

### STANDARDS FOR PROTEDTION FROM RADIATION PROPOSED RULE COMMENTS BY MARVIN I. LEWIS

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Secretary of the Commission United States Nuclear Regulatory Commission Washington , D.C. 20555

Dear Mr. Secretary;

Please accept the following as my comments on the Proposed rule for Standards for Protection Agains. Radiation 100FR Parts 19 etc. (FR Notice Dec.20,1985 and Jan.9,1986.)

### DISCUSSION.

My comments will demonstrate that this proposed rule is not a "protection" against anything. Further , the rule constitutes an abridgement of NRC rules by the Commission , itself. More basically, the rule ignores the fundamental requirement within the Atomic Energy Actof 1954 as amended to " protect the health and safety of the public." In promulgating this rule,"the Commission continues its inexorable march down the bath toward non-regulation of the nuclear industry."(Separate Views of Commissioner Asselstine re Backfit rule FR 38106 ,9-20-85.)

The backfit Rule is especially important to the present proposed rule. The proposed rule on radiation protection is a backfit. As such , the requirements of a backfit have not been met. The commisison has neglected its own highly touted "backfit " rule almost as soon as it was finalized .(Effective Date Oct.21,1985. Date of issuance of Proposed Radiation Protection Rule Dec.20,1985.)

Although the Chernobyl disaster is only a few weeks old at this writing, the effects of that accident haven't yet been determined and cannot be factored into the rules in a timely fashion. Many surprises may be waiting in the wings due to the statistics generated by this new incredible accident. Never before has the world population been exposed to as large a low level dose with fully developed monitoring and actuarilly devices in place. Let's wait a few months to see what kind of sickness and spontaneous abortions develop before we make a final decision on what is acceptable to protect the workers and the public.

Meanwhile many people and nations have taken the Soviet Union to task for not alerting the World community as soon as the accident startd d. I have concluded that the NRC had a great deal of information that would have been useful to the public and that the NRC did not volunteer that information until asked directly by the news media. I hope that the NRC will attempt to make all information on the Russian nuclear disaster immediately available, and factor any appropriate information into the decisionmaking process. I especially believe that the deta developed from this tragedy must be factored into the decisionmaking for this worker protection rule.

## RAMIFICATIONS OF CHERNOBYL RELATING TO THE PROPOSED RULE.

The recent accident at Chernobyl nas refocused the World's attention on Soviet secrecy and lack of cresideration of safety. Historically, the United State, Government has espoused a policy of openness and consideration of public safety.

The proposed worker pro tection rule reverses this U.S. policy of openness and consideration of public safety. First, the proposed rules relax regulations by increasing the "acceptable" radiationexposureup to ten times or more than the current levels. This is touted as an "improvement." (See "Summary" in proposed rule.) Obsfucations such as dangerous relaxation of regulations touted as "improvements" impede openness to which the public has a right.

The proposed rules mangle any consideration of public safety by mandating increased exposure levels. Increasing legally allowable radiation exposure decreases public safety. Increased exposures will produce increased injuries. Also an agency that limits its perception of injury to birth defects for two generations and cancer deaths perpetuates a blindness concerning public safety.(Page 1102 Para. V 1=9=86.)

The proposed rules assault the entire concept of a representative government. The proposed rules contain many obnoxious elements which the american public considers usual from a totalitarian regime such as Russia, but fails as a proper edict from a cummission chartered to protect the health and safety of the public.

The NRC must decide whether to be an agent of disinterest in the public safety or a commission chartered to protect and properly protecting the public.

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## CONCERNS OF THE ACRS RE PROPOSED RULE

1. I acree that implementing a program for this new rule should not place serious manpower and financial burdens upon the licensees whether they are big or small. The implementation plan should then be treated as a backfit and go thru the entire jstification process that any new requirement would go thru. Also the staff must be vigilant that the licensees may not pick and choose which parts are most beneficial to them while leaving those parts which are most difficult or expensive go to theend dispite the fact that the most expensive and difficult parts may well provide the most ir rease in protection to the public and workers. Whatever is done, the implementation of the proposed rule must guard against any reduction in safety during its implementation.

2. The NRC plans to aid the licensees thru training workshops. I suggest that these workshops be open to the general public so that imput from the general public will be informed and have a route to the staff.
3. If scientific updating of the standards is a goal

of this revision, this revision has failed to meet its goal miserably.

4. The definitions are inconsistent with the current ICRP useage ;but are also internally inconsistent and close to unreadable. How about some improvement tefore releasing this revised goal?

Specific comments of the ACAS:

1. Protecting the fetus demands that the pregnant woman volunteer that she is pregnant in writing. Then she could be shifted to a less desireable position. This is a real offensive requirement and provides the pregnant woman a guarantee that the boss can really mess her up as far as job advancement is concerned because of her pregnancy. Who is going to admit pregnancy undr those pnerous conditions?

2. A deminimum level of .1 o. 1 mrem is indefensible. There is a real lack of concern that anough people getting any level of radiation will have a few suffering statistics succumb to that radiation.ALARA must be defined not only to go down to a very small level of radiation , but to a negative level of radiation. We have polluted the Earth with radiation. Our concern should be to reduce , not just minimize, radiation levels. Calling any level a deminimum level is sort of like a man wint an overflowing cesspool saying well we are going to slow down using that cesspool. The cesspool is still overflowing. Slowing down additions does not stop that flow.

The Earth has been polluted with radiation. Slowing down the additions does not stop that fact. We need a negative value for deminimus and ALARA. We must try to radues the radioactive pollution that we have heaped upon this Earth.

(SeeACRS letter for Stello dated Feb. 19,1986.)

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The proposed standards for protection against radiation constitute a beckfit within the definition of 50.109(a)(1). "Backfitting is defined as the modification of ...design of a facility."

Hadiation protection standards are an integral part of the design , and are primary considerations in the design of such structures as biological shields, severe accident mitigation and almost every structure and proceedure in a nuclear power plant having to do with safety .

The protection against radiation proposed rules are a "new or amended provision in the Commission rules." As a "new or amended provision in the Commission rules," these new rules meet the Para 50.109(a)(1) requirements for a backfit. The procosed rules and accompanying information (See FR Notice Page 51992 thru 52039 12-20-85 and FR extension of comments period Notice 1-9-86.)in no way meets the requirements of the "backfit rule.

The proposed ruls has failed to include the requirements necessary for approval of a backfit, the requirements include, but are not limited to, §50.54 "The NRC must prepare the reason or reasons for each information request prior to issuance to ensure that the burden tobs imposed on the respondents is justified in view of the potential safety significance of the issue." §50.109 (a)(3) " the Commission shall require the backfitting of a facility only when it determines based on the analysis described in §(c) of this section..."

The proposed rules fail to mention if the EDO or staff have met the 9 factors in §50.109(c)(1) thru(9). Since the radiation protection rule is a backfit and has failed toaddress any fo the rrequirements of in the "backfit" rule, 1 respectfully, petition the NRC to recall the proposed rule untilthe minimum requirements of §50.109 are addressed.

This discussion of the effect of the backfit rule upon the Proposed Protection Against Radiation Rule partially answers Commissioner Asselstine's "Additional Comments." The entire effect of ignoring the backfit rule cannot be assessed at this time. One effect may well be a flood of litigation by every "respondent." This flood has already started.(Petition for ReviewUCS v. NRC April 9, 1986.)

#### RELATION OF SAFETY GOAL POLICY TO PROTECTION FROM RADIATION RULE.

The most obvious assault on the present regulations is the backfit rule. How the backfit rule relates to the Protection from Radiation Proposed Rule has been discussed on the pages entitlad, "Relation of packfit rule to protection from radiation rule." However , the backfit rula relates to the Protection from Radiation Proposed Rule indirectly thru its effect upon the Safety Goal Policy. Here are the steps by which the Proposed rule relates to the Safety Goal policy.

1. The Backfit Rule provides large obstacles to any new NRC generic requirements thru a dollar or cost benefit ratio test.

"If one cuts thru the extraneous matter in that section of the rule, one finds that the Commission requires costbanefit analysis to be performed on all proposals for backfits."FR 38108 Sep. 20.1986.

2. The result of a cost benefit analysis is a dollar figure for each rem to which the public or workers are not exposed. The safaty goal policy and the implementation plan for the safety goal policy contain the ALARA number of 1000 dollars per rem as the decisional number upon which to base whether a backfit or procedure is cost effective. Since the value of the dollar is continuously decreasing due to inflation

the result of the constant value of the decisional cost benefit ALARA number of '000 collars per yes means that the NRC has taken as a matter of policy that the value of human life is decreasing as inflation eats away at the value of the dollar.

3. The above ALARA value affects the decisional process in the Proposed Protection From Radiation Rule directly. Although a reference level is a part of the rule where the licensee will haves to provide a report to the NRC, the licensee would not have to perform any further action unless

(a) the report projected a dose of over SCO mrem to a member of the public and

(b) the actions to mitigate the excess dose would require less than 1000 dollars per rem to avoid the exposure. (See Page 1113 Jan 9,1985 FR andAdditional comments of ACRS member Harold Lewis in ACRS Comments on Proposed Safety Goal policy dutud Har 19.1983.)

The relation of the Safety Joal Policy to the Proposed protection from radiation rule is that the Safety Goal policy mandates an ever increasing barrier to the implementation of any means to mitigate or reduce an exposure to the public which requires an outlay of capital.

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# VAGUARIES IN THE PROPOSED RULE ALLY FOR UNLIMITED EXPOSURES.

The proposed rule contains many proceedures which act as escape clauses thru which licensees may expose public and workers without even reporting .

The most obvious escape clause is §20.1301 which allows for unlimited exemption upon the NRC's own perogative without any review internal or external. Essentially §20.1301 gives the NRC power within the proposed rule to operate without any rules in protecting the health and safety of the public and workers and the decision cannot be objected to.

The proposed rule also contains other escape clauses which allow licensees to expose workers to high doses yet get around the rules without reporting.

According to Page 52006 12-20-86 Faderal Register Notice " to demonstrate compliance with the Proposed revision when the exposure involves the assessment of incremental intakes of radionuclides " "would be required at 30% or more of annual intake limits." Since "such assessments" would be required at 30% or more of the ALI of any particular nuclide , assessments of any nuclide which is below 30% of its ALI is ignored as far as reporting is required. Most probably the NRC staff will argue that lack of reporting of nuclides which are below 30% of its ALI is not what what the staff saids may well not be congruent. My point is that what is written is the regulations and not what the staff or NRC meant. The letter , not the spirit, of the regulation is that which the licensee must meet.

To illustrate that the letter , not the spirit, is that which the licensee must meet, I wish to refer to a contention which I was refused in the Limerick Hearings before ALD Brenner. I stated that the emergency telephone numbers could easily be changed without the Operators or emergency services knowing and that the telephone numbers needed in an emergency should be open to the public. My contention was disallowed as ALJ Brenner agreed with licensee and staff that the unlisted phone numbers could be kept up to date without having them in the phonebook. Sure enoung the NRC's own regional phone numbers were changed without having them listed properly and the fact was brought out in the Sequoyah incident. (See IE Information Notice 86-23.) All that I am trying to point out is that the licansee will interpret the regulations in the best light for the licensee's interests and that the interpretation . of the requirement for reporcing is to ignore any nuclide which does not come near or reach the 30% ALI threshold for reporting. The dose that need not be reported then becomes undefinable or unlimited.

The reason that the unreported dose or exposure becomes this large is that we are summing slighty less than 30%

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does not exceed the required threshold for reporting requirement. The lack of reporting is further aggravated by the fact that the 30% can include a weighting factor. (Table 2 of the proposed rule.) If the nuclide goes to certain organs the actual absorbed dose is multiplied by a weighting factor much less than 1.

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Therefore the exposure to certain nuclides by certain organs is very high before it need be reported. Further, if the exposure to a certain nuclide by a particular organ is less than 30% of the ALI for that nuclide . the exposure may be ignored in the reporting requirements. Even mr-e , the exposure may be multiplied by the weighting factor , which is always less than 1 before it is compared to the 30% threshold for inclusion in the reporting requirement. Then all the nuclides can be tested this way separately. As long as a nuclide does not meet the 30% threshold for reporting , the nuclide fails to meet the reporting requirement and can be ignored. This means that all the nuclides which do not meet the 30% reporting requirement will nonetheless be exposing workers and that the sum of all those nuclides can be ignored by the licensee. The result is a large dase that can be ignored in required reporting.

In many cases the NRC and staff will argue that the true intent will be preserved thru regulatory guide and staff supervision of licensee. I answer that the backfit rule makes any attempt to introduce a new interpretation of existing rules a backfit and would be very difficult to enforce within the confines of the present backfit rule. It just won't work. The new backfit rule makes supervision and interpretation of existing rules most difficult for Commission and staff and very easy for licensees to interpret regulation to their benefit.

The above discussion of radiation doses which the licensee do not report agrees with the submissions of Dr Sternglass. The above only discusses other routes by which the licensee can ignore reporting exposures which were not fully expounded by Dr. Sternglass. I fully agree with Dr Sternglass's submission on the proposed rule and join him heartily in his comments.

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## FUEL CYCLE OPERATORS MAY NOT IGNORE 400FR190.10.

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10CFR 20.301(proposed) provides a limit of .5 rem maximum to any member of the public from all known sources and operations.Since 40CFR 190.10 provides a maximum above which certain actions must be performed, there appears to be a confusion in the regulations. The MOU between EPA and NRC dated 11-3-80 does not clear up or even impact upon this issue.

However, the apparent confusion is very easily relieved. The EPA requires that if a dose of 25mrems to the whole body, 75mrems to the thyroid and 25 mrems to any other organ is exceeded, the variances in 190.10 will come into effect:

1. The EPA will grant a variancy determining that

(a) the condition is unusual and temporary
 (b) the continued operation is in the public interest.

 the public is promotly informed and a schedule for acheiving conformance with 190.10.
 Conversely the NRC requirement is a "constraint" of .5

rems per year. 10CFR20.3D1(a) The EPA deals only with a level wherein further action of the part of the operator is needed to continue operation.

The NRC deals with a constraint that can limit, stop or modify operation in any manner that is needed to "constrain" the dose to .5 rem per year. Thus, there is a lack of confusion as to what the apparent disprepancy of exposures mean.

If a licensee goes above the EPA limit of 25mrems, the licensee must institute the steps required in 40CFR 190.10 but need not stop operation. The EPA reporting requirements are not lifted or eliminated by the proposed rules. Conversely the proposed rules do not explain how the NRC will"constrain" a licensee if the limits of .5 rem per are exceeded.

The proposed rule is very poor from the viewpoint that 1. the proposed rule does not eliminate the EPA 40CFR190.10 requirements yst doesn't refer to those requirements as still in effect 2. does not ex plain how the NRC licensees will be "constrained" from exceeding the .5 rem per year limit.

The proposed rule should at a minimum refer to the reporting requirements of 40 CFR 190.10 as still in effect including that the design should attempt to meet the 25 mrem standard for normal operations, and the proposed rule should also explain how the NRC will "constrain " licensee who are exceeding the .5 rem per year cap.

## THE NEW PROPOSED RULE AFFECTS ALL PARTS OF THE REGULATIONS

## Single Failure Criterion:

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Simply out the single failure criterion requires that if one safety related componentor system fails which could be a precursor to an accident, only one more safety related component need be considered to fail in the accident analysis. Single "allure criterion (SFC) is an NRC policy. The SFC leaves out any basis in fact or science and has historically failed in operating nuclear power plant experience. Some exampoles of SFC inapplicability include the multiple safety-related failures leading to the accident of Mar 29,1979 at TMI#1, the Davis Basse lossof all feedwater, and the Salem ATWS wherein the backup system that worked was a control room operator, not a safety related component.

Nuclear power plant design has traditionally used SFC. The design must achieve the design objectives. The Protection from Readiation Proposed rule contains some of the design objectives for exposures of workers and public.

However, a reactor designed using the historically inaccurate SFC to meet the requirements of the proposed rule will most assuredly fail to meet the requirements of the proposed rule in actual power plant operation.

At a minimum the historical failure of the SFC should be factored into the Proposed Rulethru a larger "buffer."For instance if a little damage will occur at 5 rems, the limit for workers should be ten or hundred times less to account for poor assumptions such as SFC in the design of power plants.

# SAFETY GOAL POLICY AND IMPLEMENTATION:

Safety goal policy uses probabilistic risk analysis as a major tool . PRA constitutes a an approach in which probabilities of chances that a component or sys tem will work as designed as % basis for calculations. Engineering design requires that the design is analyzed to verify that the design will work as it should.

For instance deterministic engineering design will add up all the allowable deviations in the design to make sure a latch will latchand that the allowable deviations will not add up to an interference where the latch inquestion will not latch. In order for the design to be evaluated probalistically, the avaluation assumes that the design works correctly; that is, deterministically correct.

Historical experience in the nuclear industry contradicts the assumption of proper deterministic design . An excellent example of inadequate deterministic design is the chugging load problem in Mark II containments. Also the PTS problem in PWRs is another excellent example. In both of these situations , normal operation would eventually lead to situations wherein the reactors would experience major failures. These failures should have been found deterministically thru engineering design analysis.

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Instead they were found out thru abnormal occurences during operation. One important problem with depending on PRA as a too! for risk assessments involves the assumption that the reactor design developed with proper deterministic analysis. The Single Failure Criterion, discussed elsewhere, reinforces and assumes proper deterministic design as a matter of policy.

There have been and continue to be inadequate deterministic engineering design analysis. To make the Safety Goal Policy and SFC carry an assumption of adequate deterministic design is a necessity to use PRA as a tool in meeting the NRC needs.

However, using policies that assume improperly adequate deterministic design fail to protect the workers or the members of the public. Factoring the proposed rule into a design which is developed based on inadequate assumptions will lead eventually to excessive overexposures.

## SEVERE ACCIDENT POLICY AND NEW SOURCE TERM.

The new source termr is inaccurate and misleading . Please sue my comments on the new Source term NUREG report. Using the new source term developed from the TMI accident is premature. chernobyl should provide some very original insights into nuclear accidents and we should at least wait for that data. Also the data from TMI appears very flawed and should not be used in regulation at this time. The Severe Accident Policy leans very heavily on the new yource term data which is most suspect. When a reactor design for mitigation of severe accidents is based on both the flawed severe accieent policy and the new questionable source term, the chance for proper protection of workers is very low. Couble this low chance with the many flaws in the proposed rule and the chance that the workers and the public will be adequately protected from radiation by the proposed rule is nil.

## LLW siting; HLW siting ; Transportation; nuclear industry problems

The proposed rule will impact all areas of regulation. siting will be less stringent as more radiation can be foisted upon the public due to the new rule. Transportation regulation will suffer as accidents will be allowed to spew out more radiation upon the public before any response need be on scene and the result will still be allowed within the proposed rule.

this rule destroys any protection of the public from radiation in anay operation of the nuclear fuel cycle. --