

To: Dr. Thompson
United States Nuclear Regulatory Commission
Region 1
475 Allendale Road
King of Prussia, PA 19406-1415

MS-16

From: Lars Q. English
Professor of Physics
Radiation Safety Officer

P-7

I would like to submit the following additional information in support of our application for license No. 37-09726-02. This is in response to additional questions on the calibration of instruments.

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The following two liquid scintillation counters are calibrated as described below:

Manufacturer	Model	Location
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Beckman	LS5000TD	Dana, Room 11
Packard Tri-Carb	4430	Althouse, Room 212 (former 220)

The liquid scintillation detectors are calibrated by their users every 6 months using an internal calibration source. The sources used to calibrate these instruments are traceable to NIST. The calibration of these instruments will meet the specifications published in Appendix M of NUREG-1556, Vol.7.

The following three survey instruments are calibrated according to the procedure outlined below:

Manufacturer	Model	Location
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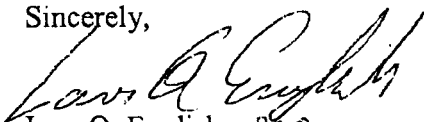
Eberline	E-120	Tome, Room 215
Victoreen	290	Dana, Room 207A
Wm.B. Johnson	GSM110	Althouse, Room 212 (former 220)

These instruments are calibrated every six months. A calibrated 5 mCi Cs-137 is used.

The source is an Isotope Products Model HEG-137 and its calibration is traceable to NIST. The activity is corrected for decay.

The procedure is as follows: the instrument probes are placed at four distances from the Cs-source: 10cm, 20cm, 30cm, and 100 cm. The measured dose rates at these four distances are compared to the calculated ones based on the activity of the source (corrected for decay) and an r-squared decrease of strength. At 100 cm, the calculated dose rate at present is 2.4 mR, whereas at 10 cm it is 240 mR. Therefore, with the 5mCi source we are only able to calibrate the survey instruments up to a range of about 200 mR. This restriction will be communicated to all users of these survey instruments. The calibration procedure will be in accordance with NUREG-1556, Vol.7, Appendix M, with the exception of a smaller measured dose rate at 100 cm from the calibration source.

Sincerely,


Lars Q. English, RSO

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