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To New Geographies: Implementing U.S. Department of Energy Order 151.1D, Comprehensive Emergency Management System

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TO NEW GEOGRAPHIES:

IMPLEMENTING U.S. DEPARTMENT OF ENERGY ORDER 151.1D, *COMPREHENSIVE EMERGENCY*

MANAGEMENT SYSTEM

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PIM 77

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Acronyms

CEMP	Comprehensive Emergency Management Plan
COOP	Continuity of Operations
CRD	Contractor Requirements Document
DHS	Department of Homeland Security
DNF	Defense Nuclear Facility
DOE	Department of Energy
EM	Emergency Management
EOC	Emergency Operations Center
ERO	Emergency Response Organization
FEMA	Federal Emergency Management Agency
FO	Field Office
G151.1-1A	Department of Energy Guide 151.1-1A
HAZMAT	Hazardous Materials
HSPD	Homeland Security Presidential Directive
INC	Incident Command System
LANL	Los Alamos National Laboratory
NIMS	National Incident Management System
NNSA	National Nuclear Security Administration
NPG	National Preparedness Goal
NRF	National Response Framework
NRP	National Response Plan
O151.1D	Department of Energy Order 151.1D
OST	Office of Secure Transportation
SME	Subject Matter Expert
SNL	Sandia National Laboratory
SR	Survey Respondent
WIPP	Waste Isolation Pilot Program

ABSTRACT

Emergency Management programs at National Nuclear Security Administration facilities are governed by federal policy directive Department of Energy Order 151.1D, *Comprehensive Emergency Management System*. The prescriptions within the Order are often at odds with industry-standard frameworks and vocabularies established by the Department of Homeland Security. Boleman and Deal's Four Frame Model offers the tenets of the Political, Structural, Human Resource, and Symbolic lens perspectives to clarify the nature of disparate programs precipitant from disparate agency policies. This project utilizes a Phenomenological Interpretivist Framework for qualitative research to triangulate data across textual analyses, public perception, and practitioner experience, thus identifying how Emergency Managers might successfully interpret the Order to develop Department of Energy programs at the human scale. Findings reveal an imperfect policy crafted by specialists, reliant on atypical definitions that fail to align human need with the skillsets demanded of practitioners who must collaborate with their offsite counterparts in a technical language. Practitioner input and whole-community feedback might inform the future revision of Order 151.1D, and supporting texts, to emphasize human scale implementation through adoption of a lingua franca and a nurturing of the *Culture of Emergency Preparedness.* Boleman and Deal's Human Resource Frame allows practitioners to align mission deliverables with emergency response functions.

Introduction

*"*Good maps align with the terrain and provide enough detail to keep you on course."
-Lee Boleman & Terry Deal, 1991

"The map is not the territory..."
- Alfred Korzybski, 1931

In the field, *Emergency Management* (EM) is most frequently defined as the protection of life, property, and the environment from natural hazards and human-made incidents. To achieve the *National Preparedness Goal* (NPG), the Department of Homeland Security (DHS) has codified and enacted the policies and processes necessary to establish best practices amongst the range of EM response agencies. First encapsulated within the Department's *National Response Plan* (NRP)*,* the *National Response Framework* (NRF) created an integrated, iterative, inclusive, country-wide system for *all-hazards* response and mitigation operations (Department of Homeland Security, 2004).

Though the NRF identifies federal-level initiatives for the full Cycle of Emergency Management activities, the policy was built upon, and alongside, core tenets of the *National Incident Management System* (NIMS). In turn, designed to standardize adoption and use of the *Incident Command System* (ICS), NIMS emphasizes the coordinated allocation of resources, command structures, and communications or information management strategies for local, county, state, tribal, territorial, and federal actors across the public, private, and plural sectors (Department of Homeland Security, 2019). Appropriate use of ICS amongst multiple jurisdictions is the fundamental principal underlying the nation's *whole-community* approach to emergency management.

The genesis of ICS dates back to the 1970s, and its implications resonate deeply throughout the EM sphere of operations. Cohesive, flexible, scalable, adaptive—ICS provides the structure and instruction for collaborative emergency response actions. Plug-and-play; the system is designed as such that any individual actor with ICS training can participate in relief efforts upon activation. By no means arcane or obtuse, the elements of ICS are clear and concise. ICS training can be obtained freely and easily through the Federal Emergency Management Agency's (FEMA) independent study website and regularly scheduled live-instructor classes. Specific ICS course-completion certificates are a common pre-requisite for many positions, and professionals, in the EM industry.

After two years of ICS self-study to augment my resumé and inform my work in local government, imagine my surprise upon recent employment at a U.S. Department of Energy (DOE) contractor institution—an entity not entirely beholden to the established norms of NIMS or the National Response Framework.

Perched in isolation on the mesas below the Jemez Mountains in rural northern New Mexico, Los Alamos National Laboratory (LANL) was founded in 1943 for the sole purpose and creation of the atom bomb under the auspices of the Manhattan Project. Following World War II and throughout the Cold War of the Atomic Age, the laboratory maintained its research focus on nuclear capabilities. Now a Federally Funded Research and Development Center, LANL has expanded its mission to include other aspects of national security, but it remains the senior organization in the DOE's nuclear research endeavors.

As a contracted institution under the DOE, the laboratory and Defense Nuclear Facilities (DNF) under the National Nuclear Security Administration (NNSA), must adhere to the policy

directives of Department of Energy Order 151.1D, *Comprehensive Emergency Management System* (O151.1D). This document identifies, enumerates, and expounds upon the necessary EM program elements required for DOE contractor compliance. The order acknowledges the precepts of NIMS and adopts ICS for all-hazards response; existing adjacent to, congruent with, and somewhere within the NRF.

And yet, there are exceptions. Inconsistencies and discrepancies within O151.1D disregard established NRF practices, or imply a certain dis-alignment with prevailing nation-wide, multi-jurisdictional EM strategies. DOE practitioners must reconcile these contradictions within the Order; translating the written word into actionable protocols and procedures that serve the department's mission.

Emergency Management Program development is thus contingent upon appropriate and accurate interpretation of the Order. Dry, bureaucratic, 151.1D remains a foundational policy document; its implications affect the full spectrum of constituencies across the population. At heart, 151.1D must protect the nation from biological, radiological, and nuclealogical disasters. Considering the norms established by DHS, the DOE has created a competing and conflicting framework, yet the map must align with the territory if response function agencies are to work in tandem towards impactful disaster management and risk mitigation. If there are to be two maps in play—how might the institution and EM practitioners interpret the Order to accommodate human-scale implementation aligned with organizational efficacy?

Literature Review

To consider the motivations underlying these disparate policies and programs, Lee Boleman and Terry Deal offer the Four Frame Model for cultural perspective. Their theory posits representational lenses that characterize organizational intention and comprehension (Boleman & Deal, 2017):

- the Structural Frame—a *factory* or *machine*, dependent on rules, roles, goals, policies, technology, and the environment

- the Human Resource Frame—a *family*, valuing needs, skills, and relationships

- the Political Frame—a *jungle*, emphasizing power, conflict, competition, and organizational politics

- the Symbolic Frame—a *carnival*, *temple*, or *theater*, imbued with culture, meaning, metaphor, ritual, ceremony, stories, and heroes

The framework provides a tool for interpreting the operations and objectives of the institutions in question.

As regards Emergency Management, the competition for resources and apparent conflict between the two program documents falls squarely into the realm of the Political Frame; governing agencies within the same system have developed separate processes to fulfill their distinct agendas. A matter of policy, the Structural Frame recognizes the need for and creation of the NRF and O151.1D; the actors at hand require direction, guidelines, and standards to achieve their objectives. From an operational perspective, the Symbolic Frame is found manifest in the *Culture of Emergency Preparedness* nurtured by the laboratory's Emergency Management Division; there is meaning in the uniforms donned by LANL's

Protective Force, *lessons-learned* since culled from the wildland fires of years past, and value in the ceremonies and rituals employed to memorialize the history underlying the Manhattan Project.

The recognition and alignment of the needs, skills, and relationships that characterize organizational efficacy under the Human Resource Frame, however, is harder to locate. Herein lies the disconnect between interpretation and deploying the personal touch that governs the work; the protection of life, property, and the environment, by EM practitioners. There are faces and names and homes and pets and critical infrastructure serviced by the policies to be executed. ICS may illustrate actionable steps and stress collaboration between multi-jurisdictional response organizations, but the NRF and O151.1D do not describe how to save a family from a burning building or cultivate an organizational culture with the capacity to execute an empathetic press conference.

Reframing Organizations: Artistry, Choice and Leadership is quick to acknowledge the historic divide underpinning policy intention and policy implementation (Boleman & Deal, 2017). There is no shortage of literature in the field. Starts Eugene Bardach from his seminal 1977 work *The Implementation Game: What Happens After a Bill Becomes a Law*:

> It is hard enough to design public policies and programs that look good on paper. It is harder still to formulate them in words and slogans that resonate pleasingly in the ears of political leaders and the constituencies to which they are responsive. And it is excruciatingly hard to implement them in a way that pleases anyone at all, including the supposed beneficiaries or clients. (p. 3)

O151.1D is a prescriptive list of the *what* that defines an emergency management program, but not the *how* to do the work or *how* said programs reflect back upon those we are charged with stewarding through crisis.

The inside/outside relationship between the NRF and O151.1D is no secret—the DOE acknowledges as much in flow-down document Emergency Management Guide 151.1-1A, *Emergency Management Fundamentals and the Operational Emergency Base Program* (G151.1-1A). Similar to the directions accompanying one's tax return form, G151.1-1A seeks to clarify O151.1D for practitioners; further expounding upon each point in the Order. Though the NRF sought to standardize terminology across federal agencies, Guide subsection 1.10.1 draws the distinction between DHS and DOE emergency management cycle mission functions; while subsection 1.10.2 covers the adoption of NIMS/ICS, despite the distinction in program objectives and origins. Exceptions to the NRF can be found throughout the instructions within the document. Furthermore, the guidelines acknowledge the diversity of laboratories and other DNF sites under the banner of the NNSA; recommending that the required EM programs be *tailor-made* to accommodate site-specific hazards (Department of Energy, 2007). Hence, O151.1D becomes open to varied interpretations amongst stakeholders. The plug-and-play nature of ICS within the NRF, multi-jurisdictional response based on a common operating picture, is now obfuscated by the vagueries inherent within the Order. G151.1-1A may exist to explain the Order, but it cannot prescribe the efficacy or efficiency of resultant program implementations between LANL, Lawrence Livermore National Laboratory in California, and Oak Ridge National Laboratory in Tennessee. And as previously noted, the guidelines detail the

what, not the *how*; neglecting the Human Resource framework, failing to translate O151.1D into transformative practice for area constituents.

The textual evidence is myriad. There exists a framework to identify the lacuna amidst the intentions of O151.1D. Decades of social study edify casual analysis for mindful public policy implementation. Guidelines for execution illuminate the DOE's objectives. Yet, the canon lacks a treatise on successful, human-scale emergency management program development under the DOE at Los Alamos National Laboratories.

Research Design & Methodology

This project was undertaken through the winter of 2020 into the spring of 2021 and informed through the following criteria for credible qualitative research.

Methodology Choice and Rational

As the research question centers the personal policy interpretation of practitioners in the field, an Interpretivist Methodology (Rossman & Rallis, 2016) was employed to examine the perceived best practices for implementation amongst a varied population of program stakeholders and beneficiaries. Further phenomenological study allowed for protracted exploration of Subject Matter Expert (SME) lived experience. Thorough shared exchange within phenomenologies was compromised, however, given the timebound scope of the objective; delimiting project genesis would have undoubtedly yielded further *lines of inquiry* prescient to the topic at hand.

Site and Participant Sampling

As the work sought to comprehend the intention and design of specific policy documents, project participation was site-bound to practitioners at NNSA facilities under the DOE. Purposive/Criterion based sampling was necessary to identify SME adherents to Order 151.1D (Palinkas, et al., 2015). In contrast, Survey Respondents (SR) required neither familiarity with the Order, or Emergency Management programs, as the research sought to understand the definition of *successful implementation* through prevailing public perception; SRs were solicited for participation through online social networks and personal correspondence with industry colleagues based on access. The digital survey reached approximately 1800 people across varied demographics and received 41 responses—indicating a 2.3% rate of return. Though highly likely SMEs would also be familiar with DHS frameworks by nature of the industry, exposure to the NRF was not a required criterion; my personal experience and observation as a scholar of NIMS informed the collection of observational data related to the DHS (Rossman & Rallis, 2016).

Data Collection

Upon completion of the Literature Review, foundational DHS and DOE documents were parsed to ascertain the mission, vision, and values of the disparate programs as evidenced by guiding principles, operational functions, and programmatic elements. Contextual Intersectionality amongst these documents identified fundamental alliances and disconnections. Though not categorized as empirical findings, knowledge gleaned from SME interviews was crucial to performing the Textual Analysis of O151.1D; distinguishing the

strengths, weaknesses, weirdnesses, and inconsistencies found within the Order to be interpreted by practitioners. Survey questions focused on the nature of policy and program development in the public, private, and plural sectors; as well as the character traits and skillsets required for successful implementation. Similarly, SME interviews further informed the reconciliation of program implementation with the Human Resource Frame, as noted within the Findings and subsequent Recommendations.

Ethics and Conduct

Concerted determination was made to ensure that all aspects of this study fell within the ethical bounds of the SIT Institutional Review Board; as regards the values of Justice, Beneficence, and Respect implicit to Informed Consent. The institution's Human Subjects Review Application was submitted for expedited approval given the low-stakes nature of the work—unlikely to cause emotional distress or political controversy. However, the NNSA is a small world and many of the policies in question exist under the umbrella of nuclear safety to protect the nation's interests; institutional LANL documents are frequently classified, and protected by federal security clearances. Great care was taken to avoid the use of confidential or non-public-facing documents. SMEs were asked to speak from personal experience, rather than as representatives of theirs sites. Site locations were redacted, personal information was omitted, and non-gendered pronouns were employed to protect the identities of SMEs and SRs, alike.

Positionality

The author acknowledges a professional endorsement for the NRF, NIMS, and ICS; there is a certain mission-aligned value proposition in frameworks designed to emphasize cross-culture communications amongst emergency response actors. Research bias was a valid concern given personal interest, proximity, and comprehension of the topic at hand (Peshkin, 1988). To maintain a critical ear on all policies, and potentialities, document and program analysis centered on the real language employed within the texts—free from inference or the author's familiarity with the field. The phenomenological experience of the SMEs and SRs guided the development of subsequent lines of inquiry, grounding the evolution and outcome of the work.

Data Management and Analysis

All government texts were downloaded from readily accessed public-facing websites. The digital survey was composed in Google Forms and distributed via Facebook and personal email. SME interviews were executed through remote video call due to the ongoing Coronavirus-19 pandemic prohibiting face-to-face interactions, then transcribed to text files for review. Information management software was not employed as the narrowed lines of inquiry yielded easily parsed responses for casual analysis. All files were stored on a password-protected personal laptop.

Deductive reasoning was beneficial for crafting the approach; the work assumed policy design influenced program implementation. However, execution of the research was predominantly inductive—allowing the collected and observational data to identify broader

trends and generalizations within the EM sphere of operations. Isolated emic categorizations were employed to infer intentions within the Order and procedures under the DOE, while etic approaches correlated the mono-culture across the disparate response agency strategies under the auspices of DHS. All documents were then cross-walked with each other to align relevant passages while revealing *in vivo* inconsistencies. Collected data from SMEs, SRs, and selected passages within the texts, were then coded against the principal tenets and value systems of the Human Resource Frame; namely *needs*, *skills*, and *relationships*. The resultant trends, drifts, and diversions form the bulk of the subsequent Findings and suggested Recommendations.

Credibility

This project sought to apply methodologies for human-scale implementation to living, real-world policy documents, and thus there is a befitting value and validity to the work (LeCompte, 2000). The NA-41 CRAD Handbook for programmatic self-assessment is approved for public dissemination though not easily accessed by general audiences. That exception noted, all other consulted and referenced texts are the product of peer-reviewed scholarship, or Federally-funded public-facing published documents. Collected data, Findings, and Recommendations were triangulated against the texts, survey responses, and SME interviews to ensure trustworthiness and integrity. The SMEs, though anonymous, are known professionals in their field. And though the SRs were sourced from accessible personal networks, they are representative of a wide berth of stakeholders across age, race, and experience populations.

Parameters

Though originally intended as an exploration of Human-Centered-Design practices and norms, distillation of the research question limited the scope of the endeavor—hindering research efforts to an extent. The author acknowledges the following conditions to have limited project execution and final product:

- Classified documents and the confidential nature of nuclear research facilities rendered certain topics embargoed and texts *verboten.*

- Interviewed SMEs were known individuals allowing for a certain candor in conversation, but restricted information exchange to a familiar in-group.

- With the exception of SME-2, interview subjects were predominantly DOE practitioners; lines of inquiry regarding DHS protocols were largely confined to personal observation through past job experience and independent study.

- The research centers the design and implementation of O151.1D, avoiding the implications of government program development in the greater corpus across wider populations.

- Though SRs are representative of diverse populations, the work does not explicitly address the implications or ramifications of program design and implementation across cultural lines.

While there may be a theoretical connection between Human-Centered Design and the whole-community approach to emergency preparedness, said connection lies thoroughly outside the intent and direction of Order 151.1D, and this work has been realigned accordingly.

TO NEW GEOGRAPHIES

Textual Intersectionality

The National Response Framework… National Response Plan…National Incident Management System…These are but a handful of the foundational policies that form the intra-referential feedback loop at the heart of our nation's all-hazards approach to Emergency Management. Despite an alphabet soup of acronyms, these documents and the protocols within serve a singular purpose; the National Preparedness Goal. The Department of Homeland Security (2015) defines the NPG as "A secure and resilient Nation with the capabilities required across the whole-community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk" (p.1). As identified, these five mission areas comprise the Cycle of Emergency Management (Figure 1); an iterative system of core capabilities that dictate next steps when planning for, reacting to, and anticipating future natural disasters and human-made incidents. The cycle, and subsequent functions

Figure 1: Department of Homeland Security Cycle of Emergency Management

throughout, provides a common vocabulary for players and practitioners across the whole-community to integrate and collaborate on mission essential initiatives (Department of Homeland Security, 2019), when activating NIMS/ICS as precipitated by the NRF. Further examination of these policies, and the *common terminology* governing EM practices, informs the interpretation and implementation of Order 151.D.

The National Response Framework

Though capabilities are grouped by mission area, they are not bounded by the mission; their actions may inform, affect, or precipitate other actions throughout the cycle (Department of Homeland Security, 2019). Protective actions serve to *mitigate* risk, dampening the impact from *real events*; building a seawall along flood-prone shoreline, for example. Recovery operations create the infrastructure to *prevent* future incidents; such as changing one's password on a hacked e-bank account. Unsurprisingly, the NRF's primary focus is the core capabilities that comprise the *Response* mission area; "actions to save lives, protect property and the environment, stabilize the incident, and meet basic human needs following an incident" (Department of Homeland Security, 2019, p. 2).

Central to the promise of the NRF is the establishment of the *whole-community approach* to emergency response and preparedness; the participation, cooperation, and coordination amongst actors across the public, private, and plural sectors. Actors ranging from individuals to local businesses, faith-based groups to secular non-profit organizations, corporations to operators of critical services, in conjunction with all levels of government; be they municipal, county, state, tribal, territorial, or federal governments. As regards disasters, these players work together to create emergency plans, enhance sheltering capacities, restore essential services, and more.

The NRF then identifies seven *community lifelines*, the restoration of which are crucial to meeting basic human needs while enabling *continuity of operations* (COOP) for area businesses and critical government functions:

- Safety & Security
- Food, Water, & Shelter

- Health & Medical
- Energy, Power, & Fuel
- Communications

- Transportation
- HAZMATs

To achieve this mission, the NRF facilitates organized multi-jurisdictional integration and interoperability through a ladder of guiding principles, established objectives, and operational strategies (Table 1). Though an over-simplification of the framework, the NRF is characterized by its unity of effort and command amongst the whole-community—sharing a common vocabulary, and thus, a common operating picture of the crisis at hand.

The National Response Framework: Principles, Objectives, & Strategies	
Guiding Principles	• engaged partnership; developing shared goals and aligning capabilities amongst whole-community actors • tiered response; response is locally executed, state managed, and federally supported • scalable, flexible, adaptable operational capabilities; response efforts evolve to meet the needs of the incident • unity of effort via unified command; achieving common objectives through shared leadership and shared resources • readiness to act; anticipated, prepared, and decisive action
Framework Objectives	• scaled response; the amount of required resources and capabilities are commensurate with the scope of the incident • specific resource/capability delivery; the type of required resources and capabilities are commensurate with the scope of the incident • appropriate incident level coordination; the required local players and jurisdictional agencies are commensurate with the scope of the incident
Operational Strategies	• prioritize the maintenance and restoration of critical services and vital infrastructure • employ clear and common language for communications amongst various stakeholders • facilitate unity of effort across the whole-community • identify the required cross-sector coordination for complex and complicated disaster components

Table 1: The National Response Framework: Principles, Objectives, & Strategies

The National Incident Management System

Couched within the NRF, NIMS offers a communal toolbox to achieve Response mission objectives. Designed over decades of collective practitioner experience in the field (Federal Emergency Management Agency, 2017), the system values the following guiding principles:

- Flexibility: capabilities are scalable and adaptable to accommodate various players, agencies, and jurisdictional responders in any situation.

- Standardization: common terminology, defined structures, and standard practices enable interoperability and integration amongst response organizations.

- Unity of Effort: response organizations maintain their own authority and jurisdictional responsibilities while working to achieve shared objectives.

These principles govern the three major components that establish the basis for whole-community emergency management initiatives:

- Resource Management: standardized approaches to the movement and sharing of personnel, facilities, equipment, and supplies.

- Command and Coordination: the organizational integration of responders and agencies for efficient and effective incident management.

- Communications and Information Management: systems and methods to ensure incident personnel have the means to make and communicate decisions.

These components then couple with ICS to define the mechanisms and structures for integrated federal, state, and private sector (et al.) response to local incidents.

The Incident Command System

Further nested within NIMS, ICS provides the actual tools within the toolbox to be utilized by incident responders. FEMA (2017) defines ICS as follows:

ICS is a standardized approach to the command, control, and coordination of on-scene incident management that provides a common hierarchy within which personnel from multiple organizations can be effective. ICS specifies an organizational structure for incident management that integrates and coordinates a combination of procedures, personnel, equipment, facilities, and communications...ICS applies across disciplines and enables incident managers from different organizations to work together seamlessly. (p. 24).

Thus established, ICS may be employed by the whole-community for responses to natural disasters, human-made incidents, and even planned events, at any scale (Emergency Management Institute, 2018). This standardization is then applied to the three NIMS components (Resource Management, Command and Coordination, and Communications and Information Management) allowing for multi-jurisdictional collaboration across 14 program characteristics (Table 2).

National Incident Management System & Incident Command System Program Characteristics	
Common Terminology	Incident Action Planning
Management by Objectives	Incident Facilities and Locations
Manageable Span of Control	Integrated Communications
Modular Organization	Unified Command
Dispatch/Deployment	Accountability
Comprehensive Resource Management	Information and Intelligence Management
Establishment and Transfer of Command	Chain of Command/Unity of Command

Table 2: National Incident Management System & Incident Command System Program Characteristics

As a flow-down product of NIMS within the NRF, the application of ICS falls squarely within the Response mission area of the Cycle of Emergency Management.

Order 151.1D

The implementation of O151.1D, *Comprehensive Emergency Management System* is yet another contribution towards the National Preparedness Goal; though intent and alignment within the document may end at "A secure and resilient nation…" The order is not a product of FEMA or DHS, but rather the Department of Energy, and as such it serves the department's agenda; striving towards a specific end, competing for resources amongst a specific set of stakeholders. Though O151.1D might adopt NIMS and ICS for certain purposes, the Order as a whole is not concerned with DHS's iteration of the Cycle of Emergency Management. Nor does it espouse a common or shared vocabulary amongst the whole-community. The Order defines a program that edifies national efforts, standing next to, but apart from, the National Response Framework.

Though the Order allows provisions for implementation equivalencies and exemptions amongst participating organizations, applicability to intended contractors is created from the onset (Department of Energy, 2016). Appendix B informs the responsibilities of Power Marketing Administrations; entities that market hydropower across the country. Attachment 3 establishes the baseline for the *Core Program*; policies and practices for any organization adhering to this particular Contractor Requirements Document (CRD). Attachment 4 defines further procedures for entities with Hazardous Materials (HAZMAT) Programs; built atop the structure of the Core Program. Attachment 5 addresses the Secure Transportation Program for

the movement of HAZMATs across geographies between Office of Secure Transportation (OST)

contractor entities. Attachment 6 describes plans and policies for Energy Emergency Response

Support; actions taken to mitigate energy supply crises. The target audience for

implementation is explicit; the prescriptions within each section of O151.1D serve the

contracted organization directly. The Order also addresses *Offsite Interface* between

contractors and local, state, tribal, territorial, and public/private service providers; but it does

not contain specific instruction for these organizations in return.

Further distancing itself from the tenets of the NRF, the Department of Energy eschews

common terminology and devises its own Cycle of Emergency Management (Figure 2).

Figure 2: Department of Energy Cycle of Emergency Management

According to Guide 151.1-1A, typical *prevention* tactics undertaken by the whole- community are considered outside the scope of the Core Program, as they are not the responsibility of the contracting organization (Department of Energy, 2007). Meanwhile *mitigation* strategies are replaced by the Planning and Readiness Assurance mission areas, then

subsumed into Recovery and Response functions. A separate system in place, the DOE

acknowledges and demands EM activities that differ greatly from the constituencies within the

NRF. In general, counties do not execute trainings, drills, and exercises to prepare the public for

HAZMAT releases (Readiness Assurance). Faith-based groups are not mandated to conduct

incident evaluations to identify lessons-learned (Recovery). Area Fire departments do not

analyze *Emergency Planning Hazard Assessments* to reduce the impact from site-specific events

(Planning).

Curiously, the DOE enumerates three guiding principles for the implementation of

O151.D, though these are not contained within the Order itself, but rather Guide 151.1-1A

(Department of Energy, 2007, p. 4):

- Effective response is the "*last line of defense*" against adverse consequences.

- Planning, preparedness, response, and recovery must be *specific to* and

  "*commensurate with the hazards*".

- "*Early Recognition*" is vital to timely, effective, and commensurate response.

Here once more, there is a departure from the foundational cornerstones of the NRF and NIMS;

most notably in the commandment that EM cycle actions be *commensurate with the hazards.*

While the most common or likely events are of critical importance to emergency preparedness,

identification and planning for every and any potential threat is a sizeable task for most

communities or organizations (Federal Emergency Management Agency, 2021). Thus*,* NIMS and

ICS are designed to be flexible, scalable, and adaptable to meet the response needs of any

natural disaster, human-made incident, or scheduled event. Counties, faith-based groups, and

fire departments are able to contribute their core-capabilities to flood response, mass-casualty

incidents, and sporting events—without having specifically addressed Mississippi River water-

levels, World Trade Center airplane collisions, or anticipated hosting the Olympic Games. In

contrast, O151.1D requires all contracting organizations to identify on-site hazards (activities,

HAZMATs, potential natural disasters), and allows for the corresponding Core or HAZMAT

program to be tailor-made to meet the organization's mission (Department of Energy, 2007).

Such specificity yields disparate programs across the DOE complex, alienating whole-community stakeholders who may be unfamiliar with the organization's EM program.

Forming the bulk of the Order, Attachment 3 stipulates 15 functional elements within three operational spheres that comprise the Core Program (Table 3):

Order 151.1D Emergency Management Core Program Elements		
Technical Planning Basis	Programmatic/Ongoing Activities	Response/Standby Activities
• Hazards Surveys & Hazards Assessments	• Program Management & Administration • Training & Drills • Readiness Assurance	• Emergency Response Organization • Emergency Operations System • Offsite Response Interfaces • Emergency Facilities & Equipment • Categorization & Classification • Notifications & Communications • Consequence Assessment • Protective Actions • Emergency Medical Support • Emergency Public Information • Termination & Recovery

Table 3: Order 151.1D Emergency Management Core Program Elements

Order 151.1D then explicitly adopts selective components of NIMS/ICS as applicable to the following elements (Department of Energy, 2016):

- Emergency Response Organization (ERO): first responders must be able to manage the first operating period of NIMS Type 4 events; expand response capabilities when local resources are no longer adequate; control the incident scene or integrate ERO activities with other jurisdictional agencies; provide ERO members access identification to the incident scene

- Emergency Operations System: adopt the basic NIMS/ICS concepts of common terminology, action planning, managing by objectives, unity of command and delegation of authority, and manageable span of control

- Training & Drills: ERO member training must include applicable components of

  the Emergency Management Institute/FEMA's independent study courses ICS

  100: *Introduction to ICS*, and ICS 700: *NIMs, An Introduction*

As evidenced, the DOE does not apply the guiding principles or operational components of

NIMS/ICS across the entirety of the contractor's Comprehensive Emergency Management

System.

And thus, program implementation exists at the intersection of varying policies that

serve various constituencies. Mismatched nesting dolls; the Order serves the NPG but identifies

differing EM cycle mission areas for a specific group of stakeholders. Prescriptions within

O151.1D reflect the guiding principles, objectives, and strategies of the NRF, but omit

provisions for the whole-community approach or community lifeline restoration. The Order's

intention acknowledges the values of NIMS, and addresses the three major components of

NIMS within the Core Program elements; yet formal adoption of ICS principles is applied to only

a handful of DOE mission Response activities.

Contextual Analysis

"It's a weird document. I don't know where to begin," states Subject Matter Expert 1

(SME-1), an Emergency Manager with roughly 10 years of experience amongst three different

Defense Nuclear Facility sites across the country under the auspices of the NNSA, "…O151.1D is

imperfect." (Personal Communication, March 5, 2021). Order 151.1A was first published in

November, 2000; despite three revisions over 16 years, the fourth and current iteration of the

Order is riddled with contradictions. Though an analysis of the entire document is beyond the

scope of this endeavor, the following examples implicate just a few of the imperfections within

the directive.

Alignment

The development of NIMS was first proposed in 2003 under Homeland Security

Presidential Directive-5 (HSPD-5); a direct result of the 9/11 attacks. Order 151.1D's initiating

purpose is alignment with HSPD-5 and other Executive Orders, policies, and directives

(Department of Energy, 2016); and thus by default, official adoption of NIMS and ICS—13 years

after the issuance of HSPD-5. Yet the Order makes clear departures from the standardization of

common terminology; indicating a dis-alignment with the core tenets central to NIMs

application. Subject Matter Expert 2 (SME-2), an Emergency Manager with 9 years of

experience in State and Local Government, and 2 years with the DOE, points directly to *drills*

and exercises as an example: under the Homeland Security Exercise Evaluation Program, drills

are a subset of exercises and used to test a specific function within a specific entity then

evaluated to validate program efficacy; while under the Order, drills are separate from

exercises and may involve the entire ERO (presenting as a full-scale exercise elsewhere) but are

not evaluated for program validation because they are considered *trainings* (Personal

Communication, March 9, 2021). Similarly, notes SME-1, the 15 program elements themselves

were envisioned and designed by the DOE, employing terms and practices that are not

standardized across the field (Personal Communication, March 5, 2021). *Emergency Response*

Organization, Emergency Operations Systems, Hazard Assessments—NIMS does not contain nor

can it accommodate these program functions. A direct affront to one-size-fits-all multi-

jurisdictional coordination under a common terminology. Nowhere does the Order ever

espouse the use of plain language; free of radio codes, acronyms, or industry jargon

(Emergency Management Institute, 2018).

Subject Matter Expert 3 (SME-3), an Emergency Planner with a combined 10 years of

experience at 4 different DOE sites, also notes instances where the Order fails to align with

itself; namely its adoption and standardization with other DOE directives. "There's things in [the

Order] that say you should use existing [DOE] Emergency Management frameworks but they

don't require you to…sometimes [these frameworks] don't talk well together, the terminology

is different, the requirements are different, and they don't line up well…" (SME-3, Personal

Communication, March 12, 2021). These alternative frameworks exist within the 78 other

orders, titles, standards, and guides that inform program implementation under O151.1D

Preamble Section 7. *References*. As a result, ERO members may lack the common operating

picture crafted by their colleagues in Fire Protection departments who rely on 2008's National

Fire Protection Association Fire Protection Handbook. Readiness Assurance practitioners may

use different categorizations for issues management or self-assessment vocabularies than

those employed by DOE Order 414.1, *Quality Assurance*. Re-establishing Continuity of

Operations is a sub-function of the Response mission focus, yet COOP benefits from the

directives in an entirely separate document; DOE Order 150.1A, *Continuity Programs.* The Order

references said frameworks but does not require holistic adherence to such guidance

throughout the program.

Language

At times, the text within the Order itself is vague, abstruse, and inconsistent; demanding actionable interpretation by the contractor organization. Various program elements require deliverables that must be met on an annual basis; such as exercises, self-assessments, and updates to the site's Emergency Management Plan. Yet, O151.1D Attachment 2: *Definitions* offers three different variants on the term "annual": calendar year, fiscal year, and a specified 365-day period. Program Element 2: *All Hazards Planning Basis* relies heavily on scientific jargon, mathematical lingo, and technical field-specific verbiage beyond the usual tenor of the rest of the document. Program Element 8: *Emergency Categorization* indicates *Health and Safety Criticality Events* must be identified and reported within 30 minutes of initial discovery, yet the Order offers no definition of "criticality event", nor is the term ever applied elsewhere within the directive, or NIMS, for that matter. Program Element 10: *Emergency Facilities & Equipment/Systems,* Section A. provides several examples of personal protective equipment, yet Section B., the very next sentence, fails to identify available communications systems for emergency notifications. Attachment 5: *Secure Transportation*, Section 2 lists the OST facilities required to adhere to the Core Program; yet Attachment 3: *Emergency Management Core Program* and Attachment 4: *Emergency Management Hazardous Materials Program* refrain from identifying which DOE sites require Core or HAZMAT Programs. Most glaringly, Attachment 3, Section 1.a.7.(o) enshrines *Consequence Assessment* as the final Core Program Element; the components and subsequent implementation of Consequence Assessment are not prescribed until Attachment 4, Section 10 under the HAZMAT Program.

Intention

"[The Order] is difficult to interpret because—this is not a guidance document. This is a *'Thou Shalt*" document." (SME-2, Personal Communication, March 9, 2021). Thou Shalt have a Comprehensive Emergency Management Plan (CEMP). Thou Shalt train and staff an Emergency Operations Center (EOC). Thou Shalt employ mass notification systems for emergency alerts… Such commandments are presented as a prescriptive list of program responsibilities, often devoid of descriptive action items. The Order is the *what* that dictates the EM program, but not the *how to*. The Order does not provide a standardized template for crafting the CEMP...does not mandate the required staff positions within the EOC…does not identify appropriate mass notification systems, nor provide human-scale language for emergency alerts.

By comparison, NIMs and ICS are frameworks that prescribe established industry best-practices—with explicit directions and actionable recommendations for response initiatives.

But the Order mostly abstains from such authority, providing the freedom and flexibility for individual NNSA sites to develop the tailor-made programs commensurate with their hazards. DOE G151.1-1A provides clarity but not specific instruction. Subsequently, the onus is placed on practitioners to interpret the problematic language within the Order and mitigate the impacts from biological releases, HAZMATs, and nuclear events. DNFs operate under the "oversight" of their local NNSA Field Office (FO), but oversight is neither *regulation* or *management* (SME-1, Personal Communication, March 5, 2021). Under the Readiness Assurance function, the contracted organization must illustrate DOE program compliance through a five-year cycle of self-assessments, consequently submitted to their FO for approval. Should the FO find deficiencies or faults within the program, the site may face certain

repercussions. But the FO does not suggest solutions; the site must re-evaluate its processes and develop new procedures to meet the terms of the Order on its own. Consider in summation:

> Under HSPD-5 it says 'thou shalt use NIMS', and okay that's cool, but nobody actually drills down to see if that's what we are really doing. And nobody has time or money or understanding to do that…Just the DOE doing its own thing the way they have been for a while. (SME-1, Personal Communication, March 5, 2021)

Ultimately, the responsibility for aligning Order implementation with the Order's intent remains within the purview of the contractor and not their governing entity—the DOE.

Travels in Implementation

"The Order is pretty good at requiring all the sites to consider risks and take proper precautions to protect life and property and the environment so there are some very specific things they require with that idea of protecting people." (SME-3, Personal Communication, March 12, 2021). And as evidenced, the Order remains a powerful document; empowering the contractors to design distinct EM programs that edify the mission of their organization, while ensuring the safety of their constituencies. However, the inconsistencies and contradictions within this imperfect document…program alignment, language, intent…as well as the dis-alignment with the NRF, precipitate known challenges for practitioners—most notably, the proper interpretation of Order requirements.

Now consider those situated outside, but alongside, the DOE—namely those "Offsite Interfaces", and multi-jurisdictional responders. The state of New Mexico alone is host to three NNSA facilities: LANL, Sandia National Laboratories (SNL) in Albuquerque, and the Waste Isolation Pilot Plant (WIPP) in the deep southern reaches of the desert outside Carlsbad. The DOE's propensity to build tailor-made programs commensurate with local hazards places the onus on state, and federal, response agencies to comprehend the needs of three distinct DOE programs.

The National Incident Management System was intended to be the bridge that spanned the chasm between response agencies under these myriad approaches. So how did we get here? Can we identify the source of this disparity? And how do we recognize the needs, skills, and relationships demanded by the *family*; thus, applying Boleman and Deal's Human Resource lens so the map aligns with the territory?

Finding 1: The Territory Was Colonized

I don't view [the Order] as an emergency operations plan—or as a plan for local governance as we don't really have constituents. I view it more as an obligation DOE has to ensure that it does do that and serve those stakeholders. But I look at it more as a requirement policy for DOE to meet its obligations. (SME-1, Personal Communication, March 5, 2021)

SME-2 and SME-3 concur. Order 151,1D may serve the interests of the nation and the safety of its populace while edifying the security of its nuclear interests, but the target audience for interpretation and implementation remains the subcontractors under the aegis of the DOE

mission. The Order is a requirements document that dictates a specific agenda; the product of

Boleman & Deal's Political Frame to meet the needs of the factory or machine within the DOE

Structural Frame. And thus, the Order is not beholden to the common terminology that

addresses the whole-community or all-hazards approaches embraced by responders and

impacted communities across the public, private, and plural sectors. The Order acknowledges

the potential for local impact amongst these populations in its 30,000-foot intent. The Order

identifies the potential for offsite HAZMAT release receptor locations (schools, hospitals) under

Program Element 2. *All-Hazards Planning Basis*. But the language is rarely explicit throughout

the document. Words such as *community*, *population*, and *civilian* are employed sparingly;

utilized most frequently in Attachment 5 for OST operations—which, as previously identified,

covers but a handful of NNSA facilities. There is no mention of restoring community lifelines or

collaboration with community-based response functions.

The etiology underlying this disconnect between the Order and potential impacted

stakeholders may lie in the nature of the industry itself.

Part of it is due to the national security mission that DOE contractors serve and

possibly the high hazards that we have that are not the same, from a universal

standpoint at the federal level, from what the NRF sets, and NPG sets, for state

and local governments. [The DOE has] a much different mission and different

focus and some very possibly consequential hazards. (SME-2, Personal

Communication, March 9, 2021)

Floods, pandemics, terrorist attacks—natural hazards and human-made incidents bear real

consequences to those affected; but the core-capabilities that allow for jurisdictional

responders to execute their Cycle of Emergency Management under NIMS may not be as

applicable or rigorous as those necessitated by nuclealogical events. And planning for

nuclealogical events is predominantly off-radar for most Emergency Managers given the

relatively small number of NNSA/DNF sites outside their jurisdictions.

Historically, Emergency Management has been the domain of first responders: police,

firefighters, Emergency Medical Technicians, the military. The first iteration of O151.1D was

crafted by DOE members from an entirely different background, "At a federal level that

requires having a Bachelor's of Science, Master's of Science, or at heart, a technical discipline.

Those people are nuclear engineers… and are not necessarily the kind of people that are good

at Emergency Management." (SME-1, Personal Communication, March 5, 2021). As a result, the

Order and its 15 program elements employ a vocabulary and non-standard practices foreign to

NIMS and ICS.

Finding 2: And The Road Lies Before Us

SME-3 identifies the basic leadership challenge at the heart of the Human Resource

Framework; aligning organizational and human need (Boleman & Deal, 2017):

> To me—that is really part of the mission, the drive, protecting people…I think EM
>
> in general tends to appeal to people who want to protect and ensure safety. And
>
> that really starts at an individual level, personally, your team, your folks, and
>
> then the people, it expands out, your site and then the people around your site;
>
> the people who rely on your site. (Personal Communication, March 12, 2021)

This alignment is found manifest in various ways; the DNF's ability to meet the needs of the DOE, the employee's ability to meet the needs of the DNF, but perhaps most transformatively, the reliance of the general population upon successful program implementation by the employees at their local NNSA facility. The frameworks may differ, but DOE practitioners share the same values as those under the NRF.

Furthermore, consider public perception. Despite overwhelming recognition of the influence of the *jungle* upon the *factory, 51% (*n=21*)* of survey respondents (SR) felt policy development ought to serve the needs, skills, and relationships of the *family,* while *44% (*n=18*)* believed the provenance of program implementation belonged squarely under the banner of the Human Resource Frame. "Projects designed and implemented with the human condition in mind are best suited to succeed. These are the ones that not only think about the effect on the population but also the mechanisms of implementing the policies/projects within cultural contexts." states SR-5, a financial Program Manager at the municipal level. Hence, the consideration for human-scale implementation is evident and prescient to the DOE; benefitting employee stakeholders and impacted community constituencies, alike.

As a policy document, however, such considerations are notably absent from O151.1D. "I don't know that you can *require* people to internalize [protecting people] in an order," continues SME-3, "…I think the relationship building is really important, but again I don't know that you can require 'have good relationships with your offsite partners'…" (Personal Communication, March 12, 2021). The necessity to apply the Human Resource Frame to the DOE's mission is paramount, but the Order neglects the means to do so despite explicit insistence on *thou shalt* program element requirements.

Finding 3: But The Map Is Wrong

> The all-hazards approach…I think it's a good approach. I believe that the intent is
>
> to ensure that if you are a local jurisdiction that you are contemplating all of the
>
> possible hazards that could impact your jurisdiction; it takes a lot of critical
>
> thinking skills to sit down and say 'Okay what is it that could possibly impact us?'
>
> (SME-2, Personal Communication, March 9, 2021)

And yet…industry jargon is part of the problem. The all-hazards approach was first

coined in HSPD-5 to enshrine compatible planning efforts amongst local, state and federal

planning agencies (Department of Homeland Security, 2003), then later expanded in HSPD-8 to

directly address terrorist attacks (Department of Homeland Security, 2003). Neither directive

provides a precise definition for this methodology. The term is used liberally throughout the

NPG, the NRF, and NIMS documents—no definition amongst those, as well.

Amongst practitioners under the DHS framework, the all-hazards approach is widely

interpreted as the development of cross-discipline response core-capabilities that can be

applied to a spectrum of emergencies, without planning for every kind of event with specificity.

For example, an apartment complex fire in Los Angeles may be highly probable, but the local

fire department does not need to anticipate the 1992 riots in the wake of the Rodney King trial

to execute appropriate rescue and mitigation tactics. Similarly, the National Guard may be

deployed to the wetlands of the Puget Sound in the aftermath of a Pacific Ocean tsunami, but

also deployed to the deserts of New Mexico should the Rio Grande overflow its banks; while

lacking organizational familiarity with the terrains and populations of either locale. A structure

of base response actions amongst disparate agencies are just as suitable for local constituencies during a volcanic eruption as they are during an alien invasion.

Surprisingly, SME-2's professional background traces firmly over DHS compliance, and they correct their assessment away from "contemplating all possible hazards" to reflect this practice; "Okay, it's very unlikely that a hurricane will impact the city of [redacted], but based on that hazard there are certain things you might want to prepare for in a hurricane that are similar to a wildfire, like *sheltering*." (Personal Communication, March 9, 2021). But the confusion bears merit if the industry neglects to define its vocabulary. SME-1 echoes this paradox, "What is all-hazards? Is it that you use an approach that will work for any hazard or do you evaluate and analyze every hazard? Nobody spells that out with NIMS, ICS, the NRF, and we [the DOE] certainly don't know either." (Personal Communication, March 5, 2021).

Indeed, there is evidence the DOE might not know how to define all-hazards, as well. Guide 151.1-1A acknowledges the difficulties of analyzing every potential hazard for every site and facility, prohibiting thorough preplanning for response actions (Department of Energy, 2007). Yet, Order 151.1D, Attachment 3, Section 2. *All-Hazards Planning Basis* demands programmatic identification of all potential hazards on the site and to the site; simultaneously using the term "hazard" to implicate both biological/radiological HAZMATs/toxins that comprise research inventories *and* natural hazards/technological hazards/human-caused incidents (Department of Energy, 2016). If the NRF and the Order command the collaboration between DOE subcontractors and offsite agencies who largely employ NIMS, once again the practitioners at the DNF must interpret the Order to the best of their abilities, then translate said interpretation to meet the needs and skills of local response agencies—sustaining

cooperative relationships based on common terminologies under the shared value systems of the Human Resource Frame.

Finding 4: So We Need A Different Compass

Something that plagues the "field of EM" also plagues the Order: when we hire people into Emergency Management—we are not hiring EM people, because nobody understands it. The term "Emergency Management" is fundamentally flawed…Our field is actually *disaster administration* and coordination and preparedness. So because of the terminology alone, it attracts all the first responder types. If HR and management above don't understand the field really needs administrators (people that are good at critical thinking, writing, presenting, reading, collaborating, working with other individuals), if people don't understand that- you turn and hire a first responder. (SME-1, Personal Communication, March 5, 2021)

Less an indictment, so much as an admonishment, that the disconnect works both ways. Nuclear Scientists may have drafted the Order with a limited understanding of real-world EM procedures. Employing EMTs to design full-scale exercises for HAZMAT releases…asking police dispatchers to craft press releases…relying on ex-military personnel to conduct programmatic self-assessments…is perhaps a tall order—expecting first responders to foot the bill. If the Order opts to stand outside the NRF most familiar to outside response agencies, then hiring practices within the organization must reflect the needs and skillsets demanded of the DOE's mission.

Order 151.1D may be an imperfect document, but its subtext remains the protection of people, property, and the environment from natural hazards and human-made incidents. As evidenced by 61% (n=25) of survey respondents, good policy does not necessarily guarantee successful program implementation. Successful program implementation may "…effectively solve a problem or meet a need." Per SR-30, a contract manager in the private sector. But success is also predicated on the "…appropriate use of resources best applied to do the most for those intended." according to SR-7, a worker in the private sector who benefits from public programs. SME-1 and SME-2 both identified critical thinking skills as valuable assets for Emergency Managers. When asked to identify the character traits of successful program implementers, 73% (n=30) of survey respondents cited communications capabilities as the most common skillset, followed by organization skills at 44% (n=18). Other relatively popular answers included empathy, creativity, thoughtfulness, and a willingness to collaborate. Which is not to say these are not personal capacities found amongst first responders; but there is, perhaps, a gap in association if the field is to be redefined as *Disaster Administration.*

Response skills are not necessarily administration skills. SME-2 provides a similar appraisal:

> You have to have good writing skills—it's a different background from what you
>
> see in state and local EM, especially in the past 15 years where it's been
>
> primarily an emergency response function that expands and they get the ex-
>
> police chief to come in and write some grants and run an EM program. I don't
>
> think those types of people would necessarily be as successful within an EM
>
> program under the DOE—just because of the additional rigor that is applied. Not

to say there aren't people out there from those emergency response disciplines

who couldn't be successful…that's been changing dramatically in the last decade

within EM at the state and local level. You're seeing a lot more professionally

trained people and I think that's the kind of person you need within any EM

discipline no matter if it's state/local *or* DOE. But it requires another layer of

rigor that ties back to the kinds of hazards that we face. You really have to be

able to understand those to be able to develop and implement an effective

program. (Personal Communication, March 9, 2021)

To deliver a successful program and meet the requirements of the policy, DOE subcontractors

are reliant upon the appropriate skillsets of their workers to comprehend the document and

implement its directives accordingly. Impacted communities may be dependent upon different,

though analogous, professional capacities following a disaster. The disparity between DOE

need, community need, and worker skillsets cites a failure to align organizational efficacy

through the lens of the Human Resource family.

Finding 5: But At Least The Natives Are Friendly…

…and we are all on this journey together.

Airborne HAZMAT releases…radiological fall-out…biological toxins…do not discriminate;

the consequences of high-risk events at any of the nation's DNFs are severe, threatening the

very lives and the infrastructure and the environs that the Order seeks to protect. And while

disaster administration may necessitate alternative perspectives and past experiences amongst

EM professionals, first responders remain an integral component of emergency response and

emergency operations mission foci. Likewise, the offsite interfaces, jurisdictional agencies, and

community-based service providers are just as critical to the Cycle of Emergency Management

as NNSA employees. They are allies, resources, and neighbors sharing common goals, but more

impactfully, common values; values that reflect the safety of their families, but also the safety,

and edification, of the Human Resource *family*.

Given the technical complexity of DNF hazards, and the tightly-coupled nature of

incidents endemic to the nuclear energy complex (Rijpma, 1997), collaboration with DOE

counterparts adhering to their governing DHS frameworks presents its own brand of challenges.

> In a lot of cases it's difficult to actually get them to accept, ingest, and
>
> understand the information we provide them—it's very challenging to get the
>
> local government folks involved frequently…. get them into briefings, get them
>
> into meetings, sharing information with them…I think a lot of that tends to be
>
> technical on our side? Translating that into something usable to them, how it
>
> affects them, is very important. I don't know that the Order really addresses any
>
> of that. They just say "meet with them" or "provide", so if you provide for them
>
> in a way they can't use- you've met the order but it's not really very functional or
>
> effective. (SME-3, Personal Communication, March 12, 2021)

In the unfortunate event of a nuclear disaster at LANL, fundamental comprehension of the

institution's common operating picture is essential to local stakeholders. Plume dispersal

modeling must be translated into geographic coordinates for evacuation routes and police

roadblocks. Site-specific jargon must be translated into emotionally sensitive public messaging

by area media outlets. Potential health ramifications must be translated to hospital beds and

triage centers. To forgo relationship building based on a common terminology is to disservice the very actors that comprise effective whole-community all-hazards emergency response initiatives. If NIMS is to be the bridge, the DOE and DHS must cross the gulf together. "I think we *should* be more aligned with NIMs and the NPG. We *should* be taking those and leaning into them a lot more and not making up our own terminology." (SME-1, Personal Communication, March 5, 2021)

To New Geographies

Public perception via survey respondents may typify successful program implementation as that which benefits community recipients. Yet NNSA practitioners perceiving the Order as a requirements document that serves the mission of the DOE identify their own subset of criteria to indicate success:

- The feasible attainability of CEMP goals to obtain customer buy-in (SME-1)

- The continued growth of a well-maintained program (SME-2)

- The documented evidence of meeting Order requirements (SME-3)

O151.1D implementation is demonstrated by the ERO's ability to successfully respond to and mitigate the impacts of real events. Boleman and Deal (2017), though indirectly, concur through the transitive properties of congruence, "The deft response to a crisis bolsters a leader's credibility." (p. 297). But if the Order is the product of the Political Frame to serve the employees within the Structural Frame, how might DOE Emergency Managers deploy the Human Resource Frame to protect the life, property, and environment as dictated by DHS?

Recommendation 1: Harmonious Cohabitation

Due to the technical complexity of nuclealogical sites and hazards, the nature of the DOE's mission is unlikely to encounter drastic change. The Order, however, is a living document; likely to see a fifth, sixth, seventh iteration as the needs of the department evolve over the passage of time. Just as HSDP-8, the NRF, and NIMS were issued and established following the 9/11 attacks.

Rather than relying on scientists and engineers and technical specialists to draft the next revision of the Order, the DOE might consider allowing greater participation by Emergency Managers who are more familiar with DHS policies and response tactics. Incorporated feedback from local and state-familiar agencies, even whole-community agencies, could eliminate or align the non-standardized practices that differentiate the departmental frameworks. SME-3 identifies the challenge here, "I think the relationship building and the sharing of knowledge across a variety of people with different experiences, and education, and concerns ultimately for their jurisdictions- I don't know how you would put that in the Order." (Personal Communication, Match 12, 2021). The Order as a requirements document may not accommodate such prescriptions, but the *process* of designing the Order could accommodate the varied skillsets amongst a wider breadth of professionals in the field.

Furthermore, whole-community considerations may be outside the actual scope of the document text, but the mission itself could be revised to acknowledge the needs of the surrounding populations. NRF language on community life-line restoration may not be the focus of the program, but the recognition of fundamental human needs might further align the value systems underlying employee performance and population safety (an appropriate gesture

utilizing Symbolic Framework strategies, as well). The Human Resource Frame may center the

needs of the contractors, the Order's target audience, but program developers must transpose

that center to support the direct beneficiaries of program deliverables—those in close

proximity to NNSA facilities.

Recommendation 2: Take A Different Route

The Order came out how many years ago now? And we still haven't finished the

guide? That's a statement in and of itself! And that's supposed to be the *how-*

how they want us to do it? How they think it would be *good* to do it, I should say.

(SME-3, Personal Communication, March 12, 2021)

The Order serves the DOE mission and the DOE mission serves the people, but the Order

fails to acknowledge the human condition or implementation at the human scale. If the Order is

to remain a *thou shalt* list of prescriptions that dictate the *what* but not the *how to* in future

updates, then perhaps the text of O151.1D is not the appropriate vehicle to achieve Human

Resource Frame application. Perhaps the answer lies in the revision of Guide 151.1-1A.

The DOE published G151.1-1A in 2007 to further illuminate the terms of the Order's

third iteration, O151.1C, published in 2005. Yet, O151.1D was issued in 2016—there has been

no update to the Guide in the near-decade interceding publication dates. The guidelines are

due for re-appraisal. And the Guide is not a requirements document, is not a CRD, does not

demand adherence; therein may lie the opportunity for the DOE to apply a more human touch.

The Order cannot require good relationships amongst offsite agencies, for example, but

the Guide could offer suggestions on how to maintain those relationships, or how to provide

the resources required by partner response functions. With further assistance from DHS

framework adherents, or social policy crafts-folk, even social welfare program implementers,

the *how to* of G151.1-1A could be revised to incorporate explicitly actionable tactics that align

with FEMA's ICS courses, propose best practices for media interface, perhaps even bolster

employee efficacy through organizational management strategies. Consider: NA-41, The Office

of Plans and Policy, serves as the NNSA's oversight entity for DOE Emergency Operations

Programs and is responsible for devising the criteria DNFs employ to perform annual O151.1D

programmatic element self-assessments. *Line of Inquiry: A.01.01.03-E,* suggested by NA-41 to

assess site implementation of Core Program Element 1. *Program Administration and*

Management, includes the identification of existent personnel org-charts to inform employee

responsibility comprehension (NA-41: Office of Emergency Operations Plans and Policy, 2019,

p. A1-3). Yet, neither the Guide, or the Order, suggests the development of org-charts as a

management strategy to meet program compliance.

Recommendation 3: Draw a Better Map

Meeting organizational need and actualizing the potential of employee skillsets under

the Human Resource lens is a two-way street: practitioners must fulfill the deliverable

requirements of the Order, but the DOE must provide comprehensible policy to guide the work.

As evidenced, DOE sites tend to hire Emergency Managers from disciplines more commonly

defined by DHS policy—different terrain with a different map. If a common operating picture is

to sustain efficacy for all parties across disparate EM complexes, the industry as a whole must

arrive at a common strategy for execution. It would behoove policy-makers at the federal level

to define and codify the terms of the a*ll-hazards approach* to emergency preparedness within foundational policy documents. The current understanding of this methodology, or lack there-of amongst response agency colleagues, disservices those charged with implementing all-hazards planning protocols if the meaning remains obtuse or undecipherable. Similarly, the DOE should consider removing the ambiguity of intent from the Order; allowing for adoption of a newly standardized all-hazards approach, simultaneously acquiring novel vocabulary to differentiate site-level chemicals, biological toxins, and radioactive elements from natural disasters and human-made incidents.

The practice that interprets this methodology under HSPD-5, HSPD-8, and the NRF as the development of core-capabilities applicable to a spectrum of real events may yet be adequate. Conversely, the nation may find the need to develop new approaches in the aftermath of future emergencies. "We do things our own way...DOE didn't turn around and say 'We're gonna adopt all the FEMA stuff hook-line-and-sinker.' We're gonna go and invent our own? That's flawed, you don't see other agencies doing that." (SME-1, Personal Communication, March 5, 2021) Despite the potential hazards that may require more technical rigor, the DOE could augment organizational efficiency by following the paths laid by DHS.

Recommendation 4: Embrace Local Culture

The Order was crafted by technical specialists—to be implemented by workers likely hired in from first response disciplines. And perhaps O151.1D lays the foundation for Disaster Administration, rather than Emergency Management; hiring managers and interview panels must look to align applicant pool skillsets and past experience with the needs of the positions to

be filled within their organizations. But there will always be a place for First Responders in the

industry of EM, they remain a vital, crucial asset in planning, response, and recovery

operations. Nuclear Engineers and meteorologists may know their way around plume dispersal

modeling software, but are unlikely trained to be Public Information Officers, unable to operate

medical decontamination equipment, unaware of critical infrastructure projects obstructing

city-wide evacuation routes. The Human Resource lens offers the visual sightline uniting

horizons across multiple jurisdictional blue and gray skies; namely the recognition of the shared

value systems underpinning implementation practice and community stakeholder need.

"The intention behind the work is *protect thy neighbor*." (SME-3, Personal

Communication, March 12, 2021). The work will continue to attract individuals who are aligned

with this mission—ensuring the safety of their families and loved ones, the communities they

belong to, the landscapes they inhabit. Practitioners may edify their endeavor by nurturing the

Culture of Emergency Preparedness as it applies to the public sphere. The Culture of Emergency

Preparedness is found manifest in the considerations for special populations, the language used

to share information and craft public messages, the acknowledgement and reconciliation of our

relationship to risk. Compiling home disaster kits. Classroom Duck and Cover drills during the

Cold War. The ability for marginalized communities to participate in Red Cross blood drives and

access sandbag distribution networks during rising floodwaters. The work is not just Order

compliance and deliverables to the Federal Government, but fostering the culture that allows

room for successful program implementation thus mitigating the impact of hazards upon local

populations.

The Order cannot dictate the actions that inform cultural practice or uphold societal values. But the intention is likely already internalized by those in the field. Good NNSA site implementation practices are found outside the Order—in the relationship building with response function providers, shared knowledge with cross-sector agencies, and adoption of the whole-community approach—the DHS framework concepts that encapsulate the values common amongst us all.

Recommendation 5: Speak The Native Language

The intersection between DHS practitioners and DOE program intention emphasizes, nay commands, the common terminology ensconced within the NRF. First responders will be hired by NNSA facilities. State municipalities must respond to NNSA facility events. DOE hires move betwixt NNSA facilities; their career trajectories may take them from WIPP to Lawrence Livermore, to Oak Ridge. Employees at SNL may be called upon to deploy their services at SNL's offsite rocket launch range in Kauai, Hawaii, or the Tonopah weapons test range, Nevada, or the far-north research outposts of Barrow, Alqasuk, and Oliktok Point, Alaska. All will be expected to comprehend a common vernacular else vital information be lost in translation.

But O151.1D makes only a half-hearted attempt to employ the same economy of language. "A prime thing we say within NIMS, is that we are going to ensure consistent terminology across EM so that no matter where you are going or who you are or where you come from, you understand what the other person is saying." (SME-2, Personal Communication, March 9, 2021). The Order may profess the integration of the NRF, but falls short of full implementation with its dependence on non-standard vocabularies.

DOE practitioners must rely on their ICS training to acquire the language, but the Department ought to lead by example. Upon future revision of the Order, policy designers must take a stand; full commitment to NIMS, or a tacit admission that framework adoption was never the intent. Remove inconsistent terminology, align the 15 programmatic elements to industry best practices, and stress the importance of all-hazard approaches and whole-community methodologies.

The Mindful Hitchhiker

Curiously, and as regards the DOE, the research implies governing the family with the Human Resource Frame might find a stronger foothold atop policy design, rather than program implementation. And if successful program implementation is based on "compliance to policy", per SR-33, a retired policy and program developer for the Executive Branch of the US Federal Government—the Order remains the compromised, unstable bedrock upon which DNF EM programs are constructed. SME-2 rationalizes, "[The inconsistencies] are natural, you're never going to find anything that's 100% perfect." (Personal Communication, March 9, 2021). Ergo, practitioners must ever suffer the weight under appropriate Order interpretation until O151.1D approaches some state nearer perfection; the mindful hitchhiker asks:

- How might I align my work for the DOE to center community need?

- How does practice translate action items beyond the scope of Guide 151.1-1A?

- How to select which of the several hundred other FEMA ICS courses might augment my toolbox beyond ICS 100 and ICS 700?

- How do I acquire the language to integrate DOE and DHS frameworks?

Just as the Order may be the imperfect policy document, there will always be room for personal growth within professional practice.

Transformational application of the Human Resource Frame is strongly correlated to Abraham Maslow's 1954 model of the Hierarchy of Needs; positing five categories of human requirements that inform personal and professional motivation (Figure 3: Maslow's Hierarchy of Needs). Though the theory's truth remains difficult to validate, proponents of organizational management sciences have widely accepted the model's implications (Boleman & Deal, 2017).
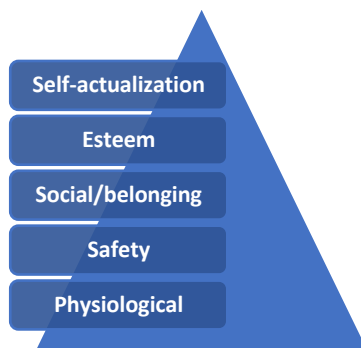

Figure 3: Maslow's Hierarchy of Needs

If the Order is to serve offsite stakeholders, members of hazard-impact communities require the fundamental Physiological and Safety Needs found at the base of the pyramid; the restoration of community life-lines as identified by the NRF: food, water, shelter. If the Order is to serve the contractor workforce, employees require the Self-actualization found at the top of the pyramid; knowledge of a job well done in service to the mission and the community; the successful response to and mitigation of real events. Strong practitioners must acknowledge the Order serves both populations, elevating the status of all within their work.

And as further regards the Culture of Emergency Preparedness…the relationship between the institution and the surrounding populace is one built on trust—built on the perceived value of mutual benefit, faith in the intent of the mission. Order 151.1D establishes the rules and regulations of its Comprehensive Emergency Management System because the DNFs house research initiatives and HAZMATs with the potential to cause highly-consequential

incidents. But the mission to ensure a safe and resilient nation under the NPG stretches far beyond nuclear-proliferation and stewardship of the national stockpile; Los Alamos National Laboratory is a global leader in scientific discovery and innovation—testing cures for HIV, conducting nation-wide Coronavirus-19 transmission modeling, and developing hydrogen storage solutions to reduce the transportation industry's dependence on etiological climate change fossil fuels. To enhance community awareness and ensure stakeholder buy-in of organizational objectives is to establish the trust, encourage the faith, and strengthen the value proposition between effective laboratory and impacted neighborhood.

Conclusion

One size cannot fit all. Different goals in the service of different missions are achieved through different programs based upon different policies. The nature of the work undertaken at LANL and the various DOE sites around the country dictate the need for flexible program development commensurate to the hazards on site. Based on individual need—the underlying system allows for equal-footed facilities to devise differing solutions that address their specific endeavors.

NIMS is an equally flexible, needs-based framework within the NRF—granting DHS adherents the ability to harness local resources and develop core-capabilities to meet jurisdictional response functions.

The future publication of DOE Order 151.1E is a foreseeable likelihood. Crises are an opportunity to identify lessons-learned or push alternative political agendas—they also force the hand. The attacks of 9/11 shifted national strategy to confront terrorism and cybersecurity.

Failed evacuations during Hurricane Katrina in 2005 informed new policies for the elderly, access and functional needs communities, and household pets. Given the magnitude of 2020's global Coronavirus-19 pandemic, it is not unlikely that a new generation of leaders at FEMA, and high-ranking officials at other national agencies, will emerge from the realms of Public Health and Disease Control. These Emergency Managers will need to speak the language of DHS if they do not do so already, unless the DHS arrives at a new methodology for disaster management. Similarly, the DOE and the mission will likely evolve to reflect the State of the Union. Herein lies the opportunity to enact policies and practices that reflect Boleman and Deal's Human Resource lens in tandem with the other perspectives comprising their Four Frame Model.

Despite the contrast and comparison between DHS and DOE documents, Textual Intersectionality illuminates the shared values and operational congruencies amongst the disparate agencies. Textual Analysis of the Order, and the Guide, reveals program strengths and weaknesses, but softly aligns its intent with the NPG. Research findings reveal an imperfect policy, crafted by specialists, that employs atypical definitions often failing to align human need with the skillsets demanded of practitioners—who must then collaborate with their offsite counterparts in a foreign language. But practitioner input and whole-community feedback might inform the revision of O151.1D and G151.1-1A to emphasize human scale implementation through an adoption of the lingua franca and a nurturing of the Culture of Emergency Preparedness.

The DOE must develop the core-capabilities inherent within the Human Resource Frame—leaning into NIMS to identify the needs of all constituencies. To align professional skills

with organizational objectives. To strengthen the relationships that yield whole-community participation and successful collaboration for the all-hazards approach.

      The map *can* be the territory.

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Appendix A: Glossary

The following definitions are provided within the DHS's National Incident Management System:

Emergency Operations Center: The physical or identified location at which the coordination of information and resources to support incident management activities normally takes place. An EOC may be a temporary facility, may be located in a more central or permanently established facility, or may be virtual.

Mitigation: The capabilities necessary to reduce the loss of life and property from natural and/or manmade disasters by lessening the impacts of disasters.

Plain Language: Communication that the intended audience can understand and that meets the communicator's purpose. For the purpose of NIMS, plain language refers to a communication style that avoids or limits the use of codes, abbreviations, and jargon, as appropriate, during incidents involving more than a single agency.

Public Information Officer: A member of the ICS Command Staff responsible for interfacing with the public and media and/or with other agencies with incident-related information needs.

Whole-Community Approach: A focus on enabling the participation in incident management activities of a wide range of players from the private and nonprofit sectors, including NGOs and the general public, in conjunction with the participation of all levels of government, to foster better coordination and working relationships.

The following definitions are provided within DOE Order 151.1D:

Continuity of Operations: An effort within individual organizations to ensure that Essential Functions continue to be performed during continuity events, regardless of size of impact.

Emergency Planning Hazard Assessment: A quantitative analysis identifying hazards and the potential consequences from unplanned releases of (or loss of control over) hazardous materials, using accepted assessment techniques.

The following definitions are those of the author, founded on interpretation of DHS and DOE frameworks:

All-Hazards Approach: Ambiguous and undefined; (1) a focus amongst DHS practitioners to develop core-capabilities emergency response function that are applicable across a spectrum of events; (2) a focus amongst DOE practitioners to identify all site-specific biological, radiological, chemical agents subject to airborne release, *and* applicable natural hazards or human-caused incidents.

Core Program: the required base elements of the Comprehensive Emergency Management System governing DOE sites, facilities, and activities.

HAZMAT Program: the required base elements of the Comprehensive Emergency Management System governing DOE sites, facilities, and activities that inventory or involve hazardous materials.

Lessons-Learned: findings or deficiencies gleaned from formal analysis following a drill, exercise emergency, disaster, or event.

Real Events: the actual occurrence of an emergency, natural hazard, human-caused incident, or scheduled episode.

Appendix B: Timeline of Events

Timeline of Events	
Year	**Event**
1943	• LANL established in secret under the auspices of the Manhattan Project
1970's	• Genesis of ICS development, disputed
1977	• Publication of Eugene Bardach's The Implementation Game, First Edition
1991	• Publication of Boleman & Deal's Reframing Organizations, First Edition
2000	• Publication of DOE O151.1A
2001	• 9/11 Terrorist Attacks
2003	• Publication of HSPD-5 • Publication of HSPD-8
2003	• Publication of DOE O151.1B
2004	• Publication of the DHS National Response Plan, First Edition • Publication of the DHS/FEMA National Incident Management System, First Edition
2005	• Hurricane Katrina
2005	• Publication of DOE O151.1C
2007	• Publication of DOE G151.1-1A
2008	• Publication of the DHS National Response Framework, First Edition
2011	• Publication of the DHS National Preparedness Goal, First Edition
2016	• Publication of DOE O151.1D
2019	• Publication of the NA-41 CRAD Handbook
2020	• Global Coronavirus-19 Pandemic

Table 4: Timeline of Events

Appendix C: DOE 151.1D, Comprehensive Emergency Management System

Software formatting limitations and incompatible file extensions preclude the inclusion

of Order 151.1D within the plane of this document. The full text may be found on the DOE

Directives Program in the Office of Management (MA-1.2) website at: www.directives.doe.gov

as of March 23, 2021.