

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No.: 030-06740

License No.: 48-06453-01

Report No.: 030-06740/96001(DNMS)

Licensee: S. C. Johnson & Son, Inc.
1525 Howe Street
Racine, WI 53403

Location: S. C. Johnson & Son, Inc.
2512 Willow Road
Mt. Pleasant, Wisconsin

Dates of Inspection: November 21-22, 1996, and December 5, 1996

Inspectors: Wayne Slawinski, Senior Radiation Specialist
Robert Gattone, Radiation Specialist

Approved By: John Madera, Chief
Nuclear Materials Inspection Branch 1
Division of Nuclear Materials Safety

EXECUTIVE SUMMARY

S. C. Johnson & Son, Inc.
NRC Inspection Report 030-06740/96001(DNMS)

This was a reactive, announced inspection to identify the events and causal factors associated with a missing nuclear gauge having a nominal 300 millicurie (11,100 MBq) sealed source and determine whether activities authorized by the license were conducted safely and in accordance with NRC requirements.

The inspection identified a significant failure to control licensed material caused by a number of weaknesses in the licensee's program, including training deficiencies, communication breakdowns, an inadequate review process associated with expenditure authorizations involving devices containing licensed material, and plant staff desensitization to warning labels. One violation and four apparent violations were identified.

The violation concerned failure to have the Radiation Safety Officer (RSO) or Alternate Radiation Safety Officer (ARSO) check the source shutter position prior to nuclear gauge removal. The cause of the violation appeared to be failure to: (1) notify the RSO prior to certain nuclear gauge removal activities; and (2) provide effective training to all staff whose duties could require them to access nuclear gauges.

The first apparent violation concerned unauthorized removal of the nuclear gauge by technically unqualified personnel, and it is an apparent repeat violation. The cause of the apparent violation appeared to be failure to: (1) notify the RSO prior to removal of the nuclear gauge; and (2) provide effective training to all staff whose duties could require them to access nuclear gauges.

The second apparent violation concerned failure to secure the nuclear gauge from unauthorized access during storage. The cause of the apparent violation appeared to be failure to consider that the nuclear gauge could be moved by unauthorized staff after it was removed from installation.

The third apparent violation concerned unauthorized disposal of the americium-241 sealed source. The licensee most likely disposed of the source as normal trash by transfer to a municipal landfill. The causes of the apparent violation appeared to be: (1) storage of the nuclear gauge in the same facility area where equipment to be scraped was staged; (2) inadequate management oversight of equipment scraping and salvaging operations; (3) desensitization of plant staff to heed warning labels on equipment that was removed from production lines; and (4) failure to provide basic radiation safety training to individuals who could frequent areas where nuclear gauges were installed.

The fourth apparent violation concerned failure to immediately notify the NRC regarding missing radioactive material. The cause of the apparent violation appeared to be misinterpretation of the notification requirements.

Report Details

1. Organization and Scope of Program

NRC Byproduct Material License No. 48-06453-01 authorized S. C. Johnson & Son, Inc. (licensee) to possess and use several sealed sources containing millicurie quantities of americium-241 and cesium-137 for use in fill level and density nuclear gauges. Additionally, the license authorized possession and use of several sealed sources containing millicurie quantities of nickel-63, hydrogen-3, and curium-244 for use in gas chromatographs and x-ray fluorescence analyzers. During this inspection, the licensee possessed eight americium-241 nuclear gauges each source containing a maximum of 100 millicuries; fourteen cesium-137 nuclear gauges containing a maximum activity of 100 millicuries per source; and several sealed sources containing low millicurie quantities of hydrogen-3 and nickel-63 for use in gas chromatographs.

The licensee was a large manufacturer of a wide variety of consumer and commercial products (e.g., Windex, Drano, Raid, Off). Nuclear gauges were used primarily for detecting the levels of product inside process vessels and testing the contents of product packaging. Gas chromatographs were primarily used for product research and development studies.

In addition to the RSO and ARSO, seven individuals were authorized users of licensed material. The RSO was responsible for day-to-day oversight of the radiation safety program. The RSO reported to the Safety and Industrial Hygiene Manager who reported to the Safety and Environmental Affairs Manager. The Safety and Environmental Affairs Manager reported to the Director of Quality Assurance, Safety and Environmental Services who reported directly to the Senior Vice President.

2. Nuclear Gauge Removal

2.1 Inspection Scope

The inspectors reviewed the licensee's provisions for removal of nuclear gauges and the training provided to licensee staff. The inspectors conducted interviews of the RSO and licensee staff who were involved with the removal of the missing nuclear gauge from installation.

2.2 Observations and Findings

Authorization for removal of the licensee's nuclear gauges was limited by License Condition to its RSO or other individuals specifically authorized on an NRC or Agreement State license.

The licensee's protocol for replacement of certain equipment required completion of a "Major Expense Authorization" (MEA) process, which included management review and approval of an MEA form. MEAs were forwarded to licensee management by licensee staff who provided information about the request including a description of the equipment involved, its justification and cost.

In February 1996, the licensee approved an MEA to replace an Industrial Dynamics Model CI-2GV "Filtec" nuclear gauge containing 300 millicuries (11,100 MBq) of americium-241 with a weight scale device. The licensee determined that the weight scale would function better to detect improperly filled product packages on a conveyor belt in Production Line 515 of the licensee's facility. Although the request for the MEA indicated that the nuclear gauge to be replaced contained a radioactive source that required special handling, the MEA approval process did not include the RSO. Therefore, the RSO was unaware of the plan to replace the nuclear gauge from its production line until the plant walk-through on November 13, 1996.

In late August 1996, the engineer responsible for Line 515 decided to have the nuclear gauge removed from installation incident to replacement, so he instructed a mechanic and an electrician to remove it from the production line. Although the licensee had developed procedures that required RSO notification before nuclear gauge removals, the engineer misinterpreted the procedure and thought that RSO notification was required for removal of the source from the gauge. Therefore, he did not notify the RSO prior to instructing staff to remove the nuclear gauge from its installation.

A violation regarding removal of nuclear gauges by unauthorized persons was identified during an NRC inspection conducted on March 28 and 30, 1990. The licensee responded to the violation by letter dated May 10, 1990. The licensee's corrective action for the violation was to send a memo to Operating Managers whose operations included a sealed source, informing them that nuclear gauge removal was prohibited without prior RSO approval.

The Plant Manager (i.e., Operating Manager) was aware that the Safety and Environmental Affairs Department were to be notified regarding nuclear gauge removals, and attempted to do so by sending the Safety and Environmental Affairs Manager (SEAM) a copy of the approved MEA with attachments. The attachments described the need for special handling of the radioactive source in the nuclear gauge. However, the SEAM limited his review to the MEA cover sheet that only discussed the weight scale without mention of the nuclear gauge. Therefore, the SEAM did not realize that the MEA involved removal of a nuclear gauge.

After the electrician powered down the gauge, the mechanic and electrician unbolted it from the floor, lifted it from its installed position over a conveyor belt, and placed it next to the conveyor belt in Line 515. License Condition # 23 of NRC License No. 48-06453-01 requires, in part, that the RSO or ARSO check the source shutter position prior to any work to be performed in the direct line of the source. The RSO or ARSO did not check the nuclear gauge source shutter position prior to nuclear gauge removal. **Failure to have the RSO or ARSO check the nuclear gauge source shutter position prior to nuclear gauge removal in August 1996, constitutes a violation of Condition No. 23 of NRC License No. 48-06453-01.**

The mechanic and the electrician were not technically qualified or authorized to remove the nuclear gauge from installation. License Condition # 17 of NRC License No. 48-06453-01 requires, in part, that installation, initial radiation survey, relocation, removal from service, maintenance, and repair of devices containing sealed sources be performed by Carmella Richards or by persons specifically licensed by the Commission or an Agreement State to perform such services. **Removal of the nuclear gauge from installation by individuals not specifically licensed by the Commission or an Agreement State in August 1996, appears to constitute a repeat violation of Condition 17 of NRC License No. 48-06453-01.**

The electrician bolted the nuclear gauge to a pallet and applied bands around it in preparation for transport because he assumed it would be shipped to the licensee's warehouse. The nuclear gauge remained on the pallet in Line 515 for about one month.

Upon initial installation of nuclear gauges, the licensee provided radiation safety training to the staff who worked on the production line where the nuclear gauge was installed. The training included the licensee's procedure to contact the RSO prior to gauge removal. The training was provided to Production Line 515 workers in 1993, when the gauge was installed at that location. As of approximately 1994, the licensee trained all new employees and contractors regarding recognition and response to "Caution, Radioactive Material" signs that were posted on all nuclear gauges. Additionally, the licensee posted a memo on all nuclear gauges to, among other things, alert the staff to notify the RSO regarding nuclear gauge removals.

The mechanic removed the nuclear gauge from its installation because he was directed by the engineer. Since the mechanic was hired prior to 1994 he had not received radiation safety training. Therefore, the mechanic was not aware that he was unauthorized to remove nuclear gauges from installation. Additionally, the mechanic did not notice any labels or signs on or near the nuclear gauge warning about radioactive material. The mechanic was aware that the nuclear gauge contained radioactive material and that he was prohibited from disposing of it, disassembling it, or tampering with it based on previous employment and incidental experience during his employment with the licensee (i.e., not from radiation safety training provided to him by the licensee).

The electrician removed the nuclear gauge from installation because he assumed that the engineer who directed him had coordinated the removal with the RSO. The electrician: (1) received radiation safety training regarding prohibitions about gauge removals, but not regarding how to safely remove nuclear gauges from installation; (2) saw radiation warning labels on the nuclear gauge; (3) knew the nuclear gauge contained a sealed radioactive source; and (4) knew the source shutter was closed. Therefore, the licensee's radiation safety training provided to the electrician appeared ineffective in communicating who was responsible for contacting the RSO for approval of nuclear gauge removals.

Based on information obtained during the inspection, the removal of the nuclear gauge by unauthorized, technically unqualified individuals did not appear to result in an individual receiving a radiation dose in excess of regulatory limits. The nuclear gauge was designed to automatically close the source shutter incident to power loss. Since the nuclear gauge was powered down prior to its removal, the shutter likely closed and eliminated the external radiation hazard.

2.3 Conclusions

The inspection identified a violation regarding failure to have the RSO or ARSO check the nuclear gauge source shutter position prior to nuclear gauge removal. The inspection also identified an apparent repeat violation regarding nuclear gauge removal by unauthorized, technically unqualified individuals. The cause of these problems appeared to be failure to notify the RSO prior to nuclear gauge removal due to deficiencies in the licensee's training program and misinterpretation of licensee procedures.

3. Security of Licensed Material

3.1 Inspection Scope

The inspectors reviewed the events involving the nuclear gauge from the time it was removed from installation until it was disposed of. The inspectors toured the areas where the nuclear gauge was stored after removal, and conducted interviews of selected licensee staff that handled or observed the gauge while it was stored.

3.2 Observations and Findings

As stated in Section 2.2 of this report, the nuclear gauge was removed and placed adjacent to Line 515, where it remained for about one month. During this time, the nuclear gauge was not secured from removal because it could be moved with a fork lift or similar equipment. Line 515 was accessible to several licensee staff who were unauthorized to access the nuclear gauge, including fork lift operators. In late August 1996, an unidentified individual moved the nuclear gauge to Line 505.

Line 505 was a production line that was seasonal. During the off-season, Line 505 was used as a temporary staging area to hold equipment incident to, among other things, initial installation, disposal, and relocation. While the nuclear gauge was stored in Line 505, it was accessible to unauthorized persons.

In late September 1996, licensee management requested that Line 505 be cleared out because it was cluttered with equipment destined for relocation or disposal. The nuclear gauge was also stored in this area. A Line Chief requested assistance from a Label Operator and an Associate to clear out Line 505. The Line Chief and Label Operator thought the nuclear gauge was to be disposed of, so they disassembled it with assistance from the Associate. The three individuals who disassembled the nuclear gauge were unauthorized to do so. 10 CFR 20.1801 requires that the licensee secure from unauthorized removal or access licensed material that is stored in unrestricted areas. **Failure to secure from unauthorized removal or access, a nuclear gauge containing licensed material in Lines 515 and 505, both unrestricted areas, appears to constitute a violation of 10 CFR 20.1801.**

Based on information obtained during the inspection, failure to secure licensed material from unauthorized access did not appear to result in an individual receiving a radiation dose in excess of regulatory limits. Nuclear gauge disassembly did not appear to involve removal of shielding or the sealed source.

3.3 Conclusions

The inspection identified two examples of an apparent violation regarding failure to secure from unauthorized removal or access, a nuclear gauge containing licensed material in unrestricted areas. The cause of the apparent violation appeared to be failure to consider that the nuclear gauge could be moved by unauthorized staff with heavy equipment after it was removed from installation.

4. Nuclear Gauge Disposal

4.1 Inspection Scope

The inspectors reviewed the events involving the disposal of the nuclear gauge. The inspectors toured the areas where the nuclear gauge was disassembled prior to disposal, toured the landfill and scrap yards where the sealed source could have been disposed, conducted radiation surveys in areas where the sealed source could have been damaged or disposed of, and conducted interviews of the RSO and licensee staff who were involved with nuclear gauge disassembly or disposal.

4.2 Observations and Findings

As stated in Section 3.2 of this report, the nuclear gauge was relocated to Line 505, an area used to store equipment incident to transfer or disposal. The Line Chief occasionally received requests from engineers to clear out equipment from

Line 505, and either dispose of the equipment to the normal trash after recycling metal components or prepare it for transfer to the licensee's warehouse. The Line Chief typically requested assistance with this task from other employees who were temporarily idle (e.g., Label Operator, etc.).

In late September 1996, the Line Chief was asked to clean up equipment in Line 505, so he requested assistance from a Label Operator and an Associate to disassemble the nuclear gauge which the Line Chief presumed was to be disposed. The licensee had no common method of communicating the fate of equipment in Line 505 to the staff responsible for clearing the area. Additionally, the licensee did not provide specific guidance or oversight of equipment disassembly while the tasks were being performed.

As previously described, the licensee's radiation safety training focused on individuals who routinely worked on production lines where nuclear gauges were installed, excluding individuals who might frequent an area where nuclear gauges were used. Since the three individuals who disassembled the nuclear gauge were hired prior to 1994 and did not routinely work on production lines where nuclear gauges were installed, they did not receive basic radiation safety training, including how to recognize and respond to radiation warning labels.

Once an engineer requested equipment disassembly, the staff claimed they assumed that warning labels affixed to the equipment being disassembled could be disregarded. Therefore, the staff performing the disassembly were desensitized to the radiation warning label(s) on the nuclear gauge, and did not remember seeing them.

During disassembly, nuclear gauge components were placed in bins for regular trash and scrap metal. Any "clean" metal (i.e., no attached plastic, wires, or electrical components) was placed in a bin to be sent for metal recycling. Other components were placed in a bin for regular trash.

The regular trash was compacted with one of two trash compactors at the licensee's facility prior to transfer to Metro Landfill, a municipal landfill in Franklin, Wisconsin. The licensee's regular trash was primarily composed of soft items (e.g., paper, cardboard, plastic, etc.). Based on the composition of the regular trash and the operation of the compactors, the inspectors determined that it was unlikely that the sealed source was damaged during compaction. The inspectors found no evidence of radioactive contamination on either of the compactor plungers. Based on a tour of the municipal landfill, the inspectors determined that landfill operations were unlikely to cause damage to the sealed source because it was housed in a metal protective box which did not appear to have been opened by those licensee staff involved with nuclear gauge disassembly. Also, landfill trash was generally soft which should have cushioned the gauge from damage by the landfill's roller compaction process. Since the nuclear gauge was likely to have arrived at the landfill in October 1996, landfill staff estimated that it was probably buried between 15 to 30 feet below the surface of a 40 acre area.

After nuclear gauge disassembly, the Line Chief and Label Operator took the scrap metal, including that removed from the nuclear gauge, to Miller Compressing Company (Miller) (metal recycling center). A Miller representative noticed one of the metal scrap pieces had a radiation warning label, so he showed the Line Chief and Label Operator the label and told them he could not accept their scrap because of the warning label on it. Therefore, the scrap metal from the nuclear gauge was not accepted by Miller and was subsequently returned to Line 505. Other unlabeled scrap metal pieces brought to Miller by the Line Chief were accepted. The inspectors determined that it was unlikely that the sealed source was accepted by Miller since they refused to accept any scrap metal with radiation warning labels on it, and only the box housing the sealed source had the radiation warning label on it. Inspector radiation surveys of the shearing machine and torching area, which were used at Miller to process scrap metal, identified no evidence of radioactivity that was distinguishable from background levels.

Subsequent to the return of the nuclear gauge scrap metal to Line 505, the Line Chief told a licensee staff member what the Miller representative said about the radiation warning label. The licensee staff member told the Line Chief that the quantity of radioactive material in the nuclear gauge was negligible, and it could be thrown away. Additionally, the Label Operator told another employee what the Miller representative said about the radiation warning label and, since the employee didn't respond, the Label Operator claimed he assumed the radioactive material in the nuclear gauge was unimportant.

Thinking that the radioactive material in the nuclear gauge was unimportant, and knowing that Miller refused to accept it, the Line Chief and Label Operator brought the scrap metal obtained from the nuclear gauge to Johnson Recycling and Trading (JRT) (metal recycling center) on October 1, 1996. The Line Chief and Label Operator did not inform JRT about what Miller said because they wanted to scrap the metal and they thought the radioactive material was unimportant and therefore, not hazardous. JRT accepted the scrap metal. JRT routinely processed scrap metal by cutting it into smaller pieces prior to shipment to another vendor. At the time of the site inspection, JRT had not shipped any scrap metal since October 1, 1996.

It was unlikely that the box housing the sealed source was transferred to JRT based on: (1) radiation surveys conducted by the inspectors; (2) radiation surveys and searches conducted by the licensee; and (3) refusal of JRT staff to accept scrap metal with a radiation warning label on it.

Based on NRC interviews of licensee staff, it is likely that the nuclear gauge component that housed the sealed source was placed in a regular trash bin because it had wires, plastic, and electrical components attached to it. The inspectors determined that it was unlikely that the sealed source was damaged if it was received by JRT based on a radiation survey of the scrap metal cutter and tour of the facilities. The inspectors advised JRT staff regarding the potential of radioactive material at their facility and what to do if it was found. 10 CFR 20.2001 requires that the licensee dispose of licensed material only by certain

specified procedures. Disposal of licensed material by release to a scrap recycler or to the non-radioactive trash, methods not authorized by 20.2001, appears to constitute a violation of 10 CFR 20.2001.

Based on information obtained during the inspection, disposal of licensed material by unauthorized means did not appear to result in an individual receiving a radiation dose in excess of regulatory limits provided that the sealed source was not breached.

4.3 Conclusions

The inspection identified an apparent violation regarding unauthorized disposal of licensed material. The causes of the apparent violation appeared to be: (1) storage of licensee equipment (e.g., nuclear gauge) incident to transport or disposal in the same facility area without clearly communicating the fate of the equipment to staff assigned to remove it; (2) failure to provide specific management oversight regarding equipment disassembly incident to disposal; (3) reluctance of licensee staff to heed warning labels affixed to equipment (e.g., nuclear gauge) after a supervisor's instructions were received regarding disposal; and (4) failure to provide basic radiation safety training (e.g., how to recognize and respond to radiation warning labels) to individuals who could occasionally work on production lines where nuclear gauges were installed.

5. Notification of Missing Sealed Source

5.1 Inspection Scope

The inspectors conducted interviews of the Plant Manager, RSO and the Safety and Environmental Affairs Manager to review the licensee's response to identification of the missing sealed source that was in the nuclear gauge.

5.2 Observations and Findings

While walking through the plant on November 13, 1996, the RSO noticed that the nuclear gauge was missing from its place on Line 515. The RSO queried the staff about the missing nuclear gauge, and learned that the gauge was removed by a mechanic per the request of an engineer. The RSO also learned that the nuclear gauge was put on a pallet in preparation for transport. The RSO issued an e-mail message to the Plant Manager outlining her knowledge of the event, and her plan to contact the engineer who requested the nuclear gauge removal. The memo also stated that every effort would be made to locate the missing source to avoid NRC notification. Later that day, the engineer told the RSO that he was not aware that the nuclear gauge was moved from Line 515. The RSO and the engineer searched the licensee's warehouse in Kenosha, Wisconsin, but the search was unsuccessful. The RSO returned to the plant and queried licensee staff about the missing source,

but nobody knew where it was. The RSO sent an e-mail message to the second and third shifts requesting information about the missing source. At this point, the RSO did not consider the nuclear gauge missing because she had not talked to all of the individuals who might have known where it was.

On November 14, 1996, the RSO continued to search for the nuclear gauge by dumping and sorting through a scrap metal box, and searching other areas of the licensee's facility.

On November 15, 1996, the RSO interviewed the Line Chief and Label Operator and learned that the nuclear gauge had been disassembled and some of it was sent to JRT. The RSO went to JRT with a concealed radiation survey instrument to continue the search, but did not inform JRT about the missing radioactive source. Some components of the nuclear gauge that did not contain the sealed source were found (e.g., A-frame, control box). At this point, the RSO could not physically account for the missing sealed source and had indication that it might be in the public domain based on two days of conducting staff interviews and extensive searches. The RSO did not suspect that the sealed source was damaged because she was unaware that JRT cut scrap metal prior to transfer. 10 CFR 20.2201 requires, in part, that each licensee report by telephone to the NRC, immediately after its occurrence becomes known any lost, stolen, or missing licensed material in an aggregate quantity equal to or greater than 1,000 times the quantity specified in Appendix C to 10 CFR 20, under such circumstances that it appears to the licensee that an exposure could result to persons in unrestricted areas. One thousand times the quantity specified in Appendix C to 10 CFR 20 for americium-241 is one microcurie (37 kBq), and the missing sealed source contained 300 millicuries (11,100 MBq). **The licensee's failure to immediately report to the NRC that licensed material in an aggregate quantity greater than 1,000 times the quantity specified in Appendix C to 10 CFR 20 was missing on November 15, 1996, appears to constitute a violation of 10 CFR 20.2001.**

On November 18, 1996, the RSO searched through the licensee's compactor bin containing normal trash, and double checked the scrap metal box. No nuclear gauge components were found. The RSO, and other licensee staff searched for the nuclear gauge at the municipal landfill, but the sealed source was not found.

On November 19, 1996, the licensee continued its search of other areas and queried additional staff. The licensee returned to JRT to search through a lead recycling bin. No nuclear gauge components were found. Based on information gathered by the licensee at this point, the licensee determined that it was unlikely that the nuclear gauge source was at JRT.

The RSO did not consider the sealed source missing until November 20, 1996 because, until then, she had not completed interviews of all of the individuals that might have had knowledge about the location of the sealed source. On November 20, 1996, the licensee notified the NRC Region III Office, Metro Landfill, and local authorities about the missing sealed source.

On November 21, 1996, the licensee notified the NRC Operations Center and other local authorities about the missing sealed source.

5.3 Conclusions

The inspection identified an apparent violation regarding failure to immediately notify the NRC regarding missing radioactive material in excess of one thousand times the quantities in Appendix C to 10 CFR 20. The cause of the apparent violation appeared to be that the licensee did not consider the sealed source missing until it completed interviews of all of the individuals that might have had knowledge about the location of the sealed source.

Exit Meeting Summary

The inspectors discussed the preliminary conclusions described in this report with licensee management during an exit meeting conducted at the licensee's Mt. Pleasant, Wisconsin facility on November 22, 1996. Additional preliminary conclusions described in this report were discussed with licensee management during an exit meeting conducted on December 5, 1996 at the same facility. The licensee did not identify any information reviewed during this inspection and selected for inclusion in this inspection report as proprietary in nature.

Partial List of Persons Contacted

Nico Meiland, Senior Vice President, Manufacturing and Procurement,
World Wide Consumer Products
J. Timmerman, Plant Manager LMT-63 (June 1994 through June 1996)
Thomas Stocksdales, Safety and Environmental Affairs Manager
William Wolff, Safety and Industrial Hygiene Manager
Carmella Richards, Radiation Safety Officer
Gary Krieger, Senior Counsel
Mark Flanagan, Attorney
Peter Gray, Attorney
Jim Mascari, Project Engineering Manager
Tom Pietras, Technologist
Rusty Cowles, Engineer
Bob Radojevich, Mechanic
Bob Klinkhammer, Electrician
Kathy Sorenson, Associate
Ron Johnson, Fork Lift Operator
Joe Tenuta, Line Chief
Rudy Sanchez, Label Operator
Rudy Correa, Manager, Miller Compressing Company

List of Acronyms Used in This Report

CFR	Code of Federal Regulations
DNMS	Division of Nuclear Materials Safety
JRT	Johnson Recycling and Trading
kBq	Kilobecquerels
MBq	Megabecquerels
MEA	Major Expense Authorization
NRC	Nuclear Regulatory Commission
PDR	Public Document Room
RSO	Radiation Safety Officer