



**OFFICE OF INSPECTOR GENERAL**

U.S. Department of Energy

# AUDIT REPORT

DOE-OIG-20-37

March 2020

**THE DEPARTMENT OF ENERGY'S  
WILDLAND FIRE PREVENTION  
EFFORTS AT THE NEVADA NATIONAL  
SECURITY SITE**



**Department of Energy**  
Washington, DC 20585

March 23, 2020

MEMORANDUM FOR THE ADMINISTRATOR, NATIONAL NUCLEAR SECURITY  
ADMINISTRATION  
MANAGER, NEVADA FIELD OFFICE

A handwritten signature in black ink, appearing to read "John E. McCoy II".

FROM: John E. McCoy II  
Deputy Assistant Inspector General  
for Audits and Inspections, West  
Office of Inspector General

SUBJECT: INFORMATION: Audit Report on “The Department of Energy’s  
Wildland Fire Prevention Efforts at the Nevada National Security Site”

BACKGROUND

The National Nuclear Security Administration’s (NNSA) Nevada National Security Site (NNSS) is a research and development reserve that occupies approximately 1,375 square miles in south-central Nevada. The NNSS helps ensure the security of the United States and its allies by supporting the stewardship of the nuclear deterrent, providing emergency response capability and training, and contributing to key nonproliferation and arms control initiatives. At NNSS, the management and operating contractor, Mission Support and Testing Services, LLC<sup>1</sup> (contractor), executes unique national-level experiments, supports national security customers, manages the legacy of the nuclear deterrent, and provides long-term environmental stewardship for site missions.

Under the management and operating contract, the contractor is to comply with Department of Energy Order 420.1C, *Facility Safety*, which requires the contractor to establish a comprehensive fire protection program that includes an integrated site-wide wildland fire management plan. This plan is to be consistent with the *Federal Wildland Fire Management Policy* (Policy) and meet the requirements of National Fire Protection Association (NFPA) 1143, *Standard for Wildland Fire Management* (1143). As part of its responsibilities, the contractor develops the NNSS Wildland Fire Management Plan (Plan) in accordance with the requirements. The contract also requires the contractor to comply with State regulations which, in the case of wildland fire management, require the contractor to comply with the requirements of the International Wildland-Urban Interface Code (IWUIC). These regulations require the contractor

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<sup>1</sup> Mission Support and Test Services, LLC became the management and operating contractor on December 1, 2017. National Security Technologies, LLC served as the management and operating contractor from July 1, 2006, through November 30, 2017.

to identify wildland fire hazards and take actions to mitigate the impact of wildland fire. The NNSA's Nevada Field Office is responsible for overseeing the contractor's performance under the terms of the management and operating contract and ensuring compliance with the requirements of Department directives, including Department Order 420.1C.

Throughout its history, NNSA has experienced a number of wildland fires that endangered infrastructure and radiologically contaminated areas. Since 2005, there have been more than 150 wildland fires at NNSA that burned over 44,000 acres. Given the risk posed by wildland fire to NNSA's facilities and workforce, we initiated this audit to determine whether the Nevada Field Office and the contractor were taking necessary actions to identify possible hazards associated with and mitigate the impacts of wildland fire as required by the Policy, NFPA standards, IWUIC, and the Plan.

## RESULTS OF AUDIT

In performing work under the management and operating contract, the contractor is required to comply with applicable Department directives as well as relevant State regulations. Specifically, the contractor is to comply with Department Order 420.1C, which requires the contractor to establish a comprehensive fire protection program for Department facilities and emergency response organizations to minimize the impact of fire-related events on the Department's resources and mission. As part of this program, the contractor is required to develop and implement an integrated site-wide wildland fire management plan that is consistent with the Policy and meets the requirements of NFPA 1143. The Policy outlines guiding principles for wildland fire management at Federal agencies. One of the fundamental tenets of the Policy is that risk management should be the foundation for all fire management activities, and risks must be understood, analyzed, communicated, and managed as they relate to the cost of either doing or not doing a particular activity.

The NFPA 1143 requires the contractor to perform ignition source and fire hazard risk assessments<sup>2</sup>, and based on the results, develop a mitigation plan identifying required mitigation activities such as fuel modification and prevention efforts, responsible parties, priorities, and implementation schedule. The NFPA 1143 also requires the development of a preparedness plan which identifies firefighting capabilities and limitations and includes a financial planning element describing contractual agreements for services such as catering and lodging. Through NFPA 1143, NFPA 1141, *Standard for Fire Protection Infrastructure for Land Development in Wildland, Rural, and Suburban Areas* (1141), and NFPA 1144, *Standard for Reducing Structure Ignition Hazards from Wildland Fire* (1144), are incorporated as requirements. Under NFPA 1141, roadways used by fire departments are required to have minimum road width and vertical clearances to allow two vehicles to pass and accommodate the loads and turning radii for fire apparatus. The NFPA 1141 also requires that vegetation growth alongside roads be cleared to minimize the likelihood of evacuation routes being blocked during wildland fire or other natural disasters. Under NFPA 1144, the contractor is required to assess wildland fire hazards for

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<sup>2</sup> An ignition source risk assessment is done to evaluate potential and historical sources of ignition for wildland fires and to consider both natural and human sources of ignition such as lightning strikes or arson. A fire hazard risk assessment is done to assess the severity of wildland fires within or threatening an area and to consider factors such as vegetation, fire history, potential fire behavior, and firefighting capabilities and limitations.

structures in wildland urban interface or intermix areas<sup>3</sup> and develop a mitigation plan and schedule for addressing the hazards identified. As part of a mitigation plan, the establishment of a fuel modification area, an area where vegetation is treated or removed to reduce the likelihood of ignition, may be required. Additionally, IWUIC, adopted by the State of Nevada, also requires the contractor to modify or remove wildland fire fuels around structures and along roadways to reduce ignition sources, and sets minimum clearance and load requirements for roads used by fire departments to access wildland urban interface areas.

The Plan outlines preparedness and prevention strategies used to minimize the impact of wildland fire on NNSS personnel and property, as well as the environment. For example, under the Plan, the contractor's Fire Marshal conducts annual wildland fire vegetation assessments to evaluate the adequacy of defensible space<sup>4</sup> for facilities, other structures, and radiological areas vulnerable to wildland fires in compliance with NFPA standards and IWUIC. In addition, the contractor is to ensure that an adequate inventory of functional response apparatus and communication equipment is available and in a state of readiness prior to the start of a wildland fire season. Further, the contractor is responsible for ensuring that personnel have received wildland fire training and that maps identifying hazardous areas are up to date before the start of the wildland fire season.

### **Mitigation Activities Designed to Reduce the Impact from Wildland Fire Not Fully Completed**

Our review found that the Nevada Field Office and the contractor had taken some actions to identify and mitigate possible hazards associated with the impacts of wildland fire at NNSS. For instance, the contractor conducted annual wildland fire vegetation assessments that evaluated fire hazard vulnerabilities to facilities, other structures, and radiological areas of concern at NNSS in accordance with the Plan. In addition, the contractor prepared, and the Nevada Field Office approved, baseline needs assessments which describe fire protection and emergency response capabilities at NNSS as required by Department Order 420.1C. While these were positive measures, we found that the contractor had not fully completed mitigation activities designed to reduce the impact from wildland fire. Specifically, we found that the contractor had not:

- Completed mitigation activities necessary to ensure defensible space and firebreaks<sup>5</sup> around facilities, combustible utility poles, and along roadways as required by NFPA standards and IWUIC, increasing the risk of a wildland fire spreading to structures or radiologically contaminated areas;

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<sup>3</sup> The wildland urban interface is defined as the line, area, or zone where structures and other human development meets or intermingles with undeveloped wildland or vegetative fuels. The wildland urban intermix is an area where improved property and wildland fuels meet with no clearly defined boundary.

<sup>4</sup> Defensible space is an area either natural or manmade where material capable of causing a fire to spread has been treated, cleared, reduced, or changed to act as a barrier between an advancing wildland fire and the loss to life, property, or resources.

<sup>5</sup> A firebreak is a natural or constructed barrier used to stop or check fires that may occur, or to provide a control line from which to work.

- Maintained roads necessary for protecting utilities and providing access for firefighters and equipment in accordance with NFPA standards and IWUIC, which could delay response times and create unsafe conditions for emergency responders; and
- Completed preparedness activities such as verification of equipment readiness and establishment of contractual agreements for services as prescribed in the Plan or NFPA 1143, which could create difficulties in carrying out response efforts in the event of a wildland fire incident.

These issues occurred, in part, because the contractor did not develop a comprehensive, risk-based approach to wildland fire management at NNSS. While contractor officials had assessed fire hazards for certain structures or areas as part of its wildland fire vegetation assessments, the contractor did not complete a formal risk assessment to evaluate the full spectrum of wildland fire risks for the entire complex or develop a formal mitigation plan. In addition, these issues occurred due to a lack of Federal oversight of the contractor's wildland fire management activities. Although the Nevada Field Office is responsible for overseeing contractor performance and ensuring compliance with Department directives, the instances of noncompliance identified demonstrate that this was not always occurring.

#### **Mitigation Activities Not Completed as Required**

We found that mitigation activities such as treating or removing excess vegetation needed to ensure defensible space and firebreaks around facilities, combustible utility poles, and along roadways were not being completed as required by NFPA standards and IWUIC. Defensible space and firebreaks are necessary for suppression efforts to reduce the size of wildland fires, protect NNSS property from wildland fire exposure, and minimize the potential of structure- or roadway-related combustible sources igniting wildland fires. Under NFPA 1141, NFPA 1144, and IWUIC, the contractor is required to modify or remove wildland fire fuels around structures and along roadways to reduce ignition sources. However, during our fieldwork, we observed several areas where excess vegetation had not been treated or removed as required. For example, we noted brush around the base of combustible utility poles, vegetation within the fence line of an electrical substation, and overgrown brush along roadways leading to facilities and communication sites. In addition, a road assessment conducted by the contractor in 2017 also identified issues related to excess vegetation along roadways. Specifically, the assessment indicated that roads previously used as firebreaks could no longer be utilized as such due to a lack of vegetation abatement.

The following pictures illustrate the conditions we observed:



Examples of vegetation around utility poles (left) and within the fence line of an electrical substation (right)  
(Pictures taken and provided by NNSS officials)

In addition, consistent with our observations above, annual wildland fire vegetation assessment reports prepared by the contractor for calendar years (CYs) 2014 through 2018 repeatedly identified areas that did not meet defensible space requirements in accordance with NFPA 1141, NFPA 1144, and IWUIC. For example, communication sites that support critical equipment such as fire watch cameras, air to ground radios, and handheld radios used by emergency responders were repeatedly identified as not meeting vegetation clearance requirements, making the sites vulnerable to damage if a wildland fire were to occur. Additionally, radiologically contaminated areas, which remain at NNSS as a result of past nuclear testing, were consistently identified as not meeting requirements for vegetation clearance along roadways. This was concerning because, according to the Plan, vegetation that is radiologically or chemically contaminated could result in airborne contamination if ignited, which could impact emergency responders. Further, the 2018 vegetation assessment report noted that utility poles on the western side of NNSS's power distribution system, which services all facilities and other structures, had not been cleared of vegetation as required. If a wildland fire were to burn utility poles in this area, the potential exists for the power supply to facilities to be disrupted, which could impact mission critical work as demonstrated during a 2018 wildland fire at NNSS. According to the contractor's Fire Marshal, vegetation accumulating at the base of combustible utility power poles has resulted in numerous high-dollar loss fires at NNSS. By not performing mitigation activities, NNSS facilities and other structures are at an increased risk of being impacted by a wildland fire.

Subsequent to our fieldwork, contractor officials indicated that wildland fire management, including vegetation abatement, had been elevated to an enterprise level risk<sup>6</sup> in January 2019. Contractor officials stated that they were undertaking a number of initiatives such as conducting

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<sup>6</sup> An enterprise level risk is a risk that, if not addressed, could impact the overall mission and objectives of the organization. Each enterprise level risk is presented to and discussed by senior level contractor and Nevada Field Office officials on a quarterly basis.

additional vegetation abatement activities beyond the baseline scope of work to reduce the risk. Officials indicated that the cost to conduct this above-baseline work would be approximately \$500,000, and they had requested a permanent increase to annual funding allocations from contractor senior management to complete additional abatement activities for fiscal year 2019 and future years. However, we were informed that only half of the requested amount had been authorized for 1 fiscal year. Given that the full requested amount to complete this work was not authorized, there is no assurance that the risk will be reduced.

### **Roads Not Maintained as Required**

We found that roads necessary for protecting utilities and providing access for firefighters and equipment had not been maintained as required. Under NFPA 1141 and IWUIC, roads are required to provide a minimum road width and vertical clearances to allow two vehicles to pass and accommodate the loads and turning radii for fire apparatus. However, during our fieldwork, we observed roads that did not meet these requirements. For example, we noted roads with deteriorated conditions, including washouts, which limited the ability for vehicles to pass or turn around and restricted the types of vehicles that could respond. These roads provide access to communication sites located in remote areas where wildland fires have occurred at NNSS. Additionally, the lack of turn around areas may cause a bottleneck of responding vehicles and personnel, creating entrapment and hindering response times. Similar conditions were also noted in a 2017 road assessment conducted by the contractor, which stated that roads used to access communication sites were not wide enough for emergency vehicles to pass or turn around when responding to fires. The following images illustrate the conditions described above:



Examples of roads with deteriorated conditions  
(Pictures taken and provided by NNSS officials)

The contractor's road assessment also highlighted deteriorated road conditions across NNSS. In particular, the assessment, the purpose of which was to evaluate the overall condition of NNSS's road network and identify improvement projects, found that the majority of roads had surpassed their design life and continued to deteriorate due to inadequate maintenance funding. Additionally, the assessment noted that the deteriorated road conditions have seriously impaired

the ability to safely support current personnel and operations, which could impact future mission expansion. The road assessment proposed, and the contractor began implementing, a significant reduction in the number of road network miles that would be maintained across NNSS – from 1,401 miles of maintained roads to 352 miles of maintained roads, a reduction of almost 75 percent. When we questioned contractor officials about the reduction, they indicated that emergency response needs were not considered when the proposal was developed. In addition, the proposed reduction was not coordinated with the Nevada Field Office or across all contractor organizations, including its emergency operations and fire department, to evaluate the impact on their operations. The reduction in miles maintained is concerning because it impacts emergency response times, limits access to remote areas, and may hinder evacuation efforts in the event of a wildland fire.

### **Preparedness Activities Not Completed**

We found that preparedness activities for upcoming wildland fire seasons had not been completed in accordance with the Plan. Prior to the start of a season, contractor officials are to ensure that an adequate inventory of functional response apparatus and communication equipment is available and in a state of readiness. In addition, contractor officials are responsible for ensuring that personnel have received wildland fire training and that maps identifying hazardous areas are up to date. However, our review of contractor briefings and an after action report describing issues encountered during wildland fires at NNSS in CYs 2017 and 2018 revealed that these actions were not being performed as required. Specifically:

- Response Apparatus – documentation identified issues related to equipment needed to support wildland fire response efforts. For example, during a 2018 fire, it was noted that there were not enough vehicles to support response operations throughout the incident and vehicles had to be borrowed from other areas, resulting in instances where off duty personnel were unable to leave the fire area and supplies were delayed. Documentation for this same fire also indicated that components needed for brush engines were not purchased in time for use during the wildland fire season.
- Communication equipment – documentation for each of the fires identified problems related to reliability or availability of communication equipment. For instance, during a 2018 fire, it was noted that there was limited to no communications on radio channels used by emergency responders, resulting in vital personnel from the fire line having to be used as human repeaters or climbing to a higher elevation for service, which hampered the ability to run the incident effectively and created unsafe conditions. Additionally, documentation for fires in 2018 identified the need for upgrades to communication equipment, including wildland fire cameras and global positioning satellite units, needed to provide emergency responders with accurate data during a wildland fire incident.
- Wildland Fire Training – documentation for a 2018 fire revealed that wildland fire training had not been provided to heavy equipment operators prior to the start of the season as required. This training is important for the safety of these equipment operators since they can provide support to responders by creating firebreaks during wildland fires.



- Mapping – documentation for fires in 2018 identified issues related to the mapping of hazardous areas at NNSS. For example, documentation for one fire noted that the locations of unexploded ordnances<sup>7</sup> were not clearly defined on maps, making it difficult to ascertain safety protocols for emergency responders.

In addition, while NFPA 1143 requires the contractor to ensure that contractual agreements for services such as catering and lodging are in place as part of preparedness planning efforts, documentation revealed that arrangements for these types of services were not established. For example, documentation for one fire in 2018 noted that accommodations for emergency responders to stay overnight had not been established, forcing responders to drive an hour or more for housing in an exhausted state after working 10 or more hours in the hot desert and wildland fire heat. Furthermore, the documentation also noted that there were multiple instances in which the established procurement process created unnecessary delays in acquiring food for emergency responders. Given that wildland fires at NNSS are typically in remote locations and can last for extended periods of time, failure to appropriately consider these factors can negatively affect the safety of wildland fire operations.

Subsequent to our fieldwork, contractor officials indicated that they had taken actions to address some of the issues outlined above. For instance, officials stated that a Wildland Fire Coordinator had been hired to support wildland firefighter training and equipment needs. Contractor officials also noted that additional wildland fire equipment such as components for brush engines and handtools had been purchased. Further, officials indicated that they had initiated discussions with a food service provider that could supply food for emergency responders during a wildland fire incident. While these were positive measures, we believe that it is crucial for contractor officials to ensure that preparedness activities, including logistical considerations, are completed prior to the start of wildland fire seasons in order to avoid situations similar to those described above and to protect emergency responders.

### **Lack of a Comprehensive, Risk-Based Approach**

These issues occurred, in part, because the contractor had not developed a comprehensive, risk-based approach to wildland fire management at NNSS. While contractor officials had assessed fire hazards for certain structures or areas as part of its wildland fire vegetation assessments, the contractor had not completed a formal risk assessment to evaluate wildland fire risks for the entire complex or developed a formal mitigation plan as required by NFPA 1143. For instance, despite the fact the contractor had identified that vegetation around combustible utility power poles had resulted in numerous fires at NNSS, we noted that the contractor had not assessed the wildland fire risk or developed a formal mitigation plan for all utility poles across NNSS in recognition of this historical ignition source and in accordance with the NFPA standard. This was concerning since the Plan noted that critical infrastructure components such as power utility poles are items of concern during wildland fire seasons. Further, the contractor had not developed a preparedness plan in accordance with NFPA 1143. As identified in our observations above, the contractor did not have agreements in place for catering and lodging services, which could impact the safety of wildland fire operations.

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<sup>7</sup> Unexploded ordnances are explosive weapons such as bombs, shells, or grenades that did not explode when they were employed and still pose a risk of detonation.

Even though vegetation assessments consistently identified areas that did not meet defensible space requirements due to excess vegetation, vegetation abatement activities were not completed for all areas identified and there was no documentation to demonstrate that risks associated with not performing the activities had been fully analyzed in accordance with the Policy. Contractor officials told us that vegetation abatement activities had not been completed because of inadequate funding. However, if contractor officials had performed risk assessments to identify high risk areas and developed a prioritized schedule of mitigation needs as required by NFPA 1143, contractor management officials may have allocated additional funding for vegetation abatement activities. By not ensuring defensible space requirements are met, facilities and other structures may not be adequately protected from incidents of wildland fire.

In addition, while the contractor conducted an assessment of road conditions, the contractor had not considered road management from an emergency response perspective, including consideration of wildland fire response needs. As noted earlier, the contractor began implementing a reduction in the number of road network miles to be maintained as a result of its road assessment. However, the reduction adversely affects emergency response times and evacuation routes, and limits the types of emergency response equipment that can be used in the event of a wildland fire. Additionally, it also eliminates firebreaks that could be used to stop the spread of fires. Without considering all factors in its assessment of road conditions, there is an increased risk that emergency responders may not be able to effectively respond to a wildland fire.

Further, although preparedness activities for upcoming wildland fire seasons were identified in the Plan, the contractor had not developed a formal implementation schedule to ensure activities were completed. While not required, had a schedule been developed which assigned responsible parties and tracked completion of preparedness activities prior to the start of a season, the issues encountered during wildland fires at NNSS in CYs 2017 and 2018 may not have occurred. Not completing preparedness activities prior to the start of a season could jeopardize the safety of emergency responders.

### **Lack of Federal Oversight**

The issues we identified also occurred due to a lack of Federal oversight of the contractor's wildland fire management activities. Nevada Field Office officials are responsible for overseeing contractor performance and ensuring compliance with applicable Department regulations. However, based on the issues we identified, it was evident that this was not always occurring. As described above, annual wildland fire vegetation assessment reports prepared by the contractor for CYs 2014 through 2018 repeatedly identified areas that were not in compliance with defensible space requirements in accordance with NFPA 1141, NFPA 1144, and IWUIC. According to Nevada Field Office officials, the Federal Fire Protection Engineer shadowed the contractor assessments and subsequently agreed with the contractor's conclusions. Assessment results were presented to Nevada Field Office management through Subject Matter Expert briefings which identified vegetation abatement as a significant open issue. While the briefings noted that there was an increased risk of fire at NNSS due to open issues, Nevada Field Office officials did not conduct any additional assessments to address this area. When we questioned officials about the recurring findings from a risk perspective and the need for additional

assessments, Nevada Field Office officials stated that the vegetation abatement issues were generally in remote areas of NNSS and, therefore, were not considered high risk. However, the recurring issues identified were in remote areas that contained structures such as NNSS's power distribution grid and communication sites as well as radioactive contamination. This was concerning since, according to the NNSS Fire and Rescue 2017 Baseline Needs Assessment, the potential for wildland fires exists across NNSS, including remote areas, and wildland fire risks associated with these types of structures and contaminated areas can affect onsite and offsite personnel and facilities. We understand the complexities associated with overseeing wildland fire prevention efforts at NNSS due to its size; however, not addressing the continuous open issues to ensure that the contractor is in compliance with applicable Department regulations puts NNSS at a greater risk from the impacts of wildland fire.

Subsequent to our review, the Nevada Field Office incorporated an updated version of Department Order 420.1C into the management and operating contract which will require Federal approval of the contractor's Plan. According to Nevada Field Office officials, approval of the contractor's Plan will formalize the Nevada Field Office's acceptance of a path forward for vegetation issues. While this is a positive step, the Nevada Field Office needs to continue to be vigilant in its oversight to ensure that the contractor is in compliance with applicable regulations, including Department directives, NFPA standards, and IWUIC.

### **Need for Enhancements to Wildland Fire Protection Strategies**

The NNSS has experienced a number of wildland fires which have threatened infrastructure and radiologically contaminated areas. Since 2005, there have been more than 150 wildland fires at NNSS that burned over 44,000 acres. While the threat of wildland fire cannot be completely eliminated, certain enhancements to NNSS's wildland fire protection strategies could provide increased protection for the Department's assets, as well as the health and safety of its workers and the public.

### **RECOMMENDATIONS**

To address the issues highlighted above, we recommend that the Administrator, National Nuclear Security Administration, in conjunction with the Manager, Nevada Field Office, work with the contractor to ensure the following actions are taken:

1. Conduct a complex-wide wildland fire risk assessment to ensure that risks are fully understood and analyzed;
2. Based on the risk assessment results, develop a mitigation plan in accordance with NFPA requirements;
3. Reevaluate the proposed reduction in the number of miles of roads to be maintained to ensure that emergency response implications are fully considered; and
4. Develop a formal tracking mechanism to ensure that preparedness activities, including logistics, are completed prior to the start of a wildland fire season.

We also recommend that the Manager, Nevada Field Office, take the following action:

5. Ensure that the contractor's Plan is approved and implemented in accordance with applicable Department directives, NFPA standards, and IWUIC.

### MANAGEMENT RESPONSE

Management concurred with the report's recommendations and indicated that corrective actions were planned to address the issues identified in the report. Specifically, management stated that its Plan would be revised to ensure compliance with NFPA 1143 risk assessment and mitigation plan requirements. In addition, management indicated that the 2017 road assessment would be reviewed by the NNSS fire department to validate that emergency response operations would not be impacted by the reduction in number of miles of roads maintained. Management also stated that the Plan would be updated to require fire department involvement in future road maintenance decisions. Furthermore, management indicated that an implementation schedule for preparedness activities, based on the previous year's actions and allocated budget, would be finalized prior to start of the upcoming fiscal year. This schedule would be included in the mitigation plan required by NFPA 1143 and evaluated annually. Finally, management stated that the next revision of the contractor's Plan would be formally reviewed and approved, consistent with the updated requirements of Department Order 420.1C.

Management comments are included in Attachment 3.

### AUDITOR COMMENTS

Management's proposed corrective actions were generally responsive to our recommendations. We disagree with management's assertion that the contractor has employed a risk-based approach to wildland fire protection and mitigation. While fire hazards for certain structures or areas were assessed as part of its wildland fire vegetation assessments, the contractor had not completed a formal risk assessment to evaluate the full spectrum of wildland fire risks for the entire complex or developed a formal mitigation plan. Even though vegetation assessments consistently identified potential vulnerabilities, mitigation activities were not being conducted in accordance with applicable standards and risks associated with not performing the activities, had they been fully analyzed. This was demonstrated by the lack of vegetation abatement around utility poles, a known historical ignition source, and along roadways in radiological areas, despite the potential for airborne contamination if a wildland fire were ignited. In addition, while management indicated that the report's recommendations reflect program improvements previously identified and underway, actions to address issues we identified were not acknowledged or initiated by the contractor until after our fieldwork.

Attachments

cc: Chief of Staff

## **OBJECTIVE, SCOPE, AND METHODOLOGY**

### OBJECTIVE

We conducted this audit to determine whether the Nevada Field Office and Mission Support and Testing Services, LLC (contractor) were taking necessary actions to identify possible hazards associated with and mitigate the impacts of wildland fire as required by the *Federal Wildland Fire Management Policy*, National Fire Protection Association standards, International Wildland-Urban Interface Code, and the Nevada National Security Site (NNSS) Wildland Fire Management Plan.

### SCOPE

This audit was conducted between August 2018 and October 2019 at Department of Energy Headquarters in Washington, DC; NNSS in Mercury, Nevada; and Nevada Field Office in North Las Vegas, Nevada. This audit was conducted under Office of Inspector General project number A18PT039. This report is one in a series of reports that will be issued as part of the audit effort.

### METHODOLOGY

To accomplish our audit objective, we:

- Reviewed applicable Federal and Department regulations as well as National Fire Protection Association standards pertaining to wildland fire management;
- Reviewed relevant reports issued by the Office of Inspector General, Government Accountability Office, and Office of Enterprise Assessments;
- Interviewed Federal and contractor officials responsible for wildland fire management at NNSS;
- Reviewed the NNSS Wildland Fire Management Plan as well as site-level procedures on wildland fire response and fire prevention inspections;
- Reviewed NNSS Fire and Rescue Baseline Needs Assessments conducted in calendar years 2014 and 2017;
- Reviewed Memorandums of Understanding between Nevada Field Office and the following: Nye County, Nevada; U.S. Department of Interior, Bureau of Land Management, Southern Nevada District; and U.S. Air Force, 432 Wing, Creech Air Force Base, Nevada;
- Reviewed NNSS Fire and Rescue Wildland Fire Vegetation Assessments conducted in calendar years 2014 through 2018;

- Reviewed documentation describing wildland fires that occurred at NNSS in calendar years 2017 and 2018; and
- Performed physical observations of wildland fire mitigation efforts at NNSS. While conducting physical observations, pictures were taken by contractor officials on our behalf. The pictures were reviewed by the contractor's Classification Office and determined to be unclassified and approved for public release to the Office of Inspector General.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective. Accordingly, we assessed significant internal controls and compliance with laws and regulations necessary to satisfy the audit objective. Because our review was limited, it would not necessarily have disclosed all internal control deficiencies that may have existed at the time of this audit. We did not rely on computer-processed data to satisfy our audit objective, and therefore, did not conduct a reliability assessment of computer-processed data.

Management waived the exit conference on March 13, 2020.

**PRIOR REPORT**

Audit Report on [\*The Department's Wildland Fire Planning and Preparation Efforts\*](#) (DOE/IG-0760, March 2007). The review found that Department of Energy sites within known wildfire zones had failed to perform or were not completely successful performing essential wildland fire mitigation activities involving the assessment and removal of vegetation and the maintenance of roads. The report concluded that contractor officials had not always adhered to established wildland fire planning and mitigation guidance. In particular, contractors had not used risk-based principles to prioritize mitigation efforts and had either omitted or not adequately considered a number of other items specified in Federal policy, Departmental guidance, and the Initial Joint Review when developing fire protection plans. In addition, Federal officials had not always actively monitored contractor wildland fire protection programs, coordinated protective efforts, or validated the effectiveness of contractor fire mitigation activities.

MANAGEMENT COMMENTS



Department of Energy  
Under Secretary for Nuclear Security  
Administrator, National Nuclear Security Administration  
Washington, DC 20585



March 6, 2020

MEMORANDUM FOR TERI L. DONALDSON  
INSPECTOR GENERAL

FROM: LISA E. GORDON-HAGERTY

SUBJECT: Response to the Office of Inspector General Draft Report *The Department of Energy's Wildland Fire Prevention Efforts at the Nevada National Security Site (A18PT039d)*

Thank you for the opportunity to review and comment on the subject draft report. Wildland fire protection is an important component of the overall site protection strategy at the National Nuclear Security Administration's (NNSA) Nevada National Security Site (NNSS). The NNSS Fire and Rescue program has employed a risk-based approach to wildland fire protection and mitigation. As part of that approach, the contractor assessed and mitigated wildland fire hazards around critical structures and areas considered to be of significant risk across the site. The NNSS power distribution system has also been designed with redundancy to alleviate risk to critical facilities during outages. In the event that a significant wildland fire occurs, emergency personnel are well-trained and well-equipped to safely and effectively manage the response. Formal agreements are in place to obtain off-site support from local emergency response organizations, other government agencies, and NNSA emergency response assets, as necessary, to augment NNSS capabilities. Through these mechanisms, the NNSS Fire and Rescue program has demonstrated its ability to mitigate fire hazards in a manner that protects the public, NNSS workers, and NNSS mission critical infrastructure.

We appreciate and take seriously the OIG's findings and recommendations. While these issues present opportunities for improvement, we believe that the Federal oversight of the contractor's wildland fire prevention and mitigation efforts is strong and commensurate with the risks presented by wildland fire. The report's recommendations reflect program improvements previously identified by the contractor and NNSA and include efforts that are already underway. The attached management decision provides our formal response to the recommendations. Subject matter experts have also provided technical comments for your consideration under separate cover to enhance the accuracy and completeness of information presented in the report. If you have any questions regarding this response, please contact Mr. Dean Childs, Director, Audits and Internal Affairs, at (301) 903-1341.

Attachment





Attachment

**NATIONAL NUCLEAR SECURITY ADMINISTRATION**  
**Management Decision**

*The Department of Energy's Wildland Fire Prevention Efforts  
at the Nevada National Security Site (A18PT039d)*

The Office of Inspector General (OIG) recommended that the Administrator of the National Nuclear Security Administration (NNSA), in conjunction with the Manager, Nevada Field Office (NFO), work with the contractor to ensure the following actions are taken:

**Recommendation 1:** Conduct a complex-wide wildland fire risk assessment to ensure that risks are fully understood and analyzed;

*Management Response:* Concur. As previously noted, the site employs a risk-based approach to wildland fire protection and mitigation. To more formally structure and document this, the following will be added to section 4.4 of PLN-1005; Nevada National Security Site (NNS) Wildland Fire Management Plan:

“The NNS Wildland Fire Risk Assessment will be conducted annually. The vegetation part of the risk assessment is a three-tiered approach that identifies the same criteria at different times of the year. Tier one is evaluated in late fall/early winter, tier two is winter/early spring, and tier three is spring/early summer. The tiered approach takes into consideration access due to weather; sustainability of structures; hazards associated with particular facilities; remoteness of populated and unpopulated areas; values at risk; ignition risks; and potential vulnerabilities to NNS personnel, property, equipment, and the environment. Following the assessment, fire hazard ratings (i.e., low, moderate, high and extreme) are assigned to buildings, structures, and equipment located at NNS. The NNS Wildland Fire Management Plan identifies fire prevention programmatic measures considered necessary to comply with established wildland fire safety objectives and shall be in accordance with DOE-STD-1066, “Fire Protection” and National Fire Protection Association (NFPA) 1143.”

*Estimated Completion Date:* December 31, 2020

**Recommendation 2:** Based on the risk assessment results, develop a mitigation plan in accordance with NFPA requirements.

*Management Response:* Concur. The NNS Wildland Fire Management Plan (MSTS-PLN-1005 sections 5-8) currently contains components of a mitigation plan such as responsible party and activities to be performed. To further enhance these efforts, the NNS Wildland Fire Management Plan will be updated to capture all requirements in National Fire Protection Association (NFPA) 1143 Chapter 4, section 4.5 to include fuels treatment, public education, and special considerations.

*Estimated Completion Date:* December 31, 2020

Attachment

**Recommendation 3:** Reevaluate the proposed reduction in the number of miles of roads to be maintained to ensure that emergency response implications are fully considered.

*Management Response:* Concur. NNS Fire and Rescue will review the 2017 road assessment to validate that emergency response operations will not be impacted by the reduction. The NNS Wildland Fire Management Plan will also be updated to require NNS Fire and Rescue be involved in future road maintenance decisions.

*Estimated Completion Date:* December 31, 2020

**Recommendation 4:** Develop a formal tracking mechanism to ensure that preparedness activities, including logistics, are completed prior to the start of a wildland fire season.

*Management Response:* Concur. An implementation schedule based on previous year's actions and allocated budget will be finalized prior to start of the upcoming fiscal year. This schedule will be included in the mitigation plan required by NFPA 1143 and shall be evaluated annually.

*Estimated Completion Date:* December 31, 2020

The OIG also recommended that the Manager, Nevada Field Office:

**Recommendation 5:** Ensure that the contractor's Plan is approved and implemented in accordance with applicable Department directives, NFPA standards, and International Wildland-Urban Interface Code.

*Management Response:* Concur. NNSA and the NFO have implemented a systematic and effective approach to federal oversight, including leveraging output from the Contractor Assurance System to monitor and evaluate contractor performance against mission, contract, and Departmental requirements. While the NFO has maintained strong operational awareness of the contractor's wildland fire mitigation and prevention efforts on an ongoing basis, the next revision of the contractor's NNS Wildland Fire Management Plan will be formally reviewed and approved consistent with the updated requirements of the DOE directive for facility safety (DOE Order 420.1C).

*Estimated Completion Date:* December 31, 2020

## **FEEDBACK**

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