

From: "Dr. Michael Podowski" <podowm@rpi.edu> , Rensselaer Polytechnic Institute
To: Tanya Eaton <TME@nrc.gov>
Date: Mon, Aug 30, 1999 8:33 AM
Subject: Re: Seeking Spent Fuel Assembly

Tanya,

I found the fuel assembly mockup. It can still be used without problems. If you give me your fax number, I will fax you some information about it. The heat could be added by using electrically heated rods (only a few of them at least).

I will be out of town for the rest of this week, but will be checking my email. If you find using our bundle interesting, we can discuss details by telephone next Tuesday (after the Labor day).

Cheers,

Mike

At 07:55 AM 8/30/99 Monday, you wrote:

>One question....if you could find out if this device is heated, that would be helpful. We are looking to reproduce the rate of spent fuel heatup, to a certain degree. However, if that is not possible, we still are considering using an assembly without heatup capability.

>
>Thanks,
>
>Tanya

>
>>>> "Dr. Michael Podowski" <podowm@rpi.edu> 08/27 3:17 PM >>>

>Hi Tanya,

>
>We have something probably very close to what you need. This a Fissile Assay Fuel Assembly (FAFA) which was used before for research. This is an aluminum container, 1.1 m long with a 15 x 15 cm square cross section. It may contain up to 64 fuel pins (8 x 8).
>However, I am still trying to locate this device. I hope to be able to do it this afternoon or on Monday.

>
>Please let me know if this is what you are looking for.

>
>Mike Podowski

>_____

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>At 09:23 AM 8/25/99 Wednesday, you wrote:

>>Professor Podowski,

>>

>> I am a fire protection engineer at the Nuclear Regulatory Commission in Washington, DC. My number is 301-415-3610. We are seeking to perform a test using a replica spent fuel assembly. I understand from the Rensselaer website that you are a professor of nuclear engineering and engineering physics. If you will bear with me, I will try to briefly explain what we are looking for.

>>

4302

>>Background:

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>>I am currently working with other NRC staff on a Nuclear Plant
>Decommissioning Project. As the licenses expire for commercial nuclear
>plants, they remove the fuel from the reactor to their spent fuel pool.
>The NRC is currently evaluating beyond design basis accidents related to
>the storage of fuel for decommissioned plants. One of the areas we are
>examining is a zirconium fire. For a scenario where the spent fuel pool is
>cracked due to some seismic event, or due to a heavy load drop over the
>spent fuel, our PRA risk analysts state that with the water gone, the
>spent fuel can heat up and at temperatures of 800 C, a self-sustaining
>oxidation reaction could occur which could lead to a zirconium fire.

>>

>>Part of my job along with other fire protection engineers, is to examine
>mitigation techniques that could be applied to prevent spent fuel heatup.
>It was suggested by the senior fire protection engineer at NRC, that the
>use of a high-expansion foam has heat transfer properties that would
>prevent the fuel from heating up and potentially prevent fire propagation
>to other spent fuel assemblies, if it is applied before the self-sustaining
>oxidation reaction occurs.

>>

>>Therefore, we are seeking access to a replica spent fuel assembly. We
>have spoken to NIST in regards to performing the test. It would consist of
>flowing high-expansion foam over top of the fuel assembly to determine
>given a heated fuel assembly, would the foam flow down through the spent
>fuel assembly. I have specs on the foam and it is compatible with many
>materials so there would be no destruction of the assembly. Instrumentation
>would be used such as moisture detectors down the length of the assembly,
>to measure how much flow is reaching the bottom of the assembly, if any.

>>

>>In regards to a timeline, our deadline for completion is November 31,
>1999. Therefore, even if it is available, we would still need to know if
>their were ongoing projects that would prevent our use at this time. And
>of course we'd have to go through some paperwork process I'm sure to secure
>contracts, paperwork, etc..

>>

>>I can provide you with more information. I would appreciate if you could
>contact me as soon as possible. Or if possible, I would appreciate any
>contacts you have that might be able to assist me in this matter.

>>

>>Thanks

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>>Tanya Eaton

>>(301) 415-3610

>>Email: TME@nrc.gov

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