

April 16, 2004

MEMORANDUM TO: Cathy Haney, Program Director
Policy and Rulemaking Program
Division of Regulatory Improvement Programs, NRR

FROM: Joseph L. Birmingham, Project Manager */RA/*
Policy and Rulemaking Program
Division of Regulatory Improvement Programs, NRR

SUBJECT: SUMMARY OF APRIL 6, 2004, PUBLIC MEETING WITH THE
NUCLEAR ENERGY INSTITUTE (NEI) TO DISCUSS OCCUPATIONAL
AND PUBLIC RADIATION CORNERSTONE ISSUES

On April 6, 2004, Nuclear Regulatory Commission (NRC) staff met with a representative of NEI in a public meeting to discuss Occupational and Public Radiation Safety Cornerstones issues at NRC headquarters in Rockville Maryland. Members of industry, NRC regional personnel, and the public participated by teleconference. Attachment 1 is a list of the meeting participants. Attachment 2 has draft Frequently Asked Questions (FAQs) that were discussed during the occupational part of the meeting including the proposed NRC and NEI revisions for FAQ 37.3.

After introductions, Roger Pedersen, of the NRC, led a discussion of draft FAQ 37.3 regarding appropriate physical barriers for a locked high radiation area. Key to the discussion was the issue that the barriers do not need to be designed to prevent an intentional act by an individual to violate regulatory requirements and gain unauthorized entry but the barriers should not be easily circumvented by others. The group discussed revisions proposed by industry and by the NRC and developed a draft to be provided to the NRC and Industry ROP Working Group.

The group discussed proposed FAQ 37.5 regarding whether entry dose was controlled when a worker entered a radiologically controlled area. In the FAQ, the worker did not comply with all of the requirements on the radiological work permit and potentially could have exceeded the site guideline for exposure and potentially regulatory limits. The group discussed different scenarios to assess the potential significance of the event but did not reach a conclusion. The group agreed to discuss the FAQ further at the next meeting. This concluded the occupational portion of the meeting.

The only business for the public radiation cornerstone was to determine if there were any comments on the draft proposed changes to the Public Radiation Safety Significance Determination Process, Appendix D, that had been provided at the previous meeting. None of the participants had any comments and the meeting was adjourned.

Project No. 689
Attachments: As stated
cc: w/atts: See list

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Distribution: See attached list

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Distribution: Summary of Mtg. w/NEI re Public and Occupational Radiation Safety 4/16/04

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Project No. 689

cc: Via email

Mr. Ralph Andersen, Sr. Proj. Mgr

Nuclear Energy Institute

rla@nei.org

**List of Attendees for April 6, 2004
Meeting on Radiation Safety Cornerstones**

NAME	ORGANIZATION
Roger Pedersen	NRC/DIPM/IEPB
Stephen Klementowicz	NRC/DIPM/IEPB
Joseph Birmingham	NRC/DRIP/RPRP
*Ryan Alexander	NRC Region III
*Mick Shannon	NRC Region IV
*Larry Ricketson	NRC Region IV
Ralph Andersen	Nuclear Energy Institute
**Mark Puckett	Omaha Public Power District
**Gary Cavanaugh	Omaha Public Power District
**Steve Gebers	Omaha Public Power District
**Mike Russell	Southern California Edison
**Jim Madigan	Southern California Edison
**Jeff Cook	Southern California Edison
**Mike McBrearty	Southern California Edison
**Roger A. Aguilera	South Texas Project
**Leonard M. Earls	South Texas Project
**Russell Gray	Pacific Gas & Electric
**Larry E. Haynes	Duke Energy
**Lance E. Loucks	Duke Energy
**Willard C. Osburn	Duke Energy
**Charles J. (Jeff) Thomas	Duke Energy
**Richard L. Doty	PPL Susquehanna
**Donald Schuelke	NMC
**Joe Beer	NMC
**Steve McCamy	Tennessee Valley Authority
**Pamela Bedgood	Wolf Creek
**Chuck Sibly	Wolf Creek
**Ron Gilliam	Wolf Creek
**Harold Trimble,	Exelon Corp.
**Kimberly Hobbs	Exelon Corp.
**David Nestle	Exelon Corp.
**Lee Thomasson	Dominion Generation
**David Mohl	Entergy
**Mike Lantz	Palo Verde

*via teleconference

**industry task force members

37.3	OR1	<p>Question: It was determined that a physical barrier being used to control access to a high radiation area (greater than 1000 mrem per hour) could easily be circumvented. However, to circumvent the controls that were in place would require an intentional act. An example of this might include one of the following;</p> <ol style="list-style-type: none"> 1. Fencing used as a barrier at the boundary of the high radiation area was not firmly secured (i.e., loosely secured, or just taped to a wall) such that an individual could, by hand, create an opening large enough to pass through. 2. The barrier was constructed of a material that could easily be breached with a pocket knife (i.e., thin plastic sheeting or webbing). 3. An individual could pass their hand through the barrier and open the locked door to the area from the inside. 4. The barrier is a short fence (<6 foot high), or hand rail, such that an individual could step over, climb over, or crawl under, with little-to-moderate effort. 5. A locked gate is provided at the top (or bottom) of a ladder to control access to a high radiation area on a lower (or upper) level of the plant. However, by stepping around (or over) the gate, an individual can still access to the rungs of the ladder (i.e., nothing such as a ladder guard or personnel safety cage blocks access to the rungs of the ladder). <p>Since the controls in place, as described above, were adequate to prevent an inadvertent entry (i.e., accidental or unintentional entry by an individual not paying sufficient attention), and the definition of terms on page 98 in NEI 99-02 Rev. 2, refers to “measures that provide assurance that inadvertent entry into the technical specification high radiation areas by unauthorized personnel,” is this a reportable PI occurrence?</p> <p>Response: The first example on page 99 of NEI 99-02, Rev.2, states that the failure to secure a high radiation area (>1000 mrem per hour) against unauthorized access is a reportable PI occurrence. Since the physical barriers provided for each of these examples can be easily circumvented (i.e., did not secure the area), all of them are an example of a PI occurrence. The term "inadvertent entry" on page 98 of NEI 99-02, is used in the sense that the violation of the regulatory requirement (e.g., resulting from the unauthorized entry) was unintended, possibly resulting from a misunderstanding as to 1) the existence the requirement, 2) the meaning of the requirement, or 3) whether the intended action conformed to the requirement. If the unauthorized entry was an intended violation of the regulatory requirement, this would be a willful violation subject to normal NRC Enforcement Policy. A willful violation is outside the scope of this Performance Indicator.</p>	3/25 Introduced	NRC
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37.3	OR1	<p>Question:</p> <p>In terms of the occupational radiation safety performance indicator, which of the examples below of a physical barrier to control access to a high radiation area (with a dose rate greater than 1,000 mrem per hour) would be considered adequate, and therefore would not be counted as a performance indicator occurrence?</p> <ol style="list-style-type: none"> 1. A barrier at the boundary of the high radiation area that is not firmly secured (i.e., loosely secured, or just taped to a wall) such that an individual could, by hand, create an opening large enough to pass through. 2. A barrier constructed of a material that could easily be breached with a pocket knife (i.e., thin plastic sheeting or webbing). 3. A locked gate or door with an opening through which an individual could pass their hand and open the gate or door from the inside. 4. A short fence or hand rail that could be stepped over, climbed over, or crawled through with little-to-moderate effort. 5. A locked gate at the top (or bottom) of a ladder leading to a high radiation area, where an individual could step around (or over) the locked gate and gain access to the rungs of the ladder. No ladder guard is used. <p>Response:</p> <p>As described, none of the listed examples would be adequate in terms of the occupational radiation safety performance indicator. NEI 99-02, Revision 2, (page 99) refers to “measures that provide assurance that inadvertent entry into the technical specification high radiation areas by unauthorized personnel will be prevented,” and one of the examples of a performance indicator occurrence is “failure to secure an area against unauthorized access.” Physical barriers that can be easily breached and barriers that can be easily stepped around, climbed over, or crawled through may not be sufficient to prevent inadvertent access by an individual who is not duly attentive, is not clear as to the purpose of the barrier, or does not understand that circumventing the barrier would constitute a non-conformance with procedures, established radiological controls, or regulatory requirements.</p> <p>Physical barriers do not have to be designed to prevent an intentional act by an individual to violate a regulatory requirement and gain unauthorized entry. Such a willful violation of requirements is outside the scope of the performance indicator and is subject to normal NRC Enforcement Policy.</p> <p>Note that in considering the adequacy of a physical barrier in regard to the performance indicator, other relevant aspects of the specific situation would need to be taken into account, such as the posting and other measures intended to control access that are in place, or are not in place.</p>	3/25 Introduced	NRC
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Original Submittals for FAQs 37.3 and 37.5

<p><u>37.3</u></p>	<p><u>OR1</u></p>	<p><u>Question:</u> It was determined that a physical barrier being used to control access to a high radiation area (greater than 1000 mrem per hour) could easily be circumvented. However, to circumvent the controls that were in place would require an intentional act. An example of this might include one of the following:</p> <ol style="list-style-type: none"> 1. Fencing used as a barrier at the boundary of the high radiation area was not firmly secured (i.e., loosely secured, or just taped to a wall) such that an individual could, by hand, create an opening large enough to pass through. 2. The barrier was constructed of a material that could easily be breached with a pocket knife (i.e., thin plastic sheeting or webbing). 3. An individual could pass their hand through the barrier and open the locked door to the area from the inside. 4. The barrier is a short fence (<6 foot high), or hand rail, such that an individual could step over, climb over, or crawl under, with little-to-moderate effort. 5. A locked gate is provided at the top of a ladder to control access to a high radiation area on a lower level of the plant. However, by stepping around (or over) the gate, an individual can still access to the rungs of the ladder. <p>Since the controls in place, as described above, were adequate to prevent an inadvertent entry (i.e., accidental or unintentional entry by an individual not paying sufficient attention), and the definition of terms on page 98 in NEI 99-02 Rev. 2, refers to “measures that provide assurance that inadvertent entry into the technical specification high radiation areas by unauthorized personnel,” is this a (or are these) reportable PI occurrence(s)? How about if this were a very high radiation area (>500 rads per hour)?</p>	<p><u>3/25 Introduced</u></p>	<p><u>NRC</u></p>
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Response:

Yes it is (they are) a PI occurrence(s). As indicated in the PI example on page 99 of NEI 99-02, Rev. 2, the locked entrance to and the barriers at the boundaries of, a high radiation area (>1000 mrem per hour) must secure the area against unauthorized access. The unauthorized access can be intended, as well as unintended, by the individual. However, it is not reasonable to expect barriers to absolutely prevent circumvention by a determined individual. As discussed in the NRC Position C.1.5 of Regulatory Guide 8.38, access pathways through or around the barriers and doors (or gates) used to prevent access to a high radiation area, do not have to be considered if an individual would have to take exceptional measures to access the high radiation area by them (i.e., where there is a high risk of serious personal injury, by jumping down an unreasonably high drop (see NRC Part 20 Q&A # 487), or by some other equally foolish act; climbing, unaided by a ladder or equivalent, over a wall, or fence, that is at least six feet high; or using special tools to breach the barrier). The examples, as described in the question, do not require an exceptional effort, or exceptional measures, to circumvent the barrier. Therefore, each is a loss of control of access to a technical specification high radiation, and would be a PI occurrence.

The physical controls around very high radiation areas must assure that an individual is not able to gain inadvertent or unauthorized access, they need to provide a higher level of deterrence to circumvention than those used for high radiation areas (i.e., fencing around very high radiation areas should extend to the overhead and preclude anyone from climbing over (Position C.1.5 in Regulatory Guide 8.38)). Since the physical barrier in question is not adequate to control access to a locked high radiation area, it follows that it would not be adequate to control access to a very high radiation area either. Therefore, it would be a PI occurrence.

37.5	OR1	<p>Question:</p> <p>A worker entered a > 1R/hr Technical Specification High Radiation Area (> 1R/hr) with all requirements of the job (training, briefings, dosimetry, ALARA Plan and RWP requirements, electronic dosimetry, etc.). The worker, however, did not have the 700 mrem dose available as specified by the RWP. The worker's actual dose did not exceed the electronic dosimeter set point and the minimum administrative control guideline. The dose availability of the worker is defined as the difference between the site-specific administrative control guideline of 2000 mrem (significantly below Federal Limits) and the worker's current accumulated dose for the year.</p> <p>An ALARA Plan and RWP controlled the work activity. The individual used teledosimetry with predetermined alarm setpoints for the job, which transmitted dose and dose rate information during the entry. Video surveillance was utilized by radiation protection technicians and in compliance with 10CFR20.1601(b) during the entry into the >1R/hr area. The area was conspicuously posted, barricaded and utilized a red flashing light. Specific authorization was given by the remote monitoring station technician to enter into the area. The worker had the training and respiratory protection qualifications required by the RWP, multiple TLDs had been issued, the required RWP was obtained and signed, and briefings were attended. The electronic entry time was entered after the worker had exited the area. There was no over exposure or unintended dose exposure for this worker. The work was completed within the maximum projected dose for the activity. Technical Specification requirements for control of entry into the high radiation area were met and worker dose was controlled since the worker was authorized and had obtained the RWP for the job.</p> <p>The RWP stated that 700 mrem dose availability was required prior to entry. This administrative control is an additional defense-in-depth, licensee-initiated control to protect against exceeding the licensee's administrative control guideline. The licensee's administrative control guideline is conservatively established at 2 rem to provide a substantial margin to prevent personnel from exceeding the Federal dose limit of 5 rem and to help ensure equitable distribution of dose among workers with similar jobs. The administrative control is in addition to the Technical Specification requirements for an RWP and therefore not material to the Technical Specification requirements for control of occupational dose.</p> <p>As it is stated in NEI 99-02, "this PI does not include nonconformance with licensee-initiated controls that are beyond what is required by technical specifications and the comparable provisions in 10CFR Part 20." The check of dose availability is a licensee-initiated administrative control that is beyond what is required by technical specifications, comparable provisions in 10CFR20, or Regulatory Guide 8.38. Does failure of the worker to meet the internal administrative control guideline for dose available as specified by the RWP for the job activity count as a PI occurrence?</p>	3/25 Introduced	TMI
		<p>Response:</p> <p>No, this event constitutes a procedural failure to meet a licensee-initiated administrative control; however, this event would not be a PI occurrence. Such an event would be reviewed under the appropriate NRC inspection criteria.</p>		