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To: "Eric Jameson, DNR" <ejameson@mail.dnr.state.ga.us>
Date: Monday, 13 September, 1999 10:48:33
Subject: SODITRON tube

Dear Mr. Jameson,

as I was not in the office last week I could not answer your e-mail dating Sep. 9th immediately. Sorry for the delay. Concerning your question I want to give you the following answer:

To my knowledge there were no more additional tests performed on the SODITRON tube other than what is written in the CEA report. So all I can give you is this CEA report we have submitted to you. In fact this report from the CEA was asked for by SODERN because the situation with tritium only sources needed some clarification.

A good example might be section 3.4.11 Leak testing (pg.xxiv) from the RMP Guide for Preparation of Application for Licenses for the Distribution of Devices to be used under the General Licence in 391-3-17-02.

Periodic Leak testing during use is not required for devices containing only hydrogen-3.....

Also in other sections of European and American legislation covering transport and use of hydrogen-3 only devices, devices as the SODITRON tube, having rather low tritium only concentrations, are exempt from many aspects concerning sealed sources. Partly this is explained by the fact that "in principal" tritium (in gaseous form) might migrate through any bulk material. So for many tests, such as the leakage test, the legislation is based on the assumption that it makes not much sense to treat a source containing tritium only, as any other sealed source containing "normal" isotopes. As laid out in our technical information, the tritium in the SODITRON tube is present in the form of a solid hydrate, so it is "normal" in this respect.

So should the tube be regarded as a sealed source or not?

With the situation being not very clear, and for application reasons just as in our present case, SODERN therefore asked the CEA to evaluate the SODITRON tube with respect to this "sealed source" aspect.

The CEA stated that the SODITRON can indeed be regarded "as a sealed source" (eg. no contamination etc.) although some aspects of sealed sources need not be applied.

The test where the complete MEN16 unit was put into a furnace at 400°C and thrown into water afterwards was performed later to show that, even under extreme conditions, the unit is safe. But this test was selected by SODERN as it represents one of the most extreme situations to be found for this kind of equipment.

I hope this information is of help to you. I am very interested to know how far we have proceeded

with the application. Is there any other information or help I can give to you to support our demand?

I am looking forward to hear (read) from you soon).

Yours sincerely,

Hendrik Möller

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