

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

NO: TX508S106G

DATE: October 3, 1983

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SEALED SOURCE TYPE: Logging Tool Calibration Standard

MODEL: GS-C or GS-M

MANUFACTURER/DISTRIBUTOR: Nuclear Sources and Services Inc. (Mfg.)
P.O. Box 4023
Houston, Texas 77017

ISOTOPE: Th-232 or Natural Uranium

MAXIMUM ACTIVITY: 5 microcuries

LEAK TEST FREQUENCY: Exempt

PRINCIPAL USE: Other

CUSTOM SOURCE: _____ YES _____ X _____ NO

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PDR FOIA
HAMMITT84-74 PDR

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RE: TX50851063

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DESCRIPTION: The Model GS-M is made by uniformly mixing Monazite ore, containing approximately 9.7% thorium oxide, into a urethane compound and molding the mixture into an 18.2 inch by 11.75 inch by 1/8 inch thick sheet. The source is calibrated by comparing its activity to a secondary standard. If the sheet has a radioactive content above acceptable limits, a number of 1/2 inch diameter holes will be punched to reduce the radiation field to an acceptable value. The source is designed to be flexible enough to allow it to be wrapped around a 3-3/8 inch diameter tool housing at -50°C. The Model GS-C is made by uniformly mixing Carnotite ore, containing naturally occurring uranium into a urethane compound and molding the mixture into an 18.2 inch by 11.75 inch by 1/8 inch thick sheet. Calibration is accomplished in the same manner as above. Flexibility is the same as above. Both sources are reinforced with fiberglass ribs along two edges and an elastic cloth fastener of Velcro to allow use on tools of varying.

LABELING: Labeling indicates the serial number, the model number, "Radioactive", Uranium (Model GS-C) or Thorium (Model GS-M) and the activity. The words Radioactive and Uranium or Thorium do not appear on devices being shipped out of the country.

DIAGRAM: No diagram available -- See description above.

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CONDITIONS OF NORMAL USE: The source is a Vibrathane Resin E-602 (Uniroyal) type urethane sheet with 1.68 to 5.0 microcuries of thorium oxide in the form of Monazite ore or up to 5.0 microcuries of uranium oxides in the form of Carnotite ore mixed into it. The sheet is to be a secondary standard calibration reference for logging tools.

QUALITY ASSURANCE AND CONTROL: After the calibration procedure described above is completed, a wipe test is performed. No more than 0.001 microcuries of removable surface contamination is allowed. A model number and serial number are affixed to the sheet and the sheet is then placed inside a fabric case.

LIMITATIONS AND/OR OTHER CONSIDERATIONS OF USE: The source is to be used primarily in a shop environment and, therefore, little wear-and-tear should occur. Because of the quantity of the radioactive material present in each source, no leak test is required.

SAFETY ANALYSIS SUMMARY: The sources have a tear resistance of 400 pounds/inch and therefore, no structural damage is expected during an explosion type accident. The sources will not support combustion but will be consumed in a high-heat fire, leaving the thorium oxide or uranium oxides in the ash.

REFERENCES: Letter with drawings and enclosures dated July 7, 1981 submitted by Schlumberger Well Services and letter with enclosures dated July 7, 1983 submitted by Nuclear Sources and Services, Inc.

DATE: 10/27/83

REVIEWED BY: [Signature]

DATE: 11/3/83

REVIEWED BY: John T. Bass

ISSUING AGENCY: Texas Department of Health