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R. E. ALEXANDER
President



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Dear Mr. Roecklein:

This letter is a public comment on the proposed revision to 10 CFR Part 20 published in the Federal Register (FR 5132) on February 3, 1994. My primary intent is to provide information of a 'corporate memory' nature that you may find useful. As you may recall, I was a member of the branch you are in for 16 years prior to my retirement early in 1990.

When I came to the Commission in 1972 my first assignment was to prepare 10 CFR Part 19. Our Branch Chief, Jack Nehemias, explained a number of things to me about AEC policy that would be helpful in the performance of my work. In particular, he described what he called the 'geographical approach' to the control of occupational exposures to radiation and radioactive material. What he said was of great interest to me because Agency personnel needed to be able to provide logical answers to an important question: why are some workers permitted to receive radiation exposures considerably higher than other people? ['Other people' include members of the public and employees not occupationally exposed.] His answers, given to him by Part 20 originators Forrest Western and Lester Rogers several years previously, are summarized below.

Licensees are required to establish one or more Restricted Areas. Within these areas personnel exposures are restricted to the occupational limits established in Part 20 for minors and adults. The reason that higher exposures are allowed for workers in Restricted Areas is not because of physical characteristics that only they possess, such as higher resistance to radiation effects. They are not required to pass physical examinations (with the exception of fitness to use respiratory protection equipment). The rationale is derived instead from the fact that the Agency can require licensees to exercise a high degree of control over activities conducted within Restricted Areas — control which includes but certainly is not limited to restrictions on external dose and the intake of radioactive material.

I was not permitted to use the term 'radiation worker' in Part 19, and it is not used in either the old or the new versions of Part 20. The term suggests that there is something different about 'radiation workers' which makes it reasonable to permit them to receive higher exposures. According to AEC policy, which was continued by the NRC at least until the beginning of 1990, what is different is not the people but the high degree of localized control that can be exercised.

Work began in 1974, under EPA leadership, on the current Radiation Protection Guidance to Federal Agencies for Occupational Exposure, which was signed by President Reagan on January 20, 1987. During intervening years I was among those who represented the NRC on the Interagency Committee that prepared the document. Since it is the policy of the NRC to issue regulations consistent with Federal Guidance, we had the task of convincing the other committee members that the 'radiation worker' term should not be used. We were able to do that by making, on more than one occasion, the arguments mentioned briefly above. We were tenacious because otherwise we would

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have had to abandon the 'geographical approach' first established in Part 20 in 1957 and considered by our Agency to be appropriate and very successful.

§20.101(a) and (b), and §20.104, the occupational dose limits, are applicable to personnel *in a restricted area*. With the exception of special limits for minors, the regulations do not define the kinds of people to whom these limits apply. Nor do they restrict the application of the occupational limits within Restricted Areas to people who possess specified characteristics of any kind. They apply to everyone in a Restricted Area. *The new Part 20 did not change this long-standing policy.* For anyone within a Restricted Area, licensees manage exposures by exercising controls rather than by a more complicated hierarchy of regulatory dose limits based on differences in people.

The old Part 20 did not specify dose limits for individual members of the public. Dose limits of 2 millirems in an hour and 100 millirems in 7 consecutive days *in the unrestricted area* were established, to be applied whether anyone was actually exposed or not. Licensees could attempt to justify higher limits, and their justification could be accepted provided that no individual member of the public would be likely to receive 500 millirems or more in a year. The 500-millirems value was not a dose limit for members of the public but a license-amendment criterion. Obviously licensees were not able to exercise as much control in the unrestricted area as in their Restricted Areas, but the considerably lower limits were compensatory. Two additional reasons were normally given for maintaining different dose limits for occupational and nonoccupational exposure: (1) members of the public are often exposed involuntarily; (2) the public includes children, recognized as being more sensitive to certain radiation effects.

If any adult visitor in a Restricted Area were to have received a dose exceeding 2 millirems in an hour, or 100 millirems in 7 consecutive days, there would have been no basis in Part 20 for a notice of violation. Those limits apply to the unrestricted area only. If the visitor had received a dose exceeding 500 millirems there still would have been no violation because 500 millirems was never a dose limit in Part 20. An applicable, whole-body dose limit would have been violated only if the visitor received more than 1,250 millirems during a calendar quarter, the limit for adults specified in §20.101(a).

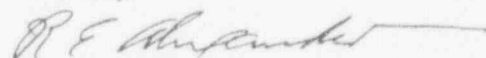
The major criticism of these policies was uncertainty about when to apply occupational dose limits to workers located outside the Restricted Areas. The Controlled Area was created in the new Part 20 to address this issue, among others. While the new Part 20 was under development two opinions that I expressed on this issue were:

- (1) The occupational limits should be applicable only to those intrinsically exposed — for example, workers loading radioactive waste drums into trucks, where the work and the exposure are inseparable.
- (2) The new TEDE limit of 100 millirems in a year should be applicable whenever the exposure is incidental to and separable from the work — for example, clerical workers located near a licensed source.

The occupational limits would be applicable only to people located in a Restricted Area, or to workers intrinsically exposed outside a Restricted Area under highly controlled conditions. My opinions, which I find to be consistent with the NRR answer to Part 20 Question 26, have not changed.

The opportunity to participate in this rulemaking action is appreciated; I hope my comments will be helpful as you resolve those received from others. I am also enclosing for your information a pertinent section from one of the textbooks that we use for Part 20 training.

Sincerely,



R.E. Alexander, CHP

Enclosure: Subpart I

SUBPART I

STORAGE AND CONTROL OF LICENSED MATERIAL

THE FOLLOWING DISCUSSION IS A SYNOPSIS OF MAJOR CHANGES IN
10 CFR PART 20, §20.1801 THROUGH §20.1802

In the old Part 20 the section on the storage and control of radioactive material (§20.207) was applicable to the unrestricted area, defined in §20.3 (17) as "any area access to which is not controlled by the licensee for purposes of protection of individuals from exposure to radiation and radioactive materials, and any area used for residential quarters." The restricted area was defined as "any area access to which is controlled by the licensee for purposes of protection of individuals from exposure to radiation and radioactive materials. 'Restricted area' shall not include any areas used as residential quarters, although a separate room or rooms in a residential building may be set apart as a restricted area." In general, licensees have been permitted to have multiple restricted areas and to define them as they might wish. Under these definitions the boundaries of the unrestricted and restricted areas usually coincided.

However, a licensee might control access to other areas outside the restricted area for purposes other than radiation protection, and be unwilling



to stipulate radiation protection as one of the purposes for controlling access. Such areas, whether contiguous with a restricted area or located as isolated islands, could occupy a large percentage of the total facility area. As Part 20 was written, many of its rules were specified as being applicable to either the restricted or the unrestricted areas. Under these conditions uncertainties could arise regarding compliance.

For example, licenses were required by §20.207(a) to secure licensed materials stored in the unrestricted area against unauthorized removal. Did this rule apply also to the access-controlled areas discussed in the preceding paragraph? §20.207(b) required licensees to provide constant surveillance and immediate control over any licensed materials in the unrestricted area that were not in storage. Exactly where did this rule apply? Neither rule specified licensed material quantities below which compliance would not be required; any quantity above zero was included.

In an attempt to resolve these and other similar

questions the NRC created in the new Part 20 the "controlled area" which is defined in §20.1003 as "an area, outside the restricted area but inside the site boundary, access to which can be limited by the licensee for any reason." This definition includes the other access-controlled areas mentioned above. Then, §20.207(a) and (b) were replaced by §20.1801 and §20.1802 respectively, and were written to include the new "controlled area."

There is no loophole now. Without question, licensees are required to secure licensed materials stored anyplace against unauthorized removal, and to provide constant surveillance and immediate control over any licensed materials outside the restricted area that are not in storage.

HEADS UP POINTS FOR LESSON VIII

PARTICIPANTS IN ATHLETIC CONTESTS FREQUENTLY HEAR THEIR COACHES ENCOURAGING THEM TO PLAY "HEADS UP" — MEANING TO BE ALERT AND SMART. GETTING ALONG WITH NRC INSPECTORS MAY ALSO REQUIRE HEADS UP ACTION. ONE OR MORE POINTS ARE MADE BELOW WHICH MAY HELP.

For any amount of licensed radioactive material in the unrestricted area and in any area to which access can be controlled for any reason: (1) §20.1801 requires licensees to secure stored materials from unauthorized removal or access; and (2) §20.1802 requires constant surveillance over materials not in storage.



In answer to a question that was submitted, the NRC nuclear reactor licensing office (NRR) has issued a statement that these requirements will not be applied to licensed materials in quantities

below those listed in Appendix C of the new Part 20. The materials licensing office (NMSS) concurred and is expected to take the same position.