



# **Lessons Learned from the U.S. Department of Energy's Response to the Early Stages of the COVID-19 Pandemic**

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Office of Enterprise Assessments  
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## Acronyms

ANL	Argonne National Laboratory
APL	Acceptable Personnel Limit
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
BNL	Brookhaven National Laboratory
BP	Best Practice
C3 Report	<i>EA Lessons Learned: Command, Control, and Communication During the COVID-19 Pandemic Response</i> , December 2020
CARES	Coronavirus Aid, Relief, and Economic Security
CDC	Centers for Disease Control and Prevention
CLRT	COVID-19 Lessons Review Team
CNS	Consolidated Nuclear Security, LLC
COOP	Continuity of Operations
COVID-19	Coronavirus Disease 2019
Department	U.S. Department of Energy
DOE	U.S. Department of Energy
DOE-IN	Office of Intelligence and Counterintelligence
DOECAST	DOE-wide Broadcast Communication
EA	Office of Enterprise Assessments
EFCOG	Energy Facility Contractors Group
ELL	Enterprise Lesson Learned
EM	Office of Environmental Management
ERO	Emergency Response Organization
ESA	Essential Supporting Activity
FAQ	Frequently Asked Questions
FEMA	Federal Emergency Management Agency
HC-1	Chief Human Capital Officer
HSPD-12	Homeland Security Presidential Directive-12
ISM	Integrated Safety Management
IT	Information Technology
JSA	Job Safety Analysis
LANL	Los Alamos National Laboratory
LM	Office of Legacy Management
MEF	Mission Essential Function
NA-1	NNSA Administrator
NLDC	National Laboratory Directors' Council
NNSA	National Nuclear Security Administration
OAM	Office of Acquisition Management
OCIO	Office of the Chief Information Officer
ORNL	Oak Ridge National Laboratory
PCR	Polymerase Chain Reaction
PMA	Power Marketing Administration
PMEF	Primary Mission Essential Function
PNNL	Pacific Northwest National Laboratory
POC	Point of Contact
PPE	Personal Protective Equipment
PPPO	Portsmouth/Paducah Project Office
PRP	DOE Headquarters Pandemic Response Plan
R	Recommendation

RWTK	Remote Worker Tool Kit
SC	Office of Science
SCSC	Science Consolidated Service Center
SLAC	SLAC National Accelerator Laboratory
SLL	Specific Lesson Learned
SNL	Sandia National Laboratories
WAPA	Western Area Power Administration

# Lessons Learned from the U.S. Department of Energy’s Response to the Early Stages of the COVID-19 Pandemic

## Summary

### Scope

The Secretary of Energy, in a July 1, 2020, memorandum, directed the Office of Enterprise Assessments (EA) to conduct a lessons-learned review of the U.S. Department of Energy (DOE) enterprise’s response to the coronavirus disease 2019 (COVID-19) pandemic. EA worked collaboratively with the DOE enterprise lessons-learned contributors, including the National Nuclear Security Administration (NNSA) and DOE program, staff, and field elements; the national laboratories and technology centers; site operating and production contractors and support service contractors; and the Power Marketing Administrations. Through this collaboration, EA collected, analyzed, and compiled contributors’ experiences with DOE’s response to the pandemic. Also, EA maintained ongoing communication and exchanged information with the Energy Facility Contractors Group (EFCOG) Board of Directors throughout this review.

This review, conducted from July to September 2020, focused on actions taken to maintain effective command and control, continue essential work performance in a safe and secure manner, achieve maximum telework, and effectively communicate in response to COVID-19 related government direction and guidance. The EA COVID-19 Lessons Review Team (CLRT) did not conduct an assessment or validate perceptions and assertions provided by contributors. Rather, the CLRT sought to faithfully represent the consolidated input and resulting themes in the lessons learned and recommendations contained in this report; when such terms as “inadequate,” “insufficient,” or “needed” are used, they were terms used by contributors. A separate command and control review team focused on the effectiveness of DOE Headquarters command, control, and communication and supporting emergency response structures used during the response; a separate report addresses these results (*Lessons Learned: Command, Control, and Communication During the COVID-19 Pandemic Response*, December 2020 – hereafter referred to as the “[C3 report](#)”).

The subsequent recovery operations consistent with Phase 3 of the *DOE COVID-19 Return to the Federal Workplace Framework*, May 18, 2020, were not a part of the review scope. Also, the lessons learned from the scientific contributions of the DOE laboratories in understanding COVID-19 and previously published lessons learned from the DOE enterprise, such as those from OPEXShare and EFCOG, are not addressed in this report. This report focuses on lessons learned while protecting DOE and contractor personnel and sustaining mission performance during the COVID-19 pandemic. The review identified best practices and recommendations, with the goal of promoting organizational learning and resilience to future crises that could impact the DOE enterprise.

### Significant Results for Key Areas of Interest

As communicated by contributors, the Department quickly learned effective ways to compensate for inadequate pandemic planning, protect workers, and maintain effective communications among the workforce. Though facing some significant challenges, contributors were in general agreement that the Department continued to successfully perform “vital work” (i.e., the National Continuity Policy’s Primary Mission Essential Functions, Mission Essential Functions, Essential Supporting Activities, and other work needed by organizations) while protecting its employees.

The CLRT identified specific lessons learned (SLLs), derived from written and oral input from across the DOE enterprise, and enterprise lessons learned (ELLs), derived from the rollup of information from

across the DOE enterprise. The 10 ELLs focus on four major areas: crisis planning and preparedness, working during a crisis, employee communications and support, and apparent increased efficiencies (anecdotal reports of work adaptations that could yield long-term improvements in efficiency, cost reduction, and job satisfaction).

### Crisis Planning and Preparedness

Some existing response planning was initially helpful, particularly where organizations used an emergency response organization framework, but was insufficient for sustaining a response of the magnitude, duration, and uncertainty posed by COVID-19. Contributors suggested crisis planning and preparedness improvements to enhance the Department's future crisis response abilities. The CLRT derived lessons learned that include numerous opportunities for DOE leadership to improve crisis planning, such as:

- Completing forward-leaning analyses for high consequence crisis scenarios
- Establishing mechanisms for quickly granting contract and regulatory relief during a crisis
- Using unified command structures and multidiscipline teams
- Maintaining sufficient crisis-related resources, such as personal protective equipment (PPE)
- Coordinated data requests
- Adequacy of information technology (IT) hardware, software, and telework requirements
- Communicating consistent information and direction with attention to employees' emotional concerns
- Management communication of complete, authoritative information to the workforce.

### Working During a Crisis

As the pandemic developed, many organizations continued to complete vital onsite work, while other workers transitioned to telework. Organizations identified COVID-19 hazards and implemented associated controls based on national and local guidance and site requirements. Some contributors reported the importance of onsite COVID-19 testing to manage potential COVID-19 outbreaks. Other positive practices included obtaining adequate supplies of PPE, improving building ventilation, using performance-based safety observation insights, and controlling site access.

However, the Department's expansion of telework, authorized in a March 16, 2020, DOE-wide Broadcast Communication (DOECAST), presented challenges for organizations to continue performing their vital work. As a result of expanded telework and limited access to worksites for many employees, certain time-sensitive requirements of DOE orders and regulations could not be met. The DOE Office of Environment, Health, Safety and Security quickly completed the necessary draft regulatory relief documents, but the established DOE review and approval processes delayed final promulgation of two regulatory relief memos until April 17 and 22, 2020. Some contributors commented that this delay, accompanied by what some organizations perceived as a lack of clarity or a failure to address certain important requirements, added to the difficulty of responding to the pandemic. Additionally, for a time, PPE stocks were depleted without timely vendor replenishment. Managers also indicated that initial DOE Headquarters demands for COVID-19 data and responses from sites were inconsistent and uncoordinated, and did not always facilitate senior manager decision-making regarding onsite work. Further, organizations sometimes communicated different data to the media and to employees.

Teleworking became the new normal for many employees. Innovative approaches, such as the Argonne National Laboratory (ANL) work sharing program and the SLAC National Accelerator Laboratory (SLAC) Remote Worker Tool Kit, and positive practices, such as remote training programs, virtual onboarding processes, and electronic document management, contributed to the development of a productive and engaged "telework-ready" workforce. However, some Federal, laboratory, and contractor

contributors indicated difficulties in implementing telework policy, shortcomings in IT infrastructure, and cyber security concerns while transitioning to maximum telework in the COVID-19 environment.

#### Employee Communications and Support

DOE enterprise organizations provided timely communication with employees about the evolving challenges from the pandemic on such topics as health and safety for working on site and at home, and continuation of pay and benefits. Multiple communication channels were used, including COVID-19 information portals, emails, videos, channels such as YouTube, social media, webcasts, virtual meetings, and direct phone communication with supervisors and work groups. Leaders recognized their crucial role in attending to employees' wellness, and innovated a number of pandemic-specific services, such as onsite COVID-19 testing, telemedicine services, and work flexibilities, in consideration of telework personnel's needs to cope with special circumstances of family health or home schooling for children. Primary challenges included communicating consistent, clear directions and precautions in an environment of differing and changing recommendations from governmental officials. Also, management needed to craft multiple types of communication due to the altered work practices resulting from telework and safe performance of onsite work.

#### Apparent Increased Efficiencies

Several contributors commented on increased efficiencies observed in the many new ways of conducting DOE business:

- Increased availability of non-traveling DOE personnel to expedite document approvals
- Fewer distractions, flexibility in work hours, less time away from work to address home maintenance and family appointments, and decrease in transit time between meetings and home/work due to teleworking
- Greater use of virtual conferencing, reducing travel costs and increasing manager and staff participation
- Use of technology (e.g., tablets) to conduct remote assessments or inspections
- A more streamlined process for onboarding new hires through extensive use of virtual meetings and use of digital signatures, resulting in increased numbers of new hires
- Use of small DOE Headquarters senior management teams to expedite time-sensitive decisions to address pandemic response issues
- Revised process to rapidly produce and issue DOECASTs necessary to communicate with employees.

Some DOE senior managers stated that their organizations would perform follow-up studies to determine whether incorporating these new practices into normal operations would result in similar increases in efficiency and reduced costs. For example, Sandia National Laboratories and Los Alamos National Laboratory have commenced an organizational initiative to systematically evaluate COVID-19 lessons learned for actions to improve the long-term telework efficiencies and resiliency of their organizations. Moreover, all organizations should evaluate these new ways of conducting DOE business before permanent implementation.

#### **Best Practices**

The review identified seven best practices (BPs) implemented by DOE Headquarters staff offices, DOE program offices, field elements, and contractors. These are summarized below and more fully described in Section 2 of the report.

BP 1, *Leveraging of Knowledge Networks*. EFCOG and the National Laboratory Directors' Council executive members used their knowledge-sharing networks as resources to respond to the COVID-19 pandemic, recognizing that the pandemic was beyond the bounds of existing crisis response plans.

BP 2, *Onsite COVID-19 Testing*. Oak Ridge National Laboratory, Pacific Northwest National Laboratory, Sandia National Laboratories, and Los Alamos National Laboratory performed onsite polymerase chain reaction testing to manage potential COVID-19 outbreaks by quickly testing workers, conducting contact tracing, isolating potentially infected workers, and cleaning their work areas to contain the exposure event.

BP 3, *Work Sharing Program*. ANL was challenged to provide meaningful work to those whose work did not lend itself to telework. To address this issue, ANL developed the work sharing program, which created a mechanism for sharing work across the laboratory during the extended teleworking period.

BP 4, *Comprehensive IT Remote Worker Tool Kit*. SLAC started developing the IT Remote Worker Tool Kit about three years ago to assist with virtual private network and Citrix use and has continued to add capability. The COVID-19 push to telework created additional impetus to further refine the tool kit to pull together information for establishing telework capability and accessing collaborative software in one location.

BP 5, *COVID-19 Hotlines*. COVID-19 hotlines established by Headquarters and several field organizations connected employees with subject matter experts who routed them to available resources. These hotlines provided information to employees at the time of need so employees did not have to await periodic scheduled information updates, and also facilitated contact tracing for potentially exposed employees.

BP 6, *Employee Problem Solving Teams to Overcome Return-to-Work Challenges*. The DOE Office of Hearings and Appeals formed employee problem-solving groups to derive innovative solutions to some stressful challenges regarding telework, transportation, and transitioning back to life in the office.

BP 7, *Virtual Delivery of Wellness, Health and Ergonomic Services*. ANL and Lawrence Livermore National Laboratory implemented innovative approaches to delivering virtual services in the areas of wellness, health, and ergonomics to employees working from home for prolonged periods of time.

## **Recommendations**

The review identified five recommendations for NNSA, DOE Headquarters program and staff offices, and field elements. These recommendations are intended to provide insights for potential improvements within the Department. The ELLs and SLLs are cross-walked in the Appendix C table of this report and provide amplifying information that will inform the reader on the background of these recommendations.

1. The DOE Headquarters and field organizations should enhance and integrate crisis response plans (emergency, pandemic, and continuity-of-operations), including the following elements:
  - Ongoing analysis of future potential high consequence crises that could have a pervasive impact on the Department.
  - Unified command structure for promoting consistent communications and information sharing across the site. This element is especially important for sites that receive funding and direction from multiple program offices or have multiple major contractors. Similarly, Headquarters should be required to adopt a unified command approach for coordinating among Headquarters elements during a national crisis response.



- Multidiscipline teams at appropriate organizational levels with sufficient authority to rapidly make decisions, interact with DOE Headquarters, and react to unforeseen circumstances. The crisis response may require participation from leaders and other individuals/specialists not originally assigned to response teams.
- Crisis-related resources, such as PPE and cleaning supplies, are efficiently procured, stockpiled, and maintained in sufficient amounts, and distributed in a timely manner.
- Coordinated data requests (format, clear definitions of needed data, and frequency) to solicit information from DOE field elements that senior leadership can use for consistent communication and decision-making.
- Adequate IT hardware and software for virtual work performance and alignment with telework requirements among applicable DOE directives.
- Management communication of complete, authoritative information to the workforce during rapidly evolving situations, with attention to employees' emotional concerns in uncertain environments.

This recommendation complements the first recommendation identified in the [C3 report](#).

2. The DOE Office of Management and Office of the General Counsel should, in coordination with the DOE enterprise: (1) identify the provisions of DOE requirements that most significantly impacted operations under crisis conditions but for which a compliance relief mechanism is not readily available, and (2) formulate DOE requirements and standard contract language (relief mechanisms and authority levels) to provide expedited relief in crisis circumstances. Issues to be addressed should include, but are not limited to:
  - Ensuring that the DOE regulations and orders identified in action (1) of this recommendation allow specific relief from requirements under crisis conditions.
  - Allowing reimbursement of contractors during a crisis response, similar in concept to the Coronavirus Aid, Relief, and Economic Security (CARES) Act, Section 3610, *Federal Contractor Authority*, and the associated DOE guidance on the implementation of that section.
  - Addressing contractor telework during a crisis, including standard contract clauses and suggested language for bargaining unit and collective bargaining agreements.
3. The DOE Office of the Chief Human Capital Officer, in coordination with the DOE Office of the Chief Information Officer, should revise DOE Order 314.1, *DOE-Flex: DOE's Telework Program*, to promote a safe, secure, and productive home telework environment. Elements to consider include:
  - Expanding DOE telework policy for IT infrastructure (e.g., computer hardware and software, ergonomic equipment, and user support), home office ergonomic evaluations, and personnel considerations, such as job sharing, telemedicine, wellness, and mental health support.
  - Requiring periodic telework readiness exercises to determine capabilities, preparedness, and proficiency.

4. The Office of the Chief Information Officer should preserve the numerous COVID-19 related Department communications, such as DOECASTs, memoranda of direction, answers to frequently asked questions, and this COVID-19 Lessons Learned report, for future access and use on the public [DOE COVID-19 Hub](#) and/or an internal DOE Powerpedia page.
5. DOE Headquarters and field element managers should validate and, where warranted, adopt the practices that increased the efficiency and effectiveness of operations during the COVID-19 pandemic response, such as:
  - Increased telework
  - Reduced travel
  - Virtual conferencing
  - Remote assessments or inspections
  - Electronic document processing, including increased use of electronic signatures
  - Virtual training mechanisms
  - Virtual interviews for onboarding new hires
  - Other new work performance methodologies.

# Lessons Learned from the U.S. Department of Energy's Response to the Early Stages of the COVID-19 Pandemic

## 1.0 INTRODUCTION

The Secretary of Energy, in a July 1, 2020, memorandum, directed the Office of Enterprise Assessments (EA) to conduct a lessons-learned review of the U.S. Department of Energy (DOE) enterprise's response to the early stages of the coronavirus disease 2019 (COVID-19) pandemic. EA worked collaboratively with the DOE enterprise lessons-learned contributors, including the National Nuclear Security Administration (NNSA) and DOE program, staff, and field elements; the national laboratories and technology centers; site operating and production contractors and support service contractors; and the Power Marketing Administrations (PMAs). Through this collaboration, EA collected, analyzed, and compiled contributors' experiences with the pandemic, identifying what worked well and what did not. The results were organized to provide a basis for future learning, preparedness improvement, and responding to future similar challenges. Also, EA maintained ongoing communication and exchanged information with the Energy Facility Contractors Group (EFCOG) Board of Directors throughout this review.

The subsequent recovery operations consistent with Phase 3 of the *DOE COVID-19 Return to the Federal Workplace Framework*, May 18, 2020, were not a part of the review scope. Also, the lessons learned from the scientific contributions of the DOE laboratories in understanding COVID-19 and previously published lessons learned from the DOE enterprise, such as those from OPEXShare and EFCOG, are not addressed in this report. The EA COVID-19 Lessons Review Team (CLRT) did not conduct an assessment or validate perceptions and assertions provided by contributors. Rather, the CLRT sought to faithfully represent the consolidated input and resulting themes in the lessons learned and recommendations contained in this report; when such terms as "inadequate," "insufficient," or "needed" are used, they were terms used by contributors.

This report is applicable across the DOE enterprise and is intended to help DOE Headquarters and field, laboratory, and contractor managers plan for and respond to similar future events. The EA command and control sub-team, one of six EA sub-teams involved with this review, reported major lessons learned in a separate report to the Secretary, focusing on the effectiveness of DOE Headquarters command, control, and communication and supporting emergency response structures during the response (*Lessons Learned: Command, Control, and Communication During the COVID-19 Pandemic Response*, December 2020 – hereafter referred to as the "[C3 report](#)").

DOE has learned and continues to learn many lessons from its response to the outbreak of COVID-19, which significantly affected normal DOE operations. After the Office of Management and Budget's memorandum of March 12, 2020, *Updated Guidance on Telework Flexibilities in Response to Coronavirus*, DOE authorized maximum telework flexibilities for Federal employees across the DOE enterprise. DOE enterprise organizations continued mission performance by developing and implementing COVID-19 response plans and actions, including teleworking, tailored to their respective mission portfolios and in consideration of protective measures enacted or recommended by local governments with jurisdictions that include DOE facilities.

DOE was able to sustain most mission activities in this environment, although some important missions were postponed or delayed. The maximum telework environment resulted in more than 90% of DOE managers and employees working from remote locations; the other employees fulfilled minimum safe staffing levels to protect critical assets and perform vital work. Vital work in this report is defined as:

- (1) The National Continuity Policy's Primary Mission Essential Functions (PMEFs): Assure nuclear materials safety, respond to nuclear incidents, and manage energy infrastructure.
- (2) Mission Essential Functions (MEFs): The limited set of Department and agency-level government functions that must be continued after a disruption of normal activities.
- (3) Essential Supporting Activities (ESAs): Functions that the program secretarial offices and field elements must continue in continuity activation, but that are not recognized as PMEFs or MEFs.
- (4) Other important work not identified as PMEFs, MEFs, or ESAs.

The management personnel responsible for this report, the Quality Review Board membership, and the members of the review team are listed in Appendix A.

The methodology for this review included data collection from July through September 2020 in accordance with the *Plan for the U.S. Department of Energy Enterprise-wide COVID-19 Pandemic Lessons Learned Review*. Appendix B further describes this methodology. The CLRT developed lines of inquiry broadly addressing three questions:

- What's going well, and what effective and innovative solutions were implemented to respond to the developing situation?
- What's not going well, and what adaptive measures were taken when leadership recognized that the initial response was not fully effective or that gaps existed in DOE policies and procedures?
- What needs to be done to promote organizational resilience and prepare for future operational disruptions precipitated by external factors?

These questions were supplemented by additional questions related to six topical areas (i.e., plans and preparedness, essential services, work from home, employee communications and support, prepare for returning to work, and command and control of response actions) designed to elicit perspectives from the DOE enterprise through organizational points of contact.

The CLRT developed an internal team protocol to promote consistency in data reduction and analysis. The analysis of written inputs from points of contact and interview notes (collectively referred to as feedback) led to the initial formation of candidate lessons learned, best practices, and recommendations. This report discusses the results of the review and identifies positive practices that contributors noted as being helpful; challenges; final specific lessons learned (SLLs) that may be useful to targeted audiences; enterprise lessons learned (ELLS) that are broadly applicable throughout the Department; best practices; and recommendations.

## **2.0 RESULTS**

The body of data and insights shared by contributors during this review demonstrates that the Department is engaged in ongoing collective learning of historic proportions and significance. Challenges and solutions are shared in real time, experiences are captured at the local levels, and in some cases, experience is shared through global interactions.

As shown in Figure 1, the CLRT analyzed approximately 3,000 inputs from the collective enterprise feedback, as well as 122 interviews. This initial data set was iteratively analyzed to produce a set of SLLs and ELLs.

The SLLs, summarized in Appendix C, highlight the types of flexible organizational structures appropriate for managing crises and provide examples of challenges faced, solutions developed, and improvements needed to enhance resilience for responding to future crises. SLLs are discussed in more detail in Appendix D.

ELLs focus on four major areas:

- Crisis Planning and Preparedness (including implementation)
- Working During a Crisis (including telework and vital work at onsite locations)
- Employee Communications and Support (including consistent information and employee wellness)
- Apparent Increased Efficiencies (innovations or adaptations of work practices that should be considered for incorporation into



Figure 1. COVID-19 Lessons-Learned Review Results

standard practices due to apparent increases in efficiencies, potentially reduced costs, and often enhanced employee work experience – the holistic qualities of job satisfaction).

Appendix C also depicts the connection between SLLs (which provide greater detail) and ELLs (#1-10). Ten ELLs and seven best practices (BPs) are addressed in this report. From these ten ELLs, five recommendations (Rs) were identified for senior line management consideration as opportunities to improve the effectiveness of crisis management across the DOE enterprise.

A summary is illustrated on the next page in Figure 2.

## 2.1. Crisis Planning and Preparedness

The primary requirements for Federal and contractor pandemic planning are defined in DOE Order 150.1A, *Continuity Programs*, and DOE Order 151.1D, *Comprehensive Emergency Management System*. Many organizations have developed the requisite continuity-of-operations (COOP) planning for pandemic events for up to 60 days (refer to DOE Order 150.1A, Ch. I, 2.f.(3) and 4.d.(4)(b)); few envisioned the impacts and duration experienced during the COVID-19 pandemic.

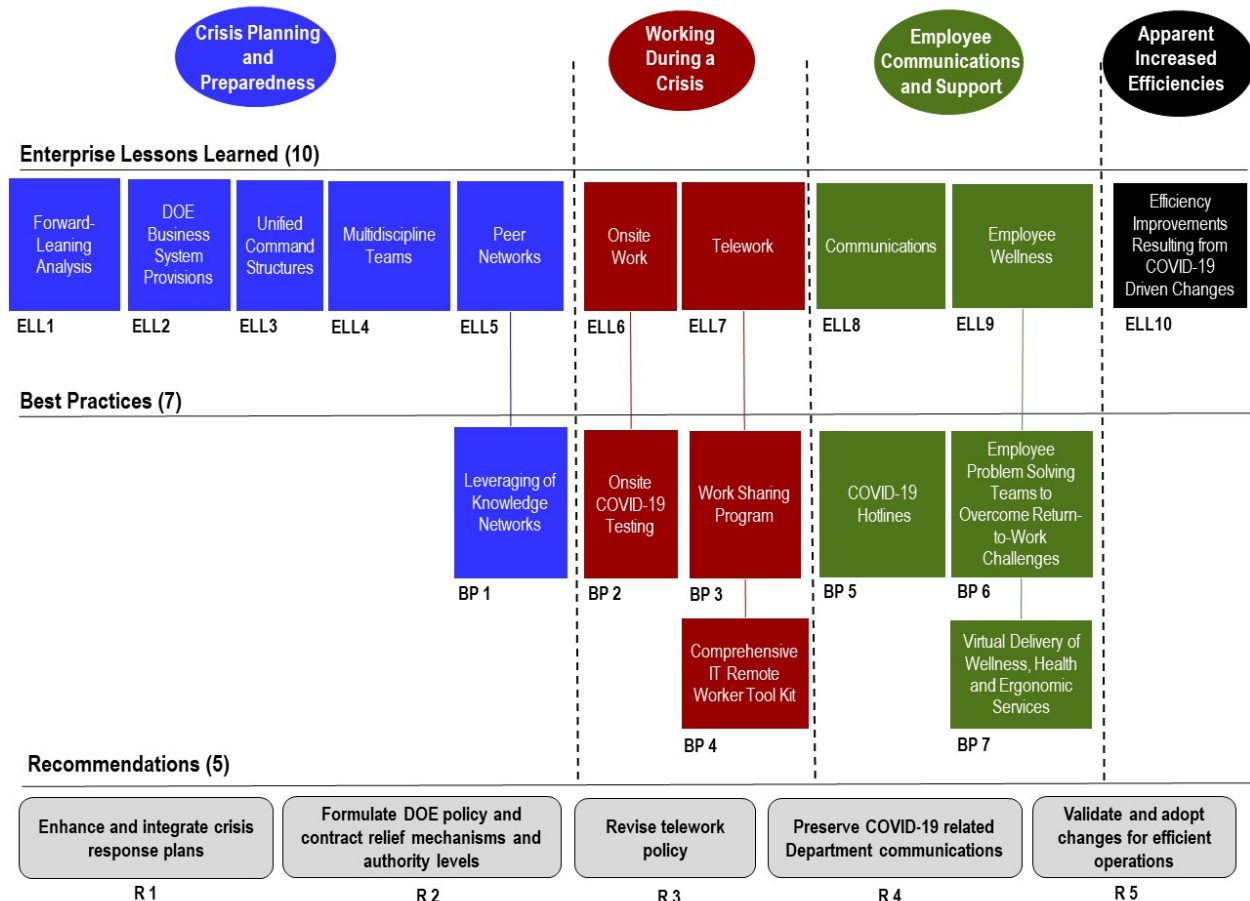


Figure 2. Results of EA COVID-19 Lessons-Learned Review

DOE Headquarters had been working on and was able to complete the *DOE Headquarters Pandemic Response Plan*, March 2020 (PRP) addressing a hypothetical pandemic with significant, sustained absenteeism lasting for months and touching on telework, tele-readiness, and capabilities relating to information technology (IT). When the COVID-19 pandemic arrived, DOE enterprise COOP planning provided some initial support for response activation, particularly where organizations used an emergency response organization (ERO) framework. However, it soon became apparent that adaptation and innovation were necessary to manage the unprecedented challenges of COVID-19. DOE’s historical focus on disciplined planning and execution, woven into the organizational framework, provided a solid foundation for an effective, focused, and interactive team-based ability to pivot from normal operations and respond to those challenges.

The five ELLs for Crisis Planning and Preparedness, illustrated in Figure 2, are addressed below.

### 2.1.1. ELL 1: Forward-Leaning Analysis

#### Lesson-Learned Statement

Forward-leaning analytical approaches employed in intelligence, military, and other government agencies are needed to better prepare DOE to confront crises with broad potential impact, such as the COVID-19 pandemic.

## Analysis

Contributors from across the DOE enterprise generally agreed that existing DOE crisis management plans did not address the complexities and challenges of responding to the COVID-19 pandemic. Several contributors specified that DOE needs to take a future-oriented, forward-leaning approach to anticipating, preparing for, and managing the unexpected. Additionally, contributors' comments frequently referenced the unprecedented nature of the pandemic. Comments such as "we could have never imagined," "who would have thought," "uncertainty across the country," and "we've never experienced" expressed that the COVID-19 pandemic was beyond the types of challenges envisioned by DOE's crisis response planning. Reflecting on the future, some managers mentioned in interviews that high consequence crises are likely to occur more often. Overall, the responses suggested that DOE needs to revise crisis response planning processes to account for identified trends in incident frequency, severity, and/or duration.

## Positive Practices

Since the terrorist attacks in September 2001, several government agencies have shifted their emphasis in analysis for crisis planning from specific probable scenarios to low probability scenarios that, if they occurred, would have broad and often devastating implications transcending historical precedents. The advanced analytical approaches used for high consequence crises are often collectively referred to as "strategic foresight." Sandia National Laboratories (SNL) is applying strategic foresight for the nation's intelligence and defense communities, with the goal of better anticipating future threats. Nineteen Federal agencies currently share lessons learned in advanced analytical techniques through participation in the Federal Foresight Community of Practice. Importantly, the contributions to this lessons-learned review demonstrate an awareness and desire to develop enhanced forward-leaning analytical competencies that would improve DOE's resilience and ability to respond to future crises. For example, input from NNSA about the desirability of implementing an Enterprise Threat and Hazard Risk Profile appears to be a strategic recognition consistent with perspectives of field contributors.

## Challenges

As the DOE enterprise response to the COVID-19 pandemic illustrates, some types of crises exceed the capabilities of existing response planning, presenting unique high consequences for which standard operating procedures are of limited use. Contributors frequently cited various challenges that warrant better anticipation and planning, including the unexpected emergence of the pandemic, the uncertainty about disease progression and protective measures, and the lack of useful response plans (i.e., emergency, pandemic, and COOP).

The June 2020 Office of Management and Budget Circular No. A-11, *Preparation, Submission, and Execution of the Budget*, characterizes strategic foresight as a best practice and describes its methods as including "environmental scanning, trend analysis, and scenario-based planning, and other methods to engage individuals in thinking about the long-range future." The circular states that "Strategic foresight is a method for systematically considering a longer time horizon and broader scope of issues than other forms of planning." (See **Recommendation 1**.)

### 2.1.2. ELL 2: DOE Business System Provisions

#### Lesson-Learned Statement

In many cases, the lack of specific authorities to provide expedited relief from time-sensitive requirements in DOE policies and standard contract language diminished the Department's ability to respond rapidly to the COVID-19 pandemic.

## Analysis

The rapidly changing response to COVID-19 required adaptable business systems to protect employees while ensuring mission accomplishment. DOE Headquarters took numerous innovative actions in the areas of human resources, finance, budgeting, and contracts to provide Federal and contractor relief from some DOE requirements so they could better meet the challenges of COVID-19.

However, some of these business system actions were possible only because Congress and the Office of Management and Budget made provisions for temporary relief. Analysis of the most impactful of these temporary business system practices by DOE Headquarters and field elements could identify specific changes in DOE requirements that would enhance DOE's crisis response capabilities, while also preserving the Department's ability to maintain appropriate internal controls and other important protections during normal or curtailed operations.

## Positive Practices

To successfully meet the challenges of COVID-19, DOE implemented positive practices that supported employee well-being and allowed vital work to continue in a uniquely challenging environment. For example:

- At the beginning of the COVID-19 pandemic response, certain NNSA contracts precluded teleworking. NNSA quickly modified these contracts to allow teleworking and ensure that contractor staff could continue to support NNSA mission-critical projects during maximum telework.
- Before the Coronavirus Aid, Relief, and Economic Security (CARES) Act (Public Law No. 116-136) passed, the DOE Office of Acquisition Management (OAM) developed an innovative approach to continue paying DOE contractor employees by providing for flexible use of leave allowances (e.g., for weather and safety). This approach ensured that employees would be paid for remaining in a ready state during the COVID-19 work restrictions.
- OAM quickly prepared and submitted a legislative proposal to allow the Department to continue to pay contractor employees who could no longer work in their designated work locations. This legislative proposal became the model for the subsequent legislation that applied to all agencies (CARES Act of 2020).
- OAM issued guidance to the DOE procurement community on a range of issues, including revising travel policies, maximizing contractor telework, and increasing the micro-purchase threshold and simplified acquisition threshold.
- Some contractors could not meet safety and security requirements (e.g., periodic testing and certification) during the Department's restricted operations. Therefore, the Secretary promulgated an April 22, 2020, memorandum, *Temporary Suspension and Exercise of Enforcement Discretion for Certain Safety Requirements and Requirements During Pendency of the COVID-19 Crisis*. However, some contributors did not consider this memorandum timely (as discussed in Section 2.2.1 under Challenges).
- On March 18, 2020, DOE Headquarters issued a DOE-wide Broadcast Communication (DOECAST) that allowed a variable work schedule of 80 hours per pay period for all Federal



employees, enabling personnel to shift their hours throughout the day and week to balance mission and personal responsibilities.

- In an April 2020 DOECAST, *A Message from the Secretary – Excused Absence for Caregiving for Teleworking Employees*, the Secretary allowed Federal employees an excused time of 20 hours per pay period, giving them time to support their families during full-time telework through September 2020. This provision was extended to December 19, 2020, in a subsequent DOECAST.
- Sites and laboratories resolved the expiration of Homeland Security Presidential Directive-12 (HSPD-12) badges and the associated certificates, thereby providing continuing access to DOE IT systems and facilities during the maximum telework period.

## Challenges

Despite these proactive business system modifications, some contributors reported that efforts to navigate the multiple contract types and provisions related to contractor employee pay, leave and benefits, and telework agreements were cumbersome and sometimes confusing. A common theme was that although interactions between contract officials (Federal and contractor) were constructive and collaborative, there was little precedent to guide the adaptations needed to meet the mutual goals of caring for the welfare of employees and their families. Similarly, contributors saw the CARES Act as quite helpful, but several Federal contract officials reported weeks of confusion among Federal contracting offices at different sites about how to interpret it. While NNSA provided earlier guidance to its contractors to address the ambiguity in the statute’s language, OAM did not provide prompt CARES Act interpretation and field guidance to non-NNSA organizations. Ultimately, the non-NNSA organizations aligned with the NNSA guidance. To enhance the Department’s response to future crises, some contractor executives suggested that DOE establish crisis response charge codes, accompanied by clear guidance, to allow contractors to differentiate crisis response costs from mission performance costs.

Federal and contractor contract officials at some sites reported reluctance to make contract cost relief changes without the approval of DOE Headquarters contracting officials, because all such actions would be subject to future contract audits that could leave companies liable for unallowable costs. The Office of Management and Budget memorandum of March 20, 2020, *Managing Federal Contract Performance Issues Associated with the Novel Coronavirus (COVID-19)*, encouraged Federal agencies to be flexible in providing extensions to Federal contractor performance dates during the COVID-19 response, but did not fully address this issue. (See **Recommendation 2**.)

### 2.1.3. ELL 3: Unified Command Structures

#### Lesson-Learned Statement

DOE Headquarters and field organizations (Federal, laboratory, and contractor) implemented unified command approaches with senior management representation that were instrumental in solving common problems, coordinating communications, addressing conflicts between differing plans, and instituting controls. This coordination was especially important for locations with two or more co-located DOE program offices, such as NNSA, the Office of Environmental Management (EM), the Office of Science (SC), and/or the Office of Nuclear Energy, or locations that have multiple major contractors.

## Analysis

The DOE Headquarters PRP, issued in March 2020, establishes an Emergency and Incident Management Council as the primary DOE strategic-level leadership coordination, synchronization, and oversight mechanism for the Secretary of Energy. Additionally, the DOE Headquarters PRP establishes the Unified Coordination Group, which is designed to provide situational reporting to senior leadership relying on the Biological Event Monitoring Team for assessments, action recommendations, and communications. Some DOE Headquarters contributors reported their view that senior management's choice to stand up the Coronavirus Research and Development Task Team under SC was a missed opportunity to fully implement the PRP, while others identified the establishment of that team as a key to DOE's successful response. (For detailed discussion of DOE Headquarters pandemic planning and response, refer to the [C3 report](#).)

In responding to the COVID-19 pandemic, some DOE locations, especially those with multiple program offices or multiple major contractors, found that plans were insufficient for coordinated and consistent responses to this crisis. Subsequent adoption of different versions of unified command structures across the DOE enterprise enhanced clarity of direction, effective communications, and coordinated protective measures. Use of a single coordinating body, with senior-level representation, gave the pandemic response leadership access to the full range of expertise (e.g., biosafety, medical, safety, security, forecasting, human resources, and contract specialists) from multiple laboratory or contractor organizations to better manage the COVID-19 response.

## Positive Practices

Several sites implemented variations of unified command structures to coordinate the COVID-19 response across site contractors. For example:

- At the Savannah River Site, the already established Integrated Management Team aided in coordinating information sharing among all site tenants.
- At Los Alamos National Laboratory (LANL), the NNSA and EM field offices, and NNSA and EM contractors, consolidated their individual response activities into a joint effort with the NNSA contractor (Triad National Security, LLC) Deputy Director for Operations, who served as executive in charge for the entire laboratory's COVID-19 response. This joint effort allowed sharing of expertise from all organizations as necessary to support the unified event management team.
- At Hanford, the local DOE field offices (Richland Operations Office and the Office of River Protection) and all site contractors recognized the need for a coordinated, unified COVID-19 response effort. To direct the unified response, site leadership chose to use the existing Hanford Site Governance Model, which was formally established in January 2020 as part of the efforts to coordinate the local DOE field offices' activities as the site progresses toward waste operations. The governance model is structured as a collaborative, transparent decision-making and communication process.

## Challenges

Contributors commented that in the absence of adequate pandemic planning, many organizations had to rely heavily on organizational leaders adapting to manage this crisis by leveraging scientific and technical knowledge networks, innovative problem solving, and collaboration with peers. At some DOE locations with multiple program offices or multiple major contractors, Federal and contractor personnel had to manage varying and sometimes conflicting requirements and expectations among DOE Headquarters

program offices, and state and local governments – a task simplified by the use of unified command structures. These sites faced common problems, such as return-to-work training and orientation requirements. Most important was the need to uniformly protect personnel while continuing vital work and sustaining the necessary levels of operational safety. Additionally, communications with employees and site stakeholders were not always consistent and accurate. (See **Recommendation 1.**)

#### **2.1.4. ELL 4: Multidiscipline Teams**

##### **Lesson-Learned Statement**

DOE Headquarters and many sites experienced challenges during the initial response to the COVID-19 pandemic and adapted by using multidiscipline crisis response teams. Federal and contractor use of these teams provided additional flexibility and agility in responding to the pandemic.

##### **Analysis**

Although existing plans (e.g., emergency management, COOP, and pandemic plans) provided some initial guidance for pandemic response activation, especially where organizations used an ERO framework, it became apparent that adaptation, innovation, and agility were necessary to manage the unprecedented challenges of COVID-19. Responses had to be tailored to conditions as they evolved. Established processes and procedures had to be adapted and revised as more was learned about the extent, nature, and duration of the pandemic. Further, rapidly changing guidance on local, state, and national protective measures created an environment of uncertainty and concern for DOE staff. Senior leaders had to quickly communicate with employees, provide reassurance, and develop guidance concerning vital work, return to work, and onsite protective measures. DOE Headquarters and sites responded to these challenges by creating multidiscipline crisis response teams that were led by senior managers and staffed with subject matter experts. The common themes of these efforts were strategic planning, flexibility, and adaptability to emerging issues. Senior managers stated that modifications to existing crisis planning, including processes and procedures, should:

- Give the senior manager latitude to establish a multidiscipline crisis response team and designate a team director or “person in charge” with the necessary authority and supporting personnel to respond to a crisis.
- Provide guidance on implementing early preventive actions to protect employees.
- Allow the response organization to quickly tailor plans, processes, and procedures to support a rapid, effective response to an evolving crisis.
- Maximize the use of the normal line management chain of command and lines of authority and communication, whenever possible.

Senior managers further suggested that it is unnecessary to predict the composition of multidiscipline crisis response teams or the specific challenges to be addressed. The focus should be on the appropriate leadership and support personnel to respond to a crisis.

##### **Positive Practices**

DOE Headquarters, sites, and laboratories quickly determined that existing crisis response teams (e.g., EROs) had to be modified or reconstituted to accommodate the extended duration of the rapidly changing

pandemic. At some sites, EROs were modified. At other sites, new teams were established to act as COVID-19 response teams. For example:

- The Secretary of Energy assigned the SC Director as the DOE COVID-19 response lead, to improve centralized and timely decision making across the enterprise. Also, at DOE Headquarters, small teams were formed with senior leadership to formulate solutions to specific issues, such as procurement and hiring/onboarding of new personnel.
- Most SC laboratories – Oak Ridge, Pacific Northwest, Argonne, and Brookhaven National Laboratories, and the SLAC National Accelerator Laboratory (SLAC) – created COVID-19 response teams consisting of senior leaders and representatives from across each laboratory. These teams were multidiscipline and included human resources and communications experts. The teams led the overall laboratory responses to the pandemic; kept up with changing local, state, and national protective measures; interacted with other laboratories and peer groups (e.g., chief operating officers and Environment, Safety and Health directors); and formed sub-teams to respond to such challenges as teleworking and return-to-work planning.
- LANL adapted as the pandemic progressed. Beginning with staffing the ERO, the LANL team made real-time organizational adjustments to develop a successful long-term team arrangement. The ERO team transitioned to a COVID planning team, which in turn became the COVID task force. Each team was staffed with appropriate personnel with the necessary expertise.
- The Savannah River Site established an Infectious Disease Response Team, a “war room” team that served as a focal point for all sitewide communications and responses related to the pandemic.
- Some EM sites used tabletop exercises early in the crisis to gain insights as to how to adjust their plans to accommodate the emerging pandemic.

## Challenges

DOE’s normal consensus-based decision model, which requires extended coordination of every decision, was not sufficiently flexible or agile to meet the demands of the unique and rapidly changing COVID-19 pandemic response. Contributors suggested that existing COOP and pandemic planning did not provide a simple, direct framework for agile decision-making and actions, as a unified command structure using multidiscipline teams would. (See **Recommendation 1.**)

### 2.1.5. ELL 5: Peer Networks

#### Lesson-Learned Statement

In crisis events that exceed the parameters of established response plans, diverse knowledge networks provide reliable sources of effective practices and peer validation.

#### Analysis

As indicated in other lessons identified during this review, existing DOE response plans were insufficient to deal with the challenges posed by the COVID-19 pandemic. In most cases, these plans afforded a means to initiate the response, but the path forward had to be continually adjusted and guided by previous similar experience (such as from major weather disruptions), basic principles, and constant feedback

loops. When confronted with new crises that are highly uncertain, frequently changing, and ongoing, trusted professional networks that are engaged in a continuous exchange of lessons learned can provide peer validation of response strategies and practices.

At the enterprise level, the DOE community converged for mutual support. Many networks, such as EFCOG, the National Laboratory Directors' Council (NLDC), and contractor parent companies, worked cooperatively and effectively during the crisis. Organizations initiated routine virtual meetings among, for example, chief operating officers, Environment, Safety and Health directors, and medical and emergency response directors. These networks provided a forum for sharing with peers their successes and failures, such as medical testing, teleworking, virtual meeting platforms, and obtaining personal protective equipment (PPE) and cleaning supplies. At the tactical level, established employee-led teams that coordinate the voluntary protection program, human performance teams, safety culture committees, and labor safety councils provided expertise to monitor conditions and work processes in order to adapt to changing conditions.

The working relationships developed in EFCOG have fostered a sharing of ideas that is essential during crises like COVID-19. Although contractor companies are periodically in competition for DOE business opportunities, they also share experiences and develop guidance that can be leveraged by all. By working collaboratively, EFCOG, NLDC, and contractor corporate partners provide a credible source of effective practices and peer validation during ongoing crisis response, as well as ensuring quality and cost efficiencies through shared guidance and best practices. This sharing of lessons learned and experiences at the enterprise and tactical levels was vital to DOE's successful response to the COVID-19 pandemic.

### **Best Practice**

BP 1, *Leveraging of Knowledge Networks*. EFCOG and the NLDC executive members used their knowledge-sharing networks as resources to respond to the COVID-19 pandemic, recognizing that the pandemic was beyond the bounds of existing crisis response plans. As the pandemic progressed, standing working groups and councils within EFCOG and NLDC supported DOE's response to the pandemic and transition of research priorities.

In fulfilling their commitment to the Department's missions, EFCOG and NLDC continuously exchanged lessons learned among their members and with DOE. Operating contractors engaged with their parent organizations to share lessons learned and best practices, enabling joint industry/government learning that became international in scope. National laboratories initiated collaborative research efforts with industry, universities, Federal agencies, and other laboratories. DOE field elements, the PMAs, and laboratory/contractor partners collaborated with local officials and public service/safety organizations to promote integrated public safety responses and share DOE's scientific and technical expertise.

### **2.2. Working During a Crisis**

DOE's initial response to the COVID-19 pandemic focused on transitioning as many employees as possible to telework, while providing adequate protection against the virus to those employees who continued working on site to conduct mission work. As illustrated in Figure 2, this section discusses two ELLs that pertain to onsite and office work during a crisis.

## 2.2.1. ELL 6: Onsite Work

### Lesson-Learned Statement

DOE Federal and contractor organizations, using the guiding principles and core functions of integrated safety management (ISM), successfully established COVID-19 protections for workers continuing to work on site and for those returning to the workplace during the pandemic.

### Analysis

The initial Federal and contractor response to the COVID-19 threat was to restrict onsite work and to work remotely where possible. However, many organizations had to continue performing vital work. Two senior DOE managers commented on the inconsistent identification of mission critical work (vital work as defined in this report, Section 1) between and within primary secretarial offices. These inconsistencies may have been influenced by Headquarters' decision not to implement their COOP (which defines essential work) and some similar Headquarters direction to the field. Nevertheless, both Federal offices and contractors developed COVID-19 controls for onsite work in offices, laboratories, and other facilities. At locations with multiple organizations (EM, NNSA, Office of Nuclear Energy, SC, and different contractors), it was important to establish consistent COVID-19 safety protocols to facilitate employees' understanding and access across the site.

DOE enterprise organizations have long-established ISM systems and the Worker Safety and Health Program rule (Title 10, Code of Federal Regulations, Part 851) frameworks to address worksite hazards such as posed by COVID-19. Federal worksites and contractor organizations conducting onsite activities used robust work planning and control processes to identify all hazards and implement controls consistent with ISM. Once COVID-19 safety protocols were identified, such as those established by the Centers for Disease Control and Prevention (CDC), organizations continuing to work on site or returning to the workplace during the pandemic were able to integrate the COVID-19 safety protocols into their existing work practices, work control documents, and facility engineered controls (e.g., plexiglass barriers and modified ventilation).

### Best Practice

BP 2, *Onsite COVID-19 Testing*. Oak Ridge National Laboratory (ORNL), Pacific Northwest National Laboratory (PNNL), SNL, and LANL performed onsite testing to manage potential COVID-19 outbreaks by quickly testing workers, conducting contact tracing, isolating potentially infected workers, and cleaning their work areas to contain the exposure event. ORNL, PNNL, SNL, and LANL established dedicated, licensed polymerase chain reaction laboratories that operated on site with laboratory staffing, resulting in quick turnaround (less than 24 hours) of COVID-19 test results. ORNL noted that its ability to manage COVID-19 events was related to its ability to perform these tests.

### Positive Practices

As part of working in or returning to the workplace, the following examples of implemented hazard controls to mitigate the spread of COVID-19 and help ensure a safe work environment were identified:

- Consistent with ISM, the DOE enterprise organizations integrated CDC COVID-19 safety protocols into work planning and control processes to ensure that COVID-19 related hazards are recognized and controlled for work tasks.

- The DOE National Training Center is conducting mission-essential training for Security Police Officers and the Office of Secure Transportation Federal Agents by conducting Tactical Response Force basic classes (TRF-100). Training now accommodates social distance restrictions, the wearing of masks, and group limitations.
- The Portsmouth/Paducah Project Office (PPPO) and the Moab Uranium Mill Tailings Remedial Action Project used tabletop exercises to identify issues or specific challenges to onsite work to help identify appropriate controls. Other organizations identified engineered controls (e.g., plexiglass shields and ventilation), administrative controls (e.g., establishing personnel limits and cleaning/sanitizing work areas), and PPE (such as face masks/shields and gloves) to control the spread of COVID-19 while maintaining assigned mission work.
- To support safe onsite work, a sufficient supply of PPE for worker protection and other materials needed for vital work was critical, particularly when vendors/suppliers were similarly impacted by the pandemic. A number of organizations addressed this by:
  - Working closely with vendors to forecast needs and identify new sources
  - Sharing available PPE resources with other onsite organizations
  - Evaluating the need for a strategic/central stockpile of PPE and other services
  - Frequent tracking of vendor availability and the status of supplies
  - Displaying ingenuity by manufacturing their own hand sanitizer and cleaning supplies (ORNL).
- Four laboratories used information from various American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) publications on building ventilation to improve the air quality in their buildings.
- Brookhaven National Laboratory (BNL) followed information in an ASHRAE article titled “Guidance for Building Operations During the COVID-19 Pandemic,” transitioning to 100% outdoor air and upgrading filtration systems. At other laboratories, ASHRAE guidelines were used to the extent possible to reduce the recycling of indoor air.
- Six contributors reported that conducting COVID-19 safety protocol training on such topics as required social distancing, required use of PPE, use of COVID-19 controls, and health monitoring was key to bringing workers back on site.
- As workers started to implement the modified processes for COVID-19, it was necessary to develop and conduct operational awareness activities to ensure effective implementation of COVID-19 controls. PPPO contractors established a targeted performance observation expectation and developed new COVID-19 focused evaluation criteria in the observation database. In the first three weeks of personnel returning to the workplace, more than 900 COVID-19 related performance observation data points were collected, providing insight into implementation effectiveness and opportunities to reinforce positive behaviors and provide timely coaching for necessary corrections.
- Argonne National Laboratory (ANL) had about 1,000 workers remaining on site daily during the pandemic. To conduct effective Federal oversight of this onsite work while still limiting potential exposures to COVID-19, the Argonne Site Office used technology to assist with walkthroughs. Typically, an Argonne Site Office Facility Representative conducted the facility walkthrough with an iPad or camera and other site office personnel participated remotely in real time, allowing them to ask questions or request the Facility Representative to investigate a specific area.

- Other practices to control the spread of COVID-19 as increasing numbers of workers returned to work included:
  - Seven contributors reported developing processes to limit site access (e.g., use of proximity cards and restrictions on access badges) to essential employees (including approved visitors and vendors). In some cases, their improvised processes also helped ensure accountability for onsite personnel. For example, PNNL was able to control access and monitor staff presence (accountability) by using existing proximity card systems installed for access to each building. SLAC deactivated all access badges, uploaded only those badges for essential workers, and allowed access only through the main gate. Princeton Plasma Physics Laboratory developed a process that involved review and approval of individual requests for access to the site, resulting in the generation of a random five-digit code with a 24-hour validity. The code is presented for access and upon leaving the site, thus ensuring total accountability throughout the pandemic.
  - PNNL developed a plan to return to onsite work using a defense-in-depth mitigation strategy. To manage population density, acceptable personnel limits were determined for the office and laboratory spaces, based on 144 square feet per person. A database was established for this information, signage was provided on doors, and the use of joint space was scheduled to remain within limits.

## Challenges

The Department's expansion of telework, authorized in a March 16, 2020, DOECASST, presented challenges for organizations to continue performing their vital work. As a result of expanded telework and limited access to worksites for many employees, certain time-sensitive requirements of DOE orders and regulations could not be met. The DOE Office of Environment, Health, Safety and Security quickly completed the necessary draft regulatory relief documents, but the established DOE review and approval processes delayed final promulgation of two regulatory relief memos until April 17 and 22, 2020. Reacting to this delay, some NNSA, SC, EM, and DOE Headquarters staff office contributors commented that final regulatory relief from certain requirements, such as safety and security training, drug testing, occupational medicine, and some assessments (e.g., Federal Information Security Modernization Act assessment), took weeks to establish, sometimes lacked clarity, or was not provided at all.

Before the pandemic, PPE and cleaning supplies were readily available, and individual divisions/organizations procured these items based on their mission needs. As competition for PPE escalated worldwide, replacement stocks quickly became scarce. Some laboratories had stockpiled PPE, but they were directed to send their PPE to the Federal Emergency Management Agency (FEMA), thus depleting their own supplies. One laboratory had donated PPE to a local hospital before DOE directed the laboratory to send supplies to FEMA. This laboratory lacked a centralized procurement function and an accurate inventory of onsite PPE, and it overestimated the amount of PPE available; this laboratory had to purchase additional PPE to meet its commitment to FEMA.

Contributors mentioned that with the developing pandemic, contractors and laboratories experienced a surge of quick-response-time data requests from multiple entities, such as DOE Headquarters and field elements, other Federal agencies, and state and local health departments. Multiple requests often appeared poorly coordinated, and the types of information requested (e.g., case numbers and associated geographic regions) were often inconsistent. Furthermore, these contributors noted that it was difficult to validate the requestors' need to know and ensure timeliness of accurate and consistent responses. Inconsistent data responses (e.g., format, data elements, and sources of information) were difficult for



decision-makers to analyze, and sometimes the information communicated to the media differed from that given to employees.

These challenges demonstrate the need for additional DOE action to address expedited regulatory relief, maintenance of PPE and cleaning supplies, and coordinated data requests (format, clear definitions of data needed, and frequency) to solicit information needed from DOE field elements. (See **Recommendations 1 and 2.**)

### **2.2.2. ELL 7: Telework**

#### **Lesson-Learned Statement**

Federal staff members and contractors implemented innovative solutions to establish safe, secure, and productive long-term telework environments in response to several teleworking challenges.

#### **Analysis**

Teleworking quickly became a necessary practice for conducting DOE business after the COVID-19 pandemic struck the United States. While DOE sufficiently implemented telework on a voluntary basis before the pandemic, DOE was generally not well prepared to transition to telework for an extended period. In particular, standard contract clauses and language for bargaining unit and collective bargaining agreements did not adequately address long-term teleworking. However, DOE demonstrated resiliency in responding to the telework challenge with innovative practices. Contributors identified improvements in the area of IT equipment, as well as experience gained in the use of collaborative software. Several contributors identified the need to maintain capability by continuously exercising telework readiness (e.g., ensuring that the workforce has current agreements, that RSA tokens are available, that employees are familiar with remote access procedures, and that remote IT systems and capabilities are adequate).

#### **Best Practice**

BP 3, *Work Sharing Program*. ANL created a mechanism for providing work sharing across the lab during the extended teleworking period to ensure meaningful work to those whose work activities did not readily translate to virtual work. ANL's work sharing program matched project providers with employees interested in supporting their work tasks. ANL collected metrics and feedback that indicated overall positive results. Project providers, workers, and supervisors expressed willingness to participate again; 95% of responses said that the process provided an opportunity to contribute while telecommuting. As another metric of success, the COVID-19 administrative leave cost at ANL was less than \$1M, substantially less than other similarly sized labs. ANL noted that the benefits of work sharing included "increased operational efficiency, diverse opportunities, and cross-functional collaboration."

#### **Best Practice**

BP 4, *Comprehensive IT Remote Worker Tool Kit*. SLAC started developing the IT Remote Worker Tool Kit about three years ago to assist with virtual private network and Citrix use. Over time, SLAC added more capabilities to the tool kit, and the COVID-19 push to telework created additional impetus to further refine the tool kit to pull together information for establishing telework capability and accessing collaborative software in one location. SLAC has a collaborative relationship with Stanford University, including the use of Stanford software systems. The tool kit user interface is a website that includes information on personal computer and device setup and software tools needed for remote teleworking, as well as collaboration tools provided by Stanford University, including video conferencing, Slack (an instant messaging application), and Google Docs. The SLAC IT Department uses Google Analytics to

measure the usefulness of IT support, and the data analytics show that the IT Remote Worker Tool Kit was used extensively through the month of March when most people were transitioning to telework.

### **Positive Practices**

Several sites implemented unique processes that contributed to the development of a productive and engaged “telework-ready” workforce. For example:

- In the weeks leading up to the required transition, groups within the Science Consolidated Service Center (SCSC) worked remotely on short notice to develop proficiency and lessons learned. This activity helped identify bandwidth limitations and the need to have access to certain files and systems. SCSC’s insistence on laptops and docking stations for its employees in the months prior to the pandemic enabled rapid transition to telework.
- Various sites created remote training programs to meet safety requirements for workers returning to the site and to maintain proficiency for workers who must perform their work on site (e.g., crane operators, forklift operators). Additionally, remote training programs were established to address the expiration of qualification certifications.
- The Office of the Chief Human Capital Officer (HC-1) implemented new virtual onboarding processes, including real-time presentations on benefits and question/answer sessions, new employee checklists, contact lists, and an employee handbook.
- Several DOE Headquarters and field offices transitioned to electronic document management and concurrence systems instead of paper transactions. DOE organizations expanded the use of the HSPD-12 badge and certificates to support digital signing of documents as a replacement for ink signatures during telework, providing increased flexibility.

### **Challenges**

The DOE enterprise experienced some challenges while transitioning to telework, including limitations in contractor telework policy and IT infrastructure to replicate the office environment. Challenges were encountered in the contractor community regarding the lack of telework provisions in contracts and bargaining unit agreements. Many contributors also reported the lack of adequate IT hardware and software for virtual work performance. Examples include the lack of available government-furnished equipment, resulting in the use of personal IT equipment with local network limitations; organizational network access and/or slow connectivity; potential cyber security concerns; and the absence of microphones and cameras restricting full participation in video conferencing. (See **Recommendations 1, 2, and 3.**)

#### **2.3. Employee Communications and Support**

DOE leaders recognized their role in supporting employees’ mental and physical health, including the importance of employee communication and support. Challenges in this area included communicating consistent, clear directions and precautions in an environment of differing and changing messages from external sources (e.g., CDC, Johns Hopkins Coronavirus Resource Center, and the World Health Organization) and the need for multiple communication paths to serve all employees, whether they were teleworking or working on site. As illustrated in Figure 2, this section discusses two ELLs that pertain to communications and employee wellness during the pandemic.

### 2.3.1. ELL 8: Communications

#### Lesson-Learned Statement

After experiencing situational uncertainty in the early stages of the COVID-19 response, DOE established multiple communication paths that emphasized speed, frequency, multiple channels, and interactivity to provide employees with current and emerging information.

#### Analysis

Contributors from across the enterprise (Federal and contractor) commented that initial communications from leadership were lacking in several respects. Initial communications frequently lagged real-time events, were sporadic, and lacked details about the current situation and plans for the future. Organizations made improvements in these areas during the first month of the pandemic response, but the problems resurfaced as organizations moved toward the initial phase of employees returning to their Federal workplaces. Some employees felt that there was too little information from or engagement with their local supervisors or management and would have preferred more communication, especially in the form of virtual meetings and phone calls. Consequently, alternate communication paths were established emphasizing speed, frequency, multiple channels, and interactivity to provide employees with current and emerging information. These paths include COVID-19 information portals, emails, videos, channels such as YouTube, social media, webcasts, virtual meetings, and direct phone communication with supervisors and work groups.

#### Best Practice

BP 5, *COVID-19 Hotlines*. COVID-19 hotlines established by Headquarters and several field organizations connected employees with subject matter experts who routed callers to available resources. These hotlines provided information to employees at the time of need so employees did not have to await periodic scheduled information updates. Additionally, the hotlines provided a means to formulate consistent answers to frequently asked questions (FAQs) that were subsequently communicated via DOECASTs and published on the Department's website. For example, the Headquarters COVID-19 response team provided an important source of information in response to employee questions and concerns, as well as a means to perform contact tracing for potentially exposed employees. LANL and SNL also established hotlines to provide employees with on-call resources for them to obtain information and connect with subject matter experts.

#### Positive Practices

Contributors provided evidence of several specific aspects of management communications that were particularly important or helpful to them (after the initial period of uncertainty had passed). For example:

- SC initiated daily COVID-19 meetings that included other DOE program offices (and associated DOE field elements), including EM, NNSA, and the Offices of Fossil Energy and Nuclear Energy. These meetings allowed real-time sharing of coordinated information to multi-program sites, helping avoid confusion in the field. DOE field office managers appreciated being invited to participate in this information exchange.
- The Department's [COVID-19 Hub](#) provides general information, reference to the COVID-19 hotline, FAQs, and links to the employee assistance program, national laboratories' COVID-19 research efforts, and additional information resources.

- The National Energy Technology Laboratory Communication Plan encompassed means of notification, message scripting, and approvals. Avenues of communication included Director’s Town Halls, email releases from the Chief Operating Officer, postings to the intranet and electronic communications message boards, hardcopy and electronic pamphlets, a computer-based training briefing, and supervisor-led preparation briefings. Also, the laboratory’s IT group quickly instituted measures to ensure that the appropriate technology was available to support virtual meetings.
- NNSA created a telework hotline and document library to deliver timely, easily accessible information during the transition to telework. The resources contained helpful documents detailing how to set up home workspaces and access frequently used documents and provided a way to share news as the organization was responding during the pandemic.
- PNNL established its COVID-19 response team, which met daily and included two full-time communications specialists. These specialists developed key messages about CDC guidance and facilitated responses to FAQs, as well as policy questions on such matters as timekeeping and loaning equipment.
- BNL immediately established its COVID-19 task force with broad representation across the laboratory and began meeting daily to review and discuss information. Early on, BNL began issuing a daily situation report for managers and employees that helped reduce confusion about BNL operations and the plans moving forward.
- Several DOE and contractor leaders scheduled “check-ins” with employees via telephone calls. The check-ins served not only to provide information, but also to provide an opportunity for dialogue and to inquire into the employees’ health and wellness.
- Experience at various sites demonstrated that transmitting official recommendations (e.g., from DOE and CDC) in writing and addressing the emotional perspective verbally was particularly effective.
- Email and WebEx teleconferencing were effective means of communication for a variety of scenarios. Additional capabilities, including DOECASTs (and NNSACASTs), weekly conference calls, sub-team conference calls, and personal communications significantly added value to information sharing.

## **Challenges**

There was insufficient communication and conflicting information from senior leadership, especially early in the crisis. Many contributors mentioned that fear, stress, and anxiety increased significantly as organizations struggled to identify the “correct” policy or the “best” communications plan. Conflicting guidelines among the World Health Organization, the CDC, and the U.S. military (in the case of SNL-New Mexico, located on Kirtland Air Force Base) exacerbated this situation. These employee concerns diminished over the first month, but there was a resurgence as organizations began planning to return employees to their normal work locations. The desire to provide complete, authoritative information in a rapidly evolving situation led to complex and unclear communications. Some contributors emphasized the need for leaders to focus attention on employees’ emotional concerns in an uncertain environment. For example, one field organization mentioned:

- Early discussions focused on maintaining vital facility operations (e.g., safety systems) without apparent equal focus on keeping people safe while maintaining these operations.
- NNSA’s reluctance to address protective measures without confirmed, authoritative information, exacerbated by the fast-changing situation, created communication delays. Subsequently, communications were issued with multiple caveats, possibly leaving workers feeling that their safety was not a paramount concern.
- Community requirements for front line/health care workers to use N95 masks conflicted with the organizational perspective that workers did not need N95 masks. This conflict challenged worker trust.

Some employees were frustrated by the lack of communication with their direct supervision and management. Although face-to-face communication may not have been an option, they wanted greater contact via phone calls and virtual meetings. Employees sought resources and updates faster than their management could always provide them, so some employees defaulted to relying on informal networks instead of direct communication from management. (See **Recommendation 1.**)

In response to the COVID-19 pandemic, the Department issued numerous communications, such as DOECASTs, memoranda of direction, and answers to FAQs. This information provided valuable perspective to employees and managers. A DOE senior management contributor expressed concern about losing this important COVID-19 response information as the world emerges from the pandemic and the Department returns to normal operations. (See **Recommendation 4.**)

### **2.3.2. ELL 9: Employee Wellness**

#### **Lesson-Learned Statement**

In times of high stress, such as during a national crisis, it is important for managers to show that they understand and care about their employees’ struggles, and to take actions to eliminate or reduce major stressors.

#### **Analysis**

Contributors reported that the Department made information about employee assistance programs readily available through DOECASTs, briefings, web links, and supervisory communication to help employees cope with various psychological and physical challenges to their wellbeing. Supporting employees’ ability to focus on their work is important because stress, distraction, and changes in work location and technology significantly increase the potential for human error. When managers and supervisors check in frequently with employees working remotely, they can maintain awareness of employees’ circumstances and any need for personal support. Also, contributors identified potential ergonomic risks to employees using home office and computer equipment.

#### **Best Practice**

BP 6, *Employee Problem Solving Teams to Overcome Return-to-Work Challenges*. The DOE Office of Hearings and Appeals formed employee problem-solving groups to derive innovative solutions to some stressful challenges regarding telework, transportation, and transitioning back to life in the office. Three subcommittees explored options and made recommendations to management, several of which have already been implemented. For example, employees requested web cams, monitors, headsets, and

professional visual backdrops to conduct virtual hearings. Employee problem-solving teams align with the hallmark of a strong safety culture by enhancing employee engagement.

### **Best Practice**

BP 7, *Virtual Delivery of Wellness, Health and Ergonomic Services*. ANL implemented innovative approaches to delivering virtual services in the areas of wellness, health, and ergonomics to employees working from home for prolonged periods of time. Beginning in March 2020, when ANL transitioned to minimum safe operations mode, the Occupational Medicine and Industrial Hygiene staffs worked daily with the ANL COVID-19 task force to develop ways to deliver services virtually. ANL quickly moved to telemedicine to address potential COVID-19 cases. Staff from the medical, wellness, and physical therapy clinics provided ergonomic support, including virtual ergonomic evaluations of home working conditions. The physical therapy staff also coordinated a weekly speaker on wellness topics, virtual stretching sessions, and a meditation class. Lawrence Livermore National Laboratory also established virtual ergonomic evaluations to improve the home telework environment.

### **Positive Practices**

Employees reported several innovative ways management has helped alleviate employees' mental and physical stress by providing clear information and communication to reduce uncertainty; guidance; employee counseling services; and virtual ergonomic evaluations. For example:

- Management has made many efforts to improve communications with employees and keep them up to date on the latest developments. Several employees stated that initial communications from their leadership were insufficient, infrequent, sporadic, and not detailed enough regarding the current situation and plans for the future. In an effort to provide quicker answers to employees' questions and concerns, a COVID-19 hotline (discussed in Section 2.3.1) provided answers to FAQs that were subsequently published on the Department's [COVID-19 Hub](#). Many leaders provided opportunities for employees to be heard, including frequent conference calls, virtual conferences, and virtual coffee breaks, lunches, and social time. Employee input suggests that communications have improved since the early stages of the pandemic.
- At the Fermi National Accelerator Laboratory, human resources personnel created a "virtual care package" to provide support for employees working at home. This package provided information on many topics, such as training, health, wellness, tutoring skills, exercise, nutrition, and employee benefits, including advancing leave from 2021, if needed.
- Various DOE offices, including the DOE Offices of Hearings and Appeals, Intelligence and Counterintelligence, and Headquarters Security Operations, set up virtual meetings with employee assistance program representatives. Staff members were able to learn about these services, ask questions about COVID-19 mental health issues, and discuss coping strategies.
- As authorized in a March 18, 2020, DOECAS and further detailed in an April 17, 2020, DOECAS, DOE management allowed Federal employees greater flexibility to adjust their daily working hours by suspending core hours (e.g., typically 9:00 AM – 3:00 PM) while in maximum telework mode. Several contributors reported that having this option allowed them time to take care of their children, family, and other non-work obligations, which helped to reduce their stress.

## **Challenges**

Many contributors raised concerns about the long-term implications of emotional stress from the prolonged need to cope with the COVID-19 pandemic. Some contributors acknowledged feelings of stress, anxiety, isolation, and loss of control. Many staff members did not have an adequately configured home office work station, resulting in bodily stresses, pain, and the potential for musculoskeletal disorders from long days of telework. These physical and emotional impacts can adversely affect decision-making and work performance. (See **Recommendations 1 and 3.**)

### **2.4. Apparent Increased Efficiencies**

During maximum telework, DOE modified many work practices to enable the Department to continue vital work while protecting the safety of its employees and contractors. The three largest accommodations to the pandemic were the imposition of extensive domestic and international travel restrictions; a requirement for maximum telework by employees, both Federal and contractor; and a greatly increased use of digital document processing and digital signatures. As the Department has adapted to these new work realities, efficiencies in some operations have become apparent. While the increased efficiencies were largely anecdotal at the time of this report (with some metric evidence), experienced managers stated that they represent real increases in efficiency that should be evaluated for continued use and potential impacts, both positive and negative. As illustrated in Figure 2, this section discusses one ELL that pertains to these increased efficiencies during the pandemic.

#### **2.4.1. ELL 10: Efficiency Improvements Resulting from COVID-19 Driven Changes**

##### **Lesson-Learned Statement**

New ways of conducting DOE business due to COVID-19 impacts have resulted in apparent improvement in some employee work efficiencies.

##### **Analysis**

To slow the spread of COVID-19, national, state, and local leaders initiated extensive travel restrictions. DOE similarly placed extensive travel restrictions on Federal and contractor employees. Some travel restrictions were deemed detrimental to certain mission imperatives, so exceptions were allowed, but travel for most Departmental managers and staff was minimal.

DOE Federal and contractor travel restrictions and the maximum telework environment resulted in use of electronic document processing to a far greater extent than before. While DOE as a whole is well equipped for extensive use of technology to prepare documents, many review and approval actions were still conducted by transporting paper copies of reports, memoranda, and other communications to receive pen-and-ink approvals and concurrences from key managers and staff. Maximum telework made transfer of paper copies impractical, and the use of existing electronic document handling systems was greatly expanded.

The Department's adaptive responses to the normal conduct of business have provided anecdotal evidence that continuing these practices can, in many cases, improve employee efficiencies and productivity, and enhance employees' work experience – the holistic qualities of job satisfaction. In addition to these potential improvements, judiciously reducing travel and increasing the number of employees working remotely present the potential for cost savings and/or avoidances, especially if an increase in the use of telework allows the Department to reduce the requirements for leased office space.

## Positive Practices

Interviews with DOE Headquarters managers and written inputs from multiple DOE Headquarters staff offices, field offices, and contractor/laboratory organizations provided anecdotal evidence of increased employee work efficiency during the period of severe travel restrictions and required maximum telework, and a greatly increased use of digital document processing, including the use of digital signatures. Experienced managers expressed confidence that these observations reflect real increases in efficiency that should be evaluated for continued use and potential impacts. Some examples of improved employee efficiencies and productivity include the following:

- Several DOE Headquarters contributors commented that as a direct result of restricted travel, key managers and staff were more readily available to review and approve documents, resulting in expedited document approvals.
- Employees experienced fewer distractions, increased flexibility in work hours, less time away from work to address home maintenance and family appointments, and decreased transit time between meetings and home/work due to teleworking.
- Numerous contributors across the DOE enterprise noted greater use of virtual conferencing, resulting in reduced travel costs and increased manager and staff participation.
- SC reported saving approximately \$70,000 in travel expenses by conducting this year's science panel reviews and annual lab presentations virtually. NNSA identified analogous benefits in its annual program reviews.
- The SCSC reported revising its onsite assessment approach to conduct the record review portion of the assessment virtually, thereby reducing the time spent on site.
- Technology, including video-equipped tablets, has reduced the need for onsite resources for assessments or inspections, by such means as eliminating travel costs and making more efficient use of inspectors' time. Two examples reported are the remote visual confirmation of real property for a recent Facility Information Management System validation at ANL and the SCSC's use of virtual ergonomic assessments of home offices.
- HC-1 made extensive use of virtual meetings with prospective employees, avoiding delays in filling vacant positions. HC-1 reported significantly increased staffing productivity during the first 11 pay periods in COVID (March 2020 – August 2020) when compared to the previous 11 pay periods pre-COVID (September 2019 – February 2020). Across the three Human Resource Service Centers, HC-1 onboarded 550 new employees; the number of tentative job offers increased by 54%; the number of final job offers increased by 38%; and the number of people starting in new positions increased by 23%. In the Office of Corporate Executive Management, the number of people starting in new Schedule C positions increased by 42%, and the number of people starting in new EJ/EK positions increased by 50%.
- One DOE Headquarters manager noted that digital signatures were widely adopted where previously only "wet ink" signatures were acceptable.
- DOE Headquarters formed small teams of senior managers to expedite many decisions necessary to address pandemic response issues. For example, one contributor commented that with these small teams, a problem identified in the morning could be solved by the afternoon of the same



day. In addition, more routine actions, such as the rapid production and issuance of DOECASs for communicating with employees, were expedited by use of these small teams.

Some DOE senior managers stated that their organizations would perform follow-up studies to determine whether incorporating these new practices into normal operations would result in similar increases in efficiency and reduced costs. Additionally SNL and LANL have commissioned exploratory telework teams that will survey and assess employees' work performance and personal interest in teleworking as an option to improve long-term efficiencies and resiliency of their organizations. Moreover, all organizations should evaluate these new ways of conducting DOE business before permanent implementation.

Other benefits of teleworking include:

- Increased telework reduced employee commuting, yielding decreased local vehicle travel congestion, decreased environmental damage from vehicles, and increased employees' time for family-related activities.
- Fewer employees working in government offices could reduce required office space, with related reductions in costs for office leases and infrastructure, such as utilities, maintenance, and parking. This change could also free up space in facilities for transition to use for classified work, saving the expense of acquiring such spaces in other locations.
- HC-1 reported that the opportunity to telework has attracted highly qualified new employees who do not wish to relocate to areas, like Washington, D.C., that have high costs of living.

## Challenges

The COVID-19 pandemic led the Department and its contractors to develop many new ways of conducting DOE business that have apparently resulted in some improved efficiencies and productivity as reported by several contributors. When the threat of COVID-19 is resolved and the Department stabilizes into a new normal environment, lessons learned from this experience will create opportunities for improving work performance. Managers will have a new base of experience for evaluating future needs for travel, telework, and digital document processing, while also considering the associated challenges focused on reduced face-to-face interactions. For example:

- The Department's strong safety culture has contributed to its successful adaptation to the challenges of COVID-19. This safety culture has developed within the ISM framework through years of face-to-face interactions among DOE employees. A significant shift toward remote interactions with an ever-increasing percentage of new employees could have a negative impact on the continued maturation of the DOE safety culture.
- Many of the Department's procedures and processes for complying with regulatory requirements and providing the requisite safety, security, and oversight were developed and proven effective through face-to-face interactions among its employees, managers, and regulators. Some of these procedures and processes have been conducted remotely during this pandemic and may provide improved efficiencies. However, the long-term consequences of remote performance of such procedures and processes must be systematically evaluated to determine the potential impacts of reduced physical presence.

- Restricting face-to-face interactions among people will change team dynamics and relationship building, requiring new ways to create and support constructive team dynamics and working relationships and to ensure that certain required face-to-face contacts continue. Managers may need to consult with social scientists to learn how to establish and sustain trust relationships in the absence of face-to-face interactions.
- Many contributors noted shortcomings in the current set of technologies used for remote meetings and interactions, as well as the various, sometimes incompatible, items of software intended to promote virtual interaction across the Department.
- Extensive use of teleworking allowed the Department to continue mission performance with minimal impact. However, organizations should evaluate the long-term continued use of telework before permanent implementation.

(See **Recommendation 5**.)

### 3.0 Conclusions

The Department met the challenge of protecting its workforce during the pandemic through maximum teleworking and maintaining minimum onsite safe staffing levels to accomplish the Department's vital work. This approach accomplished routine office work involving management, administrative, and analytic work, such as data analysis, document preparation, and document processing. In the absence of detailed response plans, the Department's and its principal contractors' and laboratories' leadership demonstrated their ability to effectively manage this crisis through innovative problem solving and collaboration – core competencies ingrained in the DOE culture by over 20 years of embracing the principles and core functions of ISM.

Notwithstanding contributors' perception of the Department's successful response to this crisis, significant lessons have been learned that should be incorporated into four major areas: crisis planning and preparedness, working during a crisis, employee communications and support, and apparent increased employee and process efficiencies. These areas are discussed below.

The first major area relates to the need for improved crisis response planning. The existing planning included criteria for implementation that were not met. Some organizations implemented their response plans, and some did not. Where response planning documents were not used, leadership throughout the DOE enterprise demonstrated their ability to effectively manage this crisis by leveraging scientific and technical knowledge networks, innovative problem solving, and collaboration with peers. Generally, response plans were initially helpful, particularly where organizations used an ERO framework, but were less effective for sustaining a response of the magnitude, duration, and uncertainty posed by COVID-19. The identified lessons learned in crisis planning and preparedness will enhance the ability to respond to future similar crises, by such means as forward-leaning analysis for high consequence crisis scenarios, use of unified command structures and multidiscipline teams, pre-established mechanisms for granting contract and regulatory relief during a crisis, leaders communicating consistent information and direction, maintenance of sufficient crisis-related resources like PPE, and flexible teleworking preparations.

The second major area relates to working during a crisis. Transitioning to maximum telework was challenging due to technical, administrative, and other factors; however, DOE and contractors worked through these barriers to establish teleworking as a demonstrated success during response to this crisis. Many mission functions were able to continue by innovative transitions to telework. In some work categories for which telework was not an option (e.g., routine facility maintenance, material handling, and

construction), employees were assigned to such activities as completing required online training, achieving requalification, and developing further skills. For onsite vital work and safe work pauses, standard work practices were modified by applying well-established ISM practices. Also, challenges were encountered in modifying Federal and contractor business management processes to address areas that had no provisions for flexibilities during protracted crises. These areas included contractor employee pay, leave and benefits, telework agreements, contractor charge codes, fee allocation, and authorization for remote work.

The third major area relates to employee communications and support. After overcoming initial communication weaknesses, DOE enterprise organizations provided timely communication with employees about the evolving challenges from the pandemic, on topics ranging from health and safety for working on site and at home, to continuation of pay and benefits. Multiple communication channels were used to enhance communication among the workforce. Primary challenges included communicating consistent, clear directions and precautions in an environment of differing and changing recommendations from governmental officials, and the need to craft multiple types of communication due to the altered work practices resulting from telework and safe performance of onsite work. Also, leaders recognized their crucial role in attending to employees' wellness, and innovated a number of pandemic-specific services, such as onsite COVID-19 testing, telemedicine services, and work flexibilities. These actions supported teleworking personnel's ability to cope with special circumstances of family health or home schooling for children. While contributors perceive success to date, the overall and long-term impact on work performance has not yet been determined.

The fourth area relates to new methods of working that were pivotal to the Department's successful response during this crisis, and that offer the potential for transforming many current routine work management approaches to improve efficiency, effectiveness, and employee work experience. The Department's largely successful transition to maximum telework suggested that many types of DOE and contractor work can be performed remotely, leading to a significant reduction in some employees' stress. In field operations, certain vital work requires extensive support infrastructure to continue to deliver the expected safety, security, and quality. Analysis of the data received suggests that managers should conduct systemic risk-benefit reviews to evaluate opportunities for instituting telework as an integral part of certain work categories.

#### **4.0 Recommendations**

The following recommendations are based on the CLRT's analysis of the feedback from multiple DOE Headquarters staff and program offices, field offices, and contractor/laboratory organizations. The ELLs and SLLs are cross-walked in the Appendix C table of this report and provide amplifying information that will inform the reader on the background of these recommendations. These recommendations are intended to provide insights for potential improvements within the Department.

1. The DOE Headquarters and field organizations should enhance and integrate crisis response plans (emergency, pandemic, and COOP), including the following elements:
  - Ongoing analysis of future potential high consequence crises that could have a pervasive impact on the Department.
  - Unified command structure for promoting consistent communications and information sharing across the site. This element is especially important for sites that receive funding and direction from multiple program offices or have multiple major contractors. Similarly, Headquarters

should be required to adopt a unified command approach for coordinating among Headquarters elements during a national crisis response.

- Multidiscipline teams at appropriate organizational levels with sufficient authority to rapidly make decisions, interact with DOE Headquarters, and react to unforeseen circumstances. The crisis response may require participation from leaders and other individuals/specialists not originally assigned to response teams.
- Crisis-related resources, such as PPE and cleaning supplies, are efficiently procured, stockpiled, and maintained in sufficient amounts, and distributed in a timely manner.
- Coordinated data requests (format, clear definitions of needed data, and frequency) to solicit information from DOE field elements that senior leadership can use for consistent communication and decision-making.
- Adequate IT hardware and software for virtual work performance and alignment with telework requirements among applicable DOE directives.
- Management communication of complete, authoritative information to the workforce during rapidly evolving situations, with attention to employees' emotional concerns in uncertain environments.

This recommendation complements the first recommendation identified in the [C3 report](#).

2. The DOE Office of Management and Office of the General Counsel should, in coordination with the DOE enterprise: (1) identify the provisions of DOE requirements that most significantly impacted operations under crisis conditions but for which a compliance relief mechanism is not readily available, and (2) formulate DOE requirements and standard contract language (relief mechanisms and authority levels) to provide expedited relief in crisis circumstances. Issues to be addressed should include, but are not limited to:
  - Ensuring that the DOE regulations and orders identified in action (1) of this recommendation allow specific relief from requirements under crisis conditions.
  - Allowing reimbursement of contractors during a crisis response, similar in concept to the CARES Act, Section 3610, *Federal Contractor Authority*, and the associated DOE guidance on the implementation of that section.
  - Addressing contractor telework during a crisis, including standard contract clauses and suggested language for bargaining unit and collective bargaining agreements.
3. HC-1, in coordination with the DOE Office of the Chief Information Officer, should revise DOE Order 314.1, *DOE-Flex: DOE's Telework Program*, to promote a safe, secure, and productive home telework environment. Elements to consider include:
  - Expanding DOE telework policy for IT infrastructure (e.g., computer hardware and software, ergonomic equipment, and user support), home office ergonomic evaluations, and personnel considerations, such as job sharing, telemedicine, wellness, and mental health support.

- Requiring periodic telework readiness exercises to determine capabilities, preparedness, and proficiency.
4. The Office of the Chief Information Officer should preserve the numerous COVID-19 related Department communications, such as DOECASTs, memoranda of direction, answers to FAQs, and this COVID-19 Lessons Learned report, for future access and use on the public [DOE COVID-19 Hub](#) and/or an internal DOE Powerpedia page.
  5. DOE Headquarters and field element managers should validate and, where warranted, adopt the practices that increased the efficiency and effectiveness of operations during the COVID-19 pandemic response, such as:
    - Increased telework
    - Reduced travel
    - Virtual conferencing
    - Remote assessments or inspections
    - Electronic document processing, including increased use of electronic signatures
    - Virtual training mechanisms
    - Virtual interviews for onboarding new hires
    - Other new work performance methodologies.

## **Appendix A Supplemental Information**

### **Office of Enterprise Assessments Management**

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John E. Dupuy, Deputy Director, Office of Enterprise Assessments

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## **Appendix B Methodology**

The COVID-19 Lessons Review Team (CLRT) consisted of five sub-teams reporting to the U.S. Department of Energy (DOE) Office of Enterprise Assessments (EA) Project Lead. Each sub-team was assigned to organizations within the DOE enterprise: the National Nuclear Security Administration, the Office of Environmental Management, the Office of Science, DOE Headquarters staff offices, and other program offices. Each of the five EA-led sub-teams (three or four persons each) was led by an EA manager and included a reviewer experienced in conducting organizational assessments who had collaborated on DOE's 2020 assessment of safety culture sustainment processes at DOE sites. A sixth EA manager led a Command and Control sub-team (four persons) that focused exclusively on interviewing top-level DOE managers and maintaining awareness of the other five sub-teams' results. The Command and Control sub-team produced a separate report, [\*Lessons Learned: Command, Control, and Communication During the COVID-19 Pandemic Response, December 2020.\*](#)

The CLRT conducted a literature review focused on crisis management in rare events, and the team members received an orientation to acquaint them with qualitative research methods. The CLRT developed lines of inquiry designed to gain perspectives from the DOE enterprise, coordinated through designated organizational points of contact (POCs), and also developed an analysis protocol to promote consistency among the sub-teams. Each sub-team leader coordinated data requests with POCs using three defined questions:

- What's going well, and what effective and innovative solutions were implemented to respond to the developing situation?
- What's not going well, and what adaptive measures were taken when leadership recognized that the initial response was not fully effective or that gaps existed in DOE policies and procedures?
- What needs to be done to promote organizational resilience and prepare for future operational disruptions precipitated by external factors?

The six inquiry topical areas were:

- Plans and Preparedness
- Essential Services
- Work from Home
- Employee Communications and Support
- Prepare for Returning to Work
- Command and Control of Response Actions.

A core team, consisting of the Project Lead and each sub-team's organizational assessment specialist, monitored the consistency of data input and analysis, beginning with the initial data call to the POCs on June 22, 2020, and continuing throughout development of the final report.

The data collection and analysis approach was patterned on Rapid Qualitative Inquiry, an established social science methodology. The sub-teams collected over 3,000 written POC inputs, which were supplemented by interviews with selected DOE managers and several Energy Facility Contractors Group (EFCOG) board members (chief executives of DOE contractor organizations). Initially, the six topical areas were analyzed to develop specific lessons learned (SLLs) and candidate best practices and

recommendations for consideration by the core team. SLLs represent detailed lessons derived from most contributors.

The core team further analyzed the integrated collection of SLLs to identify common themes for enhancing capabilities to respond to future events that could affect multiple DOE operations. This process yielded enterprise lessons learned (ELLs) in three major areas: crisis planning and preparedness, working during a crisis, and employee communications and support. A fourth major area, apparent increased efficiencies, was added to capture anecdotal reports of work adaptations that could yield long-term improvements in work efficiency, cost reduction, and employees' work experience (the holistic qualities of job satisfaction). This information came from initial data collection and focused follow-up interviews, including with senior DOE officials.

ELLs identified positive practices (practices that could be the basis of significant improvements or cost savings) and, in some cases, best practices. The CLRT adopted the EFCOG definition of "best practices": proven systems, processes, or programs that managers recognize as having positive attributes, and are applicable enterprise-wide and supportive of continuous improvement. Most ELLs also identified challenges needing management attention; the CLRT derived recommendations from this collection. The core team further reviewed the SLLs to remove redundancies and provide additional detail to generate a set of consolidated lessons learned to publish for use by the DOE enterprise and others.

This report includes ELLs, best practices, and recommendations, as well as SLLs (see Appendices C and D). A version of the report containing contact information (not for public distribution) for each SLL can be found on the DOE COVID-19 Lessons Learned Powerpedia website.



**Appendix C**  
**Specific Lessons Learned Table**

(Appendix D provides further information on each SLL, in the order listed in this table.)

Report SLL#	Specific Lesson Learned (SLL) Title	Headquarters	Field	Crisis Planning & Preparedness	Working During A Crisis	Employee Communications & Support	Apparent Increased Efficiencies	ELL 1	ELL 2	ELL 3	ELL 4	ELL 5	ELL 6	ELL 7	ELL 8	ELL 9	ELL 10
1	Use of Emergency Response Organizations to Coordinate Internal and External Responses to the COVID-19 Pandemic		X	X							X						
2	Using Multidiscipline Teams to Adapt to Rapidly Changing Crisis Conditions		X	X						X	X	X					
3	Integrating Multiple Sources of Pandemic Guidance	X		X									X				
4	Crisis Response Plans	X	X	X				X	X	X	X	X					
5	Consistent Policy on Timekeeping During a Crisis	X	X	X	X				X				X	X			
6	Work Adaptations During Restricted Travel	X	X	X	X				X					X			
7	Onboarding New Federal Employees	X	X	X	X				X				X	X			X
8	Reducing Site Employee Levels During a Crisis		X		X								X	X			
9	Preparations to Support Telework	X	X	X	X	X		X	X					X	X		X
10	Sufficient Supplies	X	X	X	X				X				X				
11	Timely Contact Tracing and Notification	X	X	X	X								X		X	X	
12	Remote Worker Tool Kit		X		X									X	X		
13	Work Sharing Program		X		X									X			X
14	Adaptations to Training During a Crisis	X	X	X	X								X	X			
15	COVID-19 Work Planning and Control Protocols	X	X		X								X				
16	Access Control and Accountability		X		X								X				

Report SLL#	Specific Lesson Learned (SLL) Title	Headquarters	Field	Crisis Planning & Preparedness	Working During A Crisis	Employee Communications & Support	Apparent Increased Efficiencies	ELL 1	ELL 2	ELL 3	ELL 4	ELL 5	ELL 6	ELL 7	ELL 8	ELL 9	ELL 10
17	Telework Guidance	X	X	X	X		X		X					X			X
18	Critical Infrastructure Staffing	X	X		X								X				
19	Preparing Facilities for Essential Worker Safety	X	X		X								X				
20	Managing Information Demands During a Crisis	X			X								X				
21	Virtual Wellness, Health, and Ergonomic Services	X	X		X	X								X		X	
22	Onsite Testing Capability	X	X		X								X				
23	Assisting Employees with Social and Emotional Challenges	X	X			X									X	X	
24	Onsite Craft Work		X		X	X							X		X	X	
25	Timely Communication to Employees	X	X			X									X	X	
26	Modification of DOE Administrative Processes	X	X	X	X	X			X					X		X	

## **Appendix D Specific Lessons Learned**

### **Specific Lesson Learned #1: Use of Emergency Response Organizations to Coordinate Internal and External Responses to the COVID-19 Pandemic**

#### LESSON-LEARNED STATEMENT

Emergency response organizations (EROs) provided a capability to focus and coordinate communications and activities across the entire site to minimize confusion, solve common problems, coordinate communications, and establish common controls.

#### DISCUSSION

One of the biggest challenges during the pandemic was implementing a unified command structure to coordinate and manage the response. Some U.S. Department of Energy sites addressed this need by using their ERO. Assembling a core team of ERO members and conducting daily updates of local impacts allowed sites to engage the situation early enough to develop responses to immediate and anticipated needs. However, sites quickly determined that existing EROs had to be modified to keep up with the extended duration and rapidly changing pandemic. For example, the Los Alamos National Laboratory (LANL) provided a positive example of how to use the ERO to coordinate dynamic communications with a multitude of employees with different access capabilities. LANL adapted its organization as the event progressed. LANL made real-time organizational adjustments, starting with its ERO, to arrive at a long-term arrangement that has been successful throughout the pandemic. The LANL ERO transitioned to the COVID Planning Team, which became the COVID Task Force. Each subsequent group was more refined, efficient, and targeted to meet the laboratory's needs.

Other organizations used their EROs, but the traditional ERO structure and protocols were not always implemented. For example, the Savannah River Site's ERO procedures were not designed for the magnitude and duration of the COVID-19 response, and the site subsequently established an Infectious Disease Response Team as a war room team to provide a focal point for all sitewide communications and responses. Contributors indicated that improvements are needed in pandemic response planning, including guidance on the use of the ERO with specific criteria to determine when to take other action. Contributors commented that being able to use their ERO to monitor the ongoing situation, track assigned tasks and actions, and perform trending was critical to their successful response.

## **Specific Lesson Learned #2: Using Multidiscipline Teams to Adapt to Rapidly Changing Crisis Conditions**

### LESSON-LEARNED STATEMENT

Multidiscipline integrated teams provided requisite skills, diversity of knowledge, and agility to respond to the rapidly changing environment while continuing assigned missions and protecting employees.

### DISCUSSION

Because of the high degree of uncertainty during the pandemic, quickly changing conditions required adaptable responses. To interpret and apply U.S. Department of Energy (DOE) Headquarters' frequently updated guidance and to address the quickly evolving challenges, organizations chartered integrated multidiscipline teams to manage the response and ensure continuity of operations. Examples include:

- DOE laboratories formed COVID-19 response teams made up of leaders and technical representatives from across the sites. The teams responded to the constantly changing national and local protection requirements by forming multidiscipline, cross-functional sub-teams that addressed specific aspects of the response and monitored progress in areas such as return-to-work preparations. In at least one instance (Brookhaven Site Office), the DOE site office directly participated as partners in the laboratory response team. The participation reduced the time necessary for DOE to review and approve needed COVID-19-related communications.
- A Health Crisis Management Team with members from the Kansas City Field Office and the management and operating contractor (Honeywell Federal Manufacturing & Technologies, LLC) continued to meet daily for status updates on production, quality, health and safety of employees, case trending data, and Headquarters actions.
- A Los Alamos National Laboratory (LANL) COVID-19 Task Force was formed to address cross-cutting issues, policies, and work resumption plans. The LANL COVID-19 Task Force consisted of key leadership and experts from across the laboratory. The task force met frequently to discuss COVID-19 issues impacting laboratory operations and to determine paths forward on key elements, such as cleaning policies, mission essential function determinations, return-to-work, continuity-of-operations plan considerations, and numerous other pivotal policies that helped steer LANL's response through the pandemic.

### **Specific Lesson Learned #3: Integrating Multiple Sources of Pandemic Guidance**

#### LESSON-LEARNED STATEMENT

Differing local crisis response guidance among national and local entities poses complex challenges to selecting consistent protective guidelines for personnel.

#### DISCUSSION

Contributors commented that there were multiple, sometimes differing, sources of COVID-19 pandemic guidance and recommendations to inform the direction of local response plans and actions. Multiple national resources (e.g., Centers for Disease Control and Prevention, Johns Hopkins Coronavirus Resource Center, and the World Health Organization) presenting differing COVID-19 pandemic response guidance and recommendations made it difficult for site and laboratory leadership to choose appropriate protective measures. There were differing recommendations coming from state and local officials and among site contractors, which caused employee confusion about which protective measures to follow.

Some contributors expressed a desire for U.S. Department of Energy (DOE) Headquarters (i.e., Coronavirus Research and Development Task Team) guidance on recommended protective personnel guidelines, and commented that clear guidance would have simplified complex decision making and improved employee acceptance. In the absence of DOE Headquarters guidance, site leadership had to rely upon their own judgment informed by peer professional interactions.

## Specific Lesson Learned #4: Crisis Response Plans

### LESSON-LEARNED STATEMENT

Response plans (emergency, continuity of operations [COOP], and pandemic plans) were not of sufficient breadth to respond to previously unanticipated crisis scenarios.

### DISCUSSION

Requirements for preparing for a pandemic are addressed in U.S. Department of Energy (DOE) Order 150.1A, *Continuity Programs*, which specify that COOP planning must address infectious disease/pandemic influenza (for up to 60 days). However, contributors from most sectors of the Department noted that the scope of existing response plans was not sufficiently broad to manage the complexities and challenges of responding to COVID-19. For example:

- For those sites that did have pandemic plans, the decision thresholds for activating COOP plans focused on percentage of absenteeism and did not consider mandatory transition of the workforce to maximum telework.
- Continuity planning did not sufficiently address the continuation of vital work (onsite or telework) and the protection of the people required to continue that work.
- Some sites, such as the Waste Isolation Pilot Plant, stated that the site's COOP plan did not include an approved pandemic response plan.

At locations with co-located sites and/or DOE program offices (e.g., the National Nuclear Security Administration [NNSA], Office of Environmental Management, and Office of Nuclear Energy), contributors reported differing and sometimes conflicting program office direction. While not always consistent, existing emergency response, pandemic, and COOP plans provided frameworks for initial roles, responsibilities, and preparatory actions. However, the duration of the pandemic, coupled with the rapidly changing information about protective measures, required flexibility and an agile response.

As an example, the Office of Science laboratories created COVID-19 response teams composed of leaders and representatives from across the site. The teams kept up with the constantly changing national and local protection requirements and formed multidiscipline, cross-functional sub-teams that addressed specific aspects of the response and monitored progress in such areas as return-to-work preparations. In two instances (Los Alamos National Laboratory [LANL] and Brookhaven National Laboratory), the field office directly participated as partners in the laboratory response team, reducing the time necessary to review and approve needed COVID-19-related communications. Similarly, LANL, the Savannah River Site, and the Hanford Site formed collaborative unified response groups sharing teams of multidiscipline subject matter experts to manage the ever-evolving response.

Collectively, contributors described the overall situation as having to create new plans, teams, and processes, which often hindered prompt response, caused additional confusion, and rendered existing communication channels ineffective. One contributor commented that what worked in the field was using common sense and close collaboration between DOE field offices and their contractors. Personnel safety and continued mission delivery during the COVID-19 pandemic were achieved by focusing on keeping people safe and performing mission-critical work. By following this adaptive approach, organizations were able to consistently prioritize actions and communicate with employees in such a way that employee confusion and concern were reduced. Commenting that it is impossible to develop plans that cover all situations, contributors suggested that existing response plans be supplemented by forward looking efforts

aimed at anticipating what might occur to better prepare for crisis scenarios that fall outside of the bases for probable event plans.

## **Specific Lesson Learned #5: Consistent Policy on Timekeeping During a Crisis**

### LESSON-LEARNED STATEMENT

The lack of pre-arranged U.S. Department of Energy (DOE) Headquarters policy for Federal and contractor personnel timekeeping under crisis conditions resulted in inconsistencies across the enterprise and confusion and anxiety among the workforce.

### DISCUSSION

One of the biggest challenges during the pandemic was how to pay people (i.e., agency employees and contract workers) when they were not on site working. Communications from Headquarters resulted in inconsistent applications of administrative codes for timekeeping across the DOE enterprise. Initially, contractors were told to use the weather and safety leave time code (“Weather Code”). However, information obtained via survey responses and interviews indicated two significant points of difficulty in using the Weather Code: (1) when and how the code was employed for Federal employees versus contractor employees, and (2) within contractor companies, what the difference was between professional (or exempt) employees and employees covered under bargaining unit agreements. The code could readily be applied for Federal employees and with slightly more effort for professional/exempt contractor employees. However, for contractor employees covered under bargaining unit agreements, the contract language would prevail unless a contract amendment was put into place. After a period of time, the Coronavirus Aid, Relief, and Economic Security (CARES) Act temporarily addressed the issue and relieved employee anxiety.

Contributors indicated a need for a single Department-wide timekeeping policy to address extended periods of telework during a crisis to ensure that the DOE enterprise follows applicable Federal guidelines for budget and timekeeping.



## **Specific Lesson Learned #6: Work Adaptations During Restricted Travel**

### LESSON-LEARNED STATEMENT

Work adaptations were required to compensate for travel restrictions.

### DISCUSSION

The U.S. Department of Energy (DOE) is a widely dispersed organization with many Federal and contractor personnel working worldwide. The world's rapid imposition of travel restrictions adversely impacted travelers' abilities to return home from foreign and domestic deployments. When travelers returned to their home locations, their work continuity was interrupted by local travel restrictions and office closings. Shutdown of metropolitan transit systems impacted the ability of some essential workers to travel to work locations. As the pandemic persisted and travel restrictions continued (different among many DOE locations), other impacts emerged; for example, employees were unable to renew their DOE facility access credentials and recertifications required by some Federal regulations. There are many functions within DOE that traditionally have required travel, such as oversight assessments, enforcement investigations, and project management, for which adaptations were developed. For example:

- Performing virtual assessments. The Office of Enterprise Assessments identified needed assessments that could be conducted remotely. One example is an Issues Management assessment conducted by the Office of Nuclear Safety and Environmental Assessments.
- Focusing on work that could be done without travel. Several internal projects that were previously delayed due to the demand for higher priority efforts were completed while travel restrictions reduced onsite activities.
- Shifting resources that had been allocated for travel into other worthwhile activities that do not require travel. By reallocating resources, staff members were able to participate in remote training and professional development opportunities.

## **Specific Lesson Learned #7: Onboarding New Federal Employees**

### LESSON-LEARNED STATEMENT

Adaptations to new hire onboarding provided flexibility and supported mission completion during the COVID-19 crisis.

### DISCUSSION

Continued onboarding of new employees is essential to maintain U.S. Department of Energy (DOE) and National Nuclear Security Administration (NNSA) mission capabilities. Onboarding new employees has historically been accomplished through in-person processing. In-person onboarding practices were initially delayed during the onset of the pandemic. Various work practices were implemented to mitigate the negative impact of these challenges. For example:

- The DOE Office of the Chief Human Capital Officer implemented a new virtual onboarding process.
- The U.S. Office of Personnel Management was helpful in adjusting some requirements that allowed the onboarding of new employees in a telework environment (e.g., requirements to obtain certain signatures and “wet fingerprints” from new hires have been suspended or delayed).
- The DOE Office of Enterprise Assessments commented that new hires are provided with checklists, contact lists, and a handbook addressing many questions that new hires are likely to have.
- The DOE Associate Under Secretary for Environment, Health, Safety and Security (AU) commented that some new hires are provided the opportunity to work directly with seasoned employees on priority assignments while working from home to assist in their professional development.
- AU commented that organizations maximized remote training opportunities.
- NNSA human resources specialists converted traditional in-person briefings and meetings into productive virtual events that included real-time presentations on benefits and question-and-answer sessions. The telework environment was conducive for unclassified familiarization briefings but did impede classified policy briefings. The Learning Nucleus and the NNSA portal facilitated a smooth transition for new employees to learn topics such as the organizational structure, review strategic plans, and complete mandatory DOE/NNSA training.

Several contributors commented that onboarding during the pandemic has been successful in spite of the challenges. NNSA continued the hiring and in-processing actions flawlessly during the COVID-19 pandemic.

## **Specific Lesson Learned #8: Reducing Site Employee Levels During a Crisis**

### LESSON-LEARNED STATEMENT

Sites ramped down the number of onsite employees in a risk-based, stepwise orderly manner to a maximum telework posture.

### DISCUSSION

To reduce potential employee transmission of COVID-19 and comply with the Secretary of Energy's direction, sites had to implement the orderly transition of employees to maximum telework status. At the Kansas City National Security Campus, the ramping down of onsite employees was divided into "waves" based on employee risk, work assignment, and work priority. Wave 1 involved all self-identified, at-risk employees based upon recommendations of the Centers for Disease Control and Prevention and the Kansas Department of Health and Environment. Wave 2 included individuals who could still perform nearly all of their work remotely. Wave 3 was assessed by leaders to move the maximum number of employees off site without impact to manufacturing, inspection, and product testing. Wave 4 brought the onsite workforce down to mission-critical employees only. Contributors emphasized implementing a risk-based strategy for an orderly transition to a desired employee level.

## **Specific Lesson Learned #9: Preparations to Support Telework**

### LESSON-LEARNED STATEMENT

Sufficient office and home information technology (IT) capabilities and preparations were not initially available to support a large telework environment.

### DISCUSSION

The rapid onset of the COVID-19 pandemic and the U.S. Department of Energy's (DOE's) prompt shift to a maximum telework posture stressed IT capabilities throughout the enterprise and delayed employees' ramp-up to productive performance. Access to work documents, online document processing, email communications, and face-to-face meetings among employees resulted in an acute and growing demand for improved CITRIX infrastructure, increased virtual private network (VPN) licenses, more RSA tokens, and more video conferencing platform licenses (e.g., Skype and WebEx). Servers were also initially overwhelmed. The absence of microphones and cameras on some computers restricted the use of video teleconferencing.

Furnished home equipment was also limited. Many employees had to use their home computers and internet connections to access the communication platforms, which were much slower than government equipment. Employees who used their personally owned laptops reported needing help enabling their home equipment; often their personally owned laptops did not have microphones and cameras. Some contributors commented that DOE-issued laptops had the microphone and video camera disabled. Additionally, lack of other home office equipment (e.g., hotspots, docking stations, keyboards, mice, headsets, and scanners/printers) negatively impacted daily operations. Some employees identified eyestrain after so much use of their laptop screens that were much smaller than normally used in the office environment. Teleworking employees often needed training and technical assistance to take full advantage of their limited capabilities. Others commented that there was no mechanism to remotely extend or maintain DOE security credentials and re-certifications (e.g., professional, skills, and training) that might expire during emergency telework.

IT limitations within the DOE enterprise and in the home teleworking environment limited employee performance productivity. Some software systems are limited to onsite use, precluding employees' use from home (e.g., Adobe professional license for onsite use was not available in some cases from remote computers, preventing electronic signatures and Computerized Maintenance Management System software specific to site work locations). Security considerations in many cases limited what work could be accomplished via a telework posture.

However, the level of connectivity has continually improved. For example, one contractor started with approximately 20 VPN connections prior to the pandemic, but quickly expanded that capability to over 200 VPN ports. Sites procured additional laptop computers to improve connectivity and increase personnel productivity. Contributors commented that addressing future needs would involve upgrades to the VPN capacity, periodic system tests, software upgrades, and peripheral use policy review. One contributor suggested that new onsite employees be assigned laptops rather than desktop computers and automatically be issued RSA tokens. Additionally, the expansion and use of virtual meeting platforms has allowed continuation of mission essential performance and achievement of project deliverables; some sites have even used these platforms to conduct hiring interviews, training, and technical conferences.

DOE Headquarters contributors stated that the Office of the Chief Information Officer (OCIO) did a good job of supporting the massive telework effort. "There were some early bumps in the road, but they were

quickly fixed.” Headquarters contributors identified several practices as being particularly helpful. Examples include:

- The DOE Office of Intelligence and Counterintelligence (DOE-IN) implemented the following good work practices:
  - Quickly purchased and distributed many additional RSA tokens, including soft tokens (software-based security token), for remote network access.
  - Implemented a remote help desk focused on troubleshooting issues encountered by DOE-IN remote users.
  - Increased the number of personnel holding WebEx accounts who could schedule conference calls. Once established, this capability greatly increased DOE-IN’s ability to hold virtual meetings.
  - Deployed Skype for Business across its unclassified network, which provided chat and screen sharing technology to facilitate communication among remote workers.
- The DOE Office of Enterprise Assessments, Office of Resources, Communications, and Analysis recognized early that extensive teleworking may be necessary, so they required all employees to self-test their telework capability shortly before the order for full telework was issued.
- The OCIO used COVID supplemental funding to deploy a cloud-based remote desktop service, which will enable scaling the infrastructure more effectively up and down during unexpected situations such as maximum telework.
- The OCIO communicated various reminders and best practices to ensure that employees had information on how best to access services, such as WebEx, and to alleviate problems.
- The OCIO worked with the Associate Under Secretary for Environment, Health, Safety and Security to identify staff members with Homeland Security Presidential Directive-12 (HSPD-12) badges/Public Key Infrastructure certificates expiring, and to ensure that they were provisioned with RSA tokens so they could still telework effectively until they are able to renew their HSPD-12 badge.
- The use of the HSPD-12 badge and certificates was expanded to support digital signing of documents as a replacement for ink signatures during telework. The use of the HSPD-12 badge for digital signatures provided increased flexibility for accomplishing work.

The Science Consolidated Service Center (SCSC) consolidated two office centers in October 2019, resulting in a need to develop the ability to work remotely, hold virtual meetings, and process paperwork electronically. One SCSC manager, previously experienced with teleworking, recognized the need to be “telework ready.” In late 2019, the SCSC manager designated a day for all SCSC employees to work remotely, which identified bandwidth limitations, the need to have access to certain files and systems, and the need to procure additional laptops and docking stations for home use. This experience fortuitously prepared the SCSC organization to better transition to minimum telework resulting from the COVID-19 crisis.

Additionally, two Office of Science laboratories, the SLAC National Accelerator Laboratory and Fermi National Accelerator Laboratory, experienced the need to telework in the recent past due to extensive planned power outages and had purchased laptop computers to facilitate work from home. This prior experience and acquisition of additional equipment were cited as enabling a less problematic transition than was experienced at other locations.

Contributors to this lesson learned also suggested that (1) the policy for handling Official Use Only and Unclassified Controlled Nuclear Information should be reviewed in light of available telework capability and long-term telework arrangements, (2) plans need to include guidance on use of non-government supplied equipment and work arrangements for handling classified information, and (3) sites should periodically exercise teleworking capabilities to ensure that long-term capability is maintained.

## **Specific Lesson Learned #10: Sufficient Supplies**

### LESSON-LEARNED STATEMENT

Crisis planning related to the COVID-19 pandemic did not address the ability to procure sufficient vital work materials, personal protective equipment (PPE), and sanitization supplies.

### DISCUSSION

The National Nuclear Security Administration (NNSA) continued to conduct vital work throughout the pandemic. During this time, many external vendors that NNSA relies on to provide critical supplies were reducing their operations to protect their workers, causing a disruption of mission essential supplies.

Prior to the COVID-19 pandemic, PPE and sanitization supplies were readily available, and procurement of these items was left to the discretion of individual organizations. Essential PPE and sanitization supplies (e.g., gloves, N95 respirators, Tyvek suits, alcohol wipes, disinfectants, and non-contact thermometers) were limited to supplies on hand; deliveries began to wane. As items became scarce, competition for PPE and sanitization supplies escalated. To meet demands, separate organizations within the U.S. Department of Energy (DOE) attempted to procure the essential supplies from various sources independently. As supply chain interruptions worsened due to worldwide demand, DOE was unable to acquire essential COVID-19-related supplies in some cases. This challenge was caused by a variety of issues, including a failure to identify the need for PPE to support essential services (e.g., security, cleaning), a lack of reserves of PPE to support vital work, and decentralized control of PPE, making it difficult to share critical supplies to ensure enterprise-wide DOE mission accomplishment.

To preclude reduction in mission capability, integrated supply teams were formed to manage all of the sites' supply requirements. These supply teams were responsible for identifying, contacting, and ensuring that commercial vendors delivered the needed products and/or services in a timely manner. Priorities of supplies were reviewed, critical materials were rescheduled to maintain mission work, and some procurements were accelerated by executing orders to purchase all of the required supplies needed to support completion of certain programs. Additionally, weekly reviews of supplier status were integrated into COVID-19 Task Force presentations, keeping leaders informed of potential supply chain schedule conflicts.

Some sites developed innovative solutions to compensate for PPE and cleaning supply shortages. For example, the Oak Ridge National Laboratory manufactured its own hand sanitizer and cleaning supplies. The Los Alamos National Laboratory's Voluntary Protection Program team worked with local distilleries to produce hand sanitizer. On April 3, 2020, at the request of the Secretary of Energy, DOE issued a temporary Department-wide policy regarding the use, transfer (donations and loans), release, and procurement of PPE, which provided guidance for PPE for COVID-19 purposes. The policy established an NNSA PPE coordination team that provided coordinating guidance to field organizations.

NNSA determined DOE workforce PPE requirements and worked within DOE and then the interagency Unified Command Group to procure sufficient quantities of PPE. NNSA centralized PPE inventory monitoring across all DOE organizations and collected inventory quantities for each site. This centralized PPE inventory control was complicated by organizational self-interests. Contributors suggested that consideration should be given to centralized procurement of PPE for all of DOE to ensure availability, better consistency of products, and better pricing, and to managing PPE inventory as part of the Continuity of Operations Plan preparations for future infectious disease outbreaks.

## **Specific Lesson Learned #11: Timely Contact Tracing and Notification**

### LESSON-LEARNED STATEMENT

During the COVID-19 pandemic, Health Insurance Portability and Accountability Act (HIPAA)/Privacy Act concerns among U.S. Department of Energy (DOE) staff members delayed the timely notification of coworkers exposed to an individual who tested positive for COVID-19.

### DISCUSSION

Some personnel reported being anxious regarding the exposure notification process and were concerned that they would not receive sufficient information if they had been in proximity to a coworker who tested positive for COVID-19. Organizational legal concerns about HIPAA/Privacy Act information delayed the notifications of affected employees who may have been exposed to an individual who tested positive for COVID-19. As a result, employees exposed to an individual who tested positive for COVID-19 were not notified in a timely manner to allow them to take protective actions (e.g., self-quarantine) and reduce the potential transmission of COVID-19 to others. Contributors reported that timely and accurate communication on COVID-19 exposures is vital to ensure that fear, anxiety, and stigmas associated with positive test results do not negatively impact the workforce and the DOE mission.

As COVID-19 testing matured and became more available within DOE sites and surrounding communities, a lack of contact tracing guidance and expertise hindered a site's ability to implement an effective process to identify employees at risk. One site attempted to instruct employees to maintain a contact log, but this approach was discontinued due to legal concerns for the development and control of personally identifiable information. The Portsmouth/Paducah Project Office reported eventual success in developing and implementing a process that includes contact tracing protocols.

Additionally, the DOE Office of Intelligence and Counterintelligence, whose mission required onsite work performance, coordinated with the DOE Office of the General Counsel to create a contact tracing form. This form allowed personnel to record their personal interactions in order to assist with memory recall and notifications if they or someone they interacted with later tested positive for COVID-19.

Contributors suggested that pandemic plans need to establish how affected employees will be identified and coworkers notified of possible exposure. This notification should be timely and accurate while maintaining the affected person's anonymity in accordance with the HIPAA/Privacy Act.



## **Specific Lesson Learned #12: Remote Worker Tool Kit**

### LESSON-LEARNED STATEMENT

A comprehensive information technology (IT) Remote Worker Tool Kit (RWTK) that integrates information for establishing telework capability and accessing collaborative software in one location was a useful tool for employees transitioning to telework.

### DISCUSSION

The SLAC National Accelerator Laboratory (SLAC) developed the IT RWTK about three years ago to assist with virtual private network and Citrix use by remote users. Over time, SLAC added additional capabilities to the tool kit. The transition to maximum telework due to the COVID-19 pandemic resulted in further needed refinements to the RWTK. SLAC has a collaborative relationship with Stanford University, including the use of Stanford University software systems. The RWTK integrates information for establishing telework capability and accessing collaborative software in one location. The RWTK user interface is a website that includes information addressing personal computer and device setup and software tools needed for remote teleworking. Information is provided on collaboration tools provided by Stanford University, including Zoom, Slack (an instant messaging app), and Google Docs. The SLAC IT Department uses Google Analytics to measure the usefulness of IT support. The RWTK data analytics show extensive use during March 2020, when most people were transitioning to telework.

### **Specific Lesson Learned #13: Work Sharing Program**

#### LESSON-LEARNED STATEMENT

Argonne National Laboratory's (ANL's) Work Sharing Program was an innovative process developed to engage employees whose assignments could not be accomplished through telework (e.g., technicians and machinists).

#### DISCUSSION

ANL noted that it was a challenge to provide meaningful work to those employees whose work did not lend itself to virtual work. To address this issue, ANL developed the Work Sharing Program, which includes a database of work that needs to be completed. The supervisors of the work connect interested employees with the jobs. In addition to providing useful work, the process allows workers to help and connect with a science project. ANL collected metrics and feedback that demonstrated overall positive results, including employees' willingness to further participate and contribute to the mission through teleworking. One metric of success showed that the amount of sick leave charged to COVID-19 was substantially less than other similarly sized laboratories. ANL noted that the benefits of work sharing included "increased operational efficiency, diverse opportunities, and cross-functional collaboration."

## **Specific Lesson Learned #14: Adaptations to Training During a Crisis**

### LESSON-LEARNED STATEMENT

Existing training methods and materials were not adequate to meet the challenges of restricted travel and limited access to sites and facilities during a pandemic.

### DISCUSSION

Contributors cited challenges with skills training, new employee training, training to maintain employee certifications, and continued professional development. For example,

- Performance-based and skills training (e.g., firearms, physical systems, vulnerability assessments, surveys) require face-to-face interactions not possible through virtual training.
- New employee training and professional development are best accomplished face-to-face.
- A number of certifications require continuing education credits, but virtual training was not available to fulfill all credential needs.

The following are additional new practices reported from the contributors with respect to training:

- The U.S. Department of Energy (DOE) National Training Center eventually resolved performance-based and skills training for firearms by accommodating social distance restrictions, the requirement for wearing masks, and group size limitations.
- The DOE Office of Intelligence and Counterintelligence (DOE-IN) professional development and training leads focused on identifying professional development resources for teleworking individuals. A DOE-IN Professional Development Weekly product, providing links and resources to numerous online resources, was so well received that it was forwarded to multiple external agencies and offices.
- The DOE Office of the Chief Human Capital Officer (HC-1) transitioned to virtual instructor-led course offerings, delivering 45 virtual courses, tripling the number of virtual courses offered last year. This expanded access to DOE's instructor-led course catalog to field employees by eliminating the need to travel, thereby lowering the cost of attendance. The number of DOE employees trained during COVID-19 increased by almost 200% compared to pre-COVID, and HC-1 processed 58% more individual training requests during COVID than pre-COVID.
- Return-to-workplace training for supervisors was developed and launched through the Learning Nucleus. The training was also made available to contractors. The National Nuclear Security Administration (NNSA) Administrator recorded a video extolling the crucial role of supervisors.
- The technical surveillance countermeasures team focused efforts on training and information webinars to keep "sharp" in respective fields. This supports the team's readiness to execute as it phases back into onsite operations.
- Employees completed virtual online training to meet Continuing Professional Education requirements.
- Because some employees were unable to do their normal work during the pandemic, managers encouraged them to use this time as an opportunity to engage in remote training and professional development.
- Some managers have reallocated funds that cannot be used for travel to pay for additional training and development.

Contributors offered other ideas for improving training, such as:

- Providing training on presentation skills and hosting virtual computer learning.
- Converting some of the current instructor-led courses to a distance learning format and setting up a studio on site to deliver the virtual or distant training (currently in progress).
- Developing guidance on when and under what circumstance training becomes “mission essential” so that it can be planned and written into pandemic-related procedures.
- Identifying virtual professional development training opportunities that would be available to personnel on telework status in case of a COVID-19 resurgence.

## Specific Lesson Learned #15: COVID-19 Work Planning and Control Protocols

### LESSON-LEARNED STATEMENT

U.S. Department of Energy (DOE) enterprise contributors integrated COVID-19 protocols and precautions into their work planning and control processes.

### DISCUSSION

As DOE enterprise staff members and contractors moved through the early stages of the pandemic response, they demonstrated thorough and thoughtful processes and precautions to safely resume allowed work in offices and in the field, which required integration of COVID-19 hazards into established Integrated Safety Management System work planning and control processes. Examples include the following:

- The SLAC National Accelerator Laboratory required a COVID-19 work plan and COVID-specific job safety analysis (JSA) to be performed for every job and task on site, including five levels of COVID-19 risk ranging from zero to four in accordance with the risk of exposure.
- The Lawrence Berkeley National Laboratory required each manager to evaluate the safety risk of an activity for COVID-19 and put a plan in place to keep employees safe. Employees are required to sign off on the plan.
- The Argonne National Laboratory completed a readiness review for limited operations and included a review of COVID-19 controls.
- The Pacific Northwest National Laboratory (PNNL) established a centralized work review and release process closely coordinated with DOE Pacific Northwest Site Office management to ensure that onsite activities were aligned with the Washington State Governor’s order using PNNL-established criteria.
- The DOE Office of Legacy Management (LM) field operations quickly recognized that hazard-specific JSAs would be needed to address the COVID-19 hazards. Comments on the JSAs were solicited from field employees and addressed.
- LM developed standardized JSAs with preplanned COVID-19 controls for all of its operations. However, through employee feedback, LM realized that activity-specific JSAs were needed to accommodate evolving COVID-19 pandemic guidance.
- Multiple organizations developed COVID-19 protocols for contractors that further flowed down to subcontractors, such as service vendors delivering equipment and fuel. In addition, procedures were developed to guide the workforce in the event that someone became ill or suspected that they had been exposed to COVID-19. Similarly, protocols were established for regulator and stakeholder interactions.

Examples of tailored work controls include the following:

- The DOE Office of Intelligence and Counterintelligence:
  - Purchased and installed air purifiers for its spaces and installed “sneeze guards” in areas with frequent visitor traffic.
  - Relied upon a small facilities team for trash and janitorial services and procured personal protective equipment.

- Removed chairs from its five conference rooms and marked spaces where chairs should be located to ensure social distancing.
- Consolidated Nuclear Security, LLC (CNS):
  - Instituted Day/Night Shifts – CNS switched some essential personnel to a static day or night shift who were kept separated from the other shift. Later, when one person on a shift tested positive for COVID-19 and the rest of that shift self-quarantined, the other shift was able to continue critical work.
  - Established Rotational Schedules – Other essential personnel used a rotational schedule that split a department into two groups. The first group worked on site for two days and teleworked the next two days; the second group worked the opposite schedule. Also, the department manager divided expertise to ensure retention of capabilities.
  - Initiated a self-administered questionnaire and temperature check each morning before going to work and a second temperature check once on site. The questionnaire contains questions on travel history, contact history, and personal symptoms.
- At the Uranium Processing Facility, CNS:
  - Removed furniture from break rooms.
  - Developed/implemented training for a cleaning protocol, including a job hazard analysis that defines effective cleaning techniques.
  - Cleaned buses every cycle and limited the number of personnel on the buses.
  - Cleaned change houses between shifts.
  - Distributed hand sanitizer, wipes, and soap.
  - Implemented three staggered shifts for construction craft and field (non-manual labor) staff members supporting construction.
  - Staggered lunch breaks and separated personnel during lunch.
  - Limited conference room meetings to a maximum of 10 participants.
  - Separated leadership within the building.
  - Moved personnel from congested workspaces to other locations.
  - Immediately released personnel where scope could be delayed, adjusting daily.
  - Maximized the use of Skype and conference calls versus in-person meetings.
  - Placed reliance upon site screening and temperature checks.
  - Initiated medical screening of employees returning to the job site after traveling out of the area.
  - Issued face coverings to all personnel.
- At the Oak Ridge National Laboratory (ORNL):
  - ORNL relocated quarantined employees to facilitate productive work. For example, employees in the fire department and security offices, who were quarantined due to potential COVID-19 exposure, were relocated to unoccupied buildings on site. This permitted their rapid response to an emergency, if required.

## **Specific Lesson Learned #16: Access Control and Accountability**

### LESSON-LEARNED STATEMENT

Control methods effectively limited site and building access and maintained personnel accountability.

### DISCUSSION

Contributors reported developing processes to allow access only to essential employees (including approved visitors and vendors) and, in some cases, improvised processes to ensure personnel accountability while they were working at site locations or traveling to and from remote work locations. Appropriate training/orientation regarding COVID-19 mitigations and authorized personal protective equipment was provided before access was granted. Access and accountability measures were monitored, reviewed, and revised to accommodate increasing numbers of staff members returning to work as the sites and laboratories proceeded through the various COVID-19 phases of return to work. For example:

- The Pacific Northwest National Laboratory was able to control access and monitor staff member presence (accountability) by existing building access proximity card systems.
- The SLAC National Accelerator Laboratory deactivated all access badges, uploaded only those badges for essential workers, and restricted access to the main gate.
- The Princeton Plasma Physics Laboratory developed a process that involved the review and approval of individual requests for access to the site, resulting in the generation of a random five-digit code with 24-hour validity. The code was presented for access and upon leaving the site, thus assuring total accountability throughout the pandemic.
- The U.S. Department of Energy Office of Legacy Management (LM) operations found that a single authoritative source list was essential for tracking personnel assigned to perform essential duties at office and field locations, which was accomplished by using a single list on a SharePoint site that allowed accurate data entry at the work location, simultaneous editing, effective quality control, and authorized approvals that promoted report consistency.
- For LM field travel, COVID-19 protective protocols limited vehicle occupancy to the driver only. Due to the single occupant requirement, it was necessary for work teams to caravan in multiple vehicles to site locations. Coordinating among members of caravans required detailed planning, including vehicles equipped with handheld radios; call signs/identification provided to all drivers; designating lead and tail vehicles; planned stops; and response protocols for urgent/emergency situations.

## Specific Lesson Learned #17: Telework Guidance

### LESSON-LEARNED STATEMENT

The transition to maximum telework was inhibited by limitations of existing telework guidance and awareness of existing flexibilities.

### DISCUSSION

For those who could, teleworking quickly became a prominent way that the U.S. Department of Energy (DOE) conducted business after the COVID-19 pandemic struck the United States. Contributors agreed that telework was ultimately effective and were optimistic about the future of telework for improving effectiveness, efficiency, and employee experience. However, contributors identified a number of challenges to prompt transition to maximum telework, and to maintaining work performance during events of extended duration. For example, several contributors identified the lack of prior approved telework agreements, home office equipment and ergonomic concerns, communication concerns, training needs, and employee physical and mental impacts as inhibitors to prompt transition to and use of telework.

In contrast, some organizations reported fewer challenges and rapid adaptations to expanded telework. For example:

- The Department issued DOE-wide Broadcast Communications (DOECASTs) and frequently asked questions (FAQs) to promote telework flexibilities and applicability to unique situations presented by the COVID-19 pandemic. For example:
  - On March 13, 2020, DOE Headquarters issued a DOECAST on telework options for employees and supervisors and subsequently, on March 18, provided a variable work schedule of 80 hours per pay period for all Federal employees. This enabled personnel to shift their hours throughout the day and week to balance mission and personal responsibilities.
  - In an April 2020 DOECAST, *A Message from the Secretary – Excused Absence for Caregiving for Teleworking Employees*, the Secretary allowed Federal employees an excused time of 20 hours per pay period, giving them time to support their families during full-time telework through September 2020. This provision was extended to December 19, 2020, in a subsequent DOECAST.
- Anticipating a growing pandemic impact, one NNSA organization planned for its employees at DOE Headquarters locations to transition into telework and provided resources before the DOE response to the COVID-19 pandemic began. This planning postulated a maximum telework posture resulting from a large-scale emergency that would prevent people from coming into the office. Supervisors encouraged staff members to sign/update telework agreements roughly two weeks before the National Capital Region imposed stay-at-home orders requiring a maximum telework posture.
- Some DOE organizations reported performance efficiency gains and cost reductions while teleworking. Based on such experience, the Sandia National Laboratories and Los Alamos National Laboratory have commissioned exploratory telework teams that will survey and assess employees' work performance and personal interest in teleworking as an option to improve the long-term efficiencies and resiliency of their organizations.

Contributors throughout the DOE enterprise commented that expanded Federal and contractor guidance or clarifications would improve the capability to shift to maximum telework in future crises and enhance



future effectiveness and efficiency gains. The following are examples of telework guidance cited as desired for organizations to consider, as appropriate:

- Rapid shift to telework status
- Employee telework agreements
- Adaptation of traditional work processes to a telework environment
- Purchase, delivery, and use of telework equipment (i.e., laptop computers, software, supplies, ergonomic chairs) for use by employees at home
- Home office ergonomic evaluations
- Information technology support and services (to include periodic testing of capabilities)
- Electronic document management and electronic signature systems
- Access to files, references, and items from the work site
- Reimbursement for supplies and stipends for required connectivity enhancements
- Flexible work schedules
- Excused absence for childcare and elder care
- Job sharing
- Time allowed for home schooling
- Ability to carry over annual vacation time
- Telemedicine, wellness, and mental health support.

Additionally, the DOE Office of the Chief Human Capital Officer suggested that the Department should be able to manage telework forms and statuses electronically. At this time, there is no centralized database to identify telework participants and types of agreements; the amount of man-hours to manually compile this data is significant.

## **Specific Lesson Learned #18: Critical Infrastructure Staffing**

### LESSON-LEARNED STATEMENT

In some cases, staffing of critical infrastructure positions was inhibited by a limited cadre of trained personnel.

### DISCUSSION

In accordance with the National Continuity Policy, the U.S. Department of Energy (DOE) is charged with performing certain mission essential functions, such as maintaining the critical national electrical transmission infrastructure. In so doing, DOE, including the Power Marketing Administrations (PMAs), worked internally and with local and state governments to reclassify energy and critical infrastructure workers as essential. Other necessary actions included letters crafted as a “passport” to facilitate required work-related travel through established local government checkpoints. PMA contributors explained that there are only a finite number of dispatchers, and additional qualified personnel may be required to continue these functions during a crisis of long duration.

As a contingency, the Western Area Power Administration (WAPA) is providing training to current managers who were previously dispatchers to refresh their control room operations capabilities. WAPA’s experience in continuing operations within the COVID-19 environment underscores the need for organizations to ensure that mission essential functions and incident command system positions can be fulfilled in unexpected crisis scenarios throughout a protracted duration.

## Specific Lesson Learned #19: Preparing Facilities for Essential Worker Safety

### LESSON-LEARNED STATEMENT

The Office of Science laboratories adapted engineering and administrative controls to ensure that facilities can comply with COVID-19 protocols to the maximum extent possible.

### DISCUSSION

The diverse missions of the Office of Science laboratories and the various timeframes when the buildings were built resulted in a broad range of office and laboratory configurations. These facilities were not designed to address COVID-19 protocols, including social distancing. However, many laboratories adapted methods to limit population density and provide a safe environment for onsite workers. For example:

- The SLAC National Accelerator Laboratory (SLAC) recognized that Stanford Synchrotron Radiation Lightsource staff members would soon be returning to work to study the coronavirus, so the building manager helped develop a process to ensure that buildings and spaces would be ready for safe occupancy. SLAC developed a COVID building preparation checklist, a recovery walkthrough checklist that focused on life safety, a building and space guideline, and an interactive online building readiness dashboard.
- The Pacific Northwest National Laboratory (PNNL) developed a return-to-onsite-work plan incorporating multiple strategies. Acceptable personnel limits (APLs) were determined for the laboratory and offices based on an adequate spacing calculation, with APLs for specific rooms or areas posted on access doors. Automated room scheduling software includes APLs. “Piggybacking” is not permitted when entering facility doors; employees must use their access cards individually to keep track of building occupants. Management monitors building occupancy levels to ensure compliance with APLs.
- Four laboratories, the Brookhaven National Laboratory (BNL), PNNL, SLAC, and Thomas Jefferson National Accelerator Facility, used information from various American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) publications on building ventilation to improve the air quality in their buildings. BNL followed information in an article titled *Guidance for Building Operations During the COVID-19 Pandemic*, transitioning to 100% outdoor air and upgraded filtration systems. At other laboratories, ASHRAE guidelines were used to the extent possible to reduce the recycling of indoor air.
- Some laboratories implemented protocols for periodically running water outlets to ensure safe drinking water in older buildings. Several laboratories and offices benefited from touchless bathrooms, sinks, and soap and towel dispensers.

## **Specific Lesson Learned #20: Managing Information Demands During a Crisis**

### LESSON-LEARNED STATEMENT

The initial COVID-19 data request processes were cumbersome and not well structured, so they did not always provide leadership with pertinent crisis information in a timely manner.

### DISCUSSION

Early in the pandemic, because of the large amount of uncertainty about COVID-19 and its effects on operations, there were many overlapping teams and data requests from U.S. Department of Energy Headquarters, National Nuclear Security Administration (NNSA), and NNSA Field Office functional areas that were not well coordinated. The data requests supported the Daily Task Force Meeting, the Daily Brief to the Secretary of Energy, the Daily Operations Brief (in addition to daily meetings that the programs needed to have to prepare for these meetings), the weekly briefs to the NNSA Administrator (NA-1), the twice-weekly Emergency Incident Management Council meetings, the twice-weekly site status meetings, the daily status report to NA-1, the twice-weekly personnel status report, the weekly report of COVID case status, and others. Other external organizations often requested the same data. In some cases, these briefings and reports were not routed back down to the programs that generated the data so that they could evaluate the effectiveness of their data collections.

Data requests were further complicated because of a lack of clarity regarding why certain data were collected and what decisions were going to be made with the data. Satisfying information requests was initially time consuming and difficult when trying to meet the needs of various offices in short time periods. Many of these efforts required manual data gathering and aggregation, resulting in hundreds (or possibly thousands) of staff member hours. Additionally, data calls and multiple requests via various internal and external organizations made it difficult to understand which organization had the lead response role. Points of contact, normally used for data requests, were replaced by other staff members who did not have the same level of familiarity with the sites, causing much confusion. Additionally, information was not centrally stored, making it difficult to locate, retrieve, and share collected data.

NNSA/Defense Programs addressed this information challenge by establishing a single point-of-contact team for clearing the information and avoiding duplication, causing a significant amount of work for a small NNSA team but avoiding additional burden on the greater part of the NNSA organization. As the crisis continued, the frequency of these meetings decreased, many duplicate requests were eliminated, and reporting down the chain of command improved.

It is understandable with a crisis of this magnitude that confusion will exist. However, Headquarters and field offices were able to adapt and develop processes to efficiently report requested information to the Department's senior leadership and to state and local community officials. These experiences offer the opportunity to better manage information demands through improved crisis planning, including structured plans for data collection that leverage existing datasets as much as possible, and vetting requests for reports through leadership to ensure a clearly defined purpose for the data.

## **Specific Lesson Learned #21: Virtual Wellness, Health, and Ergonomic Services**

### LESSON-LEARNED STATEMENT

The virtual delivery of wellness, health, and ergonomic services by some organizations provided effective support and resources for employees working from home.

### DISCUSSION

The Argonne National Laboratory (ANL) occupational medicine and industrial hygiene staff members worked daily with the ANL COVID-19 Task Force to develop ways to deliver services virtually. ANL quickly adopted telemedicine services. Staff members from the medical, wellness, and physical therapy clinics were leveraged to provide ergonomic support, including virtual ergonomic visits and 10-minute stretching breaks. Physical therapy staff members also coordinated a weekly speaker on wellness topics. The U.S. Department of Energy site office manager concurred with the effectiveness of ANL's approach to ergonomic wellness, including the extension of virtual support to the site office.

Additionally, human resources personnel at the Fermi National Accelerator Laboratory created a "virtual care package" to provide support for employees working from home. The care package contains extensive information on pay codes, training, health, wellness, recreation, elementary school materials, tutoring skills, eating, cooking, nutrition, and other benefits, including advancing leave from 2021 (if needed). The care package was also discussed at town hall and all hands meetings.

## **Specific Lesson Learned #22: Onsite Testing Capability**

### LESSON-LEARNED STATEMENT

The establishment of a licensed onsite polymerase chain reaction (PCR) laboratory provided fast COVID-19 test results and reduced the amount of lost productivity due to unnecessary quarantines.

### DISCUSSION

Two Office of Science laboratories, the Oak Ridge National Laboratory (ORNL) and Pacific Northwest National Laboratory (PNNL), created dedicated licensed onsite PCR laboratories, resulting in quick turnaround (less than 24 hours) of test results. Both laboratories noted that their ability to manage the COVID-19 event was related to their ability to perform tests. Additionally, ORNL and PNNL employed experienced and qualified occupational medicine staff members, and trained and certified contact tracers.

ORNL determined that quickly testing symptomatic and/or potentially exposed people, isolating them as needed, and cleaning their work areas could minimize potential infections. To reduce sample processing time, ORNL purchased a real-time PCR machine to be used in the field; it was not as accurate as the in-laboratory equipment but provided quicker results.

As an example of the benefit of onsite testing, ORNL identified one electrician who had come into contact with someone with COVID-19. ORNL performed contact tracing and identified 78 potentially affected people, including all of the ORNL electricians. ORNL tested the electrician and quickly confirmed that he was not infected. This precluded the need to test or quarantine the other potentially impacted 78 people.

## **Specific Lesson Learned #23: Assisting Employees with Social and Emotional Challenges**

### LESSON-LEARNED STATEMENT

DOE management instituted new policies and practices to reduce psychological stress and provide social and emotional support to employees.

### DISCUSSION

The pandemic has produced fears, anxiety, and stress driven by potential exposure to COVID-19 and worry about the future. Employees' uncertainty about their future has increased significantly because it is more difficult for employees to plan. For example, employees do not know how much longer they will be teleworking, whether their children will be in school, or whether public transportation will be available and safe. Input provided by U.S. Department of Energy (DOE) Headquarters staff members indicates that some people experienced "overwhelming feelings of isolation," and some became anxious and depressed.

Leadership actions to relieve employee stress included:

- The Secretary of Energy allowed employees time to support their families (20 hours per pay period) during full-time telework. He has also indicated an intention to give individual employees flexibility when DOE moves to later phases of getting employees back to work. This is very important given health concerns (including pre-existing conditions) and the need to support children's ability to participate in school remotely.
- Management made accommodations allowing employees to change or move work hours while teleworking.
- Management lifted requirements prohibiting teleworking for personnel with children unattended in the home, mitigating some care-giving issues. Leadership encouraged supervisors to allow their employees to take advantage of flexibilities provided by the Families First Act and Departmental Caregiving Leave.
- DOE Office of Intelligence and Counterintelligence (DOE-IN) personnel were concerned whether or not they would receive sufficient information if they had been in proximity to an individual who tested positive for COVID-19. To address this issue, DOE-IN provided information to managers describing (1) the need to balance health, safety, and privacy concerns; (2) how the notification process works; and (3) what information can be shared.
- DOE-IN, the Associate Under Secretary for Environment, Health, Safety and Security, the DOE Office of the Chief Human Capital Officer, and the Office of Hearings and Appeals contacted DOE's Employee Assistance Program to arrange for their staff members to learn about the types of help available for coping with stressors that negatively impact mental health.

Due to social distancing requirements, face-to-face interactions were limited, impeding building rapport with customers and co-workers to maintain a sense of team camaraderie and build relationships. Contributors commented, "If younger staff are restricted from having face-to-face contacts with others, how will they build the contacts and relationships needed for career growth?" and "Compared to telework, an office setting provides more feedback, conversation, and more robust input from the group."

Example work practices to mitigate some of the social impacts of prolonged telework include:

- DOE's Office of the Inspector General, Office of Audits instituted daily group phone calls to the conference line. The team later used Microsoft Teams to include video interactions. A contributor stated, "It is important to actually hear the voices of management as opposed to only receiving emails."
- DOE management scheduled virtual luncheons and meetings as part of the new hire onboarding process.
- An Office of Worker Safety and Health Assistance manager used weekly "happy hour" Webex videos to talk to staff members, share stories, listen to concerns, and keep people connected.

Due to differences among employees' personal lives and their unique circumstances, employee psychological reactions to a new COVID-19 imposed work environment are different. Many employees experienced negative reactions, while others expressed positive reactions to some of the changes. As one employee commented, "I was surprised how much I really liked 100% telework."



## **Specific Lesson Learned #24: Onsite Craft Work**

### LESSON-LEARNED STATEMENT

Curtailing and then resuming site work for U.S. Department of Energy (DOE) contracted craft workers necessitated close coordination between DOE Headquarters and field offices, contractors, and the craft workers' bargaining unit leadership.

### DISCUSSION

As COVID-19 events developed that required site work to be limited or curtailed, DOE programs and field elements engaged contractor and associated craft workers' bargaining units to plan transitions and communicate DOE policy regarding paid leave, unemployment benefits, and any potential layoffs.

As employees began to return to normal work locations to address the Department's vital work, one manager noted that the anxiety of returning personnel about their safety was a challenge. DOE contractors worked with bargaining unit leadership to identify worker safety and health protection protocols that helped returning workers understand and follow new hazard controls, which reduced anxieties. The Portsmouth/Paducah Project Office Deputy Manager shared their success by stating that close, open, and frequent communication with the bargaining unit leadership was critical to a relatively smooth return to work of the union employees. Expectations and requirements were discussed with union leadership prior to communications to the membership. This coordination minimized concerns and facilitated a fair and consistent approach to work resumption.

## **Specific Lesson Learned #25: Timely Communication to Employees**

### LESSON-LEARNED STATEMENT

Tailored communication strategies and modern web-based tools for streaming and collaboration assisted in meeting the challenges for improved employee engagement and promoted timely, effective communication.

### DISCUSSION

#### **Initial Communications**

Recurring comments suggest that initial communications from leadership were too infrequent and sporadic and did not contain enough details regarding the current situation and future plans. The initial DOECAST messages did not contain information related to the number and location of cases. The review and approval of key communications during the pandemic impeded getting information to the end users in a timely manner.

In order to address initial communications, the COVID-19 response teams leveraged a communications strategy with multiple venues/channels to ensure that vital information was sent to and received by the entire workforce in a timely manner. Senior management played a key role in communicating with staff members on a regular basis to reduce confusion and instill confidence in the path forward. Examples include:

- The Office of Science initiated daily COVID-19 meetings, led by the Deputy Director for Field Operations, which included other U.S. Department of Energy (DOE) organizations with field element presence, including the Offices of Fossil Energy and Nuclear Energy, the National Nuclear Security Administration (NNSA), and the Office of Environmental Management. The meetings provided real-time sharing of information and coordination of co-located sites to avoid field confusion.
- The Pacific Northwest National Laboratory formed its COVID-19 response team, which met daily and included two full-time communications specialists who facilitated the frequently asked questions and key messages about Centers for Disease Control and Prevention guidance, policy questions on timekeeping, loaning equipment, and other issues.
- With New York becoming a COVID-19 hotspot, the Brookhaven National Laboratory (BNL) formed its COVID-19 Task Force on March 2, 2020, and began meeting daily to review and discuss information. On March 9, BNL began issuing a daily situation report to approximately 140 leaders in the management council, who in turn would flow it down to their respective staff members. A public website was created, over 200 questions were submitted, answers were provided by subject matter experts, and links to additional resources were posted. A SharePoint site was also created for DOE employee use.

Additionally, contributors emphasized that providing an online location for important information, such as COVID-19 worksite behavior rules, was beneficial. There was broad agreement that an essential part of the communication strategy was obtaining employee feedback in order to monitor the effectiveness of response actions and to gauge whether communications were responsive to employee concerns.

#### **Communications While in Telework Status**

The suspension of day-to-day contact within the standard working environment complicated personal interactions that are integral to providing work/task status, alignment on priorities, and shared knowledge of emergent issues. Accordingly, contributors commented that communications need to be frequent, reflect work performance status and expectations, and address COVID-19 impacts and controls. Daily

communication between supervisors and workers using virtual meeting software was identified as essential for maintaining an understanding of the workers' wellness and work situations. Also, virtual meeting software was identified as an important tool for staying in touch with workers. For example:

- The Los Alamos National Laboratory (LANL) quickly established multiple channels to provide employees with current and emerging information. LANL was able to provide information that emphasized speed, frequency, multiple means of access, and interactivity, which included establishing telephone hotlines to provide employees with constant, on-call resources for them to obtain information and connect with subject matter experts. SNL also established a hotline and an internal website to respond to employee questions and distributed situation reports to provide timely information.
- Sandia National Laboratories (SNL) anticipated the need to be mindful of communication challenges posed by a telework environment and to avert issues that could arise from employees being physically isolated from the group at large. SNL developed an ad hoc approach to ensuring that everyone was kept informed of ongoing work status and the evolving environment due to the COVID-19 restrictions. This was accomplished by frequent calls and text messages among staff members and supervisors. As the pandemic continued, some of the interactions were consciously and deliberately replaced with group and personal interactions via voice calls, texts, emails, and WebEx meetings. The cadence was adjusted as needed to meet the needs of staff members and management, which served to keep employees informed and avoided undue stress from an information vacuum.
- The SLAC National Accelerator Laboratory (SLAC) had robust preplans already in place for shutdowns (due to prior utility outages), and an information technology (IT) Remote Worker Tool Kit. SLAC subsequently developed a COVID-19 web-based resource center that addressed such information as news stories, all-hands emails, information on returning to the site, safety protocols, COVID-19 training, health check requirements, job safety analysis, and building manager guidance. SLAC also enhanced the IT Remote Worker Tool Kit to help those unfamiliar with remote work to rapidly become proficient with online tools. The partnership with Stanford University was invaluable to provide up-to-date medical information, along with its software systems and online forums to communicate/collaborate virtually.

Several specific forms of management communications were identified as being particularly helpful. Examples include:

- DOE Headquarters and several field organizations established hotlines and COVID-19 response teams, which connected employees with subject matter experts and routed callers to the Department's [COVID-19 Hub](#). These hotlines provided information to employees at the time of need so employees did not have to await periodic scheduled information updates and a means to perform contact tracing for potentially exposed employees.
- The NNSA Office of Acquisition Management and Project Management set up a telework hotline, email, and document library, which delivered timely, easily accessible information to support telework. These resources included (1) documents detailing how to set up home workspaces; (2) how to access frequently used references, such as Uranium Processing Facility Project Management Office documents; and (3) a means to share news as the organization was responding during the pandemic.
- DOECAS T emails were regular and informative (e.g., frequently asked questions, COVID-19 information, Families First Act Sick Leave, and Employee Assistance Program).

## **Specific Lesson Learned #26: Modification of DOE Administrative Processes**

### LESSON-LEARNED STATEMENT

Crisis planning did not include provisions for changes to the U.S. Department of Energy (DOE) administrative processes needed to address the challenges of a maximum telework environment.

### DISCUSSION

The sudden transition to maximum telework, directed by the Secretary of Energy, revealed many needed modifications to existing work processes and procedures. Some contributors mentioned:

- Establishing a historical repository for actions taken in response to the pandemic for reference in responding to similar future crises.
- Delegating increased flexibility for subordinate managers to manage the phased return of workers and duties that may be outside of their normal work assignments.
- Encouraging additional professional development during a period of maximum telework to increase employee capabilities while some aspects of their usual tasking must be delayed.
- Repurposing funds, as appropriate, such as using some funds previously allocated for travel to support the increased demand for virtual training activities.
- Authorizing workforce management flexibilities, such as weather and safety leave authorized through a DOECASST on March 13 (the same day the national emergency was declared), to accommodate maximum teleworking.
- Assisting employees in meeting restrictions imposed by state and local governments. For example, some Headquarters staff member offices provided individual letters (based on templates from the Office of the Chief Human Capital Officer), signed by the office director, identifying the employee as “essential personnel” to allow travel to work.
- Directly addressing employee health concerns related to returning to work. For example, the DOE Office of Hearings and Appeals established “Life after Pandemic” committees to brainstorm ideas to address returning to the workplace.
- Maintaining all employees on a telework plan (routine or situational) to enable a more orderly transition to maximum telework as needed.
- Revising paper-based processes to accommodate the maximum telework environment through an electronic document management system.
- The DOE Office of Intelligence and Counterintelligence, whose mission required onsite work performance, coordinated with the DOE Office of the General Counsel to create a contact tracing form. This form allowed personnel to record their personal interactions in order to assist with memory recall and notifications if they or someone they interacted with later tested positive for COVID-19.
- Resolving Homeland Security Presidential Directive 12 badge and the associated certificate expirations, thereby providing uninterrupted access to DOE information technology systems and buildings.