Supplement Analysis

For

The Proposed Construction and Operation of Evidence Receiving and Temporary Storage Facilities in Support of the Nuclear and Radiological Attribution Program and Forensic Science Center's Analyses Programs at the Livermore Site and Site 300, Lawrence Livermore National Laboratory (DOE/EIS-0348–SA-01)

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Supplement Analysis for the Proposed Construction and Operation of Evidence Receiving and Temporary Storage Facilities in Support of the Nuclear and Radiological Attribution Program and Forensic Science Center's Analyses Programs at the Livermore Site and Site 300, Lawrence Livermore National Laboratory (LLNL)

1.0 Introduction

In the 2005 *Record of Decision of the Final Site-wide Environmental Impact Statement for Continued Operation of Lawrence Livermore National Laboratory and Supplemental Stockpile Stewardship and Management Programmatic Environmental Impact Statement* (SW/SPEIS) (DOE/EIS-0348, DOE/EIS-0236-S3), the Department of Energy (DOE) decided to implement the Proposed Action Alternative as defined in the final March 2005 Lawrence Livermore National Laboratory (LLNL) SW/SPEIS. The proposed action, identified as the preferred alternative in the Record of Decision (ROD), was to continue operations of LLNL of which the primary purpose is to provide support for the National Nuclear Security Administration's (NNSAs) nuclear weapons stockpile stewardship missions, as well as provide support to other DOE programs and Federal agencies such as the Department of Defense (DOD), Nuclear Regulatory Commission, Environmental Protection Agency (EPA), and the Department of Homeland Security (DHS).

The SW/SPEIS analyzed the environmental consequences for the proposed action that would result in an increase in LLNL operations to support reasonably foreseeable mission requirements. This included the expansion or modification of current facilities and construction of new facilities. DOE proposes to expand the existing analytical capabilities that currently support multiple LLNL programs in the Nonproliferation, Arms Control and International Security (NAI) directorate in response to requests from DHS and the Federal Bureau of Investigation (FBI).

The Forensic Science Center (FSC) and the Nuclear Attribution program currently conduct analytical operations in Building 132N (B132N) and the Building 151 (B151) Complex. The proposed action would involve expanding this analytical capability into other LLNL facilities within the Defense and Nuclear Technology and the Safety and Environmental Protection directorates at LLNL. The existing facilities that would be used are Building 239 (B239), Building 332 (B332), Building 334 (B334), and Area 612 at the Livermore Site, and the Building 858 (B858) Complex at LLNL's Site 300.

In this proposed action, forensic samples (evidence) would be received, sub-sampled, and stored at B239, B332, B334, Area 612, and the B858 Complex when their physical size or hazardous material concentration precludes sending samples directly to existing analytical labs in B132N and the B151 Complex. Operations would be conducted within the existing safety basis envelopes for facilities B239, B332, B334, and Area 612. An appropriate Safety Basis Document would be adopted for the proposed modifications and activities for the B858 Complex at Site 300. Sub-sample quantities of the evidence

would be the minimum required for analysis and characterization, and would be transported from the proposed receiving facilities to analytical laboratories in B132N and the B151 Complex. Upon completion of the analysis and investigation phases, the sponsoring agencies would be responsible for disposition and removal of the evidence.

2.0 Background

The proposed action would involve existing programs at LLNL that are expanding to meet the national effort to strengthen forensic and attribution capability to counter threats posed by illicit trafficking, deployment, or implementation of nuclear, radiological, chemical or biological weapons. The goal of these programs is to provide an enhanced operational capability for acquisition of evidence critical to the effective response of law enforcement and national command authorities, including emergency response to Weapons of Mass Destruction (WMD) incidents, and analyses and research related to the development and deployment of WMD by countries, states, and groups hostile to the U.S. These existing program activities, Counter-terrorism and Incident Response, Nuclear and Radiological Countermeasures, Chemical and Biological Countermeasures, and Emergency Preparedness and Responses, as well as the FSC's focus activities, are discussed in Sections A.1.2.4 and A.1.2.5 of the SW/SPEIS. Additionally, Figure A-1 provides a crosswalk of Appendix A. activities in relation to the impacts identified in Section 5.3 of the SW/SPEIS. The proposed action would be implemented at the Livermore Site and Site 300.

Livermore Site

B132N is described in Section A.2.2.3 of the SW/SPEIS as housing the FSC that provides a comprehensive range of analytical expertise on issues related to nonproliferation, counter-terrorism, and domestic law enforcement. Hazards at B132N include ionizing and non-ionizing radiation, lasers, electrical hazards, hazardous and toxic materials, explosives, and up to Risk Group 2 (RG-2) biological materials. Analytical laboratories in this building currently support the full range of NAI and Homeland Security Organization (HSO) missions described in Sections A.1.2.4 and A.1.2.5 of the SW/SPEIS.

The B151 Complex is described in Section A.2.2.6 of the SW/SPEIS as providing office, laboratory, and electronics shop facilities for a broad range of chemical, radiochemical, and bio-analytical research. Hazards at the B151 Complex are primarily identified as biological, radiological, and toxicological. Analytical laboratories in this complex currently support radiological and nuclear forensic and attribution projects in NAI and HSO as described in Sections A.1.2.4 and A.1.2.5 of the SW/SPEIS.

B239 is described in Section A.2.2.17 of the SW/SPEIS as a Radiography Facility in which operations consist of material property evaluations and determination of composition, density, and uniformity. Hazards in B239 include compressed gases, high-voltage electricity, reactive materials, explosives, hazardous and carcinogenic chemicals, and ionizing and non-ionizing radiation.

B332 is described in Section A.2.2.32 of the SW/SPEIS as the Plutonium Facility. The building is located in a security-protected area and includes radioactive materials laboratories, mechanical shops, change rooms, storage vaults, a fan loft, basement, equipment rooms, and offices. The primary potential hazard in this facility is exposures to airborne radioactive material, ionizing and non-ionizing radiation, x-ray, lasers, compressed gases, corrosives, asphyxiants, solvents, halogenated organics, hazardous and toxic materials, high temperature equipment, hydrogen, combustible and flammable materials, vacuum chambers, and cryogenic liquids.

B334 is described in Section A.2.2.33 of the SW/SPEIS as the Hardened Engineering Test Building and is also located in a security-protected area. Operations include conducting intrinsic radiation measurements, conducting physical testing of components, and performing low-level radiography. Hazards in B334 are associated with thermal and mechanical shocks and radiation measurement activities.

The Area 612 is described in Section A.2.2.56 of the SW/SPEIS under the Waste Management Facilities discussion. Area 612 receives waste from LLNL generators and consists of a portable tank storage unit, a tank trailer storage unit, container storage units, two waste treatment units, and a consolidation waste accumulation area. Operations in Area 612 include storage, decontaminating, sampling, bulking, transferring, over packing, lab packing, size reduction, drum crushing, and repacking solid, liquid, and gaseous hazardous, radioactive and mixed wastes.

Site 300

The 858 Drop Tower Complex is described as a Laboratory/ Research Facility and M58 is described as Storage (magazine) in Table A.3.2-2 of the SW/SPEIS. The B858 Complex includes a drop tower (OS858B), shrapnel berm, a hardened modular unit (B858A) with an armored awning (OS858), and the high explosive magazine (M58). Planned demolition of the drop tower, shrapnel berm, and the modular unit would still occur.

3.0 Proposed Action

DOE would construct and operate evidence receiving and temporary storage facilities for samples and evidence sent by the DHS, the FBI, and other U.S. Government agencies, such as the Department of State. This analysis considers whether a supplement to the SW/SPEIS is required before DOE could make a decision on whether to utilize the B239, B332, B334, Area 612, and the B858 Complex for NAI and HSO program activities.

The FSC provides sample collection (air, solids, and liquids), precise analyses, instrument development, and material and source determination in support of various sponsors (e.g., DOE, DOD, FBI, DHS, and several state and local law enforcement agencies). Current FSC activities in B132N and the B151 Complex include the use of calibration sources and detection of biological toxins (such as Tetrodotoxin, Ricin, and Saxitoxin). Biological materials that can be handled at Biosafety Level-2 (BSL-2) or below, such as soil bacteria and fungi, clinical and diagnostic specimens, human or animal blood and bodily fluids,

and nucleic acids are present in the FSC. The FSC also provides emergency support (e.g., chemical weapons, accident response, drug lab investigation, munitions analysis, and treaty verification) to the above agencies by collecting samples from, and transporting portable analysis equipment to off-site locations several times a year.

In this proposed action, forensic samples would be received at hazard-controlled work areas at the Livermore Site (B239, B332, or B334) or Site 300 (B858 Complex) when their physical size (i.e., bulk) or hazardous material concentration precludes sending samples directly to FSC analytical labs in B132N and the B151 Complex. Before receipt at LLNL, samples would be packaged for safe and stable transport following Department of Transportation (DOT) regulations and pre-screened using established protocols by LLNL personnel and/or other U.S. Government agencies and personnel. As appropriate, Category 3 radiological and/or Special Nuclear Material (SNM) would be received, sub-sampled and stored in B239 or B334, and Category 2 nuclear or SNM would be received, sub-sampled and stored in B332. Area 612 may be utilized for storage only of radiological-contaminated materials (non-fissile radioisotopes).

High explosives and highly hazardous chemicals (e.g. chlorosarin, mustard) would be received, sub-sampled, and temporarily stored in the B858 Complex at Site 300. Operations would occur in two, climate- and contamination-controlled, HEPA-filtered transportainers. One transportainer would be used for sampling high explosives while the other transportainer would be used for sampling highly hazardous chemicals. An existing magazine, M58, would be used for storage of high explosives. A hazardous material trailer would be used for storage of highly hazardous materials. An appropriate Safety Basis Document would be adopted for the proposed modifications and activities for the B858 Complex at Site 300.

General industrial chemicals needed to facilitate analyses at both the Livermore Site and Site 300 would be utilized up to the Light Science and Industry limits as identified in the LLNL *ES&H Manual* Part 3.1 Nonnuclear Safety Basis Program. Existing FSC Chain-of-custody protocol would be followed for all evidence received, handled, and stored at LLNL. After the forensic analyses have been completed, the evidence would be returned to the sponsor. Evidence would be temporarily stored for a time period not to exceed thirty-six months. See Table 1 (attached) for the proposed action's facility comparison to the SW/SPEIS.

Livermore Site

The operations at B239, B332, and B334 would include receiving, sub-sampling, and temporary storage. B239 is a nuclear facility in which the resident material inventory is maintained below Category 3 thresholds, B332 is a Category 2 Nuclear Facility, and B334 is a Category 3 Nuclear Facility; these facilities provide Category I and II Safeguard and Security Control for SNM. The proposed action would not exceed the radiological material administrative limits for B239, B332, and B334 as identified in the SW/SPEIS, Sections A.2.2.17, A.2.2.32, and A.2.2.33, respectively, and Table A.4-1. The proposed action would require working with SNM at B332, principally plutonium and enriched uranium. Quantities of SNM that would be received and handled in B332

would range from more than the B151 Complex radiological facility limits (Table A.4-1of the SW/SPEIS) to less than the material-at-risk limit of 20 kilograms (kg) fuel grade equivalent plutonium per room in B332 (Sections 1.5.4 and A2.2.32 of the SW/SPEIS).

At B239, B332, and B334, radiological materials would be stored in existing locations within the facilities. Projected temporary storage of SNM in B332 during analysis and investigation phases of this proposed action would be less than 3 percent to 5 percent of the administrative limits for plutonium (1400 kg) and enriched uranium (500 kg) in the facility (Table A.4-1 of the SW/SPEIS). Operations would conform to existing safety basis and criticality review. Sub-samples generated at B239, B332, and B334 during these operations would be forwarded to analytical labs in the B132N/B151 Complex for detailed analysis and characterization.

At Area 612, a Category 2 Nuclear Facility, the proposed action would involve temporary storage only of radiological-contaminated evidence in accordance with relevant packaging requirements for storage and transportation. This would require the installation of two 8' x 9' x 40' environmentally controlled transportainers in the northeast part of Area 612. A new gate and fencing would be installed along the east side of this structure (Avenue J) to allow employee and vehicle independent access to the area, to separate forensic program activities from existing waste management activities, and to limit access by unauthorized personnel.

A modification to the Hazardous Waste Facility Permit issued by Department of Toxic Substances Control would need to be approved to meet regulatory requirements. The evidence would be solid materials that have surfaces contaminated with radioisotopes currently managed at LLNL (Appendix B.4.10.1). These radioisotopes could include biomedical tracers and mixed fission products, but not gaseous radioisotopes such as tritium. The current LLNL safety basis for the Waste Storage Facilities (which includes Area 612) requires a container limit of 50 PE-Ci, or the NEPA Environmental Impact Statement limit (EIS), whichever is lower. The SW/SPEIS does not specify a container limit, but a limit (one 60 PE-Ci drum surrounded by drums containing 12 PE-Ci each) is provided by the consequences of the bounding accident (D.2.4.11 in the SW/SPEIS). Radiological materials received in Area 612 would not exceed the inventory limits identified in the safety basis.

Site 300

High explosives, forensic samples, and highly hazardous chemicals would be received, sub-sampled, and temporarily stored in the 858 Complex at Site 300. The Forensic Receival Facility at the 858 Complex would be comprised of five individual facilities. Operations would occur in two, climate- and contamination-controlled, high-efficiency particulate air (HEPA)-filtered transportainers, approximately 8' x 9' x 40', located underneath an existing armored awning (OS858). One transportainer would be used for sampling high explosives and would be equipped with a water-sprinkler fire suppression system, HEPA filtration for air supply, and a chemical fume hood. The other transportainer would be used for sampling highly hazardous chemicals. This transportainer would be equipped with a water-sprinkler fire suppression system, HEPA

filtration for supply air, and HEPA combined with high-efficiency gas absorber (HEGA) filtration for exhaust of hazard containment equipment.

Explosives sampling operations would not occur at the same time as highly hazardous chemical sampling operations. An existing explosive magazine, M58, would be used for storage of high explosives. A secured hazardous material trailer, approximately 8'x 9' x 8, would be used for storage of the highly hazardous chemicals and would be located approximately 50' from the explosives operations transportainer and more than 200' from the explosive storage magazine. Hazardous materials and forensic samples would be stored in seismically secured cabinets and refrigerators inside the trailer. The materials would also be packaged in individual, double-walled containers of no more than 10 grams each. A portable office trailer/modular, approximately 12' x 40'x9', would be sited at the complex for use by project personnel. The proposed quantities of high explosives that would be received and handled in the explosives transportainer would not exceed 45 kilograms. Temporary storage of high explosives in the existing magazine, M58, during evidence analysis and investigation phases would not exceed 454 kilograms, or approximately one percent of the 45,360 kilograms (100,000 pounds) maximum quantity of high explosives allowed at Site 300 (SW/SPEIS, Table A.4-4).

The quantities of highly hazardous chemicals handled in the chemicals transportainer would not exceed Light Science & Industry limits (< 10 grams), and the quantity stored in the hazardous material trailer/transportainer would be less than 50 grams each per highly hazardous chemical. The content limits in evidence that is received at Site 300 would be defined in the safety basis document.

A mobile receiving van would be deployed to transport personnel, equipment, and samples between hazard-controlled work areas and analytical facilities at the Livermore Site and Site 300. The sub-samples to be transported and received at B132N or the B151 Complex would be microgram to gram levels in accordance with facility inventory and safety limits. Evidence and samples would be prepared for transport to ensure that the materials would not exceed the receiving facility's safety basis. Transportation of explosives would not occur at the same time as transportation of highly hazardous chemicals or radiological materials. The van would also be utilized to receive pre-screened samples at offsite locations such as the Nevada Test Site, and other areas.

This van would be security-controlled by use of TESA locks and consists of an ante room for personnel; a sample preparation area with a glove box, a wet chemistry bench, and a Class II, Type B2 biological safety cabinet, a vaporous hydrogen peroxide system for decontamination; and an evidence area with pass-through airlocks, stainless steel instrument tables, and a small refrigerator. The glove box is equipped with DOE-approved HEPA/Carbon filtration. Supply air into, and exhaust air from the work rooms would be HEPA filtered. Sample and transportation procedures would be developed for these operations. Onsite transportation procedures would comply with LLNL's *Nuclear Materials Transportation Safety Manual, Onsite Packaging and Transportation Safety Manual,* and the *Onsite Hazardous Material Packaging and Transportation Manual.*

Existing LLNL procedures for receiving explosives and highly hazardous chemicals at Site 300 from exempt government agencies (e.g., FBI) would be followed. DOT regulations would be followed while transporting materials offsite.

4.0 Potential Environmental Impacts

This discussion compares the relevant activities and impacts of the proposed action with those analyzed in the SW/SPEIS.

4.1 Land Use, Aesthetics and Scenic Impacts

The proposed action would utilize existing facilities within previously disturbed land and developed areas. The types of activities proposed under this project would be consistent with those identified in the SW/SPEIS. Furthermore, there would be no change in land use because no new buildings are proposed that could be seen from offsite locations, and no aesthetic or scenic impacts are expected. Accordingly, any impacts from this proposed project on land use and aesthetics are well within the envelope of the SW/SPEIS. Analyses of land use, aesthetics, and scenic impacts can be found in Sections 5.3.1 and 5.3.5 of the SW/SPEIS.

4.2 Socioeconomic and Environmental Justice Impacts

The proposed action would not add any new personnel. Rather, existing personnel already involved with these types of activities at LLNL would work on this proposed action. Accordingly, the socioeconomic impacts are bounded by the analysis performed for the SW/SPEIS that projected an increase of approximately 500 new employees at the Livermore Site, and no new personnel at Site 300.

These activities would occur at already developed facilities or locations at the Livermore Site and Site 300. Therefore, are no special circumstances in the proposed action that would result in any disproportionately high and adverse impacts to minority or low-income populations. Analyses of socioeconomic and environmental justice impacts can be found in Section 5.3.2 of the SW/SPEIS.

4.3 Cultural Resources

The proposed action would not result in disturbances of any previously undisturbed land at either the Livermore Site or at the Site 300 area, and therefore, no cultural resource impacts are anticipated. In the event that currently unknown subsurface archaeological resources (such as historic structural foundations or artifacts) are encountered during construction, work would be suspended in the area and an archaeologist would be called in to assess the significance of the find in consultation with DOE NNSA Livermore Site Office and the State Historic Preservation Officer, as appropriate. Analyses of cultural resources impacts for these types of activities can be found in Section 5.3.4 of the SW/SPEIS.

4.4 Soil Disturbance

No disturbances of previously non-disturbed soil would occur from implementing the proposed action. Construction activities, including installation of the transportainers,

utilities, and office trailer would take place in developed areas of the Area 612 and B858 Complex (see subsections 4.1 and 4.3 of this Supplement Analysis).

4.5 Biological Impacts

The proposed action would locate the facilities within existing developed areas. No removal of vegetation or other similar ground-disturbing activities are anticipated under this proposed action. Therefore, there would be no impacts to plant or animal species from the construction activities. Analyses of biological impacts for these types of activities (construction) are identified in Section 5.3.7 of the SW/SPEIS. Operations at the 858 Complex would conform to the existing facility footprint so as not to disturb the federally endangered large-flowered fiddleneck (*Amsinckia grandiflora)* or its designated critical habitat. The proposed activities would comply with terms of the Memorandum of Agreement between DOE and the Department of the Interior approved on April 28, 2000 establishing an *Amsinckia grandiflora* Reserve, and any Endangered Species Act (ESA) consultation requirements triggered by the proposed action will be met. In response to coordination efforts by DOE, the U.S. Fish and Wildlife Service (USFWS) communicated their determination on January 11, 2006, that the proposed action "will not have adverse effects to the large-flowered fiddleneck or result in take, as defined by Section 9 of the ESA, or have adverse effects to other listed species. The proposed project is not located in proposed critical habitat for any listed species." The USFWS based their determination on the premise that the proposed project "is not likely to result in take/adverse effects to listed species due to the fact that all activities will take place in existing developed areas. Operations will conform to the existing facility footprint so as not to disturb the large-flowered fiddleneck."

Additionally, LLNL's Wildlife Biologist would flag for protection any adjacent sensitive areas prior to construction activities to ensure that no adverse impacts to sensitive species result due to disturbance activities. LLNL Wildlife Biologists and DOE would also conduct visits during construction as part of routine operational awareness activities at Site 300. All applicable ESA consultation requirements that might be triggered by the proposed action would be met by DOE.

4.6 Air Quality

The small amount of particulate and vehicular emissions generated during the construction phases of the proposed action are estimated to be less than one percent of the emissions projected in the SW/SPEIS. Therefore, any air pollution impacts would be well below those described in the SW/SPEIS. LLNL adheres to stringent requirements to ensure that air emissions are mitigated to the extent practicable, throughout the design, review, and implementation phases of these activities. Fugitive dust generated during construction or related activities would be minimized with the use of these stringent measures to control construction emissions as discussed in Section 5.1.8.1 of the SW/SPEIS. Analyses of air quality impacts are discussed in Section 5.3.8 of the SW/SPEIS. Any potential for air emissions due to the proposed action would comply with applicable Bay Area Air Quality Management District, San Joaquin Valley Unified Air Pollution Control District and/or Federal EPA National Emission Standards for Hazardous Air Pollutants (NESHAPs) requirements.

4.7 Water Quality

Compliance with erosion and sedimentation control plans during construction would prevent impacts to surface and ground water resources. Storm Water Best Management Practices (BMPs), as provided in the *Site 300 Storm Water Pollution Prevention Plan* (SWPPP), appropriate for site conditions would be followed during earthwork to prevent the migration of disturbed soil or construction materials from the construction site. These measures would ensure that the impacts of this proposed action remain well below those described in the SW/SPEIS. Analyses of water quality impacts are discussed in Section 5.3.9 of the SW/SPEIS.

4.8 Noise

Noise associated with routine construction would be expected to occur during construction activities. However, because the proposed project would be less than one percent of the SW/SPEIS projected new facility construction at the Livermore Site and Site 300, any noise impacts would be well below those described in the SW/SPEIS. Construction activities associated with the action would not be noticeable offsite, and this proposed action would not introduce any machinery or equipment that would differ from the current HVAC equipment, cooling towers, motors, pumps, fans, generators, air compressors, and loudspeakers. Noise from this equipment would not be noticeable beyond the site boundaries. Analyses of noise impacts can be found in Section 5.3.10 of the SW/SPEIS.

4.9 Materials and Waste Management

The proposed action would generate approximately 45 kg of hazardous wastes, 70 kg of wastes containing radioactive constituents, and less than 25 kg of non-hazardous wastes annually. The wastes would include items used to characterize the evidence samples, e.g., solvents, gloves, kimwipes, and swabs. All solid and liquid waste generated during the proposed activities would be disposed of in accordance with regulatory requirements, established LLNL procedures, and Federal, state, and local regulations. Evidence would be returned to the sponsor and would not be categorized as waste.

Upon conclusion of this proposed action, all non-hazardous equipment would be evaluated for waste diversion and/or reuse opportunities prior to disposal. Approximately twenty tons of scrap metal waste would be generated from the complete demolition of the transportainers and mobile van; however, these units would likely be reused for other projects. Non-hazardous and uncontaminated material that cannot be recycled or reused would be disposed of in a local municipal landfill. The proposed action's annual waste generation would contribute less than one percent of the SW/SPEIS annual waste projections identified in Table 5.3.13.2-1. The projected total increase in waste generation would not have an impact on the total waste generated from the Livermore Site and Site 300.

The SW/SPEIS projected that hazardous material usage rates at LLNL would increase over the next ten years with new operations accounting for approximately 70,000 gallons of liquids and solids and approximately 20,000 cubic feet of industrial gases. The

proposed action's annual usage of hazardous materials for characterization and analyses would be the same proportion as the projected waste generation identified above and would not have an impact on the projected total hazardous materials usage of the Livermore Site and Site 300.

4.10 Health Effects

The SW/SPEIS identified that overall site usage of toxic substances would increase, and physical hazards were also expected to increase with the rising activity levels at existing facilities and as new facilities are constructed and begin operation. The uses of additional quantities of chemicals and the introduction of highly hazardous chemicals at Site 300 (B858) would also be expected to result in a slight increase in worker exposures. Section 5.3.14.1 of the SW/SPEIS evaluates occupational protection issues and considered existing ES&H programs that specifically address worker and general population protection measures implemented to control, reduce, or eliminate operational hazards. Because the proposed activities would not cause any major changes in the types of occupational, toxic, or physical hazards analyzed in the SW/SPEIS, and application of ES&H and ISMS principles would be continued, additional impacts to workers and the public are not anticipated. Based on the preliminary safety analysis, the proposed action would not exceed impacts of the current operations at Site 300.

Section 5.3.14.2 of the SW/SPEIS analyzed the radiological health impacts from operations such as ongoing and proposed R&D and waste management, and projected that the dose would increase as new and increased operations came on line. Because the proposed project would not increase radiological facility, workstation, or container limits identified in the SW/SPEIS, additional impacts to workers and the public are not anticipated.

4.11 Accident Analyses

Section 5.5.1 of the SW/SPEIS provides the consequence analyses for radiological accident scenarios, including transportation. The bounding accidents under median meteorology for the offsite population is an aircraft crash into Building 625 (B625); for the maximally exposed individual (MEI), it is an aircraft crash into Building 696R; for the population of involved and noninvolved workers, it is a fire in Building 251. Under unfavorable meteorology conditions, the bounding accident for the offsite population, MEI, and noninvolved worker is an aircraft crash into B625; and for involved workers the bounding accident is a room fire in B332. The radiological transportation accident scenarios are bounded by truck fires or package explosions. Because the existing radiological facility, workstation, and container limits would not be exceeded and existing radiological transportation procedures would be followed, the proposed project would be bounded by the accident analyses for both radiological onsite operations and transportation.

Section 5.5.2 of the SW/SPEIS provides the consequence analyses for chemical accident scenarios in which the bounding accident for the onsite and offsite population is a chlorine release from B332 at the Livermore site. This B332 accident analyses identified an ERPG (Emergency Response Planning Guidelines)-2 distance of 950 meters beyond the site

boundary under unfavorable meteorological conditions. The proposed action accident analyses have determined that ERPG-2 values would not be exceeded beyond site boundaries under favorable meteorological conditions. Therefore, the proposed action would be bounded by the chemical accident scenario identified in the SW/SPEIS.

Section 5.5.3 of the SW/SPEIS provides the consequence analyses for high explosive accident scenarios in which the bounding accident is an accidental detonation at the Contained Firing Facility or on an open air-firing table at Site 300. Because the operational explosives inventory limit (approximately 45 kg) within the transportainer would be a small percentage of the inventory limits at the Contained Firing Facility or open air-firing table, the proposed project impacts would be bounded by the accidental detonation referenced above.

Section 5.5.5 of the SW/SPEIS provides the consequence analyses for both offsite hazardous chemical (Section 5.5.5.2) and explosive (Section 5.5.5.3) transportation accidents. Because the proposed action's limits on materials to be used are well below those found in the SW/SPEIS, and because existing DOT regulations and LLNL materials packaging and transportation procedures would be followed, the proposed project would be bounded by the accident analyses for both the offsite hazardous chemical and explosive transportation accident scenarios referenced.

4.12 Cumulative Impacts

The SW/SPEIS described potential cumulative impacts for each resource area associated with implementing the preferred alternative and other actions at LLNL in Section 5.3. Potential cumulative impacts were identified as demand for housing, school services, solid waste disposal service, loss of cultural resources, noise, traffic and transportation, water consumption, sewer discharge, electrical consumption, fuel consumption, materials management, waste management, and radiological health impacts.

Because the project would not require new employees, the cumulative impacts projected in the SW/SPEIS for demand for housing and school services would not change. Because the proposed activities constitute a very small increase in physical operations, the cumulative impacts projected in the SW/SPEIS for solid waste disposal service, traffic and transportation, water consumption, sewer discharge, electrical consumption, fuel consumption, materials management, waste management, and radiological health impacts would remain substantially the same. Further, because the proposed activities would take place within preexisting facilities, and all new construction would occur in pre-disturbed areas, the cumulative impacts projected in the SW/SPEIS for loss of cultural resources and noise would also be substantially the same.

5.0 Summary Conclusion and Determination

The proposed action: constructing and operating evidence receiving and temporary storage facilities were reviewed to assess if; 1) the activities would make substantial changes in the proposed actions for the SW/SPEIS preferred alternative that are relevant to environmental concerns; or 2) there are significant new circumstances or information

relevant to environmental concerns bearing on the proposed action or its impacts. The potential impacts for the proposed action would be very small in comparison to and are bounded by the SW/SPEIS preferred alternative selected in the ROD.

Potential impacts were discussed in Section 4 of this Supplement Analysis. Areas of potential environmental concerns include air quality, waste management, health effects, accidents, and cumulative impacts. In each case, the comparison of the impacts associated with the proposed action and the SW/SPEIS preferred alternative demonstrated that the impacts of the proposed action were not substantially changed from the impacts analyzed in the SW/SPEIS. DOE concludes that the proposed action is not a substantial change to the SW/SPEIS preferred alternative selected in the ROD. Further, there are no significant new circumstances or information relevant to environmental concerns bearing on the proposed action or its impacts. Therefore, a supplement to the SW/SPEIS is not needed under 40 CFR Part 1502.9.

2-28-06

Date

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6.0 References

10 CFR 1021. Code of Federal Regulations, Title 10, *National Environmental Policy Act Implementing Procedures.*

40 CFR 1500-1508. Code of Federal Regulations, Title 40, *Regulations for Implementing NEPA.*

ES&H Manual Part 3.1, *Nonnuclear Safety Basis Program*, Safety Analysis and Work Plans and Procedures, Lawrence Livermore National Laboratory, September 23, 2004.

Final Site-wide Environmental Impact Statement for Continued Operation of Lawrence Livermore National Laboratory and Supplemental Stockpile Stewardship and Management Programmatic Environmental Impact Statement, DOE/EIS-0348, DOE/EIS-0236-S3, March 2005.

Record of Decision of the Final Site-wide Environmental Impact Statement for Continued Operation of Lawrence Livermore National Laboratory and Supplemental Stockpile Stewardship and Management Programmatic Environmental Impact Statement, DOE/EIS-0348, DOE/EIS-0236-S3, December 2005.

Draft Preliminary Safety Basis, Tier 3 Document, Site 300 858 Complex Forensic Receival Facility Lawrence Livermore National Laboratory, Revision 2, December 12, 2005

Site 300 Stormwater Pollution Prevention Plan (SWPPP), Lawrence Livermore National Laboratory, Livermore, CA, July 2004.

	Activities Associated with Proposed Action	Limits Associated with Proposed Action	Comparison to SW/SPEIS
Building 132N / Building 151 Complex (Radiological Facilities)	Analysis and characterization of samples and sub-samples	Would generate approximately 45 kg of hazardous wastes, 70 kg of wastes containing radioactive constituents, and less than 25 kg of non-hazardous wastes annually. The wastes would include items used to characterize the evidence samples, e.g., solvents, gloves, kim wipes, and swabs.	The proposed action's waste generation would contribute less than one percent of the SW/SPEIS annual waste projections identified in Table 5.3.13.2-1. Table 5.3.13.2-1 Waste Generation Quantities for Routine Operations: • Hazardous –510 metric tons • Radiological –470.8 m^3 / yr • Nonhazardous (sanitary solid) –5,100 metric tons
Building 239 (Resident inventory maintained below Category 3 threshold)	Category 3 radiological and/or Special Nuclear Material (SNM) forensic samples (evidence) would be received, sub-sampled and stored. Evidence would be temporarily stored for a time period not to exceed thirty-six months.	Would not exceed the radiological material administrative limits as identified in the SW/SPEIS, Section A.2.2.17 and Table A.4-1.	Fissile materials in solid, nondispersible form are limited to 50 kilograms of HEU and 6 kilograms of fuel-grade equivalent plutonium. These materials are not dispersed or changed in Form within the facility, and they are not permanently stored in the building. Plutonium is not allowed to be in the same area as explosives. The total resident quantity of material is maintained below Hazard Category 3 levels. Table A.4-1 Approximate Quantity or Limit: • 6 kg Plutonium, fuel grade equivalent[a] • 50 kg highly enriched uranium[a] • 500 kg depleted uranium • 0.02 kg tritium

	Activities Associated with Proposed Action	Limits Associated with Proposed Action	Comparison to SW/SPEIS
Area 612 (Category 2 Nuclear Facility)	Storage only of radiological-contaminated materials (non-fissile radioisotopes) [forensic samples (evidence).] The evidence would be solid materials that have surfaces contaminated with commonly available radioisotopes, which are currently managed at LLNL (Appendix B.4.10.1). These radioisotopes could include biomedical tracers and mixed fission products, but not gaseous radioisotopes such as tritium. Evidence would be temporarily stored for a time period not to exceed thirty-six months.	The current LSO Safety Evaluation Report for the Waste Storage Facilities (which includes Area 612) requires a container limit of 50 PE-Ci, or the NEPA Environmental Impact Statement limit (EIS), which ever is lower. Radiological materials received in Area 612 would not exceed the inventory limits identified in the safety basis document.	The SW/SPEIS does not specify a container limit, but a limit (one 60 PE-Ci drum surrounded by drums containing 12 PE-Ci each) is provided by the consequences of the bounding accident (D.2.4.11 in the SW/SPEIS).

	Activities Associated with Proposed Action	Limits Associated with Proposed Action	Comparison to SW/SPEIS
Building 332 (Category 2 Nuclear Facility)	Category 2 nuclear or SNM [forensic samples (evidence)], principally weapons grade plutonium and enriched uranium, would be received, sub-sampled and stored. Evidence would be temporarily stored for a time period not to exceed thirty-six months.	Would not exceed the radiological material administrative limits as identified in the SW/SPEIS, Section A.2.2.32 and Table A.4-1. Quantities of SNM that would be received and handled in B332 would range from more than the B151 Complex radiological facility limits (Table A.4-1of the SW/SPEIS) to less than the material-at-risk limit of 20 kilograms (kg) fuel grade equivalent plutonium per room in B332 (Sections 1.5.4 and A2.2.32 of the SW/SPEIS).	Projected temporary storage of SNM in B332 during analysis and investigation phases of this proposed action would be less than three to five percent of the administrative limits for plutonium (1400 kg) and enriched uranium (500 kg) in the facility (Table A.4-1 of the SW/SPEIS). Sections 1.5.4: Material-at-risk limit of 20 kilograms (kg) fuel grade equivalent plutonium per room in B332 Section A.2.2.3:2 The basic LLNL administrative workstation plutonium limit is 220 grams. Management can authorize a larger quantity of the plutonium limit in an operational safety plan. Table A.4-1 Approximate Quantity or Limit: • 1,400 kg plutonium[a] • 500 kg enriched uranium[a] • 3,000 kg depleted or natural uranium[a]
Building 334 (Category 3 Nuclear Facility)	Category 3 radiological and/or Special Nuclear Material (SNM) [forensic samples (evidence)] would be received, sub-sampled and stored. Evidence would be temporarily stored for a time period not to exceed thirty-six months.	Would not exceed the radiological material administrative limits as identified in the SW/SPEIS, Section A.2.2.33 and Table A.4-1.	Section A.2.2.33: No radiological limits are specified in this section. Table A.4-1 Approximate Quantity or Limit[b]: • 18 kg plutonium, fuel grade equivalent[a] • 100 kg enriched uranium • 500 kg depleted uranium • 0.0001 kg tritium

	Activities Associated with Proposed Action	Limits Associated with Proposed Action	Comparison to SW/SPEIS
Building 858 Complex	High explosives and highly hazardous chemicals (e.g. chlorosarin, mustard) [forensic samples (evidence)] would be received, sub-sampled, and temporarily stored. Evidence would be temporarily stored for a time period not to exceed thirty-six months.	The proposed quantities of high explosives that would be received and handled in the explosives transportainer would not exceed 45 kilograms. Temporary storage of high explosives in the existing magazine, M58, during evidence analysis and investigation phases would not exceed 454 kilograms, or approximately one percent of the maximum quantity of high explosives at Site 300 (SW/SPEIS Table A.4-4). The quantities of highly hazardous chemicals handled in the chemicals transportainer would not exceed Light Science & Industry limits (< 10 grams), and the quantity stored in the hazardous material trailer would be less than 50 grams each per highly hazardous chemical.	Table A.4-4 of the SW/SPEIS lists the Site 300 Chemical Quantities in 2002 (maximum and average quantities), and are too numerous to list in this summary table. The content limits in evidence that is received at Site 300 will be defined in the Safety Basis Document.
General industrial chemicals needed to facilitate analyses at both the Livermore Site and Site 300 would be utilized up to the Light Science and Industry limits as identified in the LLNL *ES&H Manual* Part 3.1 Nonnuclear Safety Basis Program.			

[a]: Administrative limit

[b]: Materials in Buildings 331 and 334 are within the Superblock Administrative Limits for plutonium and uranium.