Laboratories

Analytical Bio-Chemistry Laboratories, Inc.

Celebrating four decades of product development expertise

September 22, 2010

Mr. Kevin Null
United States Regulatory Commission
Division of Nuclear Materials Safety
U.S. NRC Region III
2443 Warrenville Road, Suite 210
Lisle, Illinois 60532-4352

SUBJECT: Revised Amendment Request to include two procedures for carrying out decommissioning activities and clarification of use of screening levels for releasing buildings after decommissioning.

Dear Mr. Null:

I am writing in regard to our current efforts to decontaminate, and eventually decommission aspects of our site in Columbia, Missouri. I am enclosing two procedures that will be used in our efforts to complete the decommissioning of buildings on site, and, secondly, I am clarifying out intent with regard to the use of screening levels to release building surfaces related to our July amendment request.

Decommissioning Procedures

I have had multiple conversations with Mr. McMann and Ms. Streit regarding the need to remove certain contaminated objects within that decommissioning process, and our need to remove portions of contaminated items or portions of contaminated flooring by separating contaminated areas from larger uncontaminated objects or facilities.

I am enclosing two revised procedures: 1) Procedure for Removing Portions of Carbon-14 Contaminated Objects or Releasing an Object to Unrestricted Use (OESH-815); and, 2) Procedure for Identifying and Removing Portions of Concrete-Embedded Contaminated Objects (OESH 816). I would ask that we add these procedures by amendment to our current license, so that we may carry out the removal of limited contaminated areas within larger, clean areas or objects.

Clarifications on Use of Screening Levels for Building Release

Previously, we have requested the ability to release buildings from restricted use using the screening levels in NUREG 1757. You have asked for additional information regarding our use of ALARA, the application of the unity (or sum of fractions) rule and the determination of removable fractions.

Regarding our use of ALARA, we have a goal of reducing contamination by non-aggressive means to 10% or less of the screening values; this seems to be quite feasible based on the data to date. In any case, we will make every reasonable effort to attain this level with non-aggressive means prior to release.

Should we find significant levels of tritium and carbon-14, we will employ the unity rule (taking the sum of each isotope fraction of the screening level) for release. I don't anticipate that tritium will be a significant consideration, but will employ the unity rule if and where appropriate.

Since carbon-14 is both more prevalent and more restrictive than tritium, a gross beta (carbon-14 plus hydrogen-3) value of 3.5 E05 (10 % of the carbon-14 screening value) will be used a limit for removable contamination. This ensures that removable does not exceed 10% of the more restrictive criterion.

Please let me know if you have any questions, or if I may provide any additional clarity.

Regards, Bradley D Keck

Bradly D. Keck, PhD, CHP
Radiation Safety Officer
Analytical Bio-Chemistry Laboratories, Inc.

Policy Effective Date: Upon Approval
Last Revision Date: September 16, 2010

Procedure for Removing Portions of Carbon-14 Contaminated Objects (OESH-815)

Scope

This procedure describes the process for approving the removal of a portion or portions of a radioactively contaminated object for the purpose of separating the contaminated portions from the larger object, leaving a majority of non-contaminated material. Only non-contaminated areas would be directly cut, so no licensed material is generated. Only objects that have contaminations below the screening level (3.7 E06 for ^{14}C) would be deconstructed. Examples here would include benchtops, drawers or cabinets that have only a small percentage of the total area of the object (<50% by area) contaminated.

Responsibilities

The Nuclear Regulatory Commission has responsibility to approve this policy. The Radiation Safety Officer or his designee has responsibility to approve any specific removal. The employee or contractor doing the removal has the responsibility to attain the approval of the RSO prior to cutting any contaminated object and make only approved cuts.

Identification of Contaminated Objects

If during the course of decommissioning a facility, radioactively contaminated objects are detected and the radioactivity is not removable, the RSO may determine that specifically contaminated areas of the object may be separated from the uncontaminated portions utilizing the procedures described below. This process may also be utilized for active radioactive use areas in which the RSO determines that for worker safety and/or technical project reasons that a portion of contaminated work area should be removed.

Characterization for Portion Removal

Any contaminated item from which a portion is to be cut, as determined and approved by the RSO, shall:

- be shown to be contaminated in at least one survey location at greater than 200 DPM/ 100 cm^2 of fixed contamination -after cleaning - using a meter appropriately calibrated for carbon-14; and,

- have a limited area, or areas, where contamination is above 200 DPM/ 100 cm^2 that comprise(s) less than 50% of the total surface area indicated with a chalk (or other useful marking) marking; and,

- have any contaminated areas to be removed indicated with a chalk (or other useful marker) markings outside the contamination marking designating the area(s) to be directly removed.

Approval of the Cut

The RSO or his designee will review and/or confirm the area to be cut is less than 200 DPM/ 100 cm^2, is marked, and is at least 2, and at least 4 inches if there is adequate space, distant from the indicated contaminated area – this line (or circle) is initialed by the RSO or designee for approval.

The Removal Process

The employee or contractor, using an appropriate tool, such as a "Sawzall" or other appropriate tool, will cut along the initialed line. For items that can be efficiently separated less aggressively than sawing (e.g., drawer handles than can be removed with a screwdriver, or cabinet backs that can be removed by unscrewing), less aggressive means will be employed. The contaminated portion(s) will be placed with other contaminated objects for disposal to a licensed facility; the remainder may be placed with non-contaminated objects for disposal to the landfill.

Personal Protective Equipment (PPE) Requirements

Gloves, lab coats, eye protection and construction-appropriate clothing will be worn by all involved parties. If significant aerosoliation is to occur, a dust mask will also be worn.

Bioassays

All personnel involved in decommissioning activity will collect weekly urine specimens for bioassay or on demand by the RSO. No additional bioassay is required, as no contaminated materials are to be cut in this process.

Documentation

Any contaminated portions removed, as well as non-contaminated portions released will be recorded in the disposal log.

End of Procedure

Policy Effective Date: Upon Approval
Last Revision Date: September 9, 2010

Procedure for Removing Portions of Concrete-Embedded Carbon-14 Contaminated Objects (OESH 816).

Scope

This procedure describes the process for approving removing a portion or portions of a radioactively contaminated object or section of concrete for the purpose of separating the contaminated portions from the floor, leaving non-contaminated floor material. This process will apply to small objects or areas, but not to the floor or wall as a whole. Only non-contaminated areas would be directly cut, so no licensed material is to be generated. Examples here would include a small spot of fixed contamination within a concrete floor, or contaminated metal rails embedded in a concrete floor or drain trench. All personnel involved will have had training in radiation safety and experience in the tools and practices involved.

Responsibilities

The Nuclear Regulatory Commission has responsibility to approve this policy. The Radiation Safety Officer or his designee has responsibility to approve any specific removal. The employee or contractor doing the removal has the responsibility to attain the approval of the RSO prior to cutting in any contaminated area and make only approved cuts.

Characterization of any item for portion removal

Any contaminated area or item that is to be removed by cutting shall:

be shown to be contaminated in at least one survey location at greater than 200 DPM/ 100 cm^2 of fixed contamination -after cleaning - using a meter appropriately calibrated for carbon-14; and,

to have a limited embedded object, or area, where contamination is above 200 DPM/ 100 cm^2 indicated with a chalk (or other useful marking) marking; and,

to have any contaminated areas to be removed indicated with a chalk (or other useful marker) marking outside the contamination marking designating the area(s) to be directly removed.

Approval of the Cut

The RSO or his designee will review and/or confirm the area to be removed is greater than 200 DPM/ 100 cm2, is marked, and that the cut line is at least 2, and at least 4 inches if there is adequate space, distant from the indicated contaminated area – this line (or circle) is initialed by the RSO or designee for approval.

The Removal Process

The employee or contractor, using diamond-bladed, wet concrete saw will cut along the initialed line (which may consist of a straight cut, or may be a triangle or square surrounding the contaminated area. A line will be cut with the wet saw along the initialed line in uncontaminated material. When a clean line is cut at adequate depth to cleanly sever the concrete containing the contaminated area (whether metal rail or contaminated concrete), an air chisel or lever will be used to sever the contaminated piece from the uncontaminated slab using the cut line. The contaminated portion(s) will be placed with other contaminated objects for disposal to a licensed facility. The uncontaminated slab will remain with the building. If a fragmentation occurs, the fragmented pieces will be gathered and disposed of as contaminated material. If significant aerosols are produced, then additional bioassay will be undertaken.

Personal Protective Equipment (PPE)
Gloves, lab coats, eye protection, hearing protection and construction-appropriate clothing will be worn by all involved parties.

Bioassays
Decommissioning personnel give weekly urine specimens for bioassay, or on demand. No additional bioassay is required, as no contaminated materials are to be cut in this process. However, if any unanticipated exposure is thought to have occurred, additional bioassays may be required by the RSO.

Resurvey
The area will be re-surveyed after the contaminated area is removed, and if any additional removal is needed, that will be accomplished as above.

Documentation
Any contaminated portions removed, as well as non-contaminated portions released will be recorded in the disposal log.

End of Procedure