Los Alamos
NATIONAL LABORATORY
EST.1943

Associate Directorate for ESH&Q
P.O. Box 1663, MS K491
Los Alamos, New Mexico 87545
505-667-4218/Fax 505-665-3811

Date: August 17, 2010
Ref: ADESHQ-10-043

Mr. Roger Snyder
Acting Area Manager
National Nuclear Security Administration
Los Alamos Site Office, MS A316

SUBJECT: SUPPLEMENT ANALYSIS FOR THE CHEMISTRY METALLURGY RESEARCH BUILDING REPLACEMENT (CMRR) PROJECT

Dear Mr. Snyder,

Enclosed for your review and concurrence is a National Environmental Policy Act (NEPA) evaluation of the impacts of constructing the CMRR Project as currently proposed (Enclosure A).

The Los Alamos National Security, LLC (LANS) NEPA staff and the CMRR Project staff have researched the changes in the CMRR plans; the enclosed analysis provides information to support the conclusion that the expanded scope of CMRR construction is bounded by the 2003 CMRR Project Environmental Impact Statement (EIS) (DOE/EIS-350) and the 2008 Site-Wide EIS (DOE/EIS-380).

Please do not hesitate to call Dennis Hjeresen at 667-2211 if you have any questions.

Sincerely,

J. Chris Cantwell
Associate Director
Environment, Safety, Health & Quality

JC/mp

Mr. Roger Snyder
ADESHQ-10-043

August 17, 2010

Enclosure

Distribution:

Michael Anastasio, DIR, MS A100, w enc.
Richard Marquez, DIR, MS A100, w enc.
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Silas Deroma, LASO-OC, MS A316, w enc.
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Jennifer Nisengard, ENV-ES, MS J978, w/o enc.
Peggy Powers, ENV-ES, MS J978, w/o enc.
Daniel Pava, ENV-ES, MS J978, w/o enc.
Marjorie Wright, ENV-ES, MS J978, w/o enc.
Nicole Seguin, CMRR-DO, MS J591, w/o enc.
IRM, MS-A150, w enc.
ENV-ES file, MS J978, w enc.

Mr. Roger Snyder
ADESHQ-10-043

August 17, 2010

ENCLOSURE A

SUPPLEMENT ANALYSIS FOR THE CHEMISTRY METALLURGY RESEARCH BUILDING REPLACEMENT (CMRR) PROJECT

DOE/EIS-0350-SA-02

SUPPLEMENT ANALYSIS
FOR THE
CHEMISTRY AND METALLURGY RESEARCH BUILDING REPLACEMENT (CMRR) PROJECT AT LOS ALAMOS NATIONAL LABORATORY

AUGUST 11, 2010

UNCLASSIFIED

Contents

LIST OF ACRONYMS IV
1. INTRODUCTION 1
2. BACKGROUND 2
3. CMRR PROJECT DESCRIPTION 4
DESIGN CHANGES FOR THE CMRR-NF (PLANNED ACTIONS) 8
ANCILLARY/SUPPORT REQUIREMENTS 9
4. POTENTIAL CONSEQUENCES OF PLANNED/PROPOSED ACTION 15
GREENHOUSE GAS EMISSIONS 15
5. CONCLUSION 33
6. REFERENCES 33
FINDING 37
DETERMINATION 38

List of Figures

Figure 1. Locations for CMRR Project proposed actions 10

List of Tables

Table 1. Comparison of CMRR EIS Facility Projections and Current Planned/Proposed Actions.... 6
Table 2. Comparative Analysis and Potential Consequences of CMRR Proposed Action 17

List of Acronyms

AC	analytical chemistry
CMR	Chemistry and Metallurgy Research
CMRR	Chemistry and Metallurgy Research Building Replacement
CMRR-NF	CMRR Nuclear Facility
EA	environmental assessment
EIS	environmental impact statement
HVAC	heating, ventilation, and air conditioning
LANL	Los Alamos National Laboratory
LEED	Leadership in Energy and Environmental Design
LEED-NC	LEED New Construction
LLW	low-level waste
MC	material characterization
MDA	Material Disposal Area
NEPA	National Environmental Policy Act of 1969
NMSSUP	Nuclear Materials Safeguards and Security Upgrades Project
NNSA	National Nuclear Security Administration
PIDADS	Perimeter Intrusion Detection Assessment and Delay System
PRS	potential release site
PSHA	Probabilistic Seismic Hazards Analysis
RLUOB	Radiological Laboratory/Utility/Office Building
ROD	Record of Decision
SA	supplement analysis
SHPO	State Historical Preservation Officer
SNM	special nuclear material
SWEIS	Site-Wide Environmental Impact Statement
TA	Technical Area
TRU	transuranic

1. Introduction

The Council on Environmental Quality's implementing regulations for the National Environmental Policy Act of 1969 (NEPA) require federal agencies to prepare a supplement to an environmental impact statement (EIS) when there are substantial changes to a proposal or when there are significant new circumstances or information relevant to environmental concerns, or at any time to further the purposes of NEPA (40 CFR Part 1502.9[c] [1] and [2]). The purpose of a Supplement Analysis (SA) as defined in the Department of Energy's (DOE) NEPA implementing regulations (10 CFR 1021.314) is to determine, when it is unclear, whether an existing EIS should be supplemented by the preparation of a supplemental EIS, a new EIS should be prepared, or whether no further NEPA documentation is required.

In June 2010, the Los Alamos Site Office, in coordination with representatives from the National Nuclear Security Administration (NNSA) headquarters offices, determined that the preparation of an SA would be prudent to consider actions that have been identified as part of the detailed planning process for the Los Alamos National Laboratory (LANL) Chemistry and Metallurgy Research Building Replacement (CMRR) Project construction (DOE 2010a).

The CMRR Project was the subject of a project-specific EIS (DOE 2003; CMRR EIS), issued in November 2003, and a February 2004 Record of Decision (69 FR 6967; CMRR ROD). Beginning in 2004, project personnel engaged in an iterative detailed planning process for project activities and materials needed to implement construction of the two-building facility. As a result of this planning process and detailed site geotechnical investigations, some aspects of the CMRR Project have changed from what was foreseen when the CMRR EIS was prepared. Specifically:

- New geologic information has come to light regarding the selected building site seismic conditions;
- More detailed information is available on the various support functions, actions, and infrastructure needed for the construction of the CMRR Project's Nuclear Facility (CMRR-NF); some of the requirements and locations of these support actions have been updated and modified;
- Design modifications have been incorporated to ensure the facility implements nuclear safety basis requirements stemming from 10 CFR 830 for increased facility engineering controls to ensure protection of the public, workers, and the environment; and
- Additional sustainable design principles have been incorporated into the plans to minimize the environmental impacts of construction and operation of the CMRR-NF.

Collectively, the various CMRR Project modifications have resulted in increased costs, a longer construction schedule, and requirements for additional construction materials and goods.

This SA considers the changes to project design and to the infrastructure needed to implement the NNSA's selected action identified in the CMRR ROD. It focuses on the CMRR-NF in particular since the design and construction of the Radiological Laboratory/Utility/Office Building [RLUOB] have been completed. The SA identifies the changes that have already been reviewed for NEPA compliance and the determinations of appropriate documentation levels associated with those reviews; and it provides the NEPA compliance review documentation for proposed actions for the CMRR-NF Project for which no other prior NEPA compliance review has been conducted by NNSA.

2. Background

In 2003, the CMRR EIS identified the purpose and need for agency action as an immediate need "to provide physical means for accommodating the continuation of the CMR [Chemistry and Metallurgy Research] Building's functional, mission-critical CMR capabilities beyond 2010 in a safe, secure, and environmentally sound manner at LANL (DOE 2003)." The CMRR EIS also stated that there were opportunities to achieve greater operational efficiency. The CMRR EIS analyzed four construction alternatives, together with four construction options for each of the alternatives involving new construction, and three options for disposition of the old CMR Building. NNSA analyzed an alternative location for the CMRR Project at a greenfield site at Technical Area (TA) 6 in addition to the proposed site at TA-55. NNSA's preferred alternative was to construct two new buildings within TA-55: one building would house the analytical chemistry and material characterization (AC and MC) functions of the CMR Building, and the other building would house associated administrative and support functions for the facility. In addition, NNSA's preferred alternative for disposition of the CMR Building was to decontaminate, decommission, and demolish the entire CMR Building (DOE 2003).

In its February 2004 CMRR ROD, NNSA decided to implement its preferred alternative (identified as Alternative 1—construct a new CMRR Facility at TA-55) and the preferred construction option (identified as construction option 3—construct a single consolidated special nuclear material [SNM] capable, Hazard Category 2 laboratory with a separate administrative office and support functions building), and the decision to decontaminate, decommission, and demolish the existing CMR Building at TA-03. However, NNSA explicitly declined to make decisions at that time to remove mission support assignments of CMR capabilities from LANL, or to alter the operational level of those capabilities. NNSA also declined to make decisions on other elements or activities that had been recently undertaken associated with the LANL Integrated Nuclear Planning initiative (DOE 2003).

In the CMRR ROD, NNSA stated that the CMRR Project "would provide AC and MC capabilities for existing mission support assignments at LANL that are expected to continue for the long-term. Such AC and MC capabilities are needed independent of the proposed action that will be analyzed" in the Modern Pit Facility EIS (which NNSA later canceled). NNSA explained that "The level of AC and MC support capabilities required for pit production capacities associated with the new Modern Pit Facility would be beyond LANL's pit production capacities" as described in the earlier 1999 LANL *Site-*

Wide Environmental Impact Statement for Continued Operation of Los Alamos National Laboratory (SWEIS) Expanded Operations Alternative [DOE 1999], "and would also be beyond the level of pit manufacturing AC and MC support that would be provided by the new CMRR Facility" (DOE 2003).

The purpose and need for action has not changed since the issuance of the CMRR EIS and the CMRR ROD. The NNSA has both reconsidered its 2004 decision for constructing the CMRR-NF at LANL, and reaffirmed that decision through subsequent NEPA compliance processes. In May 2008, the NNSA issued the *Final Site-Wide Environmental Impact Statement for Continued Operation of Los Alamos National Laboratory, Los Alamos, New Mexico* (DOE 2008a), in which the CMRR Project was considered and analyzed as a part of the No Action Alternative and each of the action alternative levels for continued operation of LANL.

In the 2008 SWEIS, NNSA stated that planning for the CMRR RLUOB was complete and construction had been initiated, and detailed planning for the CMRR-NF had begun and would continue. NNSA stated, however, that it would not initiate construction of the CMRR-NF pending the completion and issuance of certain programmatic NEPA documents and associated decisions. Later, in September 2008, NNSA issued the first associated SWEIS ROD that specifically deferred all decisions related to nuclear weapons production and other actions that were being considered in a supplemental programmatic EIS, the *Complex Transformation Supplemental Programmatic Environmental Impact Statement* (DOE 2008b; Complex Transformation SPEIS) in preparation at that time, and only made certain decisions regarding LANL to support the safe and successful execution of the Laboratory's current missions.

The Complex Transformation SPEIS was issued in October 2008. The CMRR-NF was considered and analyzed within certain alternatives in the Complex Transformation SPEIS as a facility that would be necessary at either LANL or another Complex site depending on the final programmatic decisions for the reconfiguration and streamlining of NNSA's nuclear enterprise (DOE 2008b). NNSA issued two RODs based on the impact analyses provided by the Complex Transformation SPEIS in December 2008. In the ROD for operations involving plutonium, uranium, and the assembly and disassembly of nuclear weapons (73 FR 77656), NNSA included its decision to retain plutonium manufacturing and research and development at LANL, and in support of these activities, to proceed with construction and operation of the CMRR-NF at LANL as essential to its ability to meet national security requirements regarding the nation's nuclear deterrent. NNSA identified that this facility was "needed regardless of how many or what types of weapons may be called for in the future." Detailed planning for the CMRR-NF has proceeded since 2009 following the reconsideration and reaffirmation of NNSA's decision to proceed with the construction of the CMRR-NF at LANL. Planning has taken into consideration the completion of site geotechnical, security reviews, and other site-specific evaluations, and the ongoing construction of the RLUOB at LANL's TA-55.

To comply with NEPA, the NNSA routinely reviews proposed actions and makes determinations regarding the applicability of prior NEPA analyses to the proposal; the

applicability of categorical exclusions (10 CFR 1021, Appendix B to Subpart D) from the need to prepare either an environmental assessment (EA) or an EIS; and the need for the preparation of an EA or EIS. Actions that are both individually and cumulatively insignificant may be categorically excluded if the actions are included on the DOE's list of classes of actions that normally do not require either EAs or EISs, and are not subject to other stated caveats.

In furtherance of its compliance with NEPA for the CMRR Project, NNSA has continued to review and take a hard look at the environmental effects of the project elements as detailed planning has progressed for the facility buildings. During the preparation of the 2008 SWEIS, CMRR Project plans (as these were known at that time) were reviewed against the CMRR EIS and the CMRR ROD, and, as appropriate, newly proposed CMRR Project actions identified through the detailed planning process were included in the SWEIS No Action Alternative and in the two action alternatives analyzed in that document. The SWEIS also included an analysis of constructing and operating a consolidated nuclear production center at LANL as part of the cumulative impacts analyses of potential actions related to the Complex Transformation SPEIS, which was ongoing.

In 2005, NNSA prepared the first SA to the CMRR EIS (DOE 2005) that evaluated placing the CMRR RLUOB at a location other than that specifically analyzed in the CMRR EIS. NNSA determined that the proposed project modifications were bounded by the CMRR EIS analysis, and that a supplemental EIS was not required. Later, the CMRR Project plans were modified again and the RLUOB was actually built within the TA-55 site originally analyzed in the CMRR EIS for site disturbance. Also, over the past six years since the issuance of the CMRR EIS and the CMRR ROD, other CMRR Project actions have also been proposed that were reviewed and determined to have been adequately analyzed in prior NEPA impact analyses or to be eligible for being categorically excluded.

Each of the CMRR-NF Project actions described in the next section of this SA have either already undergone NNSA review for NEPA compliance requirements and environmental protection issues or will be considered through this SA. The CMRR Project staff routinely evaluates NEPA compliance and environmental considerations in its design and planning processes (LANL 2008a). Moreover, the Project staff works closely with LANL and DOE subject-matter experts to identify specific measures to avoid or mitigate potential impacts. The CMRR-NF actions discussed in this SA are accordingly identified as either "planned actions" and the prior determination of appropriate NEPA compliance levels of analyses is included for each of the planned actions; or the CMRR-NF actions are identified as being "proposed actions" and the appropriate level of NEPA compliance will be identified in this SA.

3. CMRR Project Description

This section identifies all of the CMRR Project design actions that represent changes to the Project since the issuance of the CMRR EIS and the CMRR ROD. As described in the CMRR ROD, the NNSA decided to construct two buildings at the TA-55 site for the

CMRR: a Hazard Category 2 laboratory, now referred to as the CMRR-NF, and a separate administrative office and support functions building, now referred to as the RLUOB.

The CMRR EIS also addressed a number of ancillary projects and activities needed to support the design, construction, and operation of the facilities, such as equipment laydown areas, parking lots, and utilities modifications. Additionally, the CMRR EIS identified the construction and general operation of the CMRR as incorporating sustainable design principles to minimize energy, water, and resource consumption and reducing environmental impacts during the construction and long-term operation of the CMRR Project, as well as pollution prevention measures. These features are required for compliance with 10 CFR 434 (which sets mandatory sustainable performance standards in the design of new federal buildings) and DOE Order 430.2A, *Departmental Energy and Utilities Management* (DOE 2002).

Sustainable design considerations were integrated early in the CMRR Project planning and design phases, and these are being maintained throughout the procurement and construction process to ensure the construction and operation of high-performance sustainable buildings. In 2004, the decision was made to use the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED®)[1] for New Construction (LEED-NC) third-party rating system to document the high-performance sustainable design considerations and measure the level of sustainability achieved by the RLUOB. In 2005, RLUOB was registered under the LEED-NC Version 2.1 rating system. The RLUOB is anticipated to be awarded the Silver Certification (LANL 2002a). In addition, the RLUOB received the 2010 NNSA Best-in-Class Award for Sustainable Design/Green Buildings. The level of LEED-NC certification that can be achieved by the CMRR-NF is under evaluation.

The NNSA has completed the design and construction of the RLUOB and is now progressing with equipment installation inside the building. Examples of the RLUOB sustainable design and construction elements implemented to date that are also planned for the CMRR-NF include the following. No permanent potable water will be used to establish site landscaping (native/adaptive plants) after the first two years. Regional, local, and site comprehensive transportation management initiatives such as commuter trains and buses, bicycle storage, and designated car/vanpool parking areas provide valuable alternative transportation resources for LANL workers and visitors. Optimized energy performance (about a 16 percent reduction from applicable standards) is achieved by using highly reflective roofing materials, energy-efficient equipment, specialized building envelope design and materials, lighting controls, and daylight harvesting. Water-efficient fixtures will provide an estimated 30 percent water use reduction over the life of the building. Selected building materials included recycled content materials and local/regional materials. Various control methods used to prevent indoor air quality

[1] The LEED-NC rating system consists of several design and construction prerequisites and credits in the categories of sustainable sites, water efficiency, energy and atmosphere, indoor environmental quality, and innovation and design to achieve one of four levels depending on the number of credits ultimately achieved: Certified, Silver, Gold, and Platinum.

problems during construction and for future operation include heating, ventilation, and air conditioning (HVAC) system protection to control dust and debris and use of low volatile organic compound emitting products (e.g., carpets, paints, furniture, adhesives).

As of May 2010, approximately 81 percent (by weight) of RLUOB construction waste has been diverted from landfills by reuse or recycling of wood, concrete, cardboard, metal, and asphalt.

Changes in the design and construction of the CMRR-NF and its ancillary support activities are the focus of this SA and are discussed in the following paragraphs. Table 1 presents a summary of the CMRR Project's general arrangements and construction requirements analyzed in the CMRR EIS as compared to the as-built RLUOB and the current CMRR-NF Project planned and proposed actions.

Table 1. Comparison of CMRR EIS Facility Projections and Current Planned/Proposed Actions

CMRR EIS Basis for Impact Analyses	Current Plans (as of July 2010)
General Arrangements	
Two buildings constructed at TA-55: • One consolidated SNM-capable Hazard Category 2 laboratory (the CMRR-NF) • One administrative office and support function building (the RLUOB) • Underground tunnel(s) linking the buildings	No changes to general arrangements. Construction of RLUOB is complete. The equipment installation phase to procure and install special facility equipment is underway.
Size/Footprint • RLUOB: 200,000 sq ft ◊ 300-ft by 275-ft footprint ◊ Four stories above ground, one or more stories below ground • CMRR NF: 200,000 sq ft ◊ 300-ft by 210-ft footprint ◊ One story below ground Hazard Category 2, and one story above ground Hazard Category 3 • Tunnels: 1200-ft length; 13,800 sq ft	*Size/Footprint* • RLUOB: 208,125 sq ft ◊ 300-ft by 275-ft footprint ◊ Additional level for consolidated training • CMRR-NF: 381,130 sq ft ◊ 342-ft by 304-ft footprint ◊ Three levels below ground and one and one-half levels above ground; no change to intended operational Hazard Category activity locations • Tunnels: 1200-ft length; 14,100 sq ft
Radioactive Laboratory Space • RLUOB: 20,000-sq-ft laboratory space to handle less than 8.4 grams of plutonium (Pu)-239 equivalent[1] • CMRR NF: laboratory space to handle up to 6000 kg of Pu-239 equivalent[2] (laboratory space was not differentiated from non-laboratory space for this building in the CMRR EIS)	*Radioactive Laboratory Space* • RLUOB: no change • CMRR-NF: 22,500 sq ft to handle up to 6000 kg of Pu-239 equivalent

Table 1. Continued

CMRR EIS Basis for Impact Analyses	Current Plans (as of July 2010)
Construction Requirements and Materials	
Excavation Depth • RLUOB: 50 ft • CMRR-NF: 50 ft • Tunnels: 50 ft	*Excavation Depth* • RLUOB: no change • CMRR-NF: 125 ft; additional 75 ft of excavation required to meet increased seismic design requirements • Tunnels: no change
Construction Period • RLUOB: 26 months; start operations in 2008 • CMRR-NF: 34 months; start operations in 2014	*Construction Period* • RLUOB: 31 months; start operations in 2013 • CMRR-NF: 66 months; start operations in 2022
Concrete • Combined Total: 11,255 cu yds[3] ◊ RLUOB: 3061 cu yds ◊ CMRR-NF: 3194 cu yds ◊ Other Construction: 5000 cu yds	*Concrete* • Combined Total: 387,633 cu yds ◊ RLUOB: 16,800 cu yds ◊ CMRR-NF: 120,833 cu yds structural concrete ◊ CMRR-NF: 250,000 cu yds lean concrete fill required to meet seismic design standards
Concrete Plant • One concrete plant with 125-cu-yds-per-hour production rate (when operating). Expected to operate, on an as needed basis, over 34-month duration.	*Concrete Plant* • Two concrete plants with combined total of 300-cu-yds-per-hour production. Expected to operate on an as needed basis over 54-month duration, but not expected that the plants will be operated simultaneously.
Steel • Combined Total: 558 tons[4] ◊ RLUOB: 291 tons ◊ CMRR-NF: Structural Steel—267 tons ◊ CMRR-NF: Foundation and Rebar Steel—Not estimated	*Steel* • Combined Total: 19,549 tons ◊ RLUOB: 1010 tons ◊ CMRR-NF: Structural Steel—560 tons ◊ CMRR-NF: Foundation and Rebar Steel—17,979 tons
Reference/Sources	
DOE 2003; LANL 2002b; 69 FR 6967; DOE 2004	DOE 2007; DOE 2010b; LANL 2010a

Footnotes

[1] 8.4 grams of Pu-239 equivalent is the upper bounding threshold material for a Hazard Category designation as a Radiological Facility; more than that amount of material would result in a Hazard Category designation as a Nuclear Facility.

[2] This is the upper bounding operational limit for material at risk at any given time.

[3] The CMRR EIS reported this (and other volumetric information) in cubic meters. The preferred unit used throughout this document is cubic yards. The conversion is 1 cubic meter = 1.308 cubic yards.

[4] The CMRR EIS reported this information in metric tons. The unit used throughout this document is tons. The conversion is 1 metric ton = 1.102 ton.

Design Changes for the CMRR-NF (Planned Actions)

Nuclear safety requirements stemming from 10 CFR 830 mandate a comprehensive analysis of identified hazards and postulated accidents in order to protect the public, workers, and the environment. This safety analysis and integration continues as the design evolves, through construction, and finally to turnover for operations. This has resulted in increased project costs, a longer construction schedule, and additional materials required for construction since issuing the CMRR EIS and CMRR ROD. In September 2009, after a rigorous and lengthy review of selected safety systems, both the NNSA and the Defense Nuclear Facilities Safety Board certified to Congress on the adequacy of CMRR-NF safety structures, systems, and components as it prepares for and proceeds into final design (DNFSB 2009).

In 2007, the Probabilistic Seismic Hazards Analysis (PSHA; LANL 2007a) for LANL was updated, which provided a better understanding of the seismic behavior necessary for the design basis earthquake. To meet the seismic protection design requirements resulting from the PSHA and other seismic studies conducted for the Project (LANL 2005, LANL 2007b, LANL 2007c, LANL 2008b), the CMRR-NF will require additional structural and reinforcing concrete and steel for the construction of the building's walls, floors, and roof than was estimated and analyzed in the CMRR EIS. These portions of the CMRR-NF will, accordingly, be thicker and heavier than was previously estimated. Also, most of the worker access areas inside the building will be constructed with solid floors rather than wire mesh flooring; fire protection water storage tanks will be located inside the CMRR-NF rather than using existing exterior water storage tanks (the large size and weight of these tanks require additional building structural considerations); various utilities will be installed with added protection measures; and other seismic protection and safety measures will be incorporated into both the design of the building and the installation of equipment.

Furthermore, to accommodate these changes and address other seismic design requirements of the CMRR-NF's foundation and underlying soil, additional excavation, soil stabilization, and special foundation work are necessary. Plans are to excavate the identified footprint to a depth of between 125 to 140 feet, and then backfill up to 60 feet with a lean, low-slump concrete to stabilize the soil. The foundation of the CMRR-NF will be constructed directly upon this material, and the building will then be constructed so that about three levels or stories are underground, and one and one-half levels are above ground. The above ground portion will rise about 35 feet above grade, which will make it shorter than the existing RLOUB when viewed from the south and from Pajarito Road.

Excavated soil and rock material from the CMRR-NF site will be transported by truck to storage areas within LANL in accordance with LANL's routine material reuse practices; and the excavated material (spoils) will ultimately be beneficially reused in various construction and landscaping projects at LANL. Approximately 153,000 cubic yards of the material will be reused as fill for other CMRR infrastructure and construction support related projects (such as fill for the TA-63/46 and TA-48/55 laydown areas); the remaining amount will be staged at a LANL materials staging area for future reuse on

other LANL projects. Reuse of this material at LANL will directly offset the future need to transport purchased fill material from offsite locations to LANL, as is currently the case because of the limited amount of remaining suitable fill material available within existing LANL borrow pits.

The design changes for the construction requirements of the CMRR-NF have been evaluated for NEPA compliance. The CMRR EIS description of the selected proposed action and construction option included consideration of common construction requirements. The additional concrete (including cement and aggregate materials), steel, and other supplies and goods needed to construct the CMRR-NF will require additional offsite truck transportation to LANL; and greater quantities of excavated soil and rock material will also require transportation within LANL. These transportation requirements have been either explicitly analyzed or are bounded by the impact analyses presented in the CMRR EIS and the 2008 SWEIS and no further NEPA impact analysis was determined to be necessary.

Ancillary/Support Requirements

The CMRR Project requires a number of activities to support the design and construction of the CMRR-NF. The CMRR EIS anticipated most of the ancillary and support requirements and included them in that environmental impact analyses. However, the information used for the CMRR EIS impact analyses was preliminary and conceptual at that time. With the progression of the CMRR-NF design, the Project has now more clearly defined these support activities and updated the requirements to address not only the seismic protection design changes, but also increased security needs, and other changes needed to foster sustainable design. The anticipated support actions (both planned actions and proposed actions) are described in the following paragraphs, and, where appropriate, the NEPA compliance determinations are identified. The locations of these CMRR Project activities are shown in Figure 1. In general, most of these activities make use of previously disturbed land that is industrial in character.

- **TA-50 Construction Office Temporary Trailers, TA-50 115/13.2-kV Electrical Substation, and Permanent Parking Lot (Planned Actions)**
  The CMRR Project will install additional temporary construction office trailers at TA-50 just south of the existing RLUOB construction office trailers on the area that will become the permanent TA-50 parking lot. Installation of these additional trailers will include site preparation, set up of the trailers, and connection to existing utilities. This action will use about 1.3 acres of previously disturbed land and will be adjacent to other construction office trailers and an existing portion of the final parking area that has already been paved over and is being used.

  The CMRR Project will install a new 115-kV substation on the existing 115-kV power distribution loop in TA-50, just south of the existing RLUOB construction office trailers. The new substation will be a permanent installation that will provide an independent power feed (about 40 megawatts) to the existing TA-55 complex and the CMRR buildings. A short, unpaved access road will be constructed from Pajarito Road to the substation to provide service access.

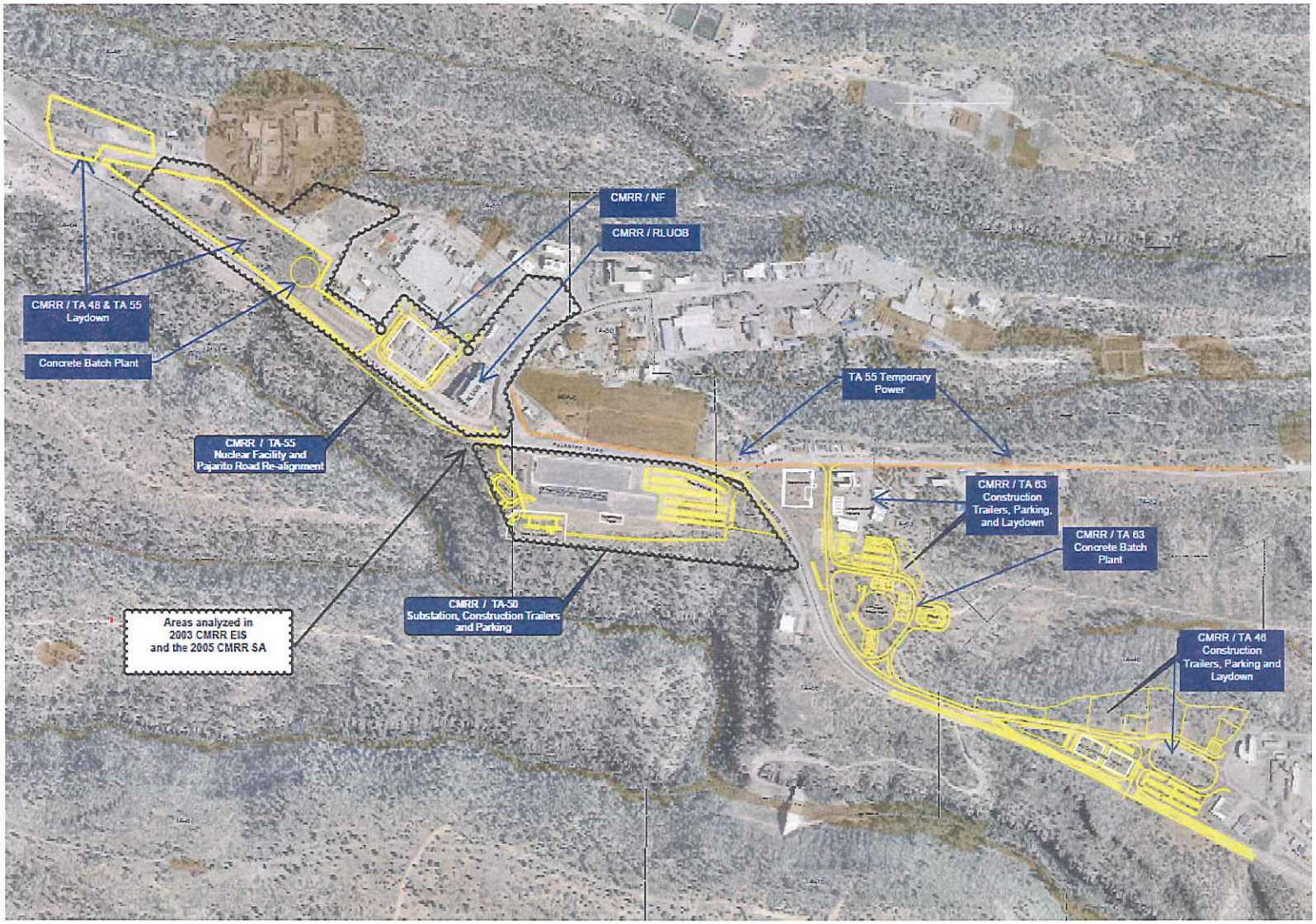

Figure 1. Locations for CMRR Project proposed actions.

When CMRR Project construction activities reach a point when the temporary office trailers are no longer needed, these will be vacated and removed by the Project. A permanent parking lot will then be completed that will provide 440 parking spaces for use by the CMRR workforce and other employees working at nearby technical areas. The completion of the parking lot will also include intersection improvements at Pajarito Road and Pecos Drive; striping, lighting, sidewalks, and curbs for the parking area to ensure safe and effective pedestrian and traffic control; fencing between Pajarito Road and the parking lot for pedestrian safety; and a stormwater detention pond for management of storm flow and erosion protection. The proposed project site at TA-50 will ultimately involve 13 acres of previously disturbed land.

The TA-50 trailer installation, the electric service substation installation, and the parking lot actions have been evaluated for NEPA compliance and the site has been specifically evaluated for cultural and biological resources impacts. A hydrological analysis was also conducted. Previously, the CMRR EIS and the CMRR EIS-SA-01 (DOE 2005) considered using portions of this area (approximately 11 acres) for parking, construction laydown, and a potential building site for the RLUOB. The NNSA determined that these uses and site disturbance were either explicitly analyzed or were bounded by the impact analysis presented in the CMRR EIS and that no further NEPA impact analysis was necessary. Also, the 2008 SWEIS explicitly considered the environmental impacts associated with the construction of the new 115-kV electrical substation. Using the area for the placement of temporary construction trailers, a permanent electric service substation, and parking facility was, therefore, considered to be adequately bounded by the CMRR EIS and 2008 SWEIS impact analyses (DOE 2003; DOE 2005; DOE 2008a; USFWS 2006).

- **Pajarito Road Shift (Planned Action)**
  The CMRR Project will shift a segment of Pajarito Road slightly to the south in the vicinity of the entrance to TA-55. The road shift is needed to integrate security requirements for the CMRR Project and the Nuclear Materials Safeguards and Security Upgrades Project (NMSSUP), specifically, to ensure proper placement of the perimeter intrusion fence in proximity to Pajarito Road. The proposed road shift will move a segment of Pajarito Road (near the entrance to TA-55 that is just southeast of the RLUOB and extending an estimated 2100 feet to the northwest) so that the road centerline is shifted up to 60 feet south of its current position. Underground utilities in the area (sewer line, natural gas line, and water line and electrical and telecommunications duct banks) will be relocated; the existing roadbed will be removed; and up to one-half mile of a new road will be constructed with two driving lanes, shoulders, and a turn lane at the Pecos/Pajarito intersection. The shifted road segment will be closer to the edge of Two Mile Canyon but will remain on the mesa top and not enter the canyon. The planned shift of the road segment will disturb about six acres of land, some of it previously disturbed. Pajarito Road is an interior LANL access road that is not open to the

public; it is secured on both ends to preclude unauthorized access to facilities between TA-64 and NM State Road 4.

The shift in Pajarito Road, including all necessary utility line movement, has previously been evaluated for NEPA compliance and cultural and biological resources impacts, and actions have been identified and will be followed to avoid impacts to nearby cultural and biological resources. A cultural resource assessment and a biological assessment have been conducted for this area, and actions have been identified and will be followed by the Project to avoid impacts to nearby cultural and biological resources. This location of the proposed road shift was not directly analyzed in the CMRR EIS, but that impact analysis did consider the possible need for realigning Pecos Drive and analyzed that up to six acres of land could be disturbed for that action. NNSA determined that the road shift action was eligible for categorical exclusion and no further NEPA impact analysis was necessary (10 CFR 1021, Appendix B1.13; DOE 2010c; LANL 2006; LANL 2009).

- **Construction Laydown Areas (TA-46/TA-63 and TA-48/TA-55) (Planned and Proposed Actions)**
  The CMRR EIS analyzed construction laydown and support activities; however, the analysis was limited to two acres of land in TA-55 or TA-6. Because of increased construction requirements for the CMRR-NF, additional land is required for CMRR-NF construction laydown and support activities. The CMRR Project plans to establish two areas for construction laydown and support services: one area will be located in portions of TA-63 and TA-46; and a second area will be located in TA-48/TA-55. Both will be temporary and will occupy areas that have been previously disturbed and used for prior material storage and laydown sites.

  The TA-63/46 laydown area (Planned Action) will occupy an estimated 40 acres of land that spans across the shared boundary of both technical areas. Activities in the TA-63 area will include construction office trailers, short temporary access and haul roads, temporary parking areas, a concrete plant (discussed separately later), utility relocations, construction laydown and storage areas, and a stormwater detention pond. In TA-46, the laydown area will require utility relocations, short temporary access and a haul road, temporary construction office trailers, temporary parking, and areas for construction material and equipment laydown, staging, and storage. The TA-63/46 area is mostly developed, previously disturbed land, constrained by surrounding structures and roadways, and it also has been previously used for material storage and laydown activities.

  The TA-63/46 laydown area action has previously been evaluated for NEPA compliance and cultural and biological resources impacts, and actions have been identified and will be followed to avoid impacts to nearby cultural and biological resources. NNSA determined that the TA-63/46 laydown area action was eligible for categorical exclusion from the need to prepare any further NEPA impact

analyses documents (10 CFR 1021, Appendix B1.15; DOE 2008a; LANL 2006; NMSHPO 2006; NMSHPO 2008).

The TA-48/55 laydown area (Proposed Action) will cover an estimated 15 acres that span across the shared boundary of both technical areas; activities will include temporary short access and haul roads, temporary construction craft and office trailers, construction laydown areas, and areas to support the adjacent concrete plant.

The TA-48/55 laydown area use is a proposed action and this SA will serve to document the NNSA's NEPA compliance review of that action. The CMRR EIS analyzed the disturbance and use of 10 acres in TA-55 as a potential building site and for construction trailers, construction laydown, and a concrete plant. The additional five acres (for a total of 15 acres) that will be required for this proposed action are mostly developed and previously disturbed land. There is a potential release site (PRS; PRS 48-001) that may affect a portion of the TA-48 area proposed for use as a laydown area. The extent of the PRS is currently being evaluated; appropriate construction and operation measures will be employed to minimize potential disturbance of contaminated soils or other effects on the PRS. The area has been evaluated previously for cultural and biological resources impacts, and actions have been identified and will be followed to avoid impacts to nearby cultural and biological resources. NNSA hereby makes the determination that this proposed action was partially the subject of the prior CMRR EIS impact analysis and in total is eligible for categorical exclusion from the need to prepare any further NEPA impact analyses documents (10 CFR 1021, Appendix B1.15; DOE 2008a; LANL 2006; LANL 2002c).

- **Concrete Plants (TA-63/46 and TA-48/-55) (Planned Actions)**
  The CMRR EIS analysis included a concrete batch plant on five acres within TA-55 to support the CMRR Project construction. More concrete will be needed for the CMRR-NF construction, which requires additional concrete production capability. The CMRR Project plans to install two concrete plants, with a combined production rate of approximately 300 cubic yards of concrete per hour. Neither plant will require natural gas but will be operated by electric power purchased from the grid. The electrical requirements are included in Table 2. The plants will be located in TA-63 (adjacent to the TA-63/46 laydown area) and/or in TA-48/55. The TA-63 plant including supporting functions will occupy about 15 acres, and the TA-48/55 plant with supporting functions will occupy about five acres. The plants will be temporary installations operated on an as-needed basis to supply concrete throughout CMRR-NF construction and then demobilized at the end of the project. The plants will not operate fully at the same time; but both may be used during the CMRR-NF soil stabilization phase and for structural concrete needs. Peak operation of the TA-48/55 concrete plant is expected during the first year of CMRR-NF construction (2012) when the plant will be used to produce an estimated 250,000 cubic yards of lean, low-slump concrete that will be placed in the lower 60 feet of the CMRR-NF excavation for

soil stabilization. In the following years, both plants will likely be used to supply structural concrete for the CMRR-NF.

The TA-48/55 concrete plant action has previously been evaluated for NEPA compliance and cultural and biological resources impacts, and actions have been identified and will be followed to avoid impacts to nearby cultural and biological resources. NNSA determined that the TA-48/55 concrete plant action was adequately considered in the CMRR EIS impact analyses and that no further NEPA analysis was necessary. The use of a similar site at TA-63/46 has also been previously evaluated for NEPA compliance and cultural and biological resources impacts, and actions have been identified and will be followed to avoid impacts to nearby cultural and biological resources. NNSA determined that the TA-63/46 concrete plant action was eligible for categorical exclusion from the need to prepare any further NEPA impact analyses documents (10 CFR 1021, Appendix B1.15; DOE 2008a; LANL 2008c; LANL 2007d).

- **Move NMSSUP Security Perimeter Fence (Planned Action)**
  Responding to an NNSA directive, the CMRR Project will coordinate with NMSSUP to temporarily relocate a portion of the TA-55 Perimeter Intrusion Detection Assessment and Delay System (PIDADS) fence during the CMRR-NF construction activities. This action is needed to allow access to the TA-48/55 laydown areas and the CMRR-NF construction site while maintaining a security perimeter during construction. In addition, this action creates space to allow the Project to provide construction craft worker break trailers, a nurses station, and delivery access for construction materials. The CMRR Project will move an estimated 600 feet of the south PIDADS fence northward up to 200 feet. In the final constructed configuration, the PIDADS fence will be to the south and east sides of the CMRR-NF, thus enclosing the CMRR-NF within a special security perimeter. The area affected by this action is included in the TA-48/55 laydown areas discussed above.

  The relocation of the NMSSUP Security Perimeter Fence action has previously been evaluated for NEPA compliance and cultural and biological resources impacts, and actions have been identified and will be followed to avoid impacts to nearby cultural and biological resources. Although relocation of the PIDADS fence was not specified in the CMRR EIS impact analyses for the laydown area, the area affected by this action was analyzed in the CMRR EIS for impacts associated with using the site for CMRR Project construction and this included the extension of the existing PIDADS to enclose the CMRR-NF. NNSA determined that the similar temporary relocation of the NMSSUP Security Perimeter Fence was eligible for categorical exclusion from the need to prepare any further NEPA impact analyses documents (CFR 1021, Appendix B1.15; DOE 2010d; DOE 2008a).

- **Temporary Power Upgrades (TA-55 to TA-05) (Proposed Action)**
  The CMRR Project will upgrade temporary power services for the CMRR-NF construction site and support activities. The Project proposes to bring in temporary power along a route from the CMRR-NF site (at TA-55) along Pecos

Drive and Pajarito Road, to Puye Road, then along Puye through TA-63, TA-52, TA-05, and eventually connecting to the TA-05 substation. The Project will use electric utility easements and overhead power poles that currently exist along this route whenever possible, but some new overhead poles may be needed. The construction schedule and any tree removals will be conducted so that they will be consistent with the LANL Habitat Management Plan requirements for tree cutting.

The power supply upgrades action is a proposed action and this SA will serve to document the NNSA's NEPA compliance review. The CMRR EIS analyzed the need for construction of utility services that included trenching and connection to existing nearby service lines. The area has been evaluated previously for cultural and biological resources impacts, and actions have been identified and will be followed by the Project to avoid impacts to nearby cultural and biological resources. NNSA hereby makes the determination that this proposed action was partially the subject of the prior CMRR EIS impact analysis and in total is eligible for categorical exclusion from the need to prepare any further NEPA impact analyses documents (10 CFR 1021, Appendix B4.12, Construction of Electric Powerlines up to 10 Miles Long).

4. Potential Consequences of Planned/Proposed Action

This section discusses potential environmental impacts of CMRR Project planned and proposed actions and compares them to the impacts that were analyzed and bounded in the CMRR EIS[2] and/or the 2008 SWEIS and associated RODs.[3] Potentially affected resources that were evaluated in this SA include those specifically evaluated in the CMRR EIS (land use and visual resources, site infrastructure, air quality and noise, geology and soils, surface and groundwater quality, ecological resources, cultural and paleontological resources, socioeconomics, environmental justice, human health, waste management and pollution prevention, and transportation); as well as two additional areas, "Potential Release Sites," and "Resource Conservation and Use."

Table 2 compares this information and identifies potential environmental impacts to the various resource areas. Potential consequences to any resource area in the table address impacts from all of the planned and proposed actions previously described, while specific project impacts are individually identified.

Greenhouse Gas Emissions

Greenhouse gas emissions were not specifically analyzed in the CMRR EIS, as there was no requirement to do so at the time that document was written and NNSA decisions based on the impact analyses provided in the CMRR EIS were made. This discussion is

[2] The CMRR EIS was bounded by the preferred Alternative 1, Construction Option 1—a three-building scenario consisting of a Hazard Category 2 building, a separate Hazard Category 3 building, and an Administrative Office and Support Function building that includes the Utility Building.

[3] Baseline conditions set by the 2008 SWEIS RODs assume the "No Action" alternative along with impacts of certain activities from the expanded operations scenario as presented in the 2008 and 2009 RODs.

included in this SA to address more recent 2010 NEPA guidance from the DOE and NNSA consistent with Executive Order 13514, Federal Leadership in Environmental, Energy, and Economic Performance.

The vehicles needed for the expanded scope of construction for the CMRR Facility will emit greenhouse gases, primarily in the form of carbon dioxide (CO_2). The emission of greenhouse gas as a result of constructing the CMRR Project will add to the total greenhouse gas emissions of the United States by an extremely small amount. Total emissions of greenhouse gases caused by construction and transportation activities will be about 105.6 metric tons of CO_2-equivalents. The greenhouse gases emitted by the construction vehicles will add a very small amount to emissions of these gases in the United States and the world. Overall, greenhouse gas emissions in the United States during 2007 totaled about 8026 million tons (7282 million metric tonnes) of CO_2-equivalents.

The release of anthropogenic greenhouse gases and their potential contribution to global warming is an inherently cumulative phenomena. Greenhouse gas emissions from the proposed facility are relatively small compared to the 8026 million tons (7282 million metric tonnes) of CO_2-equivalent greenhouse gases emitted in the U.S. in 2007 (EIA 2008) and the 54 billion tons (49 billion metric tonnes) of CO_2-equivalent anthropogenic greenhouse gases emitted globally in 2004 (IPCC 2007). However, emissions from the proposed additional construction vehicles, in combination with past and future emissions from all other sources, will contribute incrementally to climate change impacts. At present there is no methodology that will allow DOE to estimate the specific impacts this increment of climate change would produce in the vicinity of the facility or elsewhere.

Table 2. Comparative Analysis and Potential Consequences of CMRR Proposed Action

Resource	*CMRR EIS Basis for Impact Analyses*	*Current CMRR Project Plans*	*Potential Consequences of Current CMRR Project Plans*[1]
Land Use and Visual Resources			
Land Use	Total acres disturbed: 26.75[2] • Permanent use: 8.75 acres ◊ RLUOB: 4 acres ◊ NF: 4.75 acres • Temporary/Other Construction Use: ◊ 18 acres (laydown areas, batch plant, road shift, parking)	Total acres disturbed: 83 acres • Permanent use: 30 acres ◊ RLUOB: 4 acres ◊ NF: 4.75 acres ◊ Other (road, parking, power): 21 acres • Temporary/Other Construction (laydown areas, concrete plant, office trailers): 53 acres	There would be no significant impacts to land use. Construction and operation of the CMRR is consistent with the LANL Comprehensive Site Plan and the industrial land uses designated for the Pajarito Corridor. There would be no long-term negative impacts to visual resources. The number of above grade stories has increased by one-half story from the original proposal. Most of the areas for the planned and proposed CMRR construction have been previously disturbed and are located in areas with an industrial character. A limited amount of previously undisturbed land will be impacted (TA-48/55 laydown areas, road shift, TA-50 office trailers); however, these areas are constrained by surrounding structures and roadways and are industrial in character. The completed CMRR-NF would be visible from Pajarito Road and nearby LANL technical areas. Lighting would be designed to minimize spill into nearby canyons and to avoid sky glow in compliance with LANL Engineering Standards and the Habitat Management Plan.
Infrastructure			
Site-Wide Infrastructure Characteristic or Capacity	*Water*: Available Capacity[3]: 198 million gallons per year (MG/yr) *Power*: Total Demand[4]: 491,186 megawatt hours per year (MWhr/yr) Peak Demand: 85.5 MWhr *Natural Gas*: Site Usage[5]: 2530 million cubic feet per year (Mm cu ft/yr)	*Water*: Available Capacity[6]: 105 MG/yr *Power*: Total Demand[7]: 626,400 MWhr/yr Peak Demand: 109 MWhr *Natural* Gas: Site Projected Usage[8]: 1197 Mm cu ft/yr	There would be no significant impacts to site-wide infrastructure beyond those bounded by the 2008 SWEIS.

Table 2. Continued

Resource	*CMRR EIS Basis for Impact Analyses*	*Current CMRR Project Plans*	*Potential Consequences of Current CMRR Project Plans*[1]
Infrastructure (continued)			
Water Requirements	Construction (NF and supporting structures)[9]: • 2.39 MG total; average 0.80 MG/yr over 3 yrs or 0.4% of available capacity	Construction (NF and supporting structures): • 96.39 MG total; average 17.52 MG/yr for 5.5 yrs, or 17% of available capacity • Estimated peak use[10]: 0.18 MG/day	Planned and proposed construction activities are expected to have a minimal (short-term and temporary) effect on the water supplies. During the construction phase (5.5 yrs), the temporary increase in water would be approximately 17% of LANL's available (surplus) capacity and it will not impact the available water supply to any current or projected uses. Bounded by the 2008 SWEIS; within site-wide limits.
	Operations (RLUOB and NF): • 10.4 MG/yr, 5% of available capacity	Operations (RLUOB and NF): 11.9 MG/yr, 11% of available • RLUOB: 5.2 MG/yr • NF: 6.7 MG/yr The increased water requirement of 1.5 MG/yr for operation would be a result of the installation of a demineralization system to remove silica and improve equipment performance.	There is no expected change in impacts associated with the Operations water use requirements. Operational use will decrease the available (surplus) capacity only slightly more than originally projected; however, it will not impact water supplies to any current or projected uses. Bounded by 2008 SWEIS; within site-wide limits.
Power Requirements	Construction (NF and supporting structures): • NF: 177.5 MWhr/yr Operations (RLUOB and NF): • 19,272 MWhr/yr, 4% increase in demand • Peak load of 2.6 MW, 3% increase in demand	Construction (NF & supporting structures): • NF: 337 MWhr/yr (includes batch plant operation) Operations (RLUOB and NF): • 43,680 MWhr/yr, 7% increase in demand • Peak of 3.7 MW, 3% increase • Estimates include 30% load growth/year for 50-year design life The increase in electrical requirements of 24,408 MWhr/yr is a result of the current project design, the increased size of the facility, and the added growth factor over 50 years.	Planned and proposed construction activities are expected to have a temporary effect on the electrical power requirements at LANL. Electrical requirements for the operation of the CMRR-NF are expected to have a minimal effect on LANL operations. Bounded by the 2008 SWEIS; within site-wide limits.

Table 2. Continued

Resource	*CMRR EIS Basis for Impact Analyses*	*Current CMRR Project Plans*	*Potential Consequences of Current CMRR Project Plans*[1]
Natural Gas	Construction (NF & supporting structures): • No information provided Operations (RLUOB and NF): • No information provided	Construction (NF & supporting structures): • None Operations (RLUOB and NF): • 140 Mm cu ft/yr, 12% increase in usage (use of natural gas is restricted to the utility building attached to the RLUOB to supply boilers and emergency generators)	The CMRR EIS did not project the amount of natural gas needed for construction or operations at the RLUOB and CMRR-NF. Natural gas use is bounded by 2008 SWEIS; within site-wide limits.
Geology and Soils			
	Construction[11]: • NF: Excavate to 50-ft depth; 117,000 cu yds of material removed • Tunnels & Trenching: Excavate to 50-ft depth; 122,300 cu yds of material removed Operations: Not expected to impact geologic and soil resources. Facilities are sited to minimize risk from geologic hazards including earthquakes. Note: The potential to encounter contaminated soils is discussed below under "Potential Release Sites."	Construction: • NF: Excavate to 125-ft depth, between 375,000 and 500,000 cu yds of material removed • Tunnels & Trenching: Excavate to 50-ft depth; 113,500 cu yds of material removed This represents an increased depth of excavation (additional 75 ft) and increased material removed (additional 249,200 to 374,200 cu yds) compared to the CMRR EIS analysis. The excavated material (spoils) will be beneficially reused on other projects: Approximately 153,000 cu yds of the material will be reused as fill for other CMRR construction-related projects (such as for grading or fill to prepare laydown areas); the remaining amount will be staged at a LANL-wide materials staging area for future beneficial reuse on other LANL projects.	There will be some impacts to local geology as a result of the additional disturbance of subsoil during the NF construction. This additional disturbance is required for the NF construction to meet the seismic protection requirements (see discussion in Section 3). As stated in the CMRR EIS, the building must be constructed to minimize risks to workers, public, and environment from geologic hazards, including earthquakes. The planned and proposed activities meet this requirement. The magnitude and consequences of impacts related to the CMRR Project's total disturbance of subsoil are small in comparison to those bounded under the MDA remediation actions covered by the 2008 SWEIS ROD; that analysis considered the impacts associated with removal of up to 2.5 million cubic yards of crushed tuff and other material (DOE 2008a).

Table 2. Continued

Resource	*CMRR EIS Basis for Impact Analyses*	*Current CMRR Project Plans*	*Potential Consequences of Current CMRR Project Plans*[1]
Geology and Soils (continued)			
			Impacts associated with management of the CMRR Project's disturbed material (spoils) will be negligible as the spoils are planned to be reused on other CMRR infrastructure projects or other LANL activities; thus reducing the need to procure backfill from offsite sources for these future projects. While staged/stored for reuse, the spoils will be covered and managed in accordance with applicable stormwater and other requirements. The impacts associated with managing the spoils material would be within the overall impacts analyzed in the 2008 SWEIS for LANL site operations, specifically the transportation of truckloads of materials and wastes, and the storage of excavated materials and wastes at various borrow sites, storage sites, and the subsequent use of clean fill material around LANL for other purposes (DOE 2008a). There are no activities expected to change geology, seismic triggers, or slope stability.
Water and Air Resources			
Surface Water	Construction: Stormwater runoff from construction activities could potentially impact downstream surface water resources, but will be minimized through stormwater controls, implemented as part of a Stormwater Pollution Prevention Plan. Typical stormwater controls include sediment basins, silt fences, and similar features.	Construction: No change from CMRR EIS conditions. Stormwater flow and erosion during construction activities will be managed and minimized through use of Stormwater Pollution Prevention Plans implemented for each of the proposed activities.	There would be no significant impacts to surface water quality resulting from construction activities. Any potential impacts are minimized by use of stormwater pollution prevention plans and their designated controls and best management practices.

Table 2. Continued

Resource	*CMRR EIS Basis for Impact Analyses*	*Current CMRR Project Plans*	*Potential Consequences of Current CMRR Project Plans*[1]
Water and Air Resources (continued)			
	Operations: No impacts on surface water resources are expected. No surface water will be used to support facility activities and no direct discharge of effluent to surface waters. The design and operation of new buildings will incorporate appropriate stormwater management controls to safely collect and convey stormwater from facilities while minimizing washout and soil erosion. Typical stormwater controls include sediment basins, silt fences, and similar features.	Operations: No change from the CMRR EIS conditions, as no surface water is used to support the facility and there will be no direct discharge of effluent to surface waters. There are also no changes to stormwater management; however, more details are now available on the proposed CMRR stormwater management system design. The stormwater control system is sized to collect and manage flow from both buildings and the surrounding area for up to a 25-year design storm. The system includes design features and best management practices that comply with sustainable design principals as well as LANL and Environmental Protection Agency standards. Included are roof drains, ditches, curbs and gutters, catch basins, manholes, storm sewer pipes, and a stormwater sediment basin or detention pond. The stormwater detention pond (located south of Pajarito Road and west of TA-50) will control erosion from storm flows by detaining and releasing the flow in a more controlled manner (LANL 2010b).	Operational impacts on surface waters and downstream water quality would be negligible. The planned stormwater management system is adequate to control storm flows and erosion to ensure no net increase in the rate or degradation in the quality of runoff.
Groundwater	Construction: No onsite discharges are planned and spill prevention, countermeasures, and control procedures will be employed to minimize potential on site releases that could affect groundwater.	No changes	There would be no significant impacts on groundwater resources associated with the proposed and planned actions beyond those bounded by the CMRR EIS.

Table 2. Continued

Resource	*CMRR EIS Basis for Impact Analyses*	*Current CMRR Project Plans*	*Potential Consequences of Current CMRR Project Plans*[1]
Water and Air Resources (continued)			
Groundwater (continued)	Operations: No impacts on groundwater resources (quality or availability) are anticipated during the construction. No discharges to surface or subsurface are planned and spill prevention, countermeasures, and control procedures will be employed to minimize the probability of, and the potential for, an unplanned release to infiltrate and affect groundwater. Note: The volume of groundwater required during construction and operations is discussed above under "Infrastructure."		
Nonradiological Air Quality	Construction: Nonradiological air emissions from construction are temporary. Nonradiological air emissions were determined to meet the ambient air quality standards (DOE 2003). Operations: Nonradiological air emissions were determined to meet ambient air quality standards (DOE 2003).	Construction: Additional activities that are required for CMRR-NF construction consist of operation of concrete plants and use of heavy construction vehicles for approximately 32 months longer than was originally anticipated, and the disturbance of approximately 50 additional acres. Operations: No change	Proposed and planned activities would be expected to produce temporary increases of criteria air pollutants that would not exceed ambient air quality standards. Operation of the batch plants would be expected to produce temporary particulate emissions during the additional 32 months of operation. Other criteria air pollutants may be produced if the plants were to be powered by natural gas. The plant would require permitting by the New Mexico Environment Department prior to commencing operation. Exceeding ambient air quality standards is not expected.

Table 2. Continued

Resource	*CMRR EIS Basis for Impact Analyses*	*Current CMRR Project Plans*	*Potential Consequences of Current CMRR Project Plans*[1]
Water and Air Resources (continued)			
Nonradiological Air Quality (continued)	Greenhouse Gases: not addressed	Greenhouse Gases: Greenhouse gases from the CMRR facilities are expected to be small; only small amounts of natural gas are used. Greenhouse gases from construction are primarily from gas and diesel-powered construction vehicles. Operation of the concrete batch plants will not require natural gas or other carbon-based fuels. Compared to national and global emissions, greenhouse gases from construction vehicles will be negligible but incremental.	Operation of construction vehicles would result in temporary emissions. The emissions would be similar in type and concentration to those analyzed in the CMRR EIS but would extend for an additional 32 months. Criteria air emissions analyzed in the CMRR EIS were determined to be within the ambient air quality standards for all areas to which the public had access. Although some criteria air pollutant concentrations will be higher along Pajarito Road, the public has no access to these areas. Disturbance of land surfaces would also increase from approximately 28 acres to nearly 83 acres. Dust and particulate matter would be dispersed into the air from grading, earthmoving, and compaction. Standard dust control measures, such as water sprays, would be used to control dust and particulate dispersion. Air quality impacts would be expected to be similar to other LANL construction projects analyzed in the 2008 SWEIS. Exceeding ambient air quality standards from increased ground disturbance is not expected. Greenhouse gases from the planned and proposed construction are expected to be small relative to national and global emissions but would contribute to total global emissions. Emissions would be expected to be about the same as for similar size environmental remediation projects.
Radiological Air Quality	Construction: The potential to release contaminated soils during construction is discussed below under "Potential Release Sites."	Construction: No change	No change in impacts, bounded by CMRR EIS analysis.

Table 2. Continued

Resource	*CMRR EIS Basis for Impact Analyses*	*Current CMRR Project Plans*	*Potential Consequences of Current CMRR Project Plans*[1]
Water and Air Resources (continued)			
Radiological Air Quality (continued)	Operations: Radiological emissions were modeled. No increase in latent cancer fatalities were expected to result from routine operational releases.	Operations: No change	
Noise	Minor temporary construction equipment and traffic noise impacts. Noise remains within regulatory limits (DOE 2003).	Construction equipment and traffic noise impacts would be temporary and similar in magnitude to those analyzed in the CMRR EIS but would continue for a longer period of time.	Noise impacts associated with the planned and proposed actions are bounded by the CMRR EIS and the 2008 SWEIS.
Ecological Resources			
Terrestrial	Potential loss of some wooded areas west of TA-55 PIDADS, depending on the site selected (DOE 2003).	No additional loss, or negligible loss, of wooded areas, depending on sites selected. Some small trees and native vegetation may be removed (for the TA-48 laydown, TA-63/46 laydown, and road shift) but actions have been identified and will be followed to minimize impacts.	There would be no significant change to the impact on terrestrial resources associated with the planned and proposed actions beyond those bounded by the CMRR EIS.
Threatened and Endangered Species	No likely adverse effects expected to potential Mexican spotted owl habitat. U.S. Fish & Wildlife Service concurred that the preferred action "may affect, but is not likely to adversely affect" the Mexican spotted owl.	No change. All planned and proposed activities are reviewed for compliance with LANL's Habitat Management Plan.	There would be no significant change to the impacts on threatened and endangered species associated with the planned and proposed actions beyond those bounded by the CMRR EIS.
Cultural Resources			
	One prehistoric site eligible for the National Register of Historic Places located west of the TA-55/48 boundary to be mitigated by avoidance. A memorandum of agreement has been signed between NNSA and the State Historic Preservation Officer (SHPO) to mitigate any adverse effects.	No change from CMRR EIS conditions. One prehistoric site eligible for the National Register of Historic Places located west of the TA-55/48 boundary would be avoided.	There would be no significant change to the impacts to cultural resources associated with the planned and proposed actions beyond those bounded by the CMRR EIS.

Table 2. Continued

Resource	*CMRR EIS Basis for Impact Analyses*	*Current CMRR Project Plans*	*Potential Consequences of Current CMRR Project Plans*[1]
Cultural Resources (continued)			
	Construction of TA-50 parking lot will result in loss of several historic features related to pre–Manhattan era homesteads. Data recovery would mitigate loss of these resources. Concurrence of SHPO obtained prior to start of construction (DOE 2005).		
Socioeconomics			
	Construction: 300 workers (peak), 135 vehicles per day during construction period Operations: 550 resident workers	Construction: 1000 workers (peak); 552 workers (average) per year for 8.5 years Operations: 550 resident workers (no change)	There would be some short-term increase in local economic benefits due to longer construction period and larger temporary workforce. Remains bounded by the CMRR EIS and the 2008 SWEIS.
Human Health & Radiological Inventory			
Facility Accidents	Accident analysis related to radiological inventory in the vault and the configuration.	No changes to radiological inventory or configuration.	There would be no impacts on human health and radiological resources associated with the planned and proposed actions beyond those bounded by the CMRR EIS and the 2008 SWEIS.
Environmental Justice			
	There were no environmental justice concerns identified in the CMRR EIS analysis.	No change from CMRR EIS conditions.	There would be no impacts on environmental justice associated with the planned and proposed actions beyond those bounded by the CMRR EIS and the 2008 SWEIS.

Table 2. Continued

Resource	*CMRR EIS Basis for Impact Analyses*	*Current CMRR Project Plans*	*Potential Consequences of Current CMRR Project Plans*[1]
Transportation			
	Construction: 135 additional worker vehicles per day; transportation of construction material was not analyzed. Operations: Little/no change; workers housed at CMR in TA-03 would be relocated to the new facility.	Increased offsite construction traffic for a longer time associated with hauling source material for concrete production and other material delivery for approximately 30,000 deliveries over the total construction period. Over the construction period, on average, LANL truck deliveries will increase by 12 per day (range of 4 to 22 per day); traffic flow at East Jemez Rd or Pajarito Rd at SR 4)[12] would increase less than 0.01%. The Project will make use of the existing LANL Truck Inspection Station for the duration of the Project; and no changes to the LANL Truck Inspection Station are anticipated as a result of the CMRR Project. Other construction-related traffic for stockpiling fill and similar purposes in the immediate vicinity of the Project site would also increase and continue for the duration of the construction period. This traffic will occur largely within LANL boundaries, most of it on roads not accessible to the public. Assuming that the source materials are obtained within a 100-mile radius of LANL, approximately 1.08 traffic accidents and fewer than 0.12 traffic fatalities would result from transportation of construction materials.[13] No offsite transportation of radioactive materials will be associated with construction.	Truck trips associated with the planned and proposed activities are substantially below those associated with other large LANL projects that were analyzed in the 2008 SWEIS and ROD. For comparison, the SWEIS reported MDA removal actions resulting in 53,924 trips and MDA capping materials resulting in 104,300 trips. Based on this comparison, the CMRR Project trips would not be likely to result in any accident fatalities or disruption of traffic flow at the entrances to LANL. For comparison, daily traffic at East Jemez and Pajarito Rd entrances as a result of projected MDA removal actions analyzed in the 2008 SWEIS would increase by 1200 to 4200 vehicle trips/day. Impacts to transportation associated with the planned and proposed actions are bounded by the 2008 SWEIS.

Table 2. Continued

Resource	*CMRR EIS Basis for Impact Analyses*	*Current CMRR Project Plans*	*Potential Consequences of Current CMRR Project Plans*[1]
Transportation (continued)			
		Temporary closures and minor modifications to internal LANL roadway system as required by CMRR and other projects. Traffic management plans will be implemented to mitigate potential impacts of onsite and local construction traffic.	
Waste Management & Pollution Prevention			
Waste Management	Construction (nonhazardous): • NF: 252 tons • Other Construction: 11 tons Operations (annually): • Nonradiological Liquid: 530,000 gallons • Radioactive Liquid: 10,400 gallons • Transuranic (TRU): 61 cu yds • Mixed TRU: 26.7 cu yds • Low-level waste (LLW): 2640 cu yds • Mixed LLW: 25.6 cu yds • Chemical: 24,700 pounds • Sanitary Liquid Waste: 7.15 MG	Construction (nonhazardous): • NF: 252 tons • Other Construction: 11 tons Note: Spoils material from excavation are not considered waste and are discussed under "Soils and Geology" Resource area. Operations (annually): minor changes • Nonradiological Liquid: 0 (zero) gallons[14] • Radioactive Liquid: 11,000 gallons • TRU: no change • Mixed TRU: no change • LLW: no change • Mixed LLW: no change • Chemical: no change • Sanitary Liquid Waste: 10.8 MG/yr [15]	Changes in operational waste are minor and bounded by the CMRR EIS and the 2008 SWEIS. See also the discussions in "Resource Use and Conservation/Sustainable Design Considerations" below. Changes in operational waste are minor and bounded by the CMRR EIS and the 2008 SWEIS.

Table 2. Continued

Resource	*CMRR EIS Basis for Impact Analyses*	*Current CMRR Project Plans*	*Potential Consequences of Current CMRR Project Plans*[1]
Waste Management & Pollution Prevention (continued)			
Pollution Prevention	Project will minimize waste by recycling, processing to reduce volume, quantity, or toxicity; product substitution; and segregation to prevent cross contamination.	Project will employ recycling practices for construction-generated wastes and sustainable design principles to reduce overall impact of operations. Over 7000 tons of construction-generated waste materials from RLUOB construction have been recycled to date.	No changes. See also the discussions in "Resource Use and Conservation/Sustainable Design Considerations" below.
Potential Release Sites			
	Potential to encounter contaminated soil and other media during excavation and other construction activities. This will be managed by a pre-construction survey and coordination with the LANL environmental restoration program.	Surveys have been conducted to identify PRS in the CMRR Project areas (LANL 2002c). To date, no unidentified or unexpected soil contamination or buried media has been encountered. As construction progresses, potential contact with contaminated soil or other media will be managed as described in the CMRR EIS. PRS 55-011(d) (a storm drain) was evaluated for impact to Project activities located in TA-55; it was determined that there are no concerns with respect to this PRS (LANL 2002c). PRS-48-001 is currently being evaluated for potential impacts to planned or proposed actions in the TA-48/55 laydown and concrete plant area. The extent of the PRS is currently being evaluated; appropriate construction and operation measures will be employed to minimize potential disturbance of contaminated soils or other effects on the PRS.	There would be no impacts on PRSs associated with the planned and proposed actions beyond those bounded by the CMRR EIS and the 2008 SWEIS.

Table 2. Continued

Resource	*CMRR EIS Basis for Impact Analyses*	*Current CMRR Project Plans*	*Potential Consequences of Current CMRR Project Plans*[1]
Potential Release Sites (continued)			
		MDA C (located east of CMRR Project areas) was investigated for potential impacts to planned and proposed actions in TA-55. No contamination from this PRS exists in the CMRR Project areas in TA-55 or nearby areas currently being considered under the planned and proposed actions. There are no PRS concerns in the areas proposed for the TA-48 construction trailers. LANL activities will be managed to control impacts to the PRS.	
Resource Use and Conservation			
Concrete	Total: 11,255 cu yds of concrete required • RLUOB: 3061 cu yds • NF: 3194 cu yds • Other Construction: 5000 cu yds	Total: 387,633 cu yds of concrete required • RLUOB: 16,800 cu yds • NF: 120,833 cu yds, structural concrete • NF: 250,000 cu yds, lean concrete fill (for soil stabilization and seismic protection) Represents an additional 126,378 cu yds of structural concrete and 250,000 cu yds of lean (soil stabilization) concrete from what was anticipated in the CMRR EIS.	The CMRR-NF has a significantly higher requirement for concrete from what was bounded in the CMRR EIS, which is a direct result of unavoidable changes in the structural design to address increased seismic protection concerns. The CMRR EIS stated that the NF would be constructed to minimize risks (to workers, public, and environment) from geologic hazards including earthquakes. To meet this requirement, a site-specific seismic hazard analysis was conducted; its findings resulting in increased structural design and soil stabilization requirements for the NF, which, in turn, requires more concrete.

Table 2. Continued

Resource	*CMRR EIS Basis for Impact Analyses*	*Current CMRR Project Plans*	*Potential Consequences of Current CMRR Project Plans*[1]
Resource Use and Conservation (continued)			
Concrete (continued)			Overall, the additional need for concrete is considered an acceptable short-term, temporary commitment of resources that results in a long-term improvement in safety and reduction in risk to the public and the environment. Impacts associated with transportation of feed material, use of water for concrete production, and operations of the concrete plants are discussed elsewhere in this table (specifically in air quality, infrastructure, and transportation resource areas).
Steel	Total: 559 tons • RLUOB: 292 tons • NF: 267 tons of structural steel	Total: 19,549 tons • RLUOB: 1010 tons NF Total Steel: 18,539 tons • Structural Steel: 560 tons • Foundation and Reinforcing Steel: 17,979 tons This represents an additional 300 tons of structural steel and 18,018 tons of steel for rebar and foundation work from what was anticipated in the CMRR EIS.	The proposed and planned action has a higher requirement for steel from what was anticipated in the CMRR EIS, which is a direct result of changes in the structural design to address increased seismic protection concerns. The CMRR EIS stated that the CMRR-NF would be constructed to minimize risks (to workers, public, and environment) from geologic hazards including earthquakes. To meet this requirement, a site-specific seismic hazard analysis was conducted; its findings resulting in increased structural design requirements for the NF, which, in turn, required more steel for the foundation and the structure. There will be minimal impacts to the availability of steel to other LANL projects or to the local community as a result of the CMRR's actions. The steel will be procured from regional suppliers (within 500 miles) to the extent possible.

Table 2. Continued

Resource	*CMRR EIS Basis for Impact Analyses*	*Current CMRR Project Plans*	*Potential Consequences of Current CMRR Project Plans*[1]
Resource Use and Conservation (continued)			
Steel (continued)			Overall, the additional need for steel is considered an acceptable short-term, temporary commitment of resources that results in a long-term improvement in safety and reduction in risk to the public and the environment, and these impacts were bounded by the 2008 SWEIS.
Sustainable Design Considerations	None included	Sustainable design features are included in design and construction specifications. RLUOB meets requirements as a high-performance sustainable building; received 2010 NNSA Best-in-Class Award for Sustainable Design/Green Buildings; and is anticipated to receive LEED Silver Certification. NF design includes several sustainable design parameters; LEED certification level is pending. Sustainable principles include: • Design and construction specifications require use of recycled material (e.g., in steel, concrete, and wall framing); bio-based material content; use of low volatile organic compound emitting products (e.g., carpets, paints, furniture, adhesives); and the purchase of environmentally preferable products. • Sustainable site selection and development factors including no potable water used for landscaping, use of local/regional procurement of materials to reduce transportation impacts, and comprehensive transportation management plans.	Incorporation of sustainable design features reduces environmental impacts compared to the assumptions in the CMRR EIS.

Table 2. Continued

Resource	*CMRR EIS Basis for Impact Analyses*	*Current CMRR Project Plans*	*Potential Consequences of Current CMRR Project Plans*[1]
Resource Use and Conservation (continued)			
Sustainable Design Considerations (continued)		Sustainable principles include (continued): • Highly reflective roofing material. • Water-efficient elements will be installed. • Energy-efficient equipment, specialized building envelope design and materials, lighting controls, and daylight harvesting. • Improved indoor air and environmental quality through management of HVAC units during storage, construction, and startup.	

Footnotes

1. Combined impacts from all of the planned and proposed actions; impacts from subprojects are discussed individually when appropriate.
2. CMRR EIS reported total land use of 26.75 acres (page 2-21).
3. Available capacity for water resources is the amount of water projected to be available to new projects/users. Available capacity is calculated as the site-wide capacity minus the projected site requirements as determined by the SWEIS RODs. For the CMRR EIS, the available capacity was 198 MG/yr (DOE 2003, Table 3-2 and Table 4-8).
4. Represents LANL site-wide electrical demand (DOE 2003, Table 3-2).
5. Represents LANL site-wide gas usage (DOE 2003, Table 3-2).
6. Available capacity for water equals the site-wide capacity minus the projected site requirements. As of the SWEIS 2009 ROD, the available capacity is calculated as 542 MG/yr (based on LANL water rights) less projected site-wide demand of 436.8 MG/yr (380 MG/yr for LANL + 51 MG/yr for the Metropolis Center + 5.8 MG/yr for Material Disposal Area (MDA) remediation) (DOE 2008a, pages 5-124, 5-129, 5-134).
7. Represents the current LANL site-wide power demand, which equals 495,000 MWhrs/yr for LANL (per the No Action Alternative) plus other projects included in the ROD (131,400 MWhr/yr for the Metropolis Center) (DOE 2008a, pages 5-124, 5-129, 5-133).
8. Represents projected LANL site-wide demand (DOE 2008a, Table 5-34).
9. Primary construction water use is for concrete, site preparation, and earthwork (grading, compaction, dust control, etc.).
10. Estimated peak water use is during concrete placement for the NF soils stabilization, foundation, and bas mat; assumes 20 hours/day operation of concrete plant for limited time.
11. These amounts were calculated from the CMRR EIS reported values of footprint and excavation depth.
12. 2008 SWEIS, Table 5-86.
13. Rates of 1.13 accidents/10,000,000 truck kilometers and 1.18 fatalities per 100,000,000 truck kilometers (DOE 2008a) were used to estimate accident potential.
14. The CMRR EIS estimate of this waste stream was based on National Pollutant Discharge Elimination System outfall discharge from current CMR operations. No similar permitted outfall is planned for the CMRR so the waste from this source is zero.
15. Includes 7.3 MG for sanitary flow and 3.5 MG for reject water from the demineralization water treatment system All water supplied to the CMRR is treated in a demineralization unit to remove silica. This will reduce typical performance problems caused by silica in boilers and other major equipment thus reducing maintenance, increasing durability and life of the equipment. The demineralization unit produces treated water, supplied to the CMRR Facility, and reject water that will be discharged in the CMRR sanitary waste system.

5. Conclusion

This SA demonstrates that either the impacts of the CMRR Project's planned and proposed actions are explicitly analyzed in, or are bounded by, previous NEPA analyses (CMRR EIS, the 2008 SWEIS, and the Complex Transformation SPEIS) for the actions selected for implementation by the associated RODs for these NEPA documents; or these actions have been found to neither individually nor cumulatively have a significant effect on the human environment and, therefore, qualify for categorical exclusions from the need to prepare additional NEPA impact analyses documents. There may be temporary impacts on water, electrical power, transportation, and infrastructure resources during CMRR-NF construction; these are expected to be short term and temporary and will be addressed and mitigated as appropriate. Operation of the CMRR-NF will not result in significant impacts on resources. The building design will incorporate energy-saving systems to reduce operational impacts and costs. It will also be designed and built in compliance with updated and existing seismic, security, and safety requirements.

6. References

10 CFR 434, Energy Code for New Federal, Commercial, and Multi-Family High Rise Residential Buildings

10 CFR 830, Nuclear Safety Management

10 CFR 1021.314, Supplemental Environmental Impact Statements

10 CFR 1021, Appendix B1.13, Construction/Acquisition/Relocation of Short Onsite Access Roads)

10 CFR 1021, Appendix B1.15, Siting/Construction/Operation of Support Structures

10 CFR 1021, Appendix B4.12, Construction of Electric Powerlines up to 10 Miles Long

40 CFR Part 1502.9(c) (1) and (2), Draft, Final, and Supplemental Statements

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DOE 2010c, United States Department of Energy, National Nuclear Security Administration, Los Alamos Site Office, *NEPA Review LASO-10-002, Categorical Exclusion, Pajarito Road Right-of-Way Shift at TA-50 and TA-55*, Los Alamos, New Mexico, April 21, 2010.

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Finding

This Supplement Analysis (SA) was prepared in accordance with the provisions of the Council on Environmental Quality's implementing regulations for the National Environmental Policy Act of 1969 (NEPA), which require federal agencies to prepare a supplement to an environmental impact statement (EIS) when there are substantial changes to a proposal or when there are significant new circumstances or information relevant to environmental concerns, or at any time to further the purposes of NEPA (40 CFR Part 1502.9[c][1] and [2]). The purpose of an SA as defined in the Department of Energy's (DOE) NEPA implementing regulations (10 CFR 1021.314) is to determine, when it is unclear, whether an existing EIS should be supplemented by the preparation of a supplemental EIS, a new EIS should be prepared, or whether no further NEPA documentation is required.

Through the preparation of this SA, the National Nuclear Security Administration (NNSA) has identified various actions that it has either planned to take or is currently proposing to undertake that are related to site seismic conditions and security and safety measures. Implementing seismic mitigation and safety and health measures necessary to protect the environment, workers, and members of the public will result in several minor actions being taken, such as the addition of an extra concrete plant for Project use; the addition of extra equipment and supplies; larger laydown areas; additional temporary project trailers; installation of a temporary power line; and a short road segment realignment and extra permanent parking areas. NNSA has taken a hard look at the potential impacts of these actions both individually, jointly, and cumulatively with other project actions taking place for the construction of the subject facility and other construction actions that are planned for Technical Area (TA) 55 and Los Alamos National Laboratory. No changes are anticipated for the operation of the Chemistry and Metallurgy Research Replacement (CMRR) Project from those that were analyzed in the CMRR EIS; for example, there are no new plans to manufacture plutonium pits within the footprint of the CMRR Nuclear Facility (CMRR-NF).

The construction activities either planned or proposed for the CMRR-NF are not expected to significantly affect the human environment. Each of the actions is of a type and scale that would normally satisfy the DOE's requirements for being categorically excluded from the need to prepare additional NEPA impact analyses. Each action has now been reviewed in light of the originally estimated suite of activities necessary to construct the CMRR Project and of other planned or proposed actions for TA-55. The SA evaluates whether the impacts of these activities in total would lend sufficient weight to determine that categorically excluding them or finding them to be already bounded by other completed NEPA documents would be inappropriate. To this end, the NNSA Finding is that each of the planned or proposed actions is appropriately bounded by prior NEPA documents (the CMRR EIS, the site-wide EIS, or the Complex Transformation Supplemental Programmatic EIS) or that it is appropriate to categorically exclude these actions from the need to prepare additional NEPA impact analyses.

Determination

Based on my review of information conveyed to me in this Supplement Analysis concerning the proposed action, as Head of a Field Organization (as authorized under DOE Order 451.1A), I have determined that no further NEPA documentation is required.

Roger E. Snyder **Date**
Acting Manager, Los Alamos Site Office

In accordance with DOE Order 451.1A, this action is concurred with by the site NEPA Compliance Officer, the Assistant Manager for the Office of National Security Missions, and the Site General Counsel.

George Rael **Date**
NEPA Compliance Officer
Assistant Manager for the Office of Environmental Projects
Los Alamos Site Office

Juan Griego
Assistant Manager for the Office of National Security Missions
Los Alamos Site Office

Silas DeRoma **Date**
General Counsel
Los Alamos Site Office