



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

NOV 09 2011

Surendra Gupta, Ph.D.
American Radiolabeled Chemicals, Inc.
101 ARC Drive
Saint Louis, MO 63146

Dear Dr. Gupta:

Enclosed is Amendment No. 46 amending your NRC Material License No. 24-21362-01 in accordance with your request.

This amendment authorizes the modification of your facilities to install and use the new tritium and carbon-14 air sampling systems that were described in your letter dated August 8, 2011. However, as discussed with Mr. Regis Greenwood of your staff on September 30 and November 3, 2011, the new carbon-14 air sampling system is 99% efficient at collecting inorganic carbon dioxide, but it is not efficient at collecting carbon-14 compounds.

Carbon-14 compound effluent is primarily generated from the liquid waste evaporation process that occurs in building 200. The unfiltered effluent from this process feeds into building 100's air effluent release path.

The current air sampling system that ARC has in place is more efficient at trapping carbon-14 compounds, and as a result, Mr. Greenwood has agreed to leave that system in place in order to evaluate carbon-14 compound effluent that is released. Mr. Greenwood indicated that he plans to collect air effluent data from the liquid waste evaporation process and attempt to establish a correction factor for dose contribution from the compounds, and has therefore committed to utilize both air sampling systems, independent of each other, until ARC requests and receives NRC approval to remove the older sampling system.

In the event that there are fluctuations in correction factors that may result from the old air sampling system's inefficiencies in collecting carbon-14 compounds, it may not be feasible to establish an accurate correction factor, and thus determine an accurate dose contribution from the compounds to members of the public. Therefore, ARC will need to consider alternative methods for disposing of carbon-14 labeled compound liquid waste and should be prepared to address this issue.

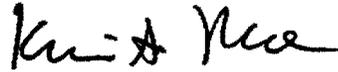
Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region III office at (630) 829-9887 so that we can provide appropriate corrections and answers.

S. Gupta

- 2 -

In accordance with Title 10 of the Code of Federal Regulations (CFR) 2.390 of the NRC's "Rules of Practice," a copy of this letter and the enclosure will be available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Sincerely,

A handwritten signature in black ink, appearing to read "Kevin G. Null".

Kevin G. Null
Materials Licensing Branch

License No. 24-21362-01
Docket No. 030-20567

Enclosure: Amendment No. 46