May 11, 2012

Mr. Clinton J. Gregg
Radiation Safety Officer
Aptuit, LLC
10245 Hickman Mills Drive
Kansas City, MO 64134

SUBJECT: NRC REVIEW OF LICENSE AMENDMENT REQUEST TO APPROVE DECOMMISSIONING PLAN FOR APTUIT, LLC (MAIL CONTROL NO. 576804)

Dear Mr. Gregg:

By letter dated January 13, 2012, Aptuit, LLC (Aptuit) requested that the U.S. Nuclear Regulatory Commission (NRC) amend Byproduct Material License No. 24-15595-01 to incorporate the Decommissioning Plan (DP) for Aptuit's Scientific Operations business line of the Kansas City, Missouri facility into its license. As part of our DP review process, NRC staff performed an acceptance review of your DP to determine if it is acceptable to begin a detailed technical review. Staff used the expanded acceptance review guidance in NUREG-1757, "Consolidated Decommissioning Guidance – Decommissioning Process for Materials Licensees" Vol. 1, Rev. 2, to perform the acceptance review.

NRC staff has completed its acceptance review and has determined that the DP does not contain sufficient information to allow the staff to begin a detailed technical review. A detailed technical review of your DP cannot begin until additional commitments, and complete information is provided with a revised application. Attached as an enclosure to this letter is a detailed list of deficiencies identified during the acceptance review, which includes the commitments, details, and clarification of information needed for the submission of an acceptable DP. The following paragraph describes some of the general deficiencies in the submitted DP.

The submitted DP did not contain a sufficiently detailed description of the current conditions of the site to evaluate the acceptability of the plan. Based on the limited characterization data provided with the DP, the NRC staff could not make a determination on the scope of decontamination and decommissioning (D&D) activities that are warranted to make the site suitable for unrestricted use. Although a generic decommissioning approach was described in the DP, it did not contain a detailed enough description of all planned decommissioning activities. For example, the extent of building, equipment, and soil remediation necessary was not provided. Furthermore, the DP did not contain sufficient detail of the methods to be used to ensure protection of workers and the environment against radiation hazards during decommissioning. Procedures for performing D&D activities were not included as part of the DP. Lastly, a description of the planned final radiation survey was not included in the DP.

The NRC requests that Aptuit provide written correspondence to the NRC documenting the date when you plan to resubmit a revised DP. The date provided should be a realistic date that you plan to meet because it will be incorporated as a commitment in the Aptuit license. The revised

DP should specifically address the deficiencies documented in the enclosure. If any portions of the information required for acceptance of the DP are not relevant, please provide the basis for that conclusion.

If you have any questions concerning the enclosed information, please contact Lionel Rodriguez of my staff at 630-829-9609.

In accordance with Title 10 Code of Federal Regulations 2.390 of the NRC's "Rules of Practice," a copy of this letter 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,

/RA/

Christine A. Lipa, Chief
Materials Control, ISFSI,
and Decommissioning Branch
Division of Nuclear Materials Safety

Docket No. 030-09415
License No. 24-15595-01

Enclosure:
As stated

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Docket No. 030-09415
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Enclosure:
As stated

*See previous concurrence
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INFORMATION REQUIRED FOR ACCEPTANCE OF DECOMMISSIONING PLAN FOR APTUIT SCIENTIFIC OPERATIONS AT THE KANSAS CITY, MISSOURI FACILITY

The Aptuit Decommissioning Plan (DP) should be revised to incorporate the following information. The information required for acceptance of the DP is described in Appendix D.2, "Decommissioning Plan Checklist" of NUREG 1757, "Consolidated Decommissioning Guidance – Decommissioning Process for Materials Licensees" Vol. 1, Rev. 2. Therefore, the numbering convention used for the items in this list is based on the list provided in Appendix D.2 of NUREG 1757. Some of the items in this list were not addressed in the submitted DP. Other items in the list were addressed; however, additional detail is necessary to satisfy the requirements of Appendix D.2 of NUREG 1757.

I. Executive Summary:

- A brief description of the site and immediate environs
- A more detailed summary of the nature and extent of contamination at the facility
- The Derived Concentration Guideline Levels (DCGLs), the corresponding doses from these DCGLs, and the method that was used to determine the DCGLs
- A summary of the ALARA evaluations that will be performed and/or implemented for decommissioning work performed under the Decommissioning Plan
- Any post-remediation activities that the licensee proposes to undertake prior to requesting license termination (such as soil and/or groundwater monitoring).

II. Facility Operating History.

a. License Number/Status/Authorized Activities:

- Types, quantities, and forms of radioactive material used and/or stored in each room authorized under current license
- Timeframe when the radioactive materials were used and/or stored in the rooms
- Description of uses of each type of radioactive material in each room
- Expected contamination as a result of uses of radioactive material in each room, including its migration to potentially impacted areas (such as ventilation systems and other systems)
- Scale drawings and/or maps of site, facility, and environs showing locations of use and/or storage of radioactive materials.

b. License History:

- Types, quantities, and forms of radioactive material used and/or stored in each room under all previous licenses
- Timeframe when the radioactive materials were used and/or stored in the rooms
- Description of uses of each type of radioactive material in each room
- Expected contamination as a result of uses of radioactive material in each room, including its migration to potentially impacted areas (such as ventilation systems and other systems)
- Scale drawings and/or maps of site, facility, and environs showing locations of use and/or storage of radioactive materials.

c. Previous Decommissioning Activities:

- A more detailed summary of the types, forms, locations, activities, and concentrations of radionuclides that were present in each previously remediated area
- Description on how each previously remediated area was contaminated
- Procedures previously used to remediate areas of the facility
- Description of how radioactive material generated during remediation activities was disposed
- Scale drawings and/or maps of the site, facility, and environs showing the locations of all previous remedial activities and all previous spills.

d. Spills:

- Scale drawings and/or maps of the site, facility, and environs showing the locations of all previous spills.

III. Facility Description.

a. Site Location and Description:

- Names and distances to nearby communities, towns, and cities
- A description of property surrounding the site
- The location of the site relative to prominent features such as rivers and lakes
- The location of the nearest residences and all significant facilities or activities near the site.

b. Population Distribution:

- A summary of the current and projected population in and around the site, by compass vectors.

c. Current/Future Land Use:

- A description of the current and anticipated land uses in and around the site.

d. Meteorology and Climatology:

- A description of the general climate of the region
- Seasonal and annual frequencies of severe weather phenomena
- A description of the local (site) meteorology.

e. Geology and Seismology:

- A description of the geologic characteristics of the site and the region around the site
- A description of the seismicity of the site and region.

f. Surface Water Hydrology:

- A description of the surface water bodies at the site and surrounding areas
- An inventory of all existing and planned surface water users, whose intakes could be adversely affected by migration of radionuclides from the site.

g. Ground Water Hydrology:

- A description of monitoring wells for ground water.

h. Natural Resources:

- A description of potable, agricultural, or industrial ground or surface waters
- A description of economic, marginally economic, or sub economic known or identified natural resources as defined in U.S. Geological Survey Circular 831.

IV. Radiological Status of Facility.

a. Contaminated Structures:

- A more detailed summary of the structures and locations at the facility that the licensee has concluded have not been impacted by licensed operations and the rationale for the conclusion
- A summary of the background levels used during scoping or characterization surveys
- A summary of the radionuclides present at each location, the maximum and average radionuclide activities in dpm/100cm^2
- The mode of contamination for each surface (i.e., whether the radioactive material is present only on the surface of the material or if it has penetrated the material)
- The maximum and average radiation levels in mrem/hr in each room or work area
- A scale drawing or map of all the rooms or work areas showing the locations of radionuclide material contamination.

b. Contaminated Systems and Equipment:

- A more detailed list or description and the location of all systems or equipment at the facility that contain residual radioactive material in excess of site background levels
- A final summary of the radionuclides present in each system or on the equipment at each location, the maximum and average radionuclide activities in dpm/100cm^2
- The maximum and average radiation levels in mrem/hr at the surface of each piece of equipment
- A summary of the background levels used during scoping or characterization surveys

- A scale drawing or map of all the rooms or work areas showing the locations of the contaminated systems or equipment.

c. Surface Soil Contamination:

- If surface soil has not been impacted at the site:
    - A justification and basis for determining that the surface soils at the site have not been impacted by the site's use of radioactive materials.
- If surface soil has been impacted at the site:
    - A more detailed list or description of all locations at the facility where surface soil contains residual radioactive material in excess of site background levels
    - A summary of the background levels used during scoping or characterization surveys
    - A final summary of the radionuclides present at each location, the maximum and average radionuclide activities in pCi/gram, and, if multiple radionuclides are present, the radionuclide ratios
    - Please provide the maximum and average radiation levels in mrem/hr at each location
    - A scale drawing or map of the site showing the locations of radionuclide material contamination in surface soil.

e. Surface Water:

- If surface water has not been impacted at the site:
    - A justification and basis for determining that the surface water at the site has not been impacted by the site's use of radioactive materials.
- If surface water has been impacted at the site:
    - A list or description of all surface water bodies at the facility that contain residual radioactive material in excess of site background levels
    - A summary of the background levels used during scoping or characterization surveys
    - A summary of the radionuclides present in each surface water body and the maximum and average radionuclide activities in Becquerel per liter (Bq/L) (picocuries per liter (pCi/L)).

f. Ground Water:

- If ground water has not been impacted at the site:
    - A justification and basis for determining that the ground water at the site has not been impacted by the site's use of radioactive materials.
- If ground water has been impacted at the site:

- A summary of the aquifer(s) at the facility that contain residual radioactive material in excess of site background levels
- A summary of the background levels used during scoping or characterization surveys
- A summary of the radionuclides present in each aquifer and the maximum and average radionuclide activities in Becquerel per liter (Bq/L) (picocuries per liter (pCi/L)).

V. Dose Modeling.

a. Unrestricted Release Using Screening Criteria:

- Unrestricted Release Using Screening Criteria for Surface Soil Residual Radioactivity
  - If surface soil has not been impacted at the site:
    - A justification and basis for determining that the surface soils at the site have not been impacted by the site's use of radioactive materials
    - A description of the method the site plans to use to demonstrate that surface soil has not been impacted by the site's use of radioactive materials.
  - If surface soil has been impacted at the site:
    - A justification on the appropriateness of using the screening approach (for both the source term and the environment) at the site
    - A summary of the screening method.

VI. Environmental Information:

- The environmental information required to complete an Environmental Assessment for a simple Licensing Action as described in Section 3.3 of NUREG-1748 (Many of the items required here may be addressed under the "Facility Description" Section III. above).

VIII. Planned Decommissioning Activities.

a. Contaminated Structures:

- A summary of the procedures already authorized under the existing license and those for which approval is being requested in the DP
- A commitment to conduct decommissioning activities in accordance with written, approved procedures
- A summary of any unique safety or remediation issues associated with remediating any rooms or areas.

b. Contaminated Systems and Equipment:

- A summary of the procedures already authorized under the existing license and those for which approval is being requested in the DP
- A commitment to conduct decommissioning activities in accordance with written, approved procedures.

c. Soil:

- If soil has been impacted at the site:
  - A summary of the removal/remediation tasks planned for surface and subsurface soil at the site in the order in which they will occur, including which activities will be conducted by licensee staff and which will be performed by a contractor
  - A description of the techniques that will be employed to remove or remediate surface and subsurface soil at the site
  - A description of the radiation protection methods and control procedures that will be employed during soil removal/remediation
  - A summary of the procedures already authorized under the existing license and those for which approval is being requested in the DP
  - A commitment to conduct decommissioning activities in accordance with written, approved procedures
  - A summary of any unique safety or removal/remediation issues associated with remediating the soil.

e. Schedules:

- A statement acknowledging that circumstances can change during decommissioning, and, if the licensee determines that the decommissioning cannot be completed as outlined in the schedule, the licensee will provide an updated schedule to the NRC.

IX. Project Management and Organization:

a. Decommissioning Management Organization:

- A more detailed description of the responsibility and authority of each unit, including lower tier levels of the organization, to ensure that decommissioning activities are conducted in a safe manner and in accordance with approved written procedures.

b. Decommissioning Task Management:

- A description of how individual decommissioning tasks are evaluated and how the Radiation Work Permits (RWPs) are developed for each task
- A description of how the RWPs are reviewed and approved by the decommissioning project management organization

- A description of how RWPs are managed throughout the decommissioning project

- A description of how individuals performing the decommissioning tasks are informed of the procedures in the RWP.

c. Decommissioning Management Positions and Qualifications:

- A more detailed description of the duties and responsibilities of each management position in the decommissioning organization and the reporting responsibility of the position
- A description of the duties and responsibilities of each chemical, radiological, physical, and occupational safety-related position in the decommissioning organization and the reporting responsibility of each position
- A description of the duties and responsibilities of each engineering, quality assurance, and waste management position in the decommissioning organization and the reporting responsibility of each position
- The minimum qualifications for each of the positions described above, and the qualifications of the individuals currently occupying the positions.

d. Radiation Safety Officer:

- A description of the health physics and radiation safety education and experience required for individuals acting as the licensee's RSO.

e. Training:

- A more detailed description of the radiation safety training that the licensee will provide to each employee
- A more detailed description of the documentation that will be maintained to demonstrate that training commitments are being met.

f. Contractor Support:

- A more detailed summary of decommissioning tasks that will be performed by contractors
- A more detailed description of the management interfaces that will be in place between licensee management and onsite supervisors, and contractor management and onsite supervisors
- A description of the oversight responsibilities and authority that the licensee will exercise over contractor personnel
- A description of the training that will be provided to contractor personnel by the licensee and the training that will be provided by the contractor
- A commitment that the contractor(s) will comply with all radiation safety and license requirements at the facility.

X. Health and Safety Program During Decommissioning: Radiation Safety Controls and Monitoring for Workers.

a. Air Sampling:

- If air sampling is not required:
  - A more detailed justification and basis for determining that air sampling during decommissioning activities will not be required.
- If air sampling is required or implemented:
  - A description which demonstrates that the air sampling program is representative of the workers breathing zones
  - A description of the criteria which demonstrates that air samplers with appropriate sensitivities will be used, and that samples will be collected at appropriate frequencies
  - A description of the conditions under which air monitors will be used
  - A description of the criteria used to determine the frequency of calibration of the flow meters on the air samplers
  - A description of the action levels for air sampling results
  - A description of how minimum detectable activities (MDA) for each specific radionuclide that may be collected in air samples are determined.

b. Respiratory Protection Program:

- A more detailed description of the process controls, engineering controls, or procedures to control concentrations of radioactive materials in air, especially when performing aggressive remediation activities with the potential for airborne contamination
- A description of the evaluation which will be performed when it is not practical to apply engineering controls or procedures
- If respiratory protection will not be used:
  - A clear statement that respiratory protection will not be used along with a justification.
- If respiratory protection will be used:
  - A description of the considerations used which demonstrates respiratory protection equipment is appropriate for a specific task based on the guidance on assigned protection factors
  - A description of the medical screening and fit testing required before workers will use any respirator that is assigned a protection factor
  - A description of the written procedures maintained to address all the elements of the respiratory protection program
  - A description of the use, maintenance, and storage of respiratory protection devices
  - A description of the respiratory equipment users training program

- A description of the considerations made when selecting respiratory protection equipment.

c. Internal Exposure Determination:

- If internal exposure monitoring is not required:
  - A more detailed justification and basis for determining that monitoring for internal exposures during decommissioning activities will not be required.
    - This justification should include a description of the process controls, engineering controls, or procedures to control concentrations of radioactive materials in air to minimize the potential for internal exposures.
- If internal exposure monitoring is required or implemented:
  - A description of the monitoring to be performed to determine worker exposure
  - A description of how worker intakes are determined using measurements of quantities of radionuclides excreted from, or retained in the human body
  - A description of how worker intakes are determined by measurements of the concentrations of airborne radioactive materials in the workplace
  - A description of how worker intakes for an adult, a minor, and a declared pregnant woman (DPW) are determined using any combination of the measurements above, as may be necessary
  - A description of how worker intakes are converted into committed effective dose equivalent.

f. Contamination Control Program:

- A description of the written procedures to control access to, and stay time in, contaminated areas by workers, if they are needed
- A description of surveys to supplement personnel monitoring for workers during routine operations, maintenance, clean-up activities, and special operations
- A description of the surveys which will be performed to determine the baseline of background radiation levels and radioactivity from natural sources for areas where decommissioning activities will take place
- A description in matrix or tabular form which describes contamination action limits (that is, actions taken to either decontaminate a person, place, or area, restrict access, or modify the type or frequency of radiological monitoring)
- A description (included in the matrix or table mentioned above) of proposed radiological contamination guidelines for specifying and modifying the frequency for each type of survey used to assess the reduction of total contamination
- A description of the procedures used to test sealed sources, and to insure that sealed sources are leaked tested at appropriate intervals.

g. Instrumentation Program:

- A more detailed description of instrumentation storage, calibration, and maintenance facilities for instruments used in field surveys

- A more detailed description of the method used to estimate the MDC or MDA (at the 95 percent confidence level) for each type of radiation to be detected
- A more detailed description of the instrument calibration and quality assurance procedures
- A description of the methods used to estimate uncertainty bounds for each type of instrumental measurement
- A description of air sampling calibration procedures or a statement that the instruments will be calibrated by an accredited laboratory.

h. Health Physics Audits, Inspections, and Recordkeeping Program:

- A general description of the annual program review conducted by executive management
- A description of the records to be maintained of the annual program review and executive audits
- A more detailed description of the types and frequencies of surveys and audits to be performed by the RSO and RSO staff
- A description of the process used in evaluating and dealing with violations of NRC requirements or license commitments identified during audits
- A description of the records maintained of RSO audits.

XI. Environmental Monitoring and Control Program.

a. Environmental ALARA Evaluation Program:

- If environmental monitoring is not required:
  - A detailed justification and basis for determining that environmental monitoring during decommissioning activities will not be required.
- If environmental monitoring is required:
  - A description of ALARA goals for effluent control
  - A description of the procedures, engineering controls, and process controls to maintain doses ALARA
  - A description of the ALARA reviews and reports to management.

b. Effluent Monitoring Program:

- If effluent monitoring is not required:
  - A detailed justification and basis for determining that effluent monitoring during decommissioning activities will not be required.
- If effluent monitoring is required:
  - A demonstration that background and baseline concentrations of radionuclides in environmental media have been established through appropriate sampling and analysis

- A description of the known or expected concentrations of radionuclides in effluents
- A description of the physical and chemical characteristics of radionuclides in effluents
- A summary or diagram of all effluent discharge locations
- A demonstration that samples will be representative of actual releases
- A summary of the sample collection and analysis procedures
- A summary of the sample collection frequencies
- A description of the environmental monitoring recording and reporting procedures
- A description of the quality assurance program to be established and implemented for the effluent monitoring program.

c. Effluent Control Program:

- If effluent controls are not required:
  - A detailed justification and basis for determining that effluent controls during decommissioning activities will not be required.
- If effluent controls are required:
  - A description of the controls that will be used to minimize releases of radioactive material to the environment
  - A summary of the action levels and a description of the actions to be taken should a limit be exceeded
  - A description of the leak detection systems for ponds, lagoons, and tanks
  - A description of the procedures to ensure that releases to sewer systems are controlled and maintained to meet the requirements of 10 CFR 20.2003
  - A summary of the estimates of doses to the public from effluents and a description of the method used to estimate public dose.

XII. Radioactive Waste Management Program.

a. Solid Radwaste:

- A more detailed summary of the estimated volume, in cubic feet, of each solid radwaste type
- A more detailed summary of the radionuclides (including the estimated activity of each radionuclide) in each estimated solid radwaste type
- A summary of the volumes of Class A, B, C, and Greater-than-Class-C solid radwaste that will be generated by decommissioning operations
- A more detailed description of how and where each of the solid radwastes will be stored onsite prior to shipment for disposal
- A description of how each of the solid radwastes will be treated and packaged to meet disposal site acceptance criteria prior to shipment for disposal
- If appropriate, how the licensee intends to manage volumetrically contaminated material

- A more detailed description of how the licensee will prevent contaminated soil, or other loose solid radwaste, from being re-disbursed after exhumation and collection
- The name and location of the disposal facility that the licensee intends to use for each solid radwaste type.

b. Liquid Radwaste:

- A more detailed summary of the types of liquid radwaste that are expected to be generated during decommissioning operations
- A summary of the estimated volume, in liters, of each liquid radwaste type
- A more detailed summary of the radionuclides (including the estimated activity of each radionuclide) in each liquid radwaste type
- A summary of the estimated volumes of Class A, B, C, and Greater-than-Class-C liquid radwaste that will be generated by decommissioning operations
- A more detailed description of how and where each of the liquid radwastes will be stored onsite prior to shipment for disposal
- A description of how the each of the liquid radwastes will be treated and packaged to meet disposal site acceptance criteria prior to shipment for disposal
- The name and location of the disposal facility that the licensee intends to use for each liquid radwaste type.

c. Mixed Waste:

- A more detailed summary of the estimated volumes in cubic feet of each solid mixed waste type, and in liters for each liquid mixed waste
- A more detailed summary of the radionuclides (including the estimated activity of each radionuclide) in each type of mixed waste type
- A summary of the estimated volumes of Class A, B, C, and Greater-than-Class-C mixed waste that will be generated by decommissioning operations
- A more detailed description of how and where each of the mixed wastes will be stored onsite prior to shipment for disposal
- A more detailed description of how the each of the mixed wastes will be treated and packaged to meet disposal site acceptance criteria prior to shipment for disposal
- The name and location of the disposal facility that the licensee intends to use for each mixed waste type
- A more detailed discussion of the requirements of all other regulatory agencies having jurisdiction over the mixed waste
- A demonstration that the licensee possesses the appropriate EPA or State permits to generate, store, and/or treat the mixed wastes.

XIII. Quality Assurance Program.

a. Organization:

- A more detailed description of the QA program management organization
- A more detailed description of the duties and responsibilities of each unit within the organization and how delegation of responsibilities is managed within the decommissioning program

- A description of how work performance is evaluated
- A more detailed description of the authority of each unit within the QA program
- An organization chart of the QA program organization.

b. Quality Assurance Program:

- A commitment that activities affecting the quality of site decommissioning will be subject to the applicable controls of the QA program and activities covered by the QA program are identified on program defining documents
- A brief summary of the company's corporate QA policies
- A description of provisions to ensure that technical and quality assurance procedures required to implement the QA program are consistent with regulatory, licensing, and QA program requirements and are properly documented and controlled
- A description of the management reviews, including the documentation of concurrence in these quality-affecting procedures
- A description of the quality-affecting procedural controls of the principal contractors
- A description of how NRC will be notified of changes (a) for review and acceptance in the accepted description of the QA program as presented or referenced in the DP before implementation and (b) in organizational elements within 30 days after the announcement of the changes
- A description of how management regularly assesses the scope, status, adequacy, and compliance of the QA program
- A more detailed description of the instruction provided to personnel responsible for performing activities affecting quality
- A description of the training and qualifications of personnel verifying activities
- A description of how, for formal training and qualification programs, documentation includes the objectives and content of the program, attendees, and date of attendance
- A more detailed description of the self-assessment program to confirm that activities affecting quality comply with the QA program
- A commitment that persons performing self-assessment activities are not to have direct responsibilities in the area they are assessing
- A description of the organizational responsibilities for ensuring that activities affecting quality are (a) prescribed by documented instructions, procedures, and drawings and (b) accomplished through implementation of these documents
- A description of the procedures to ensure that instructions, procedures, and drawings include quantitative acceptance criteria and qualitative acceptance criteria for determining that important activities have been satisfactorily performed.

c. Document Control:

- A summary of the types of QA documents that are included in the program
- A description of how the licensee develops, issues, revises, and retires QA documents.

e. Corrective Action:

- A more detailed description of the corrective action procedures for the facility, including a description of how the corrective action is determined to be adequate
- A more detailed description of the documentation maintained for each corrective action and any follow-up activities by the QA organization after the corrective action is implemented.

f. Quality Assurance Records:

- A more detailed description of the manner in which the QA records will be managed
- A description of the responsibilities of the QA organization
- A description of the QA records storage facility.

g. Audits and Surveillances:

- A description of the trending/tracking that will be performed on the results of audits and surveillances.

XIV. Facility Radiation Surveys.

a. Release Criteria:

- If Class 1 survey units are present, a summary table or list of area factors that will be used for determining a $DCGL_{EMC}$ for each radionuclide and media of concern
- If Class 1 survey units are present, the $DCGL_{EMC}$ values for each radionuclide and medium of concern.

b. Characterization Surveys:

- A more detailed description of the field instruments and methods that were used for measuring concentrations and the sensitivities of those instruments and methods
- A description of all the laboratory instruments and methods that were used for measuring concentrations and the sensitivities of those instruments and methods
- The survey results, including tables or charts of the concentrations of residual radioactivity measured
- Maps or drawings of the site, area, or building, showing areas classified as non-impacted or impacted
- A more detailed discussion of why the licensee considers the characterization survey to be adequate to demonstrate that it is unlikely that significant quantities of residual radioactivity have gone undetected
- For areas and surfaces that are inaccessible or not readily accessible, a discussion of how they were surveyed or why they did not need to be surveyed.

c. In-Process Surveys:

- A demonstration that field screening should be capable of detecting residual radioactivity at the DCGL.

d. Final Status Survey Design:

- A description and map or drawing of impacted areas of the site, area, or building classified by residual radioactivity levels (Class 1, 2, or 3) and divided into survey units with an explanation of the basis for division into survey units
- A description of the background reference areas and materials, if they will be used, and a justification for their selection
- A summary of the statistical tests that will be used to evaluate the survey results
- A more detailed description of scanning instruments, methods, calibration, operational checks, coverage, and sensitivity for each media and radionuclide
- For in-situ sample measurements made by field instruments, a more detailed description of the instruments, calibration, operational checks, sensitivity, and sampling methods, with a demonstration that the instruments and methods have adequate sensitivity
- A more detailed description of the analytical instruments for measuring samples in the laboratory, as well as calibration, sensitivity, and methods with a demonstration that the instruments and methods have adequate sensitivity
- A description of the final status survey investigation levels and how they were determined
- A summary of any significant additional residual radioactivity that was not accounted for during site characterization
- A summary of direct measurement results and/or soil concentration levels in units that are comparable to the DCGL, and if data is used to estimate or update the survey unit
- A summary of the direct measurements or sample data used to both evaluate the success of remediation and to estimate the survey unit variance.