

**From:** Edward Throm, *ET*  
**To:** Charles Tinkler, Diane Jackson, George Hubbard, ...  
**Date:** Mon, Aug 21, 2000 9:53 AM  
**Subject:** Re: 3.5 cores for SFP accidents

Tim:

Actually you would add the last two refuelings to a total (last) core offload at end-of-license to get between a 1.4 to 1.6 core equivalent value (2.0 would likely be a good upper bound number if more fuel is being off loaded at newer plants with longer fuel cycles).

The last 1-2 years came from the SFUEL studies which indicated that fuel as old as two years could reach the zirc-fire temperature through the additional radiation heat transfer from burning fuel if the older fuel was stored next to the newer fuel. In SFUEL the loading pattern was fixed such that the new fuel was always stored next the last discharged fuel (conservative).

>>> Timothy Collins 8/21/2000 9:12:07 AM >>>

Ed,

**Thanks, but some clarification please: If only the last two years could be involved in the fire, then I get for Ginna  $2 \times 24 / 121 = 0.4$  cores; and for Millstone:  $2 \times 173 / 580 = 0.6$  cores.**

**Also, you indicated that GI-82 "concluded" that only the last 1-2 years of fuel would be involved.... What drove that conclusion?**

Tim

>>> Edward Throm 08/21 7:57 AM >>>

Ref: NUREG/CR-4982, Appendix A

The inventories used for GI-82 were based on the actual loadings at Ginna and Millstone 1 when the report was written.

Ginna: 428 assemblies in the pool / 121 assemblies in core: **3.5 core equivalents**

Millstone: 1653 assemblies in the pool / 580 assemblies in core: **2.9 core equivalents**

GI-82 "concluded" that only the last one to two years of discharged fuel would be involved in a zirc-fire. Ginna discharged 24 assemblies per refuel, and Millstone 173 assemblies per refuel.

>>> George Hubbard 8/18/2000 1:17:17 PM >>>

Tim asked the question as to the origin of using 3.5 cores in determining the source term and consequences for spent fuel pool accidents. In particular this is important since Joe says in his appendix that fire propagation is probably limited to less than two cores (Section 1.7 of T/H Appendix, page A1-9, last paragraph of February Report). Does anyone know the answer?

Diane, if we don't know the answer can you do some research to determine why? Note that Ed Throm is out of the office until August 28.

Thanks,

George Hubbard  
2870

**CC:** Glenn Kelly, Joseph Staudenmeier, Mark Rubin, M...

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