

Georgia Department of Natural Resources

4244 International Parkway, Suite 114, Atlanta, Georgia 30354

Lonice C. Barrett, Commissioner
Environmental Protection Division
Harold F. Reheis, Director
(404) 362-2675

June 13, 1997

Mr. Walter J. Ramsey
Radiation Safety Officer
Scan Technologies, Inc.
2915 Courtyards Drive, Suite B
Norcross, GA 30071

Dear Mr. Ramsey:

We have received your Application for Radiation Safety Evaluation of Device Containing By-Product Material -- GEOSCAN -- and have completed the initial review of the application. Additional information is required before we can continue the review. The text that follows itemizes any questions we have to date.

- 1) Section 1.7, Radionuclides and Maximum Activity, indicates that there is a maximum of 150 micrograms of Cf-252 per device. Section 3.1, Conditions of Use, notes, on different occasions, that there is a maximum of 150 micrograms, then 100 micrograms, of Cf-252. Please indicate which is the desired maximum amount.
- 2) Section 1.7, Radionuclides and Maximum Activity, indicates that there can be two or more capsules per device. Please indicate a maximum number of Cf-252 source capsules permitted in the device, and also the maximum number of sources permitted in each source holder.
- 3) Sections 3.1, Conditions of Use, and 3.12(i), Safety Analysis -- General, both discuss the "topping off" of the source capsules to maintain the desired activity in the GEOSCAN device. Please address how you will ensure that the maximum quantity of Cf-252, and the maximum number of capsules, in a given device will not be exceeded.
- 4) Drawings 6205-00-0058 and 6205-00-0059 provide construction details for the source holders. Please provide either a written description or an additional drawing indicating how the Cf-252 sources will be loaded and spaced in the source holders.
- 5) Section 3.2, Details of Construction, indicates that the source holder assembly is pinned to an Al source loading rod. Please indicate the material of construction of the connecting pin, and describe how the pin will be secured in place.

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- 6) Section 3.2, Details of Construction, indicates that the tube embedded in the Cast Neutron Shielding in which the rod and source holder assembly travel is made of aluminum. Drawing 8020-00-0062, Source Holder Housing, indicates that the tube is made of stainless steel. Please indicate the correct material of construction for the guide tube.
- 7) Section 3.2, Details of Construction, indicates that a polyethylene sleeve will prevent the source assembly from being withdrawn too far, and that a locking tab will prevent the accidental insertion of the source back into the analyzer. These are not apparent on the provided drawings. Please provide an indication how these safety features will interact with the source assembly, source assembly housing, and/or loading rod.
- 8) Section 3.3 provides a copy of the label to be affixed to the GEOSCAN device. Is the copy provided an actual size label? Also, please provide a description of how the label will be affixed to the device housing, and indicate in how many positions the label will appear.
- 9) Section 3.1, Conditions of Use, indicates that the useful life of the Cf-252 sources is approximately two years. Please provide an expected working life of the GEOSCAN device as a whole. Also, please indicate the actions to be taken when the source and device reach the end of their working life.
- 10) Sections 3.4, Testing of Prototypes, and 3.12(ii) - (v), Safety Analysis, provide assurance that the GEOSCAN will maintain its integrity under the prescribed conditions of use. However, no mention is made about the motion of the source assembly, or the pin connection. Please provide justification that these components will maintain integrity following a given number of cycles, as determined appropriate for the expected number of operations, source exchanges, and general maintenance activities.
- 11) Section 3.6, Radiation Profiles, provides tabular data for the radiation survey performed with 100 micrograms of Cf-252 in the device. The maximum amount of Cf-252 allowed in the device is 150 micrograms. Section 3.12(v), Operational Safety, indicates that the test values were scaled 150% to simulate the presence of 150 micrograms of Cf-252. Please indicate whether the values in the table represent radiation profiles for the GEOSCAN with a loading of 100 micrograms, or 150 micrograms, of Cf-252.

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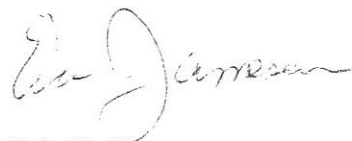
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- 12) Section 3.7, Installation, indicates that a copy of the "Field Service Radiation Safety Procedures" manual is included in the application as Exhibit II. There is no Exhibit II in the application. Please submit a copy of the manual so that we can review the source exchange procedures, shutter testing procedures, etc.
- 13) Section 3.8, Radiological Safety Instructions, indicates that the "GEOSCAN Operators Manual" contains shutter testing procedures. Review indicated that the procedure was not included. Please ensure that a copy of the shutter testing procedure is included as indicated in Section 3.9, Accompanying Documentation.
- 14) Exhibit I, GEOSCAN Operators Manual, lists a different operating temperature range and different radiation levels than those indicated in the device application (refer to Table 8-1 of manual, and Sections 3.1 and 3.6 of the application). Please provide a resolution to these discrepancies.
- 15) Drawings 5420-00-0057, 5420-00-0058, 6205-00-0058, and 6205-00-0059 depict the construction of the source holder assembly. According to the dimensions shown on the drawings, the overall width of the source holder will be 310 mm ($140 + 2 \times 5 + 90 + 70$, with all components arranged linearly). Assuming that the CNS is shaped cylindrically, this is greater than the diameter of the source holder storage housing (refer to drawing 8020-00-0062 and 9535-00-0173). Please inform me of any false assumptions on my part, or if I am using an improper configuration for the source holder assembly.

Upon receipt of answers to these questions, I will be able to complete the review of your device application for the GEOSCAN. If you have any questions, please feel free to contact me via phone at 404-362-2675, or via e-mail at "EricJ@mail.dnr.state.ga.us".

Sincerely,



Eric T. Jameson
Radiological Health Specialist

cc: Gary Caines