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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

**OFFICE OF THE
INSPECTOR GENERAL**

June 21, 2018

MEMORANDUM TO: Victor M. McCree
Executive Director for Operations

FROM: Dr. Brett M. Baker */RA/*
Assistant Inspector General for Audits

SUBJECT: EVALUATION OF NRC'S HEADQUARTERS OPERATIONS
CENTER STAFFING (OIG-18-A-16)

Attached is the Office of the Inspector General's (OIG) evaluation report titled *Evaluation of NRC's Headquarters Operations Center Staffing*.

The report presents the results of the subject evaluation. Following the June 11, 2018, exit conference, agency staff indicated that they had no formal comments for inclusion in this report.

Please provide information on actions taken or planned on each of the recommendations within 30 days of the date of this memorandum. Actions taken or planned are subject to OIG followup as stated in Management Directive 6.1.

We appreciate the cooperation extended to us by members of your staff during the evaluation. If you have any questions or comments about our report, please contact me at (301) 415-5915 or Beth Serepca, Team Leader, at (301) 415-5911.

Attachment: As stated



Office of the Inspector General

U.S. Nuclear Regulatory Commission
Defense Nuclear Facilities Safety Board

OIG-18-A-16
June 21, 2018

Results in Brief

Why We Did This Review

The Nuclear Regulatory Commission's (NRC) Headquarters Operations Center (HOC) maintains direct contact with nuclear power plants and receives reports from reactor, fuel cycle, and nuclear materials licensees as required by regulations.

The HOC is staffed 24 hours a day, 365 days a year with qualified watch standers. In serving as NRC's initial contact for all incident reports, HOC staff are responsible for maintaining awareness of NRC-licensed facilities and materials, and for performing independent situational analysis of incidents in order to ensure that licensees are implementing appropriate protective measures and to notify appropriate NRC staff.

The evaluation objective was to determine whether NRC staffing of the Headquarters Operations Center adequately supports necessary response and coordination activities

Evaluation of NRC's Headquarters Operations Center Staffing

What We Found

The Office of the Inspector General (OIG) found that response and coordination activities were able to be supported by the HOC during calendar year 2017, but under sub-optimal conditions that strained available staff resources.

Resource reduction, HOC staff departures, and hiring delays combined to produce a staffing shortage throughout calendar year 2017. Management underestimated the magnitude of programmatic impacts from the staff resource reduction and had not adequately planned how to maintain staffing levels. The number of available HOC staff dropped to the point of requiring that a non-qualified second person fill shifts.

Staffing conditions resulted in reducing the HOC's available capacity to support the agency's response and coordination role. Current staffing has improved through ongoing management efforts, and can be further strengthened.

What We Recommend

The report makes recommendations to define the mission needs, workload, and skills and competencies of the Headquarters Operations Officer workforce to support achievement of program results. OIG also recommends development of guidance and procedures to support human capital management and succession in the HOC. Management stated their agreement with the findings and recommendations in this report.

TABLE OF CONTENTS

<u>ABBREVIATIONS AND ACRONYMS</u>	i
I. <u>BACKGROUND</u>	1
II. <u>OBJECTIVE</u>	3
III. <u>FINDING</u>	3
<u>Management Did Not Plan Adequate Staffing to Support NRC's</u>	
<u>Primary Mission Essential Functions</u>	3
<u>Ongoing Efforts</u>	9
<u>Recommendations</u>	10
IV. <u>AGENCY COMMENTS</u>	11
 APPENDIX	
<u>OBJECTIVE, SCOPE, AND METHODOLOGY</u>	12
 <u>TO REPORT FRAUD, WASTE, OR ABUSE</u>	14
<u>COMMENTS AND SUGGESTIONS</u>	14

ABBREVIATIONS AND ACRONYMS

COOP	Continuity of Operations
FTE	Full-Time Equivalent
HERO	Headquarters Emergency Response Officer
HOO	Headquarters Operations Officer
NRC	Nuclear Regulatory Commission
NSIR	Office of Nuclear Security and Incident Response
OIG	Office of the Inspector General
PMEF	Primary Mission Essential Function
ROO	Regional Operations Officer

I. BACKGROUND

NRC's Headquarters Operations Center

The Nuclear Regulatory Commission's (NRC) Headquarters Operations Center (HOC) maintains direct contact with nuclear power plants and receives reports from reactor, fuel cycle, and nuclear materials licensees as required by regulations. HOC staff assess the reports and convey information to appropriate NRC staff and management as required in agency incident response plans. Organizationally, the HOC is the responsibility of the Office of Nuclear Security and Incident Response (NSIR). In a Continuity of Operations (COOP) scenario,¹ HOC activities transfer to NRC regional response centers.

Operations Officer Roles

The HOC is staffed in 12-hour shifts, 24 hours a day, 365 days a year with a Headquarters Operations Officer (HOO) and a Headquarters Emergency Response Officer (HERO). The designated HOO for the shift has the primary responsibility for receiving reports and determining appropriate actions. The HERO counterpart role provides procedural, communications, and administrative support. Response procedures are designed for and practiced with two qualified responders. Qualification for the HERO role is a stage in the HOO qualification program and a qualified HERO may serve with a fully qualified HOO. Typically, however, the HERO role on shift is performed by a fully qualified HOO.

Staffing

HOOs are scheduled in shifts for 7 days on and 7 days off in a 2-week pay period. The shift schedule, or rotor, is planned for 60 weeks, and includes 36 weeks as a HOO, 18 weeks in the HERO role, and 6 weeks of 8-hour days in the office. The rotor extends 60 weeks to offset the annual schedule so that HOOs work different schedules, and different holidays, year to year. For the entire 365-day year, the 2-person, round-the-clock

¹ Continuity of Operations refers to continuity planning to ensure the performance of Federal executive branch essential functions during all-hazards emergencies or other situations that may disrupt normal operations.

shifts total 17,520 person-hours of time that must be worked. Any shift vacancy must be covered by someone else. The HOO in the office rotor may fill shifts when needed, but may also schedule annual leave or professional development during office rotor weeks.

In the NRC regions, fully qualified Regional Operations Officers (ROOs) maintain equipment and procedures for response readiness when communications and response functions must be transferred from the HOC. ROOs assume communication and response functions from the HOC on a non-emergency basis for agency COOP exercises and also during planned maintenance of the HOC and its systems. Regional operations centers are not staffed for routine shift work, and ROOs are not accustomed to shift work.

Watchstanding Space

HOOs stand watch in a dedicated control center separate from the larger incident response facility in the HOC and isolated from most NRC offices. The HOC watch standing area is equipped with multiple, redundant communications systems. For example, the HOC maintains legacy telephone lines as backup to its primary telephone system. There are also radio and digital inputs of up-to-date information from other Federal agencies, such as the Federal Aviation Administration, and video monitors following current events. Secure communications capabilities determine the clearance level of the space.

Uniqueness of HOOs

The HOOs' isolated work environment combines with shift work and HOO responsibilities to create a distinct culture among the group of HOOs. HOOs are unique at NRC in performing shift work. HOOs feel the weight of their responsibility, rely on their shift partners to execute procedures swiftly, and perform their functions without a lot of direct supervision.

II. OBJECTIVE

The evaluation objective was to determine whether NRC staffing of the Headquarters Operations Center adequately supports necessary response and coordination activities.

The report Appendix contains information on the evaluation scope and methodology.

III. FINDING

The Office of the Inspector General (OIG) found that response and coordination activities were able to be supported by the HOC during calendar year 2017, but under sub-optimal conditions that strained available staff resources. Current staffing has improved through ongoing management efforts, and can be further strengthened.

Management Did Not Plan Adequate Staffing to Support NRC's Primary Mission Essential Functions

Management is responsible for human capital planning to ensure that NRC's HOC successfully supports NRC's Primary Mission Essential Functions (PMEFs)². However, a staffing shortage existed throughout calendar year 2017, because management had not adequately planned how to maintain staffing levels after a resource reduction. Staffing conditions resulted in reducing the HOC's available capacity to support the agency's response and coordination role.

² Primary Mission Essential Functions are defined as those Federal agency functions that need to be continuously performed during an event or resumed within 12 hours of an event, and that need to be maintained for up to 30 days after an event or until normal operations can be resumed.

What Is Required

Human Capital Planning to Provide for Mission Essential Functions

Agency management is responsible for human capital planning to ensure that NRC's HOC successfully supports NRC's PMEFS.

NRC Mission

The *Atomic Energy Act of 1954*, as amended, and the *Energy Reorganization Act of 1974*, as amended, provide the foundation for NRC regulation of the civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, to promote the common defense and security, and to protect the environment.³ Federal COOP directives and associated guidance direct agencies to identify and plan to carry out PMEFS that support essential Government functions. NRC's PMEFS is to continuously monitor licensees' operations, including the threat environment, and rapidly respond to safety or security-related events involving licensed facilities or associated materials.

NRC Policy

Management Directive 6.2, "Continuity of Operations Program," states that NRC incorporates continuity planning into its daily operations to ensure seamless and immediate continuation of its PMEFS. Management Directive 8.2, "Incident Response Program," sets out NRC's policy and responsibilities for its PMEFS of responding to incidents affecting NRC licensees. Management Directive 8.2 states that the HOC is staffed 24 hours a day, 365 days a year, with a HOO and a HERO.

For incidents involving NRC-regulated facilities, activities, or material, the NRC has the authority to perform an independent assessment of the safety of the facility or material; evaluate licensee protective action recommendations; perform oversight of the licensee; and report information, as appropriate, to media and public entities. In serving as

³ The [*Atomic Energy Act of 1954, as amended*](#), and the [*Energy Reorganization Act of 1974, as amended*](#), comprise NRC's primary authorizing legislation.

NRC's initial contact for all incident reports, the HOOs are responsible for the PMEF continuous monitoring function in two ways:

- Maintaining awareness of NRC-licensed facilities and materials.
- Performing independent situational analysis of incidents in order to ensure that licensees are implementing appropriate protective measures.

Human Capital Management for Mission Essential Functions

For the HOC, NRC management must plan to provide human capital resources to ensure continuity of PMEFs. This includes resource management and succession planning. Human capital management is an essential internal control activity for achieving results. Operational success depends on having the right personnel for the job on board and provided the right training, tools, structure, incentives, and responsibilities. As part of its human capital planning, management also must consider how best to retain valuable employees, plan for their eventual departure, and maintain a continuity of needed skills and abilities. Workforce planning must correctly reflect the relationship of programmatic and human capital goals.

What We Found

HOC Staffing Shortage Throughout Calendar Year 2017

Resource reduction, HOO departures, and hiring delays combined to produce a staffing shortage in calendar year 2017.

Resource Reduction

As part of NRC's efforts to reorganize its activities and staffing in Project AIM,⁴ NSIR management reduced budgeted full-time equivalents (FTE) for the HOC by 1.5 FTE to 11 FTE beginning in fiscal year 2017. Management justified the reduction by noting the availability of regional COOP resources to provide backup in case of any staffing shortage.

⁴ [Project AIM](#) is the effort to identify and implement key strategies to transform NRC to improve the effectiveness, efficiency, and agility of the agency.

HOO Departures and Hiring Delays

After a few years of stability among the HOOs, a series of retirements and promotions reduced the roster of HOOs by 25 percent compared to calendar year 2016. NRC's strategic workforce planning process slowed the start of the hiring process because nearly every vacancy, even in a position supporting a PMEF, required approval by an agency panel to seek a replacement. Further, Federal and agencywide hiring freezes in calendar year 2017 interrupted the hiring process. For 12 weeks in calendar year 2017 there were only 9 HOOs on the roster, less than the full complement of 11 to support the shift rotor.

Increased Overtime and Reduced Office Time

With fewer HOOs on the reduced roster to fill vacant shifts, HOOs worked more shift time than normal. Office rotor weeks were converted to shift time, as office HOOs filled the high number of vacancies in the shift rotor. Consequently, when HOOs in the office rotor filled vacancies routinely, they were not available as a backup to fill a shift for unexpected sick or other leave. HOOs therefore worked overtime shifts, ranging from 40 to 172 additional annual hours per HOO. During seven 2-week pay periods, at least one HOO worked 9 to 11 shifts in 14 days, instead of the normal 7 shifts.

Regional Resources Used on Short Notice

Headquarters drew on regional COOP resources, the ROOs, for backup on an *ad hoc* basis rather than the customary planned communications transfers. The use of ROOs was irregularly scheduled and mostly on short notice, when no one at headquarters was available to fill open HOC shifts. ROOs served a total of 860 hours over 73 shifts both in the region and by traveling to headquarters. Those 860 hours represented about 29 percent of available regional resources for COOP activities.

Shifts Without Two Qualified HOOs

By September 2017, the HOC faced the most extreme staffing problems as earlier remedies to fill vacant shifts began to fail. Coinciding with the period when there were only nine HOOs on the roster, annual and sick leave further reduced the number of available HOOs to seven, and regional resources were overtaxed. As an interim measure, 14 shifts over

a 10-week period had, in place of qualified staff in the HERO position, an incident response program staff member who was not qualified as a HOO, ROO, or HERO, but was knowledgeable about the HOC. These personnel served primarily as a safety support in the isolated HOC because they were not qualified for the response roles. While able to provide some non-emergency support, these personnel could not help with all HOO procedures, some of which are designed for two people. Although there was always one fully qualified HOO on shift to manage the equipment and procedures, it was not ideal to have an unqualified staff as support. HOOs preferred it to being on shift alone, but some staff stated that they were glad that HOC readiness was not fully tested during those shifts.

Security Clearance Delays

Towards the end of calendar year 2017, new HOO trainees were selected from within the agency. Their arrival began to ease the scheduling pressures once they qualified as HEROs. However, even when fully qualified as HOOs, the new staff cannot be scheduled on the same shift. Although the most recent hires have the right clearance level to perform the work, they do not have the clearance level to work in the space without accompaniment by someone with a higher security clearance.

Why This Occurred

Management Did Not Plan To Maintain Staffing

Management did not adequately plan how to maintain staffing levels after a resource reduction or ensure succession in the roster.

Lack of Management Familiarity with HOC

Not all levels of management were familiar with the complexities of staffing the HOC, because HOOs had largely managed themselves. Management underestimated the magnitude of programmatic impacts from the reduction in FTE, a human capital resource change, on succession and skills continuity.

Management did not thoroughly assess HOC staffing needs to support PMEF before the reduction in FTE. Management did not fully comprehend that HOOs are the only shift workers in NRC and how the shift schedule supports their unique PMEF role. There was not adequate consideration of how the regions use COOP resources or whether the ROOs could accommodate the demand for shifts without neglecting their routine work. According to the “productive hours”⁵ factor of 1420 hours used for NRC’s fiscal year 2017 budget process, a minimum of 12.3 budgeted FTE would be required to staff the HOC while accounting for illness, leave, and professional development. With a roster size of 11, management must consider additional vehicles to meet direct and indirect HOC staffing needs.

Management Reactive Without Adequate Plan

Management failed to plan how to support PMEF with a smaller roster of HOOs. After a few years of stability in the HOO roster and lack of active oversight of the HOC, management was unprepared for significant changes and could only react as staffing challenges unfolded.

Communications weaknesses within NSIR and between NSIR and regional management hampered addressing staffing challenges. HOOs did not know of the FTE reduction until learning that a vacancy in January 2017 would not be filled. Regional management was not consulted on the expectations that ROOs would provide backup in case of a staffing shortage in the HOC. Once problems at headquarters were apparent by March 2017, NSIR communication with the regions had a short term focus on filling empty shifts, rather than finding a sustainable solution.

Why This Is Important

Sub-Optimal Conditions Reduced Capacity to Support PMEFs

In various ways, staffing conditions reduced buffers for supporting PMEFs. With incomplete resource and succession planning, the number of available HOOs dropped to the point of requiring that a non-qualified

⁵ Productive hours assist in development of FTE resource estimates for direct work to complete planned program activities. By contrast, standard FTE hours of 2080 include all regular hours, such as leave, training, and travel, in addition to direct work.

second person fill shifts. The qualified HOOs on duty were able to respond to issues that came up during those shifts, but noted that nothing required a response level that fully tested HOC staffing.

Increased physical and social issues impacted efficiency and effectiveness of HOOs. Shift work is inherently stressful and the challenges associated with being short-staffed exacerbated stress as HOOs and ROOs experienced mental and physical exhaustion. Fatigue can lead to errors, particularly towards the end of a shift. While it is not clear that there was an increase in HOO errors during 2017, nor that there is a clear cause for these errors, some of the errors made by HOOs and ROOs in this period could potentially be attributed to fatigue.

Staffing conditions reduced professional development opportunities to stay informed on agency and industry developments. During calendar year 2017, more than 670 hours of HOO professional development was taken in the first half of the year. One HOO took a previously scheduled 12-week rotation in February through April. Almost all the remaining training was taken by HOOs preparing for resident inspector positions for which they had been selected. In contrast, in the second half of the year, 2 HOOs received training for a total of 28 hours. Training on innovations, especially in materials uses, is important to HOOs' proficiency. Also, rotations are important for maintaining a high level of performance. Most HOOs did not have these opportunities in calendar year 2017.

Ongoing Efforts

New NSIR managers have taken significant steps to address the HOC staffing challenges.

Increasing Available Staff

NSIR has hired and is qualifying additional HOOs. The current roster for the HOC now has 11 staff. In addition, NSIR solicited NRC staff for rotational opportunities in the HOC with the goal of developing a corps of trained HERO backups and a pool of interested potential HOOs.

Communications

To enhance communications about the HOC and other joint concerns, NSIR and regional branch chiefs have initiated regular, weekly status updates. In addition, NSIR and regional senior management have initiated a quarterly discussion forum. NSIR management tracks HOC improvement initiatives and responds to suggestions from HOOs and ROOs.

Sharing Regional Resources

An agreement between NSIR and regional management has been drafted to document the structure for sharing of regional COOP resources in support of the HOC. A working group chartered to address HOO and ROO concerns about scheduling has revised the scheduling procedure to provide more advanced notice of when the regional resources are needed for support.

Addressing Clearance Issue

The most recent hires are working through the HOO qualification program. Once qualified to serve as HEROs they can stand watch with qualified HOOs, although security clearance reviews are pending. Although the security clearance review backlog is governmentwide, NSIR management is considering how to mitigate its effects on staffing the HOC.

Recommendations

OIG recommends that the Executive Director for Operations

1. Develop and document a HOO workforce plan that defines the mission needs, workload, and skills and competencies of the HOO workforce to support achievement of program results.
2. Develop office guidance to conduct periodic assessment of the HOC, to include staffing. Guidance should define
 - Periodicity or triggering event for assessment.
 - Stakeholders to be involved.
 - Areas to be assessed.

3. Develop and implement a set of procedures to support human capital management and succession in the HOC, including
 - Completed documentation of resource sharing with regions.
 - Expedited hiring process for HOO positions.
 - Backup pool of qualified HEROs and/or former HOOs.
 - Formalize current communications initiatives and methods.

IV. AGENCY COMMENTS

An exit conference was held with the agency on June 11, 2018. Prior to this meeting, after reviewing a discussion draft, agency management provided comments that have been incorporated into this report, as appropriate. As a result, agency management stated their general agreement with the findings and recommendations in this report and opted not to provide formal comments for inclusion in this report.

OBJECTIVE, SCOPE, AND METHODOLOGY

Objective

The evaluation objective was to determine whether NRC staffing of the Headquarters Operations Center adequately supports necessary response and coordination activities.

Scope

The evaluation was conducted at NRC Headquarters, Rockville, MD, from November 6, 2017, to April 4, 2018. The scope included staffing of the NRC Headquarters Operations Center during calendar year 2017. Internal controls related to the evaluation objective were reviewed and analyzed.

Methodology

OIG reviewed relevant NRC requirements, guidance, and policies. Some documents reviewed include

- *Atomic Energy Act of 1954*, as amended.
- Management Directive 6.2, *Continuity of Operations Program* (2017).
- Management Directive 8.2, *NRC Incident Response Program* (2015).
- SECY-16-0009, *Recommendations Resulting From the Integrated Prioritization and Re-Baselining of Agency Activities* (2016).
- Headquarters Operations Officer (HOO) Qualification Training, T.4, (2013).
- *NRC Strategic Workforce Plan* (2016).

To understand the shift rotor and scheduling process and how they were affected by staffing changes, OIG analyzed the HOC schedule for calendar year 2017 in its entirety.

OIG conducted interviews of NRC personnel to gain an understanding of the roles, responsibilities, procedures, and controls for staffing the HOC.

We conducted this evaluation in accordance with the Council of Inspectors General for Integrity and Efficiency *Quality Standards for Inspection and Evaluation*. Those standards require that we plan and perform the evaluation to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our evaluation objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our evaluation objectives.

Throughout the evaluation, auditors considered the possibility of fraud, waste, and abuse in the program.

The evaluation was conducted by Beth Serepca, Team Leader; Amy Hardin, Audit Manager; Jimmy Wong, Senior Auditor; and Magdala Boyer, Management Analyst.

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COMMENTS AND SUGGESTIONS

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