December 11, 2000

MEMORANDUM TO: Cynthia A. Carpenter, Chief
Generic Issues, Environmental, Financial &
Rulemaking Branch
Division of Regulatory Improvement Programs, NRR

FROM: Joseph L. Birmingham, Project Manager**/RA/**
Generic Issues, Environmental, Financial &
Rulemaking Branch
Division of Regulatory Improvement Programs, NRR

SUBJECT: SUMMARY OF NOVEMBER 15, 2000, MEETING WITH NUCLEAR ENERGY INSTITUTE TO DISCUSS OCCUPATIONAL AND PUBLIC RADIATION SAFETY CORNERSTONES

On November 15, 2000, radiation protection personnel representatives of the nuclear industry and the Nuclear Energy Institute (NEI) met with Nuclear Regulatory Commission (NRC) staff to discuss issues associated with the Occupational and Public Radiation Safety Cornerstones of the revised Reactor Oversight Program (ROP). A list of those attending the meeting is provided as Attachment 1.

Public Radiation Safety Cornerstone

The NRC began the meeting by summarizing the status of changes made to the Public Radiation Safety cornerstone. For the Transportation / Part 61 area (i.e., classification of radioactive materials for shipment and disposal); the NRC accepted a proposed revision to the Part 61 portion of the significance determination process (SDP) that was submitted by NEI on June 12, 2000. As a recap to the group; the issue involves the failure of a licensee to correctly classify radioactive waste (i.e., under classify waste shipments by assigning Class B waste as Class A). NEI proposed that the SDP flowchart be expanded to offer extra decision diamonds to refine the process into separate steps which correspond to different levels of “risk” to the public. NEI maintained that there was low risk to workers, members of the public, the waste disposal facility, and the environment. For such cases, the SDP should be changed to reduce the risk color from WHITE to GREEN. However, an under classification finding would continue to be WHITE if it involved the higher activity Class C waste or for Class B waste that did not meet the requirements of 10 CFR 61.56.

The staff evaluated the proposal and agreed to process the changes through the Inspection Program Branch for incorporation into the SDP Manual Chapter.

The other public cornerstone item discussed was the Radioactive Material Control Program. There has been feedback from industry and NRC inspectors that additional guidance is needed in this area to clarify when a licensee has “lost control” of its licensed radioactive material while it is still on a licensee’s owner controlled property. The staff drafted additional guidance, for inclusion in the SDP, for stakeholder review and comment (see Attachment 2). The guidance allows licensees to be given credit for situations where the radioactive material is discovered

outside of the radiation controlled area of the facility but still in an area under their control where the material would have to pass through a radiation survey point prior to being “free released.” The guidance recognizes the final survey point as a barrier to prevent the radioactive material from being released from the plant site. A concern was voiced, by NEI, about potential findings which could result from licensee self assessments which identify contaminated material and equipment that were released years ago, which used less sensitive survey instruments than used today. NEI believes that a licensee should not be penalized by the SDP for doing a good self assessment based on changes in technology that now make previously “undetectable” levels of licensed radioactive material “detectable.” The staff requested comments on the draft radioactive material control guidance. Comments will be discussed at a future meeting.

Occupational Radiation Safety Cornerstone

The NRC staff handed out a revision to frequently-asked-question (FAQ) 131 (Attachment 3). Based on industry feedback, the staff agreed to add acknowledgment of licensee voluntary efforts in support of radiographing operations and a reference to actual events where these additional efforts would enhanced worker safety. NEI and industry will provide the staff with any comments on the draft, with the goal of presenting the revised FAQ 131 (and FAQ 130) to the joint NRC/NEI Review Group in the very near future.

NEI provided a list of program areas being monitored for possible recommendations for improvement (Attachment 4). In response to the NEI concern over the inspection guidance focusing on dosimeter placement criteria, the staff noted that inspection guidance does not constitute regulatory requirements. In this particular case, given the requirements of 10 CFR Part 20, Section 1201(c), the specific guidance was provided in an effort to focus the inspector on more risk significant related activities (establish some worker dose threshold below which inspection efforts should not be expended). NEI noted that in the near future, one licensee may request relief from 20.1201(c), and propose to use the guidance and methodology developed by the National Council on Radiation Protection and Measurement for assessing dose in non-uniform radiation fields.

The staff next discussed comments received from regional inspectors since implementation of the ROP. The comments were regarding ALARA inspections conducted at plants where the three-year collective dose average was less than the cutoff average specified in the Group 2 questions (135/240 person-rem/unit for PWRs/BWRs, respectively). The inspectors’ concerns were that they were unable to document any findings made at these plants because the finding did not make it through the Group 2 questions prefilter. To address these concerns the staff proposed to modify the ALARA portion of the Occupational Radiation Safety SDP by removing the question on the magnitude of a plant’s three-year rolling average collective dose from the Group 2 questions and inserting it into the ALARA portion of the SDP as the first decision block. If the plant’s three-year rolling average collective dose exceeds the value in this block then one moves to the next decision block (“Is the actual job dose > 25 person-rem?”). However, if the dose average is less than the value in this block, then it is identified as a green finding (it cannot be higher than a green finding for a plant in this category). This proposed change will permit all ALARA findings to be documented in the inspection report.

Any change to the SDP and or screening criteria will be processed in accordance with the policy and procedures for inspection program changes. NEI and the other stakeholders present were given copies of this proposed change. NEI said that they were closely following the status of

the Callaway and Quad Cities cases (where the NRC has proposed white findings based on recent inspections at these plants) and were planning on holding an industry meeting in January to discuss if any changes should be made to the Baseline Inspection Procedures and to the ALARA portion of the SDP based on these recent events. NEI also stated that they would reopen discussions of whether there should be an ALARA performance indicator. NEI expressed an interest for having another public meeting with the NRC staff to discuss positions and/or proposals that come out of their January meeting.

NEI stated that a comment, voiced at an earlier forum, suggested that NRC inspectors may not perform inspections at plants where the plant's three-year rolling average collective dose was below the threshold value. The staff replied that the procedures stipulate that inspections be conducted at all plants, irrespective of their three-year dose average.

A recurring question of what is the definition of a "job" as used in the ALARA portion of the Occupational Radiation Safety SDP, was discussed. The staff stated that they intended to revise the text of Manual Chapter 0609 to define a job in terms of a basic ALARA planning unit.

The status of several proposed FAQs was discussed. NEI provided copies of four proposed new FAQs (Attachment 5). The working out of acceptable answers to these proposed FAQs was left to future meetings.

Toward the conclusion of the meeting, the staff noted that the regions would be briefed on the main points of the meeting during the next monthly counterpart teleconference, including a number of feedback items offered by industry representatives to improve licensee-inspector communication.

Future Public Meetings

A public meeting will be scheduled for early next year to continue the discussion of the occupational and public radiation safety cornerstones of the ROP.

Project No. 689
Attachments: As stated
cc: See list

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*See Previous Concurrence OFFICIAL RECORD COPY

Attendance List

NRC

Frank Gillespie
Kathy Halvey Gibson
James Wigginton
Roger Pedersen
Charles Hinson
Stephen Klementowicz
Patricia Milligan
James A. Isom
James Kennedy
Joseph Birmingham

NEI

Ralph Andersen

Industry

Mike Russell, San Onofre Nuclear Generating Station
Travis N. Beard, XCEL Energy
Tom Jamieson, OPPD
Denise Craig, Dominion
Elizabeth Bogue, Consumers Energy
Steven L. Driscoll, Institute of Nuclear Power Operations

PUBLIC RADIATION SAFETY CORNERSTONE DRAFT REVISED SDP GUIDANCE

DRAFT for comment

What would and would not be a finding in the Radioactive Material Control portion of the SDP?

A contaminated item (i.e., tool, equipment, clothes, etc., but not a person) that gets out of a radiation controlled area (RCA), as long as there is a final radiation survey point (portal monitor at the guard house) that the item has to go through prior to being "free to go anywhere", is still considered to be under the control of the licensee. This type of situation would typically not be a finding because the final radiation portal has an opportunity to detect the item and prevent its free release. The licensee should be given credit for the final radiation survey. However, if the item could get out of the protected area without a radiation survey (no portal monitor or carried out in a box on a truck) or the portal is not sensitive to the item, then the item is available to enter the unrestricted area and any member of the public can be exposed to it. This would be a finding and count as an occurrence.

However, because a contaminated item got out of the RCA probably represents a non-compliance with a plant procedure, there can be two potential outcomes. For low levels of contamination, it can be a minor issue and resolved through the licensee's corrective action program. For high levels of contamination that may represent a potential risk to non-occupationally classified plant workers (i.e., member of the public), the issue should be assessed as more than minor and evaluated by the SDP.

In summary, if the licensee caught the contaminated item in their owner controlled area and there was a final radiation survey point that could detect it, and there was low risk to non-occupationally classified plant workers, then it should not be a finding. But, if there is no final radiation survey point or the radiation portal monitor was not sensitive to the contaminated item, or there was risk to non-occupationally classified plant workers, then it is a finding that should be run through the SDP, and counted as an occurrence.

To determine the number of occurrences, it is not simply the number of items that were found. The number of occurrences needs to be related to the "root cause" for the loss of control over the items. For example, a technician performing inadequate radiation surveys in which 20 contaminated items were released to the unrestricted area during one work shift; this should be counted as one occurrence with multiple examples. However, if there are a number of different root causes or one that was repetitive over time (i.e., different work shifts) that allowed multiple contaminated items to be released, then the number of occurrences should be based on the number of separate occurrences.

DRAFT for comment

NRC PROPOSED REVISION TO FAQ 131 11/13/00

Note: Revised portion is in *italics*.

131

Question:

This question refers to radiography work performed at a plant under another licensee's 10 CFR Part 34 license. If there is an occurrence associated with the radiography work involving loss of control of a very high radiation area or unintended dose, does this count under the occupational radiation safety performance indicator (PI)?

Response:

No. Generally, radiography work conducted at a plant under another licensee's 10 CFR Part 34 license is outside the scope of the PI. Responsibility for barriers, dose control, etc., resides with the Part 34 licensee. The reactor regulatory oversight PIs apply to Part 50 licensee activities. However, if an individual (Part 50 licensee employee) violates any Part 50 licensee's radiation protection program requirements concerning radiography activities, it would be a PI hit if the violation (barrier failure) results in an unintended exposure greater than 100 mrem TEDE (or other equivalent PI dose value, e.g., 10% of SDE to the skin). For example, a licensee establishes a RWP for entry into the barricaded high radiation area associated with radiography work. A licensee employee, or visitor, fails to comply with one or more of the RWP requirement, enters such an area, and gets a 100 mrem DDE unintended exposure.

Although not required by the regulations, power plant licensees can help increase worker safety by augmenting the radiographer's controls. Lessons learned from previous radiography incidents at nuclear power plants clearly point to the enhanced safety value of Part 50 licensee continuing these voluntary, added controls during radiography operations. While providing this oversight increases the risk of a PI hit, NRC believes the real-time benefit to workers' safety far outweighs that low probability PI risk. See NRC Information Notice 85-43, "RADIOGRAPHY EVENTS AT POWER REACTORS" for further information.

RROP – Radiation Safety Cornerstones

Program Areas Being Monitored for Lessons-Learned
and Possible Recommendations for Improvement

ALARA Inspection Procedure and SDP.

Inspector expectations arising from inspection guidance (vs. regulatory requirements).

Dosimeter placement criteria in inspection guidance.

Resource allocation to review of licensee corrective action reports and documentation of minor-significance issues.

Expectation of licensee use of the SDP in the corrective action process.

Materials release issues:

- Monitoring technology developments applied to previously released items.
- How to count items identified during initiative or corrective action.
- Point of release.
- Differences in monitoring technology and methods between licensees.

Draft for Discussion

Concurrent Occurrences

Question: Due to a lack of communication between the radwaste and health physics groups, a post-job survey was not performed following completion of a resin sluicing evolution in which resin was transferred to a tank within a room posted as a radiation area. Dose rate levels determined from a survey performed prior to the resin sluicing evolution were 20-40 mrem per hour at 30 cm from the tank. On the day following the sluicing evolution, two operators entered the room to inspect equipment. Shortly after the operators entered the room, their electronic dosimeters alarmed. The operators exited the room and notified health physics of the situation. A health physics technician arrived and performed a survey of the room and determined that the dose rates were 20,000 mrem per hour at 30 cm from the tank. The technician secured the room and posted it as a high radiation area. An evaluation of the dosimeters worn by the operators indicated that each had received unintended dose in excess of 100 mrem TEDE. How many PI occurrences are counted with regard to this situation?

Answer: This situation represent only one PI occurrence, namely the failure to survey the tank room following the resin sluicing evolution which would have indicated that the room was a high radiation area. The failure to properly post and control access to the area, and the subsequent unintended doses received by the operators are all concurrent with the common root cause of the occurrence, i.e., the failure to survey, and are therefore not counted as separate occurrences.

RWP Criteria

Question: Plant technical specifications require that a high radiation area be controlled by issuance of a radiation work permit (RWP). The RWP, in turn, may include criteria for monitoring, protective clothing and equipment, and other measure to be implemented to control or minimize dose and contamination. If an RWP is issued per the technical specifications, but an individual in a high radiation area fails to comply with a particular criterion of the RWP, is this counted as an occurrence with regard to the PI?

Answer: If the individual did not comply with a criterion that is explicitly required by the technical specifications or comparable provision in 10 CFR 20, then this is counted as a PI occurrence. For example this might include not having an alarming dosimeter or a radiation-monitoring device which continuously indicates the radiation dose in the area. Situations are not counted where the individual did comply with other criteria in the RWP, i.e., criteria that are not explicitly required by technical specifications or comparable Part 20 provisions. For example, if the individual did not wear the proper protective clothing or equipment per the RWP, this would not be counted.

Draft for Discussion

Deliberate Misconduct

Question: If an occurrence is the result of deliberate misconduct, is it counted with regard to the PI? Examples include the following:

- An individual deliberately removes and handles a source in an unauthorized manner that results in unintended dose in excess of any of the criteria in the PI.
- An individual deliberately circumvents or removes a barrier for a high radiation area that results in "the loss of control over access" to the area.

Answer: To be discussed.

"Loss of Control Over Access"

Question: A containment entry was made at power (which includes areas with dose rate levels >1,000 mrem per hour). The containment entrance, in addition to inner and outer airlock doors, has a wire-mesh cage constructed to enclose the entrance with a separate, locking door that is posted as a high radiation area. Restoration from the entry was completed, which included disassembling the access control point, shutting the air-lock door, and locking the outer cage door to physically secure access. During this process, the assigned HP technician failed to replace the high radiation area sign on the outer cage door. On the next shift, a HP technician on plant tours identified the posting discrepancy and reposted the cage door with the high radiation area sign. The technician verified that the door was locked and that the key was maintained under proper administrative control. Is this counted as a PI occurrence?

Answer: No, this is not counted as a PI occurrence. The PI refers to non-conformances which "result in a loss of control over access to or work within a high radiation area (>1,000 mrem per hour)." Although the failure to repost the area is a nonconformance with Part 20, the description of the circumstances indicates that control over access was maintained throughout and that the program was successful in identifying and correcting the nonconformance in a timely manner.

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