



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

May 25, 2007

Schlumberger Technology Corporation
ATTN: Raymond N. Dickes
Radiation Safety Officer
200 Gillingham Lane
Sugar Land, Texas 77478

Dear Mr. Dickes:

This is in response to your letter dated April 13, 2007, in which you indicated the discovery of what appeared to be a conflict between NUREG-1556, Volume 14, specifically Section 8.10.15, Neutron Accelerators Using Licensed Material, and Title 10 of the Code of Federal Regulations, Part 39, Licenses and Radiation Safety Requirements for Well Logging. In your letter you also proposed additional corrections and clarifications to Section 8.10.15 of NUREG-1556, Volume 14.

After careful review of your letter, NRC Region IV staff has determined that Section 8.10.15 should be changed to reflect the correct activities in gigabecquerels. Since NRC headquarters keeps track of any required or proposed changes to NUREG 1556 documents, Region IV has taken the initiative to communicate the corrections outlined in your letter to headquarters. These proposed changes will be considered for incorporation in the next revision of NUREG-1556, Volume 14. The enclosure summarizes the proposed changes to Section 8.10.15 Region IV submitted to headquarters.

Should you have any further questions regarding this matter, please feel free to contact Jack E. Whitten at (817) 860-8197.

Sincerely,

/RA CLCain for/

Leonard D. Wert, Director
Division of Nuclear Materials Safety

Docket: 030-06388
License: 42-00090-03

Enclosure:
As stated

bcc (Distribution via E-Mail):

LDWert

CLCain

JEWhitten

RJTorres

RIV DNMS Files

SUNSI Review Completed: Yes ADAMS: Yes Initials: RJT
Publicly Available Non-Sensitive

AI-DNMS-07-169

draft/final s:\dnms\ltrs-memos\Action Items\AI07-169-NUREG-1556 -Schlumberger Tech Corp.wpd

RIV:DNMS:NMLB	C:NMLB	D:DNMS
RJTorres*	JEWhitten*	LDWert
<i>/RA/</i>	<i>/RA/</i>	<i>/RA CLCain for/</i>
05/09/2007	05/25/2007	05/25/07

OFFICIAL RECORD COPYT=TelephoneE=E-mailF=Fax

*Previous Concurrence

8.10.15 Neutron Accelerators Using Licensed Material

Regulations: 10 CFR 20.1301, 10 CFR 20.1302, 10 CFR 20.1601, 10 CFR 20.1602, ^{add 10 CFR 39.35} 10 CFR 39.55.

Criteria: Applicants authorized to use a neutron generator (particle accelerator) containing a tritium source, should include operating and emergency procedures for the proper handling and use of the accelerator targets or tubes containing radioactive materials. Because the neutron radiation produced from particle accelerators containing byproduct materials is categorized as machine-produced radiation, it is subject to individual State, not NRC, regulatory authority. Nonfederal applicants using neutron generators should contact the appropriate State for additional information.

Note: Machine-produced radiation dose is additive to the dose from NRC-regulated materials when assessing total occupational dose occurring during a specified time interval.

Discussion: Neutron generators (accelerators) are used in the well logging industry as a source of neutrons. Most accelerators use tritium gas sealed in a glass tube or plated on a target or disc. Neutron generator target sources, in most instances, contain ~~less than 110~~ ¹¹¹⁰ GBq (30 curies) of tritium.

Although not
requirements

neutron generator tubes are not considered well logging ~~sealed~~ ^{they} sources and are ~~not~~ ^{or less} required to satisfy the ~~requirement~~ ^{most of} for well logging ~~sealed~~ ¹¹¹⁰ sources. ~~As a result,~~ ^{However} neutron generator tubes containing less than ~~110~~ ¹¹¹⁰ GBq (30 curies) of tritium are:

- Exempt from ~~abandonment~~ ^{well owner/operator agreement and} requirements
- Exempt from leak test requirements
- Exempt from the performance requirements of sealed sources used in well logging operations
- ~~Not exempt if a tritium neutron generator for target source is greater than 100 GBq (30 curies) or is used in a well without a surface casing to protect fresh water aquifers.~~

Section Guidance: Applicants using a neutron generator (particle accelerator) should include handling procedures that address contamination. Operating and Emergency procedures should instruct individuals in the handling of contamination resulting from the routine use, initial installation, replacement, or accidental damage of the targets or glass tubes. Refer to 10 CFR 39.55 for applicable requirements for using neutron generators.

In addition, neutron generator tubes containing greater than 1110 GBq (30 Curies) of tritium or used in a well without a surface casing to protect fresh water aquifers are only exempt from the performance requirements of sealed sources used in well logging operations and the leak test requirements.

or

In addition, neutron generator tubes containing greater than 1110 GBq (30 Curies) of tritium or used in a well without a surface casing to protect fresh water aquifers are not exempt from the from the well owner/operator agreement and abandonment requirements.

ENCLOSURE