

The Applied Radiant Energy Corporation

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The Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Docketing and Service Branch

Gentlemen:

The Applied Radiant Energy Corporation's (ARECO's) comments on Part 36 as issued as a proposed NRC rule in the Federal Register of December 4, 1990 (pages 50008-50032) are submitted to you in this letter.

We wish to preface the comments by stating that they are directed towards pool underwater irradiators only, ANSI Category III, rather than the more general case of pool irradiators, ANSI Categories III and IV, that Part 36 addresses. This narrowing of scope is due to the fact that the company's present and proposed irradiators are of the underwater type.

By irradiating under water, the efficient use of the gamma rays provided by radioactive material is substantially compromised. This arises from the need for leak-tight containment and water gaps that develop for various reasons such as: slightly warped canister surfaces, the use of minimum force to keep the canisters in position, etc. However, the inherent safety of operating under water far outweighs the disadvantage of this loss of efficiency. This trade-off must be recognized by agencies or other groups charged with rule promulgation by concessions to underwater irradiators when addressing operational restrictions that would normally apply to panoramic irradiators.

We also wish to recognize the excellent work that Dr. McGuire and Messrs. Baggett and Sjoblom have done to write the rule. The day and a half comment period meeting (which representatives of ARECO attended) of February 12-13, 1991 in Rockville, Maryland, resulted in diverse opinions by attendees on various sections of the rule and the need for some revisions was acknowledged. This informative discussion did nothing to change our very favorable opinion of the basic soundness of the rule which is a testament to the diligence of the authors, but we wish to make comments mainly in the vein of diminishing possible ambiguity of understanding and interpretation.

1) One of our main concerns is the possible confusion and imposition of unnecessary regulatory constraints that could arise

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from having conditions for panoramic and underwater irradiators appearing interspersed in the same rule. The very great physical differences of the two types both require substantial differences in operational requirements and physical restraints. Thought has been given to suggesting separation of Part 36 into two divisions; one for panoramic and one for underwater irradiators. We realize this is not a novel or singular suggestion but wish to add our "vote" to others who advocate such a change.

2) Section 36.2 Definitions: Both "irradiator operator" and "operate" need further definition where underwater irradiators are concerned. The procedures necessary to perform irradiations are more modest and safer due to design simplicity. In a static plaque underwater irradiator, material handling is the only work function needed to perform an irradiation.

Wording such as "Irradiator Operator means an individual authorized by the licensee to supervise irradiation procedures so that they are carried out in a safe manner" is suggested.

This wording would not compromise the definition of a radiation safety officer.

3) Section 36.2 Definition Radiation Room: This says that "underwater irradiators are not considered to have radiation rooms."

Yet, access to underwater irradiators must be controlled by appropriate barriers at the walls of the room above the underwater irradiator.

The term Irradiation Room could be substituted for Radiation Room in the case of underwater irradiators.

4) Section 36.21(a) Design and Performance Criteria for Sealed Sources: It should be stated that a performance criteria certificate or certificate of registration from the manufacturer or supplier, as appropriate, of the sealed sources is sufficient for compliance with this requirement.

5) Section 36.33 Irradiator Pools: To accomplish safe source storage called for in (a), we propose to allow transfer of sources from one irradiator pool to another when needed. The design feature that we propose is a connection between the pools with a properly constructed transfer tube between them. As this method of source transfer or storage should be considered as a safety improvement over present commonly used methods, we fully expect this pool feature to be approved by Region J* of the NRC.

This would mean that the last sentence in (b) should be followed by an exemption statement. That is: "Pipes that have intakes more than 1 foot below the normal low water level must have siphon breakers to prevent the syphoning of pool water lower than

1 foot below the normal low water level unless connected to another pool via a source transfer tube. Water transfer must be limited to levels that meet the conditions of 36.25(b)."

6) Section 36.37 Power Failures: 36.37(c) should be amended by adding the following words to the end: "unless the radiation monitoring system has a battery backed emergency power supply".

7) Section 36.39 Design Requirements (c) Pool Integrity: The statement concerning pool penetrations would still allow for source transfer tubes between pools if Comment 5's suggestion, given above, is followed.

8) Section 36.41 Construction Control (c) Pool Integrity: Again we wish to exempt source transfer tubes connecting two pools from the provisions of 36.33(b) dealing with pool penetrations.

9) Section 36.51 Training: The level of training to be qualified as an operator of a panoramic irradiator is higher than that necessary for operators of underwater irradiators where irradiation and emergency procedures are concerned. Section 36.51 needs to be rewritten, taking into account these differences. It requires clarification as to what operation in underwater irradiators constitutes.

As an example of delineation of work responsibilities that are possible, our company has personnel called Designated Users. They are designated after training by a committee of RPOs specifically named in our license. These workers are authorized to manipulate, "handle" (remotely), load and unload radioactive sources, and perform irradiator plaque movements.

A second class of workers with the job title of "technicians" insert and remove target materials to be irradiated either manually or via conveyors.

10) Section 36.53(c)(1) Operating and Emergency Procedures: In this subsection it states "The revisions do not reduce the safety of the facility." We feel that an addendum to this sentence such as "as determined by the Radiation Protection Officer" or "as determined by committee, one number of which is the Radiation Protection Officer" is in order.

11) Section 36.53(e) Operating and Emergency Procedures: Controlled storage of radioactive resins at higher than background levels should be permitted and decay before release allowed. If (e), as written, does not allow for this, it should be changed to authorize such action.

12) Sections 36.29, 36.39, and 36.59: These three sections all have references to detection of radioactivity in the pool water. Sections 36.29 and 36.59 refer to two methods of detection; daily water analysis or checking "an online radiation monitor". We consider a probe attached to a cation bed leading to an audio and

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visual alarm to constitute "an online radiation monitor". Checking the radiation level on the monitor readout would satisfy the requirements of 36.59(c).

13) Section 36.67(c) Entering and Leaving the Radiation Room: (Entering or leaving the "Irradiation" Room - see Comment 3.) Subsection (c) deals with entrance and egress during power failure to and from an underwater irradiator. We urge the statement be amended to include wording such as "unless battery backed emergency power is available".

14) Section 36.83(a)(2) Reports: This subsection shows the need to differentiate more fully between panoramic and underwater irradiators. It should be rewritten (at least in part, for the case of underwater irradiators.

Underwater irradiators can comply with the first part up to "....excessive concentrations on levels of radiation".

"....Loss of one day or more of operation of the facility, or property damage in excess of \$2,000 as required by 10CFR20.403 or 20.405" should not apply. Only losses of the ability to use "radioactive sources" in a safe manner should be reportable. There is no threat to personnel and public safety, no danger of radiation overexposure and no impact on the environment when mechanical failures occur in an underwater irradiator.

15) Section 36.83(d)(4) Reports: This should be changed to "Failure of the cable or drive mechanisms used to elevate or lower the source racks in panoramic irradiators".

16) Section 36.83(d)(5) Reports: This should be changed to "Inoperability of the access control system in panoramic irradiators". This is just one of many subsections where separation of two types of pool irradiators would be of benefit.

This is the extent of comments on Part 36. I apologize for our tardiness in providing them to you. A rather detailed response to an NRC letter requesting various types of information regarding our operations and a resubmittal of our license renewal application have necessarily been given priority.

Very truly yours,

THE APPLIED RADIANT ENERGY CORPORATION

James J. J. Myron /s/

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