

March 23, 2004

D.2 DECOMMISSIONING PLAN CHECKLIST

Licensee Name: Department of Energy

License Number: CSF-1 Docket Number: POOM-32

Facility: West Valley Demonstration Project

Decommissioning Plan Dated/Version:

For the acceptance review, NRC staff will use this checklist to conduct a limited technical review the decommissioning plan (DP). The detailed technical review assesses the technical adequacy and completeness of the information.

Staff should use the checklist first during the initial meeting with the licensee to discuss the scope and content of the DP. In most cases, licensees will not be required to submit all of the information in this checklist. The staff, in conjunction with the licensee, should determine what information should be submitted for the site, based on the uses of radioactive material at the site, the extent and types of radioactive material contamination, the manner in which the licensee intends to decommissioning the facility, and other factors affecting the potential for increased risk to the public or workers from the decommissioning operations. This information should be documented by modifying the acceptance review checklist. Copies of the modified checklist should be provided to the licensee and maintained by the NRC reviewer. When the DP is submitted, the reviewer should use the modified checklist to perform the acceptance review.

During the acceptance review, the staff will review the DP table of contents and the individual DP chapters or sections to ensure that the licensee has included this information in the DP. In addition, the staff may use Chapters 16 and 17 of this guidance to determine if the level of detail of the information appears to be adequate for the staff to perform a detailed technical review. Staff should recognize that failure to supply an item included in the checklist does not necessarily constitute grounds for rejecting the DP. Rather, the staff should determine if the licensee can supply the information in a timely manner and, if so, communicate the additional information needs to the licensee in a deficiency letter. Only in those cases where a detailed technical review cannot begin

without the required information should the DP be rejected. For example, if the licensee is requesting restricted release and has not obtained the appropriate input from community interests who could be affected by the decommissioning, the DP should be rejected during the acceptance review. Questions regarding whether to reject a DP based on the results of the acceptance review should be forwarded to the Decommissioning Branch, Division of Waste Management.

For the detailed technical review, staff should assess the technical accuracy and completeness of the information using the modified checklist.

I. EXECUTIVE SUMMARY

Y The name and address of the licensee or owner of the site.

Y The location and address of the site.

Y A brief description of the site and immediate environs

Y A summary of the licensed activities that occurred at the site

Y The nature and extent of contamination at the site

Y The decommissioning objective proposed by the licensee (i.e., restricted or unrestricted use)

Y The DCGLs for the site, the corresponding doses from these DCGLs, and the method that was use to determine the DCGLs

Y A summary of the ALARA evaluations performed to support the decommissioning

Y If the licensee requests license termination under restricted conditions, the restrictions the licensee intends to use to limit doses as required in 10 CFR Part 20.1403 or 20.1404, and a summary of institutional controls and financial assurance

Y If the licensee requests license termination under restricted conditions or using alternate criteria, a summary of the public

participation activities undertaken by the licensee to comply with 10 CFR Part 20.1403(d) or 20.1404(a)(4)

- Y The proposed initiation and completion dates of decommissioning**
- Y Any post-remediation activities (such as ground water monitoring) that the licensee proposes to undertake prior to requesting license termination**
- N A statement that the licensee is requesting that its license be amended to incorporate the DP**

II. FACILITY OPERATING HISTORY

II.a. LICENSE NUMBER/STATUS/AUTHORIZED ACTIVITIES

- N The radionuclides and maximum activities of radionuclides authorized and used under the current license**
- N The chemical forms of the radionuclides authorized and used under the current license**
- N A detailed description of how the radionuclides are currently being used at the site**
- N The location(s) of use and storage of the various radionuclides authorized under current licenses**
- N A scale drawing or map of the building or site and environs showing the current locations of radionuclide use at the site**
- N A list of amendments to the license since the last license renewal**

II.b. LICENSE HISTORY

- Y The radionuclides and maximum activities of radionuclides authorized and used under all previous licenses**
- Y The chemical forms of the radionuclides authorized and used under all previous licenses**
- Y A detailed description of how the radionuclides were used at the site**
- Y The location(s) of use and storage of the various radionuclides authorized under all previous licenses**
- Y A scale drawing or map of the site, facilities, and environs showing previous locations of radionuclide use at the site**

II.c. PREVIOUS DECOMMISSIONING ACTIVITIES

- Y A list or summary of areas at the site that were remediated in the past**
- Y A summary of the types, forms, activities, and concentrations of radionuclides that were present in previously remediated areas**
- Y The activities that caused the areas to become contaminated**
- Y The procedures used to remediate the areas, and the disposition of radioactive material generated during the remediation**
- Y A summary of the results of the final radiological evaluation of the previously remediated area**
- Y A scale drawing or map of the site, facilities, and environs showing the locations of previous remedial activity**

II.d. SPILLS

- Y A summary of areas at the site where spills (or uncontrolled releases) of radioactive material occurred in the past**
- Y The types, forms, activities, and concentrations of radionuclides involved in the spill or uncontrolled release**
- Y A scale drawing or map of the site, facilities, and environs showing the locations of spills**

II.e. PRIOR ONSITE BURIALS

- Y A summary of areas at the site where radioactive material has been buried in the past**

Not including SDA

- Y The types, forms, activities and concentrations of waste and radionuclides in the former burial**
- Y A scale drawing or map of the site, facilities, and environs showing the locations of former burials**

III. FACILITY DESCRIPTION

III.a. SITE LOCATION AND DESCRIPTION

- Y The size of the site in acres or square meters**
- Y The State and county in which the site is located**
- Y The names and distances to nearby communities, towns, and cities**
- Y A description of the contours and features of the site**

- Y The elevation of the site**
- Y A description of property surrounding the site, including the location of all off-site wells used by nearby communities or individuals**
- Y The location of the site relative to prominent features such as rivers and lakes**
- Y A map that shows the detailed topography of the site using a contour interval**
- Y The location of the nearest residences and all significant facilities or activities near the site**
- Y A description of the facilities (e.g., buildings, parking lots, and fixed equipment) at the site**

III.b. POPULATION DISTRIBUTION

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

III.c. CURRENT/FUTURE LAND USE

- Y A description of the current land uses in and around the site**
- Y A summary of anticipated land uses**

III.d. METEOROLOGY AND CLIMATOLOGY

- Y A description of the general climate of the region**
- Y Seasonal and annual frequencies of severe weather phenomena**

- Y Weather-related radionuclide transmission parameters**
- Y Routine weather-related site deterioration parameters**
- Y Extreme weather-related site deterioration parameters**
- Y A description of the local (site) meteorology**
- Y The National Ambient Air Quality Standards Category of the area in which the facility is located and, if the facility is not in a Category 1 zone, the closest and first downwind Category 1 Zone**

III.e. GEOLOGY AND SEISMOLOGY

- Y A detailed description of the geologic characteristics of the site and the region around the site**
- Y A discussion of the tectonic history of the region, regional geomorphology, physiography, stratigraphy, and geochronology**
- Y A regional tectonic map showing the site location and its proximity to tectonic structures**
- Y A description of the structural geology of the region and its relationship to the site geologic structure**
- Y A description of any crustal tilting, subsidence, karst terrain, landsliding, and erosion**
- Y A description of the surface and subsurface geologic characteristics of the site and its vicinity**
- Y A description of the geomorphology of the site**
- Y A description of the location, attitude, and geometry of all known or inferred faults in the site and vicinity**

- Y A discussion of the nature and rates of deformation**
- Y A description of any man-made geologic features such as mines or quarries**
- Y A description of the seismicity of the site and region**
- Y A complete list of all historical earthquakes that have a magnitude of 3 or more, or a modified Mercalli intensity of IV or more within 200 miles of the site**

III.f. SURFACE WATER HYDROLOGY

- Y A description of site drainage and surrounding watershed fluvial features**
- Y Water resource data including maps, hydrographs, and stream records from other agencies (e.g., U.S. Geological Survey and U.S. Army Corps of Engineers)**
- Y Topographic maps of the site that show natural drainages and man-made features**
- Y A description of the surface water bodies at the site and surrounding areas**
- Y A description of existing and proposed water control structures and diversions (both upstream and downstream) that may influence the site**
- ? Flow-duration data that indicate minimum, maximum, and average historical observations for surface water bodies in the site areas**

DOE doesn't have this information, thinks it is NA.

- Y Aerial photography and maps of the site and adjacent drainage areas identifying features such as drainage areas, surface gradients, and areas of flooding**
- Y An inventory of all existing and planned surface water users, whose intakes could be adversely affected by migration of radionuclides from the site**
- Y Topographic and/or aerial photographs that delineate the 100-year floodplain at the site**
- Y A description of any man-made changes to the surface water hydrologic system that may influence the potential for flooding at the site**

III.g. GROUND WATER HYDROLOGY

- Y A description of the saturated zone**
- Y Descriptions of monitoring wells**
- Y Physical parameters**
- Y A description of ground water flow directions and velocities**
- Y A description of the unsaturated zone**
- Y Information on all monitor stations including location and depth**
- Y A description of physical parameters**
- Y A description of the numerical analyses techniques used to characterize the unsaturated and saturated zones**
- Y The distribution coefficients of the radionuclides of interest at the site**

III.h. NATURAL RESOURCES

- Y A description of the natural resources occurring at or near the site**
- Y A description of potable, agricultural, or industrial ground or surface waters**
- Y A description of economic, marginally economic, or subeconomic known or identified natural resources as defined in U.S. Geological Survey Circular 831**
- Y Mineral, fuel, and hydrocarbon resources near and surrounding the site which, if exploited, would effect the licensee's dose estimates**

IV. RADIOLOGICAL STATUS OF FACILITY

IV.a. CONTAMINATED STRUCTURES

- Y A list or description of all structures at the facility where licensed activities occurred that contain residual radioactive material in excess of site background levels**
- Y A 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**
- Y A list or description of each room or work area within each of these structures**
- Y A summary of the background levels used during scoping or characterization surveys**
- Y A summary of the locations of contamination in each room or work area**

- Y A summary of the radionuclides present at each location, the maximum and average radionuclide activities in dpm/100cm², and, if multiple radionuclides are present, the radionuclide ratios**
- Y 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)**
- Y The maximum and average radiation levels in mrem/hr in each room or work area**
- Y A scale drawing or map of the rooms or work areas showing the locations of radionuclide material contamination**

IV.b. CONTAMINATED SYSTEMS AND EQUIPMENT

- Y A 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**
- Y A summary of the radionuclides present in each system or on the equipment at each location, the maximum and average radionuclide activities in dpm/100cm², and, if multiple radionuclides are present, the radionuclide ratios**
- Y The maximum and average radiation levels in mrem/hr at the surface of each piece of equipment**
- Y A summary of the background levels used during scoping or characterization surveys**
- Y A scale drawing or map of the rooms or work areas showing the locations of the contaminated systems or equipment**

IV.c. SURFACE SOIL CONTAMINATION

- Y A list or description of all locations at the facility where surface soil contains residual radioactive material in excess of site background levels**
- Y A summary of the background levels used during scoping or characterization surveys**
- Y A summary of the radionuclides present at each location, the maximum and average radionuclide activities in pCi/gm, and, if multiple radionuclides are present, the radionuclide ratios**
- Y The maximum and average radiation levels in mrem/hr at each location**
- Y A scale drawing or map of the site showing the locations of radionuclide material contamination in surface soil**

IV.d. SUBSURFACE SOIL CONTAMINATION

- Y A list or description of all locations at the facility where subsurface soil contains residual radioactive material in excess of site background levels**
- Y A summary of the background levels used during scoping or characterization surveys**
- Y A summary of the radionuclides present at each location, the maximum and average radionuclide activities in pCi/gm, and, if multiple radionuclides are present, the radionuclide ratios**
- Y The depth of the subsurface soil contamination at each location**
- Y A scale drawing or map of the site showing the locations of subsurface soil contamination**

IV.e. SURFACE WATER

Y A list or description of all surface water bodies at the facility that contain residual radioactive material in excess of site background levels

DOE will make supporting data available.

Y A summary of the background levels used during scoping or characterization surveys

Y 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))

IV.f. GROUND WATER

Y A summary of the aquifer(s) at the facility that contain residual radioactive material in excess of site background levels

Y A summary of the background levels used during scoping or characterization surveys

Y 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

V.a. UNRESTRICTED RELEASE USING SCREENING CRITERIA

V.a.1. Unrestricted Release Using Screening Criteria for Building Surface Residual Radioactivity

N The general conceptual model (for both the source term and the building environment) of the site

N A summary of the screening method (i.e., running DandD or using the look-up tables) used in the DP

V.a.2. Unrestricted Release Using Screening Criteria for Surface Soil Residual Radioactivity

N Justification on the appropriateness of using the screening approach (for both the source term and the environment) at the site

N A summary of the screening method (i.e., running DandD or using the look-up tables) used in the DP

V.b. UNRESTRICTED RELEASE USING SITE-SPECIFIC INFORMATION

Will provide information necessary to determine unrestricted release criteria. Information will be provided in V.c.

N Source term information including nuclides of interest, configuration of the source, and areal variability of the source

N Description of the exposure scenario including a description of the critical group

N Description of the conceptual model of the site including the source term, physical features important to modeling the transport pathways, and the critical group

N Identification/description of the mathematical model used (e.g., hand calculations, DandD Screen v1.0, and RESRAD v5.81)

N Description of the parameters used in the analysis

N Discussion about the effect of uncertainty on the results

N Input and output files or printouts, if a computer program was

used

V.c. RESTRICTED RELEASE USING SITE-SPECIFIC INFORMATION

- Y Source term information including nuclides of interest, configuration of the source, areal variability of the source, and chemical forms**
- Y A description of the exposure scenarios, including a description of the critical group for each scenario**
- Y A description of the conceptual model(s) of the site that includes the source term, physical features important to modeling the transport pathways, and the critical group for each scenario**
- Y Identification/description of the mathematical model(s) used (e.g., hand calculations and RESRAD v5.81)**
- Y A summary of parameters used in the analysis**
- Y A discussion about the effect of uncertainty on the results**
- Y Input and output files or printouts, if a computer program was used**

V.d. RELEASE INVOLVING ALTERNATE CRITERIA

If plume doesn't meet LTR, NRC stated that this section may be apply. No DP section for exemption.

DOE believes plume and NDA may require an exemption.

- N Source term information including nuclides of interest, configuration of the source, areal variability of the source, and chemical forms**

- N A description of the exposure scenarios, including a description of the critical group for each scenario**
- N A description of the conceptual model(s) of the site that includes the source term, physical features important to modeling the transport pathways, and the critical group for each scenario**
- N Identification/description of the mathematical model(s) used (e.g., hand calculations and RESRAD v5.81)**
- N A summary of parameters used in the analysis**
- N A discussion about the effect of uncertainty on the results**
- N Input and output files or printouts, if a computer program was used**

VI. ENVIRONMENTAL INFORMATION

Will include information that affects dose assessment. May reference other sections of DP.

- Y Environmental information described in NUREG-1748**
- Y For an EIS, the environmental information is reviewed by the EPAB EIS project manager**

VII. ALARA ANALYSIS

- Y A description of how the licensee will achieve a decommissioning goal below the dose limit**
- Y A quantitative cost benefit analysis**
- Y A description of how costs were estimated**

Y A demonstration that the doses to the average member of the critical group are ALARA

VIII. PLANNED DECOMMISSIONING ACTIVITIES

VIII.a. CONTAMINATED STRUCTURES

Y A summary of the remediation tasks planned for each room or area in the contaminated structure, in the order in which they will occur

Y A description of the remediation techniques that will be employed in each room or area of the contaminated structure

N A summary of the radiation protection methods and control procedures that will be employed in each room or area

Will refer to DOE procedures.

N A summary of the procedures already authorized under the existing license and those for which approval is being requested in the DP

Will refer to DOE procedures.

Y A commitment to conduct decommissioning activities in accordance with written, approved procedures

Y A summary of any unique ~~safety~~ or remediation issues associated with remediating the room or area

N For Part 70 licensees, a summary of how the licensee will ensure that the risks addressed in the facility's Integrated Safety Analysis will be addressed during decommissioning

VIII.b. CONTAMINATED SYSTEMS AND EQUIPMENT

- Y** A summary of the remediation tasks planned for each system 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
- Y** A description of the techniques that will be employed to remediate each system in the facility or site
- N** A description of the radiation protection methods and control procedures that will be employed while remediating each system

Will refer to DOE procedures.

- Y** A summary of the equipment that will be removed or decontaminated and how the decontamination will be accomplished
- N** A summary of the procedures already authorized under the existing license and those for which approval is being requested in the DP

Will refer to DOE procedures.

- Y** A commitment to conduct decommissioning activities in accordance with written, approved procedures
- Y** A summary of any unique ~~safety~~ or remediation issues associated with remediating any system or piece of equipment
- N** For Part 70 licensees, a summary of how the licensee will ensure that the risks addressed in the facility's Integrated Safety Analysis will be addressed during decommissioning

VIII.c. SOIL

- Y 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**
- Y A description the techniques that will be employed to remove or remediate surface and subsurface soil at the site**
- N A description of the radiation protection methods and control procedures that will be employed during soil removal/remediation**

Will refer to DOE procedures.

- N A summary of the procedures already authorized under the existing license and those for which approval is being requested in the DP**

Will refer to DOE procedures.

- Y A commitment to conduct decommissioning activities in accordance with written, approved procedures**
- Y A summary of any unique ~~safety~~ or removal/remediation issues associated with remediating the soil**
- N For Part 70 licensees, a summary of how the licensee will ensure that the risks addressed in the facility's Integrated Safety Analysis will be addressed during decommissioning**

VIII.d. SURFACE AND GROUND WATER

- Y A summary of the remediation tasks planned for ground and surface water 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

- Y A description of the remediation techniques that will be employed to remediate the ground or surface water**
- N A description of the radiation protection methods and control procedures that will be employed during ground or surface water remediation**

Will refer to DOE procedures.

- N A summary of the procedures already authorized under the existing license and those for which approval is being requested in the DP**

Will refer to DOE procedures.

- Y A commitment to conduct decommissioning activities in accordance with written, approved procedures**
- Y A summary of any unique ~~safety~~ or remediation issues associated with remediating the ground or surface water**

VIII.e. SCHEDULES

- Y A Gantt or PERT chart detailing the proposed remediation tasks in the order in which they will occur**
- Y A statement acknowledging that the dates in the schedule are contingent upon NRC approval of the DP**
- Y 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 NRC**
- N If the decommissioning is not expected to be completed within**

the timeframes outlined in NRC regulations, a request for alternative schedule for completing the decommissioning

DOE is not a NRC licensee.

IX. PROJECT MANAGEMENT AND ORGANIZATION

DOE thinks that they can provide this information only in relation to the FSS, not for decommissioning actions.

NRC needs to consider this approach.

IX.a. DECOMMISSIONING MANAGEMENT ORGANIZATION

- ? A description of the decommissioning organization**
- ? A description of the responsibilities of each of these decommissioning project units**
- ? A description of the reporting hierarchy within the decommissioning project management organization**
- ? A description of the responsibility and authority of each unit to ensure that decommissioning activities are conducted in a safe manner and in accordance with approved written procedures**

IX.b. DECOMMISSIONING TASK MANAGEMENT

- ? A description of the manner in which the decommissioning tasks are managed**
- ? 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

IX.c. DECOMMISSIONING MANAGEMENT POSITIONS AND QUALIFICATIONS

- ? A 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 describe above, and the qualifications of the individuals currently occupying the positions
- ? A description of all decommissioning and safety committees

IX.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
- ? A description of the responsibilities and duties of the RSO

- ? **A description of the specific authority of the RSO to implement and manage the licensee’s radiation protection program**

IX.e. TRAINING

- ? **A description of the radiation safety training that the licensee will provide to each employee**
- ? **A description of any daily worker “jobside” or “tailgate” training that will be provided at the beginning of each workday or job task to familiarize workers with job-specific procedures or safety requirements**
- ? **A description of the documentation that will be maintained to demonstrate that training commitments are being met**

IX.f. CONTRACTOR SUPPORT

- ? **A summary of decommissioning tasks that will be performed by contractors**
- ? **A description of the management interfaces that will be in place between the’s 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 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**

X.a. AIR SAMPLING PROGRAM

Will reference DOE procedures

N A description which demonstrates that the air sampling program is representative of the workers breathing zones

N 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

N A description of the conditions under which air monitors will be used

N A description of the criteria used to determine the frequency of calibration of the flow meters on the air samplers

N A description of the action levels for air sampling results

N A description of how minimum detectable activities (MDA) for each specific radionuclide that may be collected in air samples are determined

X.b. RESPIRATORY PROTECTION PROGRAM

N A description of the process controls, engineering controls, or procedures to control concentrations of radioactive materials in air

N A description of the evaluation which will be performed when it is not practical to apply engineering controls or procedures

N 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

- N A description of the medical screening and fit testing required before workers will use any respirator that is assigned a protection factor**
- N A description of the written procedures maintained to address all the elements of the respiratory protection program**
- N A description of the use, maintenance, and storage of respiratory protection devices**
- N A description of the respiratory equipment users training program**
- N A description of the considerations made when selecting respiratory protection equipment**

X.c. INTERNAL EXPOSURE DETERMINATION

- N A description of the monitoring to be performed to determine worker exposure**
- N A description of how worker intakes are determined using measurements of quantities of radionuclides excreted from, or retained in the human body**
- N A description of how worker intakes are determined by measurements of the concentrations of airborne radioactive materials in the workplace**
- N 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**
- N A description of how worker intakes are converted into committed effective dose equivalent**

X.d. EXTERNAL EXPOSURE DETERMINATION

- N A description of the individual-monitoring devices which will be provided to workers**
- N A description of the type, range, sensitivity, and accuracy of each individual-monitoring device**
- N A description of the use of extremity and whole body monitors when the external radiation field is non-uniform**
- N A description of when audible-alarm dosimeters and pocket dosimeters will be provided**
- N A description of how external dose from airborne radioactive material is determined**
- N A description of the procedure to insure that surveys necessary to supplement personnel monitoring are performed**
- N A description of the action levels for worker's external exposure, and the technical bases and actions to be taken when they are exceeded**

X.e. SUMMATION OF INTERNAL AND EXTERNAL EXPOSURES

- N A description of how the internal and external monitoring results are used to calculate TODE and TEDE doses to occupational workers**
- N A description of how internal doses to the embryo/fetus, which is based on the intake of an occupationally-exposed DPW will be determined**
- N A description of the monitoring of the intake of a DPW, if determined to be necessary**

N A description of the program for the preparation, retention, and reporting of records for occupational radiation exposures

X.f. CONTAMINATION CONTROL PROGRAM

N A description of the written procedures to control access to, and stay time in, contaminated areas by workers, if they are needed

N A description of surveys to supplement personnel monitoring for workers during routine operations, maintenance, clean-up activities, and special operations

N 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

N 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)

N 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

N A description of the procedures used to test sealed sources, and to insure that sealed sources are leaked tested at appropriate intervals

X.g. INSTRUMENTATION PROGRAM

N A description of the instruments to be used to support the health and safety program

N A description of instrumentation storage, calibration, and

maintenance facilities for instruments used in field surveys

- N A 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**
- N A description of the instrument calibration and quality assurance procedures**
- N A description of the methods used to estimate uncertainty bounds for each type of instrumental measurement**
- N A description of air sampling calibration procedures or a statement that the instruments will be calibrated by an accredited laboratory**

X.h. NUCLEAR CRITICALITY SAFETY

- N A description of how the NCS functions, including management responsibilities and technical qualifications of safety personnel, will be maintained when needed throughout the decommissioning process**
- N A description of how an awareness of procedures and other items relied on for safety will be maintained throughout decommissioning among all personnel, with access to systems that may contain fissionable material in sufficient amounts for criticality**
- N A summary of the review of NCSA's or the ISA indicating either that the process needs no new safety procedures or requirements, or that new requirements or analysis have been performed**
- N A summary of any generic NCS requirements to be applied to general decommissioning, decontamination, or dismantlement operations, including those dealing with systems that may**

unexpectedly contain fissionable material

X.i. HEALTH PHYSICS AUDITS, INSPECTIONS, AND RECORDKEEPING PROGRAM

N A general description of the annual program review conducted by executive management

N A description of the records to be maintained of the annual program review and executive audits

N A description of the types and frequencies of surveys and audits to be performed by the RSO and RSO staff

N A description of the process used in evaluating and dealing with violations of NRC requirements or license commitments identified during audits

N A description of the records maintained of RSO audits

XI. ENVIRONMENTAL MONITORING AND CONTROL PROGRAM

Will reference DOE procedures

XI.a. ENVIRONMENTAL ALARA EVALUATION PROGRAM

N A description of ALARA goals for effluent control

N A description of the procedures, engineering controls, and process controls to maintain doses ALARA

N A description of the ALARA reviews and reports to management

XI.b. EFFLUENT MONITORING PROGRAM

N A demonstration that background and baseline concentrations of radionuclides in environmental media have been established through appropriate sampling and analysis

N A description of the known or expected concentrations of radionuclides in effluents

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

XI.c. EFFLUENT CONTROL PROGRAM

- N A description of the controls that will be used to minimize releases of radioactive material to the environment**
- N A summary of the action levels and a description of the actions to be taken should a limit be exceeded**
- N A description of the leak detection systems for ponds, lagoons, and tanks**
- N 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**
- N 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

DOE will refer to procedures. NRC believes it needs to be considered as part of ALARA.

XII.a. SOLID RADWASTE

- N A summary of the types of solid radwaste that are expected to be generated during decommissioning operations**
- N A summary of the estimated volume, in cubic feet, of each solid radwaste type summarized in Line 1 above**
- N A summary of the radionuclides (including the estimated activity of each radionuclide) in each estimated solid radwaste type summarized in Line 1 above**
- N A summary of the volumes of Class A, B, C, and Greater-than-Class-C solid radwaste that will be generated by decommissioning operations**
- N A description of how and where each of the solid radwaste summarized in Line 1 above will be stored on site prior to shipment for disposal**
- N A description of how the each of the solid radwastes summarized in Line 1 above will be treated and packaged to meet disposal site acceptance criteria prior to shipment for disposal**
- N If appropriate, how the licensee intends to manage volumetrically contaminated material**
- N A description of how the licensee will prevent contaminated soil, or other loose solid radwaste, from being re-disbursed after exhumation and collection**
- N The name and location of the disposal facility that the licensee**

intends to use for each solid radwaste type summarized in Line 1 above

XII.b. LIQUID RADWASTE

- N A summary of the types of liquid radwaste that are expected to be generated during decommissioning operations**
- N A summary of the estimated volume, in liters, of each liquid radwaste type summarized in Line 1 above**
- N A summary of the radionuclides (including the estimated activity of each radionuclide) in each liquid radwaste type summarized in Line 1 above**
- N 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**
- N A description of how and where each of the liquid radwastes summarized in Line 1 above will be stored on site prior to shipment for disposal**
- N A description of how the each of the liquid radwastes summarized in Line 1 above will be treated and packaged to meet disposal site acceptance criteria prior to shipment for disposal**
- N The name and location of the disposal facility that the licensee intends to use for each liquid radwaste type summarized in Line 1 above**

XII.c. MIXED WASTE

- N A summary of the types of solid and liquid mixed waste that are expected to be generated during decommissioning operations**
- N A summary of the estimated volumes in cubic feet of each solid**

mixed waste type summarized in Line 1 above, and in liters for each liquid mixed waste

- N A summary of the radionuclides (including the estimated activity of each radionuclide) in each type of mixed waste type summarized in Line 1 above**
- N 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**
- N A description of how and where each of the mixed wastes summarized in Line 1 above will be stored on site prior to shipment for disposal**
- N A description of how the each of the mixed wastes summarized in Line 1 above will be treated and packaged to meet disposal site acceptance criteria prior to shipment for disposal**
- N The name and location of the disposal facility that the licensee intends to use for each mixed waste type summarized in Line 1 above**
- N A discussion of the requirements of all other regulatory agencies having jurisdiction over the mixed waste**
- N 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

XIII.a. ORGANIZATION

DOE plans to focus this section on the FSS. May need to also consider PA area.

- ? A description of the QA program management organization**
- ? A 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 description of the authority of each unit within the QA program**
- ? An organization chart of the QA program organization**

XIII.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 is provided of how management regularly assesses the scope, status, adequacy, and compliance of the QA program**
- ? A description of the instruction provided to personnel responsible for performing activities affecting quality**
- ? A description of the training and qualifications of personnel verifying activities**
- ? For formal training and qualification programs, documentation includes the objectives and content of the program, attendees, and date of attendance**
- ? A 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**

XIII.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**

XIII.d. CONTROL OF MEASURING AND TEST EQUIPMENT

- ? A summary of the test and measurement equipment used in the program**
- ? A description of how and at what frequency the equipment will be calibrated**
- ? A description of the daily calibration checks that will be performed on each piece of test or measurement equipment**
- ? A description of the documentation that will be maintained to demonstrate that only properly calibrated and maintained equipment was used during the decommissioning**

XIII.e. CORRECTIVE ACTION

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

XIII.f. QUALITY ASSURANCE RECORDS

- ? A 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**

XIII.g. AUDITS AND SURVEILLANCES

- ? A description of the audit program**
- ? A description of the records and documentation generated during the audits and the manner in which the documents are managed**
- ? A description of all follow-up activities associated with audits or surveillances**
- ? A description of the trending/tracking that will be performed on the results of audits and surveillances**

XIV. FACILITY RADIATION SURVEYS

May refer to DOE procedures rather than give details.

XIV.a. RELEASE CRITERIA

- Y A summary table or list of the $DCGL_W$ for each radionuclide and impacted media of concern**
- Y 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**
- Y If Class 1 survey units are present, the $DCGL_{EMC}$ values for each radionuclide and medium of concern**

Y If multiple radionuclides are present, the appropriate DCGL_w for the survey method to be used

XIV.b. CHARACTERIZATION SURVEYS

Y A description and justification of the survey measurements for impacted media

Y A description of the field instruments and methods that were used for measuring concentrations and the sensitivities of those instruments and methods

Y A description of the laboratory instruments and methods that were used for measuring concentrations and the sensitivities of those instruments and methods

Y The survey results, including tables or charts of the concentrations of residual radioactivity measured

Y Maps or drawings of the site, area, or building, showing areas classified as non-impacted or impacted

Y Justification for considering areas to be non-impacted

Y A 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

Y 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

Y For sites, areas, or buildings with multiple radionuclides, a discussion justifying the ratios of radionuclides that will be assumed in the final status survey or an indication that no fixed ratio exists and each radionuclide will be measured separately

XIV.c. IN-PROCESS SURVEYS

- Y A description of field screening methods and instrumentation**
- Y A demonstration that field screening should be capable of detecting residual radioactivity at the DCGL**

XIV.d. FINAL STATUS SURVEY DESIGN

- Y A brief overview describing the final status survey design**
- Y 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**
- Y A description of the background reference areas and materials, if they will be used, and a justification for their selection**
- Y A summary of the statistical tests that will be used to evaluate the survey results**
- Y A description of scanning instruments, methods, calibration, operational checks, coverage, and sensitivity for each media and radionuclide**
- Y For in-situ sample measurements made by field instruments, a description of the instruments, calibration, operational checks, sensitivity, and sampling methods, with a demonstration that the instruments and methods have adequate sensitivity**
- Y A 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**
- Y A description of how the samples to be analyzed in the laboratory**

will be collected, controlled, and handled

- Y A description of the final status survey investigation levels and how they were determined**
- Y A summary of any significant additional residual radioactivity that was not accounted for during site characterization**
- Y 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**
- Y A summary of the direct measurements or sample data used to both evaluate the success of remediation and to estimate the survey unit variance**

XIV.e. FINAL STATUS SURVEY REPORT

- Y An overview of the results of the final status survey**
- Y A discussion of any changes that were made in the final status survey from what was proposed in the DP or other prior submittals**
- Y A description of the method by which the number of samples was determined for each survey unit**
- Y A summary of the values used to determine the number of samples and a justification for these values**
- Y The survey results for each survey unit include:**
 - The number of samples taken for the survey unit;**
 - A description of the survey unit, including (a) a map or drawing of the survey unit showing the reference system and random start systematic sample locations for Class 1 and 2 survey units and random locations shown for Class 3 survey units and reference**

areas, and (b) a discussion of remedial actions and unique features;

- The measured sample concentrations in units that are comparable to the DCGL;
- The statistical evaluation of the measured concentrations;
- Judgmental and miscellaneous sample data sets reported separately from those samples collected for performing the statistical evaluation;
- A discussion of anomalous data, including any areas of elevated direct radiation detected during scanning that exceeded the investigation level or measurement locations in excess of $DCGL_w$; and
- A statement that a given survey unit satisfied the $DCGL_w$ and the elevated measurement comparison if any sample points exceeded the $DCGL_w$.

Y A description of any changes in initial survey unit assumptions relative to the extent of residual radioactivity (e.g., material not accounted for during site characterization)

Y A description of how ALARA practices were employed to achieve final activity levels

Y If a survey unit fails, a description of the investigation conducted to ascertain the reason for the failure and a discussion of the impact that the failure has on the conclusion that the facility is ready for final radiological surveys and that it satisfies the release criteria

Y If a survey unit fails, a discussion of the impact that the reason for the failure has on other survey unit information

XV. FINANCIAL ASSURANCE

XV.a. COST ESTIMATE

- N A cost estimate that appears to be based on documented and reasonable assumptions**

XV.b. CERTIFICATION STATEMENT

- N The certification statement is based on the licensed possession limits and the applicable quantities specified in 10 CFR 30.35, 40.36, or 70.25**
- N The licensee is eligible to use a certification of financial assurance and, if eligible, that the certification amount is appropriate**

XV.c. FINANCIAL MECHANISM

- N The financial assurance mechanism supplied by the licensee consists of one or more of the following instruments:**
- Trust fund;**
 - Escrow account;**
 - Government fund;**
 - Certificate of deposit;**
 - Deposit of government securities;**
 - Surety bond;**
 - Letter of credit;**
 - Line of credit;**
 - Insurance policy;**
 - Parent company guarantee;**

- Self guarantee;
- External sinking fund;
- Statement of intent; or
- By special arrangements with a government entity assuming custody or ownership of the site.

- N** The financial assurance mechanism is an originally signed duplicate
- N** The wording of the financial assurance mechanism is identical to the recommended wording provided in Appendix F of this document
- N** For a licensee regulated under 10 CFR Part 72, a means is identified in the DP for adjusting the financial assurance funding level over any storage and surveillance period
- N** The amount of financial assurance coverage provided by the licensee for site control and maintenance is at least as great as that calculated using the formula provided in this NUREG

XVI. RESTRICTED USE/ALTERNATE CRITERIA

XVI.a. RESTRICTED USE

XVI.a.1. Eligibility Demonstration

- Y** A demonstration that the benefits of dose reduction are less than the cost of doses, injuries, and fatalities
- Y** A demonstration that the proposed residual radioactivity levels at the site are ALARA

XVI.a.2. Institutional Controls and Engineered Barriers

XVI.a.2.i Institutional Controls

The West Valley Policy Statement provides that either DOE or NYSERDA, as government entities, would be acceptable as the long-term steward. Since the responsible entity will be resolved before license termination, it does not need to be resolved in the DP.

- Y Location and description of the legally enforceable institutional control(s) and an explanation of how the institutional control is a legally enforceable mechanism basis for selection (see Attachment 1 of LTR analysis in SECY-03-0069)**
- Y A description of any detriments associated with the maintenance of the institutional control(s)**
- Y A description of the restrictions on present and future landowners**
- Y A description of the entities enforcing, and their authority to enforce, the institutional control(s)**
- Y A description of the design features of the site that support institutional controls**
- Y A discussion of the durability of the institutional control(s), including the performance of any engineered barriers used**
- Y A description of the activities that the entity with the authority to enforce the institutional controls may undertake to enforce the institutional control(s)**
- N A description of the manner in which the entity with the authority to enforce the institutional control(s) will be replaced if that entity is no longer willing or able to enforce the institutional control(s) (this may not be needed for Federal or State entities)**

- Y A description of the duration of the institutional control(s), the basis for the duration, the conditions that will end the institutional control(s), and the activities that will be undertaken to end the institutional control(s)
- Y A description of the plans for corrective actions that may be undertaken in the event the institutional control(s) fail
- Y A description of the records pertaining to the institutional controls, and which records must be kept for long-term protection (How and where will they will be maintained, and how the public will have access to the records will be determined before license termination)

XVI.a.2.ii Engineered Barriers (See Section 3.5 in NUREG-1757, Vol. 2)

- Y Location and description of engineered barriers
- Y How engineered barriers contribute to long-term protection
- Y Need for robust engineered barriers for long-term effectiveness and minimizing maintenance
- Y Evaluation of long-term performance, including degradation

XVI.a.3. Site Maintenance and Financial Assurance Monitoring

- N A demonstration that an appropriately qualified entity has been provided to control and maintain the site
- Y A description of the site maintenance and control program and the basis for concluding that the program is adequate to control and maintain the site
- N A description of the arrangement or contract with the entity charged with carrying out the actions necessary to maintain control at the site

- N** A demonstration that the contract or arrangement will remain in effect for as long as feasible, and include provisions for renewing or replacing the contract
- N** A description of the manner in which independent oversight of the entity charged with maintaining the site will be conducted and what entity will conduct the oversight
- N** A demonstration that the entity providing the oversight has the authority to replace the entity charged with maintaining the site
- N** A description of the authority granted to the third party to perform, or have performed, any necessary maintenance activities
- N** Unless the entity is a government entity, a demonstration that the third party is not the entity holding the financial assurance mechanism
- N** A demonstration that sufficient records evidencing to official actions and financial payments made by the third party are open to public inspection
- Y** A description of the periodic site inspections **and necessary monitoring** ~~that will be performed by the third party, including the frequency of the inspections~~
- N** A copy of the financial assurance mechanism provided by the licensee
- N** A demonstration that the amount of financial assurance provided is sufficient to allow an independent third party to carry out any necessary control and maintenance activities

XVI.a.4. Obtaining Public Advice

See Section E.3 in the Statements of Consideration for the License Termination Rule.

- Y A description of how individuals and institutions that may be affected by the decommissioning were identified and informed of the opportunity to provide advice to the licensee**
- Y A description of the manner in which the licensee obtained advice from these individuals or institutions**
- Y A description of how the licensee provided for participation by a broad cross-section of community interests in obtaining the advice**
- Y A description of how the licensee provided for a comprehensive, collective discussion on the issues by the participants represented**
- Y A copy of the publicly available summary of the results of discussions, including individual viewpoints of the participants on the issues, and the extent of agreement and disagreement among the participants**
- Y A description of how this summary has been made available to the public**
- Y A description of how the licensee evaluated the advice, and the rationale for incorporating or not incorporating the advice from affected members of the community into the DP**

XVI.a.5. Dose Modeling and ALARA Demonstration

- Y A summary of the dose to the average member of the critical group when radionuclide levels are at the DCGL with institutional controls in place, as well as the estimated doses if they are no**

longer in place

- Y** A summary of the evaluation performed pursuant to Chapter 6 of Volume 2 of this NUREG series, demonstrating that these doses are ALARA
- Y** If the estimated dose to the average member of the critical group could exceed 100 mrem/y (but would be less than 500 mrem/y) when the radionuclide levels are at the DCGL, a demonstration that the criteria in 10 CFR 20.1403(e) have been met

XVI.b. ALTERNATE CRITERIA

DOE does not plan to use alternate criteria.

- N** A summary of the dose in TEDE(s) to the average member of the critical group when the radionuclide levels are at the DCGL (considering all man-made sources other than medical)
- N** A summary of the evaluation performed pursuant to Chapter 6 of Volume 2 of this NUREG series demonstrating that these doses are ALARA
- N** An analysis of all possible sources of exposure to radiation at the site and a discussion of why it is unlikely that the doses from all man-made sources, other than medical, will be more than 1 mSv/y (100 mrem/y)
- N** A description of the legally enforceable institutional control(s) and an explanation of how the institutional control is a legally enforceable mechanism
- N** A description of any detriments associated with the maintenance of the institutional control(s)
- N** A description of the restrictions on present and future landowners

- N A description of the entities enforcing and their authority to enforce the institutional control(s)**
- N A discussion of the durability of the institutional control(s)**
- N A description of the activities that the party with the authority to enforce the institutional controls will undertake to enforce the institutional control(s)**
- N A description of the manner in which the entity with the authority to enforce the institutional control(s) will be replaced if that entity is no longer willing or able to enforce the institutional control(s)**
- N A description of the duration of the institutional control(s), the basis for the duration, the conditions that will end the institutional control(s), and the activities that will be undertaken to end the institutional control(s)**
- N A description of the corrective actions that will be undertaken in the event the institutional control(s) fail**
- N A description of the records pertaining to the institutional controls, how and where they will be maintained, and how the public will have access to the records**
- N A description of how individuals and institutions that may be affected by the decommissioning were identified and informed of the opportunity to provide advice to the licensee**
- N A description of the manner in which the licensee obtained advice from affected individuals or institutions**
- N A description of how the licensee provided for participation by a broad cross-section of community interests in obtaining the advice**
- N A description of how the licensee provided for a comprehensive,**

collective discussion on the issues by the participants represented

- N A copy of the publicly available summary of the results of discussions, including individual viewpoints of the participants on the issues and the extent of agreement and disagreement among the participants
- N A description of how this summary has been made available to the public
- N A description of how the licensee evaluated advice from individuals and institutions that could be affected by the decommissioning and the manner in which the advice was addressed

XVII. WASTE INCIDENTAL TO REPROCESSING

- Y A demonstration that Criterion 1 of the West Valley Policy Statement has been met [The waste should be processed (or should be further processed) to remove key radionuclides to the maximum extent that is technically and economically practical]**
- Y A demonstration that Criterion 2 of the West Valley Policy Statement has been met (The waste should be managed so that safety requirements comparable to the performance objectives in 10 CFR part 61 subpart C are satisfied)**