

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SEALED SOURCE

NO.: ND518S103S

DATE: June 14 1983

PAGE: 1 of 6

SEALED SOURCE TYPE: Dosimeter Irradiator

MODEL: ORNL Drawing No. RD309.8 (Rev. 3)

MANUFACTUTER/DISTRIBUTOR: Oak Ridge National Laboratory (Mfr.)
Oak Ridge, Tennessee 37830

MANUFACTURER/DISTRIBUTOR: Oak Ridge National Labortory (Mfr.)
Oak Ridge, Tennessee 37830

ISOTOPE:

Cesium - 137

MAXIMUM ACTIVITY:

100 curies

LEAK TEST FREQUENCY: 6 months

PRINCIPAL USE: Gamma Irradiator, Category II

CUSTOM SOURCE: ☒ YES ☐ NO

CUSTOM USER: William Langer Jewel Bearing Plant
Building #2
417 Main Street W.
Rolla, North Dakota 58367

8403020219 840209
PDR FOIA
HAMMITT84-74 PDR

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SEALED SOURCE

NO.: ND518S103S

DATE: June 14, 1983

PAGE: 2 of 6

SEALED SOURCE TYPE: Dosimeter Irradiator

DESCRIPTION:

The radioactive material is double encapsulated in 316 L stainless steel.

The plugs are Heli-Arc welded to seal the capsules.

The inner capsule contains 4.6 grams of Cesium Chloride Pellets (100 curies).

The inner container is made of 316 L stainless steel and is 0.020 ± 0.001 inches thick. The inner capsule measures 1.180 ± 0.001 inches in length by 0.400 ± 0.002 inches inside diameter. A plug of $1/8$ inch thickness seals the capsule opening.

The outer capsule is also of 316 L stainless steel tube and is 0.020 ± 0.001 inches thick. The outer capsule measures 1.575 ± 0.001 inches in length by 0.450 ± 0.002 inches inside diameter. A plug of $1/8$ inch thickness stainless steel seals the capsule opening.

LABELING:

No identifying marks other than the source number which is etched on the surface of the capsule.

DIAGRAM: Attached

REGISTRY OF SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SEALED SOURCE

NO.: ND518S103S

DATE: June 14, 1983

PAGE: 3 of 6

SEALED SOURCE TYPE: Dosimeter Irradiator

CONDITIONS OF NORMAL USE:

To be used in an irradiator utilizing an exposure device manufactured according to FEMA Spec. No. FEMA 0006-001 and FEMA drawing No. 0006-003 incorporating a pneumatic control system with the appropriate interlock systems and monitoring devices to protect personnel from accidental exposure.

PROTOTYPE TESTING:

Meets or exceeds the requirements for an ANSI 77E43525 classification of the ANSI N542 standard Sealed Radioactive Sources Classification NBS Handbook 126.

EXTERNAL RADIATION LEVELS:

Radiation levels as high as 355.2 R/hr at 30.43 cm and 33 R/hr at 100 cm are expected with the source exposed. At the plant site, all unrestricted areas are less than 2 mR/hr.

QUALITY ASSURANCE AND CONTROL:

The manufacturer will assay the source for source activity.

REGISTRY OF SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SEALED SOURCE

NO.: ND518S103S

DATE: June 14, 1983

PAGE: 4 of 6

LIMITATIONS AND/OR OTHER CONSIDERATIONS OF USE:

Specific licensing of the source is required. Repair and/or maintenance to be performed only by qualified individuals. Source shall be leak tested at intervals not to exceed 6 months.

SAFETY ANALYSIS SUMMARY:

This source will meet ANSI 77E43525 classification.

REFERENCES:

DATE: June 14, 1983

REVIEWED BY:

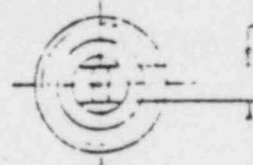
Dale P. Patrick

DATE: June 14, 1983

CONCURRENCE:

Larry L. Miller

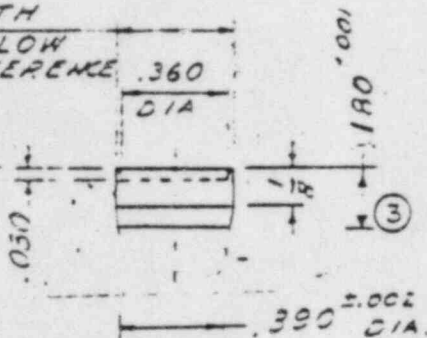
ISSUING AGENCY: State Department of Health
Div. of Environmental Engineering
1200 Missouri Avenue, Room 304
Bismarck, ND 58501



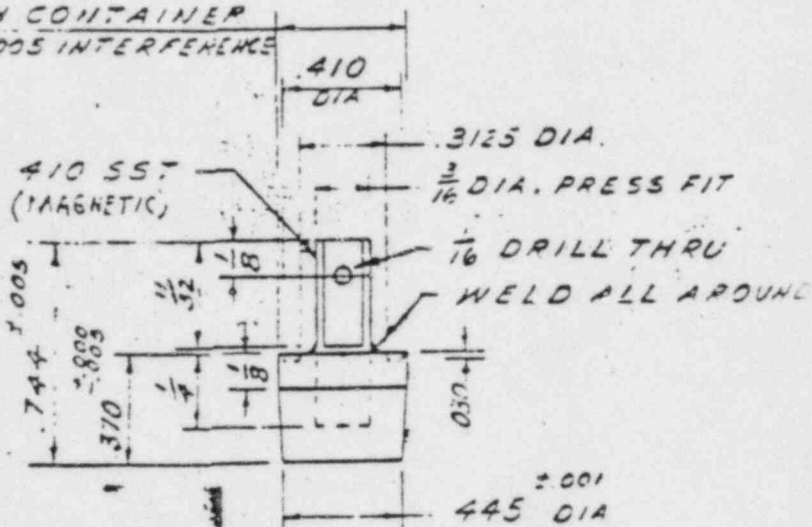
1/8" CENTERED

FORCE FIT WITH CONTAINER
BELOW WITH .0005 INTERFERENCE

FORCE FIT WITH
CONTAINER BELOW
.0005 INTERFERENCE

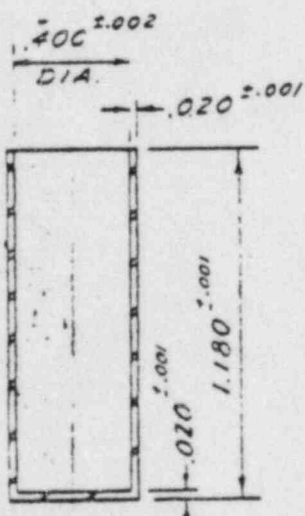


PLUG

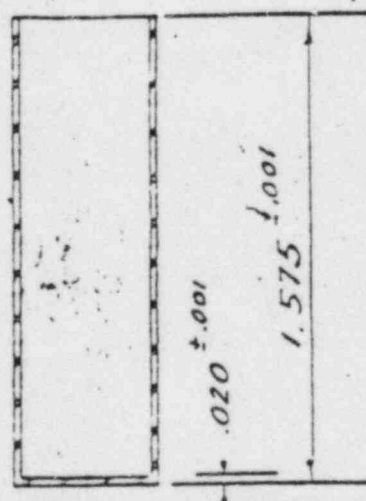


PLUG

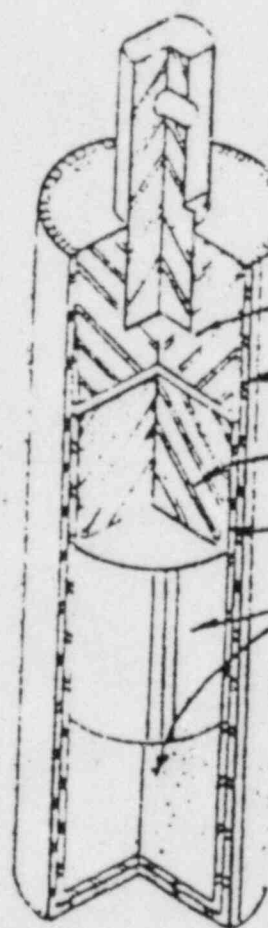
1.450 ±.002
DIA.
--- .020 ±.001



INNER CONTAINER



OUTER CONTAINER



HELI-ARC WELD
OUTER CONTAINER PLUG
INNER CONTAINER PLUG
137CS PELLETS

ASSEMBLY