



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 E. LAMAR BLVD
ARLINGTON TX 76011-4511

August 8, 2016

Ms. Tracey A. Martinson, Ph.D.
University of Alaska Fairbanks
Environmental, Health, Safety
and Risk Management
1855 Marika Road
P.O. Box 758145
Fairbanks, AK 99775-8145

SUBJECT: ACCEPTANCE REVIEW OF SITE CHARACTERIZATION SURVEY REPORT
FOR LARGE ANIMAL RESEARCH STATION, UNIVERSITY OF ALASKA
FAIRBANKS

Dear Ms. Martinson:

By letter dated April 12, 2016 (Agencywide Documents Access and Management System [ADAMS] Accession No. ML16117A358), the University of Alaska Fairbanks submitted a site characterization survey report to the U.S. Nuclear Regulatory Commission (NRC) for review and approval. The NRC staff conducted an acceptance review of the report using the guidance provided in Section 5.3 of NUREG-1757, Volume 1, Revision 2, Consolidated Decommissioning Guidance; Decommissioning Process for Materials Licensees.

In summary, the NRC staff have concluded that additional information is needed before the site characterization survey report can be accepted for a detailed technical review. The results of our acceptance review were discussed with you by telephone on July 19, 2016. Our comments and request for additional information are provided in the enclosure to this letter.

You are requested to provide a written response to this letter. Your response will be used to supplement the previously submitted site characterization survey report. Alternatively, you could resubmit the entire report with the supplemental information included in the report. We will continue with our acceptance review of your site characterization survey report after we have receive the requested information.

In accordance with 10 CFR 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter and your response will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's ADAMS. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

T. Martinson

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If you have any questions concerning this letter, please contact Dr. Robert Evans, Senior Health Physicist, at 817-200-1234, or the undersigned at 817-200-1197.

Sincerely,

/RA/

Jack Whitten, Chief
Fuel Cycle and Decommissioning Branch
Division of Nuclear Materials Safety

Docket: 030-01179
License: 50-02430-07

Enclosure:
Request for Additional Information

cc:
Clyde E. Pearce, Radiological
Health Specialist
Department of Health and Social Services
5455 Dr. Martin Luther King Jr. Avenue
Anchorage, AK 99507

Request for Additional Information
Site Characterization Survey Report for the Large Animal Research Station (LARS)
University of Alaska Fairbanks

1. Site Release Criteria

The NRC reviewer attempted to confirm if the proposed release criteria complied with the requirements of 10 CFR 20.1402. The licensee established derived concentration guideline levels (DCGLs) using the effluent concentrations limits for hydrogen-3 and carbon-14 as listed in 10 CFR Part 20, Appendix B, Table 2. The NRC normally does not accept soil concentration values based on effluent concentration limits. Instead, the licensee should consider using the generic screening values as provided in NUREG-1757, Volume 1, Revision 2, Appendix B, Screening Values.

In particular, the licensee's proposed DCGL (30 pCi/g) for carbon-14 is greater (less conservative) than the screening value provided in NUREG-1757 (12 pCi/g). Thus, the licensee's proposed DCGL for carbon-14 concentrations in soil cannot be approved without additional justification.

The licensee's proposed DCGL for hydrogen-3 concentrations in soil (100 pCi/g), although based on the effluent concentration limit, is acceptable because it's more conservative than the screening value for hydrogen-3 (110 pCi/g) as listed in Appendix B to NUREG-1757, Volume 1.

The NRC staff may accept the licensee's proposed DCGLs for surface water since the liquid effluent concentration limits provided in 10 CFR Part 20, Appendix B, Table 2, are dose-based (50 millirem/year). The NRC staff understands that the results for the surface water samples that were collected at the LARS facility were comparable to background results.

In summary, the licensee is requested to provide an alternate DCGL for carbon-14 concentrations in soil, or provide additional justification for the proposed DCGL (30 pCi/g). At the licensee's discretion, the licensee could calculate a site-specific DCGL for carbon-14 concentrations in soil using an NRC-accepted computer code such as RESRAD. As part of this calculation, the licensee could use site-specific parameters in the model, resulting in a DCGL that may be less restrictive than the screening criteria provided in NUREG-1757.

If the licensee changes the proposed DCGL, the licensee's calculations for number of samples, as presented in various tables, may have to be revised based on this revised DCGL.

In lieu of DCGLs, the licensee could consider use of dose modeling, as described in Section 2.5 of NUREG-1757, Volume 2, Revision 1, Consolidated Decommissioning Guidance; Characterization, Survey, and Determination of Radiological Criteria. The licensee could choose to use an NRC-accepted computer code, such as RESRAD, and include the previously collected soil sample results as dose model inputs. If the results

of the model are less than 25 millirem per year, then the property is assumed to meet the radiological criteria for unrestricted use as specified in 10 CFR 20.1402.

2. Extent of Contamination

The licensee provides a number of outdoor locations where radioactive materials were used, but the licensee does not clearly state if any structures or surfaces are contaminated or could have been contaminated. For example, the NRC staff understands that one or more barns are included in the LARS facility. The site characterization survey results imply that only outdoor ground surfaces may be contaminated, not building surfaces.

The licensee is requested to confirm if the contamination is limited to outdoor areas; otherwise, the licensee is requested to provide additional survey results for building surfaces (walls, floors, etc.). The number of surface samples should be commensurate with the classification of the area (Class 1 or 2).

3. Land Burial

On Page 2, the licensee references a land burial. Little information is provided in the site characterization survey about this burial, and more information is needed by the NRC reviewer to release this section of the property.

Table 1 provides the summary of radioactive material used at LARS including burials, but the licensee listed carbon-14 as "N/A" when adjusted for decay. Based on the half-life of carbon-14, a numerical value was expected in this column of the table.

In summary, the licensee is requested to provide more information about the burial including location, depth of burial, water table, quantities of material disposed, and access controls (if any).

As noted above, the licensee could consider the use of dose modeling for release of the burial pit for unrestricted use. If the licensee chooses this option, the licensee should consider using the guidance provided in NUREG-1957, Volume 2, Revision 1, Appendix J, Assessment Strategy for Buried Material. As a reminder, regulation 10 CFR 20.1402 applies to a site; thus, if the licensee were to conduct two calculations, one for LARS and the second for the burial site, the combined dose cannot exceed 25 millirems in a year.

4. Survey Unit Sizes

On Page 4 of the site characterization survey, the licensee divided the site into various Class 1 and 2 survey units. Class 1 and 2 survey units are defined in NUREG-1575, Revision 1, Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). The licensee is requested to demonstrate that the individual areas meet the suggested area sizes as presented in Table 1, Suggested Survey Unit Areas, page "Roadmap-6" in MARSSIM. This information is requested, in part, to ensure that the licensee has collected a sufficient number of soil samples from each survey unit.

T. Martinson

- 2 -

If you have any questions concerning this letter, please contact Dr. Robert Evans, Senior Health Physicist, at 817-200-1234, or the undersigned at 817-200-1197.

Sincerely,

/RA/

Jack Whitten, Chief
Fuel Cycle and Decommissioning Branch
Division of Nuclear Materials Safety

Docket: 030-01179
License: 50-02430-07

Enclosure: Request for Additional Information

cc:
Clyde E. Pearce, Radiological
Health Specialist
Department of Health and Social Services
5455 Dr. Martin Luther King Jr. Avenue
Anchorage, AK 99507

ADAMS ACCESSION NUMBER: ML16221A701

<input checked="" type="checkbox"/> SUNSI Review By: RJE	ADAMS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Publicly Available <input type="checkbox"/> Non-Publicly Available	<input checked="" type="checkbox"/> Non-Sensitive <input type="checkbox"/> Sensitive	Keyword:
OFFICE	RIV:DNMS:FCDB	NMSBB		C:FCDB
NAME	RJEvans	MMHammond		JEWhitten
SIGNATURE	/RA/	/RA/		/RA/
DATE	8/3/16	7/27/16		8/8/16

OFFICIAL RECORD COPY

Letter to Tracey A. Martinson from Jack E. Whitten dated August 8, 2016

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FOR LARGE ANIMAL RESEARCH STATION, UNIVERSITY OF ALASKA
FAIRBANKS

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