



## Management Procedure LOS ALAMOS FIELD OFFICE



MP 05.17, Rev. 03

Effective Date: 10 JUL 2013

Approved: [Signature]  
Geoffrey L. Beausoleil, Acting Manager  
Los Alamos Field Office

---

**TITLE: REGULATION AND RELEASE OF ENVIRONMENTAL SITES CONTAINING, OR  
POTENTIALLY CONTAINING, RESIDUAL RADIOACTIVE MATERIAL**

### 1.0 PURPOSE

This procedure implements the Department of Energy (DOE) Los Alamos Field Office regulatory authority for management of radioactive materials (provided for under the Atomic Energy Act (AEA)) associated with environmental remediation activities and projects from potential release sites (PRSs) related to past practices at the Los Alamos National Laboratory (LANL).

The procedure implements the applicable provisions of DOE O 458.1, including meeting public dose limits and implementing the "as low as reasonably achievable" (ALARA) process relative to environmental radionuclide contamination. It develops a process for creating an administrative record to document actions and decisions and provides a process for ensuring appropriate evaluation of environmental sites containing, or potentially containing, residual radionuclide material and appropriate approvals for the management and disposition of these sites.

The procedure provides a decision making process where possible that parallels and is integrated with the Resource Conservation and Recovery Act (RCRA) corrective action process and the Los Alamos National Laboratory Hazardous Waste Permit. It applies to environmental remediation activities where the Los Alamos Field Office may either (a) release property with radiological contaminants for beneficial reuse or (b) maintain administrative control of property with radiological contaminants.

This procedure also specifies DOE's documentation requirements for radiological protection where contaminated sites cannot be released for beneficial reuse and must remain under DOE's long term stewardship (LTS).

### 2.0 SCOPE

This procedure addresses Areas of Concern (AOCs) and Solid Waste Management Units (SWMUs) as defined under the RCRA corrective action program. It provides a process for integration of radiological assessments and documentation from the LANL RCRA corrective action process. It includes specific processes to be followed in evaluating release of real property under DOE O 458.1.

It defines the process for investigation, characterization, and data collection; risk analysis and evaluation of alternatives; and selection and execution of remedies for all real property (land and structures) with known or suspected residual radioactive contamination.

It defines the process for regulatory review and approval of these remediation activities using the DOE ALARA process, application of authorized release limits, and preparations for property release and/or transfer or LTS.

It defines minimum requirements for public involvement in the decision making process and communication with the State of New Mexico Environmental Department (NMED).

It identifies Los Alamos Field Office staff responsibilities and documentation required for a complete administrative record. It also identifies those products that must be generated by either the Los Alamos Field Office or its contractors to comply with the applicable radiological regulations.

This procedure does not provide guidance on facility operations, waste management operations, Nuclear Safety Analysis Reports, Documented Safety Analyses, liquid discharges, or environmental surveillance activities.

### **3.0 REFERENCES, DEFINITIONS AND ACRONYMS**

#### **3.1 References**

**10 CFR Part 830**, *Nuclear Safety Management*, February 2001.

**DOE Order 413.3B**, *Program and Project Management for the Acquisition of Capital Assets*, November 2010.

**DOE Order 414.1D**, *Quality Assurance*, April 2011.

**DOE Order 435.1** Change 1, *Radioactive Waste Management* (and associated manuals and guides) July 1999.

**DOE Order 450.1A**, *Environmental Protection Program*, June 2008 (Archived).

**DOE Order 451.1B**, Admin Change 3, *National Environmental Policy Act Compliance Program* (and associated implementing procedures), October 2000.

**DOE Order 458.1**, Change 3, *Radiation Protection of the Public and the Environment*, February 2011.

**DOE Environment, Safety and Health Bulletin**, *Control and Release of Property, A Guide to Good Practices for the Control and Release of Property*, July 2006.

**DOE Policy 454.1**, *Use of Institutional Controls*, April 9, 2003.

**DOE G 454.1-1**, *Institutional Controls Implementation Guide for Use with DOE P454.1, Use of Institutional Controls*, October, 2005.

**DOE Order 231.1B**, *Environment, Safety, and Health Reporting*, June 2011.

**DOE STD 1153**, *A Graded Approach for evaluating Radiation Doses to Aquatic and Terrestrial Biota*, 2002.

**DOE/EH-0697**, *DOE Environment, Safety, and Health Bulletin, Control and Release of Property, A guide to Good Practices for the Control and Release of Property*, July 2006.

**DOE Draft Standard, Applying the ALARA Process for Radiation Protection of the Public and Environmental Compliance with 10 CFR Part 834 and DOE 5400.5 ALARA Program Requirements, 1-Discussion, and Vol.2-Examples and Case Studies, Washington, D.C.;** April 1997 (<http://www.hss.doe.gov/sesa/environment/guidance/aea/alara-v1.pdf>).

**EPA Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites, EPA-540-R-09-001, November 2010.**

**EPA, Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A), Interim Final, EPA 540/1-89/002, Office of Emergency and Remedial Response, Washington, DC. (EPA 1989, 08021) December 1989,**

**EPA, Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination, Memorandum from Stephen D. Luftig, Director, Office of Emergency and Remedial Response, and Larry Weinstock, Acting Director, Office of Radiation and Indoor Air, to addressees, OSWER No. 9200.4-18, Washington, D.C. (EPA 1997, 58693), August 22, 1997.**

**Los Alamos National Laboratory, Derivation and Use of Radionuclide Screening Action Levels, Rev 1, Los Alamos National Laboratory Report, LA-UR-05-1849, May 2005.**

**Los Alamos National Laboratory, Radionuclide Screening Action Level Updates, Los Alamos National Laboratory document LA-UR-09-8111, December 2009.**

**Los Alamos Field Office Plan 00.05, Rev. 5, National Nuclear Security Administration, Los Alamos Site Office, Quality Assurance Program, March 2012.**

**Los Alamos Field Office Plan 00.14, Rev. 1, Los Alamos Site Office, Integrated Management System Description including LASO Function, Responsibilities, and Authorities (FRAs), January 2012.**

**Los Alamos Field Office Management Procedure, MP 05.03, Rev. 01, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), July 2009.**

**Los Alamos Field Office Management Procedure, MP 05.13, Rev. 01, LASO Land Conveyance and Transfer Project, July 2009.**

**Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), Rev. 1, 2000**

**Multi-Agency Radiation Survey and Assessment of Materials and Equipment Manual (MARSAME), 2009**

**Nuclear Regulatory Commission, Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission, NUREG/BR-0058, Rev 4, September 2004.**

**Nuclear Regulatory Commission, Appendix D, ALARA Analysis, NMSS Decommissioning SRP, September 15, 2000.**

**Nuclear Regulatory Commission, Reassessment of NRC's Dollar Per Person-Rem Conversion Factor Policy, NUREG-1530, December 1995.**

**Office of Management and Budget, Regulatory Analysis, Circular No. A-4, September 17, 2003.**

State of New Mexico Environment Department, *Compliance Order on Consent*, March 1, 2005, (Revised June 18, 2008).

### 3.2 Definitions

**Actual or Likely Use (Scenarios)** - The reasonably anticipated future uses of land or property considering the history of use and implementable use restrictions, designations or controls; affected populations, or ecosystems, natural resources or historic or cultural significance. For real property considerations also include Federal and State use designations; local zoning and future land use plans; and proximity to residences, commercial, industrial or unique cultural or historic areas. *(DOE O 458.1)*

**ALARA (As Low As Reasonably Achievable)** - An approach to radiation protection to manage and control releases of radioactive material to the environment, and exposure to the work force and to members of the public so that the levels are as low as is reasonably achievable, taking into account societal, environmental, technical, economic, and public policy considerations. As used in this Order, ALARA is not a specific release or dose limit but a process which has the goal of optimizing control and management of releases of radioactive material to the environment and doses so that they are as far below the applicable limits of the Order as reasonably achievable. *(DOE O 458.1)*

**ALARA Process** - A graded process for evaluating alternative operations, processes, and other measures, for optimizing releases of radioactive material to the environment, and exposure to the work force and to members of the public taking into account societal, environmental, technical, economic, and public policy considerations to make a decision concerning the optimum level of public health and environmental protection. A graded approach provides the flexibility to perform qualitative or quantitative ALARA analyses. For low doses, qualitative evaluations normally will suffice. *(DOE O 458.1)*

**Areas of Concern** - Any area that may have had a release of a hazardous waste or hazardous constituent, which is not a Solid Waste Management Unit. *(Compliance Order on Consent)*

**Authorized Limit** - A limit on the concentration or quantity of residual radioactive material on the surfaces or within property that has been derived consistent with DOE directives including the ALARA process requirements. An authorized limit may also include conditions or measures that limit or control the disposition of property. *(DOE O 458.1)*

**Constant Dollars** - An estimate of costs for environmental dose reduction with no allowance or no account for inflation or time value or money. *(OMB Circular A-4, September 17, 2003)*

**Data Quality Objectives** - Qualitative and Quantitative statements derived from the DQO process that clarify the study technical and quality objectives, define the appropriate type of data, and specify tolerable levels of potential decision errors that will be used as the basis for establishing the quality and quantity of data needed to support decisions. The DQO Process is a systematic strategic planning tool based on the scientific method that identifies and defines the type, quality, and quantity of data needed to satisfy a specified use. The key elements of the process include:

- Concisely defining the problem
- Identifying the decision to be made
- Identifying the inputs to that decision
- Defining the boundaries of the study

- Developing the decision rule
- Specifying tolerate limits on potential decision errors
- Selecting the most resource efficient data collection design

DQOs are the qualitative and quantitative outputs from the DQO process. (MARSSIM).

**Discount Rate** - An adjustment factor used in calculating the present worth of expected yearly benefits and costs in an ALARA analysis. Typically 0.07 per year for the first 100 years and 0.03 per year thereafter or 0.07 for buildings (life span < 100 years) and 0.03 for soil (life span >100 years). (*OMB Circular A-4*, September 2003; Nuclear Regulatory Commission, Appendix D, *ALARA Analysis, NMSS Decommissioning SRP*, September 2000; and Nuclear Regulatory Commission, *Reassessment of NRC's Dollar Per Person-Rem Conversion Factor Policy*, NUREG-1530, December 1995)

**Environmental Surveillance** - The collection and analysis of samples of air, water, soil, foodstuffs, biota, and other media at the DOE site and surrounding environs and the measurement of external radiation to demonstrate compliance with applicable standards, assess radiation exposure of members of the public, and assess effects, if any, on the environment. (*DOE O 458.1*)

**Institutional Control** - A non-engineered instrument, such as administrative and legal controls (zoning restrictions, requiring well-drilling permits, land use covenants) [i.e., institutional controls], that help minimize the potential exposure to contamination or protect the integrity of the site. (*DOE O 430.1B and EPA Institutional Controls EPA-540-R-09-001*) Included may be measures or physical controls such as fences, signs, etc. to control access and minimize disturbances to engineered features.<sup>1</sup>

**Long Term Stewardship (LTS)** - The physical controls, information and other mechanisms needed to ensure protection of people and the environment at sites where DOE has completed or plans to complete cleanup (e.g., landfill closures, remedial actions, removal actions, and facility stabilization). This concept of LTS includes, *inter-alia*, land use controls, monitoring, maintenance, and information management. (*DOE Long-Term Stewardship Study*, Vol. 1, October 2001)

**Potential Release Site (PRS)** – A generic term used at LANL that refers to potentially contaminated sites at LANL that have been identified in the corrective action process.

**Present Worth** - An economic technique that translates future costs and benefits into present day values to account for the time value of money. The technique is used to compare costs and benefits that occur at different points in time, and allows them to be aggregated in a consistent form. For purposes of this procedure, the reader is directed to the NRC's detailed guidance in Appendix D "*ALARA Analyses*", NMSS Decommissioning SRP, 9/15/00, which in turn is based on government-wide guidance issued by OMB for the conduct of cost-benefit analysis.

**Quality** - The condition achieved when an item, service, or process meets or exceeds the user's requirements and expectations. (*DOE O 414.1C*)

**Quality Assurance** - All those actions that provide confidence that quality is achieved. (*DOE O 414.1C*)

---

<sup>1</sup> *Consolidated NMSS Decommissioning Guidance—Decommissioning Process for Materials Licensees, NUREG-1757, Vol. 1, Rev.1, September 2003 provided additional detail to the definition. Although not specifically applicable to Los Alamos Field Office work, the clarification is helpful.*

**Resource Conservation and Recovery Act (RCRA)** - The Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976 (42 U.S.C. 6901 et seq.) that regulates the generation, transportation, treatment, storage, and disposal of hazardous waste.

**Real Property** - Land and anything permanently affixed to the land such as buildings, fences and those things attached to the buildings, such as light fixtures, plumbing and heating fixtures, or other such items, that would be personal property if not attached. (DOE O 458.1.)

**Residual Radioactive Material** - Any radioactive material which is in or on soil, air, water, equipment, or structures as a consequence of past operations or activities of the Department or its predecessors. (DOE O 458.1)

**Restricted Release** - A transfer of real property from DOE control for a limited, specifically stated application subject to controls or restrictions on use implemented by a designated party or through a specific process. Examples of controls would include institutional controls (deed restrictions, covenants, etc.) or access controls (fence, barriers, etc.).

**Solid Waste Management Unit (SWMU)** - Any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at a facility at which solid wastes have been routinely and systematically placed. (Compliance Order on Consent)

**Supplemental Limit** - An authorized limit other than one pre-approved per DOE O 458.1 Section (§) 4.k.(6)(f). Supplemental limits must comply with DOE O 458.1 § 4.k(e).

**Unrestricted Release of Real Property** - Removal of radiological controls for a given real property without the need for further controls on current and future use of the property after demonstrating compliance with DOE O 458.1 § 4.k.

### 3.3 Acronyms

AEA	Atomic Energy Act
ALARA	As Low As Reasonably Achievable
AMEPO	Assistant Manager for Environmental Projects Office
AMNSM	Assistant Manager for National Security Missions
AOC	Areas of Concern
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOE	Department of Energy
DOT	Department of Transportation
DQO	Data Quality Objectives

EPA	Environmental Protection Agency
ERPP	Environmental Radiation Protection Program
ESLs	Ecological Screening Levels
FPD	Federal Project Director
HIR	Historical Investigation Report
HQ	Headquarters
IWP	Investigation Work Plan
LANL	Los Alamos National Laboratory
LANS	Los Alamos National Security, LLC
LM	DOE's Office of Legacy Management
LTS	Long Term Stewardship
M & O	Management and Operating Contractor
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MARSAME	Multi-Agency Radiation Survey and Assessment of Materials and Equipment Manual
MREM	Millirem
NEPA	National Environmental Protection Act
NMED	New Mexico Environment Department
NNSA	National Nuclear Security Administration
NNSA-SC	National Nuclear Security Administration Service Center
NRC	Nuclear Regulatory Commission
OMB	Office of Management and Budget
POC	Point of Contact
PR-ID	Project Review and Requirements Identification
PRS	Potential Release Site
QA/QC	Quality Assurance and Quality Control
RAD	Radiological
RCR	Remedy Completion Report

RCRA	Resource Conservation and Recovery Act
RESRAD	Residual Radioactivity (computer model)
SALs	Screening Action Levels
SIR	Site Investigation Report
SRR	Selected Remedy Report
SWEIS	Site-Wide Environmental Impact Statement
SWMU	Solid Waste Management Unit
TED	Total Effective Dose
UCL	Upper Confidence Level

## 4.0 RESPONSIBILITIES

### 4.1 Manager, Los Alamos Field Office

- 4.1.1 Ensures the implementation and integration of this procedure at the Los Alamos Field Office.
- 4.1.2 Implements the DOE requirements set forth in DOE O 458.1 where reference is made to the "Field Element Manager".
- 4.1.3 Is the DOE/Los Alamos Field Office radiological regulatory authority responsible for management of radioactive materials associated with environmental remediation activities and projects at real property sites at the Los Alamos National Laboratory (LANL).
- 4.1.4 Ensures that the annual budget requests include the funding and resources needed to implement the requirements of DOE O 458.1 including sufficient staff and Federal Project Directors (FPD) to execute the requirements in this procedure.
- 4.1.5 Requests changes as allowed by DOE O 458.1 from a Cognizant Secretarial Officer in consultation with the Chief Health, Safety and Security Office, including:
  - Requests for temporary public dose limits.
  - Use of alternative dose evaluation models.
  - Approval of Authorized Limits for the release of real property.
  - Deviation from any requirement set forth in DOE O 458.1.
- 4.1.6 Makes determinations on whether recommendations meet DOE radiological regulatory requirements and that the activities or project will be protective of the public, site workers, and environment.
- 4.1.7 Delegates the signature authority for approval to the Assistant Manager for Environmental Projects Office (AMEPO), as appropriate.

- 4.1.8 When appropriate, requests approval of authorizations, such as authorization for supplemental limits, from the Program Office.
- 4.1.9 Concurs in recommendations and bases for remediation activities and project completions.

**4.2 Los Alamos Field Office Assistant Manager for Environmental Projects Office (AMEPO) and Assistant Manager for National Security Missions (AMNSM), Or As Delegated**

- 4.2.1 Provides approval or concurrence, or disapproval on Real Property RAD Release or No Further Action documentation packages.
- 4.2.2 Provides approval or concurrence, or disapproval on Interim and LTS documentation packages.
- 4.2.3 Ensures an environmental ALARA program is developed and implemented for all remediation activities.
- 4.2.4 Coordinates with Los Alamos Field Office Assistant Managers on issues related to the Real Property RAD Release.
- 4.2.5 Coordinates with the Office of Public Affairs, and the Management and Operating (M&O) Contractor to ensure the public and stakeholders have been informed of release limits, criteria, and the ALARA Process.
- 4.2.6 Ensures Program planning and requests Program funding for implementation.
- 4.2.7 Provides direction to staff on implementation of this procedure.
- 4.2.8 Serves as FPD if an FPD has not been assigned.
- 4.2.9 Communicates with the State of New Mexico, Secretary of the Environment on program direction and policy issues relative to radiological regulatory issues.

**4.3 Federal Project Director**

- 4.3.1 Leads the Integrated Project Team activities for the evaluation of remedial options, ALARA analyses, closure of radiologically contaminated sites, and/or LTS.
- 4.3.2 Initiate direction from the Contracting Officer (or representative) for the M&O to prepare the documents to comply with DOE radiological regulations.
- 4.3.3 Reviews work plans, investigation reports, corrective measures evaluations, selected remedy reports, and other project documents such as dose and cost assessments, enlisting subject matter experts as necessary, and resolving comments as necessary.
- 4.3.4 Unless otherwise a responsibility of the Los Alamos Field Office Manager or Contracting Officer, serves as signature authority on all documentation packages prepared in accordance with this procedure by providing approval, concurrence, or non-approval decisions.

4.3.5 Recommends remedies that comply with the radiological regulations as referenced by this procedure.

4.3.6 Communicates with the NMED as required by this procedure.

#### **4.4 Facility Representative (When Applicable)**

4.4.1 Performs monitoring of contractor activities conducted in support of environmental remediation activities.

#### **4.5 Los Alamos Field Office Environmental Radiation Protection Program Point of Contact (ERPP POC)**

4.5.1 Serves as the ERPP POC and/or subject matter expert for the review, and approval recommendation where applicable, of work plans, investigation reports, corrective measures evaluations, and corrective measures plans.

4.5.2 Reviews and recommends to the AMEPO for site release, No Further Action, Interim Management, or LTS.

4.5.3 Reviews documentation package submitted by M&O Contractor for completeness and technical accuracy, as defined in Attachment I, and resolves any deficiencies.

4.5.4 Resolves technical issues with M&O Contractor, as needed.

4.5.5 Provide oversight of the implementation of the Environmental ALARA process at LANL.

4.5.6 Compares potential clean up actions at LANL with benchmark values from other DOE sites, particularly CERCLA-regulated sites.

4.5.7 Ensures that the Site Annual Environmental Surveillance Report contains information regarding RAD release sites (for land and structures), and limits as required by DOE O 231.1B.

4.5.8 Ensures that the M&O Contractor's process, procedures, quality assurance for implementing release of real property containing residual radioactivity are assessed on a periodic basis (either by field inspections/surveillances, audits, or self assessments).

4.5.9 For those sites having sufficient nuclear material, assists project personnel in meeting 10 CFR 830.

4.5.10 Coordinate with the Los Alamos Field Office Quality Assurance Office on issues or concerns related to the M&O Contractor's Quality Assurance Program.

## **5.0 PROCEDURE**

Site evaluation and decision making for residual radionuclides at potential release sites (PRSs) typically parallels, and is integrated with, the RCRA corrective action process. The Los Alamos Field Office ERPP POC evaluates the sites for radiological dose to workers, the public, and the environment. The Los Alamos Field Office ERPP POC reviews and concurs with documents that address environmental characterization, and the content of subsequent reports resulting from characterization activities. This process typically includes review and concurs with work plans,

site characterization, ALARA analysis, documents related to the release of property, long term and interim management, supplemental limits, and, if necessary, a Corrective Measures Evaluation and Corrective Measures Implementation.

Attachments I and II provide a process overview diagram and responsibility matrix, respectively.

## 5.1 Historical Investigation Reports

5.1.1 The FPD shall initiate direction from the Contracting Officer (or representative) for the M&O to prepare a Historical Investigation Report (HIR) to provide a site review for each site or group of sites which are candidates for radiological investigation to describe the candidate site and to collect and document historical uses of the property.<sup>2</sup> The HIR(s) shall include as applicable:

- Physical description of site (name, location, boundaries).
- List of existing structures or improvements on the site including any underground utilities, drain lines, water wells.
- Known or suspected waste disposal facilities or septic systems.
- Radioactive characteristics (e.g. waste streams, contaminated structures, etc.).
- Disposal/remedial practices and records (as applicable).
- Previous radiological characterization data and/or environmental monitoring data for the site if any.
- Physical site characteristics (hydrology, geology, meteorology, etc.).
- Description of current operations/processes at the site.
- Description of historical operations/processes performed at the site.
- Types and quantities of known or suspected radiological materials used, produced, or detected at the site.

5.1.2 This requirement may be met by the site's inclusion in and compliance with the Compliance Order on Consent provision for land transfer (which is subject to CERCLA compliance), provided similar information is available, in which case a new HIR is not required.<sup>3</sup> Sites can be grouped together only if they are contiguous and have a common operational history. The final HIR shall be retained by the M&O as part of the administrative record for the site.

## 5.2 Environmental ALARA Analysis

5.2.1 Ensure Potential Environmental Radiological Impacts are identified through processes such as the Project Review and Requirements Identification (PR-ID) process, review of environmental remediation investigation reports, and the Site-Wide Environmental Impact Statement (SWEIS) process. Each planned facility or operation with the potential to release radioactive materials to the environment

---

<sup>2</sup> This requirement is derived from DOE Order 458.1 §4.k(3)(a) and (b) which states: Property potentially containing residual radioactive material must not be cleared from DOE control unless either:

(a) The property is demonstrated not to contain residual radioactive material based on process and historical knowledge, radiological monitoring or surveys, or a combination of these; or

(b) The property is evaluated and appropriately monitored or surveyed.

Acceptable programs for use of Process and Historical Knowledge are defined in DOE Order 458.1 §4.k.(5).

<sup>3</sup> DOE Order 458.1 §4.k.(7) allows environmental activities using the CERCLA process to demonstrate compliance with the DOE order using CERCLA required documentation. Land transfer (clearance) under the Compliance Order on Consent is subject to CERCLA compliance.

and create external radiation fields in the environment is subjected to reviews before work begins.

- 5.2.2 Review annual Environmental Radiological Impacts through annual dose assessments. Doses are reviewed annually for ALARA considerations, and recommendations or direction are provided to facilities and operations based on these reviews, if necessary. Reviews include potential for radiological environmental impacts from radioactive air emissions; radioactivity in soil, sediment, biota, surface water, and groundwater; and penetrating external radiation based on existing monitoring programs such as Rad-NESHAP, AIRNET, DPRNET, NEWNET, and surface-water and groundwater-monitoring systems.
- 5.2.3 Recommend ALARA-Optimized Remediation Goals. The ERPP POC assists the Environmental Management FPDs with the optimization of remediation goals using ALARA. This usually involves performing a cost-benefit analysis to establish a set of remediation goals at and below predetermined levels (an ALARA goal of a few mrem total effective dose [TED] per year or less for real property), based on the appropriate land use scenario, determining the cost associated with averting collective dose based on the remediation goals, determining the cost of reaching each of these goals through remediation efforts, and comparing the cost of averting the collective dose with the cost of remediation.
- 5.2.4 Review and concur with ALARA analyses for Land Conveyance. ALARA analyses are performed for the conveyance of DOE-held land to the County or into the private sector. If the calculated dose is greater than 3 mrem TED (individual) or 10 person-rem TED (collective), a quantitative ALARA analysis is performed. (DOE Draft Standard, Applying the ALARA Process for Radiation Protection of the Public and Environmental Compliance with 10 CFR Part 834 and DOE 5400.5 ALARA Program Requirements, 1997) Typically, residential use is assumed for the analysis as the limiting scenario with a specified number of individuals expected to live on the land parcel for a period of 200 years. A collective dose is then calculated. The funds that should be spent to avert the collective dose, based on a dollar per person-rem value, are then calculated (NUREG-1530). The cost of remediating the land parcel to background levels or some other predetermined level is estimated. Finally, the amount of funds that should be spent to avert the collective dose is compared with the remediation cost, and a decision is made whether it is cost-effective to proceed with the remediation. Typically, if the remediation cost exceeds the averted collective dose cost, no further action would be taken. In addition, an individual dose ALARA goal of <15 mrem per year TED for real property should be considered when developing authorized limits for land conveyance.
- 5.2.5 Review Qualitative ALARA analyses. Qualitative ALARA analyses are performed on potential radiological impacts identified through the PR-ID system. Qualitative analyses are performed on release of real property that could cause a potential dose to the public less than 3 mrem TED (individual) or 10 person-rem TED (collective). Dose impact approximations are made using a variety of tools and methods (e.g., use of mrem/Ci factors) to provide a means of performing qualitative ALARA analyses.
- 5.2.6 Review and concur with Quantitative ALARA Analyses. Based on qualitative ALARA analyses, individual projects that could cause the potential dose to the public to exceed 3 mrem TED (individual) or 10 person-rem TED (collective);

collective dose out to 80 km radius for airborne releases and on-site for residual radioactivity analyses) are subjected to quantitative ALARA analyses using the steps described below.

- 5.2.7 Quantitative ALARA analyses include societal and environmental considerations. In addition, these ALARA analyses consider DOE guidance for performing the following environmental ALARA assessments.
- Identify possible environmental dose reduction systems, such as alternative operating methods or controls, which are reasonably achievable. The options should range from the most rudimentary (base case) to the most technologically sophisticated systems.
  - Quantify exposures and doses to individuals and populations in the vicinity of the activity for each candidate radiation protection system.
  - Quantify the economic factors, including the costs of purchasing, installing, operating, and maintaining the dose reduction system equipment, the costs of performing environmental remediation to meet specific dose goals, and the potential health effects associated with the exposure of people and any other direct or indirect cost resulting from exposures to radiation.
  - Identify and estimate other health and non-health detriments and benefits.
  - Evaluate process alternatives using a quantitative cost-benefit analysis optimization, when possible. If evaluations include assumptions, judgments, and limitations that cannot be quantified, and potential doses are well below the dose limit, qualitative analyses can be used with full documentation.
  - Select one of the candidate environmental dose reduction systems based on the factors and analyses described above.
- 5.2.8 Provide recommendations of the ALARA analysis to the appropriate operating organization and monitor the results through the routine environmental surveillance program.
- 5.2.9 A checklist containing the following specific factors is prepared for a quantitative ALARA analysis.
- Maximally-exposed individual member of the public (for release of property this includes doses under likely use and worst plausible scenarios).
  - Collective dose to the population (out to 80 km radius for airborne pathways analysis and on-site for residual radioactivity analysis).
  - Doses to workers (i.e., does the environmental dose reduction system increase doses to workers?).
  - Applicable alternative processes (treatments, operating methods, or controls).
  - Doses for each alternative evaluated.
  - Costs for each alternative evaluated.
  - Changes in costs among alternatives.
  - Societal and environmental (positive and negative) impacts associated with alternatives.
- 5.2.10 Ensure the ALARA process is integrated within the corrective action process.
- 5.2.11 Refer to paragraphs 5.8 through 5.17 for more detailed guidance on the ALARA process and development of administrative records.

### 5.3 Dose Assessments

- 5.3.1 As part of the ALARA process, a dose assessment may be required. Depending upon the radionuclides present it will likely be necessary to conduct the dose assessment for hundreds, or even thousands, of years. (DOE Draft Standard ALARA guidance<sup>4</sup> suggests time cut-off of a “few hundred” years, which is tantamount to applying a 100 percent discount rate to all health effects that occur after this time.) Such a long time horizon requires that the time value of benefits (mostly public dose reductions) and economic costs be considered. Present worth techniques help ensure that future health effects are valued the same as current effects, and that the summations and comparisons required over the long time horizons are meaningful. Consistent with OMB guidance and NRC regulatory impact analysis guidelines, all benefits and costs are to be expressed in a present-worth basis using discount rates between three and seven percent (a zero-percent-rate case should be included as part of sensitivity analysis). A lower but still positive discount rate may be recommended.
- 5.3.2 Other than collective dose averted, other beneficial effects from the remedial action could include changes in land values, aesthetics, reduction in public concern, etc. In addition to remediation costs, undesirable “costs” could include occupational/worker risks (radiological and non-radiological), transportation costs, environmental impacts, and other “intangibles.” In order to compare the benefits and costs of a remedial action, it is necessary to convert them to a comparable unit of measure. All benefits and costs should be given a monetary value if possible. There are situations where a credible monetary value cannot be developed. A qualitative treatment of such effects, while not preferred, may then be appropriate. In converting averted doses to monetary equivalents, use conversion factors within the range recommended by DOE and NRC ALARA guidance documents, and regulatory agency guidance documents (e.g., DOE proposed a recommendation of \$1000-\$6000 per person-rem,<sup>5</sup> which equates to a range of \$2M-\$12M per hypothetical radiation-induced cancer fatality; NRC NUREG-1530 recommends \$2000 per person-rem averted or about \$3M per statistical fatality; EPA and DOT recommend value of statistical life amounts of \$7.4M and \$6.2M respectively;<sup>6</sup> and OMB Circular A-4 discusses a range of \$1M to \$10M for the value of statistical life is often derived in calculating cost-benefit analyses).
- 5.3.3 For the purpose of clearance of real property where applicable, approved CERCLA remediation criteria may be considered equivalent to Authorized Limits if the Los Alamos Field Office Manager has determined that the criteria meet the requirements in DOE O 458.1 for Authorized Limits, and provided that the use of the criteria as DOE Authorized Limits is documented and approved as would be an Authorized Limit.

### 5.4 Investigation Work Plan (IWP)

- 5.4.1 The FPD shall initiate direction from the Contracting Officer (or representative)

---

<sup>4</sup> DOE Draft Standard, *Applying the ALARA Process for Radiation Protection of the Public and Environmental Compliance with 10 CFR Part 834 and DOE 5400.5 ALARA Program Requirements*

<sup>5</sup> DOE Draft Standard, *Applying the ALARA Process for Radiation Protection of the Public and Environmental Compliance with 10 CFR Part 834 and DOE 5400.5 ALARA Program Requirements*

<sup>6</sup> EPA Guidelines for Preparing Economic Analyses, December 2010; and DOT Memorandum *Treatment of the Economic Value of a Statistical Life in Departmental Analyses – 2011 Interim Adjustment*, July 2011

for the M&O to prepare an Investigation Work Plan (IWP) for each site or group of sites based on the HIR. In general, the IWP will:

- Define the intended or reasonably foreseeable future uses of the property (i.e., actual or likely use scenarios).
- Determine the schedule for the investigation.
- Identify radionuclides of concern and determine the nature and extent of radiological contamination.
- Identify the applicable release standard (pre-approved authorized limit,<sup>7</sup> supplemental limit<sup>8</sup>).
- Identify potentially contaminated environmental media.
- Identify likely release mechanisms and exposure pathways.
- Identify potential human and ecological receptors.
- Establish Data Quality Objectives (DQOs).

5.4.2 In particular, the IWP shall include, but not be limited to, the following (as applicable):

- The proposed method to demonstrate compliance with applicable dose constraint supported by a complete exposure pathway analysis using appropriate methodologies, techniques, parameters and models (such as the RESRAD family of codes) that meet the DOE quality assurance requirements under the CRD to DOE O 414.1D, Quality Assurance, dated April 2011.
- Specifications as to locations and numbers of samples to be collected in order to meet characterization or DQOs.
- Procedures for sample collection and/or radiation surveys.
- Analytical techniques for measurement of radiological constituents in samples.
- QA methodology applicable to sample collection and analytical measurements.
- Worker health and safety practices to be implemented during the investigation including requirements for radiation dosimetry, bioassay, and air sampling.
- ALARA practices to be used during the site investigation including consideration of public protective measures.<sup>9</sup>
- Waste management practices associated with site investigation activities.

5.4.3 The FPD shall review the IWP, provide comments as appropriate, and accept resolution of comments or approve the document.

5.4.4 The FPD shall forward a copy of the approved document to NMED for informational purposes. The approved IWP shall be retained as part of the administrative record for the site.

5.4.5 Investigation information for both radiological and hazardous constituents may be reported in a single document.

5.4.6 Based on planned schedules and budgetary constraints, the FPD shall direct the

<sup>7</sup> The requirements for use of authorized release limits is given in DOE Order 458.1 §4.k.(6).

<sup>8</sup> If pre-approved authorized limits are found not to be protective, appropriate or practical, the contractor may request a revised release limit in accordance with DOE Order 458.1 §4.k.(6)(f)

<sup>9</sup> DOE Order 458.1 §4.d. requires a documented ALARA process be implemented to optimize control and management of radioactive activities. Furthermore, §4.h. requires compliance with the ALARA process for management and storage of radioactive wastes.

contractor to execute the site investigation in accordance with the IWP.

- 5.4.7 During the site investigation, samples shall be collected and analyzed in accordance with the IWP and meet the requirements of DOE O 458.1 §4.k.(8) and established DQOs.
- 5.4.8 Los Alamos Field Office Facility Representative(s) provides oversight during the radiological investigation activities and documents the results of such oversight.

## **5.5 Evaluations of Investigation Results (Site Investigation Report)**

- 5.5.1 The FPD shall initiate direction from the Contracting Officer (or representative) for the M&O to prepare a Site Investigation Report (SIR) documenting the results of the site investigation, the analytical data, as well as radiological and cost assessments necessary for an ALARA evaluation. The SIR shall include:
  - A narrative describing the site investigation activities.
  - Site maps, drawings, or photographs showing locations of all samples collected.
  - Analytical results of all samples.
  - Applicable quality assurance data, including chain of custody records and instrument calibration records, evaluation of errors in analytical data. demonstrating achievement of data quality objectives.
  - A preliminary dose assessment supported by a complete exposure pathway analysis based on analytical data using DOE approved modeling methodologies and include in the assessment evaluations of variations and the durability of institutional controls as necessary.
  - A quantified break down of the economic costs expressed in constant dollars regarding environmental dose reduction options, from the simplest to the most complex remedial alternatives.
- 5.5.2 The assessment shall comply with the requirements of this procedure; in particular section 5.3 on Environmental ALARA Analysis. Both individual and population (collective) doses shall be assessed for the actual or likely land use scenarios. Best estimates of input parameters for the dose assessment (and for other ALARA cost-benefit factors) should be used where possible, rather than highly conservative, bounding estimates.
- 5.5.3 Based on the SIR and associated documents and other decision factors, the FPD shall make an initial determination whether to pursue remediation separately for purposes of radiological risk reduction or in conjunction with remediation of hazardous constituents under the Compliance Order on Consent. To aid this evaluation, an estimate of the combined risk presented by all carcinogenic contaminants shall be made, if possible, unless a person cannot reasonably be exposed to both chemical and radiological carcinogens.
- 5.5.4 The FPD shall review, provide comments as appropriate, accept resolution of comments and concur with the SIR.
- 5.5.5 The FPD shall forward a copy of the approved document to NMED for information. The final SIR shall be retained by the M&O as part of the administrative record for the site.

## 5.6 Recommendation of Corrective Actions for Radiologically Contaminated Sites

- 5.6.1 Although this procedure addresses radiological regulatory requirements, any remedy proposed for environmental radiological remediation shall also be protective regarding hazardous constituents regulated under the Compliance Order on Consent to meet State of New Mexico regulations.
- 5.6.2 If remediation is warranted based on the SIR, the FPD shall initiate direction from the Contracting Officer (or representative) to the M&O that remediation alternatives be evaluated and documented in a Selected Remedy Report (SRR). The SRR shall include:
- A description of a range of reasonable alternatives to remediate the site to achieve the stated remediation goal. The range of alternatives should consider full retrieval of radiological contaminants, appropriate and viable stabilization measures, through in-place protection or disposal with/without institutional controls.
  - Discussion of the graded comparative approach to meeting specified requirements and remedy selection criteria. Include discussion of relevant factors in the decisions, weighting rationales, sensitivity analyses, and judgments made. Use applicable CERCLA/RCRA cleanup guidance and DOE/NRC radiological assessment guidance, as appropriate.
  - Specification of the selected remedy and justification for selection including the ALARA analyses and factors and integration with remedy selection criteria addressing hazardous constituents under the Compliance Order on Consent.
  - Plans to inform the public of the selected remedy. This may include written notice or public meetings.
- 5.6.3 All alternatives shall be evaluated to demonstrate compliance with the public dose limits in DOE O 458.1, 4.b.1. Alternative evaluations shall include an ALARA assessment per DOE O 458.1, 4.d. Evaluations shall also include drinking water and groundwater per DOE O 458.1, 4.i and biota per 4.j.
- 5.6.4 In-place disposal of radioactive waste and transuranic wastes shall meet the requirements of DOE O 458.1, 4.h.1 and the requirements of DOE O 435.1. For all wastes disposed before September 26, 1988, the methodologies for site-specific radiological performance assessment and composite analysis shall use DOE Manual 435.1-1, Chapters III or IV, Sections P and Q (except for the performance objectives in P(1)). All low-level wastes shall be evaluated for the 1,000-year performance period. Transuranic wastes disposed of after 1985, shall be evaluated in accordance with the requirements of 40 CFR Part 191, including for a 10,000-year performance period. The time to peak dose is also an important consideration and should be presented. In accordance with DOE O 435.1, compliance assessments against 40 CFR Part 191 must be approved by DOE Headquarters.
- 5.6.5 If the potential use of the property is to release the property for unrestricted use, the alternatives shall be evaluated to meet the public dose limits for an indefinite period per DOE O 458.1, 4.k.
- 5.6.6 Properties shall be evaluated for institutional controls per DOE O 458.1, 4.k.4 and consistent with DOE P 454.1, Use of Institutional Controls and its associated implementation guide. For higher risk sites intended to remain under continued DOE control, more-durable institutional controls shall be proposed as a remedial

component of the overall remedy. "Higher risk" sites have longer hazard durations and higher hazard levels should controls fail over the long term as compared with lower risk sites.

- 5.6.7 The FPD shall review, provide comments as appropriate, and accept resolution of comments or approve the SRR. At the FPD's discretion or as directed by the Los Alamos Field Office Manager, the FPD may request an external review of the SRR before approval.
- 5.6.8 The FPD shall forward a copy of the final document to NMED for information. The SRR shall be retained by the M&O as part of the administrative record for the site.
- 5.6.9 The FPD shall submit the SRR with the associated HIR, IWP, SIR, and associated assessments to the Los Alamos Field Office Manager with a recommendation for course of action that is protective of the public, site workers, and environment.
- 5.6.10 If remediation is NOT warranted, the FPD shall submit the SIR and associated documents to the Los Alamos Field Office Manager for final approval that the radiologically contaminated sites meet the requirements of DOE O 458.1 and, if necessary recommend administrative controls for the site.
- 5.6.11 The Los Alamos Field Office Manager shall make a final approval that the radiological remediation course of action recommended, release limits, the administrative controls, or the existing site conditions are acceptable based on the SIR or SRR to protect the public, site workers, and environment. This approval shall be documented by formal memorandum for the administrative record.

## **5.7 Implementation of Selected Radiological Remedy**

- 5.7.1 Based on planned schedules and budgetary constraints, the FPD shall initiate direction from the Contracting Officer (or representative) for the M&O authorizing execution of the remediation activities defined in the SRR. The execution authorization shall include direction on an implementation plan, engineering, and construction to satisfy project management requirements of DOE O 413.3B.
- 5.7.2 The contractor shall prepare a Remedy Implementation Plan as directed in the authorization letter even if the remedy consists solely of implementation of institutional controls (see discussion below for LTS Implementation Plan).
- 5.7.3 A copy of the letter and the Remedy Implementation Plan once submitted by the contractor shall be retained as part of the administrative record for the site.
- 5.7.4 Any remediation activities shall comply with public dose limits in DOE O 458.1, § 4.b.1, airborne radioactive effluent releases in 4.f, liquid releases in 4.g, and be protective of groundwater drinking sources per 4.i.
- 5.7.5 Los Alamos Field Office Facility Representative(s), when applicable, conducts follow-up activities to verify remedial actions are implemented. Follow-up activities may be based on a graded approach if appropriate for the complexity, level of effort, and cost of the remediation. Document the results of such oversight.

- 5.7.6 The FPD shall initiate direction from the Contracting Officer (or representative) for the M&O to collect post-remediation confirmatory samples and measurements as appropriate. For Material Disposal Areas G, H, and L regulated as permitted units,<sup>10</sup> all radiological sampling and verification activities shall be integrated with the Sampling and Analysis Plans for hazardous constituents under approved Closure Plans.
- 5.7.7 If residual radioactive materials exceed authorized limits (25 mrem above background Total Effective Dose (TED) for real property, DOE O 458.1) for unrestricted release and the property is in an accessible location and it would be unreasonably costly to remove the residual radioactive material, then the property may be maintained under LTS.

## **5.8 Evaluation and Documentation of Remediation Completion (Remediation Completion Report)**

- 5.8.1 The FPD shall initiate direction from the Contracting Officer (or representative) for the M&O to prepare a Remediation Completion Report (RCR) documenting the results of post remediation measurements and whether remediation goals were met that includes:
- A confirmatory statement of the planned future use of the property (free release, release with institutional controls, land transfer, etc.) for which the remediation was conducted, a conclusion as to the success of the remediation, and a recommendation to DOE for action.
  - The remediation standard applicable to the planned future use of the site (authorized limit, supplemental limit).
  - Demonstration of compliance with the approved release limits and the DOE dose constraint per DOE O 458.1.
  - Dose modeling software output and documentation of modeling software parameters.
  - Locations and numbers of samples collected and/or direct measurements.
  - Procedures used for sample collection and/or radiation surveys.
  - Analytical techniques for measurement of radiological constituents in samples.
  - Quality assurance methodology applicable to sample collection and analytical measurements.
  - Analytical results of all post-remediation samples.
  - Worker health and safety practices implemented during the investigation and remediation, including requirements for radiation dosimetry, bioassay, and air sampling.
  - Wastes associated with remediation activities.
  - ALARA practices used during the site investigation and remediation activities.
- 5.8.2 The FPD shall review, provide comments as appropriate, accept resolution of comments, and recommend approval of the RCR. The FPD shall ensure requirements for Regulation and Release of Environmental Sites Containing Residual Radioactive Material are met.
- 5.8.3 The FPD shall provide the RCR to the Los Alamos Field Office Manager for his approval and documentation of the final actions for the site (these may include,

---

<sup>10</sup> *Final Resource Conservation and Recovery Act, November 30, 2010. Closure Plans are described in Attachment "G" series in the permit.*

free release with no restrictions, release with deed restrictions, transfer to non-federal entity, or retention for further action) and to obtain formal approval that:

- Interim corrective actions (if necessary), investigation, and remediation activities are complete.
- Risk to the public and the environment is acceptable and meets the public dose limits of DOE O 458.1.
- No further actions are required to protect the public or the environment.

5.8.4 The FPD shall forward a copy of the approved RCR to NMED for information. This may be completed before the submittal to the Los Alamos Field Office Manager. The approved document shall be retained as part of the administrative record for the site.

## **5.9 Closure of Investigations or Remediation**

5.9.1 The contractor shall provide a closure package documenting that property to be released meets the requirements for the specified release or whether DOE control must be maintained in accordance with this procedure. (For more detailed guidance, also refer to section 5.16 for property to be maintained under LTS and section 5.17 for required documentation for release of property.)

5.9.2 The FPD shall submit to the Los Alamos Field Office Manager a recommendation for closure based on the results of work performed to date.

5.9.3 NOTE: The requirements for DOE to protect the public and the environment from the hazards posed by radioactive materials have no time limit.

5.9.4 The Los Alamos Field Office Manager shall make a determination on the adequate completion of radiological remediation activities and on the course of action to close the property actions. This determination shall be documented by formal Notice of Completion for the administrative record.

5.9.5 The Los Alamos Field Office Manager shall direct that documentation on clearance of property be made available to the public as specified in DOE O 458.1, § 4.k.(10).

## **5.10 LTS of Closed Remediation Sites (Institutional Controls Implementation and Assurance Plan)**

5.10.1 The FPD shall initiate direction from the Contracting Officer (or representative) for the M&O to prepare an Institutional Controls Implementation and Assurance Plan (ICIAP) for higher risk sites intended to remain under DOE's LTS, using a graded approach. The ICIAP shall address the following content requirements as a minimum:

- Site conditions and risks with and without the controls in effect.
- Objectives of the controls and description of the legal enforceability of the controls.
- Identification of the organizations responsible for implementation and maintenance of the controls and who should be contacted if there is a failure of the control.
- A description of any authorized uses and nature of constraints and restrictions on the use of property.

- A description of the duration of the controls, the basis for the duration estimate, and the conditions that will end the controls.
- Life-cycle cost estimates for institutional controls.
- A description of the records and record retention management systems for the controls, how and where they will be maintained, and how the public will have access to the records.
- A description of the procedures for periodic review of land uses and controls to ensure they are being maintained and remain protective.
- A description of any natural, cultural, and historical resource management requirements.
- A description of any permanent markers or "awareness triggers" that will warn future generations about the hazards and locations of any buried waste or contamination.

5.10.2 For sites that remain under DOE's administrative control, the status and continued effectiveness of institutional controls shall be reported in the Annual Site Environmental Reports (in addition to other required reporting vehicles such as post-closure permits) until such time as the sites are either transferred to the Office of Legacy Management (LM) (once all site missions are completed and sites are substantially cleaned up) or transferred out of DOE's administrative control.

5.10.3 For sites considered as candidates for transfer to LM, the FPD shall initiate direction from the Contracting Officer (or representative) for the M&O to prepare a transition package that addresses all 10 transfer conditions in their transition framework. Many of the LM transfer conditions will have already been addressed during preparation of the ICIAP outlined above.

#### **5.11 Documentation Package Requirements for the Release of Real Property Containing Residual Radioactive Material**

5.11.1 Documents prepared in accordance with this procedure should be prepared in conjunction with similar documents addressing Resource Conservation and Recovery Act (RCRA) hazardous waste contamination under the Compliance Order on Consent, if appropriate. Remedial measures and/or institutional controls will be protective of both radiological and hazardous constituents.

5.11.2 DOE ALARA requirements must be documented and applied along with other criteria, principally the RCRA corrective action requirements. The ALARA process is sufficiently flexible to incorporate such criteria into the process, and in many cases, these factors or criteria are already part of the process (e.g., threshold remedy selection criteria are addressed in the ALARA process by consideration of dose constraints, balancing criteria such as cost are key factors in ALARA process assessments, etc.). All of these criteria are or can easily be addressed as part of the ALARA process and to document their consideration is clearly consistent with the ALARA documentation requirements.

5.11.3 A documentation package must be prepared for each site or building proposed for release. The M&O proposing the release must prepare the required documentation and forward copies to the Los Alamos Field Office. The Los Alamos Field Office requires three (3) copies of the documentation package. Further distribution and review of this documentation is discussed below; electronic submittal of the information is encouraged. The documentation must include the following major sections containing the indicated information:

- Introduction. The introduction must describe the proposed action at the specified site or building and clarify why the site is being proposed for radiological release. The intended use of the site or building must also be specified.
- Description of the site or building. A description of the site or building must be provided, including, location of the site or building and the area of the site or building proposed for release.
- History of the site or building. The history of the site or building must be summarized, including years of operation, types of operations occurring, and current status of the site or building. The radiological history of the site or building must be provided.
- Remedial action history at the site or building. If remediation at the site or building has occurred, the remediation activity shall be summarized. The information should also document and summarize the quantity and disposition of waste resulting from the remediation, or decontamination, disposition of the site/building.
- Final radiological condition. The package should provide a description of property surveys/measurements, including date, surveyor, instruments used, and results. This section should include a discussion of the sampling and analysis plan, results of an independent verification and any DQOs and other relevant quality assurance information. The sampling and analysis plan must be referenced and available on request. A summary of the final radiological conditions at the site or building shall be presented. The summary must include the radionuclides remaining at the site, their concentration (in appropriate units, e.g., pCi/g for soil contamination), and the depth of contamination, if applicable. Any "hot spot" areas as defined in DOE O 458.1 shall be identified. The radiological data used in documenting the final condition of a site must be collected and analyzed in a technically and legally defensible manner using an approved sampling and analysis plan. Examples of appropriate sampling and analysis plans may be found in the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) or in DOE/EH 0173-T, Environmental Regulatory Guide for Radiological Effluent Monitoring and Environmental Surveillance.
- Criteria for Release. Should identify the criteria used to support release (such as action levels), the basis for the criteria. If data quality objectives were developed and used, then there should be a discussion of applicability and appropriateness to the specific site.
- Dose assessment for the site or building using the DOE-required RESRAD model. The section on dose assessment should use site-specific data and parameters. If site-specific data and parameters are not used, then justification for the use of RESRAD, RESRAD-BUILD, or RESRAD-OFFSITE defaults, and use of parameter sensitivity studies should be provided as part of the documentation and summarized in this section. DOE requires the use of the RESRAD computer models for evaluating potential doses resulting from the presence of residual contamination. The latest versions of this program should be used. The actual version used must be specified. The RESRAD model should be used with site-specific modeling parameters, when known. The RESRAD Summary Report must be attached to the request clearly indicating the pathways considered in the analysis, the radionuclides and concentrations modeled, the area and depth of contamination, and the resulting modeled doses. Separate reports for each possible future use of the property should be included. For example, it may be appropriate to model Industrial or Recreational Land Use (whichever is most likely) as well as Residential Land Use (unlikely, but possible, if there is loss of institutional control) of the property. Consideration should be given to

including special pathways in the dose assessment as appropriate, if special pathways are not included in the dose assessment then justification should be provided.

- ALARA analysis. DOE O 458.1, § 4k(1) specifically mandates that the ALARA process be applied to the intended release of any real property. The documentation package should summarize the ALARA process applied to the evaluation and the conclusions of the ALARA analysis. The level of detail provided in this analysis should be subject to the professional judgment of the M&O and concurred with by the Los Alamos Field Office ERPP POC, with a graded approach commensurate with the residual radioactivity present and the projected future dose. In applying a graded approach, each element should be addressed.
- Restrictions on property used for disposition. The package should identify any restrictions to be placed on the released property, and an explanation of the mechanism(s) that provide a reasonable expectation that the restrictions will be implemented and enforced. If there is a recipient of the property being released, then the information should identify the recipient.
- Conclusions and Recommendation. The conclusions of the modeling efforts and the recommendation for release of the property should be clearly specified in the documentation package.
- References. Any references used for preparation of the documentation package should be listed.
- Attachments. Relevant attachments should be provided. The RESRAD Summary Report is always required. Other attachments may include site maps, the final site survey data, evaluation of the intended use of the property, remediation activity reports, etc.

## **5.12 Supplemental Limits**

Supplemental limits may be applied to specific property where circumstances indicate the guidelines or authorized limits are not appropriate (DOE O 458.1).

- 5.12.1 Review the justification for supplemental limits documented on a case-by-case basis using specific property data and criteria of this procedure and DOE O 458.1.
- 5.12.2 If appropriate, the ERPP POC prepares and recommends documentation from the Field Office Manager to the Program Office requesting supplemental limits be applied.
- 5.12.3 Establish site-specific monitoring and a schedule for periodic reevaluation to ensure future doses are within the supplemental limits.

## **5.13 Independent Verification**

- 5.13.1 Verification of the M&O sampling plan methodology and resulting analytical data for release of real property will be performed independently from the M&O as a means of evaluating and confirming (or rejecting) the defensibility of M&O sampling activities and data.
- 5.13.2 The extent of the independent verification will be determined on a case by case basis. It may consist of reviewing historical information regarding the property to be released and documenting that review. For those cases where a historical account is determined not to be sufficient, the verification will consist of at a minimum:

- Review of the LANS sampling plan for technical defensibility.
- Verification of the samples collected and/or survey points performed by LANS.
- Collection of verification samples/surveys as needed identifying locations of collected samples/survey points.
- Analysis of verification samples using methodologies comparable to those used by LANS.
- Review of LANS analytical data and comparison of verification data as applicable with the LANS data.

5.13.3 A report will be prepared by the party performing the independent analysis that provides the results of the verification and indicates either agreement or disagreement with the outcome of the LANS sampling/survey activities.

**5.14 Site Evaluations and Corrective Measures as Performed by the Los Alamos Field Office ERPP POC**

5.14.1 Reviews and concurs on M&O sampling plans, as well as independent verification sampling plans, to ensure they are sufficient to support dose evaluations to human and ecological receptors. Sampling should be of a sufficient quality and quantity to document and support the determination of unrestricted release of the site except when a site is designated for interim or LTS in which case the sampling should meet the site-specific objectives consistent with DOE O 458.1. Review criteria is consistent with the applicable Environmental Protection Agency Data Quality Objectives process, the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), and DOE technical Standards and guidance including DOE-STD-1153-2002, A Graded Approach for evaluating Radiation Doses to Aquatic and Terrestrial Biota.

5.14.2 Review and periodically assess laboratory analysis quality assurance/quality control (QA/QC) and data validation and verification to ensure sampling results are of sufficient quality to support decisions.

5.14.3 Review and concur with investigation and characterization reports to ensure site concentrations of residual radionuclides are compared with the media-specific background values for that site.

5.14.4 Ensure that radionuclides having concentrations in excess of background levels are evaluated by comparison to appropriate screening levels derived from dose limits and human health and ecological assessments.

5.14.5 Ensure that site radionuclide concentrations are compared with screening values.

- During this process, maximum radionuclide concentrations (or 95% upper confidence limit [UCL] value of the means for each radionuclide) are compared with LANL human health screening action levels (SALs).
- Ensure the human health SALs are developed for surface soils and sediments using the appropriate exposure assumptions. A range of exposure scenarios (residential, industrial, recreational, etc.) has been developed for use at LANL. The residential scenario analysis is performed at each site. A dose assessment based on the residential scenario is required for sites that may be considered for unrestricted release (transfer of real property).
- The maximum dose level used for radionuclide SAL calculations is 25 millirem (mrem) per year (DOE O 458.1).

- Maximum radionuclide concentrations (or 95% (UCL) values of the means of radionuclides in soil and/or water) are compared with appropriate ecological screening levels (ESLs).
  - Ensure ESLs for radionuclides are calculated for a given receptor provided receptor-specific information (e.g., body weight, rates of consumption, and diet) is available. The target dose level used to calculate radionuclide ESLs is 1.0 rad/day for aquatic organisms and 0.1 rad/day for riparian animals (DOE STD 1153).
- 5.14.6 Ensure a dose assessment of human and biota receptors are performed as appropriate. Evaluation for all sites should include a human receptor, residential scenario dose evaluation.
- For *human health dose assessments*, ensure the appropriate exposure scenario is used and that the assessment methodology follows EPA's risk assessment guidance for Superfund (EPA 1989, 0821).
  - For *ecological dose assessments*, further field/laboratory studies may be performed to obtain site-specific information needed to clarify doses to Biota. Ensure the assessment methodology is consistent with DOE-STD-1153-2002: A Graded Approach for Evaluating Radiation Doses to Aquatic and Terrestrial Biota.
- 5.14.7 Compare potential clean up actions at LANL with benchmark values from other DOE sites, particularly CERCLA-regulated sites.
- 5.14.8 Review uncertainty analysis to determine if additional data is needed.

#### **5.15 Interim and Final Determinations for PRSs Containing Radioactive Material**

Interim and final determinations for sites include: (1) release of real property, (2) No Further Actions for sites held within LANL, (3) Interim Management for Sites held within LANL, and (4) LTS for sites held within LANL.

- 5.15.1 "No Further Action" is a determination applied to sites where human health doses are projected to be 15 mrem per year TED (individual) or less for the appropriate land use scenario. Typical scenarios include (but are not limited to):
- Residential
  - Recreational
  - Industrial
- 5.15.2 The No Further Action determination provides for documented completion of the assessment and corrective measures process. However, No Further Action sites, where Recreational and Industrial exposure scenarios were used, rely on ongoing institutional controls for restricted access and therefore, particularly for sites within LANL, are subject to reevaluation at some date in the future if land-use changes.
- 5.15.3 Where Human Health dose is greater than 15 mrem TED (individual) but does not exceed 25 mrem TED (individual), the decision for release of the property will be made by on a case by case basis. (DOE O 458.1 and EPA 1997, 58693)

#### **5.16 Release of Real Property Containing Residual Radioactive Material**

The M&O submits to the Los Alamos Field Office a documentation package, as described in section 5.17, for radiological release of real property per DOE O 458.1. The real

property may be proposed to be unconditionally released from radiological controls provided the property has been adequately remediated and/or it can be shown that the property meets the release criteria of DOE O 458.1.

5.16.1 The ERPP POC reviews the documentation package submitted for technical accuracy and completeness.

- Verify that the identified release limits are DOE approved, appropriate, and applicable for use to release the real property.
- Ensure the ALARA process is integrated within the real property release action process.

5.16.2 Approval actions required are based on the estimated dose using the RESRAD analysis and defined below.

- If the estimated dose based on the RESRAD analysis is <15 mrem per year using the 95% UCL radionuclide concentrations, then prepare and forward to the Los Alamos Field Office approval authority a memo requesting the release of the real property.
- If the estimated dose based on the RESRAD analysis is >15 mrem per year and < 25 mrem per year using UCL radionuclide concentrations, the M&O may perform a removal action, or some remediation action, to reduce doses, or may submit a justification for approval of unrestricted release where approval will be determined by the Los Alamos Field Office Manager.
- If the estimated dose based on the RESRAD analysis is >25 mrem per year and < 100 mrem per year and the M&O submits a justification for release, review the justification package and forward a recommendation to DOE/HQ EH-412 for further review and approval. If the dose analysis is >25 mrem per year based on average site radionuclide concentrations, DOE HQ approval is required. Alternatively, the M&O may implement a field action to remove the residual radioactive material.
- If the estimated dose based on the RESRAD analysis is >100 mrem per year using average radionuclide concentrations the site may not be released unless approval of supplemental limits is obtained (Section 5.7).

5.16.3 During the review, if deficiencies are identified, the ERPP POC resolves those deficiencies with the M&O Contractor.

5.16.4 After the review, the ERPP POC provides recommendations for approval or disapproval to the Los Alamos Field Office approval authority.

## **5.17 Interim and LTS of Controlled Sites Containing Residual Radioactive Material**

5.17.1 Interim Management. A property may be maintained under interim management when levels of the residual radioactive material exceed authorized limits (typically 25 mrem TED - individual) for unrestricted release if the property is in an inaccessible location and it would be unreasonably costly to remove the residual radioactive material (DOE O 458.1). Administrative Controls are required and include but are not limited to periodic monitoring, shielding, and physical barriers to prevent access among others (DOE O 458.1).

- Determine Interim Management status for a site based on the Investigation Report and Corrective Measures Evaluation and Implementation Reports. These reports provide a dose estimate based on an appropriate exposure scenario.

- Document the maintenance plan for Administrative Controls and Site-specific Monitoring requirements (usually documented within the Corrective Measures Implementation Report).
- Document the reassessment schedule.
- Document the site as Interim Management status.

5.17.2 LTS. Sites containing long-lived residual radioactive material that may cause doses exceeding 25 mrem per year are candidates for LTS (DOE O 458.1). Ensure the criteria is met for interim or LTS, monitoring, and periodic evaluation of sites (DOE O 435.1).

## 6.0 RECORDS

Records packages generated by this procedure shall be maintained as QA records and shall be handled in compliance with the requirements identified in the Los Alamos Field Office Records Management procedure. Records packages shall consist of, but not limited to:

- Documentation as submitted
- Copies of all related correspondence
- Historical Investigation Report
- Investigation Work Plan
- Site Investigation Report
- Preliminary Dose Assessments and Risk Assessments
- Selected Remedy Report
- Remedy Implementation Plans
- Remedy Completion Report
- Institutional Controls Implementation and Assurance Plan
- Los Alamos Field Office Manager Determination Memorandum associated with remedy selection
- Los Alamos Field Office Manager Notice of Completion Determination Memorandum
- Oversight Inspection Reports (submitted via oversight procedure)
- Copies of recommendations for approval and disapproval (including independent verification)
- Final approval/disapproval memorandums

## 7.0 ATTACHMENTS

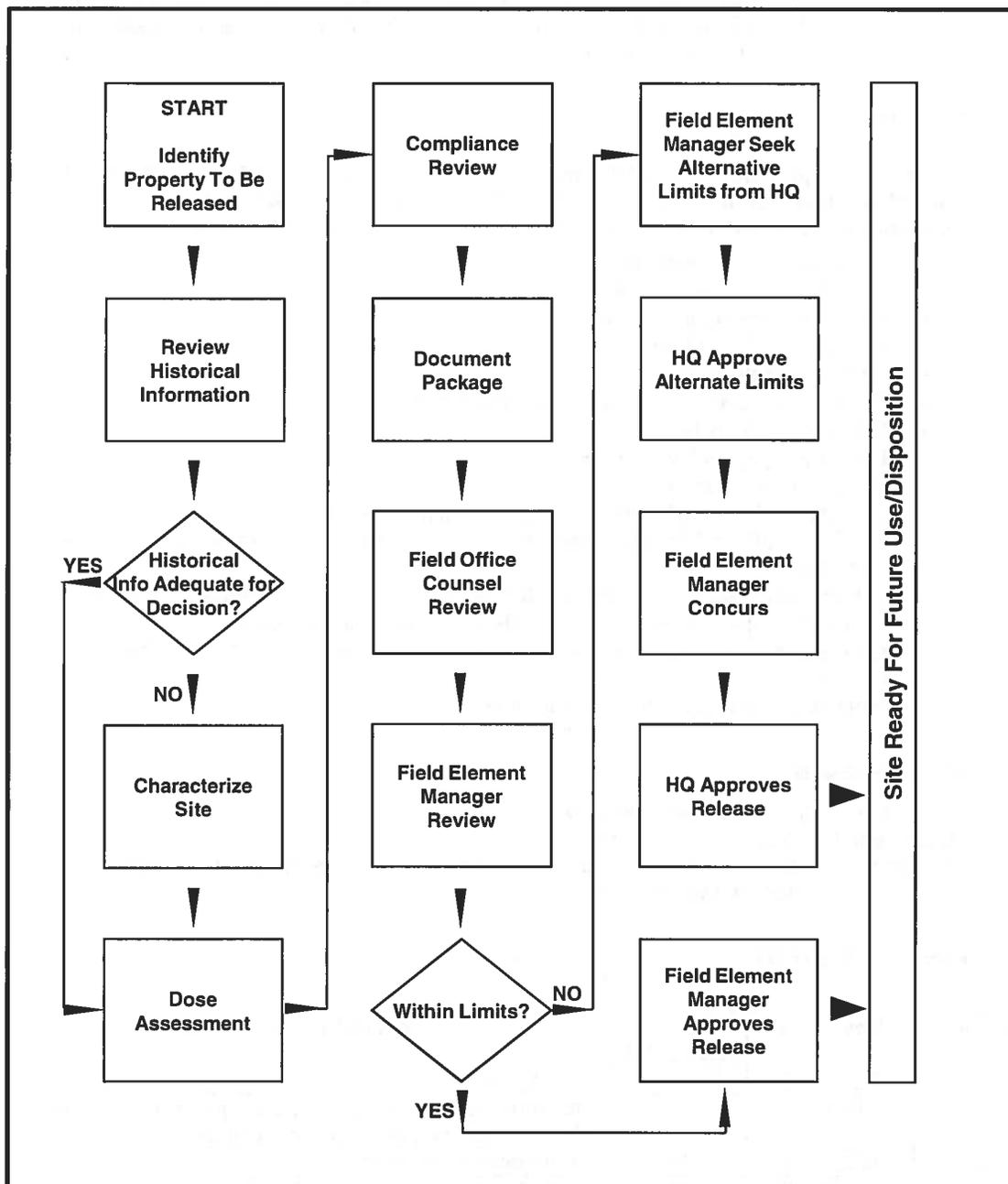
Attachment I Process Flow Overview  
 Attachment II Responsibility Matrix  
 Attachment III Background Information for the Release of Property Containing Residual Radioactive Material

## 8.0 REVISION HISTORY

Rev. No.	Rev. Date	Affected Section(s)	Description of Revision
0	6/29/2006		Initial Issue
1	6/06/2008	All	Title of procedure changed, additional requirements for RAD regulations and release were added.
2	7/22/2009	All	Minor editorial changes.
2A	10/11/2012	All	Major changes for inclusion of 458.1 criteria, reference updates and added attachment for background information.

Attachment I

PROCESS OVERVIEW  
FOR  
RELEASE OF SITES CONTAINING RESIDUAL RADIOACTIVE MATERIAL



Attachment II

RESPONSIBILITY MATRIX

Para	Responsibility	HQ	Field Element Manager (OOM)	Assistant Manager EPO/NSM	FPO/PM	FacRep	ERPP POC	CO	SOCS	M&O	IV Ktr
5.1	Historical Investigation Reports				I,R		R,C	D		P	
5.2	Environmental ALARA Analysis			R	I,R		R,C			P	
5.3	Dose Assessments			R	I,R		R,C			P	
5.4	Investigation Work Plan				I,R,A,F	O	R,C	D		P	
5.5	Evaluations of Investigation Results (Site Investigation Report)			R	I,R,C,F		R,C	D		P	
5.6	Recommendations of Corrective Actions for Radiologically Contaminated Sites		A	R	I,R,C,F		R,C	D		P	
5.7	Implementation of Selected Remedy				I,R,C,F	O	R,C	D		P	
5.8	Evaluation and Documentation of Remediation Completion (Remediation Completion Report)		A	R,C	I,R,C,F		R,C	D		P	
5.9	Closure of Investigation or Remediation		A	R,C	R,C		R,C			P	
5.10	LTS of Closed Remediation Sites (Institutional Controls Implementation and Assurance Plan)		A	R,C	I,R,C		R,C	D		P	
5.11	Documentation Package Requirements for the Release of Real Property Containing Residual Radioactive Material	A	R,A	R,C	R,C		R,C		R	P	
5.12	Supplemental Limits	A	R	R,C			P		R		P
5.13	Independent Verification		A	R,C			R,C				
5.14	Site Evaluations and Corrective Measures as Performed by the ERPP POC			R			P,R,C				
5.15	Interim and Final Determinations for PRSs Containing Radioactive Material		A	R,C	R,C		R,C		R	P	
5.16	Release of Real Property Containing Residual Radioactive Material		A	R,C			R,C		R	P	
5.17	Interim and LTS of Controlled Sites Containing Residual Radioactive Material		A	R,C			R,C		R	P	

- A Approve
- C Concur
- D Direct
- F Forward to NIMED
- I Initiate
- O Oversee
- P Perform
- R Review

## Attachment III

### Background Information for the Release of Property Containing Residual Radioactive Material<sup>11</sup>

#### Introduction

The purpose of this background information is to review and summarize several of the various documents containing requirements for the unrestricted release of property containing residual radioactive material.<sup>12</sup> The DOE requirements are described in detail as they presently exist. Proposed changes to these requirements are described. Other agency requirements are also discussed. The use of the RESRAD computer model is also discussed.

#### DOE ORDER 458.1

DOE O 458.1, *Radiological Protection of the Public and the Environment* Chg. 2 (Issued 6/06/2011), contains requirements and guidelines for cleanup of residual radioactive material and the release of real property.<sup>13</sup>

This DOE order specifically addresses protection of the public and the environment from residual concentrations of radionuclides in soil such as small quantities which may be left behind following the cleanup of a DOE environmental restoration site. The order also addresses standards to be applied to the release of any buildings present on such property. The order also specifies that the ALARA<sup>14</sup> approach be applied to release of residual radioactive material.

DOE O 458.1 uses a three-tiered approach to establishing release criteria for residual radioactive material. These are the **Public Dose Limit**, the **Residual Radioactive Material Guideline** and the **Authorized Limit**. Each of these is discussed below.

#### Public Dose Limit

The Public Dose Limit is the primary prescribed standard from which additional guidelines and release limits may be derived. It is an amount of radiation dose (in terms of total effective dose) above natural background exposures that are allowed as a result of DOE activities, including the presence of the residual radioactive material. DOE O 458.1 states that the Public Dose Limit will:

“Not cause a total effective dose (TED) exceeding 100 mrem (1mSv) in a year, an equivalent dose to the lens of the eye exceeding 1500 mrem (15 mSv) in a year, or an equivalent dose to the skin or extremities exceeding 5000 mrem (50 mSv) in a year, from all sources of ionizing radiation and exposure pathways that could contribute significantly to the total dose excepting:

Dose from Radon and its decay products in air..., dose received by patients from medical sources of radiation, and by volunteers in medical research programs, dose from

---

<sup>11</sup> Background information obtained primarily from DOE Albuquerque Operations Office Memorandum of June 13, 2000, *Procedure for the Release of Residual Radioactive Material from Real Property, Appendix 1*, as updated by Los Alamos Field Office ERPP POC, January 2013.

<sup>12</sup> *Residual Radioactive Material*, as used in this background paper, means any radioactive material which is in or on soil, air, equipment, or structures as a consequence of past DOE operations or activities. Other definitions of this term can be found as applied to Uranium Mill Tailings and NRC operations (see, for example, 10CFR20.1003, 40CFR192).

<sup>13</sup> Real property is land and structures. Other types of property include non-real property, also known as personal property. It is very important to be clear on this designation in determining the release requirements. This White Paper only addresses the criteria for the release of real property.

<sup>14</sup> As Low As Reasonably Achievable - The ALARA process is summarized in DOE Order 458.1.

background radiation, and dose from occupational exposure under NRC or Agreement State License or to general employees regulated under 10 CFR Part 835.<sup>15</sup>

### **Residual Radioactive Material**

Residual Radioactive Material is any radioactive material which is in or on soil, air, water, equipment, or structures as a consequence of past operations or activities owned or operated by, or for, the Department of Energy. The release of such property to the public without restrictions is limited to property where the Public Dose Limit through analyses of the media, has been verified not to be exceeded. For example, if the media of interest is soil,<sup>16</sup> the Residual Radioactive Material Action Level is the amount of radioactive material in the soil, as measured in pCi/gram, which has the potential to cause the Public Dose Limit to be reached based on the intended scenario for future use of the property. The selection of the land use scenario is based on a presumed "worst-case, plausible use" scenario for the property in question.

DOE 458.1 contains pre-approved limits for thorium and radium contaminants in soil, (Ra-226, Ra-228, Th-230 and Th-232) which are taken from 40 CFR 192, *Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings*.

In all other cases, site-derived Action Levels are used. These action levels are the maximum concentrations in soil derived from the Basic Dose Limit using defined environmental pathways and property specific data. Procedures for deriving specific property guideline values are specified in a DOE reference document.<sup>17</sup> This document specifies the use of the RESRAD computer program to specify environmental dose pathways and site-specific analysis parameters. An additional program, RESRAD-BUILD, has been adopted to model the potential dose from occupancy of a contaminated building.

Residual radioactive materials which exceed the guidelines are required to be managed appropriately as defined by DOE O 458.1.

### **Authorized Limit**

The Authorized Limit is the level of residual radioactive material that shall not be exceeded if the remedial action is considered to be completed and the property is to be released without restrictions on its use. Per DOE 458.1, the authorized limit for release of Real property by the DOE field office is a TED of 25 mrem above background per year. The Los Alamos Field Office has set an administrative limit of 15 mrem per year above background. If this limit is to be exceeded but is less than 25 mrem per year, the decision for release will be determined on a case by case basis at the field office. A TED of greater than 25 mrem TED per year will require headquarters approval.

### **Nuclear Regulatory Commission Criteria**

The Nuclear Regulatory Commission (NRC) published a Final Rule in the Federal Register (62FR39058, July 1997) entitled *Radiological Criteria for License Termination*. This rule provided specific radiological criteria for decommissioning of lands and structures subject to NRC licensing requirements. The rule resulted in modifications to several Code of Federal Regulations.<sup>18</sup> 10CFR20, Standards for Protection Against Radiation specifies the new criteria in Subpart E – Radiological Criteria for License Termination. The basic criteria are contained in a statement which reads as follows:

---

<sup>15</sup> DOE Order 458.1 also has a provision for the establishment of a 500 mrem temporary dose limit under unusual circumstances provided that the average TED over any 5 contiguous years does not exceed 100 mrem per year.

<sup>16</sup> Other Residual Radioactive Material Guidelines apply to direct gamma irradiation, airborne radon decay daughters, surface contamination and contamination of air and water.

<sup>17</sup> DOE/CH 8901, "A Manual for Implementing Residual Radioactive Material Guidelines", June 1989. (Now: Users' Manual for RESRAD Version 6, ANL/EAD-4, July 2001)

<sup>18</sup> 10CFR Parts 20, 30, 40, 50, 51, 70 and 72.

"A site will be considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a TED to an average member of the critical group that does not exceed 25 mrem (0.25 mSv) per year, including that from groundwater sources of drinking water, and that the residual radioactivity has been reduced to levels that are otherwise also as low as reasonably achievable (ALARA)."

In the publication of the Final Rule, NRC reviews the comments they received from earlier publication of the proposed rule and explains their reasons for selecting 25 mrem as the decommissioning limit.

The NRC has developed another computer code, "DandD 1.0", which may be used for dose assessment by their licensees.

#### **EPA OSWER Directive 9200.4-18**

The EPA's Office of Solid Waste and Emergency Response (OSWER) issued a memorandum, dated 8/22/97, known as Directive 9200.4-18, providing guidance for the establishment of cleanup levels for radioactive contamination at CERCLA sites. Remediation at a CERCLA site requires the development of cleanup criteria known as Applicable or Relevant and Appropriate Requirements (ARARs). This directive provides guidance to EPA staff on what levels of radiation dose meet the stated CERCLA clean up risk levels in the  $10^{-4}$  to  $10^{-6}$  range. This directive states:

"If a dose assessment is conducted at the site then 15 mrem per year effective dose equivalent (EDE) should generally be the maximum dose limit for humans."

The document states that this level of dose corresponds to  $3 \times 10^{-4}$  increased lifetime risk and is consistent with levels considered protective.

#### **RESRAD**

DOE O 458.1 endorses the use of a computer program called RESRAD to calculate potential doses from residual radioactive material in soil. This program was developed at Argonne National Laboratory specifically to support the issuance of DOE O 458.1 and has been upgraded several times.<sup>19</sup> The program allows designating site-specific exposure pathways as well as site-specific model parameters (such as the area of the site, depth of contamination, and others). This model is used to convert radioactive material concentrations into potential radiation doses based on defined model parameters. The conversion of concentration values to dose values allows direct comparison with the Public Dose Limit of 458.1.

---

<sup>19</sup> *The latest version of RESRAD is Version 6.5 for Windows. An accompanying code, RESRAD-Build, Version 3.5, supports the evaluation of residual radioactive materials in buildings.*

**DOCUMENT ACTION REQUEST FORM**

**Purpose:**

Revision of MP 05.17 is necessary to correct references, clarify language, and incorporate changes necessary to be compliant with current conditions and DOE Order 458.1.

**Basis for Improvement:**

Review of the procedure identified references that were cancelled and new references that need to be incorporated into the document. In addition, significant information is added to the document regarding ALARA analyses and documentation requirements for release of real property and long term stewardship.

Submitted By: Tom Carver

Date: 2 Oct 2012

**DAR Disposition:**

Approve

Approve with comments

Disapprove

Note: If disapproved a basis shall be provided in the comments block.

**Comments:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Approval Signatures:**

Responsible Functional Area Manager  
or Individual with Delegated Authority: *Peter Maggiore*  
Peter Maggiore

Date: 10/9/12

Manager, LASO: \_\_\_\_\_  
(if required)

Date: \_\_\_\_\_







## LASO CORRESPONDENCE COORDINATION SHEET

<b>Package/Issue Title:</b> Management Procedure MP 05.17 Rev. 03; Document Review Record	<b>Suspense/Need by Date:</b> 03-01-2013
	<b>File Code:</b> 18.5
<b>POC Group/Phone # for Package:</b> Tom Carver/5-0172	<b>Admin Assist Initials:</b> kl
<b>ePegasus Number(s):</b> N/A	

**Background:** Los Alamos Field Office MP 05.12, LASO Regulation And Release Of Environmental Sites Containing Residual Radioactive Material Waste Management Program has undergone a periodic review IAW Los Alamos Field Office MP 00.01, LASO Policy, Management Procedure, Work Instruction and Process Description Preparation and Maintenance. Revision of management procedure MP 05.17 is necessary to correct references, clarify language, and incorporate changes necessary to be compliant with current conditions and DOE Order 458.1.

Review of the procedure identified references that were cancelled and new references that need to be incorporated into the document. In addition, significant information is added to the document regarding ALARA analyses and documentation requirements for release of real property and long term stewardship.

This requests review of the revised procedure by the Field Office Manager after completing the process for reviews by all AMs and designated technical reviewers. Replies were received from SO, FO, S&S and QAS and addressed per the respective DRRs.

Attached for reference are: (1) DRR Comments (FO, S&S, QAS, SO), (2) Draft Final MP, (3) Initial Draft Revision, (4) Current MP, and (5) Approved DRR Form/Matrix.

Package files located at:

J:\WG\Environmental Projects Office (EPO)\Management Procedures\MP 05.17\OOM Review Files

**Any Specific HQ's or Contractor Concerns/Sensitivities:** None. This will ensure compliance with DOE O 458.1.

**Originator Analysis and Recommendation:** (Why is this okay to sign?) The cognizant AM (Maggiore) for the respective MP has approved the Document Action Request and Review Matrix IAW MP 00.05 Section 5 and included Field Office Manager in the reviewer list per MP 00.05, 5.3.

Organization	Concurrence Name	Initials	Concur Date	Comments
EPO	K. Laskey	Preparer	2/13/13	
EPO	R. Zulick	RZ	2/13	
EPO	T. Carver	TC	2/13/13	
EPO	D. Nickless	DN	2/22/13	
EPO	P. Maggiore	PM	2/13/13	
NSM	G. Rael	GR	2/25/13	
<del>DOOM</del> BA	T. O'Leary	TO	6/27/13	- Rev'd 6/26/13
<del>DOOM</del>	J. Griego	JG	6/27/13	See Note
<del>NSM</del>	<del>G. Rael</del>			<del>To Sign MP after OOM Review</del>
<del>EPO</del>	<del>P. Maggiore</del>			<del>To Sign MP after OOM Review</del>
OOM	G. BEAUSOLEIL	[Signature]	12/26/2013	Sign'd

*[Handwritten signature]*

NOTES: - SIGNATURE BLOCK REVISED PER BA + DOOM.

- THIS FINAL REVISION INCORPORATES BA/DOOM FEEDBACK.

NOTE: SECTION 5.2 IS MAKING SPECIFYING WHO PERFORMS THESE TASKS - RECOMMEND MORE SPECIFICITY CONSISTENT W/ ATTACHMENT 2 - ALSO PAGE 21 - REFERENCE TO LOS ALAMOS OFFICE

