ML:IB:WEH

OCT 7 1964

Minnesota Mining and
Manufacturing Company
2501 Hudson Road
St. Paul 19, Minnesota

Attention: Mr. Robert J. Kunz

Gentlemen:

This responds to your letters dated August 14 and September 21, 1964, containing information pertinent to your Model 4F6S sealed source. We have evaluated the information describing the source and have found the source acceptable for licensing.

Very truly yours,

William O. Miller
Isotopes Branch
Division of Materials
Licensing

bcc: Sealed Source Files

ML:IB	ML:IB
WEHaddican:bjb	WOMiller
10/5/64	10/ /64

SEALED SOURCE

MANUFACTURER:

Minnesota Mining and
Manufacturing Company

DISTRIBUTOR:

Same

USE:	ISOTOPE:	MODEL NO:
Gamma source	Cesium 137 (up to 5 curies)	4F6S

DESCRIPTION:

The source is doubly encapsulated in stainless steel or monel. The inner capsule is closed by a plug and sealed by silver brazing. The outer capsule is closed with a plug and sealed by heliarc welding. The minimum thickness of the capsule walls is .025".

The Cesium 137 is in the form of 3M microspheres within the 30 to 200 micron range. The source is a cylinder which varies in size. The maximum and minimum diameters of the cylinder are 1" and .25" respectively. The maximum and minimum heights of the cylinder are 1.5" and .375" respectively.

Depending upon the end use of the source either the following information would be engraved on the exterior of the outer capsule, or a permanent type label containing the information presented below plus the radiation symbol would be afixed to the exterior of the outer capsule.

Caution Radioactive Material
X mc Cs-137
Serial XXX
Model 4F6S
Date
3M Company

The following tests have been performed on 1 curie prototype models of this source. After each test the source was wipe tested and leak tested. The wipe tests were counted in a detection instrument capable of detecting less than 0.0001 uc of Cs-137. All wipes showed less than 0.0001 uc of removable Cs-137. The leak tests were performed by immersing the source for a minimum of 10 seconds in water at 200°F and observing any bubbles generated. All leak tests were negative.

1. Heat Test - Heating at 1000°C for 30 minutes.
2. Quench Test - 1000°C to cold water.
3. Molten Lead Test - Immersion in molten lead at 500°C for 30 minutes.
4. Impact Test - Dropping a weight generating 2 foot pounds on sides of source at two points 180° apart, and on each end, the test being performed 20 times at each point.

Six month leak test requirement.

October 5, 1964