

License: 11-35248-01
Docket: 030-38843
Control: 587048

Cook, Jackie

From: Troy Curnutt <nukemdude@gmail.com>
Sent: Tuesday, September 01, 2015 10:29 AM
To: Cook, Jackie
Subject: [External_Sender] Response to Email on 8-31-15 for Troy Curnutt Consulting
Attachments: NRC Response 8-31-15 Troy Curnutt Consulting.pdf

Dear Ms. Cook, please see the attached response to your email dated 8-31-15. If you have any questions, do not hesitate to contact me.
Thank you and have a great day.

Troy Curnutt
Troy Curnutt Consulting

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 Other: _____

Reviewer: QAC Date: 9/1/15

Nuclear Regulatory Commission
Region IV
1600 East Lamar BLVD
Arlington, Texas 76011
Attn: Ms Jackie Cook
Re: Docket: 030-38843 Control: 587048

Dear Ms. Cook,
This letter is in response to your email dated 8-31-15 and answers questions from that email.

1. Please clarify if you are proposing to use the sources previously requested in your application dated February 23, 2015, are you proposing to just use the sealed sources in which you submitted a sealed source and device registry sheet, or are you using a combination of the two.

RESPONSE

I am proposing to only use the following sealed sources for quality control;
International Isotopes/RadQual BM065 series SS&D NR-1235-S-102-S
International Isotopes/RadQual BM06E series SS&D NR-1235-S-102-S
International Isotopes/RadQual BM08 series

2. Please note that TLDs and OSLs are used to record dose. Although the electronic dosimeter is not a dose of record, it is a good tool for radiation protection. The electronic dosimeter gives an instant dose reading but please note that you will need a TLD or an OSL whole body and/or ring dosimeter to document dose of record.

An alternative to not using TLDs and OSLs whole body and/or ring is to demonstrate through mathematical calculations and assumptions that you do not need dosimetry if your projected exposure in a year is less than 10% of the Part 20 occupational dose limits (less than 500 mrem whole body, less than 1,500 mrem lens of the eye, and 5,000 mrem skin/extremities).

If you want to apply for an exemption to use the electronic dosimeter as dose of record in lieu of a TLD, OSL, or provide an evaluation, you must request an exemption to the regulations and we'll have to send it to our Office of Nuclear Materials Safety and Safeguards as a technical assistance request. If you decide to request an exemption, please submit a description as outlined in the attached (See Item 10, Applications for Exemptions, of NUREG-1556, Vol. 18).

Please specify your option.

RESPONSE

I commit to using a TLD or OSL to record doses. I will use the recorded dose from the TLD or OSL over the course of a year to determine if dosimetry is less than 10% of the Part 20 occupational dose limits. If dosimetry is not needed, I will carefully document my findings and will be available for NRC review. If the dosimetry is more than 10% of the Part 20 occupational dose limits, I will continue to use TLD or OSL dosimetry.

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3. Please expand the safe use of radionuclides and emergency procedures to include and/or better describe the following:
- Steps to take to keep radiation exposures ALARA

RESPONSE

To achieve ALARA or As Low As Reasonable Achievable practices, we will;

- Follow time, distance and shielding principles
 - Time minimize the amount of time spent near radioactivity
 - Distance stay as far away from the radioactivity as possible. Use remote handling devices as necessary
 - Shielding The greater the shielding around a radiation source, the smaller the exposure
- PPE Using the proper personal protective equipment (PPE) such as disposable gloves, safety glasses, lab coats, etc. will help reduce the possibility of ingestion or absorption of radioactive materials.
- Control of Contamination Labeling radioactive and potentially radioactive areas and items will help prevent the spread of contamination.

4. Please note that although you commit to following the model procedures in NUREG-1556, Volume 18, Appendix O for conducting leak tests, please note that the formula for determining the minimal detectable activity (MDA) is incorrect.

Please use the correct formula for determining MDA found in the model procedures in NUREG-1556, Volume 5, Appendix P (<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1556/v5/>).

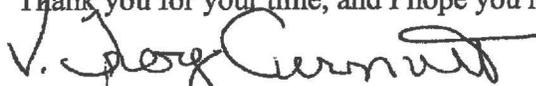
RESPONSE

Currently I use the commercially available BioRx program from EC³. This program determines MDA and applies it to the needed formulas. However, if the need arises that a manual calculation is required, I will follow the formula for determining MDA found in the model procedures in NUREG-1556, Volume 5, Appendix P, and as follows,

$$MDA = \frac{2.71 + 4.65 \sqrt{(B_R \times t)}}{T \times E} = \text{Minimum Detectable Activity}$$

- here MDA = activity level in disintegrations per minute
 B_R = background rate in counts per minute
 t = counting time in minutes
 E = detector efficiency in counts per disintegration

If you have any questions, do not hesitate to contact me.
 Thank you for your time, and I hope you have a great day.



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V. Curnutt -8-

Thank you for your time.

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