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Los Alamos National Laboratory Floodplain Assessment for the Technical Area 72 Outdoor Live Fire Range Safety Upgrades Project

Los Alamos
NATIONAL LABORATORY

Prepared by: Environmental Protection and Compliance Division,
Stormwater Permitting and Compliance Team
Los Alamos National Laboratory

Prepared for: U.S. Department of Energy
National Nuclear Security Administration
Los Alamos Field Office

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FIGURES

ACRONYMS

AOC	Area of Concern
CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
in.	inch
LANL	Los Alamos National Laboratory
ft.	feet
NM 501	New Mexico State Road 501
NNSA	National Nuclear Security Administration
PR-ID	Permits and Requirements Identification

INTRODUCTION

The National Nuclear Security Administration (NNSA), a semi-autonomous agency within the U.S. Department of Energy (DOE), is proposing new construction and upgrade activities in lower Sandia Canyon at Technical Area (TA) 72 at the Outdoor Live Fire Range facility at Los Alamos National Laboratory (LANL). The proposed upgrades are intended to improve range safety to help fulfill the mission requirements of maintaining a trained and qualified armed Protective Force. The project activities within the 100-year floodplain include: 1) installation of eight permanent flagpoles, 2) installation of weatherproof electronic range status board, 3) removal a backstop berm on a decommissioned range, and 4) removing and replacing storage structures (Figure 1).

NNSA has prepared this floodplain assessment in accordance with 10 Code of Federal Regulations (CFR) Part 1022 *Compliance with Floodplain and Wetland Environmental Review Requirements* (10 CFR Part 1022) (CFR 2003) which was promulgated to implement DOE requirements under Executive Order 11988 *Floodplain Management* (EO 1977). A floodplain is defined in 10 CFR 1022 as "the lowlands adjoining inland and coastal waters and relatively flat areas and flood prone areas of offshore islands," and a base floodplain as "the 100-year floodplain, that is, a floodplain with a 1.0 percent chance of flooding in any given year (CFR 2003)." This floodplain assessment evaluates potential impacts to floodplain values and functions from implementation of the proposed action, identifies alternatives to the Proposed Action, and allows for meaningful public comment.

DOE/NNSA has published this Floodplain Assessment for a 15 day for public review and comment period. Please provide comments on this Floodplain Assessment to Kristen Dors at:

Email: kristen.dors@nnsa.doe.gov

or

Mail: U.S. Department of Energy
Los Alamos Field Office
ATTN: Kristen Dors
3747 West Jemez Road
Los Alamos, NM 87544

After the close of the public comment period and prior to issuing a floodplain statment of findings DOE/NNSA will reevaluate the practicability of alternatives to the proposed floodplain action, mitigating measures and take into account all substantive comments received during the public comment period. DOE/NNSA will endeavor to allow 15 days of public review prior to implementing the proposed action.

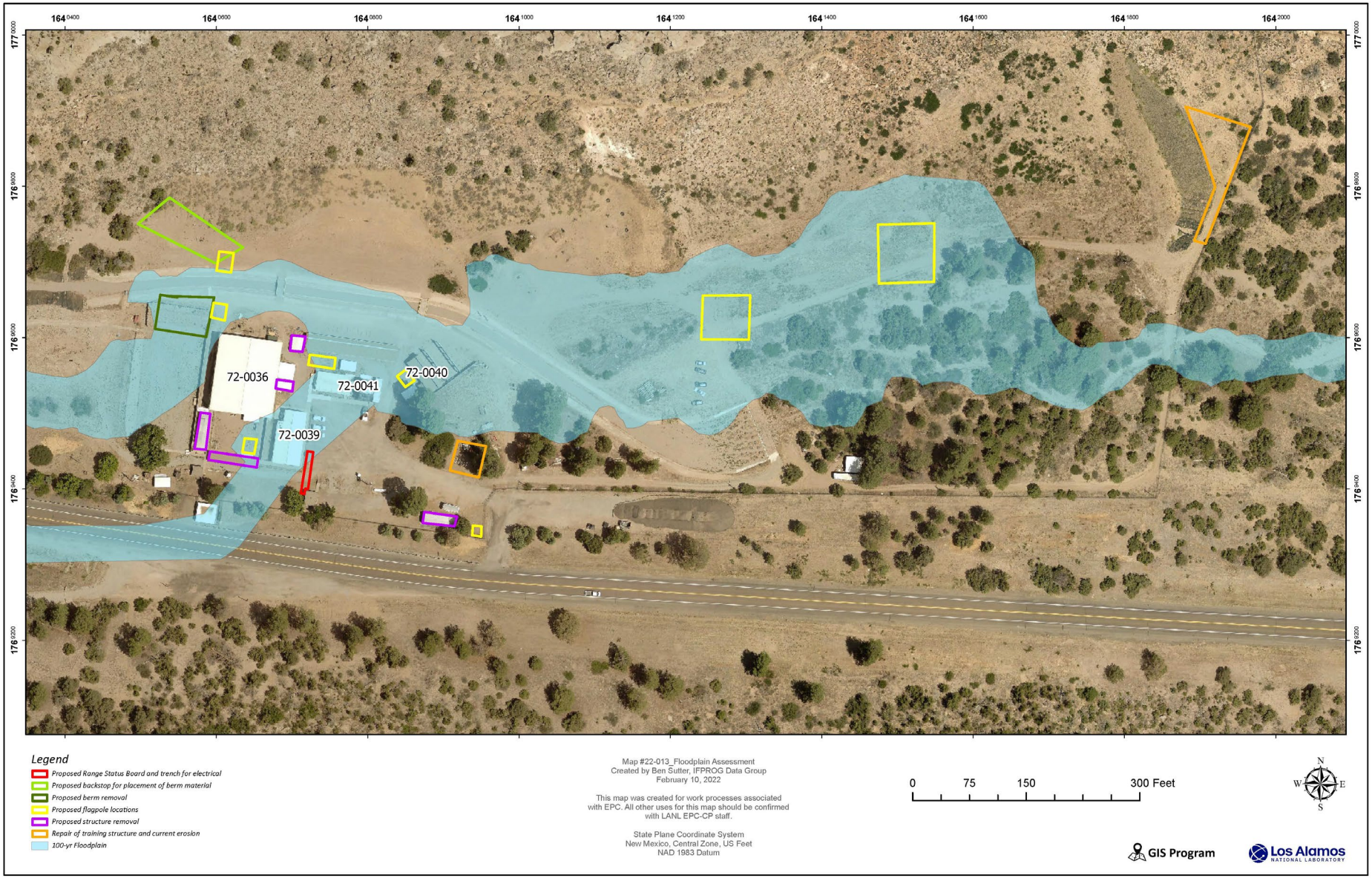

Figure 1. Map of proposed flagpoles, range status board, backstop berm removal, structure removals and the Sandia Canyon 100-year floodplain.

BACKGROUND

The TA-72 Outdoor Live Fire Range is located on East Jemez Road approximately 1.5 miles east of New Mexico State Road 501 (NM 501). The proposed project area has had a live fire range since the 1950's. The range has evolved over time with multiple changes and improvements made to the facilities. Within the facility are multiple small ranges for use of different caliber munitions. In 2019, the facility underwent significant updates and repairs to ensure capability is maintained for LANL Protective Force tactical training. Both reduced lead frangible and ball lead ammunition is used for training. Each range is sloped away from the stream channel to prevent stormwater runoff from the range from reaching the stream channel. At the end of each live fire training, participants walk the range and pick up brass, ammunition, and other debris for proper disposal.

Recent causal analyses regarding a near miss incident that occurred outside of normal business hours when range status was managed administratively with a manual status board inside the main building identified the need for additional facility safety upgrades. The proposed project includes installation of permanent signals, or flagpoles, located at eight individual firing ranges within the larger Outdoor Live Fire Range facility and a centralized mechanism to communicate range status. Temporary flagpoles in 55-gallon drums and a manually updated status board mounted on the perimeter fence were installed in 2020. However, the facility is in need of sustainable structures that can withstand the elements and be visible during nighttime operations.

The small arms range located on the west side of building 72-0036 has been decommissioned as a live fire range. This area has been converted to an administrative area for non-ballistic training. The project proposes removing the earthen backstop berm to prevent trainees from mistaking this area as a live fire range.

Several storage structures throughout the range have been identified as having reached structural end of life. These structures are proposed for removal. At least two of these structures are proposed to be replaced with storage structures that meet the more stringent requirements for storage of ammunition and munitions.

Range upgrades will help fulfill mission requirements to ensure armed Protective Force personnel are trained and qualified to protect the LANL workforce and operations as required by: DOE Order 470.3B *Graded Security Protection (GSP) Policy* (DOE 2008), DOE Order 470.4B *Safeguards and Security Program, Admin Change 1* (DOE 2021), and DOE Order 473.3 *Protection Program Operations* (DOE 2016).

The portion of the Sandia Canyon floodplain impacted by this project is approximately 0.38 acres total. Locations of the individual elements of the project are scattered throughout the floodplain within the Outdoor Live Fire Range boundary. The canyon bottom is developed with a paved road, dirt roads, parking areas, paved and gravel walkways, buildings, and berms.

PROJECT DESCRIPTION

Upgrade activities are proposed throughout the TA-72 Outdoor Live Fire Range. This assessment focuses on activities occurring in or near the Sandia Canyon 100-year floodplain that include: 1) installation of eight permanent flagpoles, 2) installation of a weatherproof electronic range status board, 3) removal a backstop berm on a decommissioned range, and 4) removing structures and replacing at least two with new storage structures on existing gravel pads (Figure 1). Two additional activities are proposed for areas outside of the floodplain. The first is to replace broken poles on a training structure to the southeast of building 72-0040. The second is to correct erosion on a backstop berm on the far northeast end of the Outdoor Firing Range. Small erosion channels on the back slope of the berm will be filled in and stabilized with a rolled erosion product.

Eight permanent flagpoles are proposed to replace temporary flagpoles at individual firing ranges within the larger TA-72 Outdoor Live Fire Range facility. The tilt-based cone tapered aluminum poles will be approximately 30 feet in height. Each pole will be mounted with a night vision compatible steady burning red obstruction light powered by a small integrated photocell. The light will indicate during range use if a range is active and the pole height will ensure the light can be seen throughout the facility. The poles require a 3-foot (ft.) 6 inch (in) deep by 2ft 6in wide concrete footing to attach the pole's cast aluminum shoe base. The project includes excavating approximately 4ft deep x 3ft wide holes for the concrete bases. Any excess soils would be stabilized at the excavation site following guidelines in the LANL Seeding Specification (LANL 2021) or disposed of in accordance with the LANL Waste Management Procedure P409 (LANL 2022). Figures 2 through 9 show the proposed flagpole locations in or near the floodplain.

Please note the LANL base aerial image as shown Figure 1 has not been updated since the facility began significant modifications in 2019 and does not show new ranges. The two flagpole locations on the east side of the facility are drawn as larger areas to ensure the final location is included in this floodplain assessment.

Figure 2. Proposed flagpole location at the northwest corner of Building 72-0036 looking west.

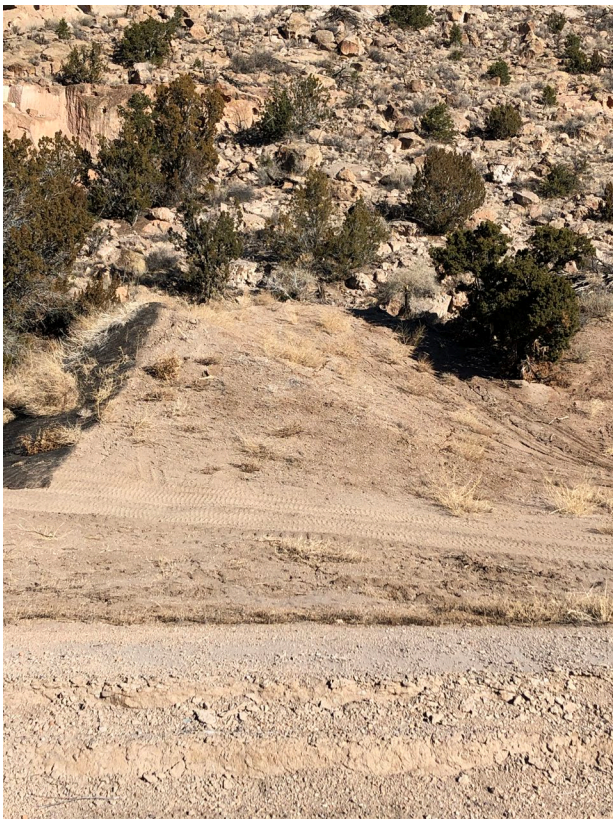

Figure 3. Proposed flagpole location northwest of Building 72-0036 on the north side of the channel looking north.

Figure 4. Proposed flagpole location south of Building 72-0036 looking east.

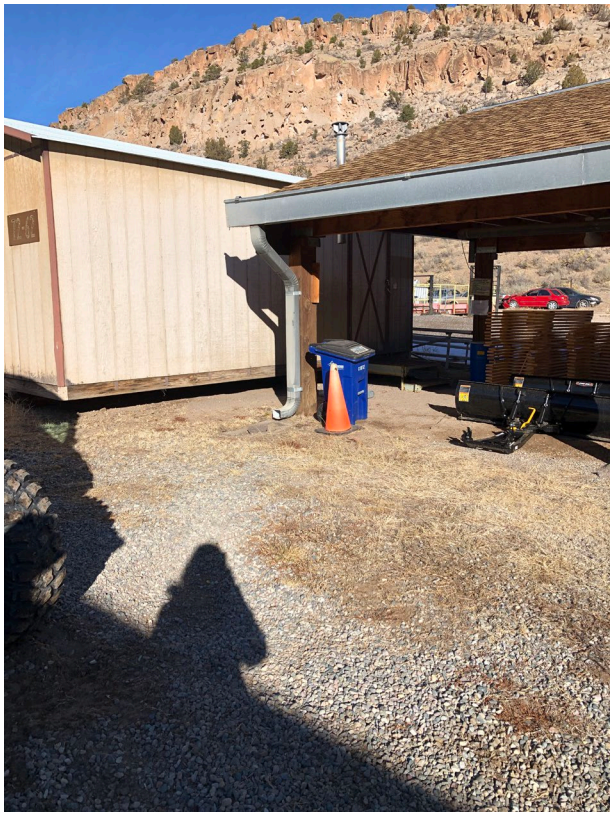

Figure 5. Proposed flagpole location northwest of Building 72-0041 looking northwest.

Figure 6. Proposed flagpole location southwest of Building 72-0040 looking north.

Figure 7. Proposed flagpole location east of Building 72-0040 looking northwest.

Figure 8. Proposed flagpole location on the east side of the facility looking northeast.

Figure 9. Proposed flagpole location on the south side of the facility looking south.

The project proposes to replace the status board mounted on the perimeter fence in 2020, which requires staff to manually update range status. The replacement would be a weatherproof electronic range status board located at the entrance to Building 72-0039. All staff and visitors are required to check in in this building; therefore, all personnel entering the range will see the proposed range status board. The range status board will be controlled from one location inside Building 72-0039 ensuring a centralized system to communicate range status.

An approximately 53ft long, 2ft wide and 8ft deep trench would be dug from the entrance of the building to the south to connect with an existing electrical panel. Figure 10 show the proposed location for the status board and trench. The mounting poles for the board require two approximately 3ft deep by 1ft wide concrete base to attach mounting brackets. The project proposes to excavate approximately 3ft deep by 1ft 5in wide holes for the concrete bases. Any excess soils would be stabilized at the excavation site following guidelines in the LANL Seeding Specification (LANL 2021) or disposed of in accordance with the LANL Waste Management Procedure P409 (LANL 2022).

Figure 10. Proposed location of trench for electrical and electronic range status board on the east side of Building 72-0039 looking south.

The small arms range on the west side of building 72-0036 has been decommissioned as a live fire range. This area has been converted to an administrative area for non-ballistic training. The project proposes removing the earthen backstop berm to prevent trainees from mistaking this area as a live fire range. Figure 11 shows the berm proposed for removal from the floodplain. The material from the approximately 100ft long 12ft wide earthen berm would be relocated from the decommissioned range to an operational range on the north side of the channel outside the floodplain. The material would be placed on an existing backstop slope and lightly compacted. The disturbed area of berm removal would be stabilized following guidelines in the LANL Seeding Specification (LANL 2021).

Figure 11. Berm located west of Building 72-0036 proposed for removal from the floodplain looking north.

The proposed project includes removal of several structures located throughout the main area of the Outdoor Live Fire Range in and near the 100-year floodplain. See Figure 1 for the location of the proposed structures. These sheds, transportainers, and an awning have been identified as having reached structural end of life. A subset of the storage sheds no longer meets requirements for storage of ammunition and munitions. The structures do not have permanent foundations and most are on gravel pads. Removal would include use of heavy equipment, such as a crane or forklift, for lifting and a large flatbed vehicle for transporting each structure out of the range. No heavy equipment use would occur within the stream channel. No excavation or major disturbance of the gravel pads is expected and all would remain in place. Removed structures would be disposed of in accordance with the LANL Waste Management Procedure P409 (LANL 2022).

At least two of the structures are proposed to be replaced with storage containers (e.g., Connex type) that meet the new DOE O 473.2A, *Protective Force Operations* (DOE 2021) requirements for storage of ammunition and munitions. The containers would be placed on existing gravel pads. Placement would include use of a large flatbed vehicle to deliver the containers and heavy equipment, such as a crane or forklift, for lifting and placing the containers. No excavation or soil disturbance is expected from placement of these containers.

FLOODPLAIN IMPACTS

LANL maintains a Permits and Requirements Identification (PR-ID) process for LANL subject matter experts to identify, evaluate and resolve project-specific issues such as presence of underground utilities, contaminated soils, spills and leaks, soil disturbance and stabilization, threatened and endangered species habitat, floodplains or wetlands, and regulatory agency authorizations such as US Army Corp of Engineers permit requirements and Clean Water Act permit requirements. The process aids in identifying potential impacts to the natural and beneficial floodplain values and potential effects on lives and property.

Short-term Impacts

The following requirements were identified and reviewed in the PR-ID process to avoid potential impacts.

- This project is not 1 acre or larger; therefore will not require National Pollution Discharge Elimination System Construction General Permit coverage.
- Proposed activities in the floodplain do not significantly alter the current hydrology. This project will not be required to meet Energy Independence and Security Act compliance in the area of the floodplain.
- No historical or archeological sites are located in the areas of proposed disturbance in the floodplain but there are several sites nearby. No impacts are expected to occur to cultural resources. However, the project must follow the proper procedure for inadvertent discoveries.
- The project is not located in threatened or endangered species habitat; therefore, no impacts will occur to current listed species in the Los Alamos County area.
- There will be no soil-disturbing activities in the watercourse; therefore, this project will not require Clean Water Act Section 404 permit coverage or 401 certification.
- Part of the project is located in Areas of Concern (AOC) 72-001. Any soil removed from the AOC from the excavation must be stabilized on site or disposed of in accordance with the LANL Waste Management Procedure P409 (LANL 2022).

Potential short-term direct and indirect floodplain impacts from release of pollutants to the floodplain and exposure to stormwater would be avoided or minimized through implementation of the following best management practices:

- Hazardous materials, chemicals, fuels, and oils would not be stored within the floodplain.
- Heavy equipment would not be used within the stream channel, especially if conditions are too wet to prevent damage to the soil structure.
- Equipment would be refueled at least 100 ft. from the Sandia Canyon bottom.

Potential direct effects to migratory birds and other biological resources are minimal, as little or no habitat would be disturbed. The Migratory Bird Treaty Act prohibits killing migratory birds, including nestlings and eggs in an active nest. Therefore, if vegetation removal is required, during the nesting season (May 15 through July 15), an onsite inspection for bird nests from LANL Biological Resource subject matter experts would be required. Construction activities would conform to requirements stipulated in the Migratory Bird Best Management Practices Source Document for Los Alamos National Laboratory (LANL 2020).

Long-term Impacts

No long-term impacts to the floodplain are anticipated as a result of this project. The proposed installation of flagpoles, range status board, berm removal, and structure removal are limited to the existing disturbed areas of the firing range. Flow paths within the floodplain would not be significantly modified from pre-project conditions to post project conditions.

This assessment also considered the impacts of the proposed actions in the floodplain on the conservation of habitat for existing flora and fauna, aesthetic values, and public interest. The proposed action will not impact cultural resources because it does not involve ground-disturbing activities near cultural resource sites. The proposed action would not remove any protected habitat. The proposed action is not considered to negatively impact aesthetic values because the proposed action will occur in areas that have been previously disturbed.

ALTERNATIVES

The alternatives available to DOE/NNSA include the no action alternative. The no action alternative was not selected by DOE/NNSA because the temporary safety measures of flagpoles in 55-gallon drums and manually updated status board on the perimeter fence are not visible during nighttime operations. There is also an increased risk of human error because this system does not centralize control of the individual range statuses.

The proposed project as described in this assessment would improve the overall safety of the Outdoor Live Firing Range and meet the requirements needed to address a recent near miss incident that occurred outside of normal business hours when range status was managed administratively with a manual status board inside the main building. Range upgrades will help fulfill mission requirements to ensure armed Protective Force personnel are trained and qualified to protect the LANL workforce and operations as required by: DOE Order 470.3B *Graded Security Protection (GSP) Policy* (DOE 2008), DOE Order 470.4B *Safeguards and Security Program, Admin Change 1* (DOE 2021), DOE Order 473.3 *Protection Program Operations* (DOE 2016).

CONCLUSIONS

The proposed project would result in limited and minor direct and indirect impacts to the 100-year floodplain and would not result in adverse impacts to the floodplain values or functions. Temporary disturbance within the floodplain would cease following completion of construction activities. Best management practices would be implemented. This proposed project would not significantly modify flow paths within the floodplain from pre-project conditions to post project conditions. No effects to lives and property associated with floodplain modifications are anticipated.

In accordance with 10 CFR 1022, DOE/NNSA will publish this Floodplain Assessment for a 15 day for public review and comment period. After the close of the public comment period and prior to issuing a floodplain statment of finding DOE/NNSA will reevaluate the practicability of alternatives to the proposed floodplain action, mitigating measures and take into account all substantive comments received during the public comment period.

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