



U. S. NUCLEAR CORPORATION

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CR 3-5333

December 18, 1964

United States Atomic Energy Commission
Isotopes Branch
Division of Licensing and Regulation
Washington 25, D. C.

Attention: Mr. Daniel B. Howell

Dear Sir:

In answer to your request during our telephone conversation, we offer the following information on the Cesium-137 source and irradiation device which we are designing and building for the U.S. Public Health Service at Rockville, Maryland.

The source consists of 1000 curies of Cesium-137 as a solid compressed pellet of Cs Cl which is encapsulated in the source capsule described in the attached drawing No. B-0153, which is also the model number for this capsule. The capsule will be heliarc welded for both inner and outer capsules. The outer capsule will be scribed with our company initials, the isotope, and serial number. This source is designed to serve as a high level source for a beam type irradiator and will be subject to normal and transient temperatures and pressures within this device. Being of all welded 321 Type stainless steel with a minimum wall thickness of 0.060 inches, it will withstand any unusual environment to which it might conceivably be subjected within this device. Our Quality Control will assure conformity to the stated specifications. It will be bubble tested and subjected to the seven day wipe test with a limit of 0.005uc of leakage or contamination. Another source of this model has been in service for over eight months with no problems of any sort arising.

The irradiation device which has been given Model No. E-0138 is designed to give a variable beam exposure to preplaced specimens in a shielded area. The device will be posted with a suitable number of 24" x 24" "Caution Radioactive Material" signs so as to be visible from any aspect. There will be an aluminum plate affixed giving isotope, quantity and date. This will be placed on a visible non-moving part of the front of the machine.

The device is designed so that with a 1000c Cs-137 source installed, the radiation levels at the surface do not exceed 2 mr/hr average nor 10 mr/hr at any spot. The radiation profile will be measured after loading and a copy sent you.

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Our Quality Control will assure that all elements of the irradiator will meet the specifications and the finished device, prior to loading will be tested for mechanical and electrical operation a minimum of fifty times. In addition our engineer, at the time of installation, will operate all elements of the unit a minimum of 10 times, including the operation under simulated emergency conditions such as power failure, interlock break, etc.

The attached drawings present additional information on the source capsule and the device. Also enclosed is a copy of the specifications for this device.

Attached is a statement of radiation safety procedures which information will be incorporated in the completed manual.

We hope that this additional information will answer your questions. If you have any further questions please write or call us.

Sincerely,

R. H. Donelson
R. H. Donelson

RMD:fb

*for in
S.S. file*

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