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July 1, 1988

Samuel Chilk
Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Chilk:

The U.S. Nuclear Regulatory Commission (NRC) has recently asked for comments on a proposal to extend the applications of the "leak-before-break" approach to nuclear power plant safety.

Simply described, "leak-before-break" (LBB) holds that certain pipes always leak before they break; that these leaks are always detected; and that when a leaky pipe is discovered, there will be sufficient time to correct the problem before the pipe breaks and causes severe damage.

The appeal of LBB is that it allows utilities to save money in the maintenance and repair of their nuclear power plants. However, the savings come at the expense of public health and safety.

All three of the NRC's assumptions above are incorrect, as Public Citizen's enclosed comments on the proposal explain. However, the NRC has accepted these faulty assumptions as facts, reaching the conclusion that LBB eliminates the need to inspect pipes for cracks and potential breaks.

The NRC has already implemented this technology for most of the pipes in nuclear power plants, and now it is proposing to apply it to pipes in the Emergency Core Cooling System and Environmental Qualifications System. The NRC claims LBB will yield safety benefits in the forms of lowered worker exposure to radiation and greater plant integrity against earthquakes. However, these potential benefits do not change the fact that reliance on LBB is questionable as an adequate means of predicting and preventing pipe breaks and the severe consequences that could result.

Based on the many valid criticisms of LBB (see attached comments), it appears that NRC's proposal to extend the application of LBB is designed primarily to ease the financial pressures on the nuclear industry at the expense of plant safety. As such, it is merely the latest in a series of actions in which the NRC has abandoned its responsibility to serve as an objective regulator of nuclear safety in favor of the economic interests of the nuclear industry.

These actions include the issuance of a "backfit" (safety-related

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repair) rule which allows a utility's economic arguments to be considered and balanced against the relative safety benefit of a repair at a nuclear power plant. The agency is presently considering a proposal to allow certain "low-level" nuclear waste to be disposed of like regular garbage by declaring the waste's radioactivity "below regulatory concern." Of great public interest in the past few months has been the NRC's easing of the rules for emergency planning, geared largely toward the licensing of the Seabrook plant in New Hampshire and the financial redemption of its owners. The NRC has also deferred to the industry in numerous other cases, including the training of reactor operators, by endorsing the programs of the Institute of Nuclear Power Operations which is funded and run by the industry.

In conclusion, LBB represents another effort to place the economic interests of the nuclear industry ahead of public health and safety. Not only should LBB applications not be extended, but its present implementation should be discontinued except on non-safety related piping.

Sincerely,

Kenneth Boley
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Critical Mass Energy Project
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Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Attention: Docketing and Service Branch

Subject: Comments on Additional Applications of Leak-Before-Break Technology (53FR11311)

Underlying the implementation of leak-before-break (LBB) technology is an immense, though faulty, leap in logic. That basic assumption is that if certain pipes have been observed to always leak before they break, then they will continue to do so. The Nuclear Regulatory Commission (NRC), in fulfilling its mandate to protect the health and safety of the public, should understand that a probablistic view based on past experience is not sufficient justification for the relaxation of a standard, rule, or procedure if the public safety could be jeopardized.

The Nuclear Management and Resource Council wrote in reference to the NRC's Proposed Standard Review Plan on Leak-Before-Break Procedures (52FR32626) that it "applauds the NRC's continued efforts . . . to reduce excess conservatism . . . which could detract from safe operation" of a nuclear power plant. On this point, Public Citizen and NUMARC in principle, but it cannot be demonstrated that LBB technology represents a safer technique for predicting and preventing pipe breaks than the presently used "excess conservatism."

Although the NRC currently gives credence to LBB technology for many applications, this fact should not be used to argue that LBB is a safe method of pipe break prevention. To extend its application to emergency core cooling systems (ECCS) and environmental qualifications (EQ) of safety related electrical and mechanical equipment is to treat LBB's safety as a foregone conclusion.

The NRC has made the assumption that if a pipe is going to break, it will leak first, and when it leaks, there will be sufficient time to fix it before there is a severe pipe break. However, five years ago, Harold Denton, then Director of Nuclear Reactor Regulation, stated that LBB "is not an established law" and warned that "if there is really a pipe out there somewhere that is cracked half-way through or is 55 percent of the way through before it begins to leak, then there is very little time to detect that leakage and take proper corrective action."

In December 1986 at the Surry plant in Virginia, a pipe burst and caused the deaths of four workers. The pipe had not leaked before it

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broke. Although the pipe was in a non-safety related part of the plant and was therefore not previously inspected for cracks, and was of a different variety from the pipes that are in the ECCS and the EQ systems, the incident does prove one very important point: pipes can lose their integrity, and pipe breaks can occur without previously leaking, even if historically they have not.

Further, even if one accepts that the pipes in question will leak before they break, one supposes a flawless system in assuming that these leaks will always be detected.

As stated in the Federal Register notice, the NRC has been using the "defense in depth" concept of reactor safety. However, contrary to the agency's contention, application of LBB to the ECCS and EQ systems would degrade "defense in depth." If actual inspection of certain pipes is to be replaced by a policy based on faulty assumptions, then the next line of defense should be that much more reliable and stringent. However, ultra-sonic testing (UT), which would likely be the next method for preventing pipe breaks, has been questioned extensively. The NRC's Advisory Committee on Reactor Safeguards (ACRS) has called UT's reliability a "delusion ... we can find no consistent experimental evidence or body of expert opinion indicating that [UT-] measured crack depths bear any direct relationship to actual crack depths." Implementation of a flawed policy such as LBB will lead to increased reliance of UT, which itself has been disavowed by the NRC's ACRS.

Public Citizen appreciates this opportunity to comment on the NRC's extension of leak-before-break to the ECCS and EQ systems. Our recommendation is that not only should these further applications be rejected, but implementation of leak-before-break in all of its other applications should be discontinued as well.

Sincerely,

Kenneth Bolev
Nuclear Safety Analyst
Critical Mass Energy Project
of Public Citizen