

A Report by the

NATIONAL ACADEMY OF PUBLIC ADMINISTRATION

for the Defense Nuclear Facilities Safety Board

Defense Nuclear Facilities Safety Board Organizational Assessment



November 2018

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Defense Nuclear Facilities Safety Board
Organizational Assessment

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ABOUT THE ACADEMY

The National Academy of Public Administration (the Academy) is an independent non-profit, non-partisan organization established in 1967. Chartered by Congress in 1984, the Academy provides expert advice to government leaders in building more effective, efficient, accountable, and transparent organizations. To carry out this mission, the Academy draws on the knowledge and expertise of its over 850 Fellows—including former cabinet officers, Members of Congress, governors, mayors, and state legislators, as well as prominent scholars, business executives, and public administrators. The Academy assists public institutions address their most critical governance and management challenges through in-depth studies and analyses, advisory services and technical assistance, congressional testimony, forums and conferences, and online stakeholder engagement. Learn more about the Academy and its work at www.NAPAwash.org.

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Foreword

The Defense Nuclear Facilities Safety Board (DNFSB) was established in 1988 as an independent federal agency within the executive branch of government. Its mission is to provide independent analysis, advice, and recommendations to the Secretary of Energy to enhance public health and safety connected with defense nuclear facilities operated by the Department of Energy (DOE). The DNFSB's oversight mission covers all phases in the life of a defense nuclear facility: design, construction, operation, and decommissioning. It has five presidentially appointed board members, each subject to confirmation by the United States Senate.

The DNFSB contracted with the National Academy of Public Administration (the Academy) to perform a comprehensive organizational assessment. Elements of the assessment included stakeholder engagement, mission performance, operations assessment, staff management, and strategic planning, among others. We appreciate the constructive engagement of DNFSB's employees and other stakeholders, particularly of officials from the DOE who provided important observations and context to inform this report.

The research combined extensive interviews with DNFSB board members and staff members, along with DOE officials, congressional staff, and many others with extensive experience working in the nuclear weapons complex. In addition, the report draws on best practices and comparative research focused on effective management and leadership of deliberative bodies, oversight boards, and federal agencies with a similar focus on health and safety in the nuclear and chemical hazard spheres.

As a congressionally chartered non-partisan and non-profit organization with over 850 distinguished Fellows, the Academy has a unique ability to bring nationally recognized public administration experts together to help agencies address their challenges. The Academy is pleased to have had the opportunity to assist DNFSB by conducting this study. I am deeply grateful for the extensive efforts of the five-member Panel of Academy Fellows that guided the work of a professional Academy study team in completing this project.

I expect that this report by the Academy Panel will enhance both DNFSB's operating effectiveness and its ability to fulfill its essential mission of enhancing the public safety and security of the American people.

Teresa W. Gerton
President and Chief Executive Officer
National Academy of Public Administration

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Acronyms and Abbreviations

Acronym or Abbreviation	Definition
The Academy	National Academy of Public Administration
The Board	Defense Nuclear Facilities Safety Board
The Department	United States Department of Energy
DNFSB	Defense Nuclear Facilities Safety Board
DOD	Department of Defense
DOE	United States Department of Energy
EDO	Executive Director of Operations
EM	Environmental Management
FEVS	Federal Employee Viewpoint Survey
FTEs	Full-Time Equivalents
FY	Fiscal Year
GAO	Government Accountability Office
HR	Human Resources
IT	Information and Technology
LANL	Los Alamos National Laboratory
LMI	Logistics Management Institute
NGO	Non-Governmental Organization
NNSA	National Nuclear Security Administration
OIG	Office of Inspector General
OIRA	Office of Information and Regulatory Affairs of the Office of Management and Budget

Acronym or Abbreviation	Definition
OPM	United States Office of Personnel Management
OTC	Officer Training School
PDP	Professional Development Program
RFBA	Requests for Board Action
ROTC	Reserve Officer Training Corps
The Secretary	Secretary of Energy
SES	Senior Executive Service
SRS	Savannah River Site
WIPP	Waste Isolation Pilot Plant

Executive Summary

Background

The Defense Nuclear Facilities Safety Board (DNFSB or Board) is a small, independent federal agency within the executive branch of government with an essential mission, “to provide independent analysis, advice, and recommendations to the Secretary of Energy, as operator and regulator of defense nuclear facilities to enhance public health and safety.”

At present, there are fourteen defense nuclear facility sites managed by the U.S. Department of Energy (DOE or Department) and subject to Board jurisdiction. The Board’s safety oversight mission covers all phases in the life of a defense nuclear facility including design, construction, operations, and decommissioning.

The DNFSB engaged the National Academy of Public Administration (the Academy) to complete a comprehensive organizational assessment, with a scope of work that includes stakeholder engagement; mission performance; operational execution; operations and management; and increasing accountability. The Academy assembled a five-member Panel of Academy Fellows to oversee the work of a professional Academy study team to prepare this report.

Findings

Given the current strategic aim of the Department of Defense (DOD) to aggressively update the nation’s nuclear arsenal through DOE-operated defense nuclear facilities, and the aging infrastructure in the DOE’s nuclear complex, the Panel unequivocally concludes that the DNFSB’s safety oversight mission is as important today as it has ever been in its thirty-year history. The Panel, however, finds evidence confirming that the Board has recently underperformed in its essential mission.

Examination of the overall volume of public correspondence, reports, and recommendations conveyed by the DNFSB to the DOE has dropped significantly over the past several years, suggesting that there are fewer public safety matters addressed by DNFSB to the Department than in the past. In addition, there is an overall opinion, articulated by the DOE, Board, and other key stakeholders that the quality and strategic importance of board member engagement with the DOE has fallen to an all-time low level.

The issuance of [DOE’s Order 140.1](#) in May 2018 – which, by changing the interface between DNFSB staff and DOE and contractor employees, places obstacles in DNFSB’s access to information, and, by redefining unilaterally the “public,” whose safety is the focus of DNFSB’s mission, sharply curtails the Board’s jurisdiction – presents a new and supremely important challenge to a reinvigorated, relevant and robust DNFSB safety oversight. In its review of the Board’s operating context, the Panel finds that board members do not work in a collaborative, cooperative manner. This finding is consistent with three different past independent, public reports that describe a dysfunctional working relationship within this deliberative body (the Panel notes that there have been different

board members over these years). The lack of collaboration among board members has reverberated across the organization, drawing the staff, comprised of highly skilled nuclear safety experts, into disputes. Consistent with best practices of public administration and organizational management, the Panel's anchors its conclusion in a key principle: *leadership ownership*. The Panel believes that the four board members must set a positive tone for the agency's climate and demonstrate for all Board staff members a cooperative manner of engaging with one another and genuinely deliberating on key issues of nuclear safety. A clear lack of trust in working relationships among current board members is an important cause for the agency's substandard operating performance.

The Panel calls on the board members, specifically the Board's chair, to immediately create a vibrant vision, strategic plan, and action plans for the agency that include opportunities and responsibilities to engage with the DOE to achieve the Board's critical mission. It is imperative that the strategic plan be prepared in consultation with senior Board staffs, with input from other stakeholders, including DOE executives, congressional staff, contractors, and non-governmental organizations with an interest in nuclear safety. The strategic plan must be future-oriented, and synchronized with annual work plans, organizational change initiatives, and staff performance plans. The Board chair's leadership is essential to prepare a sound and future-focused strategic plan in consultation with other Board Members.

Management reforms, like the appointment of an executive director and a robust approach to strategic planning that guides work plans, can contribute in important ways to enhance engagement between the board members and board staffs. It will also set in place a healthier engagement within the Board that can enhance how employees view the agency as an attractive place to work. These changes should serve to improve the workplace climate, which has been cited by study participants as contributing to the current challenges associated with the recruitment and retention of skilled Board employees.

While the Panel places the onus of its recommendations on board members, the Panel recognizes that board staffs play a critical role in providing the highest quality of work and engagement with board members. The Panel provides several recommendations to enhance staff engagement with board members.

Besides invigorating a robust and strategic engagement with the DOE, the Panel urges a more vigorous board member engagement with congressional committees, non-governmental organizations (NGOs), and other stakeholders. These key groups need to have input into the Board's strategic plan, and briefed periodically on agency progress. Given the Board's strategic and critical mission, the Board has an opportunity to enhance and expand these key relationships.

The potential lethal risks of an accident at a nuclear defense facility underscore the critical nature of the Board's safety oversight role. The Board contributed substantially over the past thirty years to a robust culture of diligence and prevention, but it stands at a threshold today when the Board can, and must, do more to address the current risks that exist in the complex.

The Panel's report contains sixteen recommendations, divided into four categories—Board member actions: Working more collaboratively; Enhance collaboration with stakeholders; Refining products; and Reinvigorate board member and staff relations.

Board Member Actions: Working More Collaboratively

The Board's leaders have a critical role to play in enhancing organizational performance and mission achievement. With exception of the first recommendation, three of the four recommendations in this segment are directed to the Board Chair and the other Board Members because these individuals have such significant impact on the Board's mission execution, stakeholder relationships, and relationships with Board staff. The Panel calls for the Administration and Congress to confirm five Board Members who are prepared to bring a fresh perspective and work collaboratively in this deliberative body. The Panel also addresses three other recommendations directed toward driving consensus on strategic mission, vision and working principles, as well efforts to come to consensus on jurisdiction, role, and responsibility for the Board to work toward common goals. There is a critical need to enhance teamwork and collaboration among Board Members with these overall aims to serve as a common focus. It is important for the Board Members to adopt these goals and work more closely together, all the while preserving their ability to provide their unique perspectives.

The following four recommendations are outlined in pages 50-53 of the report.

1. Refresh Board Membership
2. Establish Mission, Vision, and Principles for DNFSB
3. Define Board Jurisdiction, Role, and Responsibility
4. Foster Deliberation and Teamwork

Enhance Collaboration with Stakeholders

The Board Members should take steps to enhance its communication and overall engagement with several key groups, starting with the Department of Energy. In addition, the DNFSB should intensify its engagement with Congress and public interest groups as it plots its approach to current and future public health and safety issues. The Panel also respectfully directs a recommendation to the Department to respond positively to Board initiatives reflecting its intent to strengthen their bilateral strategic relationship.

The following four recommendations are outlined in pages 53-54 of the report.

5. Strengthen Congressional Engagement
6. Bolster Engagement with Department of Energy Leaders
7. Actively Engage with Public Interest Groups
8. Respond Positively to DNFSB Efforts to Enhance Engagement (for Department of Energy)

Refining Products

The Board Members should ensure that the recommendations provided to DOE, or the information they provide to Congress and the broader public, remain well informed and relevant.

The following two recommendations are outlined in pages 54-55 of the report.

9. Prioritize Strategic Planning and Strategic Goals
10. Maintain a Unified Agenda

Reinvigorate Board Member-Staff Relations

Evaluation and recommendations to support a productive working relationship between Board Members and Board staff is another major focus of this report. Strategic planning, a set jurisdiction, and a healthy professional environment in which to exchange opinions would do a great deal to guide Board staff members as they conduct reviews that are in line with the Board Members' views. There is also a critical need to follow a more traditional management model that empowers the staff to deal with issues at an appropriate level and brings to the top only the critical, strategic matters worthy of a Presidentially Appointed Senate-confirmed Official's precious time. The Panel recognizes that there are several actions that can be taken to enhance the Board Member-staff relationship, and improve the Board's overall performance.

The following six recommendations are outlined in pages 55-58 of the report.

11. Revert to a Traditional Organizational Staffing Dynamic
12. Appoint an Executive Director for Operations
13. Streamline Procedures
14. Improve Internal Communications
15. Synchronize Human Capital Plan, HR Modernization, and a New Personnel System with Agency Vision and Strategic Plan
16. Review Agency Field Staffing Needs

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Chapter 1 Project Background

In 1988, the DNFSB was established by statute,¹ as an independent federal agency within the executive branch of government. Five presidentially appointed board members lead the DNFSB, with board members subject to Senate confirmation. As of this report and since early 2018, the Board has managed with four of five presidentially nominated positions filled and ninety-four total staff. The Fiscal Year (FY) 2018 budget is \$31 million (see [Appendix A](#)).²

The Board's essential mission is to provide independent analysis, advice, and recommendations to the Secretary of Energy (the Secretary) and to inform the Secretary, of his/her role as operator and regulator of the DOE defense nuclear facilities, to provide "adequate protection of public facilities."³ The Board's purview extends to facilities operated by the DOE that are: 1) covered by the Atomic Energy Act; and 2) have a function related to national defense. Currently, there are fourteen defense nuclear facility sites subject to Board jurisdiction, (see the list provided [in Appendix B](#); or at <https://www.dnfsb.gov/doe-sites>).

The Board's oversight mission covers all phases in the life of a defense nuclear facility: design, construction, operation, and decommissioning. Congress granted the Board a suite of statutory tools to carry out its mission. Principal among these is the Board's authority to issue a formal recommendation⁴ to the Secretary. The statute requires the Secretary either accepts or rejects the Board's recommendation; and in the case of an acceptance, the Secretary must write and execute an implementation plan. This entire process takes place on the public record. In addition to issuing recommendations, the Board is empowered to hold public hearings (and subpoena witnesses, if necessary), conduct investigations, and obtain information and documents from the DOE and its contractors needed for the Board's work, and review and comment on DOE requirements and standards affecting safety at defense nuclear facilities. The DOE, by law, grants the Board, "ready access to such facilities, personnel, and information as the Board considers necessary to carry out its responsibilities."⁵

¹ *Enabling Statute of the Defense Nuclear Facilities Safety Board*, (1988), 42 U.S.C. § 2286 et seq.

https://www.dnfsb.gov/sites/default/files/page/statute_1.pdf

² *Consolidated Appropriations Act, 2018*, Pub. L. No. 115-141 (2018). <https://www.congress.gov/bill/115th-congress/house-bill/1625/text>

³ Term defined in Atomic Energy Act. The Board's jurisdiction does not include two major classes of government-regulated nuclear facilities: the DOE's nuclear projects that are civilian in purpose, and commercial nuclear facilities regulated by the Nuclear Regulatory Commission. The Board's oversight jurisdiction also does not extend to the U.S. Navy's nuclear propulsion program or to environmental hazards regulated by other federal and state agencies.

⁴ The Board can also produce classified documents that are not part of the public record.

⁵ *Enabling Statute of the Defense Nuclear Facilities Safety Board*, (1988), 42 U.S.C. § 2286 et seq.

https://www.dnfsb.gov/sites/default/files/page/statute_1.pdf

1.1 Project Scope and Methodology

In March 2018, the DNFSB engaged the National Academy of Public Administration (the Academy) to complete an organizational assessment. The Academy assembled a five-member Panel of Academy Fellows to oversee the work of a professional Academy study team ([Appendix C](#) provides short biographical information on Panel and study team members).

This organizational assessment addresses a broad array of issues, including:

- **Stakeholder engagement.** Evaluating the Board's relationship with the DOE and how the DOE assesses the quality of the Board's products; how stakeholders (including Congress and the public) view the DNFSB's value; and how Board decisions, made by notational voting, and subsequently made public, impacts the Board's decisions and reputation.
- **Mission performance.** Assessing how best to execute the Board's mission, improve its resource allocation toward its mission, improve transparency in its activities, and consider potential changes looking out to a five year horizon.
- **Operational execution/procedures and policy.** Evaluating the types of interactions between and among board members and between board members and staff, and looking at whether there are models used by other Boards or Commissions that have led to more effective, efficient operations that might be replicated at DNFSB.
- **Staff/operations and management.** Reviewing the Board's human capital management practices, deployment of staff effectively both in the field at DOE sites and in Washington, D.C., and what can be done improve to cross-agency management, policy, and functional integration.
- **Increasing accountability.** Evaluating efforts to enhance strategic planning, resource allocation, risk analysis, and data collection in order to improve accountability across the agency; and how effectively the Board carries out performance measurement for quality and links to mission outcomes.

Review of documentation and personal interviews are the research base for this report. With respect to documents, the study team reviewed the DNFSB's authorizing statute and other public documents including those connected with strategic planning. The study team also reviewed Board-related documents prepared by the DOE, Congress, and other stakeholders, including public media. The study team consulted documents that provided insights into the DNFSB that focused on other deliberative bodies, including other federal boards and commissions. Finally, the study team consulted research in public administration, organizational management, organizational transformation, and best practices in organizational leadership. (See [Appendix D](#) for the report's bibliography).

The study team conducted a broad array of more than eighty-four personal interviews in preparing this report (see [Appendix E](#) for a list of interviewees). In addition to meeting with each DNFSB board member, the study team interviewed dozens of DNFSB Washington, D.C.-based staff either

individually or in a group setting. The study team also visited two defense nuclear facilities: Los Alamos National Laboratory (LANL) and Savannah River Site (SRS). Site visit meetings included DNFSB resident inspectors, DOE officials, and contractors working at the facilities. Additionally, the study team interviewed several former DNFSB board members and senior staff.

There were extensive interviews with many DOE senior officials who regularly engage with DNFSB, including representatives from the DOE's National Nuclear Safety Administration (NNSA), Environmental Management (EM), and the Departmental Representative to the DNFSB. These three organizations are essential partners for DNFSB. NNSA is responsible for maintaining the safety, security, reliability, and effectiveness of the nuclear weapons stockpile; reducing the threat of nuclear proliferation and nuclear terrorism around the world; and providing nuclear propulsion for the U.S. Navy's fleet of aircraft carriers and submarines. EM's mission is the safe cleanup of the environmental legacy of five decades of nuclear weapons development and government-sponsored nuclear energy research. The Departmental Representative to the DNFSB ensures effective communication and coordination to resolve DNFSB-identified technical and management issues pertaining to interactions between the DOE and DNFSB.

With respect to outside stakeholders, the study team met with congressional staff, nuclear watchdog groups, and several retired DOE and DNFSB employees. Finally, to gather information from other deliberative bodies, the study team interviewed representatives from the Nuclear Regulatory Commission and Chemical Safety Board.

The following key research questions guided the study group's work; and in the subsequent chapters, the report provides answers:

- 1) Is there a common understanding of the DNFSB's statutory mission among board members and between the DNFSB and DOE? Does this mission remain compelling to both the DNFSB and DOE after thirty years?
- 2) How does the DOE assess DNFSB's recent contributions to defense nuclear facility safety? What changes might the DOE recommend to enhance both the Board's effectiveness and overall nuclear safety?
- 3) What is the nature of the working relationship between board members? Does the quality of that working relationship affect DNFSB's mission performance? What actions can the DNFSB and Department take to both improve the working relationship and positively influence mission performance?
- 4) What is the nature of the working relationship between board members and DNFSB staff? Are there pain points that exist, what causes them, and how might these be positively addressed?
- 5) Does the Board organize and utilize its technical staff to optimize the performance of both headquarter-based staff and resident inspectors?
- 6) Are there process improvements and HR management recommendations that might enhance the work experience for DNFSB staff and serve to increase staff recruitment and retention?

1.2 DNFSB Restructuring Announced on August 15, 2018⁶

The Board proposed an important organizational restructuring during the course of this project, which included several key changes, intended to be effective October 1, 2018, and implemented fully during fiscal year 2019. Subsequently, Congress included language in the [Energy and Water, Legislative Branch, and Military Construction and Veterans Affairs Appropriations Act, 2019](#)⁷ (enacted on September 21, 2018) that prohibits the DNFSB from using budgeted funds to implement the restructuring. As a result, the Panel understands that the re-organization will not proceed. A summary of the changes proposed in the organizational re-structuring are listed below:

- 1) An additional eight resident inspectors, an 80 percent increase over the current number,⁸ to be located at defense nuclear facilities operated by the DOE;
- 2) Establish new field offices in Albuquerque, New Mexico, and Las Vegas, Nevada, which will provide full-time coverage of Sandia National Laboratory, the Waste Isolation Pilot Plant, the National Nuclear Security Site, Lawrence Livermore National Laboratory, and Idaho National Laboratory;
- 3) A 43 percent reduction in authorized headquarters personnel, reducing staff numbers from 107 to sixty-one;
- 4) A 32 percent reduction in total authorized personnel, from 117 to seventy-nine;
- 5) A facilities-focused reorganization of the headquarters staff; and
- 6) The establishment of a new Executive Director of Operations (EDO) to lead the entire agency.

The restructuring announcement came when the draft version of this Panel's report was well underway, with most of the project research was completed. After considering the changes posited in the reorganization announcement and bearing in mind the breadth of this report, the Panel determined that there were ample reasons to continue with the original trajectory of the project. This report recognizes the DOE changes planned for the near future; however, since these changes

⁶ Defense Nuclear Facilities Safety Board, *Defense Nuclear Facilities Safety Board Announces Major Reform, 2018*, <https://www.dnfsb.gov/sites/default/files/document/15581/DNFSB%20Major%20Reform%20%28004%29.pdf>

⁷ *Energy and Water, Legislative Branch, and Military Construction and Veterans Affairs Appropriations Act, 2019*, P. Law 115-244, 21 September 2018, <https://www.congress.gov/115/bills/hr5895/BILLS-115hr5895enr.pdf>.

⁸ As of August 16, 2018, DNFSB has staff located at their Washington, DC headquarters as well as 10 Resident Inspectors, who are located in five different defense nuclear sites: Hanford, Los Alamos National Laboratory, Pantex, and Savannah River Site.

are futuristic and not yet implemented, there is no basis for knowing how they will affect the organization as a whole going forward.

1.3 Report Organization

The Panel organized this report into seven chapters:

Chapter 1 reviews the project scope, methodology, DNFSB restructuring announced in August, and the overall report organization.

Chapter 2 summarizes DNFSB's statutory oversight mission and addresses its importance, both at present and in the future.

Chapter 3 evaluates the quality of the Board's mission execution based on research and interviews with current and former DOE employees and other stakeholders.

Chapter 4 provides information on the current state of the relationships among board members.

Chapter 5 provides an assessment of the current state of relationships between board members and staffs. The chapter examines both the soft issues and hard processes that interact to shape the DNFSB's organizational culture and climate.

Chapter 6 contains specific, actionable recommendations to improve the Board's mission effectiveness. These recommendations largely focus on actions the Board can implement. However, these also include actions that either Congress or the DOE might consider taking to enhance the Board's mission effectiveness.

Chapter 7 offers suggestions on initial implementation actions and advice on how to approach an organizational transformation.

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Chapter 2 The Board's Mission and Its Importance

This chapter provides critical contextual background information on the Board's mission, upon which the Panel overlays its organizational assessment. The DNFSB's mission is, in the Panel's view, the salient and motivating factor that should serve to unify and inspire organizational transformation to enhance performance in nuclear defense facilities. Given the critical nature of what the Board oversees, its mission can be described as compelling, intricate, strategic, complicated, and daunting.

The Panel starts this organizational assessment by outlining the Board's safety oversight mission of defense nuclear facilities as described in its authorizing statute. The Panel then proceeds to place the stated mission into the context of the nation's current strategic defense plans by describing six unambiguous and indisputable factors that underscore why the DNFSB's mission is as, or perhaps more, compelling today than at any time in its thirty-year history.

2.1 DNFSB's Statutory Mission

Nuclear weapon production goals and implementation intricately connects the Departments of Defense and Energy. The DOD provides its production goals to the DOE; and then, the DOE works to provide the requisite amounts of nuclear materials for weapon assembly.

Producing and dismantling nuclear weapons is both expensive and entails high consequence (although low probability) risk to public health and safety. Thus, the important role of the DNFSB, serving as a highly competent, independent party providing safety oversight, cannot be overstated. The Board does not have regulatory powers. Nuclear weapons are the most destructive weapons ever created. Every day without an event in nuclear defense facilities around the nation that would harm public health or safety is as a successful day for the Board and DOE. It is critical that the Board establish and foster, with the DOE, both a close working relationship and an appropriate level of independence.

The DNFSB summarizes its mission as follows, "The mission of the Board shall be to provide independent analysis, advice, and recommendations to the Secretary of Energy to inform the Secretary, in the role of the Secretary as operator and regulator of the defense nuclear facilities of the Department of Energy, in providing adequate protection of public health and safety at such defense nuclear facilities." 42 U.S.C. § 2286a(a).⁹

In this section, the Panel provides several selected details about the Board's mission, organized by topic, and supporting statutory language on the following areas: functions, investigations, recommendations, cooperation, and Board report.

Functions: "The Board shall review and evaluate the content and implementation of the standards relating to the design, construction, operation, and decommissioning of defense nuclear facilities of

⁹ All quoted texts in this section are taken from the DNFSB authorizing statute.

the Department of Energy (including all applicable Department of Energy orders, regulations, and requirements) at each Department of Energy defense nuclear facility. The Board shall recommend to the Secretary of Energy those specific measures that should be adopted to ensure that public health and safety are adequately protected. The Board shall include in its recommendations necessary changes in the content and implementation of such standards, as well as matters on which additional data or additional research is needed.” [42 U.S.C. § 2286(b)(1)]

Investigations: “The Board shall investigate any event or practice at a Department of Energy defense nuclear facility which the Board determines has adversely affected, or may adversely affect, public health and safety.” [42 U.S.C. § 2286a(b)(2)(a)]

Recommendations: “The Board shall make such recommendations to the Secretary of Energy with respect to Department of Energy defense nuclear facilities, including operations of such facilities, standards, and research needs, as the Board determines are necessary to ensure adequate protection of public health and safety. In making its recommendations the Board shall consider, and specifically assess risk (whenever sufficient data exists), the technical and economic feasibility of implementing the recommended measures.” [42 U.S.C. § 2286a(b)(5)]

Cooperation: “The Secretary of Energy shall fully cooperate with the Board and provide the Board with ready access to such facilities, personnel, and information as the Board considers necessary to carry out its responsibilities under this subchapter. Each contractor operating a Department of Energy defense nuclear facility under a contract awarded by the Secretary shall, to the extent provided in such contract or otherwise with the contractor's consent, fully cooperate with the Board and provide the Board with ready access to such facilities, personnel, and information of the contractor as the Board considers necessary to carry out its responsibilities under this subchapter.” [42 U.S.C. § 2286c(a)]

Board report: “The Board shall submit to the Committees on Armed Services, Appropriations, and Energy and Commerce of the House of Representatives and the Committees on Armed Services, Appropriations, and Energy and Natural Resources of the Senate each year, at the same time that the President submits the budget to Congress pursuant to section 1105(a) of Title 31 [United States Code], a written report concerning its activities under this subchapter, including all recommendations made by the Board, during the year preceding the year in which the report is submitted. The Board may also issue periodic unclassified reports on matters within the Board's responsibilities.” [42 U.S.C. § 2286e(a)(1)]

In summary, the DNFSB is a deliberative oversight body that engages directly with the DOE to provide adequate protection of public health and safety at defense nuclear facilities. The Board's products are available to the public and provide greater transparency into the DOE's work at these sites. The DOE is ultimately responsible for setting and implementing prudent safety standards at the facilities. As such, in essence, the Board's purpose is to operate independently as a second set of eyes to further enhance the safety, culture, and climate of these facilities where inherently dangerous work is completed. The Board is also accountable to Congress in its annual report.

2.2 DNFSB's Mission Remains Compelling Today

During the first decade or more of its lifetime, DOE officials recognized the Board's high value to the overall safety conditions and culture in defense nuclear facilities. As will be seen in Chapter 3, the early years showed the highest productivity in the form of public correspondence and the number of Board recommendations. During this period, the Board was instrumental in providing strategic insight to greatly improve the safety environment by addressing several issues, sometimes referred to as "low hanging fruit."

As it enters into its fourth decade, the DNFSB operates in a very different environment than before. Technology has changed, DOE safety culture and policies have matured, and the aged infrastructure where this lethal work is completed has aged even further. The current operating environment is not easily compared with the environment decades ago.

Like any other dynamic operational landscape, the DNFSB must pivot and operate effectively to address current realities, realizing that the DOE- and DNFSB-prompted recommendations to enhance safety at nuclear defense facilities have generated real progress. That said, given the continual inherent risks of this all-important mission, the Board's oversight must ensure that "fixed issues" remain so.

The Panel also stresses that the reasons for establishing the DNFSB remain relevant today. While the DOE has made strides in improving public health and safety at defense nuclear facilities, the Panel contends that the Board's independent oversight work is more relevant today than ever before. The dangers connected with the work of contractors and the DOE at defense nuclear facilities mean that the DNFSB's oversight is a critical contributor to the nation's safety.

To be effective during the next ten years and beyond, the Board must align its mission to capture the current realities. The agency must establish a new organizational culture and climate that expects the board members and staff will address new safety challenges while continuing monitor ongoing issues. Many interviewees with fifteen or more years of experience with the Board often spoke with a bit of longing for a return of the "old days," when the Board had dynamic, well-respected, and collaborative members. It was also a time when there were healthy board member/staff member relationships. This was a highly productive time for the Board, when the DOE's respect for its contributions was at a high level; and the Department could easily trace demonstrable improvements in safety to the Board's work.

In the first section of this chapter, the Panel offers six distinct factors that, considered together, describe the potential risks inherent in the current nuclear defense facilities environment. Based on these points, the Panel concludes that the DNFSB's mission remains as compelling today as it did when the Board was established. In fact, the Panel contends that the next ten to twenty years of the Board's life provide it a unique and vital opportunity to serve the nation's strategic needs.

It is important to highlight that the Panel amalgamated the six factors outlined below from interviews with DOE officials. These factors are not solely sourced from interviews with board members or DNFSB staff. As such, they can serve to help mold a more effective, unified effort to address safety objectives shared by the DOE and DNFSB, as well as other stakeholders.

2.2.1 Production at Defense Nuclear Facilities is ramping up significantly

In February, the Trump Administration announced its intent to sustain, upgrade, and replace the nation's nuclear arsenal¹⁰ in its 2018 Nuclear Posture Review.¹¹ Two important components, among others, in this upgrade are plutonium pits and tritium. Production and storage of these two substances alone require enormous diligence to protect public health and safety.

In testimony before the Senate Armed Services Committee on March 22, 2018, Energy Secretary Rick Perry confirmed the Department's commitment to increase nuclear trigger production at LANL to meet Department of Defense needs.¹² This includes producing triggers for nuclear weapons, called plutonium pits. The Pentagon reports that most plutonium pits in current use were produced in 1978-1989; and thus, need replaced with newer ones.¹³

The Pentagon has ordered plutonium pit production to increase to thirty pits per year in 2026, and up to eighty per year by 2030 in order to meet its schedule of upgrading the nation's nuclear arsenal. This order from the DOD represents a major increase in plutonium pit production, and it comes in the context of no new plutonium pit production over the past several years.¹⁴ LANL shut down this production years ago following several safety concerns. The new demand and DOE's commitment to meet it, represents a significant expansion of production and the associated safety challenges.

In addition to pit production, NNSA is responsible to increase production of related nuclear materials, such as tritium. Because of its half-life of 12.3 years, tritium supplies must be replenished to manufacture new nuclear weapons.¹⁵ According to a Government Accountability Office (GAO) report, the United States needs new tritium production capabilities to meet this need. While the tritium reserve stockpile is classified, the substantial increase in demand by the DOD to upgrade the

¹⁰ A recent estimate of the U.S. nuclear arsenal in 2017 was 4,480

<https://www.tandfonline.com/doi/pdf/10.1080/00963402.2016.1264213>

¹¹Patrick Shanahan, "News Briefing on the 2018 Nuclear Posture Review," *US Department of Defense*, February 2, 2018, <https://www.defense.gov/News/Transcripts/Transcript-View/Article/1431945/news-briefing-on-the-2018-nuclear-posture-review/>.

¹² *Challenges in the Department of Energy's Atomic Energy Defense Programs: Testimony before the US Senate Committee on Armed Services*, 115th Cong. (2018) (statement of the Honorable J. Richard Perry, Secretary of Energy, https://www.armed-services.senate.gov/imo/media/doc/Perry_03-22-18.pdf).

¹³Paul Sonne, "Energy Secretary Rick Perry promises more triggers for nuclear weapons," *Washington Post*, March 22, 2018, https://www.washingtonpost.com/world/national-security/the-us-military-wants-more-plutonium-triggers-for-nuclear-warheads/2018/03/22/b5d1516c-2d58-11e8-911f-ca7f68bff0fc_story.html?utm_term=.08f33559fc77

¹⁴ Ibid.

¹⁵ Robert Alvarez, "Future supply of tritium for U.S. nuclear weapons in doubt." *IPFM* (Blog), October 11, 2010, http://fissilematerials.org/blog/2010/10/future_supply_of_tritium_.html.

nation's nuclear weapons arsenal will inevitably place added pressures on tritium production as well.

The planned significant production expansion of nuclear weapons ordered by the DOD as a strategic imperative in the decades to come underscores the Board's essential safety oversight role.

2.2.2 Waste Remediation Poses Increasing Challenges

Upgrading the nation's nuclear arsenal calls for replacement of aged pits and tritium with newer materials, thus increasing DOE's challenge to store and dispose of spent and other dangerous materials that are by-products of DOE's work. Nuclear defense facilities have an ever-increasing volume of toxic waste that requires great care and technical skills to safely remediate. According to a 2005 report of the National Research Council of the National Academies, the DOE, "directs the massive cleanup of more than 100 sites that were involved in the production of nuclear weapons materials during the Manhattan Project and the Cold War."¹⁶ The challenges to the DOE with respect to waste management and environmental cleanup are rising concurrently with increased upgrading of the nuclear arsenal.

The substantial increase in waste remediation projects caused by production expansion, along with on-going remediation of older stockpile of nuclear waste, heightens the importance of the Board's safety oversight role.

2.2.3 Aging DOE Defense Nuclear Facility Infrastructure Poses Safety Challenges

In his Senate Armed Services Committee testimony in March 2018, Energy Secretary Perry spoke frankly of the aging infrastructure challenges that the DOE faces as it expands production of nuclear weapons materials: "DOE/NNSA's diverse national security missions depend on its extensive, complex, and in many cases antiquated infrastructure. More than half of NNSA's facilities are over forty years old, roughly 30 percent date back to the Manhattan Project era, and nearly two-thirds are rated as less than adequate to meet mission needs. NNSA is long overdue to build a modern, safe, streamlined complex that will meet mission requirements, keep the deterrent safe, secure, and effective, and enhance employee and public safety. We cannot accept this risk in an uncertain and evolving global security atmosphere."

The Board not only has an expressed role to provide insight into how the DOE might safely operate in the current aged infrastructure, but it also has the opportunity to contribute expert guidance into DOE plans to modernize, or build new, infrastructure to safely house nuclear weapon material production.

¹⁶ National Research Council. Improving the Characterization and Treatment of Radioactive Wastes for the Department of Energy's Accelerated Site Cleanup Program. Washington, D.C.: The National Academies Press, 2005. Accessed September 19, 2018. <https://doi.org/10.17226/11200>.

Significant expansion of production in outdated infrastructure, and the need to either modernize or build new facilities, reinforce the critical nature of the Board’s safety oversight role.

2.2.4 Normal Attrition of DOE Skilled Workforce Leads to Skill Gaps

During interviews with certain DOE officials, the study team learned that the NNSA and EM workforce demographic data indicate that a large portion of skilled and experienced scientists and other experts who work with nuclear weapons materials in defense nuclear facilities is soon eligible to retire. The DOE anticipates a gap in skilled employees that must be carefully addressed. While this phenomenon is not unique to the DOE, as this is generally true across federal agencies (in a 2017 report of the GAO, it was reported that about 33 percent of all career federal employees would be retirement eligible¹⁷), the potential for “brain drain” from skilled DOE ranks is a concern given the impending production pressures. While the study team does not have the specific DOE HR data to cite as research, the narrative heard from DOE officials is consistent with other agencies across government, and is of great concern among some the study team interviewed.

In this context, the Panel stresses that there is high respect for DOE’s safety culture, which the Department diligently built over decades. Even so, erring on the side of caution, there is cause for concern as younger, less experienced, workers backfill the positions vacated by experienced DOE employees who engage with nuclear material.

Over the coming several years, the DOE will likely operate with a younger and perhaps less-experienced workforce handling lethal nuclear materials. This presents a strong argument for the Board’s continued robust safety oversight role.

2.2.5 Natural Production Phases Can Lead to a Lax Operating Environment

Operating deficiencies previously resolved by safe handling remediation actions may not remain resolved over time. There is often a period of time when there is more acute focus on improved safety measures in response to a particular safety issue and its remediation. However, there can be a departure over time from safe procedures, sometimes gradually, and even without intent. Even in an acute environment with potential danger, such as handling nuclear waste or producing nuclear materials, workers may overlook safety procedures set in place years before. In addition, there can also be a more deliberate effort to cut safety corners in order to drive up production. The result, in either case, is that the Department must constantly refresh its focus on nuclear facility safety, even for issues addressed by the DNFSB in years past.

The study team asked DOE officials whether the major value-added Board recommendations of its early years are now well entrenched. Some DOE officials said, “yes and no.” Certainly, DNFSB’s earliest years yielded substantial contributions to setting a safety regimen, according to the DOE.

¹⁷ U.S. Government Accountability Office, *Federal Workforce: Recent Trends in Federal Civilian Employment and Compensation*, GAO-14-215 (Washington, DC, 2014), accessed September 20, 2018, <https://www.gao.gov/products/GAO-14-215>.

However, the study team also noted that there are still reasons for diligently adhering to safety policies and procedures going back in time to the Board's inception and earliest years. In short, nuclear facility safety does not have a half-life like tritium or plutonium.

The Board's safety oversight role does not wane over time. Even its earliest recommendations often have as much relevance and application today as they did in the past.

2.2.6 Potential Real and Strategic Costs Connected with a Possible Future Safety Incident

The Panel also considered the potential strategic risks and financial costs attached to a possible future safety incident. At the outset, the Panel acknowledges that any direct or indirect harm suffered by workers at a nuclear defense facility, individuals co-located at a nuclear defense facility, or the general public will be inherently catastrophic. The negative repercussions of individual harm cannot be overstated; and therefore, the DOE and Board must hold these paramount to their respective missions.

Separate from loss of life, the Panel also focused on the financial and strategic defense costs to these types of accidents. The Department estimates the cleanup cost exceeded \$2 billion for the February 2014 nuclear waste accident that occurred in a tunnel, deep below the earth's surface at the Waste Isolation Pilot Plant (WIPP) in New Mexico.¹⁸ No one was hurt in this accident, and there were no clear health threats to workers at the WIPP site. The cleanup took about three years.¹⁹

If such a massive expense was incurred addressing the WIPP accident, it is difficult to imagine what the costs would be if the nation suffered a catastrophic accident that included human fatalities or harm, but it is reasonable to speculate that the financial costs would be exponentially higher than \$2 billion. In addition to the budgetary impact on the nation, the Panel expects that a major accident that included fatalities would also lead to a suspension of nuclear weapons production across the country for some period, perhaps as long as several years. Such an outcome could place the U.S. strategic plans well behind schedule and would likely place the country at substantial security risk.

The massive and potentially lethal risks of an accident at a nuclear defense facility underscore the critical nature of the Board's safety oversight role. The Board contributes to a robust culture of diligence and prevention.

Every day that passes when workers and the public are safe from an accident at defense nuclear facilities is a successful day for the DOE and DNFSB. Like many agencies that focus on preventing

¹⁸ Vartabedian, Ralph. "Nuclear accident in New Mexico ranks among the costliest in U.S. history." *Los Angeles Time*, August 22, 2016. Accessed September 5, 2018. <http://www.latimes.com/nation/la-na-new-mexico-nuclear-dump-20160819-snap-story.html>

¹⁹ There are numerous articles that describe this accident, including <https://www.forbes.com/sites/jamesconca/2017/01/10/wipp-nuclear-waste-repository-reopens-for-business/#3a2c7eda2052>

something bad from happening (e.g., the U.S. Secret Service or Transportation Security Administration), DNFSB's work is nearly invisible to the public. For DNFSB and others, "no news is good news." This "invisibility," which is one way to describe the nature of DNFSB's work, does not suggest that its mission has lost significance.

In summary, the Panel stresses that a strong and effective oversight of DOE nuclear facilities is needed more today than ever before, and the Panel agrees with the points that various DOE officials shared with the study team. The current nuclear defense imperatives, coupled with challenges that the DOE faces in production with respect to aging infrastructure and knowledge transfer from experienced scientists and engineers as they retire, leads the Panel to conclude that the DNFSB retains an extraordinary opportunity today and in the future to contribute to public health and safety. Today's environment presents different challenges than those that the Board faced in its first few decades. As such, it makes little sense to rebuild the Board to mirror exactly how it looked and even operated during its earliest years. Instead, the Board must position itself in a new way in order to address fundamental risks that take new forms as the country moves deeper into this century.

Chapter 3 Evaluating DNFSB Mission Performance

In this chapter, the Panel provides insights into how well the Board has met its mission over time, particularly in recent years. Except for the Board's annual report submitted to Congress, as required by statute, the DOE is the main recipient of DNFSB's work product. Therefore, the Panel focused principally on the Board's work, directed toward the DOE.

The study team adopted both documentary and interview methods to gain insights into how the Board's work might be evaluated. The study team examined the number of formal communications from the Board directed to the DOE over time. The study team also included Weekly Reports of DNFSB Resident Inspectors, and summarized points that DOE officials made in response to the question of how they see the value of Board output.

In addition, knowing that other stakeholders engage with DNFSB, the Panel offers brief summaries of what was learned about Board mission performance during interviews with key stakeholders. These groups include congressional staff, site contractors, and NGOs that focus on defense nuclear issues.

3.1 DNFSB Engagement with DOE

The DNFSB has three basic ways with which to engage the DOE to achieve its mission.

1. Official letters, reports, memoranda, and recommendations.
2. Resident Inspectors' weekly reports.
3. Informal communication and meetings between DNFSB Board members and staff with the DOE.

The first two channels come in the form of public documents. The overall volume of correspondence found on the DOE or DNFSB websites makes simple an evaluation of this documentation. DNFSB board members and staff have various opportunities to communicate with the DOE officials through informal personal communication. Interviewee opinions and publicly available documents submitted by the DNFSB and DOE provide a basis for the assessment of DNFSB and DOE informal communications.

3.1.1 DNFSB Public Work Products

For purposes of research, the study team counted the number of public documents submitted to the DOE by the DNFSB to evaluate the potential contribution that the DNFSB makes to the DOE's efforts to maintain public health and safety. The study team recognizes that there are both positives and negatives to using this relatively simple metric but believes there is some validity in the approach of using these data to indicate the overall volume of communication and how it has changed over time.

3.1.1.a. DNFSB Correspondence, Reports, Recommendations, and Memoranda

From the beginning of the Board's activity in 1990 until the end of July 2018, the Board issued 4,077 public documents in the form correspondence, reports, memoranda, and recommendations.²⁰ This means there has been an average of 141 distinct Board public documents provided to the DOE per annum.

[Appendix F](#) summarizes the tabulation of DNFSB correspondence, reports, recommendations, and memoranda sent to DOE, broken out on an annual basis. The Board communicated most with the DOE over the period from 1994-2006. Compared to the overall average of 141 communications sent to the DOE per year, the Board communicated with the DOE an average of 221 times per year from 1994 to 2006.

In the past five years, from 2013 through 2017, the Board's production has dropped to the lowest levels recorded in its history. The total of communications during this set of five years is 286, and the average number of public documents produced by the Board for the DOE per annum is 57.

The Board's public communication with the DOE has dwindled to a trickle over the past complete five years, and the current volume during 2018 shows little change from the previous recent years. Written output from the Board to the DOE in the past decade is miniscule compared to its first 20 years. Based on interviews with various stakeholders, the Panel concludes that the significant drop in public Board communications directed toward the DOE is due, in large part, to "stark disagreement among board members, on how and when reporting requirements should be issued."²¹ Because of the apparent discord, these individuals have struggled to come to a consensus on how best to advance the Board's compelling mission.

Given that a Board recommendation to the Secretary of Energy (Secretary) carries the greatest degree of importance for the DOE with respect to safety,²² it is particularly important to review the frequency of Board recommendations ([Appendix G](#) provides a year-by-year listing of all Board recommendations; it also shows how the DOE responded to each). As an explanation, when the Board issues a recommendation, the Secretary can accept or reject it. The Secretary has to inform both the Senate and the President and provide an explanation if he/she rejects a recommendation. Until now, a Secretary never rejected a recommendation. The Secretary must issue an Implementation Plan to address Board recommendations, if he/she accepts the recommendation.

The Board reviews all open recommendations on an annual basis and determines if each should remain "open" or "be closed." One of two considerations informs the decision to close a recommendation. Most often, the Board closes a recommendation when the majority of the work

²⁰ Tabulation of data found on the DOE website <https://ehss.energy.gov/deprep/>.

²¹ DNFSB Inspector General, "Audit of the DNFSB's Implementation of Its Governing Legislation," p 8. <https://www.nrc.gov/docs/ML1814/ML18149A287.pdf>.

²² As noted in Chapter 1, DOE must respond to each recommendation submitted to it by DNFSB.

directed by the DOE is complete, and the remaining tasks are both planned and seen as likely to be concluded. However, on occasion, the Board may deem that a recommendation is no longer the cause for the DOE to take correction action. The Board's recommendation #1997-01, on Safe Storage of Uranium-233, issued on March 3, 1997, is an example of this latter reason for closing a recommendation.²³ On April 29, 2008, the Board decided to close this recommendation after determining that the DOE was no longer taking corrective action. Over its now twenty-nine years of existence, the Board has issued fifty-nine recommendations. Of that total, the Board closed fifty-five recommendations; and four remain open.

The frequency of recommendations issued to the DOE was highest during the first five years of the Board's existence. During 1990-1994, the Board issued thirty-one recommendations to the DOE, all of which the Board eventually closed. In recent years, Board recommendations have nearly come to a complete halt, with only two recommendations issued to DOE since 2012.

In summary, public records of Board recommendations, memoranda, reports, and correspondence issued to the DOE indicate that the DNFSB formally communicated very infrequently with the DOE during recent years. As noted in [Chapter 2](#), this point is noteworthy, as the threats to public health and safety at defense nuclear facilities remain acute given the current environment. Furthermore, the Board has not made any formal recommendation on safety for nearly three years. In interviews with DNFSB board members, several reasons were provided to explain the drop-off in public communications. They included 1) less "low hanging fruit", as mentioned at the outset of the chapter; 2) differing board member thresholds for the use of the Recommendation tool; 3) fewer board staff to conduct initial reviews; and 4) greater consolidation of work product from several reviews.

Taking these explanations into account, the Panel nevertheless concludes that DNFSB's recent contribution to the DOE (in publicly available written form) is negligible. Given that the Board's mission is to add value to the DOE's efforts to protect public health and safety through public recommendations and assessments, this particular metric clearly indicates the Board has a penchant to avoid engaging formally with the DOE on public health and safety.

3.1.1.b. DNFSB Resident Inspector Weekly Reports

In addition to public correspondence provided by the DNFSB to the DOE, at each site where the Board has deployed a resident inspector (at present, the Board has resident inspectors at five of thirteen nuclear defense facilities), the resident inspector(s) must issue a weekly report. The purpose of the weekly report is to draw attention to issues observed by inspectors during the previous week. The DNFSB makes the weekly reports public after a short delay. The Board's policy is to limit the weekly report to one page and to make all weekly reports available on the Board's

²³ <https://www.dnfsb.gov/board-activities/recommendations/safe-storage-uranium-233>

website.²⁴ In locations where there is no board resident inspector, there are no weekly reports submitted.

Interviews confirm that several stakeholders carefully review the resident inspector weekly reports including DOE officials at each site, contractors who operate defense nuclear facility sites, media, and watchdog groups. Both the DOE and contractors find these reports helpful in raising safety issues for resolution. The study team also learned that it is possible for the DOE and contractors to challenge some topics addressed in draft versions of the weekly reports, as inappropriate for public scrutiny. That said, DOE officials and contractors generally conclude that resident inspectors provide a competent set of additional eyes and contribute to the safety culture and methods at each location.

3.1.2 Informal Communications between the DNFSB and the DOE

Separate from publicly available written correspondence, informal engagement between the Board and the DOE comes through many channels, including resident inspectors, board members, and board staff. The fraternity of professionals working at defense nuclear facilities is small and people generally know one another. Further, several senior DOE officials and contractors working in the nuclear complex are former DNFSB employees. As such, there are important informal linkages that both enhance and challenge how the Board contributes to the DOE's mission.

3.1.3 DOE Order 140.1²⁵

On May 14, 2018, the [DOE issued Order 140.1](#) (the Order) to DOE employees on how they should interface with the DNFSB. Based on DOE testimony at a public hearing convened by the DNFSB on August 28, 2018, and confirmed in DNFSB board member statements at this hearing, the DOE did not confer with DNFSB board members or staff members while preparing the Order. The Order addresses concerns related to the impact of the DOE's responses to, and interactions with, the DNFSB. It codifies expectations as to the DOE engagement with the Board, and aligns how DOE defines its roles and responsibilities with the enabling statute.²⁶ While the Order provides clarity about the DOE's interpretation of the authorizing statute, it does not necessarily have any legally valid impact on how the DNFSB might interpret the same authorizing statute. In this section, the Panel highlights several important points where the DNFSB and DOE statutory interpretations often diverge. While the Panel does not intend this section to provide a thorough legal treatment of the points that are under debate, the Panel offers a short summary of key issues to provide greater context and insight into issues that shape the DNFSB-DOE relationship. In brief, the DOE is using

²⁴ <https://www.dnfsb.gov/documents/reports/resident-inspector-weekly-reports>

²⁵ <https://www.directives.doe.gov/directives-documents/100-series/0140.1-BOrder/@@images/file>

²⁶ Summary information on Order 140.1 taken from the Roll-out Information and Training document prepared by the DOE Office of the Departmental Representative to the DNFSB, Office of Environment, Health, Safety and Security.

Order 140.1 to set a public marker that could limit DNFSB's oversight role in significant ways. The Panel focuses on two key issues below.

1. *Public health and safety and restricting DNFSB's access to some defense nuclear facilities.* The DOE and the Board do not agree on the meaning of the word "public." DNFSB board members believe that this term can be interpreted to also include "worker" and "co-located worker" health and safety. "Workers" are those individuals who work with nuclear substances, and "co-located workers" refers to those additional employees who work inside the defense nuclear facility, but do not handle nuclear material. The DOE officials contend that the term "public" means only those individuals located outside of the defense nuclear facility. In keeping with the contention that public health and safety relates to individual safety outside of the facility itself, the DOE also concludes that DNFSB's mission is limited to only those facilities considered to pose a safety threat to the public. The DOE's definition would scale back where DNFSB may perform its oversight function, as the Order restricts the Board's access to information for Hazard Category 3 and radiological defense nuclear facilities.²⁷ This hazard category is limited to worker and co-located worker safety, rather than public health and safety, as defined by the DOE. According to an August 29, 2018 *Pacific Standard* magazine article:

The order could also cut the number of buildings subject to the board's jurisdiction by 71 percent, removing certain lower-level facilities that handle highly dangerous chemical and nuclear materials but do not present a risk to the public. An official from the National Nuclear Security Administration said board members would still have some access to the lower-level facilities. Among the facilities that would no longer be subject to board oversight is the Waste Isolation Pilot Plant in southern New Mexico, according to the board's technical staff.²⁸

2. *Communications and access to pre-decisional documents.* The Order states that all requests for information or access to defense nuclear facilities made by DNFSB board members or staff members must be referred to the DOE Departmental Site Liaison for a response. Furthermore, the DOE's Order places new restrictions on Board access to deliberative documents, pre-decisional documents, and deliberative meetings. Thus, resident inspectors and others who may have communicated more informally in the past must now engage in more structured communication. The DOE related in meetings with the study team, that they intended this more formal way of communicating would ensure greater quality control in preparing responses, so that all responses to DNFSB are informed by the latest information and data. In short, what can be construed as a more

²⁷ Hazard Categories (HazCat) is described in DOE policy document found at <https://www.gpo.gov/fdsys/pkg/CFR-2011-title10-vol4/pdf/CFR-2011-title10-vol4-part830-subpartB.pdf>.

²⁸ <https://psmag.com/environment/new-order-violates-the-atomic-energy-act>

bureaucratic engagement process that might entail delays to fulfill information requests from the DNFSB, is justified by the DOE to be a more controlled and accurate process on the side of the DOE. This action also allows contractors to deflect DNFSB information requests, as all go directly from the DNFSB to the DOE.

The Panel contends that the Order could place greater constraints on how the DNFSB completes its mission, as the DNFSB interprets it; and so, would pose a greater risk to the safe operations of DOE defense nuclear facilities. ([Chapter 4](#) addresses the lack of a common interpretation of the DNFSB authorizing statute by the board members themselves; this fact poses a challenge to the Board being able to have a collaborative response to address its mission).

3.2 Quality of DNFSB Products

The Panel provides insights into the current DOE view of DNFSB contributions by referencing two key parts of research: 1) interviews discussing how DNFSB products are generally seen by various officials and 2) a review of DOE Order 140.1, issued in May 2018.

3.2.1 DOE Interview Feedback Assessing the DNFSB Product and Interagency Relationship

The DOE's evaluative comments are consistent regarding the quality of DNFSB products, the quality of DOE messaging, and the vision for change. The following points provide a reasonable summary characterization of how the DOE officials, across the board, view the current quality and frequency of formal communication that the Board issues to meet its mission:

- The Board's written products, "nibble around the edges of safety." Rather than addressing strategic issues, others view the Board's focus as excessively specific in addressing a number of details rather than addressing key large issues that are germane to its mission. The Board, thus, is leaving important safety issues unaddressed.
- The DNFSB does not consider costs that the DOE would incur to comply with Board recommendations. At times, the DOE is challenged to estimate all of those costs as well.
- The Board's approval processes connected with approval of formal documents submitted to the DOE are so cumbersome that their public documents raise issues that have already been resolved informally. Some information takes the form of, "too little, too late."

The Panel's research clearly found that DOE officials seek a reinvigorated strategic-level dialogue with board members. Several DOE senior staff spoke about the value of convening a meeting with all DNFSB board members present where the Board could solicit DOE feedback on the most important challenges they face on the horizon and talk about how DNFSB can best help address these challenges through their oversight function.

However, DOE officials also expressed concerns about some unfortunate circumstances that fuel a poor relationship between the two agencies. For example, on May 17, 2018,²⁹ the DNFSB board members were briefed by DOE staff on SRS safety issues. The meeting was scheduled with the DOE more than a month in advance to allow DOE staff and SRS contractors ample time to prepare their presentation and set travel plans to attend the meeting. Despite the long-planned nature of this important meeting, study team research verified that only two of the board members attended this meeting. The other two board members were reportedly located within the DNFSB headquarters building at the time of the meeting but did not attend. Study team research indicates that there were no explanations offered by DNFSB members for the absences. Unfortunate actions such as this remain another reason for distrust and poor relations between board members and DOE officials.

3.2.2 Other Stakeholders: Feedback on DNFSB's Product

Separate from the DOE, three other main stakeholder groups provided feedback to the study team on the quality of the Board's work including contractors, congressional staff, and watchdog groups. The study group summarized their feedback below.

Contractors at nuclear defense facilities. Contractors to the DOE largely staff the defense nuclear facilities. Resident inspectors in particular, but other board staff and even board members, maintain informal contacts with contractors operating under the DOE's direction at nuclear defense facilities. In interviews at two sites, the study team received consistent high-level comments that the Board's role remains important and that its insights into public health and safety are valuable to site production. While there were occasional concerns expressed about potential Board over-reach in some aspects of their communication, both informal and formal, there is a clear general consensus that the Board's work is appreciated and respected by this group.

Congressional staff. Meetings with relevant congressional staff indicate only a modest familiarity with the Board's role and its contribution to public health and safety. Besides the Board's annual report submitted to the House and Senate Armed Services Committees, and meetings to discuss appropriation requests, the Board seems to have a low profile on the Hill. Members who represent states with defense nuclear sites have, on balance, a greater interest in the Board's contributions. The Board presently lacks a senior staff person whose role is to serve as congressional liaison for the agency.

Congressional staffers are informed of several recent public reports on the DNFSB³⁰³¹³² that speak about the dysfunctional environment characterizing the way that current board members engage

²⁹ Defense Nuclear Facilities Safety Board, Savannah River Site Conduct of Operations Safety Management, 17 May 2018, https://www.dnfsb.gov/sites/default/files/organization_brief/Agenda_24.pdf.

³⁰ LMI. *Assessment Of The Defense Nuclear Facilities Safety Board Workforce And Culture*. December 2014. https://www.dnfsb.gov/sites/default/files/Announcements/LMI_Final-Report.pdf

³¹ DNFSB Inspector General, "Audit of the DNFSB's Implementation of Its Governing Legislation," p 9. <https://www.nrc.gov/docs/ML1814/ML18149A287.pdf>.

with one another, and how this unfortunate circumstance has led to a deterioration in the Board's formal and informal products to enhance safety in DOE facilities. Congressional staff members who engage with the Board recognize the lack of collaboration among board members.

It is appropriate and essential for federal agencies to engage with congressional oversight committees when working on agency restructuring plans. The Board did not consult with congressional staff or Members of Congress in planning or announcing its mid-August reorganization. The acting board chair was not proactive in providing an elaboration of restructuring details and constituency-level affects to congressional stakeholders, and the Board neither held these initial discussions nor provided notification to the Hill before the announcement.

Non-Governmental Organizations. Several NGOs focus on safety issues at nuclear defense facilities. Sometimes called watchdog groups, the study team learned that they believe the Board provides a critical, experienced set of technical eyes essential to effective oversight of these production facilities. The resident inspector weekly reports offer excellent insight into the inherently dangerous work underway at these sites. These groups believe the DNFSB plays a critical role, and they are strong proponents of an effective, well operating Board.

³² Towers Watson. *DNFSB 2015 Culture and Climate Survey Executive Overview of Key Findings*, August 2015, <https://www.nrc.gov/docs/ML1524/ML15245A515.pdf/>

Chapter 4 Engagement among Board Members

This chapter offers an evaluation of the overall working relationship among board members. The Panel provides a review of best practices for high performing deliberative bodies (like DNFSB); and based on its research, the Panel compares how board member behaviors compare to leading practices. The Panel concludes this chapter by providing two contrasting case studies on evaluating how well board members worked together to address important strategic issues facing the Board during the past few months.

4.1 Lack of Collaboration among Board Members

Based on interviews with board members, board staff members, and external stakeholders, the Panel joins with other analysts who conclude that board member engagement with one another shows clear signs of being substantially dysfunctional in how members deliberate on mission-critical issues. Research unambiguously points to an environment among board members that is often uncivil and unhealthy. The lack of collaboration among board members has a subsequent negative impact on the entire Board's work processes, products, and even the overall work environment for Board employees. The Panel is not stating in this report that board member discord is the sole source of all problems at the Board. Rather, the Panel stresses that the tone at the top impacts the entire organization, and effective working relationships between leaders have the potential to tap into employee motivation and inspiration to contribute to the agency's mission.

These findings comport with multiple public reports identifying similar evidence contributing to negative perceptions of the Board. Logistic Management Institute's (LMI) 2014 report on the Board, "Assessment of the Defense Nuclear Facilities Safety Board Workforce and Culture," described politically-driven board members who failed to adequately communicate organizational changes to staff members and communicated using "abusive, unprofessional, and divisive" tones. That study, more importantly, found that, "perhaps the most important dynamic involves the divisive and dysfunctional relationship among DNFSB's senior leadership: the board members themselves."³³ Four years later, the Panel found evidence that these same behaviors and lack of collegiality continue to characterize how board members engage today.

More recently, but consistent with the LMI report, the Nuclear Regulatory Office of Inspector General's 2018 "Audit of the DNFSB's Implementation of Its Governing Legislation" cited board members' lack of collegiality as a major contributor to low employee morale and determined that, "the Board has not taken sufficient action to address issues identified through employee surveys."³⁴ Study team interviews with internal and external stakeholders validate this assessment as well, and

³³ LMI Report - https://www.dnfsb.gov/sites/default/files/Announcements/LMI_Final-Report.pdf

³⁴ DNFSB Inspector General, "Audit of the DNFSB's Implementation of Its Governing Legislation," p 9. <https://www.nrc.gov/docs/ML1814/ML18149A287.pdf>.

make clear that board members themselves are largely responsible for the Board’s overall subpar performance, as seen by the DOE and several other stakeholders.

4.2 Best Practices of High-Performing Boards

Research³⁵ on the characteristics and best practices of high-performing boards³⁶ indicates that the interpersonal relationships between board members are fundamental to enhancing organizational success. For the DNFSB to be a high-performing deliberative body, board members must:

- 1) **Agree on a clear mission and strategic vision.** Developing organizational priorities allows a board to lead its organization to effectively carry out their mission.

DNFSB Example – The DNFSB’s current Fiscal Year 2018-2022 strategic plan lacks specific, mission-focused direction and is reflective of the Board’s current subpar level and quality of output outlined in [Chapter 3](#). The Board acknowledged that the current strategic plan was primarily assembled using language from the enabling statute rather than developing a forward facing plan.

- 2) **Reflect the current needs of the organization.** As organizations face new challenges, their board members should have managerial and technical skill sets that are suited to identifying solutions and adapting to a dynamic workplace. Organizations should consider replacing current board members if they no longer fit the needs of the organization.

DNFSB Example – Three of four board members are beyond their term limit. On October 5, the White House re-nominated two of those board members who are serving expired terms. One additional individual was nominated to serve on the Board.³⁷ One current board member has not been re-nominated. Current board members do not currently demonstrate the requisite collaborative skills necessary to lead a high-performing Board.

- 3) **Interact respectfully and honestly, cultivating mutual trust.** Relationships between board members must begin from a place of mutual respect and an ability to engage in honest conversations.

DNFSB Example – Board members do not trust one another, as evidenced by stakeholder interviews and board member comments.

³⁵ Jansen, Paul J., and Andrew R. Kilpatrick. “The dynamic nonprofit board.” *McKinsey Quarterly*. May 2004. <https://www.mckinsey.com/industries/social-sector/our-insights/the-dynamic-nonprofit-board>

³⁶ Jeffrey A. Sonnenfeld, "What Makes Great Boards Great," *Harvard Business Review*, August 01, 2014, accessed September 05, 2018, <https://hbr.org/2002/09/what-makes-great-boards-great>.

³⁷ White House, *President Donald J. Trump Announces Intent to Nominate Personnel to Key Administration Posts*, 3 October 2018, <https://www.whitehouse.gov/presidential-actions/president-donald-j-trump-announces-intent-nominate-personnel-key-administration-posts-64/>.

- 4) **Freely exercise dissenting opinions.** Meetings and hearings should offer board members an opportunity to engage in meaningful discussions where dissenting opinions are valued and considered during the overall deliberation process.

DNFSB Example – Board members do not openly discuss contentious issues. Given the challenging nature of the notational voting system³⁸ carried out by board members due to their interpretation of the Sunshine Act (discussed further in [4.4](#)), board members do not have an adequate opportunity to respectfully challenge each other’s opinions.

- 5) **Continually evaluate their performance and respond to findings.** Boards must develop organization-specific measures of success that reflect the nature and output of the board, and members must evaluate their own performance by these standards. These evaluations should be informative and provide opportunity for growth.

DNFSB Example – Board members have received reports from three previous studies outlining organizational and/or climate concerns, but they have not satisfactorily addressed the findings. This Academy study is the latest of several reports over the last several years to reflect these concerns.

4.3 Factors Contributing to Dysfunction

The Panel identified several sources of discord during its research. These are important areas to examine as the board members devise a course to follow that will improve their collaborative efforts to achieve the critical mission outlined in [Chapter 2](#).

4.3.1 Discord Over Mission and Oversight Philosophy

Board members disagree on the nature and importance of the Board’s mission. Their disparate views stem from differing academic backgrounds, work experiences, motives, and perspectives. These disagreements are so pronounced that they have prevented the Board from operating in a strategic manner and prevent stakeholders from understanding the trajectory of the Board.

Individual board members also disagree on the Board’s role in ensuring nuclear safety and their scope of governmental oversight. Board members view the Board’s independent oversight on a spectrum ranging from critical and necessary to an unnecessary additional layer of bureaucracy. Board members are not adept at balancing competing policy views over the Board’s role in advising the DOE about the public safety threat posed by a potential nuclear event and their opinion that the Board’s mission is redundant given that other federal authorities regulate and audit nuclear facilities. These basic disagreements contribute to an unhealthy working environment at the top

³⁸ In accordance with the Sunshine Act, notational voting allows board members to circulate information amongst one another without creating a quorum. Votes are then tabulated and the decision is made public. Board members do not meet during this process.

level characterized by lack of consensus and unwillingness to compromise. If agency leadership cannot agree on fundamental aspects of the mission, how can agency employees expect to follow and fulfill such a blurred mission?

4.3.2 Jurisdictional Disagreement

Board members further disagree over the range of the agency's current jurisdictional authority. Exemplified by recent discussions concerning the Board's purview over worker safety at facilities (discussed in [Chapter 3](#)), some board members have sought to limit the Board's jurisdiction. Historically, the Board has reviewed worker safety, but some board members currently argue that worker or co-located worker safety should not fall under the Board's jurisdiction if it does not influence wider public safety.

Partly because of jurisdictional disagreements, board members have had difficulty forging consensus on how to respond to jurisdictional challenges posed by the DOE. For example, regarding Order 140.1, previously discussed in [Chapter 3](#), the Board took a reactive approach. The review of DOE standards, including regulations, is the first Board function listed in its authorizing statute. Given that such a directive fundamentally affects the Board's oversight, not just the scope of the Board's purview but also the information to which it has access and the organizations like contractors with which it communicates on a day-to-day basis, it would be incumbent on the Board to always ensure such directives are working effectively without any barriers to oversight. The Board, however, took no action when it became common knowledge among the nuclear safety community that the Department was reexamining its previous operating manual and considering converting it to a more formal directive. Members discussed the potential issues during that initial development period, but the Board took no formal action. As discussed in Chapter 3, the Board authorized hearings only after the Department put the Order in effect in late-May, but took it several months to actually hold a public hearing, eventually convened on August 28, 2018.

The Board members took a similar reactive approach to the DOE's revision of a key nuclear safety regulation, [10 CFR Part 830](#)³⁹, and did not actively pursuing explanatory and supplementary information from DOE officials after learning the revisions were underway. In this development period, the Board opted against using its baseline authority to review Department rules and regulations in nuclear safety, by neither requesting hearings nor submitting formal information requests. Additionally, the Board opted against a more deliberative review of the regulation as it neared finalization. The study team learned that the DOE did not want to include the Board in its deliberations and initially offered the Board a one-week review period. The Office of Information and Regulatory Affairs of the Office of Management and Budget (OIRA), in its own review of the

³⁹ The Department of Energy, "10 CFR 830 Nuclear Safety Management", January 1, 2011. <https://www.gpo.gov/fdsys/pkg/CFR-2011-title10-vol4/pdf/CFR-2011-title10-vol4-part830.pdf>

regulation, offered to delay and provide the Board a ninety-day review period. The Board voted⁴⁰ to reject the opportunity to carry out this longer review, despite the fact that the proposed regulation serves, “as a cornerstone of the Department of Energy’s regulatory framework to ensure adequate protection of public health and safety.”⁴¹ The Board opted to provide comments on the regulation during the regular, public comment period.

4.3.3 Poor Relationship and Engagement with the DOE

Board Members also disagree over the manner that the DNFSB’s relationship with the DOE should be steered. Some believe the Board is simply a subordinate advisory board, only bringing issues and concerns to the Secretary of Energy and senior DOE officials. Others see it as a truly independent agency with broader responsibilities beyond the DOE, including to the President, Congress, and the wider public. The 2013 statute⁴² narrowed the Board’s specific mission to providing recommendations to the Secretary and gave the Secretary greater ability to respond to potential board recommendations.

Board members also differ in their perspectives on the appropriate level of Board engagement with the DOE. Disagreements over whether the Board should merely identify issues for DOE’s attention or whether they should add reporting requirements to force the DOE to act on recommendations, have exposed the rift that exists between current board members.

4.3.4 Lack of Strategic Direction

Lack of collegiality also directly affects the board members’ ability to act strategically to identify the most critical safety issues for the DOE’s nuclear facilities. The Board’s FY 2018-2022 Strategic Plan reflects the board members’ inability to develop a detailed, nuanced, and targeted plan to address nuclear safety.⁴³ Due to board member disagreements over the Board’s mission and jurisdiction, the strategic plan simply draws from its authorizing statute rather than providing specific concrete expansion on the statute relevant to current nuclear safety priorities. Attempts to indirectly identify the Board’s priorities through an analysis of board member decisions prove challenging due to a lack of context and narrative around the board members’ decisions (the Board’s voting process is explained further in section 4.4.1).

⁴⁰ <https://www.dnfsb.gov/sites/default/files/document/14936/2018-300-052%2C%20RFBA%20by%20Board%20Member%20Connery%20to%20Accept%20the%20OIRA%20Offer%20of%20a%20Review%20of%2010%20CFR%20830%20ARCHIVE.pdf>

⁴¹ Defense Nuclear Facilities Safety Board, Letter to Secretary of Energy Perry, April 27, 2018. <https://ehss.energy.gov/deprep/2018/FB18A27B.PDF>

⁴² Public Law 112-239, Fiscal Year 2013 National Defense Authorization Act, January 2, 2013. <https://www.congress.gov/112/plaws/publ239/PLAW-112publ239.pdf>

⁴³ FY18-22 Strategic Plan. https://www.dnfsb.gov/sites/default/files/page/FY%2018-22%20Strategic%20Plan_0.pdf

4.4 Board Member Public Communications

The [1976 Sunshine Act](#),⁴⁴ which requires multi-member agencies to hold their meetings in public with adequate notice, limits opportunities for board members to thoroughly deliberate and come to a consensus on important Board functions. Board members often forgo the stringent requirements for a public forum, and instead, take advantage of the law’s so-called “safe harbor,” which permits notational voting, as long as the results are publicly published.

4.4.1 Primary Means of Board Member Communication

Board members primarily carry out deliberations through notational voting, an electronic information sharing process, which the Board calls the “Folders and Clearances” process. The board members rarely meet openly to discuss Board matters, holding only three business meetings in 2017 and, in 2018, none through the end of September.

Through a multi-step process, board members engage with and respond to one another via independent markups of staff-developed Issue Reports that address safety issues at specific facilities or across all facilities.⁴⁵ Using technical staff as messengers between them, Board Members make changes and comments to the briefing without the benefit of deliberating as a group. Once all changes have been made, individual board members can submit amendments that are then voted on by all board members. The process concludes with a final vote on the issue report; board members are not required to provide comments with their decision. There is no back-and-forth among board members during the voting process. The Board publicly releases votes, often without greater context or explanation of the considerations that went into each board member’s decision.

4.4.2 Alternate Means of Board Member Communication

The board members can convene for briefings without calling a public meeting, but the Sunshine Act requires that they do not deliberate on substantive matters unless in public. Those sessions do not provide a means for compromise and discussion. In fact, the Panel’s research suggests that board members use these briefings to signal their views through specific lines of questioning posed to Board staff members. Additionally, board members can engage one-on-one to discuss issues, but the Panel’s research indicates that these inefficient interactions do not lead to productive compromise on major Board issues. Finally, the Board holds several types of open sessions, whether hearings on specific nuclear safety topics that include public interest groups or more internal “business” meetings to hear public comments and approve work plans and key documents.

⁴⁴ Pub. L. No. 94-409, 90 Stat. 1241 (1976) (5 U.S.C. § 552b).

<https://www.gpo.gov/fdsys/pkg/STATUTE-90/pdf/STATUTE-90-Pg1241.pdf>

⁴⁵ <https://www.dnfsb.gov/board-activities/reports>; <https://www.dnfsb.gov/board-activities/reports>

4.4.3 Implications for Collegiality and Transparency

Heavy reliance on notational voting creates several fundamental issues for the Board's operations. First and foremost, the board members do not have the ability to collectively hear each other's views and develop heightened cooperation in closed meetings.

Secondly, the release of results without context makes it difficult for the Board to settle matters, and as such, members re-litigate issues repeatedly. The study team's review of publicly available notational votes revealed that one member commented on the Board's lack of collegiality when it quickly reversed a decision to force board members to justify and discuss the reasons for putting forward a Request for Board Action, the primary mechanism to create a new task or redirect the Board's staff.⁴⁶ The lack of comments explaining a board member's voting decision, including a vote to abstain, does little to create public transparency.

The Board's interpretation of the law seems to satisfy the letter, but not the spirit, of the Sunshine Act. As confirmed by the 2014 Administrative Conference of the United States report on the impact of the Sunshine Act on multi-member agencies, "In theory, the notational voting 'exception' could practically swallow the 'rule' of openness created by the Sunshine Act,"⁴⁷ and this appears to be the case with DNFSB.

4.5 Two Case Studies on Board Member Collaboration

Two significant events unfolded during the month of August 2018 offering insights into the quality and nature of board member collaboration. The Panel provides a brief summary of each event to highlight the potential for a high performing deliberative body on one hand, and a poorly executed board member engagement on the other hand. The Panel wants to highlight how board members are indeed capable of functioning cohesively to address the complex strategic topics that are core to the Board's operations. The second case study reveals a very different quality of engagement by board members where they did not operate according to best practices in announcing a major organizational restructuring, demonstrating how engagement with one another often lacks professionalism that the agency's mission merits.

⁴⁶ Defense Nuclear Facilities Safety Board, "Board Notational Votes." 2018-300-029, RFBA by Board Member Santos to Rescind RFBA Procedure Changes Approved in 2018-300-014

⁴⁷ Administrative Conference of the United States, "The Government in the Sunshine Act in the 21st Century," Reeve T. Bull, March 10, 2014, p. 10.

<https://www.acus.gov/sites/default/files/documents/Government%20in%20the%20Sunshine%20Act%20Draft%20Report%20REVISED%205-7-14.pdf>

4.5.1 Conducting Public Hearing on DOE Order 140.1

On August 28, 2018, the Board convened its first public hearing since March 22, 2016, at the Board's offices in Washington, D.C., to discuss the aforementioned DOE Order 140.1. The meeting, "DNFSB's First Public Hearing on the Department of Energy's Interface with the Defense Nuclear Facilities Safety Board," was designed to, "Gather information on 1) objectives of the DOE Order 140.1, Interface with the Defense Nuclear Safety Board; 2) DNFSB access to information, facilities, and personnel; and 3) potential impacts to the DNFSB resident inspector program."⁴⁸ The hearing was composed of three sessions including a statement by the Deputy Secretary of Energy; testimony from two DOE officials and the DNFSB Technical Director; and public comments and concluding statements from board members.

The study team members attending the hearing concluded that board members were successful in working collaboratively and collegially throughout the three-hour public hearing. The acting board chair adeptly presided so that all board members had opportunities to express opinions and pose questions. The manner in which board members individually and corporately addressed important issues raised in the Order, revealed a unity of concern, and their engagement with hearing witnesses reflected how these four board members work seamlessly together to address strategic agency issues. The acting board chair publicly observed and commended the unity of the board members as they addressed the Order.

This Hearing exemplifies how these four individuals can work together to cohesively address important DNFSB business. The Order galvanized the otherwise disparate views of individual board members. The fact that the board members shared common concern over the DOE's action gives insight into how these four individuals can demonstrate skills and the will to work collaboratively to achieve an important outcome for the agency.

4.5.2 Announcing Organizational Restructuring on August 15, 2018⁴⁹

As noted in Chapter 1, the acting board chair called for a board vote to execute a significant organizational restructuring during the latter stages of the Academy project contract period. The board members were not unanimous in their support for this restructuring plan with three board members in favor, and one opposed.⁵⁰ Significant portions of this draft report were already

⁴⁸ Quotation from the Proposed Agenda to the Public Hearing distributed by DNFSB at the meeting.

⁴⁹ The organizational restructuring was announced while the Panel's report was being drafted. This timing, in and of itself, is troubling to the Panel, especially given previous messaging from board members to the Academy that this report would be used as a guide to consider future organizational changes. That said, the observations drawn in this case study are not prompted by the obvious lack of coordination with the Academy's work. Rather the Panel examines how the board members failed to collaborate with one another in making such important organizational decisions.

⁵⁰ The public record of the Board vote on August 15, 2018 can be found at: <https://www.dnfsb.gov/sites/default/files/document/15621/2018-300->

complete when the Panel learned of this important change to the DNFSB's organizational structure announced on August 15, 2018. During September, after watchdog groups and others articulated to Congress a significant number of concerns, Congress passes legislation to stop all funding for the restructuring, thus halting the initiative.

It is still important to consider the history of this failed attempt by the Board at strategic restructuring. This restructuring would have had a profound impact on how the DNFSB moves forward with respect to field operations, headquarters staffing, and administration of the agency. It was not a restructuring that was incremental in nature, and it is clear to the Panel that this might serve as a general guide for pivotal adjustments to how the DNFSB will engage in its mission going forward.

The Panel assessed how the board members approached the sweeping changes in order to evaluate further how they go about their duties on behalf of the mission of enhancing public health and safety. The following observations greatly concern the Panel.

- *Lack of discussion among all board members.* According to the dissenting board member, she received information about the vote with little advance notice from the acting chair. In her written dissent, she contended that the Board did not properly consult her on this important organizational change, as required in the authorizing statute (the Panel did not receive a contrary narrative from the acting board chair).
- *Lack of analysis or data cited to support the restructuring.* From discussions between the Panel, project study team, and board members, as well as reference to the written voting record, there are no particular data or detailed analyses, upon which the Board based specific changes in field personnel and headquarters personnel.
- *Timing of the action is not adequately explained.* The acting board chair did not provide a clear explanation to the Panel as to the timing of the vote, nor could he explain why this action was taken in advance of the planned submission of the Panel's report.⁵¹
- *The outcome (i.e., a much smaller agency) appears inconsistent with the Board's broader position in opposing DOE Order 140.1.* The Panel does not understand how the board members, who support the restructuring, can justify a significant decrease in overall Board staff members in the face of their strong opposition to the DOE's efforts in Order 140 to slim down the Board's overall mission field.

In reviewing how the four board members engaged with one another, as led by the acting board chair, the Panel concludes that such an important organizational restructuring would certainly

[090%2C%20RFBA%20by%20Acting%20Chairman%20Hamilton%20to%20Approve%20the%20Public%20Release%20of%20Agency%20Reform%20Notational%20Votes%20ARCHIVE.pdf](#)

⁵¹ At the time of the restructuring announcement, the Academy study was to be completed by early October 2018. That delivery date was subsequently changed to November at the request of the Acting Board Chair.

require extensive discussion, analysis, and time to consider the changes. However, in this instance, the board members' actions did not ensure a collegial and collaborative engagement with each other.

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Chapter 5 DNFSB Employees

Employees are the most critical asset of any organization. As highlighted in Chapter 4, an organization's leader(s) is essential to inspire and direct these precious assets. Former U.S. Senator and athlete Bill Bradley said, "Leadership is unlocking people's potential to become better." Best practice research shows that leaders who effectively tap into the full potential of their employees characterize high-performing organizations. Leaders who place a high priority on working collaboratively are best able to identify and deploy the skills of their individual team members. It is also incumbent on staff members to engage professionally to support the efforts of agency leaders.

In this chapter, the Panel provides research-based observations on the experience that employees have working at the Board. The Panel begins by providing a short summary description of Board employees, followed by an overview of both publicly available data and points taken from employee interviews that provide high-level insights into the quality of the DNFSB employee experience. The Panel can state unequivocally at the outset that Board employee morale is exceptionally low (this is discussed in more detail in Chapter 5.2).

The Panel proceeds to discuss several issues that contribute to the poor state of staff morale, dividing its diagnosis into three segments. First, the Panel speaks about the current state of board member/staff member relations, and board member discord affects these relationships. The Panel then speaks to some of the evidence of the lack of collaboration between staff members and board members. Finally, the Panel speaks about how to address these management and operational issues.

The Panel is greatly concerned that board members do not recognize their important role as stewards of the careers of those federal public servants who make up the Board's staff. The low morale that emerges because of a lack of collaboration and cooperation among board members, and other organizational challenges, is leading to a high rate of staff departures.

5.1 Board Employees: High Level Summary Background

The Board's operating strength approved by the Office of Management and Budget in Fiscal Year 2019 is 117 Full Time Equivalents (FTEs). Currently, the agency has a total employee contingent of about 93 FTEs. Within the Board, there are three primary offices, including the *Office of the Technical Director* that conducts the reviews of defense nuclear facilities. Many of the technical staff members are highly educated scientists and engineers with extensive, valuable experience. The *Office of General Management* is responsible for providing critical support functions such as acquisition, information technology, human resources, and facilities management. *The Office of the General Counsel* provides legal advice. A member of the Senior Executive Service (SES) leads each of the offices. The Office of the Technical Director has several teams focused on functional areas, led by an SES official. The Board located its safety experts at key facilities across the country. Known as resident inspectors, these officials are a presence at the defense nuclear facilities, attending meetings and inspecting specific activities.

5.2 Employee Morale

The Federal Employees Viewpoint Survey (FEVS), administered by the Office of Personnel Management (OPM), offers a starting point for annually evaluating employee experience. The FEVS measures employees' perceptions of whether, and to what extent, conditions characteristic of successful organizations are present in their agencies. The FEVS allows employees to share their perceptions in many critical areas including their work experiences, their agency, and leadership. The FEVS provides results at work unit levels allowing managers to see where improvements within their work unit are necessary.⁵²

The Board had the lowest overall ranking (28th place) among small agencies in the 2017 FEVS. The agency's respondents— the second highest rate of response of comparable organizations at 89 percent—cited strong dissatisfaction with the agency's leadership. Only 25 percent of respondents respect senior leadership, and only 32 percent feel empowered in the agency's work or have involvement in decisions.⁵³ These results reflect a significant drop in employee satisfaction since 2011 when the agency ranked among the very highest FEVS rankings (see [Appendix H](#) to see FEVS score trends). The Panel notes that a high response rate generally indicates that employees care about the agency and seek a positive change.

Additionally, the Panel observes evidence of poor employee morale through the agency data on overall staff turnover. Since 2012, forty-six members of the technical staff, including fourteen with doctorate degrees, have left the agency.⁵⁴ Hiring has not fully replaced the losses.⁵⁵

Based on extensive interviews, FEVS scores, and staff turnover data clearly indicate that DNFSB employees, in recent years, are dissatisfied with the experience of working at the Board. Further, the study team convened interviews with more than forty-five agency employees on a broad range of topics in order to evaluate the current state of employee satisfaction and to learn more about specific concerns. These interviews were off the record and not for attribution. The study team interviewed a cross-section of senior and junior level employees. The study team also met employees working in all the main segments of the organization: General Counsel's Office, General Administration, Technical Staff, and Resident Inspectors. Based on its own research, the Panel unequivocally concludes that employee morale remains at a low ebb across the agency. Notwithstanding the negative views expressed by interviewees, troublesome trends with respect to

⁵² US Office of Personnel Management. Federal Employee Viewpoint Survey.

<https://www.opm.gov/fevs/about/>

⁵³ Partnership for Public Service, "Best Places to work in the Federal Government,"

http://bestplacetowork.org/BPTW/rankings/detail/BF00#tab_diversity

⁵⁴ Source: DNFSB Human Resources Department.

⁵⁵ One staff member provided an informal tally of the staff departures. Since May 2011, the Board has seen 52 departures with 29 additions.

staff retention and recruitment, and clearly poor results taken from public survey research, the study team met highly motivated and dedicated employees who know the importance of the agency's mission. Across the spectrum of interviewees, the study team found professionals who are motivated to enhance overall agency performance.

5.3 Quality and Effectiveness of Board/Staff Relations

During the study team's interviews with agency employees, the Panel identified three operating procedures that contribute to a state of poor collaboration between board members and staff employees. Several of the Board's technical staff members are scientists and engineers with doctorate degrees, and some have the education and experience to serve as a board member. In this light, the Panel considers best practices on how to unlock the enormous potential of such a highly professional group of employees.

In their *Harvard Business Review* article in November 2007 entitled, "Eight Ways to Build Collaborative Teams,"⁵⁶ Lynda Gratton and Tamara J. Erickson observed the challenges that arise in building a collaborative organization of working teams when there are highly educated staff members. They write, "In the same way, the higher the educational level of the team members is, the more challenging collaboration appears to be for them. The Panel found that the greater the proportion of experts on a team, the more likely it was to disintegrate into nonproductive conflict or stalemate." According to the authors, this is because, "highly educated staff members frequently have confidence in their own views that may challenge leaders and thus, may result in challenges to driving consensus. Members of complex teams are less likely—*absent other influences*—to share knowledge freely, to learn from one another, to shift workloads flexibly to break up unexpected bottlenecks, to help one another complete jobs and meet deadlines, and to share resources—in other words, to collaborate. They are less likely to say that they, 'sink or swim' together, want one another to succeed, or view their goals as compatible." When considering how to tap into employee potential, a key question standing before the current four DNFSB Board Members is how can we maximize the effectiveness of our small but diverse team in order to optimize close collaboration with highly trained and experienced staff members?

While the Panel lists the eight points noted in this article in [Appendix I](#), the obvious conclusion is that the organization's leaders are the key actors who must shape a highly effective organization. As Gratton and Erickson state, "At the most basic level, a team's success or failure at collaborating reflects the philosophy of top executives in the organization. Teams do well when executives invest in supporting social relationships, demonstrate collaborative behavior themselves, and create what

⁵⁶ Lynda Gratton and Tamara J. Erickson, "Eight Ways to Build Collaborative Teams," *Harvard Business Review*, November 15, 2016, accessed September 05, 2018, <https://hbr.org/2007/11/eight-ways-to-build-collaborative-teams>.

the Panel calls a ‘gift culture’—one in which employees experience interactions with leaders and colleagues as something valuable and generously offered, a gift.”⁵⁷

While [Chapter 4](#) provided information on the poor quality of collaboration between board members themselves, the Panel provides research findings on the quality of employee/board member relations in the section that now follows.

Staff member interviews consistently speak to serious problems that currently exist, whereby, the board members draw staff members into their disputes. The resulting tension negatively affects employee performance. The Panel comments upon pain points in staff/board member relations connected with three topics: the notational voting process, planning and agenda setting, and informal relations in the power structure among the board members.

5.3.1 Structural Tensions from the Notational Voting Process

The procedures adopted by the Board to markup Board decisional documents (described in [Chapter 4](#)) insert technical staff members into what is often a long series of debates and disagreements among the board members. During the first round of comments collected from each board member (known as the Orange Folder process), board members may neither deliberate nor see the other board members’ comments until all have been submitted. Technical staff members are left with the task of reconciling and incorporating the very disparate views of the board members.⁵⁸

In addition to the challenging task of reconciling seemingly fundamentally opposed positions, the Orange Folder process is often time-consuming. It can take months to receive, adjudicate, and incorporate changes. Briefings and discussions must be formally scheduled. If, when all the comments are included, the document changes substantially, the document then goes out for another round of comments from the Board. It is not uncommon for a review to go multiple rounds of back-and-forth due to board member disagreement.

Staff can also be drawn into the board members’ conflicting views of the mission and direction of the agency through a procedural rule that can lead indirectly to organization policy and mission changes. Staff must incorporate all comments to the extent that they are technically correct, which has put the staff in the position of making changes to documents that, while technically irrefutable, would mean substantial change in policy or jurisdiction. For example, in 2017, a board member objected to language in a proposed work plan that included a potential look at explosive safety, an area that had often come under the Board’s focus on many occasions over the years. The employee raised concerns that removing the language and making the change would limit the Board’s jurisdiction and narrow the scope of the Board’s mission. When this employee asked the board members to clarify the larger issue, the board members opted against a discussion of whether

⁵⁷ Ibid.

⁵⁸ This stage of the Board’s review process, called the “Orange Folder” stage, is not released to the public.

explosive safety should remain under its guise and insisted on upholding the process, forcing a change in language.⁵⁹

5.3.2 Planning and Agenda Setting

Staff members can also be drawn directly into disputes among board members as they develop and work through their agenda. The Board, as an organization, does not have a basic agency-wide agenda of areas for review to guide its work over the course of a year, so there are multiple views on which areas technical staff members should focus.

Each of the three Board Offices (General Council, Technical, and General Administration) creates a work plan. However, as noted in Chapter 4, each Board Office creates their respective work plan, without the benefit of a larger organizational vision and an agency wide, agreed-upon set of Board priorities, as would be set forth in full vision statements and strategic plans. The office work plans go through an internal deliberative process and are subject to board member approval.

Staff member interviews provide insights into how the board members see the work plan process. From the staff's point of view, the Board's perspective is that the work plans are purely a staff product, with suspicions that the staff designs the work plan, as a way to fill the staff members' time and focus, thus, distracting from Board priorities. However, board members do not hesitate to use Requests for Board Action (RFBAs), which is a formal Board request or tasking to staff members to provide information. Each RFBA directs staff members to carry out additional reviews or action items beyond what it set in the work plan. Board members have opted against placing controls or limitations on RFBAs, which are subject to a notational vote.⁶⁰ The Panel's research indicates that there were several cases where board members voted down a potential review because another member, with differing views, originally suggested it. Opponents expressed frustration at staff members for supporting those reviews.⁶¹

The newly directed work must be added to the staff's plate, taking time away from the items on the approved work plan that have gone through a deliberative process to include Board approval.

⁵⁹ A solution was later arrived at where the language was tied to a particular facility, postponing the question of whether that topic should be within the Board's jurisdiction. The Board's staff mentioned that such jurisdictional issues are the subject of the vast majority of Member comments, and the conflicting views of the proper boundaries of its mission creates great difficulty to staff members in their efforts to conduct reviews in a manner that conforms to board members' wishes.

⁶⁰ These additional taskings have become so pervasive that the board members decided to set a procedure to consider potential taskings more carefully. The board members, however, never implemented the procedure - a reversal that was reportedly the subject of heated debate, including the conclusion of some employees about lack of collegiality among board members.

⁶¹ A previous Board Chairman suggested a facilities-wide review of waste disposal in 2017 after a review of the Los Alamos National Laboratory raised concerns. Staff members strongly supported the idea, which created consternation among other board members who subsequently voted against the review.

Several members of the technical staff expressed concern that items on the work plans have remained unaddressed for three years or more. The items that board members add, according to those the Panel interviewed, are often not seen as substantial and do not lead to final action. After receiving tasks by the board members to review technical safety requirements at the Savannah River Site, for example, staff members reported there were not substantial findings. The board members insisted on completion of the review, but they then refused to approve the report for release, citing as a reason those very same concerns about the weight of its findings. Although, this case can be seen as ensuring proper disposal and completion of a review, it also represents the dedication of precious time and energy to relatively insignificant matters and a poor use of taxpayer-funded resources.

Board members, in hopes of shaping the final outcome of a review, have also been known to assign themselves to review teams that have visited defense nuclear facilities. Typically, these reviews are comprised exclusively of technical staff members. The presence of a board member—a Senate-confirmed official—can be disruptive for both the team itself and for the hosting nuclear facilities site.

5.3.3 Staff Drawn into Member Coalition-Building

Board members sometimes directly extend disputes with fellow board members into the course of their interaction with staff members. The Panel learned of the following several instances of board member/staff member interactions that fall outside of prudent management practices:

- 1) some board members criticized other board members in the presence of subordinate staff members;
- 2) board members sought alliances with staff members;
- 3) board members publicly criticized staff members who failed to provide information to buttress a desired outcome or seem to support an opposing view;
- 4) board members “forum-shopped” by going to other Board offices for information to find a response to his/her liking; and
- 5) board members call on staff members to convey their positions on particular issues to other board members, which had staff members shuttling between offices during the comments process.

Such behavior has a pronounced negative effect on relations within the employees, particularly among the SES agency leaders who most frequently interact with board members. Several interviewees said that lack of collaboration and incivility between board members has a negative impact on staff-staff relationships as well. Senior staff leaders are convinced that the organization models board-level discord elsewhere within the organization.

5.4 Evidence of Discord between Board Members and Staff Employees

The discord that has arisen between board members and employees has culminated over the past several months in two important ways that take the Board further away from standards

demonstrated by high-performing organizations. The Panel talks about two important features in this section: a shift on the part of board members away from trusting staff members and now requiring board member involvement in most issues; and lack of communication with staff members when organizational changes are planned and implemented.

5.4.1 Top-Down Leadership

Over the past few years, Board staff members enjoyed the trust of board members; and as a result, senior staff members had a wide degree of autonomy to address issues at their level without board member involvement. During that period, the Board deemed it a failure when the Board staff members and some part of the DOE enterprise could not resolve problems on their own, in a manner that averted a formal Board action. Board staff members often would send letters to lower level DOE officials in order to address issues of mutual concern. Until recently, the Board forwarded staff member-authored products to the DOE with a mere cover note, expressing support for the work while mentioning some staff member contributions within the Board's Annual Report.

In the past several months, however, board members instituted a new model.⁶² All formal Board communication is now restricted to board members. Staff-to-staff written communications between the DNFSB and DOE, and the wider range of communications to the larger nuclear safety community, is limited. Board members must first review all information communicated to the DOE. Furthermore, the Board now will only send correspondence to the Secretary of the Energy or his immediate deputies; and the Panel's research revealed that the board members planned to send letters to the DOE without substantial input of their professional staff.

This practice also affected the Board's resident inspectors. Previously, there was a pattern that board members would back the resident inspectors in the event of access issues or problems at defense nuclear facilities where they reside. Because resident inspectors understood the Board and how the Board would address problems, the DOE and contractors saw field staff members, as those who possess both credibility and the ability to resolve problems. Now, the desire for board member involvement in even the smallest of safety matters has reduced the willingness of the DOE nuclear site leaders to make changes. The Panel also learned that this dynamic could be site-dependent; there are several defense nuclear facilities where inspectors, with good working relationships, continue to have substantial impact.

5.4.2 No-Notice Organizational Changes

Board members have also taken an unconventional approach to organizational change management. Research into best practices in managing organizational change places great importance on organizational leaders carefully attending to any restructuring. Best practices call

⁶² Defense Nuclear Facilities Safety Board. "PS-7 Policy Statement on Communication and Disposition of Safety Item." <https://www.dnfsb.gov/sites/default/files/document/14946/Policy%20Statement%20PS-7.pdf>

for leaders to follow deliberative processes with senior direct reports, in order to optimally prepare any significant restructuring.⁶³

Regarding the DNFSB announcement on August 15, 2018, of its most recent restructuring, there was no advance communication or consultation with agency employees. Furthermore, in December 2017, the board members again gave little notice about a reorganization of the SES leadership of the Office of the Technical Director. These announcements caught all employees by surprise and raised immediate concerns about the organization's technical capacity and its ability to hire qualified talent. The board member approach to leading the staff falls far short of following best practices for planning and communicating these critical actions, and exacerbates an environment of mistrust between staff members and board members.

5.5 Management and Operational Issues

In this section, the Panel highlights four topics that merit attention in order to enhance staff member experience and operating efficiencies. The Panel addresses staff procedures, staff leadership, field/headquarters staff balance, and human capital management.

5.5.1 Complicated Staff Procedures

The Board operated for its first two decades without formal operating procedures to set forth how to conduct reviews, relying instead on longtime conventions, and understood ways on how paper would move across the organization. The lack of formal procedures was addressed in 2013 legislation, discussed in [Chapter 4](#), which called for institutionalizing more formal procedures. In response, the Board implemented an across-the-board set of operating procedures to guide Board work, including almost thirty separate procedures in the Office of the Technical Director alone. These procedures were inspired by the very rigorous rule-sets for operations in the broader nuclear complex, and the Board's leaders drew some insights from the intricate set of operating procedures used by the Nuclear Regulatory Commission.⁶⁴

Staff members highlighted a range of issues that derived from these elaborate sets of procedures covers interaction with the DOE, interaction among staff, and with many other areas. The internal controls and reporting requirements codified in the procedures create burdensome, distracting hurdles.⁶⁵ The rules also create a "one-size-fits-all" approach for conducting technical reviews of the DOE, which has prevented the identification and examination of a fuller range of challenges. Forcing highly skilled, talented analysts with advanced degrees to rigidly follow a set of seemingly arbitrary rules can have a counterproductive effect, both inhibiting an individual's ability to think

⁶³ Rose Beauchamp, Stephen Heidari-Robinson, and Suzanne Heywood. "Reorganization Without Tears," *Mckinsey Quarterly*, October 2016. <https://www.mckinsey.com/business-functions/organization/our-insights/reorganization-without-tears>

through problems from many angles and creating a stultifying atmosphere that limits discussion and exchange of ideas.

5.5.2 Uncertain CEO Functions

Presidentially appointed members of multi-member deliberative bodies like the DNFSB often have equal authorities, powers, and prerogatives when it comes to matters of policy and substance. However, one officer, usually the chair or vice chair, will have CEO-like administrative powers to manage the agency staff. Within the boundaries and limitations of the Board's authorizing statute and the Board's broad directives, the chair leads the day-to-day operations of the agency. He or she is responsible for directly supervising senior staff members and sets expectations for how the agency will work, including how staff should interact with board members.⁶⁶

Each DNFSB chair who has held the position over the past decade has understandably brought a different approach to the position. Some past leaders have brought a strong-handed and directive approach, while others a more supple, monitoring leadership style. Discussions with DNFSB staff members indicate, in general, that the more directive style of leadership injected greater tension and higher workload for agency staff members, while a more flexible approach resulted in delays in disposing issues and an overall tentativeness across the agency resulted from the latter.

While the Board chair has formally been designated these responsibilities through the enabling statute, and the substantial bulk of their formal and informal authority remains intact, the current DNFSB chair's executive powers have been diluted over time. For example, the Fiscal Year 2016 Defense Authorization Act required the chair to release all information in his or her possession to the other board members, including with respect to "management and evaluation" of the Board's employees.⁶⁷ That legislation also required the DNFSB chair to gain the consent of a Board majority in order to hire or fire several key employees including the general manager, the technical director, and the general counsel. The effect of that legislation was to invite, if not require, the other board members to involve themselves in day-to-day personnel matters, as well as broader management of the Board.

5.5.3 Senior Executive Service (SES)

Members of SES play an important role in fostering smooth functioning of all U.S. Government agencies. They serve between the top politically appointed leaders and the civil service staff. SES members provide the continuity in agencies as political appointees come and go, providing a permanent storehouse of information on agency culture, operations, and issues. SES employees, as

⁶⁶ *Enabling Statute of the Defense Nuclear Facilities Safety Board*, (1988), 42 U.S.C. § 2286 et seq. https://www.dnfsb.gov/sites/default/files/page/statute_1.pdf

⁶⁷ *Ibid.*

senior agency officials, are responsible to support and execute policies as articulated by board members.

The Board has faced several challenges among its group of six SES staff members. Several SES leaders reported that their work responsibilities are often not in line with their high level of position; board members do not solicit for advice and counsel from them, nor do they provide significant supervisory tasks. Additionally, some of the Board's SES employees have expressed open contempt and disrespect for board members. The relationship between the Board and its SES staff contingent manifests many of the strains and tensions between the members and the larger staff.

5.5.4 Field-Staff Balance

The Board faces a challenge in finding the proper balance between analysts and engineers working at agency headquarters who look across the nuclear complex from that vantage point, and the Board's resident inspectors who have the closest contact with any problems at defense nuclear facilities. This challenge is similar to what any agency faces in optimizing management-headquarters and operations-field employees.

On one hand, it is difficult to oversee intricate DOE operations at twelve different defense nuclear facilities remotely from the nation's capital. Research confirms that resident inspectors make critical contributions to the overall agency mission, as discussed in Chapters 2 and 3. However, there are limits to even what a resident inspector can achieve. Inspectors noted that some facilities' locations are so vast that even doubling the number of colleagues at a particular site would still leave a great deal of territory uncovered. Even before the DOE promulgated Order 140.1, the resident inspectors reported increased challenges in gaining access to key meetings and information at field sites.

The Board cannot carry out its mission of defense nuclear facilities safety oversight without both headquarters and field staff members. Resident inspectors can find problems, but it is the engineers in headquarters who can directly support board members in evaluating the extent and significance of problems. An internal working group within the Office of the Technical Director that included some of the resident inspectors came together to develop a staffing model to find the right balance; however, the Panel's research indicates that this evaluation is not complete. As such, the aforementioned August restructuring announcement that directs an increase in the number of resident inspectors may have been premature.

5.5.5 Human Capital Planning

The Board faces a number of human capital management problems, but the Board also has a range of tools available to immediately operate under an excepted personnel system. Thus, the agency possesses special hiring and pay authorities beyond those normally available to a federal agency under Title V of the U.S. Code. Along with other flexibilities, including the ability to create unique job classification categories and move employees more easily among positions, the Board can initially pay an employee at a higher rate and increase that rate faster than agency operating under the General Schedule (GS) system.

A human capital plan, which provides the fundamental roadmap for how the DNFSB will attract and retain talented individuals necessary to carry out the Board's complex and specialized work, has yet to be completed. One is currently under development, though a fully-developed plan would normally flow from a strategic plan to ensure the organization's size and shape meets future needs. In addition, but consistent with the lack of a well-crafted human capital plan, the Panel's research indicates that the use of individual performance plans and associated key performance parameters is not practiced effectively at the Board.

Many staff members see career development as a low-priority HR focus at the Board. Junior level staff must take the initiative to participate in training, technical conferences, and other development activities. Research indicates that supervisors, while supportive, provide inadequate guidance about where staff should prioritize skill development and how such efforts might make them more attractive for promotion. Newer staff members said that their colleagues are often ready to answer questions and help with providing advice, but more specific mentorship can prove difficult to find. Many ascribe to a view that there are limited expectations for career advancement.

The Board has also recently moved to terminate the Board's Professional Development Program (PDP). Many of the Board's best technical staff members have emerged out of this program, which involves sending employees to internships/apprenticeships at the DOE and nuclear contractors, as well as cost coverage incentives to proceed with advanced technical degrees in exchange for a specified service commitment at the agency. That said, this program is seen as an expensive means by which to access top technical talent for the DNFSB, and some frustration has arisen from board members and other senior leaders when particularly talented individuals leave relatively soon after they have completed the service commitment

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Chapter 6 Recommendations

Efforts to ensure the safety of the country's defense nuclear facilities remain critical to the nation's welfare. The focus on safety will only increase as the DOE strives to increase production at its facilities while continuing legacy waste management and disposal activities. The DNFSB's mission to provide oversight of these activities is as critical today as it has ever been. While still providing important advice and guidance to the DOE, especially through its on-site resident inspectors, over time the Board changed its focus on key safety issues that motivated Congress to establish it in 1988. In recent years, discord among board members seems to have challenged the Board's ability to add value that the DOE would seek. Board member discord has negatively affected the Board's staff members, particularly its technical experts. Mutual suspicion and mistrust has contributed to a penchant by board members to impose a top-down staffing model, to exclude senior staff members from contributing to organizational change initiatives, and other associated management challenges. An exodus of Board staff members and the palpably low morale of remaining Board employees create an organizational liability that, with a concerted effort, leadership can and must address.

In this chapter, the Panel offers a number of recommendations to enhance mission performance and help start the agency moving in a new direction. The recommendations fall into five distinct categories of actions:

- 1) enhancing board member collaboration;
- 2) enhancing Board engagement with stakeholders;
- 3) refining Board products;
- 4) enhancing collaboration between board members and the Board staff; and
- 5) "Quick wins" that might serve as immediate signals that the board members intend to set a new direction for the agency.

Taken together, these recommendations offer a fundamentally new approach to how the Board might function and allow an opportunity for the Board to embark on an improved way forward, building upon the past, and adjusting appropriately for the current and future challenges presented in the defense nuclear facility complex. Given the nature of the Board's close engagement with the DOE, there are two recommendations directed to the DOE.

In the case of DNFSB, the board chair and the other board members are the unequivocal leaders of the agency. As leadership expert John C. Maxwell says, "A leader is one who knows the way, goes the way, and shows the way." For this reason, the Panel's recommendations focus principally on specific actions directed towards the board chair and members. The chair and the other board members must first build consensus among the leader group and serve as models to the entire agency. As such, in this new phase of the DNFSB's history, the board members must work more collaboratively, while still offering and respecting different perspectives on these key national security issues. Cordial and collegial relations with board staff members can be expected as an outgrowth of this effort that should be modeled by board members. By so doing, all board staff

should be empowered to bring the full range of their talent and expertise to their analysis, interaction across the organization, and their relations with the DOE. The common aim to each of the following recommendations is to enhance how the Board and DOE commit together to finding and resolving the biggest challenges with a safer, effective defense nuclear facility complex as the ultimate result.

As discussed in Chapters 1 and 4, the Board opted to announce a restructuring of the agency in mid-August, while this report was under final development. The proposed organizational changes largely seem to codify the current approach to internal management. It is possible that those changes could magnify some of the challenges identified earlier in this report, especially given the proposed staffing reductions and rebalancing between headquarters and field locations. The board members must consider whether to modify the restructuring initiative if they would like to adopt the approach recommended in this report. The Panel specifically highlights which of its recommendations in this chapter the August restructuring announcement impacts.

6.1 Board Member Actions: Working More Collaboratively

Because disagreements among board members have had such significant effect on the Board's mission execution, stakeholder relationships, and relationships with Board staff, the Panel offers a series of recommendations that the board members can adopt to help them work more closely together, all the while preserving their ability to provide their unique perspectives.

Recommendation 1 – Refresh Board Membership

Take actions to bring in new DNFSB board members who can approach the Board's issues, organization, and people with renewed energy, dedication, and commitment.

First, the DNFSB board chair should contact the White House and Congress to pursue appointments of new board members to replace the three current board members who are serving expired terms.⁶⁸ In addition, measures should be taken to encourage action to fill the open Board seat (open since the departure of the previous chair early in 2018).

Second, board members should also pursue legislation with Congress to restrict board members from serving after expiration of their term, which is consistent with the authorizing statute of the board members of the Nuclear Regulatory Commission—an organization engaged in a similar field as the DNFSB.

Third, the board members should request legislation from Congress that directs the National Academy of Sciences to maintain an ongoing registry of potential board member candidates to forward to the White House whenever a vacancy on the Board arises. Modeled after a similar

⁶⁸ On October 3, 2018, the President expressed his intent to re-nominate Acting Chairman Hamilton and Board Member Roberson, along with the nomination of Lisa Vickers.

process for appointments to the Nuclear Waste Technical Review Board,⁶⁹ which was established around the same time as the DNFSB was created, this approach would help to ensure, as required in the Board’s authorization, board members access to individuals, “who are respected experts in the field of nuclear safety with a demonstrated competence and knowledge relevant to the independent investigative and oversight functions of the Board.”⁷⁰

Recommendation 2 – Establish Mission, Vision, and Principles for DNFSB

Board members should work towards having a common understanding of the Board’s mission and develop a new vision statement to characterize how it would like the organization to evolve over the next two decades and beyond.

The board members should publish a vision and accompanying comprehensive strategic plan that set forth steps the organization must take to realize the vision. Furthermore, the board members should announce a unified commitment to remediate the current climate of disputes that has become so ingrained, and nearly an attribute of its work culture. The board members should agree to dedicate themselves to adopting best practices for operating in a deliberative body (outlined in [Chapter 4](#)) in order to construct a more collaborative work environment and to promote positive institutional values. The board members should establish how they would like to see the agency’s strategy pursued and its vision actually achieved. Every board member and staff employee needs to know that his or her work contributes to an honorable and important goal, and the entire organization is moving, first and foremost, in the same direction.

Recommendation 3 – Define Board Jurisdiction, Role, and Responsibility

The board members should engage in publicly open discussions and work with the Congress and the Department to formally define its legal jurisdiction, along with its role and responsibilities.

The Board should consider having open hearings to receive the varying views of stakeholders, including DOE officials and contractors. Once set, the board members should codify this vision in internal policies and public statements, along with external communications. As the DOE or other stakeholders question the Board’s jurisdiction and its authorities to pursue its mission, the board members should take a more active approach to understand the motives and underlying issues.

Board members made a positive step during a Public Hearing convened on August 28, 2018, to discuss DOE Order 140.1. As noted in [Section 4.5.1](#), board members expressed near unanimous concerns that, through the directive, the DOE narrowly interpreted the jurisdiction of the Board. Board members raised issues about process, substance, and perception of the rule, making the argument that the DOE failed to follow its own policies and procedures for promulgation of new

⁶⁹ U.S. Congress, Public Law 100-203, December 22, 1987: <http://www.nwtrb.gov/docs/default-source/default-document-library/1987aa.pdf?sfvrsn=4>

⁷⁰ Defense Nuclear Facilities Safety Board, “Enabling Legislation,” 2016, Page 1. https://www.dnfsb.gov/sites/default/files/page/Enabling%20Legislation%20-%202016_0.pdf

directives, contravened the Atomic Energy Act, and created the possibility of wide misinterpretation at defense nuclear facilities across the country. The open agreement and collegial engagement among board members at the public hearing signals a positive basis on which to build.⁷¹

The Board will be hard-pressed to continue to have purview over this expansive jurisdiction if the Department implements DOE Order 140.1. A large portion of the Board's work focuses on worker safety and Hazard Category 3 sites with the idea that issues in these areas can signal wider, more substantial issues across the defense nuclear facilities complex. Congress expressed concerns about DOE Order 140.1 in the FY 2019 appropriations bill and demanded a report from the Department justifying and explaining the impact of the proposed changes. The Board should use this as an opportunity to make its views known to Congress within that same timeframe. It is imperative, therefore, for the Board to complete an assessment of the effects of Order 140.1 and communicate its views to the Secretary, and if necessary, the President and Members of Congress.

Recommendation 4 – Foster Deliberation and Teamwork

Board members should genuinely deliberate on issues and determine to work more as a team.

Board members should reduce reliance on the notational voting that is set in place in order to comply with the Sunshine Act's open meeting requirements. Based on the Panel's research, open sessions can be held to discuss the strategic direction of the agency, the relationship with Congress, and high-level communication. The Board could hold more open business meetings to address such specific topics as safety and policy concerns, and receive views from Board staff, relevant DOE officials, and contractor personnel. Board members should find a better balance between these open sessions and notational voting than they currently practice.

As part of the reform of its approach to notational voting, board members should reform how they carry out the notational voting process to provide more information on the context and considerations that went into specific votes. Board members can write and release summaries from the standpoint of a Board as a collective group, and allow for "minority opinions" in the event of strong and substantial disagreement. Such a change would increase the perception that the board members speak with a single voice, while also providing for greater transparency—revealing substantive opinions and differences—than the current system characterized by the release of vote totals with sparing comments.

Board members might also convene for team-building sessions, perhaps in a more relaxed off-site setting. In many organizations, such sessions foster collegiality and help to renew trust between

⁷¹ Board members sent a letter on September 17, 2018 to Secretary Perry transmitting their concerns with DOE Order 140.1. The enclosure outlined four major concerns: exemptions, public health and safety, determination of access, and deliberative information. <https://ehss.energy.gov/deprep/2018/FB18S17A.PDF>

leaders (the Board's General Counsel would have to be present to listen and monitor to avoid deliberations that would trip Sunshine Act open-meeting requirements).

While board members may continue to disagree on some recommendations, a lack of unanimity should not preclude Board collegiality. It is incumbent upon each board member to actively strive to work more collegially and address concerns about lack of collaboration through internal changes. There must ultimately be accountability, especially among Senate-confirmed officials entrusted with such critical matters of safety. Each board member has a role in ensuring this accountability, candidly discussing pressing matters amongst themselves and with key staff. Members should raise concerns of potential misbehavior and mismanagement directly with the White House and Congress, though such step should not be taken lightly. If issues continue to linger, the White House, with the support of Congress, must take action to counsel, discipline, and remove board members.

6.2 Enhance Collaboration with Stakeholders

The board members can take a number of steps to reengage with key groups like the DOE, Congress, and public interest groups in order to enhance its collaborative relationships.

Recommendation 5 – Strengthen Congressional Engagement

Board members should enhance the Board's reputation as a source of expertise and excellent oversight of defense nuclear facilities.

The Board should increase the intensity and frequency of their meetings and outreach, getting into a new rhythm of communication with Congress to ensure it is addressing nuclear safety concerns. The board members and senior staff should consult congressional overseers before making major organization announcements, such as the August restructuring.

Recommendation 6 – Bolster Engagement with Department of the Energy Leaders

Board members should restart the Board's relationships with key DOE leaders who share nuclear safety oversight.

The board members, as an entire group, should hold annual summits and meetings with the Energy Secretary and Deputy Secretary, and other top leaders of the DOE should attend. DOE leaders can follow up these meetings with similarly intensive engagements with their DNFSB counterparts.

Recommendation 7 – Actively Engage with Public Interest Groups

Board members should continue their practice of holding an annual hearing for interest groups and individuals, while continuing intensive engagements with these groups and individuals during field visits.

Recommendation 8 – Respond Positively to DNFSB Efforts to Enhance Engagement (for Department of Energy)

The Board's ability to carry out its mission would be greatly facilitated by the DOE's full level of support in kind.

The DOE should reevaluate how it engages with the Board as the DNFSB makes changes called for in this report. For its part, the board members and staff members should work with the DOE to establish a new partnership and rigorous method by which to track implementation of recommended changes. The board members and DOE should designate senior staff to be accountable for progress in putting Board recommendations into planning and implementation. As it considers changes to directives like Order 140.1 or other policies that fall under the purview of the Board, the DOE should genuinely consult with board member and staff counterparts at the appropriate level before taking significant actions. One of the main goals of the continual dialogue recommended here is to avoid surprises, ensuring both Agencies remain informed of each other's major activities and areas of focus.

6.3 Refining Products

The board members should ensure that the recommendations they provide to the DOE, or the information they provide to Congress and the broader public, remain well informed and relevant.

Recommendation 9 – Prioritize Strategic Planning and Strategic Goals

Preparing for the future through quality strategic planning is a principal task of an agency leader, but it has not been a priority of the current board members. The Board chair should ensure that the strategic planning function is clearly delineated, with board members carving out substantial time and energy to focus on new requirements in years ahead.

While some portion of the Board's work will require reacting to events or issues that come up from the field, the Board should also ensure sufficient staff members are focused on strategic planning, including tapping a senior level nuclear safety expert to report directly to the Chair. This individual should have a reporting, "dotted-line" relationship with the new Executive Director for Operations. The strategic plan must be future oriented and should be carefully synchronized with agency performance plans, performance metrics, and change management initiatives.

In determining annual priorities, members should focus on the most critical, strategic safety issues affecting the country's defense nuclear facilities, starting with drawing on its understanding of the future state of nuclear safety. Through the engagement with the DOE and Congress, and, through steps outlined below to continue to build the Board staff's knowledge and expertise, board members should balance the issues that will arise from the DOE's initiatives with the challenges that can be distilled from the Board's detailed analysis of safety and health issues.

Recommendation 10 – Maintain a Unified Agenda

Board members should ensure that all staff-conducted reviews are of the highest quality.

Board members must then decide what significance to give to the review findings and determine the appropriate course of action (i.e. recommendation process, reporting requirements for the DOE, etc.). Board members and board staff members should work from a unified agenda and work plan that implements the priorities on which board members choose to focus. There should neither be a pure board member work plan nor a pure staff-level work plan, but rather only a unified "Board Work Plan." Board members should limit the use of additional RFBA taskings to address emergent

situations and emergencies. Board members should reconsider their withdrawal of a never-implemented process improvement that would give board members and staff an opportunity to discuss and provide input on potential RFBA's.⁷²

6.4 Reinvigorate Board Member-Staff Relations

Strategic planning, a set jurisdiction, and greater context for opinions would do a great deal to guide Board staff members as they conduct reviews in line with the board members' views. Several additional measures could enhance board-member-staff member relations, and improve the Board's overall performance.

Recommendation 11 – Revert to a Traditional Organizational Staffing Dynamic

The board members should revert to a more traditional staffing model to better allow the Board's SES members to lead, its directors to direct, the Board's supervisors to supervise, and its problems resolved at the lowest possible level.

The board members have created a micro-managed approach that greatly limits the flexibility of staff to conduct reviews without interference and communicate with counterparts in the DOE and among contractors. This approach diverges from basic models for effective organizations and government agencies that seek to nurture, nourish, and unleash the talents of its human capital.

Board members should ensure that they and staff members divide their activities to align with their respective roles, holding to strategic, more tactical matters respectively. Board Members must balance their technical focus, on one hand, with strategic considerations on the other hand, understanding such unique intersections like science and policy, or policy and politics. As senior government officials, board members must focus their limited time on mission and policy, while preserving organizational reputation, credibility, and image, and maintaining ongoing strategic communications with key stakeholders. Board members should minimize involvement in day-to-day business (e.g., assisting in carrying out reviews, involvement in hiring midlevel staff, etc.), while respecting the set-forth "chain-of-command." Board staff members, meanwhile, should provide deeper analytical and science background information, along with the continuity of extended tenures beyond the set terms of board members. Staff members must respect the leading role that board members have to set the strategic course of the agency.

⁷² Defense Nuclear Facilities Safety Board, "2018-300-014, RFBA by Board Member Connery to Direct the General Manager to Amend Board Procedures," November, 29th 2017. <https://www.dnfsb.gov/board-activities/board-notational-votes/2018-300-014-rfba-board-member-connery-direct-general>. The Board subsequently voted to withdraw the procedural change before it could be put in place. Defense Nuclear Facilities Safety Board, "2018-300-029, RFBA by Board Member Santos to Rescind RFBA Procedure Changes Approved in 2018-300-014". February 15, 2018. <https://www.dnfsb.gov/board-activities/board-notational-votes/2018-300-029-rfba-board-member-santos-rescind-rfba-procedure>

The board members should also respect and act in such a way as to strengthen the chairperson's role as agency chief executive officer. Doing so would allow the remaining board members to focus more extensively on strategic and policy matters. The 2016 Legislation and some activities of board members have encouraged involvement of the board members in some key administrative areas and diluted the Board chairperson's ability to serve as the agency's top administrative officer. Involvement of all board members in certain areas, like hiring and firing of various agency directors, can distract board members from addressing other important policy and mission issues, and lead to divisions among staff members. The board members should pursue legislative changes with the Congress to implement this recommendation.

As other board members step back from day-to-day matters, like concern for particular personnel appraisals, the Board's chairperson must truly act as a C.E.O. In this aspect of their membership on the Board, board members must bring the best qualities of a leader, inspiring the staff to perform their functions with excellence, enforcing a climate of professionalism and respect, and actively addressing the top issues that affect organizational performance.

Recommendation 12 – Appoint an Executive Director for Operations

Board members should appoint an executive director for operations to lead the staff, filling the position after a deliberative and open search, including consideration of outside candidates.

Such reorganization would create a single point-of-entry for the Board chair to give administrative direction, while heightening staff functioning to provide improved technical and policy support. Establishing this position would close the gaps among technical staff, general counsel, and administrative support functions, encouraging greater teaming and mutual support. The measure would also provide another level to encourage a more traditional relationship among presidentially-appointed officials and professional staff.⁷³ The Board included this recommendation in its August restructuring announcement, but never followed through with implementation.

A new executive director, a SES-ranked employee, will require a professional and effective group of SES-ranked senior subordinates to help perform responsibilities on behalf of the board members. Together, these SES leaders must serve as that key link between the board members, who are presidential appointees, and the rest of the agency staff. Board members must give SES officials leadership and supervisory responsibilities suitable for such a senior member in government service. In return, these SES leaders must ensure that only high quality work is presented to board members. Those SES leaders, in assisting the board members and the executive director, must live up to the highest standards of professionalism demeanor. Members of the SES are viewed with great trust. Political appointees seek their advice and counsel and more junior members look to them as role models who can offer mentorship.

⁷³ The Board announced creation of this position in its August management statement.

Recommendation 13 – Streamline Procedures

The Board should streamline, if not completely withdraw and rewrite, its elaborate procedures after completing management efficiency events (e.g., Lean Six Sigma⁷⁴) in order to determine exactly how the board members would like products to be provided in the most effective and efficient manner possible.

Current procedures are seen as overly bureaucratic for such a small organization. Board members and staffs view with some suspicion these procedures, as they were implemented at a period of time when the agency faced substantial organizational discord.

The Board should discontinue the Orange Folder phase of its procedures for finalizing reviews, as the current process unnecessarily draws the technical staff into board member disagreements, leaving the staff to attempt to resolve some fundamental issues plaguing board members. The documents can be amended in the ensuing Yellow Folder phase, where board members make changes directly to a document akin to a congressional committee mark-up of a piece of legislation. Like congressional staff back-benching at one of these sessions, the Board staff would be available to provide technical support and advice.

The board members should develop a general set of broad roles responsibilities required of each board member. Upon confirmation, board members should complete an orientation program by DNFSB's senior staff to ensure a complete understanding of these responsibilities, and to clarify the distinction between board member and staff roles.

Recommendation 14 – Improve Internal Communications

Board members should follow best principles in making major organizational changes by keeping staff and stakeholders engaged and informed.

Before moving directors, closing offices or divisions, or making major personnel or operating changes, the Board should seek buy-in and increase staff communications.

The Board's senior leaders—board members, the new executive director, and other SES level employees – must consistently and creatively reiterate to other staff members that their work is important and critical to the country's safety. The agency should rejuvenate efforts to address FEVS scores and ensure that leadership acknowledges and rewards employees' work to increase organizational alignment and commitment.

⁷⁴ Lean Six Sigma is a methodology that relies on a collaborative team effort to improve performance by systematically removing waste and reducing variation.

Recommendation 15 – Synchronize Human Capital Plan, HR Modernization, and a New Personnel System with Agency Vision and Strategic Plan

The Board should place a priority on developing, publishing, and pursuing a human capital plan that supports the agency's vision and strategic plan.

Central to the plan must be revitalizing technical capability in the staff, with detailed plans for improved talent acquisition, staff training, development and mentoring, and performance management. This plan must include greater transparency in promotions, so that staffs more clearly understand the gates, steps, training, and education necessary for promotion. Board members should budget to upgrade and modernize HR IT, including new learning and recruiting systems.

Special emphasis, placed on enhanced staff talent development, must occur especially given the recent staff separations and decline in the staff's experience levels. Organizations benefit when they attract talent through a variety of avenues, much like the armed services do with the service academies, Reserve Officers' Training Corps (ROTC), and Officer Training School (OTS). In addition to a mid-career professional laterally hired into an organization, homegrown personnel can provide a critical core of experience. The PDP served as important means to imbue nuclear facility expertise not just in the Board itself but also within the larger nuclear community. The program should be renewed, reenergized, and continued.

Recommendation 16 – Review Agency Field Staffing Needs

Board members should conduct a detailed cost-benefit analysis of options to increase the number of Resident Inspectors.

Such analysis is beyond the scope of this assessment, but it could make more precise the specific benefit of adding additional resident inspectors at sprawling defense nuclear facilities or newly emplacing an inspector at a low-intensity location. It could also look at the value and costs connected with having a permanent presence of inspectors as opposed to relying upon a rotation of engineers who make frequent visits. Costs of opening new field offices and resulting overhead expenses should be included. This study, finally, could define the synergies between the inspectors and headquarters-based engineering staff to create a new unit of product that could serve as a quantifiable measure of capability that the Board provides. Board members did not provide the study team with an analysis connected with the August agency restructuring announcement that proposed to increase the number of resident inspectors from ten to eighteen.

6.5 Immediate Actions to Take

Soon after the Academy delivers this report, board members should signal to agency staff that they intend to take immediate steps to change the organizational culture and climate.

The Panel offers the following actions that can signal the Board's desire to embark on a new direction and lay the groundwork for a more comprehensive organizational transformation. Board members should:

- Openly acknowledge the agency’s challenges and express a joint commitment to moving forward in making well-considered changes. Board members, together, should hold key engagements, in accordance with the Sunshine Act, with staff members to solicit outside views, discuss the new phase of the Board, and provide assurance that that the Board understands the current challenges and appropriate actions will be taken to resolve them.
- Convene Summit Meetings with senior DOE, congressional representatives, and contractor leaders.
- Conduct “roadshows” with all members traveling together for discussions or hearings at all the major defense nuclear facilities, and invite major contractors to visit for open meetings.
- Execute a broader communications strategy with key speeches at tradeshow and conventions, as well as media engagements.
- Look for early opportunities to show their renewed trust and support of staff members on such issues as access to DOE meetings and information.
- Form an implementation team, drawn from across the agency, to help board members deliberatively, methodically, and effectively put these recommendations in place through the transformation strategy discussed in the following chapter.

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Chapter 7 Implementation

In the months ahead, the board members will determine precisely how best to proceed in implementing the recommendations, articulated in Chapter 6, designed to enhance the Board's performance and staff experience. These next steps will shape and drive an important organizational transformation. As such, they are of paramount importance. Best practices in change management must guide implementation because:

- any successful organizational change, even for a small agency such as DNFSB, requires careful messaging and implementation;
- several previous public reports evaluating the Board have highlighted challenges and issues that have not been successfully addressed;
- this report will be carefully scrutinized by staff and other stakeholders and raises employee expectations that actions will be taken; and
- an unsuccessful implementation could have detrimental effects on organizational performance and employee morale.

Organizational change is complex, and thus requires precise planning and execution by leaders to enhance the potential for success. According to Harvard professor and consultant John Kotter, based on over 40 years of research, nearly 70 percent of all major organizational transformation efforts fail because organizations do not approach change holistically nor engage their workforce effectively.⁷⁵ Absent a well-planned, well-executed, and integrated plan that engages board members and employees, the Panel expects that an organizational transformation by the DNFSB is likely to fall short.

This chapter provides high-level guidance on how agency leaders should address key aspects of implementing specific organizational recommendations that will constitute a comprehensive package of change. The Panel begins by describing the important role that board members will play in driving change by reviewing an 8-step process to guide the board members' approach to transforming the DNFSB. The Panel then turns to articulating five summary recommendations on how board members might create a working group to direct implementation of the organizational transformation. These recommendations are followed by a brief discussion of rebuilding trust in the organization, which is a cornerstone for driving organizational change in an environment marked by discord.

⁷⁵ Carolyn Aiken and Scott Keller. "The irrational side of change management," *McKinsey Quarterly*, April 2009. <https://www.mckinsey.com/business-functions/organization/our-insights/the-irrational-side-of-change-management>

7.1 Eight-Step Process for Leading Organizational Change⁷⁶

This section highlights Dr. Kotter's 8-step process for leading organizational change. Despite the DNFSB's small size, the challenge facing the board members mirrors those of larger organizations: how to implement a comprehensive set of recommendations that address multiple groups within the organization. At a high level, these steps guide how DNFSB's leaders might approach this important implementation.

- 1) Create a sense of urgency. Help others see the need for change through a bold, aspirational opportunity statement that communicates the importance of acting immediately.
- 2) Build a guiding coalition. A coalition of effective people—born of the organization's own ranks—must lead the organizational change. This group must guide it, coordinate it, and communicate its activities.
- 3) Form a strategic vision and initiatives. Clarify how the future will be different from the past and how you can make that future a reality through initiatives linked directly to the vision.
- 4) Enlist a volunteer army. Large-scale change can only occur when employees rally around a common opportunity. They must buy-in to the urgency to drive change, and move in the same direction.
- 5) Enable action by removing barriers. Removing barriers, such as inefficient processes and hierarchies, provides the necessary freedom to work across silos and generate real impact.
- 6) Generate short-term wins. Wins are evidence of progress. They must be recognized, collected, and communicated – early and often – to track progress and energize volunteers to persist.
- 7) Sustain acceleration. Press harder after the first successes. Increasing credibility can improve systems, structures, and policies. Be relentless with initiating change after change until the vision is a reality.
- 8) Institute change. Articulate the connections between the new behaviors and organizational success, making sure they continue until they become strong enough to replace old habits.

7.2 Actions to Take

In Chapter 6, the Panel recommended various actions that board members should initiate to address serious organizational issues. The recommendations require significant changes in how

⁷⁶ Dr. John Kotter. "The 8-Step Process for Leading Change." <https://www.kotterinc.com/8-steps-process-for-leading-change/>

agency leaders engage with their organization. Employees must see an urgent and demonstrable response from their leaders to this report in order to help rebuild confidence that the agency is sincere in seeking to improve organizational climate.

The Panel urges DNFSB Board Members to take decisive, observable, discrete actions to ensure that the overarching principles embodied in the eight steps above will guide the agency's more specifically focused actions to enhance performance and staff experience. The board chair and fellow board members must take a visible role in leading the agency's response. In this section, the Panel recommends how the DNFSB should create, implement, and monitor an action plan. The following points come from previous research, tailored to particular Board circumstances.

- 1) Assemble a small Senior Level Response Team. It is important to assemble a senior level team to take the lead on responding to this report. The team need not be large in number, but it should have senior agency members familiar with the issues. The Panel suggests that the Board Chair head this team and determine its members because such a position carries the authority and knowledge to both consider and implement actions needed to continue building upon a high performing organizational culture and climate.
- 2) Determine precisely how the organization should change. The Senior Level Response Team needs to determine what the end-state objective should be with respect to the agency. The end-state should have specificity on how leaders must engage with one another and employees. The Response Team might use the best practices outlined in Chapters 4 and 5, as a guide to identify the specific leader behaviors requiring change. Knowing the must-haves with respect to how leaders must operate will guide formulating an integrated action plan on how to move from "here to there."
- 3) Formulate an integrated action plan. The Senior Level Response Team should consider how each recommendation in Chapter 6 contributes to the end-state it seeks. The team may then determine which recommendations should be implemented, how these recommendations should be executed, and decide the best sequence for carrying out these discrete actions. The Panel notes that some recommendations and actions are likely to be interconnected, and must be carefully integrated into the action plan.
- 4) Communicate and implement the integrated action plan. Implementation of the action plan begins with board members. Each board member is critical in shaping the current climate and they have an even more essential role in the agency's efforts to improve the climate and performance. All DNFSB employees must also share and own the organizational transformation. The action plan must include a timetable and series of periodic meetings to hold leaders accountable for implementing the action plan.
- 5) Monitor implementation and results. Using the action plan timetable, the Senior Level Response Team can work with board members to ensure accountability through a regular review of actions. This continuous assessment allows action plan adjustments to improve results. This process also provides an opportunity to update employees and agency leaders on the progress, challenges, and opportunities created by the action plan, and to receive their feedback in return.

7.3 Rebuilding Trust

Trust is the critical ingredient in organizational effectiveness. Rebuilding trust, as part of this organizational transformation, will be an important building block for improving Board performance. In their article, “The Enemies of Trust,”⁷⁷ Robert M. Galford and Anne Seibold Drapeau focus on factors important to building trust within an organization, and highlight the challenges of rebuilding trust when it is badly damaged. There are three building blocks of trust, which the authors call “old-fashioned managerial virtues: consistency, clear communication, and a willingness to tackle awkward questions.”

Galford and Seibold draw attention to how frequently reasons for consistent organizational underperformance are often inaccurately assigned to a lack of strategic focus, flawed organizational structure, or external factors that impact mission implementation. The authors argue that an organizational climate fraught with a lack of trust can be the underlying cause of poor performance. Things that leaders say, and the actions they take, can often be assigned a deep, sinister meaning by employees (as also discussed in [Chapter 5](#)). Employees who do not trust colleagues and leaders can often spend less time thinking for the organization and more time planning their own responses to address the toxic climate.

Building back trust in an organization requires vigilance, patience, and demonstrable action. It is even harder to accomplish when the perceived violation of trust has been obvious for a long period with no action taken to address the problems. Board members should consider Galford and Drapeau’s suggested actions for re-building trust among and between agency employees.

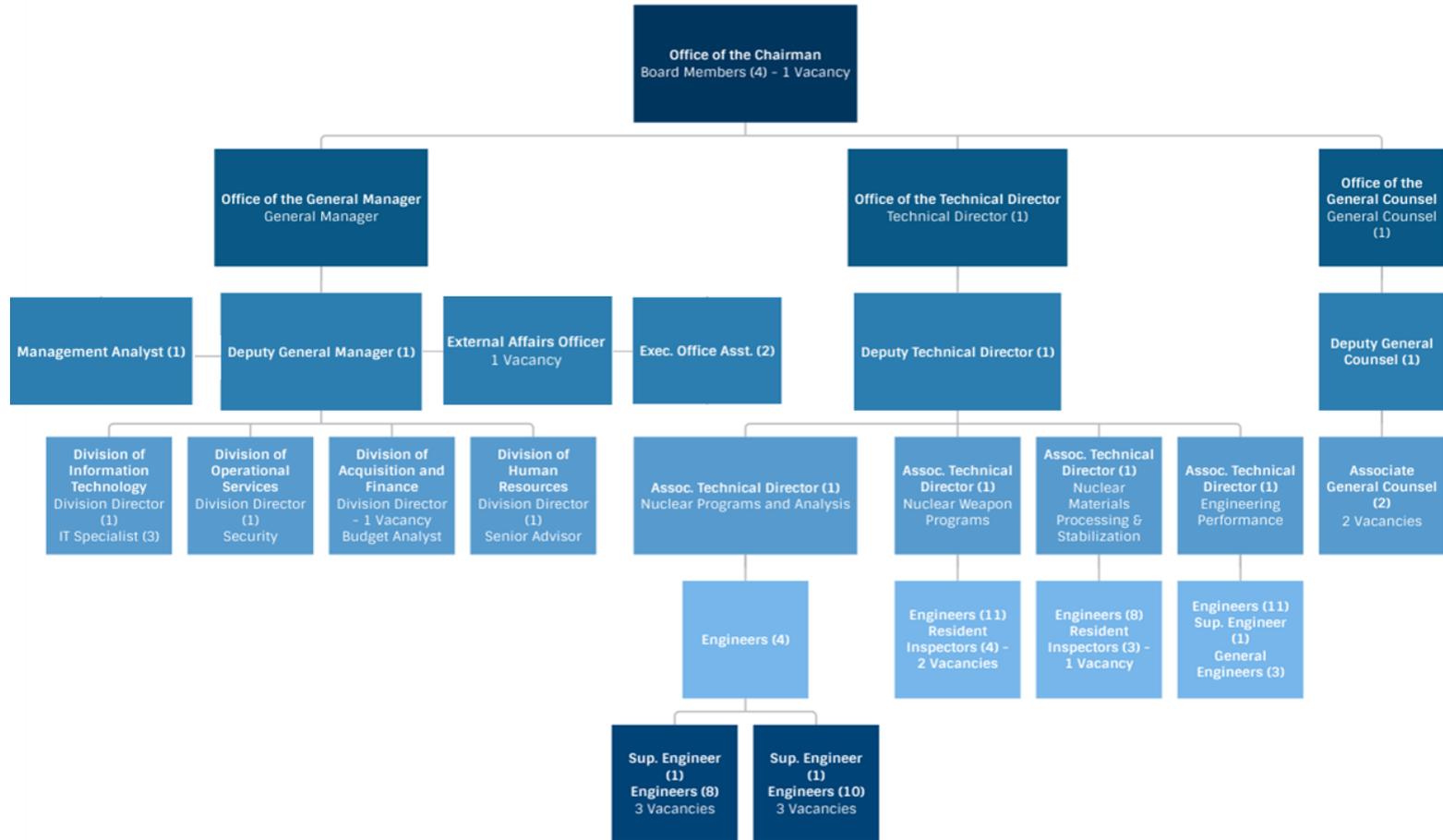
- 1) *Figure out what happened.* This includes how quickly or slowly it occurred; when the violation of trust became known to the larger organization; if there was a single cause; and whether the loss of trust was reciprocal.
- 2) *Ascertain the depth and breadth of the loss of trust, and garner a sense of how much the loss of trust affected the organization* in order to guide a decision as to what levels of resources need applied to address the wound.
- 3) *Own up to the loss quickly instead of ignoring or downplaying it.* Acknowledging that trust has been damaged and starting the recovery process as quickly as possible is critical.
- 4) *Identify, as precisely as possible, what actions or outcomes must be accomplished in order to rebuild trust.* This might mean making personnel changes, implementing standing meetings, setting measurable accountability standards, etc.
- 5) *List the changes required within the organizational structure, systems, people, and culture to achieve the outcomes identified in #4.*

⁷⁷Robert M. Galford and Anne Seibold Drapeau, “The Enemies of Trust,” Harvard Business Review, February 2003, <https://hbr.org/2003/02/the-enemies-of-trust>

Appendix A: DNFSB Organizational Chart

Figure 1 – DNFSB Organizational Chart

Defense Nuclear Facilities Safety Board



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Appendix B: Department of Energy Defense Nuclear Sites⁷⁸

Table 1 – U.S. Department of Energy Defense Nuclear Sites (including Primary Function, location, and status)

Name	Primary Function	State	Status
Hanford	Plutonium Production for WWII and Cold War Operations	Washington	Active
Idaho National Laboratory	Research and development under the DOE Office of Nuclear Energy and major waste retrieval and remediation activities under the DOE Office of Environmental Management.	Idaho	Active
Lawrence Livermore National Laboratory	Stewardship of the U.S. nuclear weapons stockpile is the foremost responsibility of the Lawrence Livermore National Laboratory (LLNL).	California	Active
Los Alamos National Laboratory	Primary responsibility is ensuring the safety, security, and reliability of the nation's nuclear deterrent.	New Mexico	Active
Nevada National Security Site	Support the nation's nuclear stockpile, including storage, assessment, disposal, and testing, if it were to be resumed.	Nevada	Active
Pantex	To maintain the safety and security of the nation's nuclear weapons stockpile.	Texas	Active
Sandia National	Ensuring the U.S. nuclear arsenal is safe, secure, and reliable through six mission	New Mexico	Active

⁷⁸ Department of Energy Defense Nuclear Sites. <https://www.dnfsb.gov/doe-sites>.

Name	Primary Function	State	Status
Laboratories	areas: nuclear weapons; nonproliferation; homeland security and defense; energy and infrastructure assurance; defense systems and assurance; and science, technology, and engineering.		
Savannah River Site	Environmental cleanup, waste management, disposition of nuclear materials, and tritium operations in support of nuclear weapon programs.	South Carolina	Active
Waste Isolation Pilot Plant	The mission of the Carlsbad Field Office (CBFO) is to protect human health and the environment by operating the Waste Isolation Pilot Plant (WIPP) for the safe disposal of Transuranic (TRU) waste and by establishing an effective system for management of TRU waste from generation to disposal.	New Mexico	Active
Y-12 National Security Complex / Oak Ridge National Laboratory	Uranium Component Manufacturing and Storage. Research and Development.	Tennessee	Active

Appendix C: Panel of Fellows and Study Team Biographies

Panel Members

Michael Dominguez (Chair),* Adjunct Research Staff Member, Institute for Defense Analyses. Former positions with the U.S. Department of Defense: Principal Deputy Under Secretary of Defense for Personnel and Readiness; Assistant Secretary of the Air Force for Manpower and Reserve Affairs, including service as Acting Secretary of the Air Force; Assistant Director for Space, Information Warfare, and Command and Control, Office of the Chief of Naval Operations. Mr. Dominguez is the former Director, Strategy, Forces and Resources Division, Institute for Defense Analyses; Research Project Director, Center for Naval Analyses; General Manager, Tech 2000 Inc.; Associate Director for Programming, Office of the Chief of Naval Operations; Director for Planning and Analytical Support, Office of the Assistant Secretary of Defense for Program Analysis and Evaluation; Executive Assistant to the Assistant Secretary of Defense for Program Analysis and Evaluation; Program Analyst, Office of the Secretary of Defense for Program Analysis and Evaluation; Military service in various assignments with the U.S. Army's Southern European Task Force.

Richard Keevey,* Distinguished Practitioner in Residence, School of Public Affairs and Administration, Rutgers University and Visiting Professor, Woodrow Wilson School of Public and International Affairs, Princeton University. Mr. Keevey is the former Director, Policy Research Institute for the Region, Woodrow Wilson School of Public and International Affairs, Princeton University; Director, Performance Management Consortium, National Academy of Public Administration; Director, Core Administration Programs, Unisys Corporation; Director, Public Sector Budget Practice, Arthur Andersen, LLP; Chief Financial Officer, U.S. Department of Housing and Urban Development; Director, Defense Finance and Accounting Agency and Deputy Under Secretary of Defense, U.S. Department of Defense; Director and Deputy Director, Office of Management and Budget, State of New Jersey; Former First Lieutenant, U.S. Army.

Belkis Leong-Hong,* President and Chief Executive Officer, Knowledge Advantage Inc., held former positions with U.S. Department of Defense: Deputy Assistant Secretary for Defense for Plans and Resources; Director, Corporate Information Management Initiative; Director, Policy & Standards; Senior Staff Analyst, Information Resource Management. Former Principal Deputy Director and Chief Information Officer, Defense Security Service. Positions with Defense Information Systems Agency: Deputy Commander, Joint Interoperability and Engineering Organization; Director, Center for Information Management; Strategies Team Chief, Agency Transition Team; Director, Information Engineering. Computer Scientist, National Bureau of Standards (now National Institute of Standards and Technology).

Peter Marshall,* Independent Management Consulting. Mr. Marshall is the former Vice President, Dewberry; Client Services Corporate Coordinator for Navy Programs, Projects and Activities, Dewberry. Mr. Marshall held former positions as Vice President of Operations, Burns and Roe; Senior Vice President, Parsons Brinkerhoff. Former positions with U.S. Navy: Chief Operating Officer and Vice Commander, Naval Facilities Engineering Command, Washington, D.C.; Commander, Pacific Division, Naval Facilities Engineering Command, Honolulu, Hawaii; Commander, 22nd Naval

Construction Regiment, Norfolk, Virginia; Fleet Civil Engineer, Naval Forces Europe; Commanding Officer, Navy Public Works Center, San Francisco; Assistant Facilities Manager, Mare Island Shipyard, Vallejo, California.

Michael McCord,* Director, Civil-Military Programs, Stennis Center for Public Service. Mr. McCord is the former Under Secretary (Comptroller) and Chief Financial Officer, U.S. Department of Defense; Professional Staff Member, Senate Armed Services Committee; Budget Analyst, House Budget Committee; Assistant Analyst, Congressional Budget Office.

*Academy Fellow

Study Team

Brenna Isman, *Director of Studies* – Ms. Isman has provided project oversight and direction at the Academy focusing on federal agencies and the regulatory community. She is an experienced facilitator and her expertise focuses on development of communication and business strategy frameworks, analysis of ongoing transformation initiatives, and strengthening stakeholder engagement. Prior to joining the Academy, Ms. Isman was a Senior Consultant for the Ambit Group and a Consultant with Mercer Human Resource Consulting, facilitating effective organizational change and process improvement. As the Assistant Director for Executive Education for the Kogod School of Business at American University, Ms. Isman developed curriculum for business certificate programs and managed program delivery. She holds an M.B.A. from American University and a B.S. in Human Resource Management from the University of Delaware.

Roger Kodat, *Senior Project Director* – Mr. Kodat has led more than twenty projects for the Academy, several focusing on strategic planning and organizational transformation and brings twenty years of commercial and investment banking experience with JPMorgan Chase, and six years of senior level federal government experience at the Department of the Treasury. Appointed by President George W. Bush in 2001, Mr. Kodat served as Deputy Assistant Secretary of Treasury, responsible for Federal Financial Policy. Some of his tasks at Treasury included policy formulation for the 2006 Postal Accountability and Enhancement Act; rule making and oversight of Federal loan and loan guarantee programs; and managing the Federal Financing Bank (a \$32 billion bank at that time). Mr. Kodat holds a BS in Education from Northwestern University and both an MBA in Finance and MA in Political Science from Indiana University.

Daniel Ginsberg, *Senior Advisor* – Mr. Ginsberg is a defense, health care policy, and human capital consultant in Washington, DC. From 2009 to 2013, he served as the Assistant Secretary of the Air Force for Manpower and Reserve Affairs, leading the Air Force's efforts to provide trained and ready personnel, while transforming human capital management for the almost 700,000-person armed service. Mr. Ginsberg served for a decade as the senior defense policy advisor to U.S. Senator Patrick Leahy of Vermont. He is also a former member of the staff of the U.S. Senate Committee on Armed Services during the Chairmanship of U.S. Senator Sam Nunn of Georgia.

Kate Connor, *Research Analyst* – Before joining the Academy, Ms. Connor taught high school social studies in Greensboro, North Carolina. She also served as a Public Policy and Government Relations Intern with the American Association of University Women and as an intern on the U.S. Senate

Committee on the Budget. Ms. Connor recently graduated from Georgetown University with a Master's in Public Policy, and she holds a Bachelor of Arts in History and Political Science and a Master's in Teaching from the University of North Carolina at Chapel Hill.

Emily Fay, *Research Associate* – Ms. Fay joined the Academy staff in August 2016 and assisted with the Academy's review of National Nuclear Security Administration governance and management reform efforts. She previously worked on the Academy's white paper on project management for the Project Management Institute, a review of best practices for the Transportation Security Administration's Office of Acquisition, and on an assessment of the Bureau of Safety and Environmental Enforcement (BSEE) of the U.S. Department of the Interior. She previously worked with the Peace Corps as a volunteer in Botswana and for the George Mason University School of Policy, Government, and International Affairs. Ms. Fay received her Master of Public Administration degree from George Mason University and holds a Bachelor of Arts in International Affairs from James Madison University.

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Appendix E: List of Interviews

Chemical Safety and Hazard Investigation Board

Zoeller, Thomas – Senior Advisor

Defense Nuclear Facilities Safety Board

Anderson, Dave – Structural Engineer

Amundsen, Kelsey - General Engineer

Biggins, James – General Counsel

Bisciegli, Deborah – Senior Advisor, HR

Blaine, Casey – Deputy General Counsel

Bradisee, Mark – Engineer

Broderick, Brett – Engineer

Brown, Larry –Board Member (Former)

Bullen, Daniel - Engineer

Caleca, Ben – Structural Engineer

Connery, Joyce –Board Member

Davis, Todd - Engineer

Deutsch, Kenneth - Engineer

Duncan, Matt- Engineer

Dwyer, Tim – Associate Technical Director Nuclear Materials Processing and Stabilization

Floyd, Gregory – Division Director, IT

Foster, Peter – Engineer

George, Nathan – Engineer

Gilman, Joseph- Associate General Counsel

Gutowski, David – Resident Inspector, LANL

Hamilton, Bruce – Board Chairman (Acting)

Herrera, Katherine – Deputy Technical Director

Martin, Andrew – Engineer

McCabe, Zach – Resident Inspector, SRS

McGuire, Dane – Contracts Specialist

Meehan, Lorraine – Operations Director

Merschatt, Ming-Wai – Budget Analyst
Meyer, Perry - Engineer
Owen, Donald – Engineer
Pasko, John – Associate Technical Director, Engineering Performance
Plaue, Jonathan – Resident Inspector, LANL
Prout, Vanessa – Human Resources Director
Randby, Megan – General Engineer
Roberson, Jessie –Board Member
Roschetti, Christopher – Technical Director
Santos, Daniel –Board Member
Sautman, Mark – Resident Inspector, SRS
Scheider, Christopher - Engineer
Schleicher, Lisa - Engineer
Sklar, Glenn – General Manager
Stokes, Steve – Technical Director
Sullivan, Katie - Engineer
Sullivan, Sean –Board Member (Former)
Sirca, Sanjoy – Engineer
Tontodonato, Richard – Group Lead Nuclear Weapons Programs
Wu, Rosa – General Engineer

Department of Energy

DeShong, Edwin – Assistant Manager for Mission Assurance, Savannah River Field Office, NNSA
Dickman, Paul – Senior Policy Fellow, Argonne National Laboratory
Hintze, Doug – Manager of Environmental Management, LANL
Hutton, James – Deputy Assistant Secretary, Office of Safety, Security, and Quality Programs
Hynes, JJ – Deputy Assistant Manager for Nuclear Material Stabilization, Savannah River Operations Office
McConnell, James – Associate Administrator for Safety, Infrastructure, and Operations, NNSA
Mikolanis, Michael – Assistant Manager for Infrastructure and Environmental Stewardship
Moury, Matthew – Associate Under Secretary for Environment, Health, Safety and Security

Olencz, Joe – Director, Office of Departmental Representative to the Defense Nuclear Facilities Safety Board

White, William “Ike” – Chief of Staff and Associate Principal Deputy Administrator, NNSA

Wyka, Ted – Deputy Field Office Manager, Los Alamos Field Office, NNSA

Government Accountability Office

Bawden, Allison – Director, US and International Nuclear Security and Cleanup Issues

Coulter, Julia – Senior Analyst, Natural Resources, Energy, and Environment Team

Gil, Jonathan – Assistant Director Nuclear Weapons Securities and Facilities

Rodell, Peter – Senior Analyst, Richland Cleanup

Woodward, Ned – Assistant Director, Nuclear Security and Safety Issues

Integrated Safety Solutions

Winokur, Peter – President and Founder

Los Alamos National Security

Erickson, Randy – Associate Director for Environmental Programs

Kacich, Rick – Deputy Laboratory Director

Los Alamos Study Group

Mello, Greg – Executive Director

Williams- Mello, Trish – Operations Director

Nuclear Regulatory Commission

Ostendorff, William – Former Commissioner

Smith, Max – Senior Legal Counsel

Svinicki, Kristine – Chairman

Nuke Watch New Mexico

Kovac, Scott – Operations and Research Director

Office of Management and Budget

Robinson, Donovan – Program Examiner, Energy Branch

Podonsky & Associates

Podonsky, Glenn – Executive Director

Savannah River Nuclear Solutions

Eyler, Dave – Executive Vice President and Chief Operating Officer

Savannah River Remediation

Borders, Mike – Deputy Project Director and Facility Manager

Fortenberry, Kent – Chief Engineer

United States House of Representatives

Heckenberger, Lorraine – Staffer, House Appropriations Committee

Shimek, Jamie – Clerk, House Appropriations Committee

Tomero, Leonor, Counsel, House Armed Services Committee

Walter, Drew – Senior Professional Staff and Energy Policy Advisor, House Armed Services Committee

United States Senate

Binns-Berkey, Augusta – Staffer, Senate Armed Services Committee

Epstein, Jonathan – Counsel, Senate Armed Services Committee

Stanley, Rory – Staffer, Senate Energy Committee

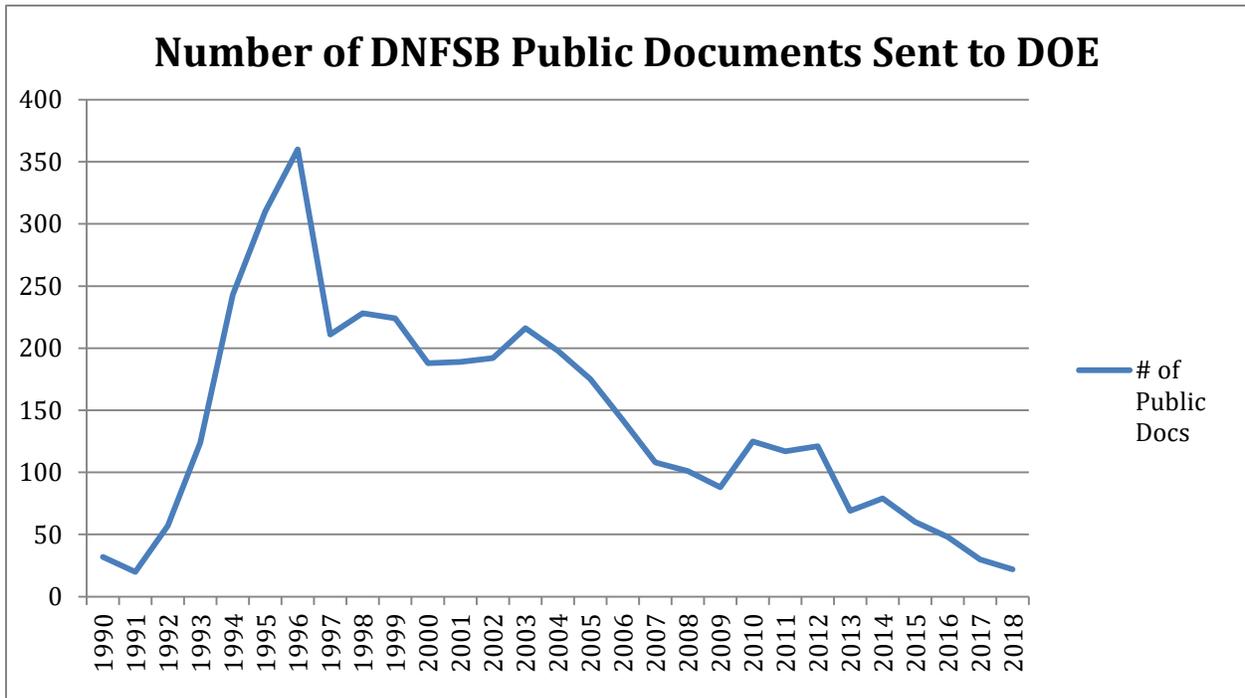
Appendix F: Tabulation of DNFSB Correspondence, Reports, Recommendations, and Memoranda Sent to the DOE by Year

Table 2 – Tabulation of DNFSB Correspondence, Reports, Recommendations, and Memoranda sent by Year (1990 – 2018)

Year	# of Public Docs	Year	# of Public Docs
1990	32	2005	175
1991	20	2006	142
1992	57	2007	108
1993	124	2008	101
1994	243	2009	88
1995	310	2010	125
1996	360	2011	117
1997	211	2012	121
1998	228	2013	69
1999	224	2014	79
2000	188	2015	60
2001	189	2016	48
2002	192	2017	30
2003	216	2018	22

Total (1990-2018)	4077
Average	141

Figure 1 – Number of DNFSB Public Documents Sent to the DOE by Year (1990 – 2018)



Appendix G: DSNFB Recommendations to the DOE by Year

Table 3 – DSNFB Recommendations to the DOE by Year (1990 – 2018)

Status	Recommendation
	2018 Recommendations
	N/A
	2017 Recommendations
	N/A
	2016 Recommendations
	N/A
	2015 Recommendations
Open	2015-1, Emergency Preparedness and Response at the Pantex Plant
	2014 Recommendations
Closed	2014-1, Emergency Preparedness and Response
	2012 Recommendations
Open	2012-2, Hanford Tank Farms Flammable Gas Safety Strategy
Open	2012-1, Savannah River Site Building 235-F Safety
	2011 Recommendations
Open	2011-1, Safety Culture at the Waste Treatment and Immobilization Plant
	2010 Recommendations
Closed	2010-2, Pulse Jet Mixing at the Waste Treatment and Immobilization Plant
Closed	2010-1, Safety Analysis Requirements for Defining Adequate Protection for the Public and the Workers
	2009 Recommendations
Closed	2009-2, Los Alamos National Laboratory Plutonium Facility Seismic Safety

Status	Recommendation
Closed	2009-1, Risk Assessment Methodologies at Defense Nuclear Facilities
	2008 Recommendations
Closed	2008-1, Safety Classification of Fire Protection Systems
	2007 Recommendations
Closed	2007-1, Safety-Related In Situ Nondestructive Assay of Radioactive Materials
	2005 Recommendations
Closed	2005-1, Nuclear Material Packaging
	2004 Recommendations
Closed	2004-2, Active Confinement Systems
Closed	2004-1, Oversight of Complex, High-Hazard Nuclear Operations
	2002 Recommendations
Closed	2002-3, Requirements for the Design, Implementation, and Maintenance of Administrative Controls
Closed	2002-2, Weapons Laboratory Support of the Defense Nuclear Complex
Closed	2002-1, Quality Assurance for Safety-Related Software
	2001 Recommendations
Closed	2001-1, High-Level Waste Management at the Savannah River Site
	2000 Recommendations
Closed	2000-2, Configuration Management -- Vital Safety Systems
Closed	2000-1, Prioritization for Stabilizing Nuclear Materials
	1999 Recommendations
Closed	99-1, Safe Storage of Fissionable Material called "Pits"

Status	Recommendation
	1998 Recommendations
Closed	98-2, Safety Management at the Pantex Plant
Closed	98-1, Resolution of Safety Issues Identified by DOE Internal Oversight
	1997 Recommendations
Closed	97-2, Continuation of Criticality Safety
Closed	97-1, Safe Storage of Uranium-233
	1996 Recommendations
Closed	96-1, In-Tank Precipitation System at the Savannah River Site
	1995 Recommendations
Closed	95-2, Safety Management
Closed	95-1, Improved Safety of Cylinders Containing Depleted Uranium
	1994 Recommendations
Closed	94-5, Integration of Rules, Orders, and Other Requirements
Closed	94-4, Deficiencies in Criticality Safety at Oak Ridge Y-12 Plant
Closed	94-3, Rocky Flats Seismic and Systems Safety
Closed	94-2, Safety Standards for Low-Level Waste
Closed	94-1, Improved Schedule for Remediation
	1993 Recommendations
Closed	93-6, Maintaining Access to Nuclear Weapons Expertise
Closed	93-5, Hanford Waste Tanks Characterization Studies
Closed	93-4, Environmental Restoration Management Contracts
Closed	93-3, Improving Technical Capability

Status	Recommendation
Closed	93-2, The Need for Critical Experiment Capability
Closed	93-1, Standards Utilization in Defense Nuclear Facilities
	1992 Recommendations
Closed	92-7, Training and Qualifications
Closed	92-6, Operational Readiness Reviews
Closed	92-5, Discipline of Operations During Changes
Closed	92-4, Multi-Function Waste Tank Facility at Hanford
Closed	92-3, HB-Line Operational Readiness Reviews
Closed	92-2, Facility Representatives
Closed	92-1, Operational Readiness of the HB-Line at Savannah
	1991 Recommendations
Closed	91-6, Radiation Protection
Closed	91-5, Savannah River K Reactor Power Limits
Closed	91-4, Rocky Flats Building 559 Operational Readiness Review
Closed	91-3, Waste Isolation Pilot Plant
Closed	91-2, Reactor Operations Management Plan
Closed	91-1, Safety Standards Program
	1990 Recommendations
Closed	90-7, Hanford Waste Tanks Codes and Standards
Closed	90-6, Rocky Flats Plutonium in the Ventilation Ducts
Closed	90-5, Rocky Flats Systematic Evaluation Program
Closed	90-4, Rocky Flats Operational Readiness Reviews

Status	Recommendation
Closed	90-3, Hanford Waste Tanks
Closed	90-2, Codes and Standards
Closed	90-1, Savannah River Site Operator Training

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Appendix H: DNFSB FEVS Scores (2011 – 2017)

Figure 2 – DNFSB FEVS Score by Year (2011 – 2017)

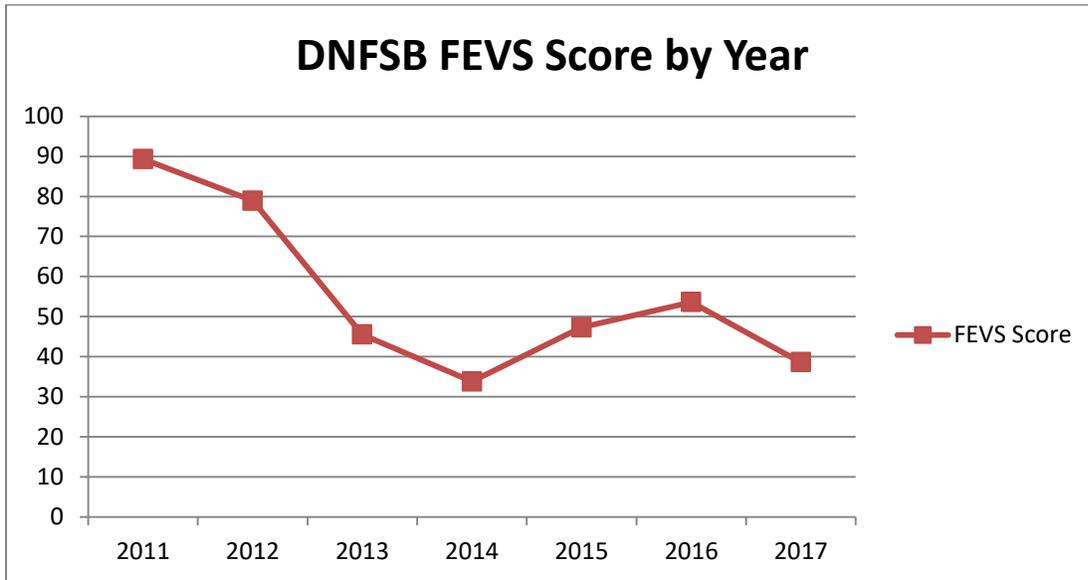


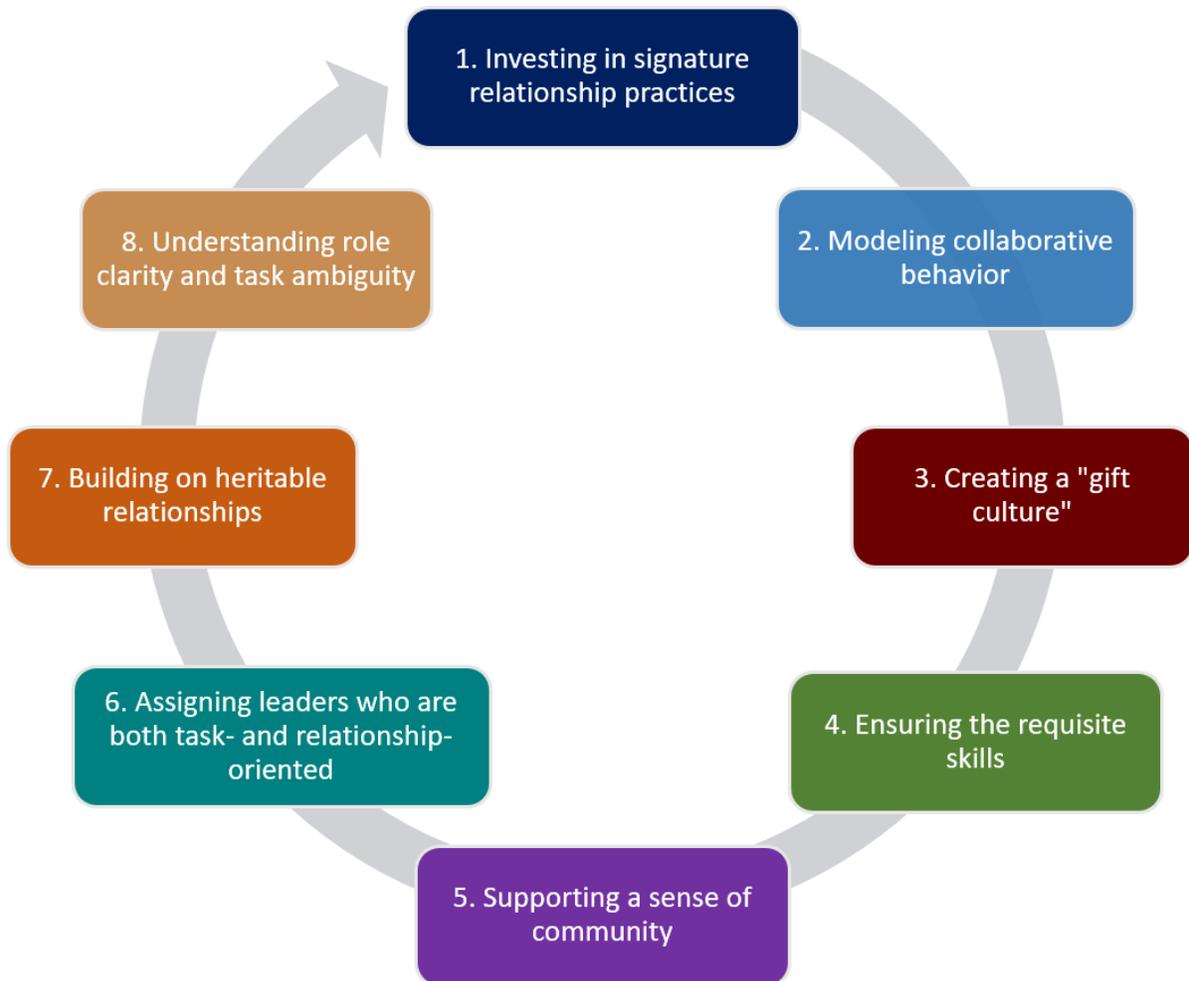
Table 4 – FEVS Score by Year (2011 – 2017)

Year	FEVS Score
2011	89.3
2012	78.9
2013	45.5
2014	33.8
2015	47.3
2016	53.6
2017	38.6

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Appendix I: Eight Quintessential Ways to Build Collaborative Teams⁷⁹

Figure 3 – Eight Quintessential Ways to Build Collaborative Teams



⁷⁹ <https://hbr.org/2007/11/eight-ways-to-build-collaborative-teams>

OTHER IMAGES CREDIT

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