

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

NO.: LA612D103U

DATE: April, 1983

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DEVICE TYPE: Radiographic Exposure Device

MODEL: SPEC 2-T

MANUFACTURER/DISTRIBUTOR: Source Production & Equipment Co.
625 Oxley Street
Kenner, LA 70062

MANUFACTURER/DISTRIBUTOR:

SEALED SOURCE MODEL DESIGNATION: SPEC G-1 or G 3

ISOTOPE: Iridium-192
Depleted Uranium

MAXIMUM ACTIVITY: 240 curies
Shielding, 16 kilograms (35 lbs.)

LEAK TEST FREQUENCY: N/A

PRINCIPAL USE: Industrial Radiography

CUSTOM DEVICE: No

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DESCRIPTION: Please see figure 1.

The SPEC Model 2-T consists of a depleted uranium shield enclosed in a rectangular box constructed of 1/8 inch stainless steel. The approximate external dimensions are 12-3/8 inches long, 4-1/2 inches wide, and 4 inches high. The assembly is secured by heliarc welding.

A zircoloy "S" tube extends through the device's shielding mass. On the top near one end there is a lock box through which the source pigtail cable and connector protrude. The device's lock box is designed so that the source pigtail cannot be pulled through the back to expose the source when connecting the drive cable to the source pigtail. A plunger-type lock secures the pigtail assembly against movement in the zircoloy "S" tube. At the other end of the "S" tube is a quick disconnect-connect nipple. Both inlet and outlet ends of the device are recessed 1/2 inch and 1 inch, respectively, to protect the couplings. A lock cap (pigtail protector) and safety plug are also provided. The depleted uranium shield (approximately 35 pounds) is bracketed in position with two steel U-bolts which are welded to the rectangular steel box. The device has a swivel handle on top into which the lock cap and safety plug may be inserted to prevent loss.

CONDITIONS OF NORMAL USE:

The source is controlled with a typical mechanical crank-out assembly which can move the source between the shielded position and a remote location for exposure. Crankout and outlet tubes of varying lengths can be supplied by the manufacturer.

The device uses a SPEC Model G-1 or G-3 source or equivalent sources of other manufacturers. The device has a nominal capacity of 200 Curies of Ir-192.

LABELING:

The device bears the manufacturer's name plate which specifies the model, serial number, capacity, and isotope. Also included on the name plate is the fact that the device contains 35 pounds of depleted uranium. The name plate is permanently mounted on the top of the device, beneath the handle. Next to the name plate is a gummed label which states "Caution Radioactive Material" and has the conventional radiation caution symbol. There is another gummed label with a safety check list on the side of the device. The device has a source label next to the name plate which specifies the isotope, activity, source serial number, date calibrated, and manufacturer. The camera also bears instructions to notify the manufacturer or civil authorities if found.

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EXTERNAL RADIATION LEVELS:

The source within the device is less than 4 inches to the surface of the device. The following dose rates were obtained using a G-M detector calibrated with Cs-137:

<u>Source In Shielded Bottom</u>	<u>Dose Rate At Surface With A 185 Ci Source</u>	<u>Dose Rate At 6" From Surface With A 220 Ci Source</u>
A. Top	250 mr/hr	45 mr/hr
B. Bottom	150 mr/hr	28 mr/hr
C. Side	250 mr/hr	48 mr/hr
D. Lock End	70 mr/hr	14 mr/hr
E. Output End	30 mr/hr	14 mr/hr

LIMITATIONS AND/OR OTHER CONSIDERATIONS OF USE:

The manufacturer furnishes operating and maintenance instructions for the device, which may be licensed for 200 Curies nominal of iridium-192. However, special consideration to actual conditions of use should be given by the licensing authority when requested to license more than 100 curies. The licensee should provide a copy of the instructions for inclusion in the company's operating and emergency procedures to ensure safe operation and handling of the device. The device also contains 16 kg (approximately 35 pounds) of depleted uranium.

The device has a U.S. NRC Certificate of Compliance For Radioactive Material Packages, Certificate Number 9056, Revision No. 1, and an IAEA Certificate of Competent Authority, Type B Radioactive Material Package Design, Certificate Number USA/9056/B Revision 2. The device is shipped in a convenience over-pack which bears the marking USA/9056/B, as well as the DOT yellow III labels.

REFERENCES:

SPEC dwgs. dated 5-15-74 and 11-26-74; U.S. NRC Certificate of Compliance number 9056; and LNER Surveys dated 3-3-83 and 3-25-83.

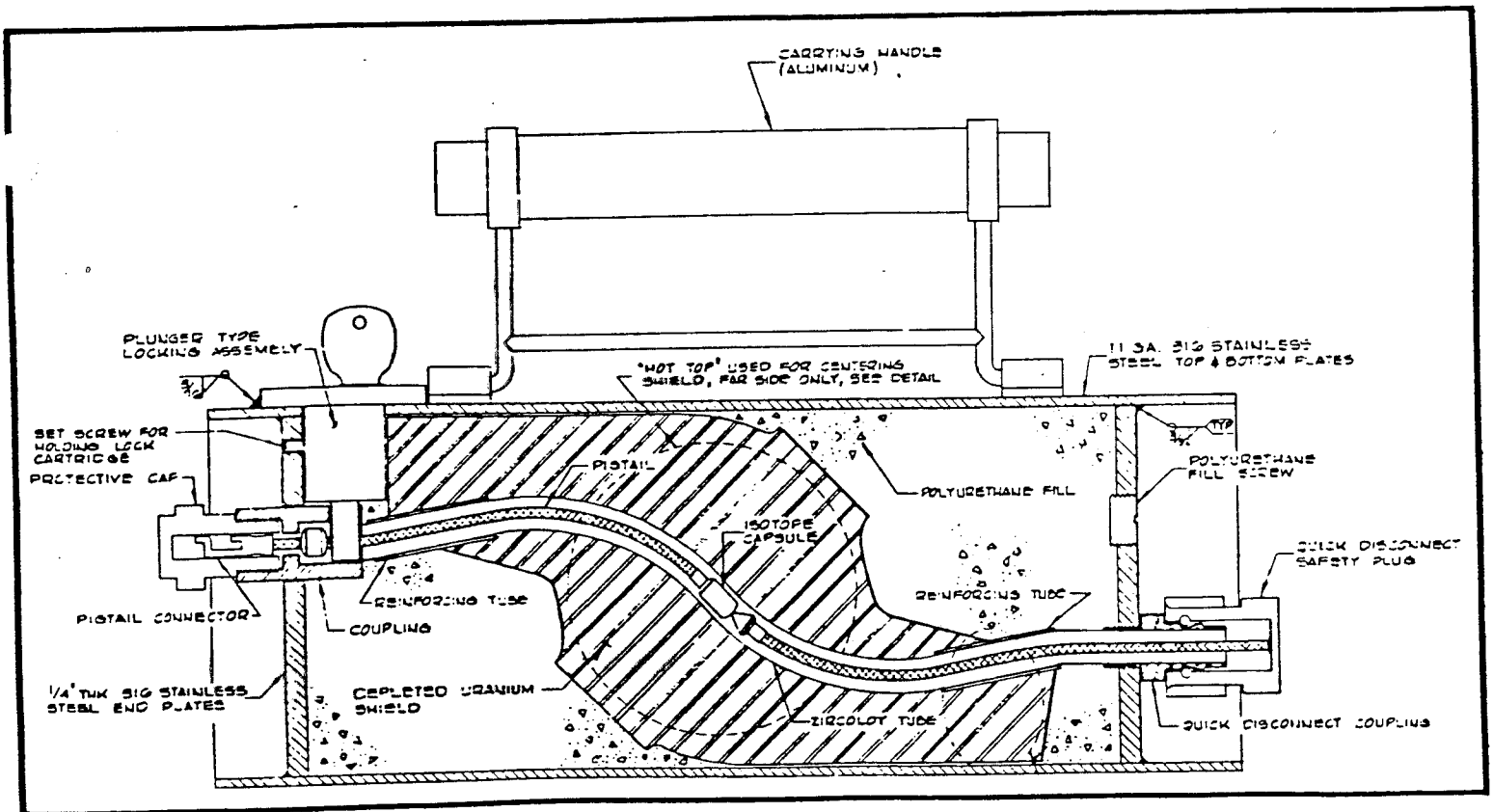
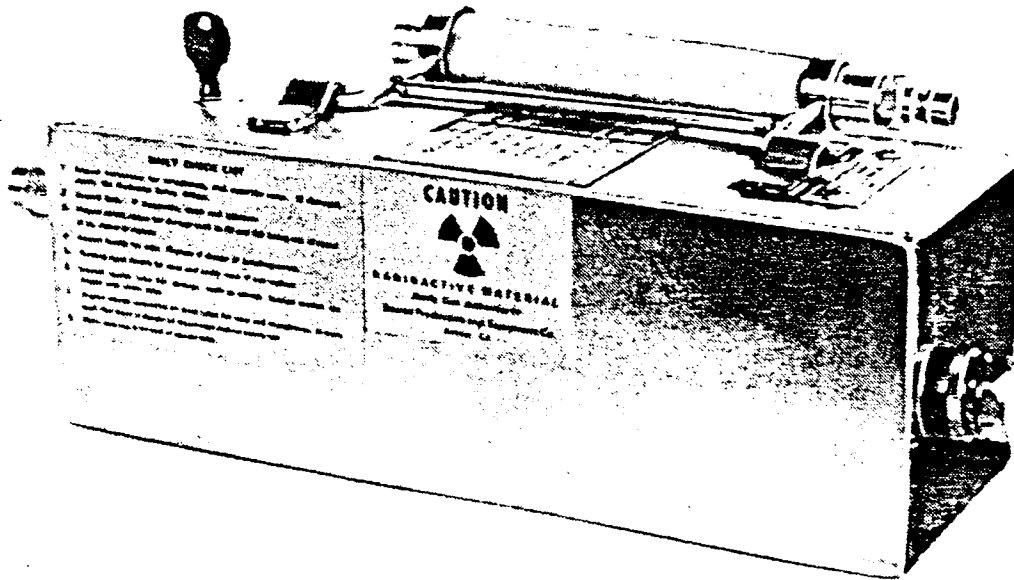
ISSUING AGENCY:

Louisiana Nuclear Energy Division

REVIEWED BY: Ronald Wascom DATE: 4-13-83

CONCURRED IN BY: William Hoffell DATE: 4-14-83

RLW:jow



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Figure 1