



Department of the Interior
US Geological Survey
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June 9, 2015

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington DC 20555

Subj: Response to RAI dated June 19, 2014, regarding R-113 license amendment request (TAC No. ME9424)

Gentlemen:

Per our telephone discussion of June 8, 2015, I am submitting an additional revision to our proposed license amendment. The attached pages are submitted with the details of this revision. Most of the changes are done to clarify the document and to make the terminology more consistent with other licensing documents. The change of item C.1.e from 10 mCi to 50 mCi is to allow for the cumulative re-use of more parts and higher activity parts from other research reactor facilities.

Please contact me if you need additional information.

The proposed wording of the revised license is provided on the next page.

Sincerely,

A handwritten signature in black ink, appearing to read "Tim DeBey", written in a cursive style.

Tim DeBey
USGS Reactor Supervisor

I declare under penalty of perjury that the foregoing is true and correct.
Executed on 6/9/2015

Copy to:
Vito Nuccio, Reactor Administrator, MS 911
USGS Reactor Operations Committee

A020
will

PROPOSED text of Revised License, with changes marked

2. . . .

B. Pursuant to the Act and 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material," in connection with operation of the facility to receive, possess and use (but not separate):

- (1) up to 9 kilograms of contained uranium-235 enriched to less than 20 percent in the isotope uranium-235 in the form of TRIGA reactor fuel;
- (2) up to 15 grams of contained uranium-235 of any enrichment in the form of neutron detectors;
- (3) up to 2 grams of special nuclear material of any enrichment in reactor-based experiments, in sources for calibration of radiation detectors, and reference sources for reactor based programs; ~~and~~;
- (4) such special nuclear material as may be produced by the operation of the facility; ~~and~~
and
- (5) such special nuclear material as may be received in TRIGA fuel elements that are transferred to license R-113 after use in other reactor facilities.

C. Pursuant to the Act and Title 10, Chapter 1, CFR, Part 30, "Rules of General Applicability to Licensing of Byproduct Material", in support-connection with~~of the~~ operation of the facility:

1. to receive, possess and use:

- a. up to 3 curies of sealed americium-beryllium in a single neutron source for reactor startup use;
- b. up to 10-curies of sealed polonium-beryllium in a single neutron source for reactor startup use;
- c. up to 10 mCi of byproduct material (atomic number 1 to 88) that will be irradiated in the reactor after receipt; ~~(Note: following irradiation, if >99% of the radioactivity in the material has been produced in the GSTR, the byproduct material will then be considered to be entirely GSTR-produced.)~~
- d. up to 5 Ci of byproduct material used in reactor-based experiments, in sources for calibration of radiation detectors, and reference sources for use in reactor-based analytic techniques; and
- e. up to ~~10-50~~ mCi of byproduct material contained in ~~TRIGA~~ (non-fuel) research reactor parts and components received for use under R-113 from other ~~TRIGA-research reactor~~ facilities ~~(Note: following use, if activation of these non-fuel parts and components results in >99% of the radioactivity in any item being produced in the GSTR, the byproduct material in the item will then be considered to be entirely GSTR-produced.);~~

2. to receive, possess, and use, but not to separate, any amount of byproduct material contained in TRIGA fuel elements that are transferred to license R-113 after use in other reactor facilities;

3. to possess and use, but not to separate, any byproduct material as may be produced by operation of the reactor.

D. Pursuant to the Act and Title 10, Chapter 1, CFR (Code of Federal Regulations), Part 40 (10 CFR 40), "Domestic Licensing of Source Material", in support-of-the-connection with operation of the facility:

1. to receive, possess and use up to 1 mCi of source material for reactor-based experiments, sources for calibration of radiation detectors, and reference sources for use in reactor-based analytic techniques.

PROPOSED text of Revised License, in final form

2. . . .

B. Pursuant to the Act and 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material," in connection with operation of the facility to receive, possess and use (but not separate):

- (1) up to 9 kilograms of contained uranium-235 enriched to less than 20 percent in the isotope uranium-235 in the form of TRIGA reactor fuel;
- (2) up to 15 grams of contained uranium-235 of any enrichment in the form of neutron detectors;
- (3) up to 2 grams of special nuclear material of any enrichment in reactor-based experiments, in sources for calibration of radiation detectors, and reference sources for reactor based programs;
- (4) such special nuclear material as may be produced by the operation of the facility; and
- (5) such special nuclear material as may be received in TRIGA fuel elements that are transferred to license R-113 after use in other reactor facilities.

C. Pursuant to the Act and Title 10, Chapter 1, CFR, Part 30, "Rules of General Applicability to Licensing of Byproduct Material", in connection with operation of the facility:

1. to receive, possess and use:

- a. up to 3 curies of sealed americium-beryllium in a single neutron source for reactor startup use;
- b. up to 10-curies of sealed polonium-beryllium in a single neutron source for reactor startup use;
- c. up to 10 mCi of byproduct material (atomic number 1 to 88) that will be irradiated in the reactor after receipt;
- d. up to 5 Ci of byproduct material used in reactor-based experiments, in sources for calibration of radiation detectors, and reference sources for use in reactor-based analytic techniques; and
- e. up to 50 mCi of byproduct material contained in research (non-fuel) reactor parts and components received for use under R-113 from other research reactor facilities;

2. to receive, possess, and use, but not to separate, any amount of byproduct material contained in TRIGA fuel elements that are transferred to license R-113 after use in other reactor facilities;

3. to possess and use, but not to separate, any byproduct material as may be produced by operation of the reactor.

D. Pursuant to the Act and Title 10, Chapter 1, CFR (Code of Federal Regulations), Part 40 (10 CFR 40), "Domestic Licensing of Source Material", in connection with operation of the facility:

1. to receive, possess and use up to 1 mCi of source material for reactor-based experiments, sources for calibration of radiation detectors, and reference sources for use in reactor-based analytic techniques.