

**From:** Laurence Parme <laurence.parme@gat.com>  
**To:** <fxe@nrc.gov>  
**Date:** 11/6/02 12:34AM  
**Subject:** Written Comments on Policy Issues for SECY-02-0139

Dr. Farouk Eltawila

Please find attached written comments from General Atomics on Policy Issues Related to Licensing Non-Light Water Reactor Designs (SECY-02-0139). I believe you will find that no new issues are raised and each of these points was discussed in the course of your public workshop on 22 -23 October. However, we believe each of the 7 issues being addressed by the SECY will be key to the licensing of advanced reactors in the future and therefore felt it important to summarize and provide to you in writing the points previously made.

Larry

Laurence L. Parme  
Manager: GT-MHR Safety and Licensing  
General Atomics Co.  
P.O. Box 85608  
San Diego, California 92186-5608

E-Mail: Laurence.Parme@gat.com  
Phone: 858 455-2518  
Fax: 858 455-3334

**CC:** <rjb@nei.org>, <SRB1@nrc.gov>, <Madeline.Feltus@hq.doe.gov>, Leslie Fields <LCF@nrc.gov>, <malcolm.labar@gat.com>, <mcarthur@Radix.Net>, <tom.miller@hq.doe.gov>, <sdr1@nrc.gov>, <arkal.shenoy@gat.com>, <walter.simon@gat.com>, Eugene Trager <EAT1@nrc.gov>, <Joseph\_Hegner@dom.com>, <tcmatthews@oppd.com>, <gzinke@entergy.com>, <tedquinn@cox.net>



U.S. Nuclear Regulatory Commission

5 November 2002

Attn: Dr. Farouk Eltawila, Director  
Division of Systems Analysis & Regulatory Effectiveness  
Office of Nuclear Regulatory Research  
Mail Stop T-10E32  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555-0001  
Tel: (301) 415-6345

Subject:        Comments on SECY-02-0139, Policy Issues Related to Licensing Non-Light Water Reactor Designs

Dear Dr. Eltawila:

On 22 and 23 November 2002, NRC held a workshop on Policy Issues Related to Licensing Non-Light Water Reactor Designs. At that time, members of the public including General Atomics provided comments on these issues. Several of these issues were explored in further detail in free and open discussions between the participants. At the end of the workshop, NRC summarized their understanding of the comments received.

General Atomics supports this effort to clarify and establish policy on these issues. We feel that they will be very important in future licensing of not only non-LWRs but very likely any next generation advanced reactors. In addition, we support the general direction the staff appears to be going in developing policies on these issues.

Because of the importance of these issues to us, we have summarized our comments made over the course of the 2-day workshop and are providing them to you in the attachment. Should you have any questions on this letter, the attachment, or this subject, please feel free to contact me at 858 443-2518.

Sincerely,

Laurence L. Parme  
Manager, GT-MHR Safety and Licensing

Enclosures: (1)

Shana Browde,	Office of Nuclear Regulatory Research
Leslie Fields,	Office of Nuclear Reactor Regulation
Stewart Rubin,	Office of Nuclear Regulatory Research
Eugene Trager,	Office of Nuclear Regulatory Research
Madeline Feltus,	Department of Energy
Tom Miller,	Department of Energy

## Attachment

### Comments on Issues

#### 1. Enhanced Safety

The expectation of enhanced safety stated in the commission's *Advanced Reactor Policy Statement* was not intended to lead to revised regulation mandating these enhancements. To the contrary, during the recent certification of three advanced light-water reactor designs, the commission made clear this was not its intent.

Nevertheless, we believe that enhanced safety as realized through greater design margins, reduced uncertainty, and/or the utilization of simplified, inherent, passive, or other means for safety function accomplishment is a reasonable expectation for advanced reactors. This expectation can be dealt with in a manner similar to that employed during the advanced light-water reactor certifications. Industry should be encouraged to provide for an increased level of safety through the application of risk-insights and severe accident mitigation features that are applicable to the specific design.

We have and continue to support performance-based metrics for judging safety. However, we caution against the blind application to non-LWRs of some of the existing metrics commonly used, specifically core damage frequency. In general, we find that the more closely a metric can be related to measurement of public health and safety the more useful and generally applicable it is.

Finally, General Atomics has believed that while the safety goals were intended for power reactor industry as a whole, the expectation is that new reactor facilities will meet these goals. Recognizing that a multiple reactor concept raises questions on how to quantify the risk, within the MHTGR preapplication submittals risk to the public was quantified for the site rather than on a per reactor basis. We continue to believe this is the proper way to assess risk for new plants – especially those utilizing multi-module design approaches such as the GT-MHR. Note that the assessment of risk on a site basis does not any way imply endorsement of an allocation of the risk goal up between reactors on a particular site.

#### 2. Defense-in-Depth (DID)

General Atomics believes that all parties would be better served by an agreed upon definition of what is meant by defense-in-depth. Reference to several sources that might assist in developing such a definition was made during the workshop. In developing this definition we believe that it is important to

- Include the several aspects of defense-in-depth in the definition including design considerations, processes, and risk assessment based insights, and
- Keep the definition independent of design and instead focussed on what is being sought and what are the processes or programs to evaluate for defense-in-depth

Finally, we believe active stakeholder participation in developing this definition is required to ensure the success of the effort.

#### 3. International Standards

The nuclear industry is becoming increasingly international with many suppliers now located solely offshore. General Atomics supports

- NRC review of international codes and standards submitted in an application,
- NRC's use of the experience gained by other regulatory bodies to facilitate the review of these international codes and standards,
- NRC's proactive involvement in specific and selected areas by participating and endorsing international codes and standards that are nonexistent in the US and required for non-LWRs – as determined by pre-application discussions, and

- NRC's consideration of reciprocity in the use of US codes and standards by foreign regulators.

## 5. Event Selection

General Atomics continues to support the sort of logical and systematic event selection methodology first proposed during the 1980s MHTGR preapplication review and more recently by Exelon Generation for the PBMR. We believe this or similar approaches have the benefits of;

- Utilizing the existing NRC review and licensing framework largely as is,
- Making use of modern mechanistic and probabilistic analysis techniques to comprehensively review and identify design specific phenomena and scenarios important to safety, and
- Providing greater predictability to the process.

## 4. Mechanistic Source Term

General Atomics believes that existing regulation already provides the flexibility to allow use of scenario specific, mechanistic source terms where sufficient data and certainty in accident phenomenology exists. Furthermore, the NRC position, stated in the 1993 SRM, is consistent with this. We see no reason why this position should be reconsidered. To the contrary, we believe the use of scenario specific, mechanistic source terms has enabled designers of advanced reactors to pursue different and highly promising approaches to safety that can only benefit public health and safety.

## 5. Containment v. Confinement

General Atomics has on repeatedly stated our view that this question cannot be addressed in isolation. Rather, we believe that the question can only be looked at and decided in the broader context of whether a design provides adequate assurance against uncontrolled release of radionuclides.

We believe that the overall function of radionuclide control is what should be assessed. On this basis the acceptability of particular retention features offered by various building designs can then be judged. We also acknowledge that the resolution of the question of what constitutes sufficient defense-in-depth may have a bearing on this issue.

## 6. Emergency Planning

General Atomics supports a "graded approach" to emergency planning, appropriate to the risk to the public. We believe that an approach in which the EPZ radius is determined based on bounding accidents scenarios is consistent with the background for the 10 mile EPZ used on existing reactors. DOE proposed such an approach for the MHTGR and we anticipate pursuing the same methods for establishing an EPZ for the GT-MHR. In the proposal emergency preparedness is retained and we are confident that the proposed approach provides a level of public protection at least as good as that offered by existing reactors.

We believe that current regulations are sufficiently flexible in the determination of the Emergency Planning Zone (EPZ) for non-LWRs. Therefore, we do not see that any changes in current regulations are required. However, we still require comment from NRC regarding the acceptability of the proposed method to determining EPZs.