



Beyond Nuclear
6930 Carroll Avenue, Suite 400,
Takoma Park, MD 20912
Tel: 301.270.2209 Fax: 301.270.4000
Email: paul@beyondnuclear.org
Web: www.beyondnuclear.org

PRM-50-93
(75FR03876)

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April 12, 2010 (3:10pm)

The Secretary
United States Nuclear Commission
Washington, DC 20555-0001
Attention: Rulemaking and Adjudications Staff
By email to Rulemaking.Comments@nrc.gov
FAX to 301-415-1677

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

**Comments of Beyond Nuclear in Support of
Petition for Rulemaking of Mark Leyse
(PRM 50-93)**

Ms. Secretary,

On behalf of Beyond Nuclear, I am submitting supporting comments for PRM 50-93. The NRC should adopt the petition for rulemaking submitted by Mark Leyse in the best interest of public safety.

On March 28, 1979, the United States of America experienced what was thought to be an inconceivable event when the Three Mile Island Unit 2 reactor near Harrisburg, Pennsylvania had a nuclear meltdown. The nuclear industry and its apologists still insist that there have been no human health consequences from the accident despite convincing evidence to the contrary.

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Two such compelling commemorative presentations on the TMI accident and its consequences can be viewed at <http://www.tmia.com/march26> .

The Leyse petition raises the concern that safety margins that determine Nuclear Regulatory Commission (NRC) regulation and current industry practice are based on selectively cherry picking through experimental test data that otherwise points to less than adequate safety margins for maintaining the first protective boundary against another such accident and a catastrophic radiation release, the nuclear fuel rod cladding.

Mr. Leyse has filed the petition seeking to raise technical safety margins for reactor systems. The petition raises the concern that the nuclear power industry does not now have adequate safety margins against the consequences of a Loss of Coolant Accident (LOCA) and unduly risks another core melt accident and potentially large radioactive releases worse than what occurred at TMI.

Mr. Leyse focuses on two critical and credible technical issues that regard such a LOCA at a US reactor: 1) the temperature at which these nuclear fuel rods must be maintained by emergency core cooling systems to prevent another meltdown and; 2) the rate at which emergency cooling water is introduced to re-flood the reactor vessel to cover the reactor core following a significant loss of reactor coolant. Current NRC regulations require that following a loss of coolant accident fuel cladding temperatures be maintained by emergency cooling systems to

remain below 2200^o Fahrenheit (F). This temperature is calculated by NRC and industry as an adequate safety margin against a core meltdown or “runaway oxidization.” Mr. Leyse persuasively argues that the NRC regulations need to be revised to lower the fuel cladding temperature (Peak Cladding Temperature) to at least 1800^o F to maintain an adequate safety margin. Mr. Leyse has based his argument for the revised regulation of the fuel cladding temperature margin on extensive documentation of actual mock-up experiments including those sponsored by the NRC in 1985 that demonstrated that such a runaway oxidization of Zircaloy fuel cladding can occur at 2060^o F, well below the current legal safety margin limit of 2200^o F. The experiment demonstrated that once the fuel cladding temperature exceeds 2060^o F runaway oxidation can occur and within less than 60 seconds increase to 3300^o F, the melting point of the cladding material.

The Leyse petition for rulemaking further argues that NRC must shorten the re-flood delay time and increase the re-flood rate within the reactor vessel to recover the core with water before a runaway fuel melt accident can initiate.

The nuclear industry uses Zircaloy, an alloy of zirconium, as the cladding material for its uranium fuel rod assemblies. If ignited in a nuclear accident, the Zircaloy fuel cladding will burn in an intensely hot flare-like reaction and in a water/steam rich environment generate explosive hydrogen gas that can detonate and endanger a nuclear reactor containment structure and downwind

communities. In fact, this is what happened during the Three Mile Island accident as expertly explained by in the above mentioned and hyperlinked presentation by Arnie Gunderson at the 30th commemoration of the Three Mile Island accident in Harrisburg, Pennsylvania.

The Leyse petition raises serious concerns that the Nuclear Regulatory Commission and the nuclear industry have selectively excluded multiple-rod severe fuel rod damage test experiments to arrive at their calculated “conservative” safety margins. Leyse has likened the current NRC/industry Zircoloy cladding margins as being based on “studying a burning match to predict what would occur in a forest fire.”

For decades now, the nuclear power industry has prioritized raising the thermal energy and narrowing safety margins in its reactors to build more steam and more power by as much as 18% to 20% in a process called “power uprate.” The Leyse petition raises particularly legitimate issues for the adequacy of existing technical specifications and safety margins at these uprated operating reactors and cause for concern of current public safety.

The issues raised by the Leyse petition need to be addressed with the agency’s priority set on raising the bar for public safety and not an industry production agenda. Incidents where management and regulator have collaborated to subordinate safety to production, ignoring obvious warning signs such as

surfaced at the Davis-Besse nuclear power station in 2002 will only serve to undermine public confidence that the agency is true to its mandate to promote public health and safety first.

By adopting the petition, the agency can build this public confidence and demonstrate that its priorities are indeed focused first on public safety.

Sincerely,

---/s/-----

Paul Gunter, Director
Reactor Oversight Project
Beyond Nuclear

Rulemaking Comments

From: Paul Gunter [paul@beyondnuclear.org]
Sent: Monday, April 12, 2010 2:49 PM
To: Rulemaking Comments
Subject: Comments of Beyond Nuclear in support of PRM 50-93
Attachments: beyond_nuclear_04122010_comment_prm50-93.pdf

To whom it may concern:

Attached please find the comments of Beyond Nuclear in support of PRM 50-93.

Thank you,

Paul Gunter, Director
Reactor Oversight Project
Beyond Nuclear
6930 Carroll Avenue Suite 400
Takoma Park, MD 20912
Tel. 301 270 2209
www.beyondnuclear.org

