



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

September 6, 2000

ORGANIZATION: Nuclear Energy Institute

SUBJECT: SUMMARY OF PUBLIC MEETING WITH THE NUCLEAR ENERGY  
INSTITUTE (NEI) REGARDING DECOMMISSIONING SPENT FUEL  
POOL ACCIDENT RISK SEISMIC ISSUES

On August 23, 2000, the NRC staff met with representatives of NEI to discuss seismic issues related to decommissioning spent fuel pool accident risk. The meeting agenda is provided in Enclosure 1. A list of attendees is provided in Enclosure 2.

NRC began the meeting by discussing the events that led up to this meeting, including issuance of the "Draft Final Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Plants" (Accession No. ML003683371), industry comments associated with the study, and the proposed rulemaking plan described in SECY-00-145, "Integrated Rulemaking Plan for Nuclear Power Plant Decommissioning" (Accession No. ML003721626).

Next, NEI presented seismic information related to spent fuel pools and its application to decommissioning plants. A copy of the handouts used by NEI is included in Enclosure 3. NEI presented information comparing seismic hazard curves for nuclear power plants generated by the Electric Power Research Institute (EPRI) and by Lawrence Livermore National Laboratory (LLNL). The LLNL curves were the basis for the seismic results presented in the Draft Final Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Plants. While the EPRI curves have lower ground motion values than the corresponding LLNL curves, both the staff and industry experts agreed that both curves are equally valid and that the differences are due to the large uncertainties that exist due to the extrapolation of the data. NRC staff stated that both curves would be included in the evaluation of spent fuel pool failure probability, and appropriate consideration will be given to the industry commitment to use the seismic checklist which provides a deterministic assurance of spent fuel pool integrity at ground motions up to 1.2 g spectral acceleration. NEI and the NRC staff also discussed the probability of zircaloy fires given a failure of the spent fuel pool. Currently, the risk study assumed a failure probability of one. The NRC staff agreed that such assumptions need to be properly characterized in the final report.

NEI then discussed the application of the risk study results to rulemaking. NEI stated that the proposed rulemaking plan, as discussed in SECY-00-145, was based on deterministic methods and did not consider reducing requirements based on risk. The NRC staff disagreed. The NRC staff plans to meet with NEI in late September to further discuss decommissioning rulemaking issues.

NEI summarized its views by stating that risk from seismic events at spent fuel pools is acceptably low and that emergency preparedness and insurance requirements could be relaxed shortly after reactor shutdown. NEI questioned why the technical working group report results (and thus requirements for spent fuel pools) should be driven by seismic events larger than those used in the original licensing basis for the plant. NEI requested the NRC staff to be consistent with the use of risk at operating plants. NEI also suggested that the staff look at the risk in terms of the agency's safety goals. NEI stated it would document its views in a letter to the NRC.

The staff indicated that the technical working group report is intended to risk inform the decommissioning rulemaking decisions. In order to accurately present the risk picture, all significant contributors must be included regardless of the operating reactor licensing process. The staff also noted the importance of properly characterizing the role that large uncertainties play in the results.

The NRC staff stated it will carefully consider the NEI comments in its final report. As stated earlier, the NRC staff plans to meet with NEI in late September to further address decommissioning rulemaking issues.



David J. Wrona, Project Manager  
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Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Project No. 689

Enclosures: 1. Agenda  
2. Attendees  
3. NEI Handout

cc w/encls: See next page

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DECOMMISSIONING SPENT FUEL POOL  
ACCIDENT RISK SEISMIC ISSUES MEETING

August 23, 2000  
NRC Headquarters  
Rockville, MD

Agenda

1. Introduction - NRC
2. Objective of the Meeting - NEI
3. Presentation of Seismic Information and Its Application to Decommissioning Plants - NEI
4. Discussion of Information - NEI and NRC
5. Summary of Meeting

NEI - Key points of their presentation

NRC - Summation of the staff's understanding of the information

DECOMMISSIONING SPENT FUEL POOL  
ACCIDENT RISK SEISMIC ISSUES MEETING

August 23, 2000  
NRC Headquarters  
Rockville, MD

ATTENDEES

<u>NAME</u>	<u>ORGANIZATION</u>
John Zwolinski	NRC/NRR/DLPM
Jack Strosnider	NRC/NRR/DE
Stuart Richards	NRC/NRR/DLPM
John Hannon	NRC/NRR/DSSA
Timothy E. Collins	NRC/NRR/DSSA
George Hubbard	NRC/NRR/DSSA
Michael Masnik	NRC/NRR/DLPM
Phillip Ray	NRC/NRR/DLPM
Bill Huffman	NRC/NRR/DLPM
Mike Ripley	NRC/NRR/DLPM
David Wrona	NRC/NRR/DLPM
Diane Jackson	NRC/NRR/DSSA
Tanya Eaton	NRC/NRR/DSSA
Glenn Kelly	NRC/NRR/DSSA
John Lehning III	NRC/NRR/DSSA
Gareth Parry	NRC/NRR/DSSA
Goutam Bagchi	NRC/NRR/DE
Robert Rothman	NRC/NRR/DE
Med El-Zeftawy	NRC/ACRS
George Mencinsky	NRC/NRR/DRIP
Dan Barss	NRC/NRR/DIPM
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Sada Pullani	NRC/RES/DET
Ken Karwoski	NRC/RES/DET
Nilesh Chokshi	NRC/RES/DET
Andrew J. Murphy	NRC/RES/DET
Bob Kennedy	Struct. Mech. Consulting
Lynette Hendricks	NEI
Biff Bradley	NEI
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Tom O'Hara	Maine Yankee
Altheia Wyche	SERCH Licensing/Bechtel
Millan Straka	NUSIS
Elaine Hiruo	McGraw-Hill Nuclear Publications

Enclosure 2

## **August 23, 2000 NRC/NEI Meeting**

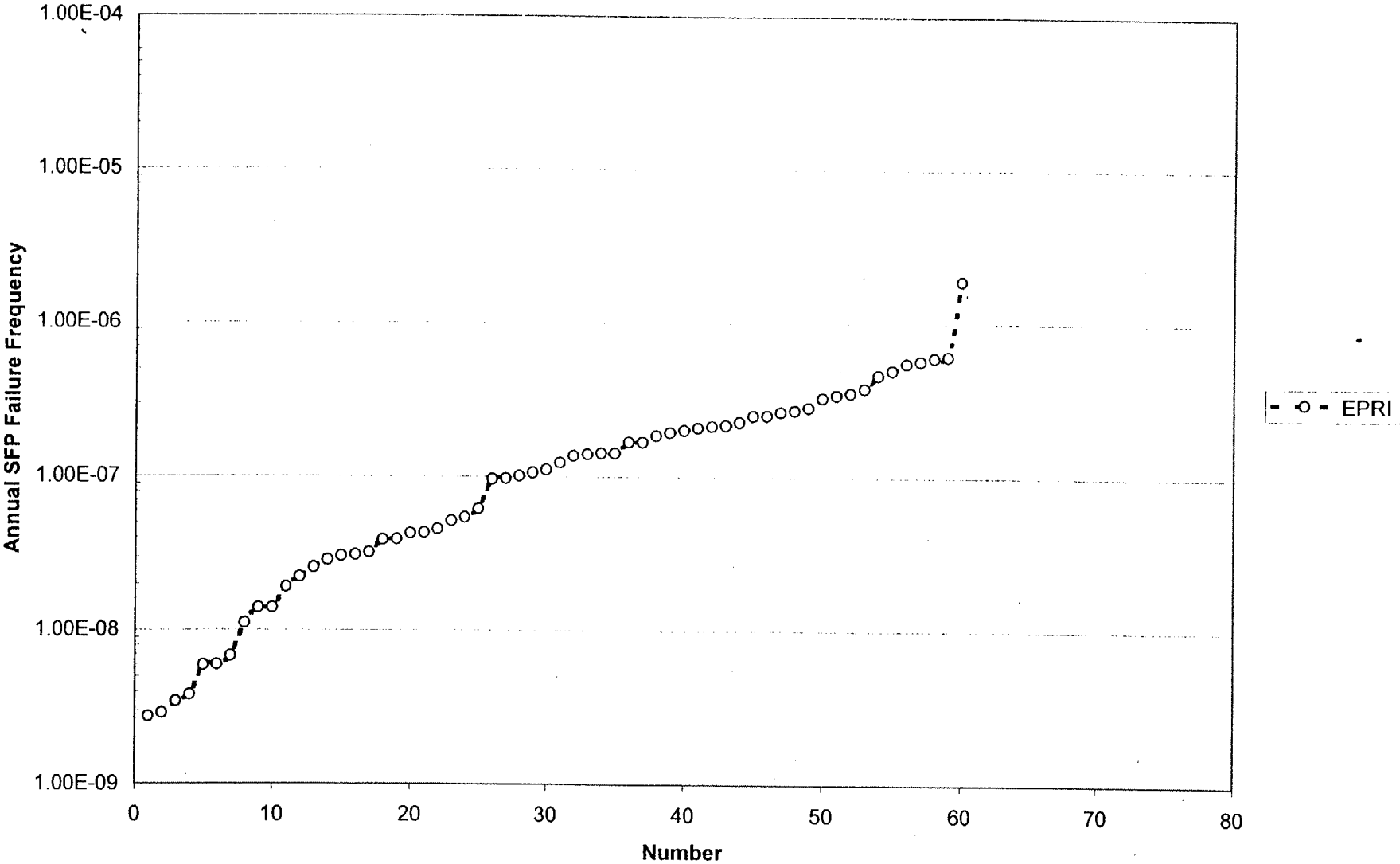
**Purpose:** To review and discuss the December 1999 and April 2000 submittals with respect to planned risk based regulations for decommissioning plants. In particular, NEI proposes to discuss both deterministic and probabilistic information that when combined in a reasonable manner should lead to the conclusion that Spent Fuel Pools (SFPs) that satisfy the seismic checklist present a negligible risk to the public and the risk based regulation recommendation should be revised to reflect this conclusion.

**Additional Information:** Figures will be presented which contain estimates of SFP failure frequency based upon the methodology proposed by Kennedy in Appendix 5b of the Draft Report. Figure 4 in the December 1999 submittal is updated in this presentation.

- **Deterministic Information Supporting Low Risk to SFPs from Earthquakes**
- **Probabilistic Information Supporting Low Risk to SFPs from Earthquakes**
- **Decision Making Based on Deterministic and Probabilistic Information**

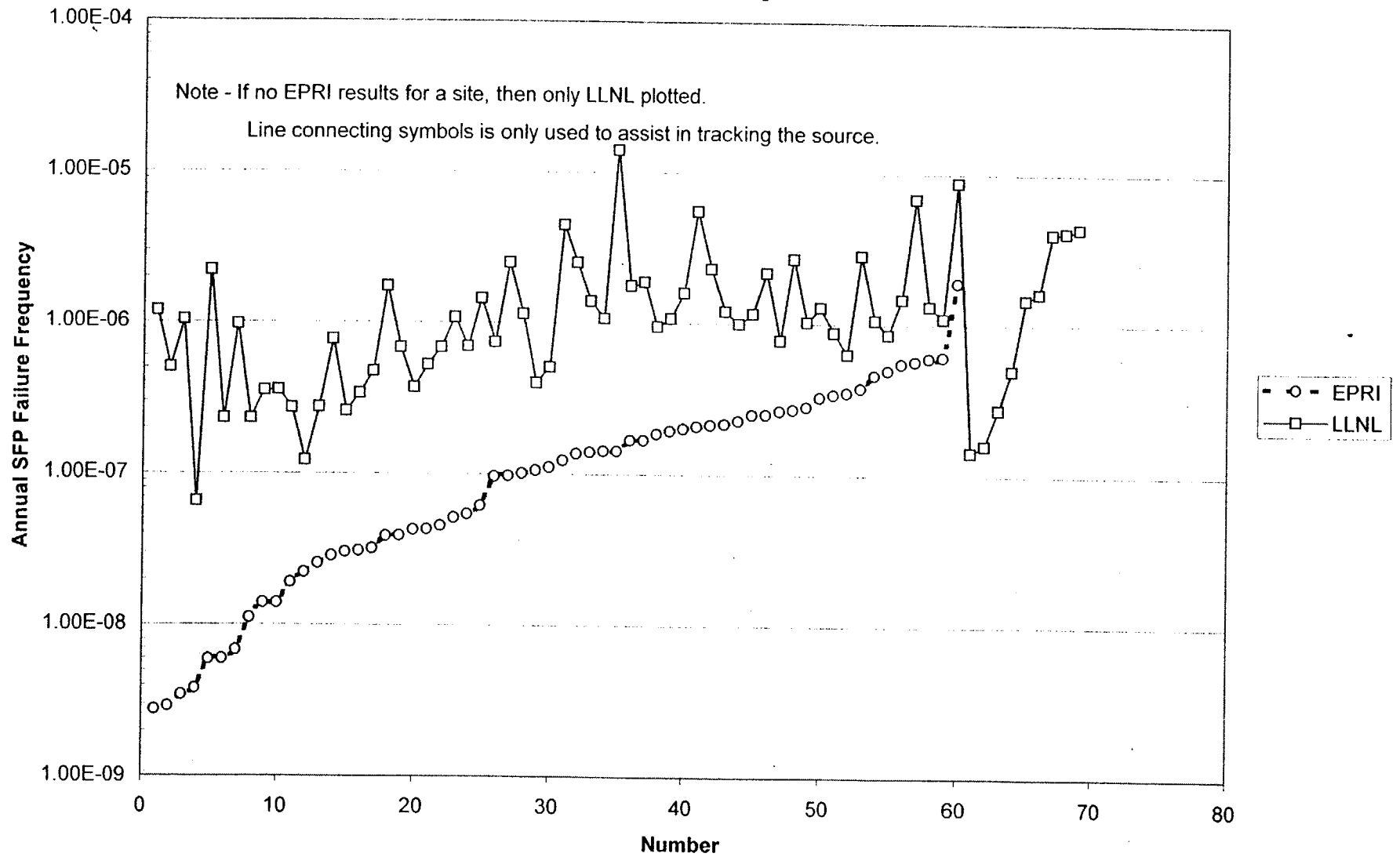
# SFP Failure Frequency Based on EPRI

EPRI sorted from lowest to highest risk site



## Comparison - LLNL and EPRI

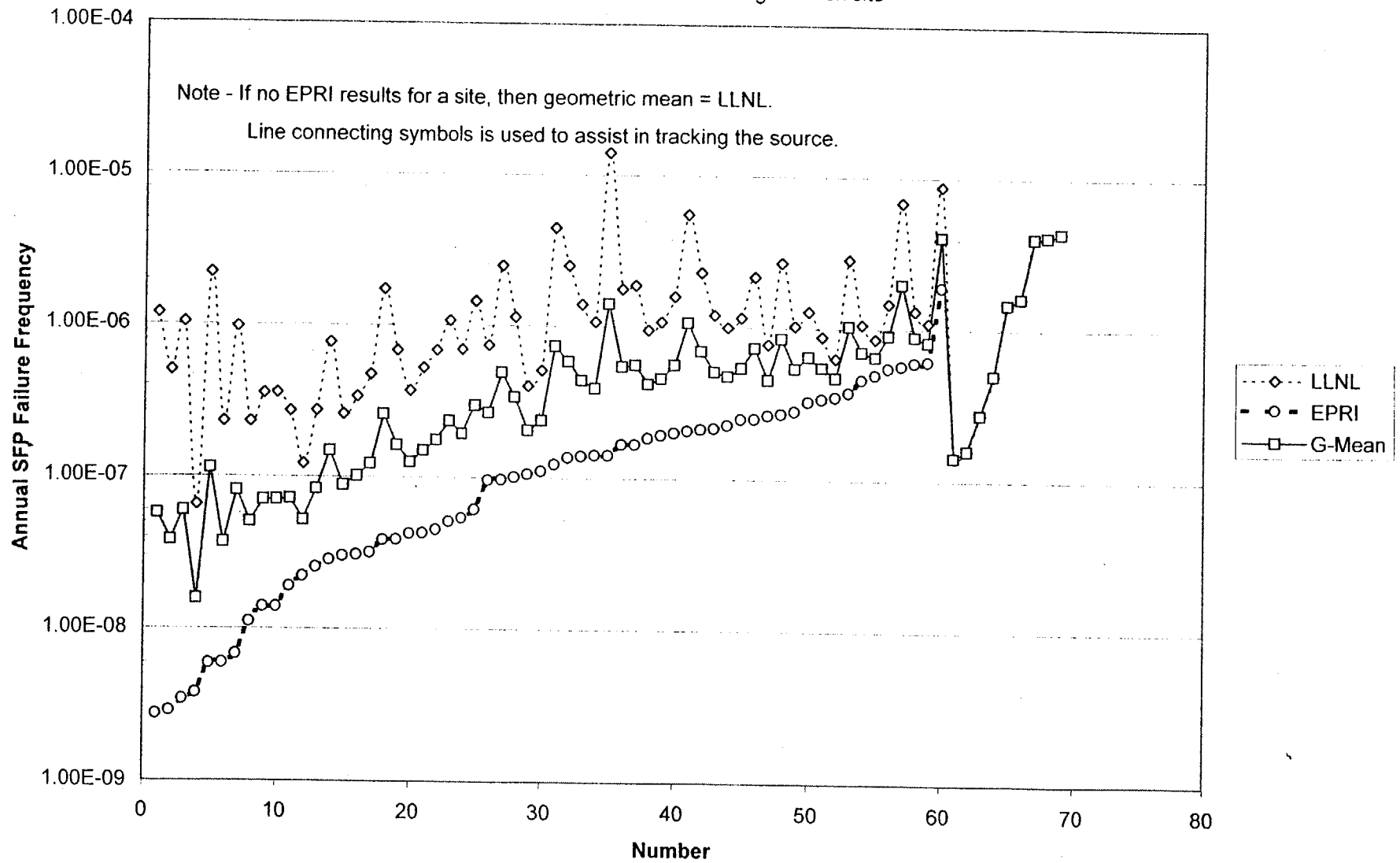
EPRI sorted from lowest to highest risk site





# Comparison - LLNL/EPRI/GEOMETRIC MEAN

EPRI sorted from lowest to highest risk site



### Geometric Mean (LLNL & EPRI)

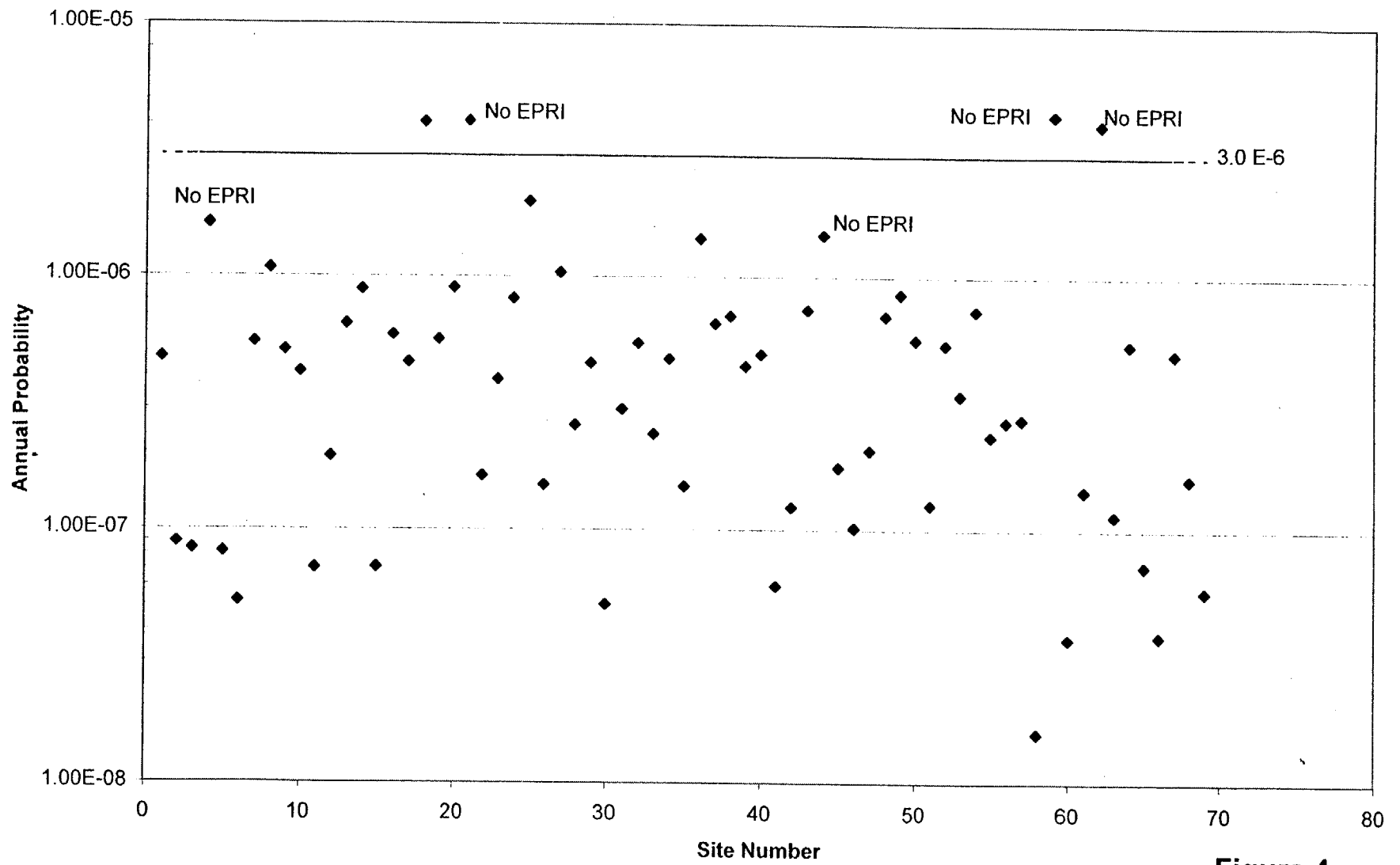
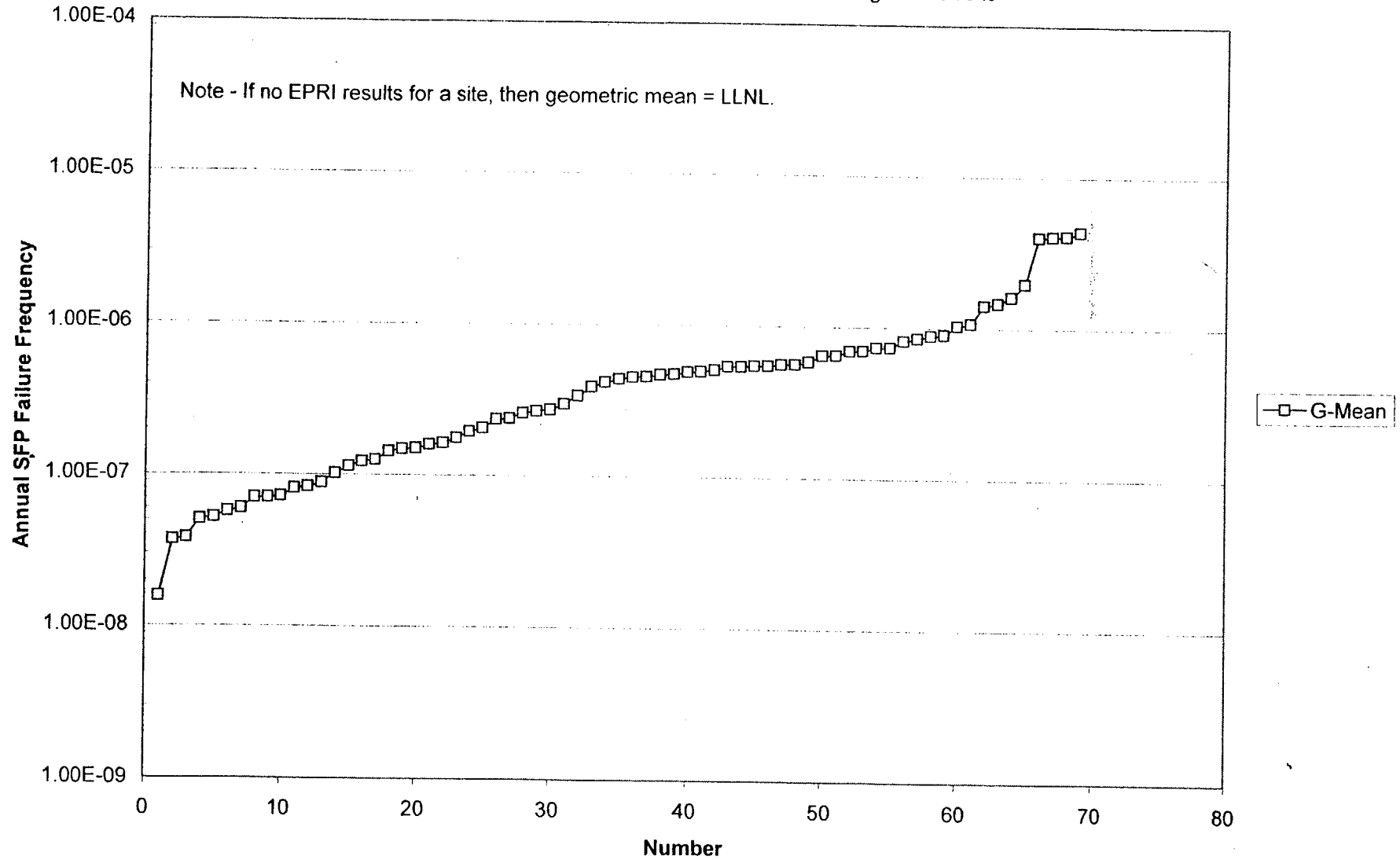


Figure 4

# SFP Failure Frequency Based on Geometric Mean of LLNL&EPRI

Geometric Mean sorted from lowest to highest risk site



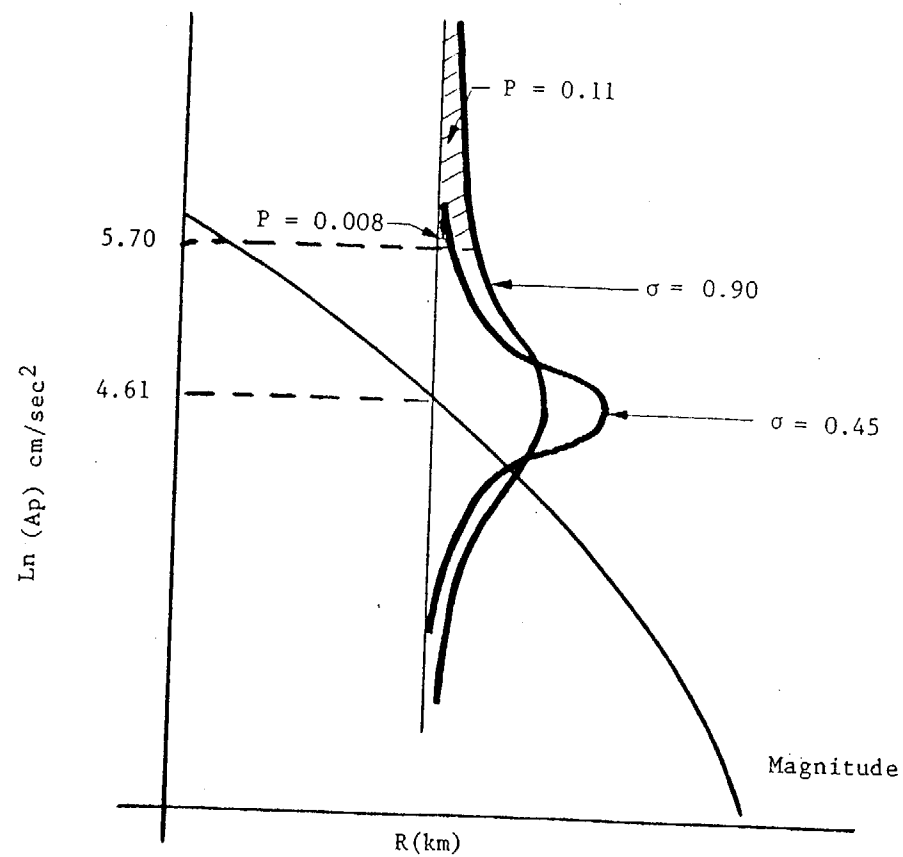


Figure 5-20. Illustration of the Effect of Changes in the Attenuation Model Error Term

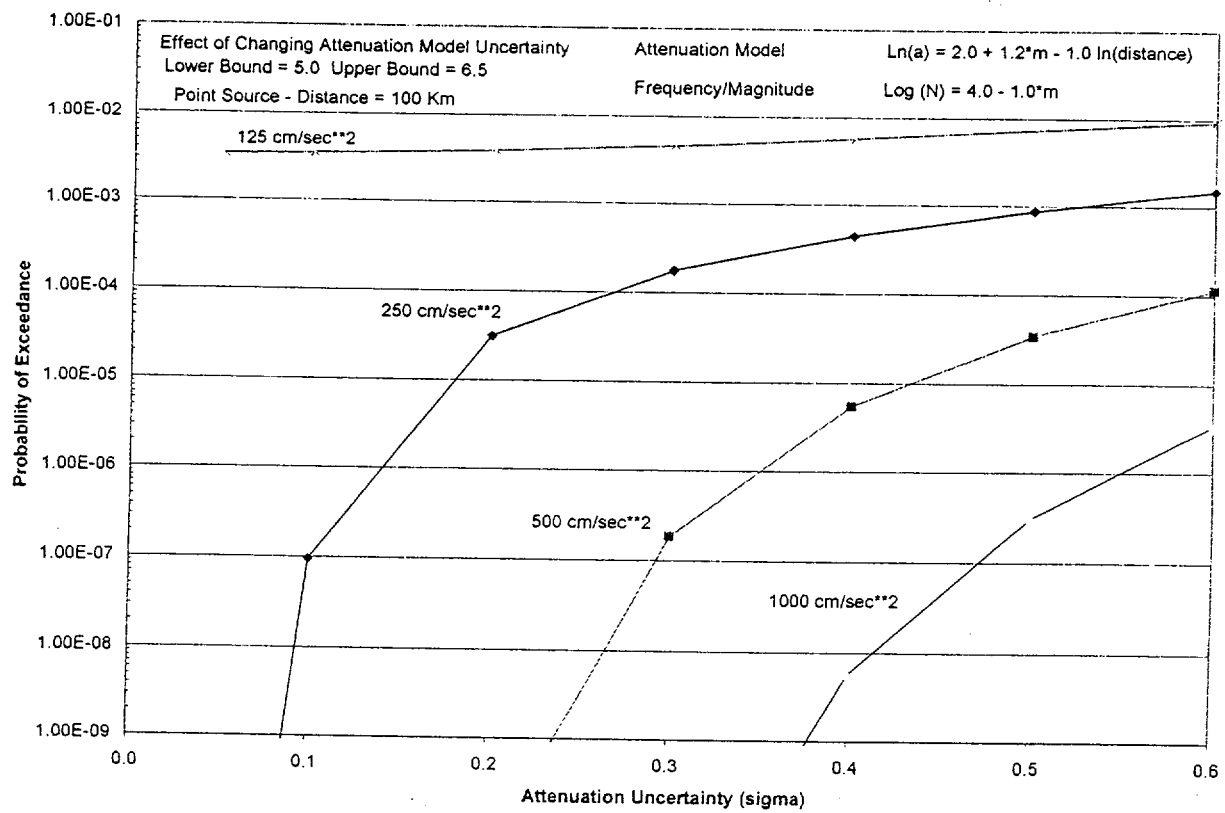
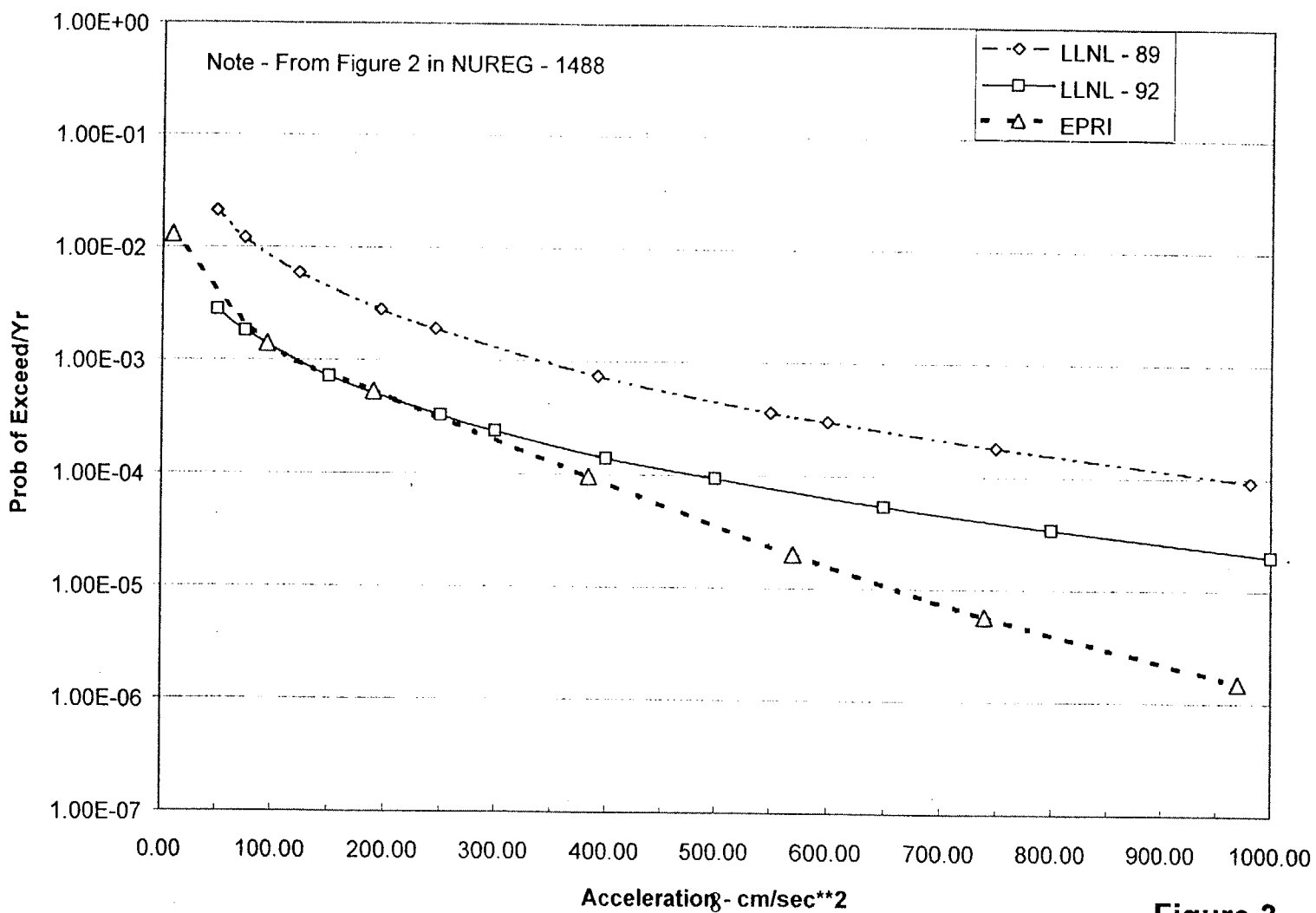


Figure 2 Effect of Attenuation Random Uncertainty on Probability of Exceedance from a Point Source

**Comparison of 1989 LLNL, 1992 LLNL and EPRI Estimates of Probability of Exceeding Peak Ground Acceleration per Year versus Acceleration - Pilgrim site**



**Figure 3**

September 6, 2000

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