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From: Amy Cabbage *NR*
To: Caruso, Ralph; Orechwa, Yuri; Shoop, Undine *NR*
Date: Thu, Jan 24, 2002 12:55 PM
Subject: Fwd: HTGR Pebble Fuel Irradiation Testing

See attached. Also make sure you see the e-mail to Heinz Nabilick which is attached to Stu's message.

T/46

From: Stuart Rubin *RES*
To: Borton, Kevin F.
Date: Thu, Jan 24, 2002 9:20 AM
Subject: HTGR Pebble Fuel Irradiation Testing

Kevin:

When will Exelon (and DOE) be ready to meet publically with the staff to discuss your joint fuel qualification irradiation plans? For purposes of keeping the plans for the FJZ fuel pebbles on schedule we will need to specifically understand your proposals and plans for the FZJ pebbles as a (first) step in the qualification plan. If you want to come in for a meeting in February then keep in mind that Feb 25 - Mar 1 would not be convenient for NRR cognizant staff.

Stu

CC: Amy Cabbage; Caponiti, Alice; John Flack

From: Stuart Rubin ^{RS}
To: Heinz Nabielek
Date: Thu, Jan 24, 2002 8:32 AM
Subject: Re: Import of German HTR Fuel Elements

Heinz:

NRC had a meeting with the US Department of Energy on 1/23/02 to discuss planning for cooperation in the area of a joint HTGR fuel irradiation program and the importation of the FZJ archive pebbles for use in such a program. We discussed the precise number of FZJ fuel elements we would need for the test matrix and the actions needed for the importation of these pebbles. The envisioned test plan for the use of these pebbles would be a irradiation test matrix which meets the needs of both the NRC (regulator) and Exelon (the potential applicant for a PBMR license) and the US DOE.

Several issues arose during the meeting discussions for which contact with you and Dr. Heiko Barnert will be forthcoming in the next week or so. Among these are:

1. The number of AVR 21-2 archive fuel spheres (if any) which Exelon/PBMR will be able/willing to provide to the joint test plan from pebbles that have been pre-assigned by FZJ to ESKOM.
2. Available support which FZJ can provide to the NRC/DOE (e.g., logistical assistance, processing of necessary paperwork in Germany, shipping containers, etc.) to implement the steps that will be required to bring the pebbles to a US National laboratory.
3. Expectations on the part of FZJ for agreeing to provide these pebbles for the US tests (e.g., \$ or other non-monetary benefits, whether US will become the owner of the fuel pebbles and be responsible for disposal of irradiated fuel, etc.)
4. Experience gained from previous projects involving the shipping/ and export-import of fuel pebbles from FZJ to other countries for irradiations and other purposes.

I plan to set up a phone call for sometime in the next week or two so we can begin the process of detailed discussions and actions needed for timely implementation of the transfer of the FZJ fuel pebbles to the US.

Thanks again for your support.

Best Regards

Stuart Rubin, USNRC

>>> Heinz Nabielek <h.nabielek@fz-juelich.de> 01/24/02 05:13AM >>>

At 09:21 03.01.2002 -0500, you wrote:

>Joe:

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>This message is a follow up to our December 13, 2001 meeting with Tom King to discuss the impact of Exelon's revised schedule for submitting technical information for the staff's PBMR pre-application review. At the meeting I mentioned that German representatives had informally tentatively agreed to provide a number of unirradiated archive pebble fuel elements to the NRC. If these fuel elements can be obtained they would be used for a proposed NRC HTGR fuel irradiation test program in connection with the RES advanced reactor research plan.

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>RES would like to NMSS to take the lead in evaluating the process, means and issues for importing the fuel elements from Germany and bringing them

to the US. The following is our current understanding of the circumstances surrounding the import of these pebble fuel elements:

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- >Designation: AVR 21/2
- >Number of fuel elements: ~9-12 max
- >Uranium enrichment: ~16.7%
- >Fuel kernel composition: UO₂
- >Heavy metal loading per fuel pebble: ~ 6.0 grams
- >Original intended use: AVR reload fuel
- >Current fuel storage location: Jülich Research Center, Jülich, Germany
- >Initial Jülich Research Center representative making tentative offer: Dr. Heinz Nabielek
- > (E-mail: h.nabielek@fz-julich.de)
- >Current Jülich Research Center POC for pebbles: Dr. Heiko Barnert
- > (E-mail: h.barnert@fz-juelich.de)
- >US Licensee to receive and store imported fuel pebbles: ORNL or INEEL:
- >Current intended use: Irradiate pebbles up to 100 Mwd/t in a materials test reactor at ORNL or INEEL; conduct post-irradiation heatup testing and other accident stimulations and; perform selected PIE.
- >Estimated start of irradiation: FY 2003 or 2004
- >
- >Again, RES requests that NMSS take the lead in investigating the issues and requirements that would be involved for importing the subject fuel elements from Germany to the U.S.A.
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- >Contact me if you have any questions or require any additional information.
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- >Thanks.
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- >Stu Rubin
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- >
- >

Stu,

is there anything
that you would need
from the German side?

Heinz

Dr. Heinz Nabielek
Fuel Cell Project
Forschungszentrum Juelich GmbH
D-52425 Juelich, Germany

Tel: +49-2461-61-3271
Fax: +49-2461-61-8162
e-mail: h.nabielek@fz-julich.de

CC: Caponiti, Alice; Farouk Eltawila; John Flack; Joseph Gitter; Julia McAnallen; Nancy Osgood