April 18, 2011

Mr. Jimmy Spacco
Radiation Safety Officer
Sensor Concepts & Applications, Inc.
5200 Glen Arm Road, Suite A
Glen Arm, MD 20852

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING SENSOR CONCEPTS & APPLICATIONS, INC.'S NEW PART 70 LICENSE APPLICATION (TAC NO. L33019)

Dear Mr. Spacco:

We are currently under our detail review of Sensor Concepts & Applications, Inc.'s (SCA) application for a new materials license transmitted by letters, dated August 18, 2010, and November 10, 2010; and supplemental information submitted on February 10, 2011, and accepted by our letter, dated February 17, 2011. Our review of SCA's application has identified that additional information is needed before final action can be taken on your submittal. The U.S. Nuclear Regulatory Commission's (NRC's) staff identified a Request for Additional Information (RAI) in the areas of radiation protection, fire safety and on the criticality exemption request. Due to the general nature of these RAIs, this may be the first round that the NRC staff will need to complete their technical review.

The additional information, specified in the enclosure, should be provided within 30 days from the date of this letter.

Pending additional information, which answers the RAI, we anticipate completing our review by mid-December. This date could change depending on the findings of our technical review, urgent assignments, or other factors. We will promptly communicate any significant changes to this schedule.

In accordance with title 10 of the *Code of Federal Regulations* 2.390 of the NRC's "Rules of Practice," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publically Available Records System component of the NRC's document system (Agencywide Documents Access and Management System [ADAMS]). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html.

If you have questions regarding this matter, please contact me at 301-492-3172, or via e-mail at marilyn.diaz@nrc.gov. Please reference the above TAC No. in future correspondence related to this request.

Sincerely,

/RA/

Marilyn Diaz, Project Manager
Fuel Manufacturing Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

Docket No. 70-7020

Enclosure:
New License Application Request for
Additional Information

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DATE	4/18/11	4/18/11	4/18/11

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REQUEST FOR ADDITIONAL INFORMATION
SENSOR CONCEPTS & APPLICATIONS INC.
NEW PART 70 LICENSE APPLICATION

Please provide the following information:

General Information

1. There is conflicting information regarding the activity and location of special nuclear materials (SNM) (Section 2) and the amount of SNMs to be in the applicant's possession. A similar conflicting statement is present in Section 8 of the application. Explain or resolve these statements.

2. Explain where and how (procedures and facilities) the materials will be handled and used at temporary work sites. Verify that storage will be limited to the Glen Arm facility when not in use. This is needed consistent with Title 10 of the *Code of Federal Regulations* (10 CFR) 70.22 (a)(7) and (8).

3. The application contains, as an attachment, the Radiation Protection (RP) Program and the Radiological Emergencies procedure for the facility. Be aware that the U.S. Nuclear Regulatory Commission (NRC) will likely issue a license condition that incorporates the application into the license, and which may result in any revision to these documents requiring an amendment. In cases similar to this, an applicant has stated in the application that they have a RP "Manual" that is maintained online and addresses program areas such as contamination control, dosimetry, as low as is reasonably achievable, etc. They would also provide the manual's electronic address or provide a hard copy as supplemental information, but not as an attachment. The document is important for the NRC to review, as it provides details of RP procedures at the facility. Verify that Sensor Concepts and Applications, Inc. (SCA) intends to include these documents as an attachment to the license application.

Radiation Protection

1. Explain the construction and sealing of the UO_2 and U_3O_8 canisters. Verify that the canisters cannot be opened and are airtight. This is needed consistent with 10 CFR 70.22 (a)(7).

2. Statements in Section 7.I.b of the application appear to conflict with statements in Section 13.1.8 of the RP Program's document in that one states an annual inventory will be performed while the other states an inventory will be performed every 6 months. SCA should resolve the conflict.

3. Statements in Section 7.I.c of the application appear to conflict with statements in Section 11.0 of the RP Program. SCA should resolve the conflict and/or explain if it is SCA's intention to treat all SNM objects as sealed sources, with respect to the materials remaining sealed/unopened and receiving routine leak tests as contamination monitoring.

4. Section 9 of the RP Program appears to limit emergency response to source materials. SCA should clarify that this will be applicable to all licensed radioactive materials.

Enclosure

5. Explain SCA's experience with internal exposure monitoring and how this would occur in the event of material release and ingestion/inhalation. This is needed consistent with 10 CFR 70.22 (a)(8).

6. The listing of instruments on page 11 of the RP Program does not contain any alpha detectors. Explain how a Geiger-Mueller detector will be sensitive enough to monitor for Pu contamination, or if other instrumentation is available beyond what is listed. This is needed consistent with 10 CFR 70.22 (a)(8).

Nuclear Criticality Analysis

1. Verify that no additional SNMs (other than that indicated on this application) will be present at the facility or temporary work site where this material will be used, handled, or stored. This is necessary consistent with 10 CFR 70.22(a)(4).

2. Please provide the Criticality Safety Evaluations for the material being used, stored, and handled; as well as the models used to determine k_{eff}. This is needed consistent with 10 CFR 70.22 (a)(8).

3. Explain how the mass of SNMs in each object, as well as the density, was determined. This is needed consistent with 10 CFR 70.22 (a)(8).

4. Please provide additional information regarding the material properties of the UO_2 and U_3O_8 materials (e.g., is the material cohesive and would the material be considered dispersible in water). This is needed consistent with 10 CFR 70.22(a)(7).

5. Explain how the canisters containing the UO_2 and U_3O_8 materials are constructed and sealed. This is needed consistent with 10 CFR 70.22(a)(7).

Fire Safety

1. Describe how and where the sources are utilized. What physical temperatures are the sources when they are being used? Is there any combustible material present near a source when it is being used? What are the procedures in the event of a fire when the source is being used?

2. Describe each facility's building construction, fire area determination (interior-rated walls), electrical installation, emergency lighting, life safety/egress, ventilation, and lightning protection.

3. Is the radioactive material stored/used at multiple locations on the site? What amount(s) is/are located where? Describe any physical barriers separating the radioactive material from a single fire incident. Do these barriers have a fire rating?

4. Describe each facility's fire protection features (suppression, alarm, detection, fire-rated walls/opening protection). Are smoke/heat detection and/or alarm systems monitored offsite?

5. Describe any inspection, testing, and maintenance of fire protection systems at each facility.

6. Describe, for each facility, any potential combustible loading, possible fire scenarios, potential consequences, and any mitigative controls. What consideration has been given to the impact from external events that could cause a fire (earthquake, tornado, airplane crash, fuel leak, etc.)?

7. Are there any hazardous chemicals or processes which may contribute to the fire hazards in areas the sources are stored or utilized?

8. Is the facility compliant with National Fire Protection Association (NFPA) 45, Standard for Fire Protection in Laboratory Facilities, and/or NFPA 801, Standard for Fire Protection for Facilities Handling Radioactive Materials?

9. Describe the frequency and scope of any training for facility workers in response to a fire (fire extinguisher, safe shutdown, evacuation, etc.)?

10. Where is the responding fire department located? Describe the fire department's qualifications and training for dealing with a fire involving radioactive materials. Describe any pre-fire plan coordination with the fire department (fire drills, preparation for hazardous materials response, etc.).

11. Will the sources ever be transported offsite? If so, what fire protection measures are in place for safe transportation of the sources?