CATERPILLAR TRACTOR CO.

30-01019

18221

TECHNICAL CENTER

Peoria, Illinois 61629 September 20, 1984

United States Nuclear Regulatory Commission & RECEIVED Material Licensing Branch Division of Fuel Cycle and Material Safety & OCT -4 ANO:14 Washington, DC 20555

Dear Sirs:

LIC. FEE MGMT BRANCH

Amendment Request for License No. 12-00013-02 Control No. 16347

Please amend our 12-00013-02 license as follows:

Remove C.S. Sullivan from license as radiographer. Add J.C. Hafele as assistant radiation safety officer.

J.C. Hafele's training and experience is found on the attached sheet.

Also amend our license to include the possession and use of a Tech/Ops Model 773 Instrument Calibration Device. This instrument contains a 165 millicurie Cesium 137 source and will be used to perform routine calibration of survey meters. Attached are the instructions for operation of the calibrator provided by Tech/Ops.

Enclosed is a check for \$110 for the amendment fee.

If you have any questions, please call.

Thank you.

attach

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Sincerely, Nobert J. Vogel

Radiation Safety Officer

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R.J. Vogel Research Dept., TC-E Telephone: (309)578-4464 cmo:kg

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PDR

Action Campt.

Joseph C. Hafele Experience in Nuclear Radiations

- Bachelor of Science in Engineering Physics University of Illinois 1959
- Master of Science in Physics University of Illinois 1960

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- Doctor of Philosophy in Nuclear Physics University of Illinois 1964 Thesis Project: Measure K³⁹(p,γ)Ca⁴⁰ proton capture gamma radiation using the U of I 10 MeV cyclotron
- Post doctoral Appointment at Los Alamos Scientific Laboratory, 1964 - 1966.
 Major Project: Measure inelastic proton scattering from Pb²⁰⁸ using the LASL Van de Graaf accelerator.
- Assistant Professor of Physics, Washington University, St Louis 1966, - 1972.
 Directed Thesis Research with the Washington University Cyclotron
- Oak Ridge National Laboratory, Summer Research Appointments, 1959 & 1960.
 Research with the Oak Ridge High Energy Cyclotron.
- Caterpillar Tractor Company, Summer Co-Op Program 1956 - Operated X-ray Diffraction Instrument July 1984 - Radiography training with current Radiation Safety Officer including review of records, operating and emergency procedures, licenses, and NRC Rules and Regulations

Operation

Note: To properly calibrate a survey instrument it is necessary to check the instruments response at two points on each of the instruments range. These points must be separated by at least 50% of the full scale reading. The instruments reading should agree with the actual radiation intensity within 10% to be in proper calibration.

The following procedure is designed for a survey instrument with three scales and a range of 0-1000 mr/hr. For instruments with different ranges, the procedure will be similar but the points will differ.

- Turn on the survey meter and allow it to "warm up" for approximately 10 minutes.
- Determine the activity of the source on the date of calibration from the decay chart provided with the source.
- Determine the distance from the source at which the radiation intensity would be 800 mr/hr (use Figure 3).
- 4. Using the tape measure attached to the Model 773, place the survey meter such that the axis of the detector is located at the proper distance from the source as determined above.

Note:

The survey meter should be located so that the center of the detector is at the correct distance and centered on the center line of the radiation beam. The axis of the detector should be perpendicular to the centerline of the radiation beam. Depending upon the physical size of your survey instrument, it may be necessary to mount it somewhat higher than the bench surface. When the proper geometry for your instrument has been established, use the same physical arrangement consistently in future calibration operations.

At short distances, using survey instruments with large detector volumes, the radiation intensity will not be uniform across the detector. Consideration should be given to this effect when determining the radiation intensities to be checked.

5. Unlock the handle of the Model 773. Re-

move the shipping plate. Remove all the attenuators from the radiation beam.

6. Standing away from the radiation beam, expose the source by manually raising the source rod. Note and record the survey meter reading, return the source to the stored position. The actual intensity is 800 mr/hr. If the reading is within \pm 10% of the actual intensity, continue checking the instrument. If the instrument reading is not within \pm 10% of the actual intensity, the instrument must be adjusted and recalibrated.

CAUTION: Do not enter the area of the radiation beam while the source is exposed.

- Place the 0.25 attenuator in the beam. Repeat step 6; the actual intensity is 200 mr/hr.
- 8. Remove the 0.25 attenuator from the and place a 0.10 attenuator in the beam. Repeat step 6; the actual intensity is 80 mr/hr.
- Place the 0.25 attenuator in the beam. Repeat step 6; the actual intensity is 20 mr/hr.
- 10. Remove the 0.25 attenuator from the beam and place the other 0.10 attenuator in the beam. Repeat step 6; the actual intensity is 8 mr/hr.
- 11. Place the 0.25 attenuator in the beam. Repeat step 6; the actual intensity is 2 mr/hr.

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