

April 29, 2011

Mr. Mershad A. Shahabidin
Rapiscan Laboratories, Inc.
520 Almanor Avenue
Sunnyvale, CA 94085-3533

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING RAPISCAN
LABORATORIES, INC.'S, NEW PART 70 LICENSE APPLICATION
(TAC NO. L33078)

Dear Mr. Shahabidin:

We are currently conducting a detailed review of Rapiscan Laboratories, Inc.'s, (Rapiscan) application for a new materials license transmitted by letters, dated November 2, 2010 (Agencywide Documents Access and Management System [ADAMS], Accession Number ML110970046), and supplemental information submitted on February 9, 2011, and March 03, 2011. The Nuclear Regulatory Commission's (NRC) accepted Rapiscan's license application by letter, dated March 10, 2011(ML110680479). Our review of Rapiscan's application has identified that additional information is needed before final action can be taken on your submittal. NRC staff identified a Request for Additional Information (RAI) in the areas of radiation protection, fire safety, and 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, RAI response time, or other factors. We will promptly communicate any significant changes to this schedule.

In accordance with Title 10 of the *Code of Federal Regulations*, Section 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 (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

M. Shahabidin

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If you have any questions regarding this matter, please contact me at 301-492-3172 or via E-mail to Marilyn.Diaz@nrc.gov. Please reference the subject 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. 70-7021

Enclosure:
Request for Additional Information

M. Shahabidin

- 2 -

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Marilyn Diaz, Project Manager
Fuel Manufacturing Branch
Division of Fuel Cycle Safety
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Office of Nuclear Material Safety
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Docket No. 70-7021

Enclosure:
Request for Additional Information

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ADAMS Accession No.: ML111120134 *via E-mail

OFFICE	NMSS/FCSS/FMB	NMSS/FCSS/FMB	NMSS/FCSS/FMB
NAME	MDiaz	LAllen*	RJohnson
DATE	4/25 /11	4/28/11	4/ 29 /11

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**REQUEST FOR ADDITIONAL INFORMATION
RAPISCAN LABORATORIES, INC.
NEW PART 70 LICENSE APPLICATION**

Please provide the following information:

General

1. Conflicting statements are present in the materials for which the license is being applied (Attachment A of the application) and the request for exemption. Please explain or resolve these statements. Also verify that there is no additional special nuclear material (SNM) present where the material will be used, stored, or handled other than what is designated on the application.
2. Explain where and how the materials will be handled and used consistent with Title 10 of the *Code of Federal Regulations* (10 CFR), Section 70.22(a)(2). Also, verify that the material will only be used at two sites (Pittsburg and Sunnyvale).
3. It is noted that Rapiscan has SNM in their state license located at the Sunnyvale, CA site. If the Sunnyvale site will be included in the U. S Nuclear Regulatory Commission's (NRC's) license, then the SNM in the CA license will need to be amended to be transferred to the NRC license. Will this material be stored at the same locations as the test objects you are requesting an NRC license for? If so, is this reflected in the criticality analysis?
4. The application contains, as an attachment, the Radiation Protection (RP) Program for the Pittsburg facility. Be aware that the 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 an RP "Manual" or one similar that is maintained online; and addresses program areas such as contamination control, dosimetry, as low as 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 to the application. The document is important for NRC's evaluation, as it provides details of RP procedures at the facility. Verify that Rapiscan intends to include these documents as an attachment to the license application.

Radiation Protection

1. Explain the construction and sealing of the U₃O₈ tube. Verify that the canister cannot be opened and is airtight. This information is needed consistent with 10 CFR 70.22 (a)(7).
2. In Section 10 of the application, Rapiscan states it will calibrate instruments consistent with the American National Standards Institute's (ANSI) standards. Which ANSI standards are being discussed? Also, the survey instrumentation descriptions do not appear sufficient to perform contamination monitoring for SNM (alpha emitting materials). Explain how contamination monitoring for this material will be performed and how the instruments will be calibrated, used, and maintained. This information is needed consistent with 10 CFR 70.22 (a)(8).
3. What RP program would be in effect at a temporary site? This information is needed consistent with 10 CFR 70.22 (a)(8).

4. Explain if it is Rapiscan'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. This information is needed consistent with 10 CFR 70.22 (a)(8).
5. Describe Rapiscan's response to an accidental release of this material. This information is needed consistent with 10 CFR 70.22 (i)(1)(ii).
6. Explain Rapiscan's experience with internal exposure monitoring and how monitoring would occur in the event of a material release and ingestion/inhalation. This information is needed consistent with 10 CFR 70.22 (i)(1)(ii).
7. Explain how the use of this material will not compromise the containment. This information is needed consistent with 10 CFR 70.22 (a)(7).
8. How does Rapiscan compile all monitoring data from all sites so that an individual would have a single dose record for work under this license? This information is needed consistent with 10 CFR 70.22(a)(8).

Nuclear Criticality Safety

1. Because there is a significant change in the mass of the various materials being possessed from the Sensor Concepts and Applications, Inc.'s, (SCA) application, the SCA evaluation cannot be considered applicable and is insufficient to evaluate the Rapiscan facilities's application. Please provide the Criticality Safety Evaluation for how the material would be used, stored, and handled—as well as the models used to determine k_{eff} . This information is needed to be consistent with 10 CFR 70.22(a)(8).
2. Explain how the mass of SNM in each object, as well as the density, was determined. This information is needed consistent with 10 CFR 70.22(a)(4).
3. Please describe the material type and form of the U_3O_8 materials, including whether it is dispersible in water. This information is needed consistent with 10 CFR 70.22(a)(4).
4. Describe how the tube containing the U_3O_8 materials is constructed and sealed. This information is needed consistent with 10 CFR 70.22(a)(7).

Fire Safety

The license application, Section 4.0 of the Fire Safety Chapter, states that a fire hazards analysis is not required because an event exceeding the performance criteria from 10 CFR 70.61 is highly unlikely. If an event exceeding the performance criteria is highly unlikely, you would not be required to perform an Integrated Safety Analysis (this is not specific to fire protection). However, the National Fire Protection Association (NFPA) 801, Standard for Fire Protection for Facilities Handling Radioactive Materials, requires a fire hazards analysis be performed for all facilities handling radioactive materials. Please correct the license application accordingly. Rudimentary fire hazards analysis can be performed by providing acceptable discussion of the following comments:

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 amounts 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, the 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 where the sources are stored or utilized?
8. Is the facility compliant with 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 responding fire department's qualifications and training for dealing with a fire involving radioactive materials. Describe any pre-fire plan coordination with the responding fire department(s) (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?
12. Describe the thermal impact the accelerator has on the sources?