U.S. National Science Foundation

Subject: Update to the U.S. National Science Foundation Record of Decision Regarding the Sacramento Peak Observatory in Sunspot, New Mexico, Dated February 25, 2019

Date: February 24, 2026

In 2019, the U.S. National Science Foundation (NSF) issued a Record of Decision (ROD) regarding the disposition of the Sacramento Peak Observatory, including the Richard B. Dunn Solar Telescope (DST), in which NSF selected two of the five alternatives[1] that were analyzed in the 2018 Final Environmental Impact Statement (FEIS). Alternative 2, transition to partial operations by interested parties with reduced NSF funding, was selected as the agency-preferred alternative, and Alternative 4, demolition and site restoration, was selected as the secondary agency-preferred alternative. The decision states that NSF would provide partial support for operation of Sacramento Peak Observatory for a period of three years (2019-2021), with future NSF funding contingent on a successful review of a new proposal and the availability of funds. In the event that NSF determined that continued implementation of Alternative 2 is not appropriate, NSF would then move forward with implementation of Alternative 4, demolition and site restoration (herein after "Alternative 4, demolition and site restoration").

NSF has been implementing the agency-preferred alternative since 2019, with funding provided to National Solar Observatory for site infrastructure support and to New Mexico State University for science operations at the DST. During this time, efforts by NSF to identify interested parties willing to assume responsibility for long-term operations proved unsuccessful. To date, no parties have been forthcoming in providing viable plans that include full financial support for the continued operation of the observatory or the assumption of ownership of the telescope or the observatory. In accordance with the ROD, in 2022 NSF began planning for implementation of Alternative 4, demolition and site restoration, completing an updated Environmental Baseline Survey and an updated biological assessment under the Endangered Species Act, as well as a preliminary

[1] As detailed in the FEIS and summarized in the ROD, the following were considered for the proposed change in operations due to funding constraints for the Sacramento Peak Observatory: Alternative 1, continued science- and education-focused operations by interested parties with reduced NSF funding; Alternative 2, transition to partial operations by interested parties with reduced NSF funding; Alternative 3, mothballing of facilities; Alternative 4, demolition and site restoration; and No Action Alternative, continued NSF investment for science-focused operations.

assessment of costs and methods to safely decommission the DST. During this planning period, NSF has continued to fund operations at the observatory.

On January 5, 2026, a liquid mercury release was discovered inside the DST on the main floor worktable. Safety protocols were immediately implemented and the proper authorities notified. DST and its supporting infrastructure sit on National Forest System lands, managed by the U.S. Department of Agriculture, Forest Service (Forest Service), Lincoln National Forest, and Sacramento Ranger District. Upon notification of the release, the Forest Service requested that NSF remove all mercury and remediate the site. Given this confluence of events, the anticipated costs for assessing and repairing vulnerabilities in this aging structure, and the safety and environmental risks associated with the approximately 160 gallons of liquid mercury used in the facility's bearings and seals, NSF determined that the most prudent action is to completely drain and remove the liquid mercury from the site as soon as possible. This necessary action will effectively render the DST inoperable.

Therefore, in accordance with the FEIS and ROD, NSF will move forward with implementing Alternative 4, demolition and site restoration. This will entail demolition of the DST and restoration of the entire Sacramento Peak Observatory site including the associated residential and support buildings. As described in the FEIS and ROD, Alternative 4 will involve the removal of all structures to approximately 4 feet below surface grade. All above-grade structures will be removed and demolished, with below-grade structures and foundations stabilized, filled, and abandoned in place.

Alternative 4, as explained in the ROD (pages 9-10) and more thoroughly in the FEIS, could result in adverse impacts on various resources. To reduce those impacts, which largely would result from demolition activities, NSF will implement mitigation measures that were determined in consultation with the Forest Service, which served as a cooperating agency in development of the FEIS. All practicable means to avoid or minimize environmental harm from Alternative 4 will be adopted. The following is a summary of those mitigation measures under Alternative 4, with updates since 2019 noted in italics.

Biological Resources:

- Equipment used during demolition activities will be cleaned prior to entering National Forest lands to remove any debris or dirt on the equipment and to eliminate the potential for the spread of seed or other propagules of noxious or invasive weeds.
- Any materials brought to the site (soil, sod, or seed) must be certified weed-free; native species must be used for seeding and plantings and must be approved by the Lincoln National Forest botanist.

- Best Management Practices (BMPs) for worksite marking and stormwater controls will be implemented. Stormwater controls will minimize scour and erosion outside the work area that could otherwise affect habitat quality.
- Seasonal restrictions will be implemented to avoid demolition work from March 1 through September 30, which is when the Mexican spotted owl and northern goshawk may be breeding and rearing young.
    - *2026 update: note that NSF, with the Forest Service, has re-initiated consultation with the U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act to assess potential impacts to the Mexican spotted owl and the tricolored bat (proposed for listing as endangered in 2022) if NSF were to engage in non-explosive demolition activities during March 1-September 30. Should the U.S. Fish and Wildlife Service concur with NSF's finding that non-explosive demolition activities at the observatory during spring and summer would be "not likely to adversely affect" Mexican spotted owl and "not likely to jeopardize the continued existence" of tricolored bat, and should the Forest Service determine there would not be significant impacts to northern goshawk, which is a Forest Service (Southwestern Region) Regional Forester Sensitive Species, then NSF may adjust this mitigation measure such that it is limited to the use of explosives (e.g., seasonal restrictions would be implemented to avoid any use of explosives from March 1 through September 30.) To support this potential change to the mitigation measure, this update to the ROD incorporates by reference the species evaluation and summary of effect determinations in NSF's December 2025 Biological Assessment for Proposed Changes to Operations at Sacramento Peak Observatory. In the case that a change to this mitigation measure could cause significant effects to the referenced species, NSF will retain and implement the original mitigation measure as identified in the 2018 FEIS and 2019 ROD.*
- Idle restrictions on heavy equipment will be enforced to reduce noise during demolition.
- No clearing of wooded/forested areas will occur.
- Proposed demolition work will be performed during daylight hours to avoid effects on nocturnal foraging by Mexican spotted owl.
- Biological inspections will be conducted to determine whether chipmunks or active burrows are in, or adjacent to, work areas prior to the start of demolition work.
- Biological inspections of facility buildings slated for demolition will be conducted to determine whether any are being used as bat roosting sites prior to the start of demolition work, which will be planned to occur between October 1 and November 30.
- Disturbed areas will be re-landscaped consistent with the other maintained grounds.

- Prior to demolition, NSF will conduct biological surveys to determine whether the salamander, or active burrows, are in, or adjacent to, work areas prior to the start of demolition work.
- A Vegetation Restoration Management Plan will be developed and implemented in coordination with the Forest Service.

Cultural Resources:

- Implement stipulations specified in the Programmatic Agreement (PA) prepared pursuant to Section 106 of the National Historic Preservation Act (NHPA). These stipulations were developed to address the necessary mitigation for major impacts to cultural resources under NEPA. The PA was executed on August 10, 2018 (Attachment A to the 2019 ROD). Specific mitigation measures were developed in consultation with the State Historic Preservation Officer, the Advisory Council on Historic Preservation, the Forest Service, and other consulting parties and are listed below.
- NSF will prepare a National Register of Historic Places (NRHP) registration form for the historic district within the Area of Potential Effects (APE).
    - *2026 Update: This documentation has been completed (February 2020), in consultation with the Forest Service and the New Mexico State Historic Preservation Officer.*
- NSF will contribute a maximum of $100,000 toward an interpretive exhibit and/or signage to tell the story of the Sacramento Peak Observatory. If the Forest Service requests retention of any contributing resources for itself or others, NSF will determine, following consultation with the State Historic Preservation Officer and the Forest Service, what the appropriate contribution for an interpretive exhibit and/or signage would be, if any, but under no circumstances will the contribution exceed $100,000.
- To the extent that demolition or mothballing of any historic properties occurs, or transition of Sacramento Peak Observatory to the Forest Service for other uses occurs, NSF will contact relevant scientific/educational institutions for possible reuse of the equipment and artifacts, or contact an appropriate museum to determine if any of the equipment and/or artifacts can be donated to the museum's collection.
- A plan for handling unanticipated discoveries to address archaeological resources that might be discovered during implementation of the undertaking is included in the PA.

Geology and Soils:

- A National Pollutant Discharge Elimination System (NPDES) permit will be obtained from EPA for stormwater discharges associated with the Proposed Action. A Stormwater Pollution Prevention Plan (SWPPP) will be prepared in coordination with the Forest Service as part of the NPDES permit.

- All demolition will be completed in accordance with industry Best Management Practices (BMPs) and the Special Use Permit issued by the Forest Service.
- Soil-disturbing activities will take place during snow-free periods and dry conditions. To the extent practicable, heavy equipment will be used only when the soil is relatively dry or when the ground is frozen to prevent rutting.
- Demolition scheduling will consider the amount and duration of soil exposed to erosion by wind, rainfall, runoff, and vehicle tracking and seek to minimize disturbed soil areas during the rainy season. The sequence of ground-disturbing activities with the installation and maintenance of soil stabilization and sediment control BMPs will be provided in the Demolition Management Plan approved by the Forest Service.
- In addition to the measures provided in the SWPPP and where practicable, existing vegetation will be preserved to the maximum extent possible and for as long as possible on the site to reduce erosion in those areas. Erosion control measures will be in place and functional prior to the commencement of soil-disturbing activities and will be maintained and remain in place until vegetation is re-established according to the approved Site Restoration Plan developed in coordination with the Forest Service.
- Equipment will arrive clean and free of weed propagules.
- Ground-disturbing activities will be conducted in a manner that minimizes the alteration of existing topography.
- Disturbed areas will be stabilized and revegetated to minimize the potential for erosion after demolition is completed.
- A Spill Prevention, Control, and Countermeasures (SPCC) Plan will be developed in coordination with the Forest Service to address risks to karst features and associated groundwater from potential spills. The SPCC Plan will address equipment inspections, equipment refueling, equipment servicing and maintenance, equipment washing, and the use and storage of any hazardous materials, chemicals, fuels, lubricating oils, and other petroleum products. In the event of an accidental spill or if contamination of water resources is suspected, a hazardous materials specialist would assess the situation and determine the corrective actions to take per state and federal standards.
- Demolition stormwater controls will be implemented and maintained as required to minimize scour and soil loss from runoff.
- Before any demolition begins, a geophysical survey will be conducted in accordance with industry standards to inspect designated work areas and note any suspected karst features, including sinkholes, solution cavities, and areas of soil subsidence that could be affected by demolition work. The survey will also evaluate soil stability and the vertical and horizontal projection of sinkholes. These features will be avoided when possible and protected with sandbags, nets, and filter fabric. The identified areas will be monitored during the work for changes such as soil subsidence, collapse, water infiltration and clogging.
- Previously unknown karst features identified during invasive work activities, including subgrade activities, will be addressed as follows:

    - Work will stop within a 100-foot radius of the karst feature, and the feature will be assessed to identify its potential for connectivity to, and impact on, other karst features such as groundwater conduits, surface water conduits, and caves. The assessment method could include visual assessment, geophysical survey, or other techniques for subsurface characterization of karst features.
    - Karst features will be either isolated or temporarily sealed to minimize impacts during demolition work (for example, blocked with sandbags and protected with baskets, nets, or filter fabric).
    - In the event that a feature cannot be avoided, or activities are observed to result in changes to the karst features, activities within a 100-foot radius of the feature or change will be stopped and necessary surveys and studies will be completed to determine a path forward that will protect the karst feature.
- Any use of explosives will be limited to low-force, shaped charges that are designed to transfer the explosive force to only the structure that is designated for removal. All necessary surveys and studies will be completed prior to any blasting activities, and appropriately credentialed and accredited personnel would be used to accomplish the blasting event. A Blast Management Plan will be developed and implemented to identify and control safety and environmental risks associated with blasting.
- A Vegetation Restoration Management Plan will be developed and implemented.

Groundwater:

- Before demolition begins, a geophysical survey will be conducted to inspect designated work areas and note any suspect karst features that could be affected by demolition work. These features will be avoided when possible and protected with sandbags, nets, and filter fabric. During the work, the identified areas will be monitored for changes, such as soil subsidence, collapse, water infiltration, and clogging.
- Stormwater BMPs will be implemented prior to the start of demolition activities. Erosion control measures such as compost blankets, mulching, riprap, geotextile fabrics, and slope drains could be used to protect exposed soil and minimize erosion. BMPs such as check dams, slope diversions, and temporary diversion dikes could be implemented for runoff control. Sediment control measures that could be implemented include compost filter berms and socks; fiber rolls or berms; sediment basins, rock dams, filters, chambers, or traps; silt fences; and weed-free hay bales. As necessary, water drainage features would be designed to divert water runoff from roads to stabilize vegetated areas. Good housekeeping measures will be practiced during demolition. Site-specific stormwater BMPs will be detailed in a SWPPP, which will be prepared before ground-disturbance activities begin.
- An SPCC Plan will be developed for the project to address risks to groundwater from potential spills. The SPCC Plan will address equipment inspections, equipment refueling, equipment servicing and maintenance, equipment washing, and the use

and storage of any hazardous materials, chemicals, fuels, lubricating oils, and other petroleum products.

- Previously unknown karst features identified during invasive work activities, including subgrade activities, will be addressed as follows:
    - Work will stop within a 100-foot radius of the feature, and the feature will be assessed to identify its potential for connectivity to, and impact on, other karst features such as groundwater conduits and surface water recharge conduits. The assessment method could include visual assessment, geophysical survey, or other techniques for subsurface characterization of karst features.
    - The karst feature will be either isolated or temporarily sealed to minimize impacts during demolition work (for example, blocked with sandbags and protected with baskets, nets, or filter fabric).
    - Any use of explosives will be limited to low-force charges designed to transfer the explosive force only to the structure that is designated for removal.

Hazardous Waste:

- Site characterization and removal or remediation of asbestos-containing material, lead-based paint (LBP), or other hazardous building materials will be completed prior to demolition of structures designated for removal.
- As necessary, abatement work will include establishing roll-off bins, emergency shower units, portable toilets, and other onsite small equipment and safety facilities, as well as curtained enclosures for containment of airborne contaminants and worker safety as required by applicable federal and/or state regulations.
- BMPs for waste management and materials pollution control will be designed to limit or reduce potential pollutants at their source before they could come in contact with stormwater. Pollutants such as LBP will be properly contained.
- During demolition, hazardous materials and wastes would be used, stored, transported, and disposed of in compliance with applicable laws and regulations.
- Contractors will create and implement a Spill Response Plan coordinated with the Forest Service for managing hazardous materials onsite and transporting hazardous materials.
- Fill material, as required, will be free of contaminants regulated by state or federal laws and from a certified weed-free source whenever feasible. If possible, soil used as fill material will be sourced proximal to the site and be of the same soil type.
- NSF will require the demolition contractor to create and implement a Demolition Management Plan to include, at a minimum, a list of contact persons in case of a possible encounter with undocumented contamination; provisions for immediate notification of the observation to construction management; and notification of the regulatory agency with jurisdiction. If previously unknown contamination is found, demolition will halt in the vicinity of the find and the next steps will be decided in consultation with the regulatory agency. In addition, a Demolition Health and Safety

Plan, including compliance with Occupational Health and Safety Act (OSHA) safety protocols, will be developed and implemented for the project. The Demolition Health and Safety Plan will be coordinated with the Forest Service.
- Site characterization and removal or remediation of contamination will be completed prior to implementing the demolition.
- A Mercury Management Plan will be developed and implemented to address the handling, removal, transportation, storage, and disposal/recycling of mercury.
- A Blast Management Plan will be developed and implemented to identify and control safety and environmental risks associated with explosive blasting. Explosive materials will be used in accordance with federal, state, and local regulations pertaining to explosives (29 C.F.R. §1926.900).

Solid Waste:

- Whenever possible, demolition debris, such as concrete and masonry, will be used onsite for fill and contouring.
- Demolition debris will be diverted from the landfill through reuse and recycling to the extent practicable.

Health and Safety

- A Demolition Health and Safety Plan will be developed and implemented.
- A Traffic Management Plan will be developed in coordination with the Forest Service and implemented.
- Sacramento Peak Observatory personnel will be instructed to comply with OSHA safety protocols.
- Fencing and signage will be installed around demolition sites.
- A maintenance and security program will be implemented by NSF for mothballed facilities.
- A Blast Management Plan will be developed and implemented to identify and control safety and environmental risks associated with explosive blasting. Individuals handling explosives will be properly trained and industry standard safety protocols implemented.
- A Mercury Management Plan will be developed and implemented to address the handling, removal, transportation, storage, and disposal/recycling of mercury.

Noise

- All industrial machinery and equipment will be in good repair and maintained in accordance with the manufacturer's specifications in compliance with Otero County Ordinance 95-02 §170-1.
- Blasting will be limited to a single event conducted during daylight hours. Any use of explosives will be limited to a single detonation event using low-force charges designed to transfer the explosive force only to the structure that is designated for

removal. A site-specific Blast Management Plan will be prepared and provide more details on the location, duration, timing, charge size, etc., of blasting activities. The Blast Management Plan will also provide an estimation of the air blast overpressure and/or modeling of the sound pressure wave and the potential effects of the wave on the noise-sensitive areas (NSAs). Blasting activities will be expected to be designed to minimize the intensity and duration of noise impacts to nearby NSAs.

Traffic and Transportation

- A Traffic Management Plan outlining the measures to reduce potential traffic-related safety issues and transportation conflicts will be developed in coordination with the Forest Service.
- Personnel will be notified of all potential height restrictions and overhead obstructions along the roadway network leading to the Sacramento Peak Observatory and along the potential route to the Otero-Greentree Regional Landfill.
- Vehicles used for material transport will be required to comply with local standards for height, width, and length of vehicles, when practicable. If, at any time, vehicles of excessive size and weight are required on local roads and bridges, permits will be obtained.
- To minimize the impacts of demolition to local residents, the contractor will coordinate with local public schools to ensure that the potential route to the landfill does not adversely affect school bus traffic.
- Transport of materials and demolition vehicles will occur during off-peak hours when practicable.
- Further details about the demolition materials and routes to the landfill and concerns will be addressed during the detailed design phase of the Proposed Action, including verification that all bridge crossings on the delivery route do not have load restrictions in place that would preclude the use of those bridges to move the demolition materials.

Conclusion

In accordance with the 2019 ROD, NSF will move forward with implementing the second agency-preferred alternative, Alternative 4, demolition and site restoration. This will entail demolition of the DST and restoration of the entire Sacramento Peak Observatory site including the associated residential and support buildings. This decision is based on several factors, including the need to reduce NSF funding for the Sacramento Peak Observatory, lack of a viable long-term partner for funding the operation of the facility, the environmental and safety risks of retaining mercury within an aging structure, and consideration of environmental impacts and measures to mitigate them.

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