

MEMORANDUM FOR: Victor Stello, Jr., Director
Division of Operating Reactors

FROM: James R. Miller, Assistant Director
for Reactor Safeguards
Division of Operating Reactors

SUBJECT: IMPACT OF PROPOSED SAFEGUARDS "UPGRADE" RULE ON NON-POWER REACTORS

*But some need
to fix them
(the Commission)
Jim 9/10/79*

Since late January, 1979 we have visited twenty-two non-power reactor licensee facilities (28 reactors) to assess their capability to meet the requirements of the proposed Category II/III Rule. The number of reactors visited represents a broad spectrum of the different type of non-power reactors that fall under the proposed rules.

I initially informed you that six licensees would be affected by the "Upgrade" rule because they possessed formula quantities of unirradiated special nuclear material. Subsequently three of the six have found that they can reduce their inventory to less than formula quantities and still operate effectively. Of the remaining three, one has stated it can reduce its inventory through the use of reflectors and another has proposed to store their unirradiated fuel at several different sites and provide adequate physical protection. The last one of the above 3 facilities has indicated that they will be unable to provide the physical protection features of the "Upgrade" rule because of the cost factors involved and this licensee apparently cannot further reduce his inventory. This identifies what we once believed would be the only impact of the "Upgrade" rule on non-power reactors; however, as a result of a continuing examination of the current and proposed safeguards rules, we have now identified a significant number (23 facilities, 27 reactors) that could possibly come under the "Upgrade" rule. (A list of those affected is attached.) This situation occurred because

current and proposed regulations do not clearly identify requirements for non-power reactors.

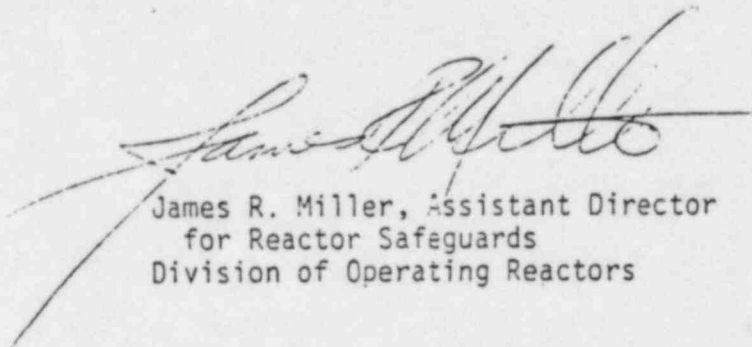
The following sets forth the protected requirements of the current and proposed rules. Part 73.50 physical protection requirements do not apply to material located in the reactor core or material contained in irradiated fuel elements removed from the reactor core without regard to radiation levels. Only unirradiated material is accounted for in determining the physical protection requirements to be applied to a facility. Consequently, the twenty-three licensees identified are not currently required to provide the physical protection associated with possession of formula quantities of special nuclear material. This exemption will be eliminated with the publication of the "Upgrade" rule. The only other solution would be to irradiate and maintain the material to a self-protecting level. As we now see the situation, the fuel elements associated with these reactors cannot attain or sustain a total external radiation dose rate in excess of 100 rems per hour at three feet; therefore, these non-power reactors will come under the "Upgrade" rule. The only immediately foreseeable solution is to remove non-power reactors from the proposed safeguards rules and concurrently prepare a separate physical protection rule for non-power reactors.

Clearly, 10 CFR 73.55 has provided us with an insight on how important it is to have a viable rule designed to protect a specific type facility. I believe we should consider it as a lesson learned:

Because of the above, we are taking steps to:

1. Inform the Commission of our concerns, particularly the fact that there will be more than 20 non-power reactors affected by promulgation of the rule as written.

2. Initiate a Commission paper requesting that non-power reactors be excluded from the currently proposed safeguards rules. and
3. Draft, a new rule designed to protect non-power reactor facilities even though Standards and NMSS have not concurred with this action in the past.



James R. Miller, Assistant Director
for Reactor Safeguards
Division of Operating Reactors

~~TABLE~~ ^{WHO WOULD} NON-POWER REACTOR FACILITIES POSSESS ~~BE~~ GREATER THAN FORMULA
QUANTITIES OF SPECIAL NUCLEAR MATERIAL UNDER THE PROPOSED "INVENTORY" RULE

EXEMPT (10 CFR 73.50)

- General Atomic
- General Electric Test Reactor
- General Electric NTR
- Georgia Institute of Technology
- Massachusetts Institute of Technology
- Oregon State University
- Pennsylvania State University
- Rhode Island AEC
- Texas A&M University
- Union Carbide
- University of California at Los Angeles
- University of Michigan
- University of Missouri (Columbia)
- University of Missouri (Rolla)
- University of Virginia
- University of Washington
- University of Wisconsin
- Virginia Polytechnic Institute
- Washington State University

NON-EXEMPT

- National Bureau of Standards
- Rensselaer Polytechnic Institute
- Westinghouse Training Reactor

to be included