN or SINGLETON the extent of the problem or the potential seriousness of the door knob malfunction. AYRES admitted it was his (AYRES') responsibility to handle the problem and document the facts. AYRES also admitted that he failed to document the incidents. AYRES predominately blamed the incident on miscommunications between himself, SINGLETON, and RUSSEN. AYRES stated that, to his knowledge, none of the other shift operators pointed out the deteriorating door knob latch to RUSSEN or other RTI officials.

AYRES reported that, after the knob was replaced, RUSSEN instructed him to make any future problems known immediately and to indicate just how serious they could be. AYRES noted, however, that contrary to RUSSEN's desire for increased communications, SINGLETON has told him in the past never to volunteer information to the NPC. AYRES explained that this comment was made to him "a while back" regarding inspections of RTI in general and was not made in any formal manner or in reference to any specific incident; he could not be more detailed as to when this occurred. AYRES continued that SINGLETON said that "the inspector would find things in the logs anyway and there was no need to volunteer information."

AYRES disclosed that after the NRC inspection he heard from unrecalled sources at RTI, that while the door knob mechanism was intermittently malfunctioning, two operators actually left their meter and irradiator key in the cell maze on separate occasions. AYRES believes the two operators were Dave SMITH and Robert KEIM. AYRES heard that these individuals were able to re-enter the locked access door by forcing the loosened knob in order to retrieve the irradiator key/meter. AYRES stated that, even though it was after the fact, he immediately reported these occurrences to RUSSEN, but he was not privy to what, if any, action was taken. AYRES never confronted SMITH or KEIM with this information.

Finally, AYRES disclosed that he was called at home on April 11, 1989, as the result of a malfunction of the cell irradiator key switch. AYRES explained that the irradiator had been shut down because portions of the cell key switch mechanism had apparently been destroyed by radiation and the switch rendered useless. A spare cell key switch mechanism had to be installed prior to restarting irradiation processing. AYRES also reported that later the same day he attended a meeting that lasted 1 1/2 hours wherein routine shutdown procedures were discussed. AYRES noted that the meeting was set up as part of an NRC requirement to hold periodic meetings. Past RTI problems and the resultant attorney's fees expended were mentioned by RUSSEN. AYRES reported

that the RSO implored the personnel at the meeting to remain in compliance with the NRC, adding that "if RTI got a major fine, it would wipe us out."

Acquisition of RTI Internal Audit Document

M. TAYLOR provided the reporting Investigator with a copy of the results of the RTI internal audit, dated February 14, 1989, signed by SHAPIRO, Vice President. The audit states, "The cell door was able to be opened without the key, thus negating the safety interlock" (Exhibit 8).

Interview with NRC Officials

M. TAYLOR was interviewed on May 15, 1989 (Exhibit 9). The interview was conducted in order to obtain factual insight to the exchange of information that took place at the RTI EC.

M. TAYLOR acknowledged that she conducted the inspection of RTI that resulted in the EC. M. TAYLOR opined that RTI management, particularly the RSO, RUSSEN, as well as the Vice President of Operations/Engineering, Anastase VARAKLIS, made at least two false oral statements at the EC. M. TAYLOR explained that the two apparent false statements stem from the comparison of information from the EC to that provided by one of the four RTI irradiator operators (AYRES) during and after the NRC inspection of March 21 and 23, 1989. M. TAYLOR reported that at the EC RUSSEN advised in substance that he (RUSSEN) was not aware of any individuals entering the cell maze without using the irradiator key during the period of the malfunctioning door knob latch mechanism (approximately February 5 - 13, 1989). M. TAYLOR further recalled that VARAKLIS advised at the EC that RTI computer records from December 8, 1986, forward showed no indications that any person gained access to the cell maze without using the appropriate key. Other RTI management personnel at the EC, namely John SCHICHALIOS, President/CEO and SHAPIRO, Vice President of Quality offered little or no response relative to the computer records.

M. TAYLOR noted that NRC's Malcolm KNAPP, Director of the Division of Radiation Safety and Safeguards (DPSS), Region 1, asked for confirmation, at least twice at the EC, that the computer records would in fact show all entries into the cell maze; RUSSEN and VARAKLIS responded in the affirmative.

INVESTIGATOR'S NOTE: AYRES, on April 11, 1989, advised that RUSSEN was verbally made aware of two keyless entries of the cell maze before April 11 (Exhibit 5).

M. TAYLOR disclosed that the other apparent false statement at the EC was made by RUSSEN in response to her inquiry regarding the cell key switch and any additional problems associated therewith. M. TAYLOR reported that she asked RUSSEN directly if there were "any more problems" with the key switch ("more" meaning additional to that found in the March 21 and 23 inspection). M. TAYLOR stated that RUSSEN answered, "no," that there were no more problems. M. TAYLOR said she did not pursue the matter. M. TAYLOR noted that RUSSEN's negative response is in direct conflict with information provided by AYRES, which was witnessed by the reporting Investigator. Also, this key switch problem and the fact that RUSSEN was notified is documented in the RTI operator's log for

April 11, 1989, which was copied at RTI by M. TAYLOR on May 5, 1989, and provided to OI (Exhibit 10).

Additionally, M. TAYLOR reported that at the EC RUSSEN said an exchange of the irradiator cell key switch with the console key switch never took place. She added that this is also contrary to what AYRES reported to her during the March Inspection (Exhibit 4).

M. TAYLOR explained that if these statements were in fact false, at the very least, the NRC would no longer have confidence in the RSO. M. TAYLOR advised that if RTI management knew of entries into the cell maze while the door knob latch was malfunctioning and continued irradiation operations nonetheless, they would have been in direct, willful violation of NRC regulations and subject to severe enforcement penalties.

M. TAYLOR reported that RTI management was instructed by NRC officials at the EC of the purpose of the conference and that attention to detail and full compliance was expected of them. M. TAYLOR opined that RTI was on clear notice that NRC would be relying on statements made at the EC.

KNAPP was interviewed at NRC, Region I on May 15, 1989 (Exhibit 11). KNAPP was questioned regarding the EC with RTI and acknowledged his participation.

KNAPP reported that at the EC RTI officials, particularly the RSO, claimed they were not knowledgeable of any personnel gaining keyless access to the irradiator cell maze. They also claimed that they "knew" that no person had entered the cell by forcing the door without using the key because VARAKLIS and RUSSEN personally reviewed records, including computer printout records of cell entries, which gave no indication of forcible entry. KNAPP said he pursued the matter of the computer records with RUSSEN and VARAKLIS at the EC since, if what they stated was accurate and true, the computer records would be a scientific way to prove or disprove whether the cell maze had been forcibly entered. Additionally, RTI's contention that "no one was able to enter the cell door without using the key until February 13, 1989" (the day the door knob mechanism malfunctioned and permitted access during a controlled test conducted during the RTI audit), could also be verified. KNAPP stated that he twice asked for confirmation at the EC that the computer records showed all entries of the cell maze door and KNAPP noted that both RUSSEN and VARAKLIS orally confirmed that the "computer will record any entry, at any time, day or night."

KNAPP reported, however, that on May 8, 1989, he received a letter (Exhibit 15) from the RSO which indicated that the computer did not, as previously stated, printout cell maze door entries while the source was in the shielded (down) position. KNAPP said the letter went on to indicate that RTI's response to questions at the EC relative to the computer printout data were not valid.

KNAPP stated that RTI had relied heavily upon the computer records at the EC as proof positive that no individual had gained access to the cell by forcing the door open without using the key and on RUSSEN's claim of being unaware of any information involving entry of the maze in this manner. KNAPP expressed concern about the competency and integrity of the RSO, especially in light of one operator's claim that the RSO was notified, albeit after the fact and

subsequent to the door knob replacement, that two persons had gained access to the cell by forcing the door open. KNAPP said that regardless of how his questions were interpreted by RUSSEN at the EC, if, in fact, two forced or otherwise inappropriate entries were reported to RUSSEN, RUSSEN should have mentioned that at the EC.

KNAPP advised that if it is determined that RTI management, especially RUSSEN, was aware that entries into the cell by forcing the door had occurred during the period of the intermittently malfunctioning door knob latch and permitted operations to continue, then KNAPP would move to revoke or at least suspend the license of RTI. KNAPP opined that if RUSSEN was aware of the two entries, as alleged, but didn't find out about them until after the fact, i.e., after the door had been repaired on February 13, 1989, or even after the NRC inspection, RUSSEN still should have mentioned this at the EC in response to questions posed by KNAPP. KNAPP explained that RUSSEN not providing that information at the EC creates serious doubts about his credibility as RSO. KNAPP stated that RTI management should not be withholding information and should not be making statements of any kind, oral or written, that they are unsure of when they make them (e.g., the computer records statement, supra).

KNAPP related that at the beginning of the EC RTI management was clearly instructed by him as to the importance of the EC and how seriously the NRC takes these conferences. KNAPP opined that the RTI EC attendees were on notice that NRC would be relying on statements made at the EC.

KNAPP restated that his main concern was the resolution of the cell maze door problem and the conflicting information gathered to date.

Daniel J. HOLODY, Enforcement Officer, NRC, Region I, was interviewed on May 18, 1989 (Exhibit 12). HOLODY was questioned regarding his recollection of statements made by RTI management officials during the EC.

HOLODY recalled that one purpose of the EC was to discuss the irradiator cell door knob mechanism which, during an RTI internal audit, malfunctioned and permitted the door to be forced open without use of the required key. As HOLODY recalled, RTI officials were asked about their knowledge of the door knob being a problem prior to the internal audit and whether any individual was able to gain access to the cell maze "without using the required key." HOLODY advised that RTI management, including RUSSEN, flatly denied having any knowledge of the malfunctioning door knob-latch being a problem until February 13, 1989, and specifically denied having knowledge of personnel entries to the cell maze without use of the key. HOLODY reported that RTI management, particularly RUSSEN, advised that three (3) sets of records for the period, December 8, 1988, to March 1989, were reviewed and did not indicate that anyone had gained access to the cell maze without using the irradiator key.

HOLODY stated that if it is established that answers provided at the EC by the RSO and other RTI officials were less than truthful, and determined that the statement(s) are material to issues that arose as a result of the NRC inspection, then, at a minimum, significant enforcement action against RTI and/or the RSO would be considered.

Examination of RTI Operations Records on May 5, 1989

The reporting Investigator and M. TAYLOR reviewed pertinent records of RTI (Exhibit 13) in an effort to substantiate or refute certain representations made by RTI officials at the EC. Some of the representations made at the EC related to the computer that monitors the operation of the irradiator, including the opening of the cell maze door. RTI officials, particularly RUSSEN, stated in two separate instances at the EC that the computer logs all entries into the cell maze regardless of whether the facility was operating; and YARAKLIS advised that he ruled out any personnel gaining access to the cell maze by jiggling the door, after he reviewed the computer records (Exhibits 9, 11, and 12).

Records examined on May 5, 1989, revealed a notation made in the operator's log book that stated substantially that a test of the cell door was conducted by RUSSEN the day following the EC to check if the computer would register a fault and print out (log) this entry of the cell maze door with the source down. The notation continued that the computer did not register the fault and did not print out any information and "the test did not work." A copy of this operator log book entry is appended to (Exhibit 13).

INVESTIGATOR'S NOTE: This test was conducted after the EC, which raises questions as to the veracity of RUSSEN's statements during the EC regarding the computer printout and to the accuracy of YARAKLIS' account of his review of the records ruling out personnel gaining access to the cell maze.

Contact with John D. SINGLETON

SINGLETON, Plant Superintendent, RTI, was personally contacted by the reporting Investigator and M. TAYLOR, on May 5, 1989, at RTI (Exhibit 14). Contact was accomplished in order to review records regarding irradiation operations. SINGLETON provided the requested records, to include the computer printouts of irradiator operations.

SINGLETON stated that a lot of information is contained on the computer printout such as: time the source goes up, the time it comes down, when the door is opened, etc., but he added that "there is data that we would like printed out but unfortunately it's not programmed into the computer." SINGLETON provided an example of such information, stating that RTI would like the computer printout to show when the microswitch is triggered by the door being opened with the source down (shielded position), but he advised the computer doesn't print this information.

INVESTIGATOR'S NOTE: This contradicts what was stated by RUSSEN at the EC (Exhibits 9, 11, 12, and 34).

Receipt of RTI Correspondence

On May 8, 1989, John P. WHITE, Chief, Nuclear Materials Safety Section C, DRSS, NRC, provided the two page letter (referenced by KNAPP), dated both May 4, 1989 (front page), and May 2, 1989 (back page), from RUSSEN. The letter was stamped at NRC on Monday, May 8, 1989, at 4:43 p.m. The envelope

was postmarked May 4, 1988. The letter documents RTI's response to the question asked of them at the EC regarding the computer printouts of cell door entries and RTI's efforts to validate their response after the fact. The letter notes that RTI was unable to validate their EC response. A copy of the mailing is Exhibit 15.

Interview of Margaret Jean KOLAKOWSKI

KOLAKOWSKI, Executive Secretary, RTI, was interviewed at RTI on July 7, 1989 (Exhibit 16). The purpose of the interview was to ascertain the authenticity of the letter dated May 4, 1989 (Exhibit 15), which was typed by KOLAKOWSKI for RUSSEN and sent to the NRC via U.S. mails.

KOLAKOWSKI advised that her employment at RTI primarily consists of typing letters, memoranda, and answering the telephone. KOLAKOWSKI stated that she recalled typing the letter and pointed out that her initials of "jk" appeared on the second page. KOLAKOWSKI was asked why the front page contained the date of May 4, 1989, the second page May 2, 1989, and why the envelope was postmarked May 4, 1988. KOLAKOWSKI explained that she probably made a typographical error when typing May 2 on the second page. KOLAKOWSKI checked her word processor and stated that the letter in question was typed on May 4, 1989, even though the directory from the disk shows May 5, 1988 (a copy of the directory is Exhibit 17). KOLAKOWSKI explained that the clock in the word processor is wrong and continuously shows one year behind and one day in advance of the actual date of typing. As to the 1988 postmark date on the envelope (vice 1989), KOLAKOWSKI had no explanation other than that the meter was probably never advanced to reflect 1989 after 1988 ended.

KOLAKOWSKI denied ever backdating any documents that were to be forwarded to the NRC and, furthermore, denied ever being asked to do so by any person at RTI.

Interview of U.S. Postal Clerk

Brad TAYLOR, Postal Clerk, U.S. Post Office, Rockaway, New Jersey, was contacted on June 1, 1989 (Exhibit 18), in an effort to ascertain the date which RTI placed into the U.S. mails the letter typed by KOLAKOWSKI. B. TAYLOR was shown the mailing envelope.

INVESTIGATOR'S NOTE: The date the letter was actually typed and submitted to NRC was questioned due to differing dates appearing on the letter, as well as the postmark on the envelope which indicates May 4, 1988 (vice 1989). Additionally, the letter was received at NRC, Region 1, on the Monday (May 8, 1989) following OI's first visit to RTI on Friday, May 5, 1989, to begin an inquiry specifically regarding the alleged discrepant statements made by RTI management at the EC relative to the maze door computer entries.

E. TAYLOR stated that the postmark on the envelope was made by a postage meter maintained at RTI but that there was no way to track through the postal service the actual date the letter got into the mail system.

question from SHAPIRO. AYRES stated that RTI management, in the persons of RUSSEN, SINGLETON, SHAPIRO, and VARAKLIS, were all told directly by him before the EC that he (AYRES) was able to force open the cell maze door without using the irradiator key on one occasion.

AYRES provided the following explanation of the discrepancies noted between his interview of April 11, 1989, and the instant interview:

Regarding the tightening of screws in the cell maze door knob, AYRES reported on April 11, 1989, that the knob was secured the first time by RUSSEN tightening the screws in the face plate; while the second occasion of loosening was corrected by tightening the inner screws of the latch mechanism. AYRES now claims he "made a mistake" when he spoke of the inner screws being tightened and insisted that only the face plate had become loose between February 5 and 13, 1989. AYRES explained that RUSSEN was doing the tightening of the screws, and he (AYRES) assumed that the face plate, as well as the inner screws, were being worked on. AYRES noted that, regardless of which screws were being tightened, the repair was effective in securing the knob and the door worked properly until the next occurrence during the time in question. AYRES admitted that he and RUSSEN had a discussion after the EC concerning the loose door knob face plate, and it was after this talk that AYRES realized that he (AYRES) was mistaken and that the inner screws were not tightened by RUSSEN. AYRES denied that RUSSEN had "talked him into" informing the NRC of this mistake.

Regarding AYRES comment on April 11, 1989, to the effect that he did not believe RUSSEN was aware of the door failing to securely latch on occasion until the 13th of February, AYRES now amends that to indicate he told RUSSEN on the one occasion prior to the February 13 audit, which is discussed above and in his sworn statement which is appended to Exhibit 20. AYRES stated that on April 11, 1989, he meant that RUSSEN was not physically shown how the door could be forced open. Additionally, AYRES claims the knob was tightened and it continued to securely latch until February 13th.

Regarding his April 11, 1989, comments concerning the two operators (SMITH and KEIM) who he learned were able to reenter through the cell maze door by forcing the door knob to retrieve the key/meter, AYRES stated the following: "That comment slipped out" and "I wasn't supposed to say it." The reporting Investigator immediately queried AYRES as to what he meant by those two comments. AYRES denied that he had been coached before the April 11, 1989, interview or that he had "slipped up" in the story to be told to the NRC. AYRES stated that he was told by operator KEIM about two weeks prior to April 11 that he (KEIM) and SMITH entered the cell by climbing over the cell maze door on separate occasions, not by forcing the occasionally malfunctioning door knob handle. AYRES stated that after he informed the NRC (the reporting Investigator and M. TAYLOR) on April 11th that these two individuals had gone back into the cell to retrieve the key/meter, AYRES thought that since the NRC already knew of the door knob problems, he "would let stand" the theory that they had entered through the door, rather than add the true facts to the already existing problem. AYRES said he thought that climbing over the locked door was worse than going through a malfunctioning door so he chose not to introduce the climbing over incidents to the NRC. AYRES said he definitely told RUSSEN of the climbing incidents. AYRES further thought that he would be compounding RUSSEN's problems by telling the NRC that

people were climbing over the door. AYRES said that, on his own accord, he decided not to reveal this information during his April 11, 1989, interview. Additionally, AYRES stated that he wanted to allow management the opportunity to take action by informing the NRC themselves. AYRES insisted that his present comments about "slipping" on April 11, were only made from his standpoint, "on my own," and not because he had discussions with RUSSEN or other RTI management officials as to what to disclose to the NRC. AYRES acknowledged that he provided an inaccurate account of the events to the NRC on April 11, 1989, especially regarding the method by which the cell maze door was breached.

With respect to the issue of the exchange of the cell key switch with the console key switch, AYRES recalled that this occurred in late February or early March 1989, before the temporary start up toggle switch was installed in the cell around March 9th. AYRES could not recall how he knew this had occurred but thought that SINGLETON may have completed this exchange. AYRES explained that the cell key switch is a recurring problem due to the apparent damage to the plastic part of the switch, caused by radiation. This damage recently resulted in new cell switches being installed once every one to two months. One specific incident AYRES recalled was the April 11, 1989, situation when he was called at home and had to go to RTI to help resolve the problem (reported in his April 11th interview, Exhibit 5). AYRES repeated that the RSO was definitely aware of that occurrence, since he handed RUSSEN the damaged plastic portion of the switch, which was in pieces, on the morning of April 11th. This is also documented in the operator's log (Exhibit 10).

Interview of Robert S. KEIM (Operator No. 2)

KEIM, Irradiator Operator/Supervisor, RTI, was interviewed on June 1, 1989 (Exhibit 21). KEIM stated that he has been employed at RTI since May 1988 and has been an operator/supervisor since November 1988.

KEIM denied that he ever noticed any looseness in the door knob assembly and specifically denied ever being able to force the personnel access door open in order to gain entry to the cell. KEIM denied going through the cell maze door without using the irradiator key. However, KEIM admitted that he had, on one occasion, gained access to the cell to retrieve the radiation meter, with key attached, by climbing over the locked personnel access door. KEIM indicated that this occurred in either January or February of 1989, before the internal RTI audit of February 13th. KEIM claimed he did not report this occurrence in the operator's log book, because he knew it was wrong and a "stupid thing to do." He disclosed that about one week later RUSSEN asked him if he had entered the cell maze without using the key and KEIM told him that he had. KEIM said he also told RUSSEN that he actually observed another operator, SMITH, climb over the door in approximately August 1988, and had heard a unconfirmed rumor that SMITH had done the same thing on at least one other occasion. KEIM told RUSSEN these were the only keyless entries he was aware of. KEIM stated that he was told by RUSSEN never to repeat the climbing method of entrance again. KEIM believes that RUSSEN also gave similar instructions to all the operators at a meeting about a week or two after the incident. To the best of KEIM's recollection, the open area above the door was closed off with plywood to prevent further breaches of the door shortly after the meeting. He said, however, in the interim, irradiation processing continued uninterrupted.

KEIM reported that he was working the midnight shift on April 11, 1989, when he could not achieve start-up of the irradiator due to a malfunction of the cell key switch mechanism. KEIM advised that he telephoned RUSSEN to notify him of the problem. KEIM stated that AYRES was also called and arrived at RTI at about 6:00 a.m. and it was resolved that the cell key switch had to be replaced on the next shift because of the apparent radiation damage to the plastic cam in the switch. KEIM noted that the RSO was shown the damaged switch upon his arrival at RTI on the morning of the 11th.

INVESTIGATOR'S NOTE: According to M. TAYLOR, at the EC RUSSEN denied having any additional problem with the cell key switch since the March 1989 NRC inspection (Exhibit 9).

With respect to the question of whether or not the console key switch had ever been exchanged with the cell key (start-up) switch, KEIM advised that he did recall hearing from operator AYRES that this key switch exchange did, in fact, occur. KEIM vaguely recalled being told this occurred in about January or February 1989, and he indicated that the console was eventually equipped with a new key switch but did not recall the exact date of installation.

INVESTIGATOR'S NOTE: Again, according to M. TAYLOR, statements made at the EC by RUSSEN indicated that an exchange of switches never took place (Exhibit 9).

Interview of Michael F. ROSA

ROSA, Irradiator Operator/Supervisor, RTI, was interviewed on June 1, 1989 (Exhibit 22). ROSA stated that he has been a operator/supervisor at RTI since October 1988 with an overall RTI service date of July 1988.

ROSA advised that he was told after the fact by another operator, probably AYRES, that operator SMITH had climbed over the locked cell maze door in order to enter the cell maze to retrieve the radiation meter/cell key he (SMITH) had left inside the cell. ROSA thought the SMITH incident occurred sometime between February 12, 1989, and the time of the NRC inspection in March 1989. ROSA thought that SMITH personally notified RUSSEN and SINGLETON shortly after the incident. ROSA stated that both RUSSEN and SINGLETON had pointed out at a supervisor's meeting that climbing the door to gain cell access was prohibited. ROSA said that the supervisor's meeting was held a week or two after the incident. ROSA did not believe any additional corrective action was taken until mid to late May 1989, when the RTI maintenance department, apparently at the direction of the RSO, used plywood to close off the space above the door. ROSA said that during this time operations continued uninterrupted. ROSA did not recall seeing anything in writing at RTI about the SMITH incident or climbing over the door in general. ROSA stated he was not aware of any additional incidents wherein the door was breached in this or a similar manner and knew of no person being able to force the cell access door open because of a malfunctioning lock.

ROSA denied having any difficulty with the door knob assembly that he categorized as a problem. ROSA acknowledged that the door had a "little play in it" (it gave a little while latched/locked), however, to his knowledge, it never permitted a forced entry. ROSA claimed he found out second hand from

AYRES that the door was forced open during a first shift internal audit on February 13, 1989, which resulted in corrective action by the RSO.

ROSA acknowledged that he heard from an unrecalled source that SINGLETON had, "several months ago," exchanged the cell key switch with the console key switch due to some type of problem. ROSA stated that eventually a new switch was installed in the cell. ROSA disclosed that the cell key switch is a recurring problem and needs replacement about once a month due to damage caused by the high radiation it is subjected to in the cell.

Interview of David W. SMITH (Operator No. 3)

SMITH, Irradiator Operator/Supervisor, RTI, was interviewed on June 8, 1989 (Exhibit 23). SMITH reported that he has been employed at RTI since July 1986, and specifically as a irradiator operator/supervisor since February 1987.

SMITH admitted that he had gained access to the irradiator cell without using the required latch key on one occasion in September 1988 when the source was down. SMITH said that he mistakenly left the radiation meter, with irradiator key attached, inside the cell and closed the cell maze door causing the door to lock behind him. SMITH reported that he noticed an open area above the door which he believed he could fit through (about 2' high X 2' wide). SMITH disclosed that he climbed over the cell door and dropped down into the cell maze. SMITH denied ever repeating this scenario and adamantly maintained he had only once breached the locked door in this manner. SMITH denied that he ever forced open the personnel access door to the maze without using the irradiator key. He claimed no knowledge of anyone having done so at RTI.

SMITH stated that he did not tell management or anyone else at RTI that he climbed over the access door until a supervisors meeting, which SMITH believes took place after the LRC inspection (March 1989) but before the EC (April 1989). SMITH reported that RUSSEN verbally instructed all attendees at the meeting to never climb over the door again. SMITH indicated that one or two days after the meeting, a memo authored by RUSSEN and concerning the issue of climbing over the door was posted in the operator's room. The memo indicated immediate dismissal would result from additional incidents of climbing over the cell maze door. SMITH recalled that other corrective action was taken, possibly about one month later, which consisted of the RTI maintenance man closing off the space above the access door with plywood.

SMITH denied ever noticing the malfunctioning door knob handle between February 5-13th. He reported that in late May or early June 1989, AYRES mentioned to him that the door knob had been a problem and that he (AYRES) or someone else (person unrecalled) had been able to open the door by forcing the knob and door itself. SMITH could not recall further details.

SMITH was asked if he knew anything about the crushed inside door knob on the cell door which, according to the operator's log of February 13, 1989, led to looseness. SMITH readily admitted that he did the damage indicated. SMITH explained that in about January 1989 he slammed the door into the cinder block wall, causing "minor damage" to the inside door knob and which resulted in the face plate becoming somewhat loose and leaving the door with a "little play" in it. However, SMITH said he tried to push open the door right after he

latched it shut and it did not open. SMITH said he was satisfied that it still worked properly. SMITH said he did not report this in the log book or tell anyone at RTI what he had done. SMITH insisted that no one, including management, ever made inquiries to ascertain who had done the damage. SMITH was not aware of any corrective action being taken, but he contended that none was needed because the door, although a little loose when latched, could not be opened without the key, at least as far as he was concerned. SMITH noted that eventually a heavy duty knob set was installed after the NRC inspection.

SMITH reported that the cell key switch, apparently damaged due to radiation, was replaced in April 1989 and again in about late May 1989. SMITH is sure RUSSEN was aware of these replacements, since he (SMITH) has seen mention of them in the operator's log book. SMITH was not knowledgeable of exchanges of the console key switch for the cell key switch.

INVESTIGATOR'S NOTE: A copy of the February 13, 1989, operator's log page referenced, supra, was obtained by the reporting investigator on May 5, 1989 (Exhibit 24).

Interview of RTI Material Handlers

Joseph J. GIANCOLA, Material Handler, RTI, was interviewed on June 1, 1989 (Exhibit 25). GIANCOLA advised that he has worked at RTI on three separate occasions, all as a material handler. He stated that he worked from September 1984 to July 1985; December 1985 to July 1986; and from October 1988 to the present.

GIANCOLA advised that he had no first hand knowledge of any problems with the cell maze personnel access door and he denied ever entering the cell maze in the absence of a irradiator operator/supervisor. He explained that his duties are limited to helping the operator on duty. GIANCOLA was unaware of any individual forcing the door open in order to gain access to the cell maze. GIANCOLA said he heard from operator KEIM that the door was apparently forced open during an internal audit by RTI management in February 1989, but GIANCOLA denied ever noticing a problem with the door knob that would have permitted forced entry.

GIANCOLA said he heard a rumor (source of rumor unrecalled), possibly about one month ago, that an operator, "probably Dave SMITH," had left his radiation meter/cell key in the cell area and had climbed over the personnel access door in order to retrieve it. GIANCOLA did not recall when the rumored incident actually took place, or what, if any, action was taken by management, or whether management even learned of the incident.

GIANCOLA noted that he was working the early morning hours in April 1989, when KEIM experienced problems achieving start-up due to a malfunction of the cell key switch. GIANCOLA stated that RUSSEN was telephoned by KEIM at home to resolve the problem, however, operator AYRES ended up coming to RTI, apparently at the direction of RUSSEN, to attempt to remedy the situation.

Richard G. STOUT, Jr. Material Handler, RTI, was interviewed on June 9, 1989 (Exhibit 26). STOUT advised that he has been employed as a material handler at RTI since January 31, 1989.

STOUT denied any personal knowledge of alleged problems with the cell maze door. STOUT admitted that he was told by SMITH, on June 8, 1989, that he (SMITH) had once left his radiation meter and cell key inside the cell and that he (SMITH) climbed over the cell maze door in order to retrieve it. STOUT thought SMITH intimated that this occurred before STOUT began employment. STOUT stated that he knew of no further details of the incident. STOUT denied ever seeing anybody at RTI climb over the door to the cell maze or force open the door without using the required latch key. STOUT further denied having any knowledge of rumors of forced entries. STOUT reported noticing that plywood had been installed above the cell maze door in or about mid to late May 1989, apparently to prevent further breaches of the door by climbing.

Interview of Frank D. GIAQUINTO

GIAQUINTO, Maintenance Man, RTI, was interviewed on June 21, 1989 (Exhibit 27). GIAQUINTO's personnel record show that he has been employed as a full time maintenance man at RTI since January 12, 1989. He reports to SINGLETON.

GIAQUINTO was unaware of any information or rumor that RTI employees were able to force open the locked cell maze door. GIAQUINTO admitted that he heard someone in RTI management (identity unknown) "was worried about the possibility of somebody going over the top of the door," but claimed he was unaware of anybody actually doing so. GIAQUINTO reported that he was directed by RUSSEN and SINGLETON to close off the open area above the cell maze door. GIAQUINTO recalled this direction being given verbally in about late May 1989. GIAQUINTO said that he closed off the space above the cell door with plywood, thus preventing the possibility of a person climbing over the door.

Investigative Observations of Cell Maze Door

The reporting investigator and investigator Edward A. Fitzgerald were present at RTI on June 22, 1989, and were shown the irradiator cell maze personnel access door which reportedly had been climbed over by two operators (Operators No. 2 and 3). Measurements were made (Exhibit 28).

The access door is approximately nine feet high from the floor to the top of the door. It is a metal mesh door, not solid. RUSSEN made measurements of the space above the access door where the individuals had reportedly crawled through. The space that would effectively have been available for personnel entry by climbing over the door was 11 1/2" (high) x 27 1/2" (wide), approximately 9 feet above the floor. A diagram of this opening was prepared by Fitzgerald and is attached to Exhibit 28.

Interview of John D. SINGLETON

SINGLETON, Plant Superintendent, RTI, was interviewed on June 21, 1989 (Exhibit 29). SINGLETON said overall he has been a four year employee of RTI and specifically the plant superintendent in Rockaway, New Jersey, since November 1986. His duties include supervisory activities of the irradiator operators and occasional operation of the irradiator itself. (pp. 6-10)

SINGLETON acknowledged that he was aware of the RTI internal audit which resulted in SHAPIRO being able to force open the cell access door without utilizing the required key. SINGLETON admitted that AYRES came to him "sometime in January" and reported that he was having a problem with the door knob inasmuch as the face plate that attaches the knob to the door had become loose. SINGLETON said AYRES also informed RUSSEN at the same time and then RUSSEN and AYRES worked together to "take care of it." SINGLETON did not believe the incident was logged in the operator's log. SINGLETON advised that his understanding of the problem was that it was limited to looseness and resolved by the tightening of the face plates on this one occasion only. SINGLETON denied that AYRES reported additional problems to him before the audit on February 13. (pp. 11-16)

SINGLETON stated that this situation was not one where anyone could have walked up and just pushed the door open, with the source either in the up or in the down position. SINGLETON denied that he was told by AYRES in or about January-February 1989, that he (AYRES) was able to force open the access door. SINGLETON said in about mid to late May 1989 AYRES told him that he had exerted a lot of pressure on the door to determine the extent of damage to the inside knob during the time in question. SINGLETON claimed he could not recall if AYRES informed him that the door opened as a result of this pressure. SINGLETON reported that it is each operator's responsibility, and therefore routine, to check the door to ensure it is not only closed but also latched/locked. SINGLETON reiterated that he knows he had a conversation with AYRES relative to the door knob and AYRES' exertion of pressure on it, but SINGLETON could not recall if he was told by AYRES that the door had come open either during the January-February 13th time frame or subsequent thereto. (pp. 15-25)

INVESTIGATOR'S NOTE: This is contradictory to AYRES' testimony (Exhibit 20).

SINGLETON was shown three instructional notes to the operators, dated April 6 and 9, 1989, which were located in the plant superintendent's instruction log book. SINGLETON stated that he authored these notes at the direction of the RSC, which in substance provided the following instructions to the duty operators: be sure to check the maze door, door knob, and latch during start-up, and if the door opens after it is shut without using the key, call RUSSEN (Exhibit 30). SINGLETON admitted that these notes were written to the operators because of "a continuation of the door knob thing." SINGLETON said that the door knob had been changed after SHAPIRO's audit because it "had been weakened when it hit the wall." SINGLETON said the intention behind the notes was to prevent operators from conducting irradiation processing if the door did not latch. SINGLETON, however, again claimed no knowledge that the door was forced open by any person other than SHAPIRO on February 13, 1989. (pp. 26-34)

SINGLETON stated that he learned at a monthly supervisor's meeting with RUSSEN that an operator, SMITH, had climbed over the cell door to re-enter the cell after leaving his meter/key inside. SINGLETON was asked when the meeting occurred and he advised that he didn't want to estimate without looking at a record in the RSC's office. (p. 35)

INVESTIGATOR'S NOTE: SINGLETON went to the RSO office but returned to the interview stating he could not find a record of the supervisory meeting.

SINGLETON was again asked to estimate the date of the meeting, which he again refused to do without a record. SINGLETON disclosed that he vaguely recalled "in discussions," that there may have been another instance where someone climbed over the door, but he knew of no further details and could not recall the nature of "the discussions." SINGLETON said RUSSEN instructed everyone at the meeting not to climb over the door. Subsequently, RUSSEN placed a memo in the control room relative to the climbing incident and the fact that termination would follow if it happened again. (pp. 35-41)

SINGLETON reported that he exchanged the mechanical part of the console key lock switch with the mechanical part of the cell key lock switch in early February 1989. SINGLETON vaguely recalled this occurring on first shift and he believed RUSSEN was working at the time. SINGLETON advised that he discussed this exchange with either VARAKLIS or RUSSEN at the time of the exchange. (pp. 45-47)

INVESTIGATOR'S NOTE: VARAKLIS (Exhibit 29) subsequently denied that SINGLETON talked to him about the exchange, and RUSSEN (Exhibit 34) admitted that SINGLETON might have talked to him.

SINGLETON stated that, after OI began investigating RTI, he had a conversation with RUSSEN following the EC concerning this exchange of switches because RUSSEN apparently was asked something about it at the EC. SINGLETON said RUSSEN "was concerned because he answered to the best of his ability," apparently based on the logs. SINGLETON said he did not log this exchange of switches in any log. SINGLETON recalled RUSSEN telling him in effect, after OI got involved, that he (RUSSEN) knows he discussed it with him (SINGLETON) but he (RUSSEN) didn't find it in any logs. SINGLETON noted he prepared a memo for RUSSEN regarding this incident after the fact (Exhibit 31, the memo). (pp. 47-50)

Finally, SINGLETON was advised of the April 11, 1989, date involving the cell key switch deterioration and replacement. SINGLETON said that, to the best of his knowledge, RUSSEN was made aware of this occurrence. (pp. 55 and 56)

Interview with Paul C. SHAPIRO

SHAPIRO, Vice President of Quality, RTI, was interviewed on June 21, 1989 (Exhibit 32). SHAPIRO stated that he has been employed at RTI for more than three years as the Vice President of Quality. (p. 7)

SHAPIRO acknowledged that he conducted the RTI internal radiation safety audit. As part of the audit, on February 13, 1989, by "vigorously" twisting the door knob, SHAPIRO forced the cell door open without using the key. SHAPIRO said he notified RUSSEN of this and RUSSEN immediately tried the door himself and was able to open it in the same manner. He said RUSSEN shut down operations and replaced the door knob in addition to installing a wooden door stop to prevent the door from being banged into the wall. SHAPIRO stated that the feeling was that somebody had opened the door with such vigor that it was physically damaged when it hit the wall. He said there was a corresponding

mark on the wall and the inside door knob was "crushed-in and bent a little."
(pp. 9-13)

SHAPIRO admitted that on February 13, 1989, during the conduct of his internal audit, he informed AYRES that he was going to attempt to open the cell door without using the key. SHAPIRO recalled AYRES responding in effect that, "You probably can open it . . . Because somebody had damaged the door by slamming it against the wall." SHAPIRO denied any knowledge of AYRES actually being able to force open the door without using the key, and he denied knowing the identity of who caused the damage to the door knob. (pp. 14-16)

SHAPIRO stated that he attended a meeting on April 25, 1989, with RTI management (those who attended the EC) and RTI corporate attorneys in preparation for the EC on the following day. SHAPIRO advised that discussion at the meeting concerned "the approach" RTI would take with the NRC. He indicated that a decision was made to ". . . explain to the NRC that the initial problem [with the cell door lock] was with the face plate, the decorative plate on the door, and that at no time was the safety interlock compromised." SHAPIRO admitted, however, that the door to the cell is a physical barrier, a part of the system that triggers the interlock (microswitch). However, he opined, safety was not compromised because the interlock (microswitch) worked. (pp. 16-20)

SHAPIRO stated, that based upon RUSSEN's review of computer printout records, RTI indicated to NRC at the EC that the computer records showed no unexplained entries of the cell before February 13, 1989. SHAPIRO advised that it was his understanding, ". . . that if that door had been opened without the key, that it would have been documented on the computer printouts . . ." SHAPIRO advised that, as it turned out, it was not documented on the computer printouts. (pp. 20-22)

SHAPIRO stated that in or about February 1989 he learned from AYRES that operator SMITH had climbed over the locked cell access door in order to retrieve the meter and key, but SHAPIRO did not know when the actual climbing took place. SHAPIRO stated that he notified RUSSEN and RUSSEN reprimanded the operator and had the space above the door sealed off with plywood in approximately late February 1989. SHAPIRO said the SMITH incident was the only incident that he was knowledgeable of regarding climbing over the cell door. (pp. 23-28)

Concerning the EC, SHAPIRO stated that the only questions he remembered regarding keyless entries were directed specifically to the lock on the door and the door handle itself. SHAPIRO contends that the climbing of the door is ". . . a completely different situation. . ." than what the NRC was asking relative to the door lock/handle because ". . . they were talking about the violation of the safety interlock." (pp. 28-31)

Interview of Anastase A. VARAKLIS

VARAKLIS, Vice President of Operations/Engineering, RTI, was interviewed on June 21 (Exhibit 30). VARAKLIS said he has been employed at RTI since March 1987. (p. 7)

VARAKLIS denied having any knowledge "whatsoever" prior to the April 26, 1989, EC that any person gained access to the cell through the cell door without using the irradiator key. VARAKLIS stated that his knowledge was only based on records/logs maintained at RTI. VARAKLIS advised that he "personally read" the operator's log for February 13, 1989, which indicated that SHAPIRO was able to force open the cell maze door using "brute force, excessive force." (pp. 10-16)

VARAKLIS admitted that he knew that SMITH and KEIM climbed over the cell door to enter the maze, but claims he did not learn of the incidents until after the EC when he was told of the incidents by RUSSEN. VARAKLIS said that RUSSEN wrote a memo to the operators regarding the climbing incidents, wherein he stated such acts would not be tolerated. VARAKLIS reported that when he learned of the climbing incidents, he had the space above the door closed off with plywood and ordered sheet metal to be used for a more permanent repair. VARAKLIS denied knowledge as to when the climbing incidents took place. (pp. 16-25)

VARAKLIS stated that at the EC RUSSEN told NRC officials that even when the source was down, the microswitch, if triggered, would cause the computer to printout a record of the fault. VARAKLIS said that he did not respond or disagree with RUSSEN's claim at the EC regarding the computer records because he wasn't 100% sure. However, the day following the EC, VARAKLIS said he and RUSSEN conducted a test of the cell door and determined that RUSSEN's EC response about the computer records was in error. He said that the computer would not printout data when the source was down. (pp. 16-25)

VARAKLIS advised that had he known of the climbing incidents prior to the EC he ". . . would have told them [NRC] precisely . . ." what he knew about it in response to the NRC's questions. Furthermore, VARAKLIS agreed that had he known of any entries into the cell without using the irradiator key, he would have detailed them at the EC. (pp. 26-28)

Interview of John F. RUSSEN

RUSSEN, RSO and Plant Manager, RTI, was interviewed on June 22, 1989 (Exhibit 34). RUSSEN reported that he has been the plant manager at RTI since April 1988, and the RSO since July 1986. RUSSEN agreed that his duty as RSO is to maintain the integrity of the radiation safety program, and he added that it is to "operate safely." (pp. 9 and 10)

RUSSEN, in detailing the late January or early February chronology of events that led up to the February 13, 1989, internal audit, admitted that operator AYRES indicated to him that he ". . . could go through the maze door." RUSSEN said he was not certain of the dates, but he went to the open cell door with AYRES and they worked on the door handle and tightened it back into place. RUSSEN said the tightening of the knobs was accomplished by hand on either side of the door, "wiggling each knob into place." RUSSEN said they were satisfied with the repair. RUSSEN advised that a screwdriver was used on the second occurrence of the looseness problem during the same week. On that occasion, RUSSEN recalled that two screws around the "plunger that comes out of the door" had to be secured with a screwdriver. RUSSEN reported another instance where AYRES either came to him or called him in his office during this time frame to report looseness which resulted in further "work on the

door" by him (RUSSEN). RUSSEN vaguely recalled yet another incident during this time when AYRES notified him of looseness which required firming up the face plates without a screwdriver. RUSSEN said, however, the door could not be opened inadvertently; he said "You could not just walk up and turn the door knob and go through it." RUSSEN explained that the method by which the cell door was opened during that time, as well as presently, is to simply push on the door without turning the door knob, after unlocking the door with the required key. (pp. 11-15)

RUSSEN believed that there was one other verbal report from AYRES regarding the door, which he responded to by telling AYRES to fix it. RUSSEN said he assumed the problem was fixed. RUSSEN disclosed that on one occasion during that time, AYRES came to him and informed him that the door was "damaged" but RUSSEN failed to go look at the door himself. RUSSEN said AYRES did not indicate the door was malfunctioning at the time he reported the damage. RUSSEN reported that these events culminated in SHAPIRO's audit on the 13th of February when the door was forced open. RUSSEN said it was at this point when he actually first saw the damage (to the inside knob). RUSSEN stated that the door knob was replaced at that time. RUSSEN insisted that, "I was always satisfied that inadvertent access could not take place." (pp. 15-19)

RUSSEN indicated that ". . . each time . . ." AYRES came to him about the door, before SHAPIRO's audit, AYRES said he did force open the door (without the key). RUSSEN said he thought that on one occasion when AYRES reportedly opened the door, the source was in the up (unshielded) position, however, RUSSEN believed the source would have dropped immediately before the door was actually opened due to the sensitivity of the microswitch on the top portion of the door. RUSSEN contends the microswitch prevents inadvertent entry as the regulation requires. RUSSEN advised of at least two instances that AYRES told him he forced open the door before the SHAPIRO audit. RUSSEN said that, to his knowledge, the irradiator was never run with an inoperable door knob. (pp. 19-20)

RUSSEN advised that he prepared a memo, dated April 17, 1989, to SCANDALIOS (Exhibit 35), explaining and documenting the events involving the cell door knob (the memo indicates one operator opened the door with the source up). RUSSEN said he prepared the memo because he was asked by SCANDALIOS or VARAKLIS to write down the events that occurred so that SCANDALIOS could "gain knowledge of what took place." RUSSEN said he also prepared a correction to the April 17, 1989, memo with respect to a portion of the events involving the door knob screws that were tightened (Exhibit 36). The correction memo states that the screws surrounding the slide plate near the bolt at the end of the door were tightened to secure the latch and not the screws that hold the knob to the door as was previously reported. (pp. 24-30)

RUSSEN indicated that the questions posed by NRC officials at the EC ". . . seemed to be . . ." focused on inadvertent access (i.e. "could you just walk in there, could you just walk through the door"). RUSSEN admitted that there were also general questions about any keyless entries by individuals, however, he claims all the questions centered around the door knob issue. RUSSEN said that at the EC, he responded "no" to NRC questions involving knowledge of keyless entries, because he did not believe inadvertent access had or could have taken place. RUSSEN then stated that he wanted to ". . . clarify that I never denied . . ." that AYRES couldn't gain access and

again admitted that AYRES told him that he, in fact, did gain (keyless) access. RUSSEN said he didn't mention that fact at the EC because his negative answer, "meant other than Mike (AYRES)." He added that he "felt it was understood" at the EC that AYRES had gone in [through the cell door] without the key, and RUSSEN thinks he told NRC that at the EC. (pp. 31-34, and p. 38)

RUSSEN also volunteered that "there are people that climbed over the door," and that after he found out, he wrote a memo to all RTI operators stating, in essence, that climbing of the door was prohibited and would result in dismissal. RUSSEN said he discussed the memo with VARAKLIS and VARAKLIS directed that the portion regarding immediate dismissal he included in the memo. The memo, dated April 24, 1989 (Exhibit 37), was also copied to VARAKLIS (pp. 34, 45, and 46)

RUSSEN said he also held an operators meeting wherein he "drilled into everybody at once" his concern about the climbing incidents. RUSSEN acknowledged that this occurred before the EC but he said these incidents never came to his mind at the EC because the NRC questions focused on the door knob problem. RUSSEN said he believed he heard from AYRES that operator SMITH had climbed over the locked cell door to retrieve the radiation meter and key. RUSSEN said he could not specify when he was informed of the SMITH incident, but it was definitely before April 24, 1989. Furthermore, RUSSEN said he learned that operator KEIM had also climbed over the access door. RUSSEN said he held the meeting "not long before" the issuance of his April 24th memo, "maybe a week before," after discussing the agenda for the meeting with VARAKLIS. RUSSEN advised that he waited until the meeting to discuss the incident with SMITH and the other operators, and he thought the meeting was held within a week of him being informed of the incident by AYRES. RUSSEN reported that he ordered a plywood barrier installed about a week or so after the operators' meeting was held. Regarding which management officials were aware of the climbing incidents before the EC, RUSSEN stated that VARAKLIS definitely knew, and he thought that he (RUSSEN) also may have mentioned it to SHAPIRO, but he was not certain. RUSSEN was not aware of who may have read his memo other than the operators. (pp. 3E-43 and 45-50)

Regarding RUSSEN's EC comments concerning the computer printout records of the irradiator, RUSSEN acknowledged that he provided a ". . . wrong statement. . ." at the EC. RUSSEN explained that he felt at the time of the EC that the computer would show all entries of the cell maze door, even those that occurred when the source was down. RUSSEN said he was guessing at the EC relative to the printouts. He advised that after leaving the EC he and VARAKLIS were "second guessing" themselves, so they did a test of the cell door on April 27, 1989, which indicated the answer provided at the EC was wrong (Exhibit 13 attachment). RUSSEN claimed his response was an honest mistake and denied any attempt to mislead the NRC at the EC. RUSSEN was queried regarding a letter he apparently authored and forwarded to the NRC which corrected his ". . . wrong. . ." EC statement (Exhibit 15 pertains). RUSSEN acknowledged the discrepancies in the dates on the letter, as well as the postmark on the envelope, but offered no explanation other than a "typo." RUSSEN said he does not mail letters out of RTI and could offer no plausible explanation of why he didn't mention to M. TAYLOR or the reporting Investigator on May 5, 1989, the fact that this letter, which corrected his EC statement, was in the mail, even though he knew that was one reason M. TAYLOR

and the reporting investigator were at RTI that day. RUSSEN further acknowledged that at the EC RTI relied on these same computer logs to verify his claim of having no knowledge of anybody improperly entering the cell door. RUSSEN denied backdating this or any other documents/letters to the NRC. (pp. 51-59)

RUSSEN reported that he answered "No" at the EC to a question concerning whether the console key switch had ever been exchanged with the cell key switch. He advised at the time of the EC he believed that to be the correct answer. RUSSEN said, however, that he again relied on his memory and the logs he reviewed in preparation for the EC. RUSSEN said he now knows that his "No" answer was wrong and that an exchange did take place. RUSSEN advised that he learned this occurred when discussing the matter with AYRES and SINGLETON, after AYRES was interviewed by OI (June 1989). RUSSEN said the exchange took place in the weeks prior to March 9, 1989, and resulted in the temporary installation of a toggle switch in place of the cell start up key switch. RUSSEN said the exchange may have been discussed with him by SINGLETON before it occurred, but RUSSEN did not remember it at the EC and the logs contained no mention of it. RUSSEN said he sent a letter (June 1989) to NRC indicating the exchange did occur, correcting this matter (Exhibit 38, the letter). (pp. 60-63)

RUSSEN stated that the exchange of switches and the installation of a toggle switch were efforts to resolve the recurring problem of radiation breaking down the plastic component inside the cam of the switch. RUSSEN reported that this was discussed at the EC and he "thought I made it clear" that there was a recurring problem. (pp. 66-68)

RUSSEN stated that he takes direction from VARAKLIS and SCANCALIOS, and that he has had professional differences of opinion and disagreements with them, but never any involving radiation safety. RUSSEN advised he has done things at the direction of his superiors that he didn't completely agree with but nothing that has compromised safety. (pp. 71-73)

Again referencing the door knob problem, RUSSEN volunteered that he, in fact, did provide another "... wrong statement ..." at the EC in response to a direct question from an NRC official regarding at what point he (RUSSEN) became aware of the damage to the door knob. RUSSEN explained that he recalled the question being, "could there have been previous damage to the door," and he answered, "no." RUSSEN said he knew at that point in time that he should have answered "yes" because he was told of damage by AYRES prior to the internal audit. RUSSEN reported he told NRC "no" because he didn't want to admit "... in front of all those people. ..." at the EC that he was "imperfect." RUSSEN admitted that he should have gone to the access door and observed for himself the damage that AYRES told him about. RUSSEN said, however, that AYRES did not communicate to him the extent of the damage and he (AYRES) "... didn't make it an urgent matter. ..." RUSSEN advised that, after the fact, he didn't think the damage was such that the door could be opened (without the key), but he (RUSSEN) said he should have at least observed the damage for himself to make that determination. (pp. 79-81)

RUSSEN advised that it is the responsibility of each operator to check the cell access door before initiating startup to make certain the door is latched and locked. He continued that it is also the operator's responsibility to

report any problems to him (the RSC) and if they are not satisfied with his response, they should report such matters to the NRC. (pp. 96, 107, and 108)

Reinterview of VARAKLIS

VARAKLIS was reinterviewed on July 7, 1989 (Exhibit 39).

VARAKLIS admitted that his previous references to SHAPIRO having to use "brute force, excessive force" to open the cell door on February 13, 1989, and of him (VARAKLIS) personally reading the log entry that contained that terminology, was wrong but an "honest mistake" made during his sworn NRC testimony (Exhibit 33).

INVESTIGATOR'S NOTE: Operator's log of February 13, 1989, merely indicates that SHAPIRO tested the knob on the cell door and it opened (Exhibit 24).

VARAKLIS said that he confused what he had actually read with SHAPIRO's brute/excessive force comment to the NRC at the EC. VARAKLIS continued to maintain that inadvertent entry could not have occurred through the cell door during the time in question.

VARAKLIS was asked if he continued to maintain that he had no knowledge of any forced entries occurring through the cell door before the EC. His response was, he had "absolutely no knowledge." After additional questioning, VARAKLIS then admitted that in preparation for the EC, he was told by operator AYRES, on April 24, 1989, that he (AYRES) was able to apply extra pressure to the door knob handle and force open the cell door. Furthermore, VARAKLIS, in his own handwriting, noted this fact in notes he made of his interview with AYRES. However, VARAKLIS stated that he forgot what AYRES had told him and, therefore, did not report it at the EC or during his previous sworn testimony to OI. VARAKLIS denied any conscious efforts to deceive or mislead the NRC in this regard. VARAKLIS provided OI a copy of his notes made of his interview with AYRES (Exhibit 40).

VARAKLIS continued to maintain that he was unaware of the climbing incidents until after the EC. VARAKLIS was shown a copy of the memo written by RUSSEN, dated April 24, 1989 (Exhibit 37), on which VARAKLIS is clearly on distribution, but he said he did not see it until after the EC. VARAKLIS denied that he discussed the contents of the memo with RUSSEN prior to its issuance. Also, VARAKLIS denied directing RUSSEN to include in the memo the information concerning the issue of "dismissal" of employees.

VARAKLIS was asked if SINGLETON ever discussed with him the exchange of the cell key switch mechanism with the console key switch mechanism. VARAKLIS stated that the matter had never been discussed with him by SINGLETON or anyone at RTI.

Interview of John SCANDALIOS

SCANDALIOS, CEO/President, RTI, was interviewed on June 22, 1989 (Exhibit 41). SCANDALIOS stated he has been CEO since February 27, 1989. (p. 5)

SCANDALIOS advised that he knew nothing about a problem with the cell access door until RTI received NRC notice of the EC. SCANDALIOS stated that what he has learned since that time is strictly based on hearsay. SCANDALIOS reported that his understanding of the problem was that the door lock to the cell was found to be broken and in need of repair during the internal audit. SCANDALIOS denied that he was aware of anyone being able to force the cell door open without using the key before the EC. (pp. 7-9)

SCANDALIOS denied having any knowledge before the EC of persons climbing over the cell door. He noted that "in May sometime," he was copied on a memo from RUSSEN which described an incident wherein an operator climbed through the opening between the cell door and the ceiling. It was pointed out to SCANDALIOS by the reporting Investigator that a memo from RUSSEN regarding the climbing incident was dated April 24, 1989, two days prior to the EC. However, SCANDALIOS continued to maintain that the memo "got" to his desk in May and he read it in May, after the EC. (pp. 10-12)

Additional Contact with RUSSEN

While reviewing records at RTI on July 7, 1989, RUSSEN approached the reporting Investigator and requested a private meeting (Exhibit 42). RUSSEN voluntarily provided the following:

RUSSEN disclosed that he was resigning from RTI effective the 28th of July 1989. RUSSEN assured that he was resigning of his own volition and stated that he "wanted to make it clear" that RTI management was not forcing him out in anyway.

RUSSEN said that he wanted to apologize to the reporting Investigator for the previous OI court reported interview because he wanted to answer questions in greater detail but felt "uncomfortable" about doing so with the corporate attorney present. The reporting Investigator told RUSSEN that, as he was instructed during that previous interview, he could have requested a meeting with the NRC in the absence of the corporate attorney. RUSSEN responded, "you have to understand, I work for higher management." However, RUSSEN said he "absolutely" provided honest and truthful answers to the questions posed by the reporting Investigator during the previous interview. RUSSEN confirmed his satisfaction with his previous contentions that the operators (SMITH and KEIM) had climbed over the cell maze access door as opposed to having gone through the door, because of the door knob latch problem. He added, "that is what I was told by AYRES, that they had climbed over the door."

Followup Telephonic Contact with RUSSEN

RUSSEN telephonically conferred with the reporting Investigator on August 3 and 9, 1989 (Exhibit 46). The contact was to verify the date of the operators meeting that RUSSEN held at RTI, wherein the climbing of the cell maze door was discussed and which resulted in his writing of the April 24, 1989, memo (Exhibit 37). RUSSEN stated that after reviewing time cards to determine when the operators on the off shifts were paid overtime, and after talking with operators and SINGLETON, he determined that the meeting was most likely held on the morning of April 11, 1989. RUSSEN added that this was the best estimate he could make, since he could not find anything in writing relative to the meeting itself.

Acquisition of NRC Notes of the EC

On August 22, 1989, the original contemporaneous notes taken by James H. JOYNER, Division Project Manager, NRC, DRSS, at the EC were reviewed and copied by the reporting Investigator (Exhibit 43). JOYNER confirmed that the notes are in his handwriting and stated they were made as the EC progressed. JOYNER advised that his participation in the EC was limited to the taking of notes of what was said and by whom. JOYNER advised that he could not add anything to what was incorporated in his notes. The notes corroborate what RTI's statements were and the position taken at the EC relative to the cell maze access door and any keyless entries.

INVESTIGATOR'S NOTE: Throughout the OI investigation, the reporting Investigator relied upon a copy of JOYNER's notes, as provided by M. TAYLOR on May 5, 1989.

Acquisition of RTI Corporate Counsel Memorandum of EC

On July 7, 1989, at RTI, the reporting Investigator was provided with the RSO file by VARAKLIS. Contained in the file was a memorandum of EC prepared by RTI corporate counsel from Akin, Gump, Strauss, Hauer, and Feld of Washington, DC. A copy of this memorandum was provided by VARAKLIS upon request. The memorandum is a summary of the EC, including various questions and answers, prepared by attorney Robert F. RILEY, an attendee at the EC (Exhibit 44).

The memorandum is self explanatory, however, of particular interest is the following exchanges:

- Q: When did you notice that the inside door knob was damaged (p. 4)?
- A: John RUSSEN indicated that he noticed the door knob damage on the 13th of February 1989. It appeared that the door knob was crushed when the door was opened against the wall (p. 5).
- Q: Why would the damaged door knob allow Mr. SHAPIRO's entry into the cell (p. 5)?
- A: Mr. RUSSEN indicated that the damage to the door knob apparently loosened the entire unit and therefore allowed the door to be opened (p. 5).

Office of General Counsel's Interpretation of 10 CFR 20.203(c)(6)

The Office of General Counsel (OGC), NRC, provided OI, Region 1, with a legal interpretation, dated September 8, 1989, of 10 CFR 20.203(c)(6) as it applies to the situation at RTI (Exhibit 45).

OGC opined that the manner in which the cell maze access door was breached at RTI i.e., by forcing it open and by climbing, were deliberate entries as opposed to inadvertent in the context of this regulation. OGC further opined that both of these types of entries circumvented the safety interlocks and nullified the protection factor they afforded. Furthermore, OGC advised that it was unlikely that the licensee fully complied with the regulation in question.

Willfulness/Intent

During this investigation the following evidence was developed which addresses the questions concerning: A) the veracity of statements made by licensee management, particularly the RSO, at the EC; B) if licensee management, including the RSO, had prior knowledge that the irradiator cell access control device (door lock mechanism) was not properly functioning, before it was discovered defective during an internal audit and; C) if the irradiator operators had ever gained access to the irradiator cell without use of the required access key and, if so, whether management was aware of such events.

Statement and Position Taken by Licensee at EC

It was RTI's position that RTI management had no knowledge or information that the cell had been entered by personnel without using the door latch key and that management had no knowledge of a problem until SHAPIRO found the malfunction on February 10, 1989, during an internal audit (Exhibits 7, 9, 11, 12, 43, and 44).

1. From the Standpoint of Forced Entries

a) M. TAYLOR, KNAPP, and HOLODY reported that the question was asked of RTI management, at the EC, of whether or not RTI management had any knowledge of personnel gaining access to the cell maze without using the required key. TAYLOR, KNAPP, and HOLODY all indicated that RTI management, particularly RUSSEN, claimed to have had no knowledge of such an event (Exhibits 9, 11, 12).

b) AYRES stated that he was able to gain keyless access to the cell on at least one occasion by forcing the door knob handle and pushing open the supposed locked door in the days prior to the February 13, 1989, internal audit (Exhibit 20).

AYRES reported that he told RUSSEN and SINGLETON that he forced open the cell maze access door in the days prior to the internal audit. Additionally, AYRES reported that he told SHAPIRO immediately prior to SHAPIRO's audit that the door would open if forced; and, he (AYRES) said he told VARAKLIS during the week before the EC that he had forced open the access door before SHAPIRO's audit (Exhibit 20).

c) RUSSEN admitted that the question of whether RTI management had any knowledge of personnel gaining access to the cell maze without using the required key was in fact asked at the EC. Further, RUSSEN admitted that he answered "NO" to that question because he assumed that the reason the EC was being held was because NRC knew that AYRES was able to force the door open without using the key during the time in question (February 5-13, 1989). RUSSEN also admitted that AYRES told him on at least two occasions [and possibly more] that he did force the access door open before February 13, 1989. RUSSEN denied efforts to mislead the NRC in this regard at the EC (Exhibit 34, pp. 19-23 and 31-34).

d) The operator's log entry for April 27, 1989 (Exhibit 13), VARAKLIS (Exhibit 33, pp. 23 and 24) and RUSSEN's letter to NRC dated May 4,

1989 (Exhibit 15), all indicate that RUSSEN's statement at the EC, relative to the computer records showing all entries of the cell maze door, was erroneous and invalid. RUSSEN admitted "guessing" at the EC with respect to these computer records, even though RTI was relying heavily on these very records to confirm that RTI, particularly RUSSEN, had no knowledge at the EC that anyone was able to force the door open without using the key during the time in question. RUSSEN, however, denied purposely trying to deceive/mislead the NRC in this regard (Exhibit 34, pp. 51-59).

- e) RUSSEN admitted that he knowingly provided a "wrong answer" in response to an NRC EC question regarding when he knew of the damage to the inside door knob and if any operators had reported this damage. This damage led to knob looseness and in turn, at least in part, to the possibility of the door being forced open (Exhibit 44, p. 5). RUSSEN admitted that he told NRC officials at the EC he did not know of the damage to the inside knob until February 13, 1989, when in truth and fact, he was informed of the damage by AYRES during the week preceeding February 13th. However, RUSSEN said that he did not observe the damage in person until the 13th. RUSSEN acknowledged that as RSD he should have at least witnessed the damage for himself when it was reported to him (Exhibit 34, pp 79-81).
- f) A memorandum of the EC prepared by RTI corporate counsel (Exhibit 44, pp. 4 and 5) and reviewed for accuracy by RTI management, as well as contemporaneous notes made by JOYNER (Exhibit 43, p. 2) indicate respectively that; RUSSEN told the NRC that the damaged door knob apparently loosened the entire unit and, therefore, allowed the door to be opened; and that none of the operators reported any damage before SHAPIRO identified the problem of being able to open the door on February 13th.
- g) A memorandum dated April 17, 1989, from RUSSEN to SCANDALIOS, SUBJECT: Examination and documentation of the events involving the cell door knob (Exhibit 35), clearly states that AYRES notified RUSSEN in early February that he was having problems with the door knob handle to the cell and that he (AYRES) had "pushed on the door and it opened with the source up." The memo indicates that AYRES and RUSSEN repaired the door knob on this occasion, since the problem turned out to be that the screws that secured the knob to the door had loosened and the latch was not making good contact with the strike.
- h) A memorandum dated May 1, 1989, (Exhibit 36) from RUSSEN to SCANDALIOS, SUBJECT: Corrections to the April 17, 1989, memo, supra, indicates that the April 17, 1989, memo was misleading in that the screws that needed tightening were those that secured the slide plate that surrounds the bolt on the end of the door and not the ones that secured the door knob to the door. The correction memo also indicates that RUSSEN, via a records review, was unable to validate AYRES' claim that he opened the cell door with the source up.

- 1) SHAPIRO admitted that AYRES told him on February 13, 1989 (just before SHAPIRO was to attempt to open the cell maze door without using the required key), that the door would probably open because of the damage caused by slamming it against the wall. SHAPIRO advised that at the EC he wasn't sure that AYRES had actually forced the door open (Exhibit 32, pp. 14-16 and 29)
- 2) VARAKLIS reported that had he known of any forced entries of the cell maze door, he would have responded at the EC in the affirmative, based on the NRC questions and, furthermore, he would have provided the details of any such events. VARAKLIS denied any knowledge at the EC of forced entries (Exhibit 33, pp. 14 and 15 and Exhibit 39).

VARAKLIS admitted that he was, in fact, told by AYRES two days before the EC, that he (AYRES) twisted the door knob on the cell door and forced it open before SHAPIRO's internal audit. Also, a copy of VARAKLIS' handwritten notes (Exhibit 40, p. 1), that he made while speaking with AYRES on that occasion, clearly indicate that AYRES did in fact inform VARAKLIS before the EC that AYRES forced open the access door. VARAKLIS claimed he "forgot" about AYRES' disclosure while attending the EC and during his first OI interview. VARAKLIS maintained that inadvertent entry could not have occurred. VARAKLIS also claimed that he did not intentionally mislead or deceive the NRC at the EC by omitting AYRES' disclosure (Exhibit 39).

VARAKLIS claimed SHAPIRO had to use "brute force, excessive force" to open the cell door on February 13. VARAKLIS said he read this terminology himself in the operator's log (Exhibit 33, pp. 10-16). VARAKLIS admitted in a subsequent interview that he made a "honest mistake" during his first OI interview and that the terminology, "brute force, excessive force," did not exist in the operator's log or other logs at FTI. He admitted that the log (Exhibit 34) actually indicated that the door "opened due to a crushed knob" (Exhibit 39).

- 3) SINGLETON admitted that AYRES came to him in or about January 1989 and reported that the face plate around the door knob had become loose; he could not recall if AYRES told him that the door was forced open. SINGLETON advised that it is each operator's responsibility to check the door before start-up to make sure it is latched and locked (Exhibit 29, pp. 11-25).

SINGLETON authored three instructional notes, dated on April 6 and 9, 1989, (Exhibit 30) which in substance direct the operators to check the maze, door knob, and latch during start-up and if the door opened without using the key, to call RUSSEN. SINGLETON admitted that he wrote these notes at the direction of RUSSEN because of a "continuation of the door knob thing" and also to prevent the operators from processing "if the door did not latch" (Exhibit 29, pp. 26-34).

1) SCANDALIOS denied having knowledge of any forced entries before the EC and, therefore, did not inform NRC of such at the EC. SCANDALIOS claimed he did not read any memos authored by RUSSEN regarding cell entries until May 1989 (Exhibit 41, pp. 7-9 and 12).

2. From the Standpoint of Other Forms of Keyless Entries

- a) AYRES initially told the NRC (the reporting Investigator and M. TAYLOR) that he became aware of and reported to RUSSEN and SINGLETON the fact that two operators (KEIM and SMITH) were able to re-enter the cell maze by forcing the access door open in order to retrieve the survey meter with the attached irradiator key (Exhibit 5). In a subsequent interview, AYRES admitted that he did not provide a completely accurate account of the incidents and instead chose to "let stand" the theory that the operators had gone through the door, when in fact, he (AYRES) was told that the operators had climbed over the access door. AYRES maintained that he did inform RUSSEN and SINGLETON of the breach of the door by climbing (Exhibit 20, pp. 2-4).
- b) KEIM admitted that he did climb over the access door in or about January-February 1989, before the internal audit, in order to retrieve the survey meter with attached key, which he had left inside the cell. KEIM said he admitted this to RUSSEN before the EC. KEIM also stated that he had observed SMITH climb over the door and that was how he got the idea to re-enter the cell (Exhibit 21).
- c) SMITH admitted that he climbed over the cell access door in or about September 1988 in order to retrieve the survey meter/key, and that RUSSEN, SINGLETON, and all the operators became aware of it at a supervisors' meeting held before the EC (Exhibit 23).
- d) SINGLETON reported that he became aware of SMITH and possibly another person climbing the access door at a supervisor's meeting held by the RSO; he couldn't recall when the meeting took place (Exhibit 29, p. 35).
- e) SHAPIRO admitted that he knew before the EC that SMITH had climbed over the access door, but he didn't reveal that at the EC because climbing was a "completely different situation" than what NRC was asking about, i.e., violation of safety interlocks. SHAPIRO, however, admitted that the door is supposed to be a physical barrier that triggers the interlocks (Exhibit 32, pp. 23-31).
- f) RUSSEN admitted that he knew of the climbing of the cell maze access door by SMITH and KEIM before the EC, but said he didn't mention it at the EC because it "never came to mind," as the focus was on the door knob problem (Exhibit 34, pp. 34, 45 and 46; Exhibit 42).

RUSSEN authored a memo, dated April 24, 1989 (Exhibit 37), concerning the climbing of the cell door. RUSSEN said he discussed the contents of the memo with VARAKLIS before he wrote it, and that a copy of it was distributed to VARAKLIS. RUSSEN said VARAKLIS directed that RUSSEN write the memo and, specifically, that he

include the portion regarding "dismissal" (Exhibit 34, pp. 34, 45 and 46).

- g) VARAKLIS claimed he had no knowledge of the climbing incidents until after the EC, and that he did not discuss the contents of the April 24, 1989, memo with RUSSEN. VARAKLIS stated that, had he known of the climbing incidents at the EC, he would have told NRC of them in response to the NRC questions. He stated that the space above the door was closed off with plywood in or about late May 1989 (Exhibit 33, pp. 10-25).
- h) SCANDALIOS acknowledged that RUSSEN's memo (Exhibit 37) was written before the EC, but claimed it did not get to his desk until sometime in May when he finally read it. SCANDALIOS said he was not aware at the EC of the climbing incidents (Exhibit 41, pp. 10-12).

Other Statements/Omissions of Licensee at EC

RTI management, in the person of the RSO, denied that an exchange of the console key switch with the cell key start-up switch had occurred; and that there were no additional problems with the cell key switch since the March 1989 NRC Inspection (Exhibit 9).

- a) AYRES, KEIM, POSA, and SINGLETON, all either reported that the exchange of the switch took place or that they heard of it taking place. SINGLETON believes he discussed the exchange with RUSSEN at the time of the exchange, around early February 1989 (Exhibits 20, 21, 22 and 29, pp. 45-47, respectively).
- b) RUSSEN admitted that the exchange did in fact take place, and that he told the NRC at the EC that it never occurred. However, RUSSEN said he was relying on his memory and operator's logs at the EC. He said at the EC he forgot about the exchange and stated it was not logged in any record at RTI. RUSSEN said he corrected his wrong answer to the NRC by sending the NRC a letter, dated June 19, 1989 (Exhibit 38). RUSSEN denied efforts to mislead the NRC at the EC in this regard and primarily blamed this error on his lack of recollection (Exhibit 34, pp. 60-63).
- c) An entry in the operator's log for April 11, 1989 (Exhibit 10), indicates that the cell key switch was inoperable and that RUSSEN was so notified.
- d) AYRES and KEIM reported that RUSSEN was definitely made aware of the cell key switch problem on April 11, 1989, which resulted from radiation damage to the plastic cam (Exhibits 5, 20 and 21).
- e) RUSSEN admitted that the cell key switch had been a recurring problem before and after a toggle switch was installed in March 1989. However, RUSSEN denied that he responded in the negative to the NRC question regarding the cell key switch at the EC. RUSSEN adamantly maintained that the radiation problem with the cell key switch was discussed by him at the EC (Exhibit 34, pp. 66-68).

Agent's Conclusion

Based upon the evidence gathered during this investigation, it is concluded that: licensee management, particularly KUSSEN and VARAKLIS, acting with a minimum of careless disregard, did not provide complete and accurate information to the NRC at the EC; that SCANDALIOS and SHAPIRO knew or should have known before the EC of at least one of the reported keyless entries of the cell maze door i.e., the door being forced open by an operator; and that RUSSEN knowingly provided false information at the EC relative to the point in time when he became aware of the damage to the cell door knob.

Based upon the evidence gathered during this investigation, it is also concluded that RUSSEN and SINGLETON acted with careless disregard for regulations and safety in allowing irradiation operations to continue with a less than fully functional door lock mechanism.

Based upon the evidence gathered during this investigation, it has been determined that operators AYRES, KEIM, and SMITH gained access to the irradiator cell, without utilizing the required key, on at least three separate occasions. It is also concluded that RUSSEN and SINGLETON were aware of at least one of these keyless entries (the forced entry) during the course of the intermittently malfunctioning door lock mechanism. However, it is also concluded that licensee management, particularly RUSSEN and VARAKLIS, were aware of all keyless entries prior to the EC and chose not to inform the NRC. Further, VARAKLIS denied any knowledge of the climbing entries during two separate OI interviews, even though the evidence suggests otherwise.

Finally, based on the evidence and supported by his admission, AYRES, initially, knowingly provided false information to NRC relative to the manner in which the cell door had been breached by KEIM and SMITH.

Status of Investigation

This investigation is submitted as closed.

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SUPPLEMENTAL INFORMATION

On July 25, 1989, M. TAYLOR informed the reporting Investigator that VARAKLIS notified her telephonically that he was resigning from RTI, effective July 28, 1989. He also reported that he would continue to be a consultant for RTI for approximately a two month period while management looked for a suitable replacement.

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LIST OF EXHIBITS

<u>Exhibit No.</u>	<u>Description</u>
1	Request for Investigation, dated May 2, 1989, with Attachments.
2	NRC Materials License No. 29-13613-C2.
3	Amendment Letter, December 12, 1988, License Condition 26, Excerpt Part 10.1.
4	NRC Inspection Report No. 030-07022/89-001.
5	Memorandum of Interview with AYRES, dated April 11, 1989.
6	NRC Notice of RTI Enforcement Conference, dated April 17, 1989.
7	NRC Enforcement Conference Report No. 030-07022-89-002.
8	RTI Internal Radiation Safety Audit, dated February 14, 1989.
9	Report of Interview with M. TAYLOR, dated May 15, 1989, with Attachment.
10	RTI Operator's Log Entry for April 11, 1989.
11	Report of Interview with KNAPP, dated May 15, 1989, with Attachment.
12	Report of Interview with HOLODY, dated May 18, 1989.
13	Examination of RTI records on May 5, 1989, with Attachment.
14	Report of Contact with SINGLETON, dated May 5, 1989.
15	RTI correspondence to NRC, dated May 4, 1989, stamped at NRC Region 1 on May 8, 1989.
16	Report of Interview with KOLAKOWSKI, dated July 7, 1989.
17	KOLAKOWSKI's Word Processor Disk Directory, obtained by NRC on July 7, 1989.
18	Report of Interview with B. TAYLOR, dated June 1, 1989.
19	U.S. Postal Service "Return Receipt Card" from RTI.
20	Report of Interview with AYRES, dated June 8, 1989, with Attached Sworn Statement.
21	Report of Interview with KEIM, dated June 1, 1989, with Attached Sworn Statement.

<u>Exhibit No.</u>	<u>Description</u>
22	Report of Interview with ROSA, dated June 1, 1989, with Attached Sworn Statement.
23	Report of Interview with SMITH, dated June 8, 1989, with Attached Sworn Statement.
24	RTI Operator's Log Entry for February 13, 1989.
25	Report of Interview with GIANCOLA, dated June 1, 1989.
26	Report of Interview with STOUT, dated June 9, 1989.
27	Report of Interview with GIAQUINTO, dated June 21, 1989.
28	Report of Investigative Observations, on June 22, 1989, with Attachment.
29	Transcribed Interview of SINGLETON, dated June 21, 1989.
30	RTI Plant Superintendent's (SINGLETON) Instruction Entries for April 6 and 9, 1989.
31	Memo from SINGLETON to RUSSEN, dated June 12, 1989.
32	Transcribed Interview of SHAPIRO, dated June 21, 1989.
33	Transcribed Interview of VARAKLIS, dated June 21, 1989.
34	Transcribed Interview of RUSSEN, dated June 22, 1989.
35	Memo from RUSSEN to SCANDALIOS, dated April 17, 1989.
36	Correction Memo from RUSSEN to SCANDALIOS, dated May 1, 1989.
37	Memo from RUSSEN to all operators, dated April 24, 1989.
38	RTI Correspondence to NPC, dated June 19, 1989.
39	Report of Interview with VARAKLIS, dated July 7, 1989, with Attachments.
40	Handwritten notes of VARAKLIS, dated April 24, 1989.
41	Transcribed Interview of SCANDALIOS, dated June 22, 1989.
42	Report of Contact with RUSSEN, dated July 7, 1989.
43	Handwritten notes of Enforcement Conference by IIRC's JOYNER, dated April 26, 1989.

<u>Exhibit No.</u>	<u>Description</u>
44	RTI Corporate Counsel's Memorandum of the April 26, 1989, Enforcement Conference, dated May 5, 1989.
45	NRC, Office of General Counsel's Interpretation of 10 CFR 20.203(c)(6), dated September 8, 1989.
46	Optional Form 271 - Telephone Conversation Record, dated August 3 and 9, 1989.
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