



National Nuclear Security Administration Categorical Exclusion Determination Form



NEPA ID#: HEDLP 15-001-001

Proposed Action Title: U1a Modernization – Surface (NV-2019-017)

Program or Field Office: Nevada Field Office

Location(s) (City/County/State): Nevada National Security Site (NNSS), Nye County NV

Proposed Action Description:

U1a Modernization (U1a-M) is a multi-year set of activities and projects that would design and construct the necessary infrastructure and utilities needed for modernizing and upgrading the surface facilities and areas at the U1a Complex. The projects are required to provide site improvements to the supporting infrastructure, which would support the increased personnel and space requirements associated with the continued programmatic mission expansion and increased Subcritical Experiment (SCE) tempo at the U1a Complex. The U1a Surface Area Plan has been developed that would guide the physical construction actions required to support this construction over time. The full area plan would be implemented in a phased manner over a period of approximately 5 years (2019 – 2024).

The following activities and projects are included as part of U1a-M.

- Construction of multiple new support buildings
- Construction of multiple new Underground Access Shafts
- Demolish/remove existing structures
- Pothole to confirm location of buried utilities lines
- Design and install an upgraded potable waste system, to include an above-ground water tank
- Design and install an approximately 250,000-gallon water tank and associated pump house
- Install underground water piping and surface fire hydrants
- Pave dirt parking areas/roads (in the interim, these roads may be covered with gravel)
- Pave access roads (in the interim, these roads may be covered with gravel)
- Install perimeter fencing (chain-link)
- Install electrical power lines (above-ground and/or underground)
- Install new transformers
- Design and install a new sewage lagoon and associated piping, berm, liner, and chain-link fencing
- General site cleanup, as required

NEW BUILDING CONSTRUCTION

New buildings (see Table 1) would be constructed within the previously disturbed footprint of the U1a Complex. Buildings would be single story, range in size from 200 ft² to 15,000 ft², and feature modern architectural design. Physical characteristics of the modern design aesthetic include clean lines; basic shapes; simple geometric forms; and high quality, natural, low maintenance building materials. Buildings would feature large windows with glazing to maximize natural lighting, elevated roof lines, and high ceilings. Exterior overhangs would provide shading. Facilities would be constructed in a manner that maximizes energy efficiency and sustainability through optimization of building orientation, low/net zero energy use, and light coloration/high reflectivity.

The facilities would be designed using High Performance Sustainable Building (HPSB) criteria and standards. Additionally, a Net Zero Energy requirement would be implemented resulting in the total energy used being offset by an equal amount of renewable energy production elsewhere.

Building Number	Construction Year
1 - Mission Support/Labs	FY2020
2 - Operations	FY2022
3 - Warehouse	TBD
4 - Expansion Building	TBD
Communications Hub	TBD

Table 1. New Building Construction

DEMOLITION OF OLD FACILITIES

A total of seventeen facilities would be demolished or removed (in the case of trailers or transportainers) to enable the construction of new facilities. The facilities and other features currently identified for demolition as part of U1a-M are listed in Table 2. Demolition/removal of these facilities would be phased with the completion and occupancy of the new Mission Technical Support Facility and the Mission Operations Support Facility. Demolition/removal is currently anticipated to begin in FY2021.

Building Number	Building Name
01-201959	Mechanics Shop
01-785204	Mine Rescue Station Building
01-920A	U1H Change House
01-B008659	Operations Support Building
01-B008660	Operations Building
01-B008671	LANL Operations Building
01-B106513	U1A Restroom Building
01-B106546	U1H Restroom Building
01-181769	Mechanics Shop Addition
01-192768	Flammable and Combustible Storage
01-202333	Carpenters Ironworkers Trailer
01-202521	Mechanics Office Trailer
01-202615	Communications Trailer
01-202655	Mine Rescue Storage Trailer
01-202772	Craft Support Trailer
01-2192035	Fiber Optic Hub
01-B058193	Operations Records Trailer

Table 2. Building Demolition

Demolition within the U1a Complex would consist of earthwork, roadways, structures, and utilities. Earthwork would include the demolition of the existing muck piles. Clearing, grubbing, and rough grading for the building pads, parking lots, and roadways would occur throughout the multi-year effort. The north access entrance road would be demolished, and a new entrance road would be constructed further to the north. The administrative portable trailers located north of the U1a shaft and associated utilities would be excessed or demolished at completion of the proposed buildings 1 and 2. In addition to the administration trailers, storage and restrooms on site would be excessed or demolished.

GRADING AND SITE PREPARATION

Site Grading would be executed in phases. Rough grading for three new buildings; the 250,000-gallon potable water tank, and the pump house for the potable water tank would occur in FY2019. Final grading would occur during construction of each facility or item. Grading for the new North Access Road and for the parking area associated with the new buildings would occur in FY2019. Site grading would consist of removal of vegetation, grubbing, excavation (cut and/or fill based on location), watering and compaction of ground surfaces. A maximum of 20 acres would be graded. A maximum 26,000 feet of trenching would be required for installation of new utilities for electrical, water, sewer, and communications and for new building foundation footings to a depth at least below the frost line (estimated to be a depth of ~2 feet). Work would be performed by the operation of heavy equipment.

The final size of the new sewage lagoon is to be determined. The conceptual design calls for a footprint of approximately 87,500 ft². This would require excavating approximately 16,200 cubic yards of soil. The sewage lagoon would be sized for the potential maximum number of persons at the U1a Complex, which would be a combination of the regular population plus full capacity in four new buildings (for a total of approximately 450 people).

Excavated native soils from the U1a borrow pit that are suitable would be reused as fill. If the U1a borrow pit cannot provide suitable soils, soils would be provided by other NNSS borrow pits. The soils would be stored within the construction footprint on already disturbed land until a use is identified. One potential use for excess soil would be to extend the existing earth berm running along the north and west portion of the Complex towards Mercury Highway. Additional fill, if required, would be provided from existing U1a borrow pits or muck piles. Rough grades within +/-12 inches of final grade would be developed using compacted native soils and fill material in accordance with the engineered civil construction specifications. Compacted, rough graded lots would be maintained in a ready-for-construction condition until buildings are designed and ready to be built. Fiber rolls held in place with wooden stakes would be installed around the perimeter of graded lots to prevent erosion. Final grading to bring new building construction sites to final grade would be performed as part of the new building construction efforts. Final grades would be constructed out of compacted type II soils.

NEW UNDERGROUND ACCESS SHAFTS

New shafts that will facilitate access to underground operations would be constructed within the current U1a operational footprint. Above-ground grading, site preparation, and construction of required support infrastructure related to the new shafts may include the following: Hoist House, Ground Support, Ventilation, Conduit installation, Utilities (service air, normal lighting, emergency lighting, communications, network), Mechanical Systems installation (instrument air, chilled water [including air conditioning], process water, process oil, overhead load handling), Electrical Power Systems including but not limited to uninterruptible power supply (UPS), grounding, switchgear, load centers, motor control centers, distribution panels, Fire Protection, and Life Safety systems. Excavated soils would be used to construct or upgrading the berm that surrounds the U1a facility or stored in a Muck pile for later use.

INSTALLATION OF NEW UTILITIES

New utilities for new buildings would be installed through a series of infrastructure projects. A new sewage lagoon with associated piping would be constructed. Power would come above ground from existing lines and would then be taken underground at the perimeter of the U1a Complex boundary for safety reasons. Trenching would be conducted with heavy machinery. Old wooden poles would be disposed of in an appropriate onsite landfill. Old conductors would be removed, and salvageable metal would be sold as recycling scrap. Components that are not suitable for recycling would be disposed in an appropriate onsite landfill.

New and upgraded utility construction would include the following components: Water, Sanitary Sewer, Power, Communications, and Storm Water/ Drainage/ Runoff Detention. Utility tie-ins would be placed at grades developed through the site grading process. Vaults, manholes, and other connection points would be included in the design for access. Power and communications infrastructure would be installed in conduits. Manholes would be installed to access key junction points and facilitate interconnectivity between new and existing infrastructure as needed.

MODIFICATION TO EXISTING ROADS AND PARKING LOTS

Upgrades to existing road surfaces would be required as part of the new U1a building site development. The northern and southern primary road surfaces would be impacted during the various construction phases. During construction, roads and parking areas may be left as compacted dirt or may be covered with gravel as required. Cold patch asphalt may also be used to temporarily repair existing road surfaces. Upon the completion of the major utility upgrades and new installations, road surfaces throughout the U1a Complex would be upgraded and resurfaced with hot-mix asphalt and or chip-and-seal applications.

Traffic patterns and parking areas would be adjusted in accordance with the U1a Surface Area Plan. Parking surfaces would be graded, compacted and paved with hot mix asphalt. Existing parking areas would be resurfaced with hot mix asphalt or with chip-and-seal applications as required.

PEDESTRIAN WALKING PATHS

Temporary walking paths may be installed during the various construction phases. The paths would provide safe access free of uneven surfaces and debris. Light grading to remove rocks and vegetation, and level the ground surface would be conducted prior to asphalt installation. Paths may be constructed with compacted asphalt and laid directly on the surface of the ground. Heavy machinery would be used to level surfaces and install pathways. Upon completion of permanent sidewalks, temporary paths would be removed and the waste disposed of at an on-site landfill.

SITE IMPROVEMENTS AND LANDSCAPING

Landscaping would incorporate native plants and xeriscaping as well as low impact development strategies to minimize environmental impact. Lighted walking paths, shaded outdoor seating, and gathering areas would be developed near the new buildings. Plantings would be provided and serve multiple functions near new buildings by creating shade and providing wind breaks.

The Mohave Desert plant palette and desert-adapted plants would be used around new buildings. Proposed plant material would be reviewed to ensure its ability to survive based on the availability of supplemental water for irrigation. Drip irrigation would be provided and installed as part of the landscaping efforts.

Landscaping would be installed in a phased manner as the U1a-M develops. Minimal landscaping to control erosion, dust and drainage around buildings would be installed as each building is completed (e.g. installation of decorative xeriscape such as mulch or rock). Final landscape improvements would be installed once buildings are completed. Grading, removal of earth, and installation of rocks and ground coverings would be required. Shade canopies and landscape features would be installed in accordance with forthcoming landscaping design documents.

Categorical Exclusion(s) Applied:

10 CFR 1021: B1.13 short Access Roads, B1.15 Support Buildings, B1.26 Small water treatment facilities, B4.11 Electrical power substations and interconnection facilities, B4.12 Construction of powerlines, B5.4 Repair or replacement of pipelines

For the complete DOE National Environmental Policy Act regulations regarding categorical exclusions including the full text of each categorical exclusion, see Subpart D of 10 CFR 1021. Regulatory Requirements in 10 CFR 1021.410(b): (See full text in regulation)

The proposal fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D.

There are no extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal.

The proposal has not been segmented to meet the definition of a categorical exclusion.

Based on my review of information conveyed to me and in my possession concerning the proposed action, as NEPA Compliance Officer (as authorized under DOE Order 451. 1B), I have determined that the proposed action fits within the specified class(es) of action and that other-regulatory requirements set forth above are met. Therefore, the application of a categorical exclusion is appropriate.

NEPA Compliance Officer: Carrie Stewart

Date Determined: May 22, 2019