



July 2024

NUCLEAR WASTE CLEANUP

Changes Needed to Address Current and Growing Shortages in Mission-Critical Positions

GAO Highlights

Highlights of [GAO-24-106479](#), a report to congressional committees

Why GAO Did This Study

EM relies on federal staff to oversee its nuclear waste cleanup from decades of nuclear weapons production and research at locations across the country. EM's mission includes deactivating and decommissioning contaminated buildings, remediating contaminated soil and groundwater, and treating radioactive liquid waste.

Senate Report 117-130 accompanying S. 4543, a bill related to the National Defense Authorization Act for Fiscal Year 2023 included a provision for GAO to report on EM's workforce capacity. GAO examined whether EM's federal staff levels align with identified needs to meet EM's mission, and the extent to which EM conducts workforce planning and takes actions to recruit, hire, develop, and retain the personnel it needs.

GAO reviewed documents and prior assessments related to EM's workforce management, analyzed human capital data for fiscal years 2014 through 2023, and interviewed DOE and EM officials, including hiring managers.

What GAO Recommends

GAO is recommending that Congress consider requiring EM to report annually on its efforts to address recurring workforce problems. GAO is also making 10 recommendations to EM to improve its workforce management, including that it develop a forward-looking workforce plan and update agreements with DOE's Shared Service Center. EM agreed with all of GAO's recommendations.

View [GAO-24-106479](#). For more information, contact Nathan Anderson at (202) 512-3841 or andersonn@gao.gov.

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What GAO Found

The Department of Energy's (DOE) Office of Environmental Management (EM) continues to be understaffed. At the end of fiscal year 2023, EM had 263 vacant positions. Moreover, EM had an overall 18 percent vacancy rate for its 14 mission-critical job series (see table). EM's workforce is also aging—44 percent of its staff will be eligible for retirement by 2030. EM workforce management challenges have caused project failures and affected the mission through schedule delays, cost overruns, and workplace accidents, according to DOE assessments. These assessments found that additional failures are likely without efforts to address workforce challenges.

Federal Staff in Selected Mission-Critical Occupations at the Department of Energy's Office of Environmental Management (EM), as of the End of Fiscal Year 2023

Occupational group	Onboard staff in October 2023	Vacancies	Vacancy rate ^a	Retirement eligibility rate by 2030 ^a
General Engineering	251	95 ^b	27%	35%
Nuclear Engineering	36	5	12%	56%
Contracting	141	38	21%	27%
General Physical Science	163	12	7%	45%

Source: GAO analysis of Department of Energy and EM information. | GAO-24-106479

^aThese values are rounded to the nearest whole percent. Vacancy rate pertains to fiscal year 2023.

^bGeneral Engineering includes the vacancies jointly labeled General Engineering/Physical Science. Approximately 55 of these vacancies can be filled by either, while 40 are labeled General Engineering.

EM develops annual staffing plans as requested by DOE but does not have a forward-looking workforce plan. EM, DOE, and others have repeatedly documented the need to strengthen EM's workforce planning because of concerns about mission-critical positions and anticipated retirements. However, EM's attempts to address these issues have proven ineffective. Workforce problems have recurred in multiple locations without EM having taken steps to adopt recommended strategies. By having workforce planning that better follows leading strategic planning practices, such as developing hiring goals and succession planning, EM may be able to mitigate the risks that staffing shortages pose. Further, requiring annual reporting on EM's efforts to address recurring workforce problems could support congressional oversight and help ensure steps are taken to address these problems.

EM has taken some actions to recruit, hire, develop, and retain personnel, but these have been insufficient to counter attrition—10.6 percent in fiscal year 2023. Communication breakdowns between EM and DOE's Shared Service Center have also hampered EM's workforce management efforts and could be improved by better aligning with leading collaboration practices, such as updating documented collaboration agreements.

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Abbreviations

DOE	Department of Energy
EK/EJ	excepted service authorities
EM	Office of Environmental Management
EMCBC	EM Consolidated Business Center
EMLA	Environmental Management's Los Alamos Field Office
FTE	full-time equivalents
FY	fiscal year
GSSC/TACs	general support service contractors and technical assistance contractors
GS	General Schedule
ICP	Idaho Cleanup Project Site
MOA	memorandum of agreement
NAS	National Academies of Sciences, Engineering, and Medicine
NNSA	National Nuclear Security Administration
OMB	U. S. Office of Management and Budget
OPM	U. S. Office of Personnel Management
PPPO	Portsmouth/Paducah Project Office
SRS	Savannah River Site
SSC	Shared Service Center

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July 18, 2024

Congressional Committees

The Department of Energy's (DOE) Office of Environmental Management (EM) relies on federal staff to oversee its cleanup of large amounts of radioactive and chemical contamination from decades of nuclear weapons production and research at sites across the country. Across the EM complex, federal staff in a range of mission-critical positions—including engineering, acquisitions, and cybersecurity—oversee thousands of contractors who carry out the cleanup work, an effort currently estimated to cost about \$416 billion.¹ EM has experienced challenges managing its federal workforce across its headquarters and cleanup sites and faces a high rate of vacancies, including for mission-critical positions. Such challenges have led to cost overruns, schedule delays, and accidents—including fires and radiation leaks.

EM's workforce challenges are linked to three areas on our High-Risk List: strategic human capital management, acquisition and program management for DOE's National Nuclear Security Administration and Office of Environmental Management, and the U.S. government's environmental liability.² We have identified strategic human capital management as a high-risk area since 2001 because of the need for federal agencies, including DOE and EM, to adequately address skills gaps within the federal workforce. Specifically, gaps in mission-critical skills in fields such as engineering, mathematics, cybersecurity, and acquisitions often undermine agencies' abilities to meet their missions.

Relatedly, acquisition and program management at DOE has been on our High-Risk List since the list's inception in 1990. In 2023, we reported that EM has made some progress, but it continues to face staffing shortages.³ For example, not having sufficient staff with the necessary expertise contributed to cost and schedule overruns for two capital asset projects.

¹The EM complex is comprised of EM's 15 active cleanup sites and the national laboratories that conduct cleanup-related research and development. For estimated liabilities see DOE, *U.S. Department of Energy Agency Financial Report: Fiscal Year 2023*, DOE/CF-0201 (Washington, D.C.: Nov. 15, 2023).

²GAO, *High-Risk Series: Efforts Made to Achieve Progress Need to Be Maintained and Expanded to Fully Address All Areas*, [GAO-23-106203](#) (Washington, D.C.: Apr. 20, 2023).

³[GAO-23-106203](#).

These barriers have implications for EM's increasing environmental liabilities, which relate primarily to retrieving, treating, and disposing of nuclear and hazardous waste.

Several recent workforce assessments have identified government-wide barriers to workforce management that EM faces, including a lengthy hiring process; a national shortage of science, technology, engineering, mathematics, and cybersecurity workers; and difficulty competing with private sector pay.⁴ These assessments include numerous recommendations to address workforce barriers. For example, in 2020 the U.S. Office of Personnel Management (OPM) recommended that EM take steps to ensure the right people were in the right jobs to address concerns that EM employees had about workload strain, work not getting done, and to improve staff utilization.⁵

Given the significant workforce challenges EM faces, Senate Report 117-130 accompanying S. 4543, a bill related to the National Defense Authorization Act for Fiscal Year 2023, includes a provision for GAO to review EM's workforce capacity, skills, retention, and hiring. Our review examines (1) whether EM's federal staff levels align with identified needs to meet EM's mission; (2) the extent to which EM conducts workforce planning; and (3) the extent to which EM is taking actions to recruit, hire, develop, and retain personnel with the necessary skills to meet its mission.

To examine whether EM's federal staff levels align with identified needs to meet EM's mission, we obtained data and documentation on EM's federal staff levels and identified needs, as well as agency documentation. We examined data from the human capital information repository for DOE that is its official repository for personnel records, called DOEInfo. We examined data from October 1, 2013, to October 7, 2023, fiscal year (FY) 2014 – FY 2023, for a variety of data elements related to human capital management. In addition to these 10 years of data, we examined data on vacancies at the end of FY 2023 from DOEInfo and hiring data for FY 2023 from USA Staffing to compare to

⁴The following organizations have published reports on EM's workforce barriers: the Defense Nuclear Facilities Safety Board; DOE's Office of Enterprise Assessments; EM; the EM Advisory Board; GAO; the National Academies of Sciences, Engineering, and Medicine; the National Academy of Public Administration; and the U. S. Office of Personnel Management.

⁵OPM, *Organization and Workload Analysis Findings and Recommendations for the Department of Energy* (Washington, D.C.: June 2020).

hiring counts in DOEInfo. We used the datasets to calculate descriptive statistics about EM's workforce in FY 2023, to run time series analyses to examine the hiring and separation trends at EM's sites, and for survival analyses—used to project when employees may leave EM by site and by occupation series. We determined that these data were sufficiently reliable for the purpose of describing and analyzing EM's workforce composition and projected workforce in the future.

In support of all the objectives, we held semi-structured interviews with officials from EM headquarters and each of the locations where EM has federal staff.⁶ We also interviewed officials from DOE's Office of the Chief Human Capital Officer, DOE's Office of Enterprise Assessments, and OPM. We interviewed a former member of the EM Advisory Board and a representative from the Consortium for Risk Evaluation with Stakeholder Participation.⁷ During these discussions, we asked officials and representatives for details about EM's workforce including challenges, best practices, and ongoing programs.

To address our second objective, we identified and compared EM's workforce planning efforts to strategic human capital management standards and analyzed assessments done on EM's workforce management.⁸ Examples of documents we reviewed include strategic plans, program plans, mission and priority documents, budget justification documentation, annual staffing plans, and succession planning documentation. We evaluated the extent to which EM implemented selected standards in strategic human capital management, based on

⁶We spoke with staff from EM's Office of Field Operations, EM's Office of Corporate Services, EM Consolidated Business Center (EMCBC), Carlsbad Field Office (Carlsbad), EMCBC New York Office (EMCBC-New York), Energy Technology Engineering Center Site, Hanford Site (Hanford), Idaho Cleanup Project Site (ICP), Lawrence Berkeley/Livermore National Laboratories, Environmental Management's Los Alamos Field Office (EMLA), Moab Uranium Mill Tailing Remedial Action Site (Moab), Nevada National Security Site (Nevada), Oak Ridge Reservation Site (Oak Ridge), Portsmouth/Paducah Project Office (PPPO), Savannah River Site (SRS), and West Valley Demonstration Project Site (West Valley). For the purposes of simplification, we reported the Office of River Protection and Richland Operations Office as one site, the Hanford Site. Similarly, we report Portsmouth and Paducah efforts as one entity managed by PPPO. There are no EM federal staff located at Sandia National Laboratories or at Bettis Atomic Power Laboratory. According to officials, EM federal staff from other sites travel to those locations as needed.

⁷These are groups with experts in cleanup from academia, governmental and non-governmental entities, and private industry.

⁸We selected standards based on the relevance of those standards to EM challenges.

evidence EM provided in documentation and interviews, and how such efforts compared to these standards.

We also conducted a content analysis of 19 assessments done on EM's workforce between 2019 and 2023 to identify recommendations and suggested strategies made to EM on how to improve its workforce planning and management. We determined how many of these recommendations had been addressed, partially addressed, or not addressed by EM.

To address our third objective, we relied on the results of the time series and survival analyses described above (for more information on these data analyses see app. I), documentation reviews, and interviews with DOE and EM offices and the 14 sites with EM federal staff. We also conducted two site visits to EM sites with more than 100 staff and multiple suboffices to speak with each suboffice and with hiring managers about recruitment, hiring, staff development, and retention efforts. Appendix II provides more information on our scope and methodology.

We conducted this performance audit from January 2023 through July 2024 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

Agency Roles and Responsibilities

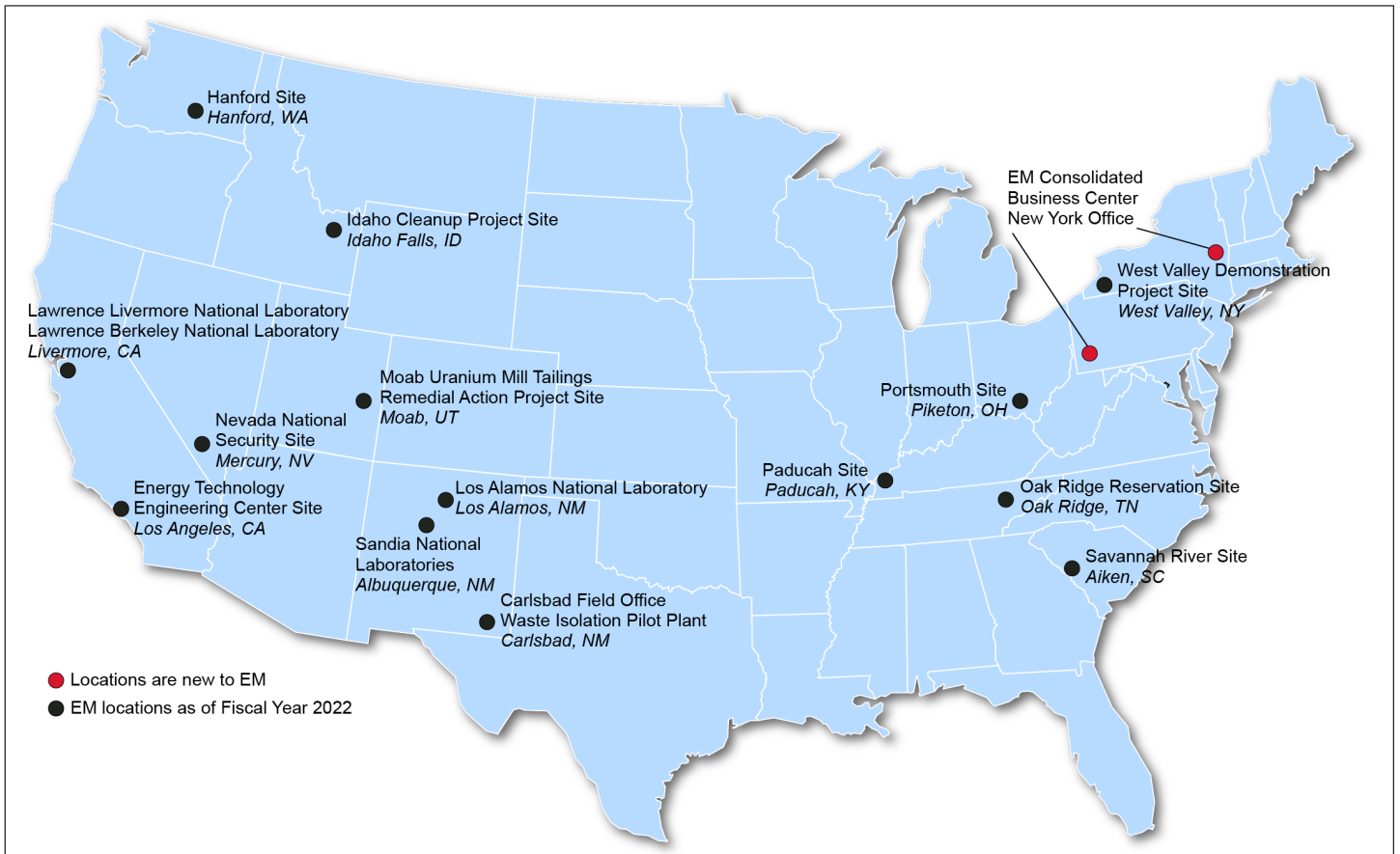
DOE, EM, OPM, and EM's contractors play various roles related to EM's mission and workforce management efforts. EM staff and contractors at its headquarters offices and field sites (collectively referred to as the EM complex) work together to advance EM's cleanup mission. This mission includes deactivating and decommissioning contaminated buildings; remediating contaminated soil and groundwater; and designing, constructing, and operating facilities to treat millions of gallons of radioactive liquid waste at EM's 15 cleanup sites. To carry out its mission, EM received approximately \$7.4 billion on average annually between 2017 and 2023, according to DOE budget documents.

EM has federal employees and contractor representatives with different roles and responsibilities. At EM headquarters in Washington, D.C.,

senior leadership manages functions such as intergovernmental and stakeholder engagement, communications, safety and security, infrastructure, regulatory and policy affairs, and corporate services, which includes budget, planning, and workforce management. Federal staff at EM sites manage the cleanup work to complete individual sites' specific missions, including overseeing the day-to-day activities of contractors conducting on-the-ground cleanup work and of contractors hired under support service contracts. We refer to these contractors as general support service contractors and technical assistance contractors (GSSC/TACs) in this report. Federal staff also provide site-specific mission support functions, such as safety. Figure 1 shows the location of EM's cleanup efforts, and table 1 describes selected site's specific missions.⁹

⁹EM has additional cleanup efforts not included in table 1 that are line managed by EMCBC. These include EMCBC New York Office, Energy Technology Engineering Center Site, Lawrence Berkeley/Livermore National Laboratories, Moab Uranium Mill Tailings Remedial Action Project Site, Nevada National Security Site, Sandia National Laboratories, and West Valley Demonstration Project Site.

Figure 1: Locations of the Department of Energy’s Office of Environmental Management (EM) Cleanup Efforts



Sources: GAO analysis of agency documentation; Map Resources (map). | GAO-24-106479

Note: EM Consolidated Business Center New York Office oversees work at the locations shown on the map—the Bettis Atomic Power Laboratory in West Mifflin, PA and two locations in New York shown as one on the map—the Knolls Atomic Power Laboratory including the Separations Process Research Unit near Schenectady, NY and the Kesselring Site in West Milton, NY.

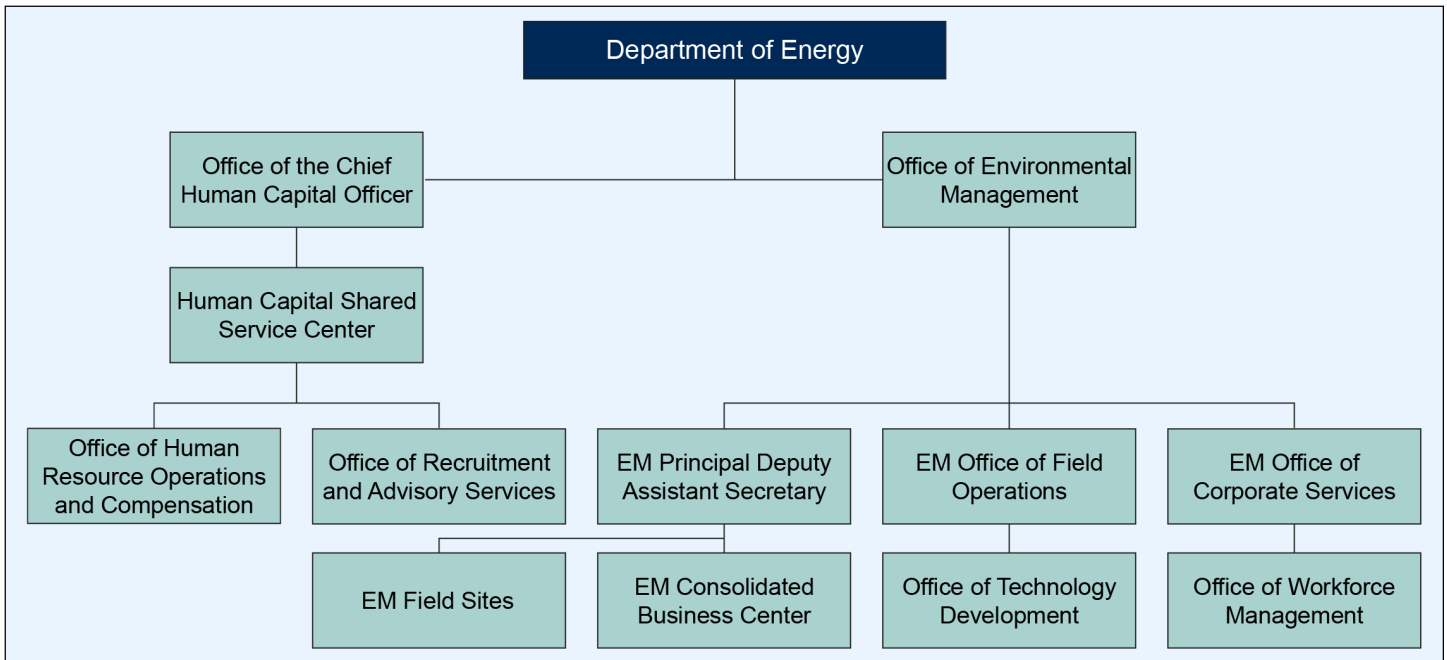
Table 1: Department of Energy's (DOE) Office of Environmental Management (EM) Selected Site Missions

Location	Mission
Carlsbad Field Office	To protect human health and the environment by operating the Waste Isolation Pilot Plant for the safe disposal of transuranic waste, and by establishing an effective system for management of transuranic waste from generation to disposal.
EM Consolidated Business Center	To provide an integrated services center with a valued, dedicated, and well-trained staff to execute exemplary core business and technical services that are focused on the safe, compliant, and efficient execution of EM activities at supported sites.
Los Alamos National Laboratory	To safely, efficiently, and with full transparency complete the cleanup of legacy contamination and waste resulting from nuclear weapons development and government-sponsored nuclear research at the Los Alamos National Laboratory.
Hanford Site	Safe, efficient and effective cleanup, protective of the workforce, the public, and the environment.
Idaho Cleanup Project Site	To treat, store, and dispose of a variety of radioactive and hazardous wastes; remove and dispose of targeted buried waste; remove or deactivate unneeded facilities; and manage—and ultimately remove—high-level waste from Idaho.
Oak Ridge Reservation Site	To remove environmental legacies resulting from more than 60 years of nuclear weapons development and government-sponsored nuclear energy research through protecting the region's health and environment; ensuring the DOE's vital missions of science, energy, and national security; and making clean land available for future use.
Portsmouth/Paducah Project Office (Portsmouth and Paducah Sites)	To accomplish environmental remediation, waste management, depleted uranium hexafluoride conversion, and decontamination and decommissioning at Portsmouth and Paducah Sites. The goal is to do this while accelerating cleanup, eliminating potential environmental threats, reducing DOE's footprint, and reducing life-cycle cost.
Savannah River Site	To safely and efficiently operate Savannah River Site to protect the public health and the environment while supporting the nation's nuclear deterrent and the transformation of the site for future use.

Source: GAO analysis of DOE information. | GAO-24-106479

Several offices within EM and DOE have roles and responsibilities in managing EM's workforce (see fig. 2). Within EM, the Office of Workforce Management works with field site managers, human resources federal staff, and support contractors to conduct workforce management. EM also has outreach programs related to recruitment that it operates out of the Office of Technology Development. DOE's Office of the Chief Human Capital Officer provides workforce services across DOE and manages the Shared Service Center (SSC).

Figure 2: Selected Offices within the Department of Energy (DOE) Relevant to the Office of Environmental Management's (EM) Workforce Management, Organizational Chart, 2023



Sources: GAO analysis of DOE organizational structure. | GAO-24-106479

In FY 2016, as part of a government-wide effort to implement efficiency and effectiveness reforms, DOE began to centralize most workforce management functions from across the department into the SSC. The SSC took over most of EM's hiring functions, while EM retained control over workforce planning, performance management, and training, among other workforce management responsibilities. The SSC has several offices, including the following:

- The Office of Human Resources Operations and Compensation manages staffing, employee benefits, and provides hiring services, among other functions. This office drafts vacancy announcements and determines appropriate pay systems, occupational groupings, titles, and grades for positions.
- The Office of Recruitment and Advisory Services' mission includes responsibility for planning, coordinating, evaluating, and overseeing activities associated with human resources advisory services, assessment strategies, pooled hiring efforts, position management, and corporate recruitment and outreach functions for DOE program offices and their field offices. According to EM officials, EM works with

this office on outreach planning, job fairs, and other efforts, such as new internship programs. Two human resource consultants from this office are specifically assigned to support EM, according to DOE officials.

Beyond DOE, OPM sets government-wide human capital policies and standards, and identifies leading practices, and manages federal civilian personnel data. For example, OPM tracks data on agency time-to-hire, manager and applicant survey results, and compliance audits that assess hiring. OPM is also responsible for overseeing hiring authorities.

Hiring Authorities

The hiring authority an agency uses to bring applicants onboard is an important component of the hiring process. A hiring authority is the law, regulation, or executive order that allows an agency to hire a person into the federal civil service. Among other functions, hiring authorities determine the rules (or a subset of rules within a broader set) that agencies must follow during the hiring process. These rules may include whether a vacancy must be announced, who is eligible to apply, how the applicant will be assessed, and how long the employee may stay in federal service.

Agencies within the federal government, including EM, typically hire federal employees using a competitive process. The process requires agencies to notify the public that the government will accept applications for a job, screen applications against minimum qualification standards, apply selection priorities such as veterans' preference, and assess applicants' relative competencies or knowledge, skills, and abilities against job-related criteria to identify the most qualified applicants.¹⁰

Agencies may also use additional hiring authorities, which allow for an expedited hiring process or seek to achieve certain public policy goals. These include excepted service and Senior Executive Service appointment authorities. Table 2 describes several hiring authorities that EM uses.

¹⁰ 5 U.S.C. §§ 2102(a), 3304-3330; 5 C.F.R. pts. 300, 330, 332, 338.

Table 2: Description of Selected Hiring Authorities Used by the Department of Energy’s (DOE) Office of Environmental Management (EM)

Hiring authority	Description	Service type	Government-wide availability
Competitive Examining ^a	Vacancies are open to the public and posted on USAJobs. Applicants are ranked and selections made by category rating including veterans’ preference, among other requirements.	Competitive	Yes
Schedule A ^b	Allows agencies to make appointments to positions for which the competitive examining process is not practicable, including the appointment of people with certain disabilities.	Excepted	Yes
Veterans Recruitment Appointment ^c	Allows agencies to appoint eligible veterans up to the General Schedule 11 or equivalent level without regard to competitive examining procedures. Appointees are converted to competitive service appointments after 2 years of satisfactory service.	Excepted	Yes
Government-wide Direct Hire Authority	Allows agencies to fill positions the U. S. Office of Personnel Management (OPM) has determined have a severe candidate shortage or a critical hiring need. Public notice is required, but not the application of veterans’ preference, applicant rating and ranking, nor certain other competitive examining procedures.	Competitive	Yes
Excepted Service Authorities EK and EJ ^d	Targets highly qualified scientific, engineering, and professional personnel. EK authority is specific to personnel whose duties relate to safety at DOE defense nuclear facilities, including technical personnel. EJ authority includes administrative personnel.	Excepted	No
Pathways Recent Graduates Program	Targets individuals who have recently received a degree or certificate from a qualifying institution. After completion, individuals are eligible for noncompetitive conversions to competitive service under specified conditions.	Excepted	Yes
Senior Executive Service	Members of the Senior Executive Service are federal executives selected for their leadership qualifications to serve in key positions just below presidential appointees. ^e OPM is responsible for government-wide management of the Senior Executive Service program and providing guidance to agencies for their development, selection, and management of federal executives.	Senior Executive Service	Yes

Source: GAO analysis of DOE, EM information, and legal requirements. | GAO-24-106479

^aCategory rating, authorized for use in competitive examining under 5 U.S.C. § 3319, is required pursuant to presidential memorandum. See, Presidential Memorandum, Improving the Federal Recruitment and Hiring Process (May 11, 2010).

^bSchedule A appointing authorities cover positions when the competitive examining process is not practicable, among other factors. 5 C.F.R. § 213.3101.

^c38 U.S.C. § 4214(b); 5 C.F.R. § 307.103.

^dThe EK excepted service authority authorizes the Secretary of Energy to appoint up to 200 scientific, engineering, and technical personnel whose duties will relate to safety at DOE defense nuclear facilities, referred to as pay plan EK. 50 U.S.C. § 2701. The EJ excepted service authority authorizes the Secretary of Energy to appoint up 200 of the scientific, engineering, professional, and administrative personnel without regard to certain civil service laws, referred to as pay plan EJ. 42 U.S.C. § 7231(d).

^e5 U.S.C. §§ 2101a, 3131-3136.

EM's Federal Staffing Levels Are Below Identified Need

There are many vacancies across the EM complex in the various occupations under which EM's federal staff work. This high number of vacancies, particularly in positions designated as mission critical, has adversely affected EM's mission. EM has been relying on hundreds of support contractors to mitigate these federal staffing gaps.

Federal Staff Work in Many Occupations across the EM Complex

EM's federal staff work at multiple locations across the country and in a range of positions. Specifically, these staff work at EM's headquarters, EMCBC, 14 of its 15 cleanup sites across the nation, and remotely in other U.S. locations. In FY 2023, EM hired more than 300 federal staff according to OPM data, bringing the total number of EM federal staff to 1,272. Table 3 shows staffing levels by assigned location for EM headquarters and each site, as of the end of FY 2023.

Table 3: Number of Federal Staff at the Department of Energy's Office of Environmental Management (EM), by Assigned Duty Station, as of the End of Fiscal Year 2023

Assigned duty station	Number of federal staff
EM headquarters	278
EM Consolidated Business Center (EMCBC) and seven managed sites ^a	214
Carlsbad Field Office	48
Hanford Site	314
Idaho Cleanup Project Site	43
Los Alamos National Laboratory	27
Oak Ridge Reservation Site	74
Portsmouth/Paducah Project Office (Portsmouth and Paducah Sites)	54
Savannah River Site	220
Overall	1,272

Source: GAO analysis of Department of Energy information. | GAO-24-106479

^aEMCBC manages seven smaller sites for which a limited number of or no staff are physically located onsite. These sites are: (1) Energy Technology Engineering Center Site, with two staff; (2) Lawrence Berkeley/Livermore National Laboratories, with two staff; (3) Moab Uranium Mill Tailings Remedial Action Project Site, with five staff; (4) Nevada National Security Site, with 13 staff; (5) EMCBC New York Office, with two staff; (6) Sandia National Laboratories, with no staff; and (7) the West Valley Demonstration Project Site, with 15 staff. These staff are included in EMCBC's staff count in the table.

EM has designated 14 occupation groups, identified by series number, as mission-critical occupations. Out of all of EM's federal staff, 74 percent (937 staff) are considered mission critical. Each mission-critical

occupation group is considered an integral part of carrying out the agency's mission and can include a variety of position types (see table 4). For example, the general engineer occupation group could include a facility representative, a safety systems oversight engineer, or a waste certification engineer, among other positions. EM can also choose from different mission-critical occupations to fill a specific position. For example, a facility representative is a position that could be filled by a general engineer (series number 801) or a physical scientist (series number 1301).

Table 4: Number of Staff in Mission-Critical Occupations at the Department of Energy's Office of Environmental Management (EM), as of the End of Fiscal Year 2023

Series number	Occupational group	Onboard staff	Example of position type
0201 ^a	Human Resources Management	0	Human resource manager
0340	Program Management	90	Federal project director
0343	Management and Program Analysis	123	Workforce management supervisor
0501	Financial Administration and Program	17	Cost estimator
0510	Accounting	28	Accountant
0690	Industrial Hygiene	6	Industrial hygienist
0801	General Engineering	251	Facility representative
0804	Fire Protection Engineering	6	Fire protection engineer
0840	Nuclear Engineering	36	Nuclear safety specialist
0850	Electrical Engineering	5	Electrical engineer
0905	General Attorney	42	Attorney
1102	Contracting	141	Contract specialist
1301	General Physical Science	163	Project manager
2210	Information Technology Management	29	IT cybersecurity specialist
Overall		937	

Source: GAO analysis of Department of Energy and EM information. | GAO-24-106479

^aOccupation series number 0201 had zero staff and no recorded vacancies as of the end of fiscal year 2023. The staff that conduct human resource functions for EM, within EM are assigned to different occupational groups such as 0343 Management and Program Analysis.

EM's Vacancies and High-Risk Positions Have Negatively Affected Its Mission

EM is understaffed compared to its identified workforce needs and has many vacancies across the EM complex. EM is understaffed in many high-risk positions, such as in mission-critical occupations and single point of failure positions. Overall, this has had a negative effect on EM's mission resulting in missed safety inspections, cost overruns, schedule delays, and accidents such as fires and radiation leaks.

Vacancy Rates

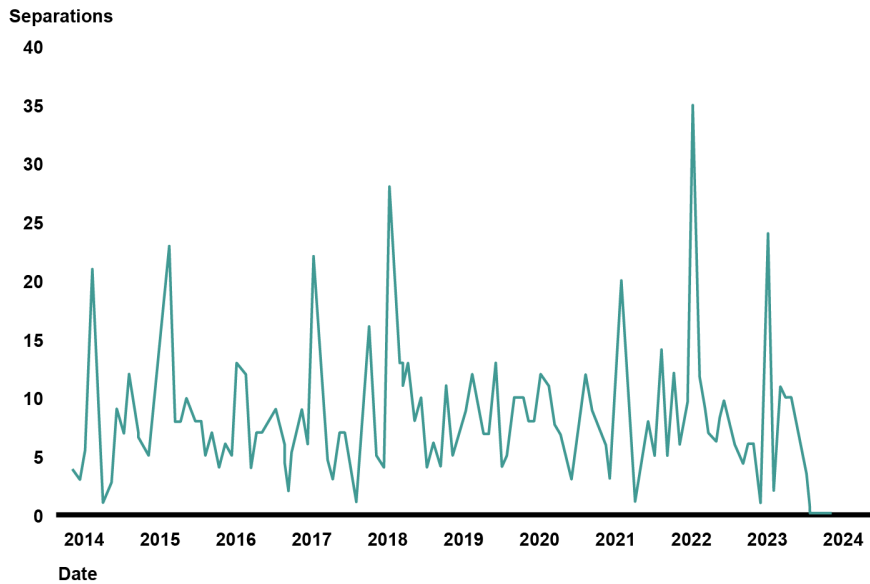
EM is understaffed compared to its identified workforce needs. In FY 2023, EM determined that it needed a federal workforce of 1,515 federal full-time equivalents (FTE) to fulfill its mission, according to agency documentation. As of the end of FY 2023, EM had 1,272 FTE on board and 263 vacancies across its headquarters, EMCBC, and cleanup sites for an overall vacancy rate of 17 percent, according to our review of EM data.¹¹ Some EM sites had higher vacancy rates, such as EM's Los Alamos Field Office (EMLA) at 33 percent and Carlsbad Field Office (Carlsbad) at 34 percent.

In addition to high vacancy levels, EM faces high attrition rates, and many staff are or will soon be eligible for retirement, according to EM's data.¹² EM's average attrition rate was 10.6 percent for FY 2023, which exceeded DOE's and the federal government's average attrition rates, 8.1 percent each, for FY 2013 through FY 2022. December has a higher number of staff leaving each year than any other month, according to our analysis (see fig. 3 for the separation time series and app. I for underlying data analysis). This attrition rate is expected to increase because 44 percent (563 staff) of all EM staff will be eligible to retire by the start of FY 2030. On a site level, 60 percent of staff at Carlsbad will be eligible to retire and 50 percent of staff at Portsmouth and Paducah Sites will be eligible by the start of FY 2030.

¹¹This onboard count includes the over 300 staff hired in FY 2023, according to OPM data. The total onboard count and vacancy counts together exceed the 1,515 total available FTE by 20. However, this difference is explained as a lag in how the DOEInfo system processes separations, according to DOE officials. The 1,272 count was as of the end of FY 2023 which occurred on October 7, 2023, due to pay periods. The vacancy count was as of October 16, 2023, the first pay period after FY 2023.

¹²We define attrition as all retirements, resignations, terminations, and other separations of full-time, nonseasonal permanent employees from the federal government, or those who transferred to a different federal agency, for any reason. Retirement eligibility is based on a person's age and number of years of federal service.

Figure 3: Federal Staff Workforce Monthly Attrition at the Department of Energy’s Office of Environmental Management (EM), Fiscal Year 2014 through Fiscal Year 2023



Source: GAO analysis of Department of Energy and Office of Environmental Management data. | GAO-24-106479

Note: This time series analysis model is statistically significant. The separation trends are stable at EM, not random, and the model can be used to make predictions of future separations. This graph was based on a time series analysis that demonstrated that the model was statistically significant and can be used to make a prediction of future attrition trends. The recurrent high spikes in the graph correspond with the change in the calendar year.

Table 5 shows, for EM headquarters and each individually managed site, the total federal staff count, vacancies, retirement eligibility rate in the next 6 years, and attrition rate as of the end of FY 2023. Appendix III describes additional information on EM sites’ workforce status at the end of FY 2023.

Table 5: Overview of the Department of Energy’s Office of Environmental Management (EM) Federal Staff Workforce, by Location, as of the End of Fiscal Year 2023

Location	Number of federal staff	Vacancies	Vacancy rate ^a	Retirement eligibility rate in 6 years ^a	Attrition rate ^a
EM headquarters	278	47	14%	47%	11%
EM Consolidated Business Center (EMCBC) and managed sites ^b	214	27	11%	40%	8%
Carlsbad Field Office	48	25	34%	60%	14%
Hanford Site	314	74	19%	39%	13%
Idaho Cleanup Project Site	43	8	16%	35%	5%
Los Alamos National Laboratory	27	13	33%	48%	17%
Oak Ridge Reservation Site	74	14	16%	46%	7%
Portsmouth/Paducah Project Office (Portsmouth and Paducah Sites)	54	11	17%	50%	8%
Savannah River Site	220	44	17%	48%	10%
Overall	1,272	263	17%	44%	11%

Source: GAO analysis of Department of Energy information. | GAO-24-106479

^aThese values are rounded to the nearest whole percent. Attrition rate and vacancy rate pertain to fiscal year 2023. Attrition rates summarize the number of federal employees who left these EM sites during fiscal year 2023, encompassing factors such as retirements, resignations, removals, and deaths.

^bEMCBC manages several smaller sites for which a limited number of or no staff are physically located onsite.

High-Risk Positions

EM also has vacancies in mission-critical occupations and offices or programs with single point of failure positions.¹³ Nearly 80 percent of the total EM vacancies were in occupations that EM had designated as mission critical as of the end of FY 2023. Specifically, mission-critical occupations had a collective vacancy rate of 18 percent for FY 2023, and 41 percent of the mission-critical workforce will be eligible for retirement within the next 6 years. Table 6 shows, for each mission-critical occupation, the total federal staff count, vacancies, retirement eligibility within the next 6 years, and attrition for FY 2023.

¹³Single point of failure positions are individual positions where no other staff can perform the same responsibilities, such as when certain qualifications or expertise is required to adequately perform a task.

Table 6: Overview of Federal Staff in Mission-Critical Occupations at the Department of Energy’s Office of Environmental Management (EM), as of the End of Fiscal Year (FY) 2023

Series number for EM mission-critical occupations	Occupational group	Onboard staff in October 2023	Vacancies	Vacancy rate ^a	Retirement eligibility rate in 6 years ^a	Attrition ^b in FY 2023
0201 ^c	Human Resources Management	0	0	N/A	N/A	N/A
0340	Program Management	90	14	13%	69%	8
0343	Management and Program Analysis	123	22	15%	45%	5
0501	Financial Administration and Program	17	1	6%	47%	0
0510	Accounting	28	7	20%	36%	2
0690	Industrial Hygiene	6	2	25%	50%	2
0801	General Engineering	251	95 ^d	27%	35%	15
0804	Fire Protection Engineering	6	1	14%	17%	0
0840	Nuclear Engineering	36	5	12%	56%	2
0850	Electrical Engineering	5	1	17%	20%	0
0905	General Attorney	42	2	5%	36%	2
1102	Contracting	141	38	21%	27%	12
1301	General Physical Science	163	12	7%	45%	6
2210	Information Technology Management	29	9	24%	21%	2
Overall		937	209	18%	41%	56

Source: GAO analysis of Department of Energy and EM information. | GAO-24-106479

^aThese values are rounded to the nearest whole percent. Vacancy rate pertains to fiscal year 2023.

^bAttrition refers to the number of federal employees in mission-critical occupations who left EM during fiscal year 2023, encompassing factors such as retirements, resignations, removals, and deaths.

^cOccupation series number 0201 had zero staff and no recorded vacancies as of the end of fiscal year 2023.

^dSeries number 801 includes the vacancies jointly labeled series number 801/1301. Out of the 95 listed vacancies under series number 801, approximately 55 of these vacancies can be filled by either series number 801 or 1301, while 40 are labeled only 801.

EM's Facility Representatives are Understaffed

A facility representative is a mission-critical position for the Office of Environmental Management (EM) that is responsible for monitoring the performance and operations of the site or a facility. These facility representatives serve as the Department of Energy (DOE) on-site presence for safety and compliance purposes.

The facility representative position is chronically understaffed at many of DOE's EM sites, according to agency officials. For example:

- Carlsbad Field Office allocates four full-time equivalents (FTE) for facility representatives. As of September 2023, three of those positions were vacant and the one facility representative on staff was eligible for retirement. One of these vacancies was for Carlsbad's Director of the Facility Oversight Division, responsible for overseeing Carlsbad's facility representatives.
- EM's Los Alamos Field Office, which allocates four FTE for facility representatives, had two vacant positions in September 2023.
- Oak Ridge Reservation Site has 13 facility representatives; however, officials said that a DOE staffing analysis of the site's needs suggests a need for 30 to 36 facility representatives to effectively meet the mission requirements.
- At the West Valley Demonstration Project Site, a site managed by the EM Consolidated Business Center (EMCBC), officials stated that there was an overall need for three facility representatives. As of June 2023, there was one on staff. To help with these issues, West Valley leveraged assets from the EMCBC and used the site's rotational oversight program to support the facility representative. The site also used facility representatives from other sites to conduct assessments of their facility representative program.

Source: GAO analysis of DOE documents and interviews. | GAO 24 106479

According to EM's FY 2023 Strategic Human Capital Plan, achieving full staffing for mission-critical occupations will enable EM to accomplish its mission objectives, but vacancies in mission-critical occupations are affecting multiple EM sites.¹⁴ For example, EMLA is grappling with staffing shortages, including a vacant director position and a nuclear safety specialist position, as of the end of FY 2023. Multiple agency officials reported a notable shortage of two specific mission-critical positions at several EM sites:

- **Facility representatives (series number 801 or 1301).** The vacancy rate for the combined occupation series 801/1301 was 26 percent, as of the end of FY 2023. Facility representatives are one of the critical positions in these occupation series that are needed to provide effective day-to-day oversight of contractor operations at DOE facilities so that line managers have accurate information on safe work performance, according to agency documentation (see textbox on facility representatives).¹⁵ Shortages in these positions can result

¹⁴Office of Environmental Management, *EM Strategic Human Capital Plan Fiscal Year 2023* (Nov. 16, 2022).

¹⁵Department of Energy, *DOE Standard Facility Representatives*, DOE-STD-1063-2021 (Washington, D.C.: December 2021).

in inadequate oversight. For example, the Portsmouth and Paducah Sites did not have enough facility representatives to maintain effective oversight, according to 2021 and 2023 assessments by DOE's Office of Enterprise Assessments.¹⁶

- **Contract specialists (series number 1102).** This occupation series had a vacancy rate of 21 percent, as of the end of FY 2023. Contract specialists are responsible for managing EM contracts, including oversight of contractor costs and schedules. Officials at Savannah River Site (SRS) told us they have faced challenges in filling seven vacant contract specialist positions, despite making repeated attempts. Officials from Oak Ridge also reported difficulties filling contract specialist positions.

In addition to mission-critical occupations, single point of failure positions are a particular concern cited by senior officials at EM headquarters and sites, when describing workforce management concerns that have resulted from staffing shortages. EM has identified a number of single point of failure positions. In discussing these positions with us, EM officials expressed urgency and alarm. They said that for EM to meet its mission, a number of staff in single point of failure positions are unable to take vacations, must frequently work overtime, and cannot attend training due to high workloads. For example, at the Idaho Cleanup Project Site (ICP), many staff members are juggling dual roles, formally and informally, to address the workload resulting from vacancies, according to site officials. Senior ICP officials emphasized the critical nature of a specific position within their business team, highlighting it as a severe single point of failure without which the workflow would be disrupted. As a result, the staff member occupying this role is unable to take vacation and concerns have been raised that this staff member could experience burnout.

Many of the single point of failure positions are classified as mission-critical occupations. Interviews with EMLA officials revealed that only one federal staff member was qualified through the technical qualification program at the site, who is also serving as the technical qualification

¹⁶DOE Office of Enterprise Assessments, *Independent Assessment of Work Planning and Control at the Paducah Gaseous Diffusion Plant* (June 2023) and *Independent Assessment of the Nuclear Criticality Safety Program at the Portsmouth Site* (November 2021).

program manager.¹⁷ At the Hanford Site, EM has identified 13 single point of failure positions, including in managerial roles. These positions span several divisions including, but not limited to, the Assistant Managers for Mission Support, for Security, for Emergency Services and Information Management, for Nuclear Safety, for Quality Assurance, for the Office of Communications, and for Engineering. Of all identified single point of failure positions eight are in mission-critical occupations. Figure 4 shows concerns about staffing shortages that we heard in interviews with senior EM officials in headquarters and across the complex.

Figure 4: Examples of Staffing Shortage Concerns from the Department of Energy’s Office of Environmental Management Officials



Sources: GAO analysis of agency interviews (text); Julien Eichinger/stock.adobe.com (illustration). | GAO-24-106479

Effects on EM’s Mission

EM staffing shortages have negatively affected its ability to meet its mission. Specifically, agency documentation has reported that staffing shortages have contributed to missed safety inspections, cost overruns,

¹⁷The role of the technical qualification program manager is to ensure employees possess the requisite technical competency to support DOE’s mission, including overseeing the development of DOE personnel responsible for ensuring the safe operation of defense nuclear facilities.

schedule delays, and accidents such as fires and radiation leaks. For example:

- **Accidents at Waste Isolation Pilot Plant.** Insufficient nuclear safety management and staffing at Carlsbad was a cause for accidents at the Waste Isolation Pilot Plant that included a fire, radiation leakage, and ventilation project failure, according to 2014 and 2016 DOE Accident Investigation Reports.¹⁸ The lack of qualified staff in several positions contributed to the insufficient oversight; these staff included, but were not limited to, Nuclear Safety Specialist staff responsible for multiple subject matter expertise and the Authorization Basis Senior Technical Advisor.¹⁹
- **Infrequent oversight at Savannah River Site.** SRS did not perform safety system oversight assessments at the frequency specified in DOE guidance because of staffing shortages, according to an April 2023 report from DOE's Office of Enterprise Assessments.²⁰ According to this report, SRS has a facility engineer position that combines the nuclear safety specialist functions with the safety system oversight responsibilities to have a broad overview of safety. However, this combination also increases the workload for staff in such positions. Furthermore, in April 2023, SRS only had one facility engineer assigned to the Concentration, Storage, and Transfer Facility, which led to reduced safety system oversight.
- **Delays and increased costs at Oak Ridge.** DOE officials cited a lack of staff with the necessary technical expertise to address problems as a cause of delays for the Outfall 200 Mercury Treatment Facility capital asset project at Oak Ridge.²¹ According to DOE's

¹⁸DOE, *Supplement Analysis for the Waste Isolation Pilot Plant Site-Wide Operations*, DOE/EIS-0026-SA-10 (December 2016) and *Accident Investigation Report: Phase 1 Radiological Release Event at the Waste Isolation Pilot Plant on February 14, 2014* (April 2014).

¹⁹The role of the Authorization Basis Senior Technical Advisor at Carlsbad is to provide specialized guidance to the site manager, sign safety evaluation reports, and possess nuclear safety qualifications.

²⁰DOE Office of Enterprise Assessments, *Independent Assessment of Safety System Management at the Savannah River Site Concentration, Storage, and Transfer Facilities* (April 2023).

²¹GAO, *Environmental Cleanup: Status of Major DOE Projects and Operations*, [GAO-22-104662](#) (Washington, D.C.: May 4, 2022).

Monthly Project Portfolio Status Report for March 2024, this capital asset project's cost will increase more than \$100 million.²²

- **Delayed shipments at Hanford Site.** The Hanford Site encountered delays for federal radioactive waste shipments when the one federal staff with the required commercial driving qualifications could not perform their responsibilities to transport the shipments from Hanford to the commercial waste treatment company, according to a March 2020 report from DOE's Office of Enterprise Assessments.²³

EM Uses Hundreds of Support Contractors to Bridge Federal Staffing Gaps

EM uses hundreds of general support service contractors and technical assistance contractors (GSSC/TACs) to bridge gaps in federal staffing, but it is unclear exactly how many are used. EM sites and offices reported that EM had more than 700 GSSC/TACs as of the end of FY 2023. In many cases, these GSSC/TACs work similarly to, or in place of federal staff, according to EM officials. Specifically, the GSSC/TACs are viewed as augmenting federal staff and do most things that the federal staff do except for signing official documents, according to these officials.

Federal regulations and DOE guidance outline limits on agency use of contractors. For example, the Federal Acquisition Regulation prohibits agencies from using contracts for the performance of "inherently governmental functions."²⁴ An inherently governmental function is defined as a function that is so intimately related to the public interest as to mandate performance by government employees, such as activities that require either discretion in applying government authority or making value judgments in making decisions for the government.²⁵ According to DOE guidance, services that are considered inherently governmental should be performed by federal employees instead of contractors. Such services include administering contracts, interviewing and selecting individuals for possible federal employment, and determining agency policy.

Relying on GSSC/TACs is a practice that the U.S. Office of Management and Budget (OMB) and GAO have reported as posing risks. For example, OMB has reported that agencies might rely excessively on contractors when internal capacity is lacking, ignoring the costs stemming from loss

²²DOE, *Monthly DOE Project Portfolio Status Report* (Mar. 25, 2024).

²³DOE Office of Enterprise Assessments, *Assessment of Radioactive Waste Management at the Hanford Site and the Pacific Northwest National Laboratory* (March 2020).

²⁴48 C.F.R. § 7.503(a).

²⁵48 C.F.R. § 2.101.

of institutional knowledge and capability and from inadequate management of contracted activities.²⁶ OMB reported that overreliance on contractors can lead to the erosion of in-house capacity that is essential to effective government performance. We have reported that the risks of relying on GSSC/TACs may result in inappropriate influence on the government's authority, control, and accountability.²⁷

However, because of a lack of federal staff, EM sites are using GSSC/TACs to perform mission-critical tasks, such as conducting required safety inspections, according to site managers. For example:

- **Hanford Site.** Staff vacancies have led to an increased reliance on GSSC/TACs to complete non-inherently governmental functions that were previously completed by federal staff, according to Hanford officials. When there are an insufficient number of qualified facility representatives—a mission-critical occupation—GSSC/TACs are used to address safety requirements, supplementing vacancies that would typically be filled by permanent federal staff, these officials said.
- **Carlsbad Field Office.** Carlsbad—the site with the highest vacancy rate—relies on GSSC/TACs to address workload gaps that result from staff vacancies, according to site officials. As of August 2023, Carlsbad had two vacancies for nuclear safety specialists, and two contractors were working in nuclear safety roles. Similarly, there were three vacancies for contracting officers, and three GSSC/TACs were working in contract oversight roles under the same division. According to our analysis, Carlsbad had about two times more GSSC/TACs (112) than federal staff (57), as of August 2023. Carlsbad officials acknowledged that using GSSC/TACs to fill gaps, such as those left by retirements, is not a long-term solution and stated their intention to use retired federal staff as contractors to help bridge gaps and facilitate the transition of new staff into roles.
- **Los Alamos.** Managers at EMLA, which had a vacancy rate of 33 percent at the end of FY 2023, use GSSC/TACs as a stopgap measure to cope with heavy workloads resulting from staff vacancies, according to site officials. For example, there was a vacant federal

²⁶OMB, *Memorandum for the Heads of Departments and Agencies: Managing the Multisector Workforce*, M-09-26 (Washington, D.C.: July 2009).

²⁷GAO, *VA Acquisition Management: Oversight of Service Contracts Needing Heightened Management Attention Could be Improved*, [GAO-24-106312](#) (Washington, D.C.: Jan. 25, 2024).

industrial hygienist position, with one GSSC/TAC working as an industrial hygienist.

- EMCBC-New York.** Because there are no federal facility representatives that can conduct the required safety reviews for EMCBC-New York, GSSC/TACs conduct all of the safety reviews. Two individuals who retired from federal service at other locations are now working as GSSC/TACs for the site because they have the correct qualifications to serve as facility representatives. One travels from Idaho and one from Virginia for 3 weeks at a time—an arrangement that site officials said is not sustainable. The officials said it could work for development and succession purposes if there were new federal staff to train; however, there were no federal staff to train as of the end of FY 2023.

We also found that while EM workforce planning includes relying on GSSC/TACs to conduct mission-critical work, EM does not incorporate GSSC/TACs into its overall workforce planning, according to our review of agency documentation. We were unable to identify the number of GSSC/TACs EM uses because of different information reported to us from the sites and EM headquarters. We are reporting data from all sources, as we could not determine the reason for the differences (see table 7).

Table 7: Data on the Number of General Support Service Contractors and Technical Assistance Contractors (GSSC/TACs) Used by the Department of Energy’s Office of Environmental Management (EM) for Fiscal Year 2023

Location	EM headquarters reported estimates ^a	EM site and office reported estimates
EM headquarters	193	160 ^b
EM Consolidated Business Center (EMCBC)	21	37 ^c
Carlsbad Field Office	4	112
Hanford Site	11	202
Idaho Cleanup Project Site	5	4.5
Los Alamos National Laboratory	10	26.5
Oak Ridge Reservation Site	16	72
Portsmouth/Paducah Project Office (Portsmouth and Paducah Sites)	15	174
Savannah River Site	0	1.5 ^d
Overall	275	789.5

Source: EM documentation and interviews. | GAO-24-106479

^aThese counts were provided by EM headquarters in June 2024 via technical comments provided on our draft report.

^bThis number was an estimate from EM headquarters staff in November 2023.

^cThe EMCBC estimate includes GSSC/TACs at the field sites managed by the EMCBC.

^dSavannah River Site officials from one suboffice confirmed they had 1.5 contractors assisting with tasks such as telework agreements and awards in FY 2023 and that the site's cybersecurity was mostly supported by GSSC/TACs, but did not have an organizational chart with these contractors labeled.

EM headquarters officials reported that even if EM was fully staffed, they would require some GSSC/TACs to support their work. For example, EM uses GSSC/TACs for tasks that require specific specializations and for efforts that may not use a full-time equivalent federal position. According to EM headquarters officials, many GSSC/TACs are part time or hired for a specific short-term purpose and therefore do not equate to a full-time equivalent position.²⁸ However, officials at many EM sites accounted for these fractions in the data they provided to us.

Gaps in EM's Workforce Planning Threaten Its Cleanup Mission

EM conducts workforce planning generally through annual workforce plans based on guidance from the SSC. However, we found that EM's workforce planning does not fully align with selected standards in four areas, including developing goals and succession plans. Furthermore, EM has not implemented strategies to address recurring workforce problems.

EM Has a Strategic Human Capital Plan and Conducts Workforce Planning Annually

EM has developed a Strategic Human Capital Plan and conducts workforce planning on an annual basis following guidance from the SSC. EM's FY 2023 Strategic Human Capital Plan describes the state of EM's workforce as of November 2022, such as the number of staff in mission-critical occupations and staff retirement eligibility by office.²⁹ This plan, which EM developed to help guide its actions in FY 2023, highlights the workforce challenges EM faces and includes strategies and suggested actions in several areas, such as performance management and retention.

EM also develops annual staffing plans in response to the SSC guidance. These annual staffing plans include the current state of EM's staffing levels, based on the current FTE total, and a proposed state of EM's staff for the following FY. The proposed totals are based on a revised FTE

²⁸GSSC/TACs are not hired or paid in the same way as federal FTE and their information is not tracked in the same databases, such as DOEInfo, as federal staff, according to EM officials.

²⁹EM, *EM Strategic Human Capital Plan Fiscal Year 2023*.

total that includes new and abolished positions at office and site levels for the following FY. EM first develops these plans at the site level, then EM's Office of Workforce Management combines the approved site plans to send one annual staffing plan to the SSC.

EM developed FY 2020–2024 Workforce Plans. However, EM no longer uses these for workforce planning because, according to EM officials, EM has transitioned to the annual staffing plans required by the Office of the Secretary of Energy, which EM provides to the SSC. In June 2024, EM officials told us they were in the development and planning phase of creating guidance for EM to develop FY 2025–2028 Workforce Plans. However, EM did not have a timeframe for the completion of the guidance or when they might begin developing such forward-looking workforce plans.

Gaps in EM's Workforce Planning Efforts Hamper Its Ability to Meet Needed Staffing Levels

Gaps in EM's workforce planning hamper its ability to recruit, hire, develop, and retain the federal workforce it needs to achieve its mission. OPM's strategic capital human capital management regulation provides a framework for comprehensive workforce planning.³⁰ Under OPM's Human Capital Framework, agencies are directed to (1) plan for and manage current and future workforce needs, including working to close skills gaps;³¹ (2) align human capital management strategies to support the agency strategic plan and budget plans;³² (3) ensure human capital management strategies contain measurable performance targets;³³ and (4) support priorities identified in OPM's Federal Workforce Priorities Report, which includes maintaining a multi-faceted succession plan.³⁴ We reviewed EM's workforce planning efforts and found gaps in all four areas.

³⁰ 5 C.F.R. pt. 250, subpt. B. The regulation establishes the Human Capital Framework that is intended to improve human capital programs that enable an agency to accomplish its mission objectives. See 81 Fed. Reg. 89,357, 89,358 (Dec. 12, 2016). Under this framework, agencies are responsible for planning, implementing, evaluating, and improving human capital policies and programs, which must be based on comprehensive workforce planning and analysis and align with agency missions, goals, and strategic objectives. 5 C.F.R. § 250.204(a)(1)-(2).

³¹ 5 C.F.R. § 250.203(b)(1)-(3).

³² 5 C.F.R. §§ 250.203(a)(1), 250.204(a)(1).

³³ 5 C.F.R. § 250.203(a)(2).

³⁴ 5 C.F.R. § 250.204(a)(1); OPM, 2022 Federal Workforce Priorities Report (Washington, D.C.: 2022).

Absence of a Forward-looking Workforce Plan

As of June 2024, EM does not have a forward-looking workforce plan. OPM’s strategic capital human capital management regulation directs agencies to plan for and manage current and future workforce needs, including working to close skills gaps.³⁵ We reviewed EM’s workforce planning documents and identified limitations.

EM’s FY 2023 Strategic Human Capital Plan identifies a wide variety of objectives and goals but does not have clear performance metrics, time frames, or priorities assigned to them. For example, the plan states that, while EM does not maintain a consistent schedule for conducting broad, integrated workforce planning, implementing such a schedule would allow EM to better identify skill gaps and evaluate its progress.

EM’s annual staffing plans are not forward-looking beyond the upcoming year. Our findings align with a 2020 OPM assessment, which found that EM needs to improve its strategic planning—including developing a forward-looking workforce plan—to decrease the risk of future mission failures.³⁶ Similarly, the Defense Nuclear Facilities Safety Board recommended in 2022 that EM improve its staffing plans and implementation to ensure EM staff have sufficient technical capability to conduct safety oversight activities.³⁷

³⁵ 5 C.F.R. § 250.203(b)(1)-(3).

³⁶ According to OPM, EM faces the serious challenge of maintaining a federal workforce with the specialized skills and experience required to accomplish its science and technology driven missions, particularly with the increasing retirement rate among its most experienced and highly skilled professionals. OPM, *Organization and Workload Analysis Findings and Recommendations for DOE* (Washington, D.C.: June 2020).

³⁷ Defense Nuclear Facilities Safety Board, *Review of DOE Safety Oversight Effectiveness* (Washington, D.C.: April 2022).

As previously described, EM has high vacancy levels and faces a high number of potential retirements. Nearly half of EM's current federal staff will be eligible for retirement by 2030, according to our analysis of DOE data. This includes over 40 percent of staff in the 14 occupation series that EM headquarters and field sites have designated as mission-critical occupations. EM staff reported that they already face difficulties in hiring, training, and retaining personnel in mission-critical positions, including facility representatives (see textbox on facility representatives).

New EM Work Will Require Additional Planning for Facility Representatives

Starting in 2025, the Department of Energy (DOE) is required to develop and begin implementing a plan to transfer the responsibility for certain nonoperational National Nuclear Security Administration (NNSA) facilities to the Office of Environmental Management (EM) for disposition (i.e., deactivation and decommissioning) by March 31, 2029. In 2022, DOE estimated that it would cost \$1.8 billion to disposition the over 250 NNSA excess facilities that were contaminated by radioactive and hazardous substances during mission operations. EM officials said they are waiting to begin planning new work on NNSA facilities until they, or NNSA, receive funding for such work.

EM will need facility representatives to oversee a variety of activities, including disposition, to effectively meet the additional responsibilities associated with these additional facilities, according to EM officials. Including these additional facilities and facility representatives in EM's long term workforce planning may be important to EM's plan to effectively address these excess NNSA facilities.

EM is currently below its assessed need for number of facility representatives. For example, a recent survey of EM's Oak Ridge Reservation Site needs identified 36 facility representative positions, however the site has only ever had half that number, according to Oak Ridge officials. If EM's Oak Ridge takes ownership of the additional facilities at NNSA's nearby Y-12 National Security Complex, the need for additional EM facility representatives could grow.

Source: GAO analysis of DOE documents and interviews. | GAO 24 106479

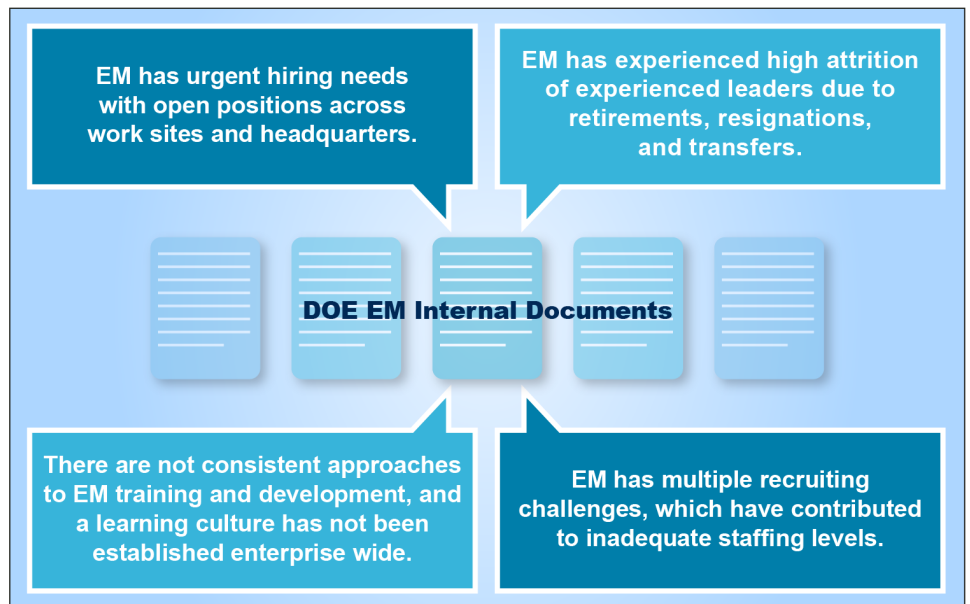
Misalignment of Human Capital Workforce Strategies with Agency's Strategic and Budget Plans

EM's strategic documents do not align in their characterization of the agency's workforce needs and staffing shortages. OPM's Human Capital Framework states that an agency is responsible for aligning human capital workforce strategies to support the agency strategic plan and budget plans.³⁸ Although internal documents and statements from senior EM headquarters and site officials describe staffing shortages as a serious issue, EM's external strategic documents do not address these workforce needs. We found that internal to EM, staffing shortages are described as "urgent" or "concerning." For example, EM's internal FY 2023 Strategic Human Capital Plan indicates that EM has urgent hiring needs and inadequate staffing levels (see fig. 5), as do other internal EM documents. Furthermore, EM's annual staffing plans do not link to its FY 2023 Strategic Human Capital Plan, or the strategies and actions

³⁸5 C.F.R. §§ 250.203(a)(1), 250.204(a)(1).

described in that plan, according to our analysis of the plans and EM officials.

Figure 5: Examples of Statements from DOE’s Office of Environmental Management Workforce Planning Documents



Sources: GAO analysis of Department of Energy (DOE) Office of Environmental Management (EM) documentation (text); GAO (icons). | GAO-24-106479

In contrast, EM’s external documents—including its Program Plan 2022, Strategic Vision 2023–2033, and calendar year 2023 Mission and Priorities documents—either do not reference workforce planning, or limit discussion to outreach programs. Furthermore, EM’s congressional budget justifications for fiscal years 2023 and 2024 discussed improving workforce diversity and had limited discussion on workforce concerns or plans.³⁹ This misalignment in messaging could prevent external stakeholders, such as Congress and the public, from fully understanding the extent of EM’s recurring workforce planning problems, such as chronic understaffing, and what efforts EM is taking to address these problems.

³⁹DOE, FY 2024 Congressional Justification, Environmental Management, Volume 6 (Washington, D.C.: March 2023); FY 2023 Congressional Justification, Environmental Management, Volume 6 (Washington, D.C.: April 2022).

Undocumented Human Capital Goals, Performance Measures, and Milestones

EM's New Contracting Model Created Need for Additional Workforce Planning

The Department of Energy's (DOE) Office of Environmental Management's (EM) in 2019 began using a new End State Contracting Model to streamline the contracting process, among other things. EM leadership implemented this model to demonstrate commitment to improving oversight of EM's acquisitions and better managing its portfolios, programs, and projects—an area that has been on GAO's High-Risk List since 1990.

However, the model has increased EM's need for staffing and training, according to sites we interviewed and several reviews that have highlighted the need for additional workforce planning to support the model. Specifically, some EM sites we interviewed stated that they need additional staff and training to meet the requirements of the new contracting model.

Furthermore, a 2019 review by the Environmental Management Advisory Board found that without conducting a more detailed human resource needs analysis to identify the critical resources required at headquarters, EM Consolidated Business Center, and each site, EM risked not having the acquisitions staff it needs to meet the requirements of the new contracting model.

In August 2023, EM had a third-party review EM's acquisition workforce, as GAO recommended in September 2022. This study found that key acquisition positions were understaffed. It recommended developing succession plans and improving training in addition to hiring more acquisition staff.

Source: GAO analysis of DOE documents and Catawba, Inc. 2023 study. | GAO-24-106479

Incomplete Succession Planning

EM's FY 2023 Strategic Human Capital Plan and annual staffing plans do not document key components called for in OPM's strategic human capital management regulation, including human capital performance targets and measures that will support the agency's human capital strategies.⁴⁰ While EM officials told us they had hiring goals for 2023, 2024, and 2025, none of the documentation we reviewed contained such goals. For example, EM's FY 2023 Strategic Human Capital Plan does not have targets for hiring levels, either total or for specific positions or locations. Similarly, EM's annual staffing plans do not identify hiring goals. EM officials verbally told us that they aim to increase staff levels each fiscal year to certain levels, such as to 1,250 for FY 2023, which EM achieved.

EM's workforce planning documents we reviewed also do not include documented performance metrics or milestones that represent EM's current and future needs. Some EM mission-critical occupations identified in GAO's High-Risk List, such as program managers and acquisitions staff, face current staffing shortages, and will have increased rates of attrition in the future (see sidebar).⁴¹ For example, as of October 2023, EM had 90 program managers onboard, of which 62 will be eligible to retire by 2030, and 14 vacancies, according to our analysis of EM workforce data. However, EM's planning documents do not have goals or milestones to ensure the agency will have enough program managers to meet its mission.

While EM has conducted succession planning for the Senior Executive Service positions, which made up less than three percent of its workforce as of August 2022, it has not documented a comprehensive succession

⁴⁰5 C.F.R. § 250.203(a)(2). Human capital performance targets can include human capital hiring or workforce goals.

⁴¹[GAO-23-106203](#).

plan that includes other positions.⁴² OPM's Federal Workforce Priorities Report states that agencies should maintain a multi-faceted succession plan.⁴³ Several internal EM documents also call for comprehensive succession planning. For example, EM's FY 2023 Strategic Human Capital Plan indicates the importance of such planning, stating that based on the expected retirements, there is a strong sense of urgency to further develop succession planning efforts. This plan states that many of the positions that may be vacated in coming years are important to their sites' operations, and these vacancies could adversely impact the organization's mission if not backfilled in a timely manner with qualified and ready successors.

EM's FY 2020–2024 Workforce Plans called for the development of, and continuous update to succession plans. However, EM could not provide us with documentation of such efforts. EM officials said budget uncertainty was a major reason they did not do more succession planning, though some EM site officials said that their sites conduct succession planning for the coming 1 to 2 years. In April 2023, EM reported that it needed succession planning for contract acquisition staff, a mission-critical occupation, due to high levels of attrition.⁴⁴ In response, EM developed a program targeted to train new acquisition staff to support succession for 179 positions, although the program included eight newly hired staff.

EM has not adopted these four standards in workforce planning because EM develops only what DOE requires EM to report—the annual staffing plans. By more closely following OPM's human capital management standards for conducting forward-looking workforce planning that includes hiring goals and succession planning, and aligning internal and external communication using those plans, EM would be better positioned to

⁴²EM, *EM Senior Executive Service Succession Management Plan* (Washington, D.C.: August 2022). According to EM, as of July 2022, EM had a total of 43 Senior Executive Service positions with 36 incumbents, 6 vacancies, and 1 backfill pending OPM approval. Twenty of the 36 incumbent Senior Executive Service employees (56 percent) were eligible to retire; 29 Senior Executive Service employees (81 percent) would have been eligible within the next 5 years.

⁴³OPM, *Federal Workforce Priorities Report* (Washington, D.C.: 2022). According to OPM, the report communicates key government-wide human capital priorities intended to inform agency strategic and human capital planning. Agencies must align their human capital management strategies to support the Federal Workforce Priorities Report. 5 C.F.R. § 250.204(a)(1).

⁴⁴EM, *Outyears Pre-Award and Post-Award Procurement Resource Assessment* (Washington, D.C.: April 2023).

mitigate the risks that severe shortages in staffing pose to EM's ability to meet its mission.

EM Faces Recurring Workforce Problems and Has Not Implemented Recommended Strategies to Address Those Problems

Although EM and others have repeatedly documented the need to strengthen EM's workforce planning, the same problems recur over time, sometimes in multiple locations. Specifically, EM has made limited progress in addressing many recommendations to improve elements of its workforce planning that DOE, GAO, OPM, EM itself, and others have made in various workforce assessments (see textbox on workforce activities). We analyzed 19 assessments, released between fiscal years 2019 and 2023, that contained 77 recommended strategies to EM related to improving EM's workforce.⁴⁵ Although EM agreed with most of the recommended strategies, EM has addressed 20, partially addressed 15, and not addressed 42, according to EM officials and our analysis of these assessments.

Workforce Activities Not Being Completed at Office of Environmental Management

In 2020 the U.S. Office of Personnel Management (OPM) conducted a workforce study of the DOE Office of Environmental Management (EM) focusing on headquarters staff and staff at the EM Consolidated Business Center. The study found that investing in human capital through training and career development were not done, among many other activities.

The study listed all the work activities that EM staff reported or OPM recorded were not being done. These included:

- Assessments;
- Audits;
- Coordination with key headquarters and site counterparts;
- Knowledge management;
- Cross training and mandatory training;
- Review of staff capabilities and training needs;
- Mentoring;
- Process improvement;
- Quality control/review of deliverables;
- Strategic planning;
- Succession planning;
- Supervisor duties; and
- Work-life balance, among other things.

According to the DOE employees and supervisors interviewed for the OPM workforce study, EM's inability to complete necessary activities due to not having adequate staff resources poses risks, including failure to meet office and DOE mission, decrease in work quality, possible national security risks, fraud, wasted resources, safety, lawsuits, duplication of efforts, stress and burnout, and loss of credibility.

Source: GAO analysis of OPM documentation. | GAO 24 106479

⁴⁵The assessments include external studies and internal-EM studies. The recommendations and selected strategies are not a complete list of all recommendations and strategies in these assessments, but EM was unable to provide information on actions taken or not taken on some of the recommendations and strategies included in those assessments.

Data-driven assessments of EM's workforce often made recommendations to address the same recurring workforce problems, including:

- **Personnel skill gaps.** In a 2011 Root Cause Analysis and Corrective Action Plan Closure Report, DOE reported concerns about EM not having personnel with the appropriate skills—a problem that the EM Advisory Board also identified in 2019, OPM in 2020, and GAO in November 2021.⁴⁶ These assessments recommended a variety of strategies to address this problem, such as updating training requirements and revising support service contracts. However, as of October 2023, the problem remains, according to agency documents and officials.
- **Inconsistent program and project management.** In 2021, the National Academies of Sciences, Engineering, and Medicine (NAS) reported that it had reviewed 46 studies from 1998 through 2020 that focused on DOE and EM's workforce; these studies were performed by NAS, GAO, and an external review committee at the direction of the Secretary of Energy. NAS found that most of the problems with the project and program management workforce identified in these studies continued to be problems in 2020.⁴⁷ Those studies included recommendations to (1) provide leadership that ensures disciplined planning and execution of projects, as well as support for continuous process improvement; and (2) invest in human capital by providing training and career development to ensure an adequate supply of qualified, skilled project directors. NAS' findings articulate that GAO and NAS had identified these and other improvements needed at EM in the late 1990s, but EM had not addressed them as of January 2021.
- **Leadership turnover.** At the request of a congressional committee, the National Academy of Public Administration published a report in

⁴⁶DOE, *Contract and Project Management: Root Cause Analysis and Corrective Action Plan Closure Report Final* (Feb. 2011); EM Advisory Board, *Office of Environmental Management Assessment of Human Resources to Implement the End State Contracting Approach* (Sept. 2019); OPM, *Organization and Workload Analysis Findings and Recommendations*, (June 2020); GAO, *Department of Energy: Improvements Needed to Strengthen Strategic Planning for the Acquisition Workforce*, [GAO-22-103854](#) (Washington, D.C.: Nov. 16, 2021).

⁴⁷National Academies of Sciences, Engineering, and Medicine, *Review of the Effectiveness and Efficiency of Defense Environmental Cleanup Activities of the Department of Energy's Office of Environmental Management: First Report* (Washington, D.C.: Jan. 11, 2021).

2009 that reviewed DOE's mission-support functions, including human resource management.⁴⁸ That review found that, without a dedicated DOE Under Secretary for Management, there was no focal point for management within the department to ensure that recurring workforce capacity issues were addressed. Furthermore, in 2011, at the direction of the Secretary of Energy, an external review committee assessed several underperforming projects, and the findings indicated that excessive turnover and a poor understanding of roles and responsibilities resulted in problems with accountability.⁴⁹ The assessment found that excessive turnover was problematic because it led to the loss of technical capability, program and project leadership skills, and critical project knowledge.

We also found that high turnover in leadership positions has contributed to EM not prioritizing workforce planning and led to gaps in its human resource accountability system. In 2022, we reported that both DOE and EM had experienced frequent turnover in top leadership positions, with the average top leader serving for less than 2 years.⁵⁰ In the last 2 decades, there have been five Senate-confirmed assistant secretaries (political appointees) and 10 acting assistant secretaries or senior advisors. The most recent change in EM senior advisors occurred in June 2024. This frequent turnover has created barriers to the department's ability to achieve its complex and long-term cleanup mission because these leaders commonly focus on short-term actions over long-term priorities, according to DOE and EM staff that we interviewed. EM has also experienced high turnover in its leadership and at the site management level, according to our analysis of EM workforce data. In calendar year 2023, three of the top five EM leaders changed, and five of the eight site managers changed or announced their departure in early 2024, as seen in figure 6.⁵¹

⁴⁸National Academy of Public Administration, *DOE Managing at the Speed of Light: Improving Mission-Support Performance* (Washington, D.C.: July 2009).

⁴⁹According to NAS, the findings of this review were distributed across EM via a transmittal memorandum in September 2011 by Daniel Poneman. *Transmittal Letter of Secretarial Review, Report on the Office of Environmental Management Program and Project Organizations* (Washington, D.C.: Sept. 9, 2011).

⁵⁰GAO, *Nuclear Waste: DOE Needs Greater Leadership Stability and Commitment to Accomplish Cleanup Mission*, [GAO-22-104805](#) (Washington, D.C.: May 3, 2022).

⁵¹The eight field site managers are located at Carlsbad, Los Alamos, Hanford, ICP, Oak Ridge, Portsmouth/Paducah, Savannah River, and EMCBC—which line manages several smaller sites. Those who announced their departure in 2023 left EM by the end of April 2024.

Figure 6: Changes Made or Announced in Calendar Year 2023 for Department of Energy Office of Environmental Management Leadership Positions

EM Headquarters Leadership	EM Field Site Managers	
Senior Advisor	Carlsbad Field Office	Idaho Cleanup Project Site
Principal Deputy Assistant Secretary	Los Alamos National Laboratory	Oak Ridge Reservation Site
Office of Field Operations	Hanford Site	Savannah River Site
Office of Regulatory and Policy Affairs	Portsmouth and Paducah Project Office	EM Consolidated Business Center
Office of Corporate Services		

No change
 Changed or soon to change

Sources: GAO analysis of Office of Environmental Management (EM) documents. | GAO-24-106479

Note: "Soon to change" indicates positions for which changes were announced in calendar year 2023, but had not yet occurred as of the end of December 2023.

EM has not addressed workforce problems that recur and continues to struggle to meet its needed staffing levels despite strategies that have been recommended to address these problems.⁵² Furthermore, of the 42 recommendations and suggested strategies from workforce assessments that EM did not address, 24 of them were from assessments that EM did of its own workforce and recommended to itself. During our interviews with EM leadership and others throughout EM, we found that several agency leaders and workforce planning officials were not familiar with or aware of some of the workforce assessments and their findings. EM did not have a mechanism to internally communicate with leadership the findings from assessments or track the implementation of recommendations and strategies regarding workforce management made to, or by EM, according to senior EM officials.

OPM's standards on human resource accountability systems, including effective human capital strategies, indicate that these systems should support the organization's mission and enable the agency to identify and solve significant problems in a timely and systematic way.⁵³ According to these standards, the system must also enable the organization to take

⁵²We are referring to recommendations and suggested strategies as recommended strategies.

⁵³OPM Accountability Definition and Standards, <https://www.opm.gov/policy-data-oversight/oversight-activities/accountability/#url=Definitions-and-Standards>, Accessed: February 1, 2024.

prompt actions to correct problems that, for example, result in failure to meet organizational mission goals, or increase the organization's financial or legal vulnerability. OMB's guidance also states that a primary responsibility of agency leaders is to conduct frequent data-driven reviews that guide decisions and actions to improve outcomes, manage risk, and reduce costs, which consider strategic workforce planning and human capital data.⁵⁴ In addition, according to federal internal control standards, management should internally and externally communicate the necessary quality information to achieve the entity's objectives.⁵⁵

EM is not ensuring that information about strategies and actions is communicated internally and externally so that leadership, staff, and stakeholders understand and implement them. EM is also not assessing progress toward addressing its long-standing workforce problems. Without implementing strategies that numerous entities have recommended or prioritizing workforce management, EM may not be able to fulfill mission-critical oversight functions and associated workforce problems will persist. Annual reporting to Congress could help ensure EM addresses recurring workforce problems and the risks they pose to EM's cleanup mission. Such reporting would enhance Congress' ability to conduct oversight and identify where additional direction may be needed. External and public reporting would provide greater accountability, help reduce the risk of understaffing that has led to cost overruns and schedule delays, and reduce the safety risks associated with absent or unqualified safety inspectors across EM's sites.

EM Has Taken Some Actions to Recruit, Hire, Develop, and Retain Personnel, but Lacks Staff with the Necessary Skills to Meet Its Identified Mission Needs

EM made some progress recruiting and hiring staff to fill vacancies in FY 2023, but continued to experience prolonged staffing shortages because of problems related to hiring. EM also took some actions to develop staff but has not established a comprehensive or standardized approach for training or knowledge transfer. Although EM has several mechanisms to retain staff, it does not apply them consistently or in a way that helps address current and future needs.

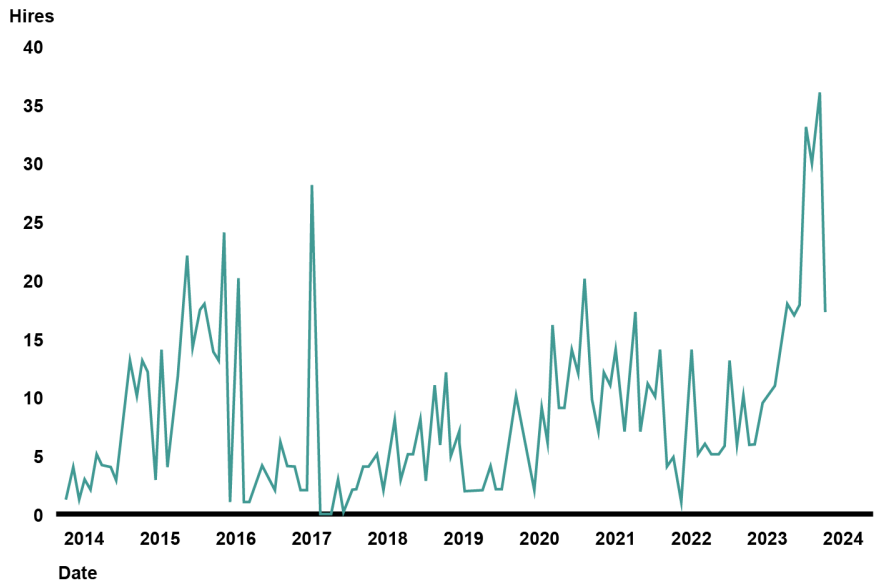
⁵⁴OMB, *Circular A-11*, Sec. 200.7 (Washington, D.C.: Aug. 2023).

⁵⁵GAO, *Standards for Internal Control in the Federal Government*, [GAO-14-704G](#) (Washington, D.C.: Sept. 10, 2014).

EM Made Some Progress Recruiting and Hiring, but Staffing Shortages Remain

Although EM made some progress in filling vacancies in FY 2023, it has not taken sufficient action to recruit and hire the personnel it needs to keep up with attrition and meet its mission. According to OPM data, EM hired more than 320 federal staff in FY 2023 (see fig. 7). EM accomplished this by using additional human resource general support service contractors to conduct a hiring surge, according to officials. However, EM leadership told us that EM would not be able to maintain this surge into 2024.

Figure 7: Department of Energy’s Office of Environmental Management Monthly Hiring Trends, Fiscal Years 2014 through 2023



Source: GAO analysis of Department of Energy and Office of Environmental Management data. | GAO-24-106479

Note: This time series analysis model is statistically significant. The hiring trends are stable at EM, not random, and the model can be used to make predictions of future hiring. The hiring surge in fiscal year 2023 is demonstrated to begin around March 2023, which coincides with what agency officials discussed with GAO.

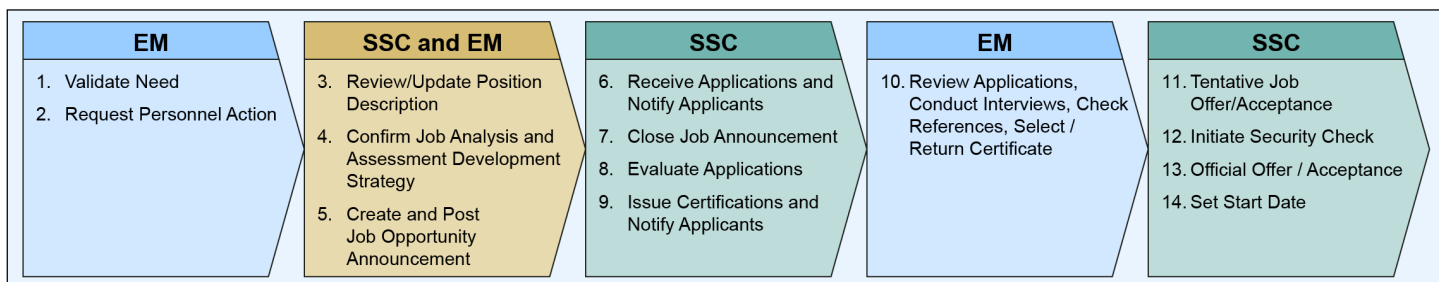
EM headquarters and sites reported experiencing a range of problems in recruitment and hiring efforts during the 2023 hiring surge, including collaborating with the SSC on hiring, understanding and applying hiring flexibilities, converting interns and fellows to permanent staff, using excepted service positions, and using OPM direct hire authorities.

Challenges Collaborating with the SSC

Collaboration challenges between EM and the SSC have hampered EM’s ability to successfully recruit and hire federal staff. The SSC, EM headquarters, and EM sites work collaboratively to manage EM’s

workforce, including recruiting and hiring new staff through the competitive hiring process for General Schedule (GS) positions. EM hires the majority of its federal staff through the GS process, which figure 8 outlines.⁵⁶

Figure 8: General Schedule Hiring Process and Responsible Parties, EM and the SSC



Sources: GAO analysis of Shared Service Center (SSC) and Office of Environmental Management (EM) information. | GAO-24-106479

Note: The General Schedule classification and pay system covers the majority of civilian, white-collar Federal employees (about 1.5 million worldwide) in professional, technical, administrative, and clerical positions, according to the U.S. Office of Personnel Management. See Office of Personnel Management, Handbook of Occupational Groups and Families (December 2018).

During the hiring process, EM and the SSC have collaborative responsibilities they must complete before new staff can start work at EM. EM headquarters and sites are responsible for submitting paperwork to the SSC, conducting interviews with applicants, and preparing incentive packages. SSC is responsible for approving vacancy announcements, certifying applicant lists, and formally issuing offers, among other things. There are steps in the hiring process that EM and the SSC do not control,

⁵⁶DOE's Office of Corporate Executive Management works with EM for other types of hires including Senior Executive Service, excepted service (EK/EJ), and political appointments.

such as security reviews, which may be completed by other agencies or contractors.⁵⁷

EM officials from headquarters, EMCBC, and 11 of 14 sites expressed frustration with hiring. Senior EM officials told us that the SSC does not function for them as they need it to regarding recruitment and hiring timeframes. This sentiment was shared consistently in interviews we conducted across EM.

We have previously identified eight key practices that can help enhance and sustain collaboration between, and among federal agencies. These practices, which also apply to collaboration between the SSC and EM, are to: (1) clarify roles and responsibilities; (2) leverage resources and information; (3) identify and sustain leadership; (4) include relevant participants; (5) bridge organizational cultures; (6) define common outcomes; (7) develop and update written guidance and agreements; and (8) ensure accountability.⁵⁸

The SSC and EM have implemented some aspects of these practices through various efforts but have not addressed some aspects, which has contributed to continued problems with hiring, as described below:

1. **Clarify roles and responsibilities.** Although some agency documentation outlines roles and responsibilities for the SSC and EM, EM documentation acknowledges that further clarification is needed. Specifically, a 2019 memorandum of agreement (MOA) between DOE and EM states that the SSC is to provide human resource services for EM employees.⁵⁹ The memorandum highlights roles and

⁵⁷GAO has previously reported that the Government-wide Personnel Security Clearance Process is an area of high risk for the federal government. See GAO, *High-Risk Series: Efforts Made to Achieve Progress Need to Be Maintained and Expanded to Fully Address All Areas*, [GAO-23-106203](#) (Washington, D.C.: Apr. 20, 2023). GAO has also previously reported on the difficulties in the complexity and length of the security and suitability process. See GAO, *Personnel Vetting: Actions Needed to Implement Reforms, Address Challenges, and Improve Planning*, [GAO-22-104093](#) (Washington, D.C.: Dec. 9, 2021) and *Personnel Security Clearances: Additional Actions Needed to Ensure Quality, Address Timeliness, and Reduce Investigation Backlog*, [GAO-18-29](#) (Washington, D.C.: Dec. 12, 2017). There are seven different accountable security offices that process EM's security reviews dependent on the EM location.

⁵⁸GAO, *Government Performance Management: Leading Practices to Enhance Interagency Collaboration and Address Crosscutting Challenges*, [GAO-23-105520](#) (Washington, D.C.: May 24, 2023).

⁵⁹*Memorandum of Agreement between the Office of Environmental Management and the Office of the Chief Human Capital Officer* (Jan. 9, 2019).

Discrepancies in Hiring Data for the Office of Environmental Management

We identified discrepancies in hiring data provided by the Department of Energy's (DOE) Shared Service Center (SSC) and data from the U.S. Office of Personnel Management (OPM) for DOE's Office of Environmental Management (EM).

The SSC uses a variety of databases to track and record all competitive service hires made under the General Schedule (GS) process for EM. SSC data from the DOEInfo database that we reviewed in October 2023 indicated that EM hired 259 federal GS employees in fiscal year 2023. However, in April 2024, SSC officials said that the database had a record of 392 GS hires for Fiscal Year 2023—a difference of 133.

OPM's USA Staffing database recorded that EM hired 337 federal GS hires during the same time frame.

SSC officials could not clarify to us why the discrepancy existed beyond that any data has caveats and perhaps USA Staffing did not include all hires if there were not job announcements.

Source: GAO analysis of OPM and DOE information and interviews. | GAO-24-106479

responsibilities, which the SSC further elaborated on in its October 2020 Service Level Expectations document. However, EM reported in FY 2023 that the MOA needed to be updated or expanded because there might be gaps in service that needed to be examined more closely, and that the SSC and EM needed to better collaborate to address barriers in communicating and working together.⁶⁰ EM also acknowledged in this document that it needed to develop a consistent approach and standard methods to facilitate interactions with the SSC, which would help isolate problem areas and alleviate bottlenecks in the hiring process. At the time of our review, EM and the SSC have not taken action to address these items.

- Leverage resources and information.** The 2019 MOA outlines the funding structure, such as staff resources and program costs, required to support HR service delivery, but other relevant information, such as workforce planning and hiring data, is not consistently shared between the SSC and EM. According to agency officials, after DOE centralized human capital functions with the SSC, staff responsible for developing site workforce planning documents and coordinating hiring actions, such as those at Hanford or EMCBC, lost or had ineffective access to DOE's human capital systems, such as the Corporate Human Resources Information System, which feeds the data repository DOEInfo—DOE's system of record for human capital data. As a result, EM staff independently developed their own tracking systems for hiring. The SSC is working on developing a new dashboard for hiring that EM staff will have access to called HIRED, but it is not yet active, according to SSC officials.

Various DOE and EM offices, including those responsible for monitoring DOEInfo, provided us different data on the number of staff at EM and the number of staff hired in FY 2023. These discrepancies are in part because DOE has had difficulty tracking staff at Idaho National Laboratory as being assigned to EM instead of DOE's co-located Office of Nuclear Energy, according to officials. Additionally, SSC officials said that not all actions are reflected in hiring databases if there are not job announcements associated with them. However, after accounting for these discrepancies, we found that the data did not consistently align (see sidebar).

EM headquarters officials said they have been working with DOE staff to ensure information, such as the position management dashboard that indicates hiring status, is available to all EM sites. Part of the challenge in ensuring access is that different EM sites have different

⁶⁰EM, *Strategic Human Capital Plan Fiscal Year 2023*.

computer systems and firewalls, according to DOE officials. However, as of December 2023, all the EM sites had access to the SSC's position management dashboard, according to EM headquarters officials.

3. **Identify and sustain leadership.** Although SSC has hired and assigned additional recruitment and human resources staff, high turnover and organizational changes have created challenges. In FY 2023, the SSC sought to improve disconnects with EM sites by identifying and assigning staff to support specific sites and hiring two new recruitment staff that focus on specific EM locations. The addition of these staff is not documented in a written agreement. EM officials also reported that there appeared to be high turnover in various parts of the SSC that made it difficult to consistently work with the same person. In addition to individual personnel changes, the SSC has undergone shifts in organization and reporting structures since it was created in FY 2016.
4. **Include relevant participants.** In March 2023, EM and the SSC began meeting biweekly at the executive level to help improve communication between the SSC and EM, according to DOE officials, but the frequency and nature of such communication may limit potential benefits. DOE officials also said that EM and the SSC held weekly meetings on Thursdays starting in July 2022 to discuss hiring actions in which EM field sites could attend. In the 2019 MOA, the SSC agreed to one- or two-day responses for a variety of EM human resource requests, such as responding to EM requests for advice and guidance within one business day, and relying on biweekly or weekly meetings does not match those timeframes.

EM officials from five sites told us that it can be difficult to connect with the correct individuals at the SSC to gather or provide information, such as on the status of job postings or certified lists of candidates. EM officials from one site explained that many SSC actions are carried out by GSSC/TACs, whose actions often need to be confirmed and signed by a federal employee within the SSC. EM officials from another site also said it is not always clear whether they are working with federal staff or contractors. However, SSC officials indicated that their contractors should be providing the same level of service as their federal staff, with the only exception being official signatures.

SSC officials similarly reported having difficulty getting information quickly from some EM officials, such as in selecting candidates for offers. SSC officials said they believe there are communication gaps between EM field sites and EM headquarters that should be

addressed. These types of communication delays have lengthened the hiring process and resulted in EM losing prospective hires, according to EM officials at headquarters and three sites.

5. **Bridge organizational cultures.** SSC staff and EM officials have discussed having SSC staff travel to EM sites in fiscal year 2024 to help them understand the nuances of EM work, but as of October 2023, no trips had occurred or been planned. EM officials from five sites expressed concern that SSC staff might not have a full understanding of the unique technical nature of some EM positions. They said this limited understanding could result in inadequate candidate pools and create unnecessary delays in the hiring process. For example, EM officials said that when hiring for engineering positions, they have received certified candidate lists from the SSC that include chefs and janitors. However, SSC officials said that such incidents are rare as these situations arise when open continuous announcements for direct hire positions automatically generate lists and candidates self-identify as having met the minimum qualifications. SSC officials explained that SSC staff do not screen these certification lists, which speeds up the direct hire process because that part of the hiring process is automated.
6. **Define common outcomes.** As discussed previously, EM indicated to the SSC that the FY 2023 hiring goal was to have 1,250 staff onboard, but the information supporting its accomplishment is inconsistent and unreliable. As calculated by the SSC, the agency reached its hiring goal, but there are significant differences between the hiring time frames that the SSC reported and those experienced by sites, according to site officials. For example, for FY 2023, the SSC reported that the average time-to-hire for a vacant position in EM was 84 days, while Hanford officials reported an average of 374 days. Four other EM sites also reported hiring time frames can take more than a year.

A possible reason these numbers differ is that the SSC uses a “time-to-hire” metric that counts each hiring attempt as a separate hiring process, even when they are for the same vacancy. In contrast, sites may be using a “time-to-fill” metric that counts how long a position is vacant through multiple announcements, offers, and declinations. EM officials at Carlsbad and Hanford said that when candidates decline final offers, hiring managers often must restart the hiring process because eligible candidate lists have expired, which prolongs the time a position is vacant. These lengthy time frames for filling positions have compounded the effects of staffing shortfalls because hiring

managers must expend time on the hiring process while managing heavier workloads caused by understaffing, according to EM officials.

7. **Develop and update written guidance and agreements.** Staffing plan guidance and the EM/SSC service agreement are clear, but processes and requirements for hiring are not, according to agency documentation and EM officials. Specifically, EM and SSC officials reported having a clear understanding of the guidance and agreements around developing EM's annual staffing plans. The 2019 MOA also clearly documents certain services for which EM pays the SSC. However, EM documentation indicates that some EM officials have received inconsistent guidance from the SSC on processes and requirements for hiring.

Unclear Vacancy Locations for Office of Environmental Management

The Department of Energy's (DOE) Office of Environmental Management (EM) officials said that prospective hires occasionally decline job offers due to confusion over the location of the position being offered. For example, a candidate may decline offers when remote work is not an option, or when the candidate wants a different EM site than is available.

In a 2020 workforce study, the U.S. Office of Personnel Management (OPM) found that EM's position descriptions had outdated language and unknown locations.

Hanford Site officials have worked with DOE's Shared Service Center to address these issues by developing specialized vacancy announcements. These announcements are only for Hanford positions, instead of for multiple locations across the EM complex. Officials said that they have also added a video of Hanford work to drive interest in the site's vacancy announcements.

According to Hanford officials, site focused recruiting efforts have helped recruit the correct candidates and improve hiring.

Source: GAO analysis of DOE and OPM information and interviews. | GAO-24-106479

For example, EM has lost potential hires and experienced delays in filling vacancies because of issues related to vacancy announcements, including inflexible or unclear guidance from the SSC on position classification, according to officials from five sites (see sidebar).⁶¹

For each vacancy announcement, EM staff work with the SSC on classification of a position description. EM officials from five sites reported challenges with classification of position descriptions. For example, officials from one site said that the form they must fill out and provide to the SSC's classification reviewers is rigidly structured. Officials from another site said that classification can require several addendums to ensure the necessary information is included in the vacancy announcement, such as information about specific skills needed for a position. However, according to SSC officials, to streamline the classification process, the SSC has standardized more than 150 position descriptions covering 24 different job series; if hiring managers want to provide additional information, an optional single-page addendum is provided.

Yet, EM officials said that they cannot title vacancy announcements with the title used internally because the SSC requires the use of other titles. This is especially difficult for nuclear safety positions because the established occupational series positions do not fit the needed positions, according to EM officials.

EM officials said that even when they used generic position descriptions, they had to go through several rounds of edits on the

⁶¹Position classification is a process through which individual positions, in accordance with their duties, responsibilities, and qualification requirements, are grouped by class and grade. See 5 U.S.C. § 5101.

position description before the SSC approved it for posting, some taking months instead of days or weeks. SSC officials also said that there can be delays from EM officials. SSC classifiers sometimes experience significant delays in responses from EM hiring managers when working on position descriptions. Often a week or more goes by and the classifier must reach out multiple times to receive a response, according to SSC officials. Due to these challenges, SSC is in the process of developing a work intake and tracking tool to automate the process and calculate the number of days classification takes for both SSC and EM, according to DOE officials.

8. **Ensure accountability.** EM and SSC officials disagree on the feedback and accountability that SSC and EM conduct. According to SSC officials, in FY 2024 the SSC is updating its overall Service Level Agreement for how it supports all offices and programs, including EM. EM officials said that they had provided some information on the updated terms in that document, but that the document itself is DOE wide and not specific to EM. SSC officials said that the centralization has dramatically improved human capital servicing ratios. For example, according to SSC officials, there have not been any suspensions of human resource authorities resulting from non-compliance findings on audits since SSC took over EM's hiring process.

However, according to EM officials, DOE has not consistently monitored the quality of the services the SSC provides to EM, or updated those services based on needs. In FY 2023, the SSC assigned two individuals to focus on EM recruitment efforts as part of the effort for EM's hiring surge, but that service change is not documented in the MOA or another agreement. As discussed previously, there are some new tracking and monitoring dashboards in development, but they are not yet in place. GAO's work on implementing organizational transformation states that organizations should measure customer satisfaction with the changes and monitor the changes' effects on high-risk areas, including human capital.⁶²

EM and the SSC developed an MOA to document their collaboration, have followed some leading collaboration practices, and are working to improve their collaboration. However, problems with miscommunication and guidance persist, resulting in longer hiring time frames and missed opportunities to fill vacancies with well-qualified candidates, along with

⁶²GAO, *Government Reorganization: Key Questions to Assess Agency Reform Efforts*, [GAO-18-427](#) (Washington, D.C.: June 13, 2018).

Understanding and Applying Hiring Flexibilities

data confusion. EM and the SSC have both undergone organizational changes since DOE's centralization and the SSC-EM agreement of services in 2019, and EM and the SSC have not clearly communicated and documented their updated needs. By updating their MOA or another documented agreement to fully address leading collaboration practices, including reviewing and updating guidance, improving the use and access of human capital data, and developing a regular feedback mechanism to identify and address problems continually as needs change, the SSC and EM would be better positioned to address EM's long-standing and forthcoming recruitment and hiring challenges.

EM has inconsistently used certain hiring flexibilities, such as relocation incentives and rehired annuitants, across its sites. A variety of hiring flexibilities are available to federal agencies to help them attract and retain quality employees, and include tools and incentives related to the hiring process, compensation, and benefits, among other things, according to OPM guidance.

EM sites that used available tools reported positive outcomes for hiring staff. For example:

- **Student loan repayment program.** West Valley and ICP leveraged the student loan repayment program to hire recent graduates. Candidates in this program sign a service agreement to work for EM for a number of years in return for student loan repayment.
- **Referral bonuses.** SRS offers referral bonuses to current staff as an incentive to recruit new staff because site officials believe that their best strategy is word of mouth.
- **Proactively preparing incentive paperwork.** EMLA officials indicated that even if a candidate has not asked EM for a hiring incentive, hiring managers are encouraged to fill out the incentive paperwork while the job is posted. EMLA officials said that this forward-thinking practice has reduced the hiring time frames on the back end of the process.

However, we found in interviews with various sites and hiring managers that their awareness of all the flexibilities and how they use them was inconsistent. For example, hiring managers at one site indicated that they believed incentive tools were reserved for EM headquarters and not used much at sites. Officials from another site said they were unaware that reemployed annuitants could be used to fill vacant positions. Hiring

managers also indicated that relocation incentives were not clear, especially in times of budget uncertainty.

According to leading practices in effective strategic workforce planning, successful organizations educate managers on the availability and use of flexibilities.⁶³ Although EM provided a memorandum about hiring flexibilities to site managers in 2022, hiring managers we spoke to were not familiar with how to best use these tools to hire and retain their workforce. Additionally, EM officials have not widely attended training on hiring flexibilities, which according to SSC officials, recorded that only 12 EM staff had attended SSC training on flexibilities. By providing training and distributing guidance on the use of all available hiring flexibilities, benefits, and incentives, EM could help ensure it recruits and retains the personnel with the skills EM needs to achieve its mission.

Converting Interns and Fellows to Permanent Positions

Although EM has taken steps to develop and fund a pipeline of future employees, it has not been successful in developing a multigenerational pipeline, or in converting interns and fellows to permanent positions within EM. OPM recommends that agencies create and utilize a multigenerational pipeline as part of succession planning.⁶⁴ Depending on the hiring authority, agencies may be able to noncompetitively convert eligible interns and fellows to positions in the competitive service upon completion of program requirements.⁶⁵

⁶³GAO, *Human Capital: Key Principles for Effective Strategic Workforce Planning*, [GAO-04-39](#) (Washington, D.C.: Dec. 11, 2003).

⁶⁴OPM, *2022 Federal Workforce Priorities Report*.

⁶⁵See, for example, 5 U.S.C. § 3116(b).

The Minority Serving Institutions Partnership Program

The Minority Serving Institutions Partnership Program, a program within the Department of Energy's Office of Environmental Management (EM), is designed to support students from minority-serving institutions through fellowships and internships, among other things. The program's purpose is to provide minority students with opportunities to work with EM and expose those students to EM's mission with hopes that students may return to join the workforce, according to the EM official who manages the program.

EM's budget justifications for fiscal years (FY) 2022 and 2024 describe the Minority Serving Institutions Partnership Program as a pipeline and that the program was designed to address EM's future workforce needs. The program, which is managed by EM's Office of Technology Development rather than EM's Office of Workforce Management, was appropriated \$56 million each year in FY 2022, FY 2023, and FY 2024 (\$168 million total). Although the program had distributed about \$30 million of those funds as of the first part of fiscal year 2024, EM officials said they plan to expand the program in the future.

However, EM had no record of any students who participated in this program subsequently becoming permanent federal staff at EM. In addition, senior EM officials said that the Minority Serving Institutions Partnership Program was not designed to encourage the development of students for federal positions.

Source: GAO analysis of agency documentation and interviews. | GAO-24-106479

EM participates in eight different internship and fellowship programs. Since 2019, EM has had 594 interns or fellows (see sidebar).⁶⁶ According to EM records, 29 of the 594 were hired by EM-adjacent entities such as DOE's national laboratories and offices or contractors that work for DOE, but none returned to EM as federal staff. For example, in fiscal years 2019 through 2023, EM had 171 interns through the DOE Scholars program—an internship program designed to create a pipeline of highly qualified talent in disciplinary fields that support mission-critical areas of DOE—including EM. During the same time frame, EM reported authorizing about \$2.3 million for the DOE Scholars program but none returned to EM as federal staff, according to agency officials.⁶⁷ However, according to EM officials, EM could not convert most of these interns and fellows to permanent positions within EM noncompetitively because the intern and fellowship programs did not allow EM to do so.

The ability to convert interns and fellows to permanent positions is especially important at sites with high vacancy levels, that have reported barriers to recruiting staff, and that have experienced negative impacts on their operations because of workforce challenges. For example, Carlsbad has experienced cost overruns and schedule delays in its capital asset projects due to federal staffing shortages. In November 2020, we recommended that Carlsbad Field Office identify and fully analyze what

⁶⁶The eight programs EM identified as having interns or fellows in fiscal years 2019 through 2023 were the DOE Scholars Program; DOE Florida International University Science and Technology Workforce Development Initiative; Pathways Program Presidential Management Fellows; DOE Student Volunteer Program; American Association for the Advancement of Science- Science and Technology Policy DOE Fellow Program; and the three intern and fellow programs under the Minority Serving Institutions Partnership Program: EM Graduate Fellowship Program, EM Minority Serving Institutions Internship Program, and the EM Minority Serving Institutions Field Station Program.

⁶⁷DOE Florida International University Science and Technology Workforce Development Initiative is another program whose purpose is to provide minority students opportunities to join the EM workforce. From fiscal year 2019 through fiscal year 2023, EM spent \$20 million on 193 fellows. Of those students, EM reported that 11 obtained permanent positions in the federal STEM workforce or with federal contractors after their time with EM. However, EM could not identify any fellows that were hired as permanent federal staff at EM.

additional flexibilities it could use to address its staffing vacancies.⁶⁸ However, Carlsbad has continued to experience a consistently high rate of vacancies, with 27 vacancies in January 2020 and 25 in October 2023. Officials said that major barriers to recruiting and hiring staff at Carlsbad include limited housing availability and the pay Carlsbad can offer, which is lower than federal positions in nearby Albuquerque and the private sector. Although Carlsbad had 37 DOE Scholars in fiscal years 2019 through 2023, EM was unable to rehire any of these interns to federal staff positions.⁶⁹

Even if EM used intern and fellowship programs that had the authority to convert eligible interns and fellows to staff positions, EM officials stated that EM would have been unable to exercise this authority because it has no or few equivalent GS positions for recent graduates.⁷⁰ Generally, most recent interns and fellows would qualify for a GS-12 or lower. However, over 80 percent of all positions and 70 percent of all vacancies at EM at the end of FY 2023 were GS-13 or higher.

While a process exists to reclassify FTE positions and reevaluate the GS level, EM officials said that the limited number of FTE vacancies has discouraged them from doing so. For example, if a site has three FTE vacancies, there is an incentive to fill those slots at a high GS level, such as GS-13 or higher, to get workers with more experience, according to officials. However, EM officials at several sites said they are interested in hiring recent graduates. For example, officials at the Portsmouth/Paducah Project Office (PPPO) said that while they have not had interns since the beginning of the COVID-19 pandemic, they are interested in restarting

⁶⁸GAO, *Nuclear Waste Disposal: Better Planning Needs to Avoid Potential Disruptions at Waste Isolation Pilot Plant*, [GAO-21-48](#) (Washington, D.C.: Nov. 19, 2020).

⁶⁹A noncompetitive conversion to a permanent appointment in the competitive service is permitted under both the Pathways Internship Program, which applies to students in high schools, colleges, trade schools, and other qualifying educational institutions, and the Pathways Recent Graduates Program, which applies to individuals who obtained a qualifying associates, bachelors, master's, professional, doctorate, vocational or technical degree or certificate from a qualifying educational institution, within the previous 2 years or other applicable period. EM has not used the Pathways Internship Program in the last 5 years but has hired Pathways Recent Graduates between FY 2019 and 2023.

⁷⁰5 U.S.C. § 3116(e); 5 C.F.R. §§ 316.910, 315.714. EM has the authority to convert post-secondary students to GS-11 or lower permanent appointments in the competitive service without further competition if the student meets certain requirements, such as completing the course of study leading to a baccalaureate or graduate degree (or certificate as appropriate) and meeting the qualification standards for the position to which they are converted.

this effort in FY 2024. PPPO faces possibly losing 51 percent of its staff to retirements in fiscal years 2024 through 2028, making it critical that the site begin increasing its staffing levels, according to site officials. As part of its efforts to increase staffing, the site reconsiders each GS-13 position as it becomes available to determine whether it can be reclassified at a lower GS level, according to site officials.

Adopting an approach complex-wide to identify positions that could be suitably filled by qualified interns and fellows, utilizing internship and fellowship programs that allow for noncompetitive conversion (e.g., Pathways Interns), and reclassifying positions at an appropriate GS level to meet workforce needs, would allow EM to gain greater flexibility in hiring hard-to-fill vacancies. By taking steps to identify such programs and positions appropriate for lower grades, EM would create opportunities to convert qualified candidates directly from internship programs, increase the effectiveness of its multigenerational pipeline, and help address consistently high rates of vacancies at various sites.

Using Excepted Service Positions

Internal workforce assessments conducted by EM have shown that the GS pay levels may impede recruitment and hiring and that developing alternative pay bands or excepted service positions for contract specialists and certain hard to fill positions could be beneficial. Furthermore, EM staff told us that the limited pay levels in the GS system create a barrier to recruitment and hiring. Leading practices in strategic workforce planning state that agencies should develop strategies tailored to address gaps in critical skills and competencies that need attention.⁷¹

EM staff reported success in FY 2023 with hiring and retention in certain mission-critical positions by offering positions that use excepted service pay ranges, known as EK/EJ.⁷² DOE is authorized to appoint up to a total

⁷¹GAO-04-39.

⁷²DOE's EK and EJ pay plans were established under its excepted service authorities. 50 U.S.C. § 2701 (EK authority); 42 U.S.C. § 7231(d) (EJ authority). See also DOE, Excepted Service Authorities for EJ and EK Pay Plans, Order 329.1A (Washington, D.C.: Dec. 3, 2020). Under these authorities, DOE can appoint selected highly qualified personnel without regard to civil service requirements. EK authority is limited to appointments of highly qualified DOE personnel whose duties relate to the safety of defense nuclear facilities while EJ authority can be used by DOE more broadly.

of 400 EK/EJ positions and allocates these to various DOE offices.⁷³ These positions allow for more flexibility in pay ranges, and the hiring process is often considered faster than through GS. In FY 2023 DOE allocated 129 of these positions to EM, which used them to hire or retain staff. For example, EM used 32 (25 percent) of these positions to help retain existing facility representatives or deputy assistant managers at SRS.

However, a few site officials were uncertain whether positions at their sites could be converted from GS to EK/EJ positions to take advantage of these hiring authorities. For example,

- **West Valley.** Site officials said that they cannot use the EK hiring authority because West Valley is not a defense nuclear site. However, the site may be eligible to use the EJ hiring authority, depending on the position type and qualifications.⁷⁴
- **Nevada National Nuclear Site.** Nevada officials said that it would be helpful if there was clarity from EM headquarters on EK eligibility. Nevada officials said that they believe that EK could help EM cover a variety of grades and be used to fill a number of hard to fill positions at that site. Currently, however, EK positions are focused on certain technical positions at defense nuclear facilities. We heard from Nevada officials that there is a perception that EK positions are higher cost, or nearly Senior Executive Service positions.

Senior EM officials said they would like to have 100 more EK/EJ positions, if not a hiring authority and pay scale unique to EM, but that they did not know specifically how they would use the additional positions. According to EM officials, EM does not have a strategy showing how it would use more EK/EJ positions, with justification that such positions are needed, because senior EM officials said they did not want to plan for positions they did not have. Yet, EM officials at some sites told us that they had requested EK positions for specific mission-critical positions and had been denied those positions by EM headquarters. By developing a strategy for using more EK/EJ positions, EM would be better able to

⁷³According to SSC officials, as of March 2024, there are approximately 170 of the 200 EK in use, of which 151 were designated for EM and 114 of those were encumbered (filled) positions. However, there are also 200 EJ positions of which DOE has not designated at least 70 of them to any office, according to officials. EM currently uses about 19 EJ positions of which all but one were encumbered as of March 2024, according to SSC officials.

⁷⁴42 U.S.C. § 7231(d).

Using OPM Direct Hire Authorities

demonstrate to DOE how additional EK/EJ positions can help EM reduce gaps in mission-critical occupations and fill vacancies quickly or retain workers.

EM reported that using direct hire authority has reduced the time-to-hire and improved available candidates. Direct hire authority expedites hiring by eliminating the need for competitive rating and ranking, which can take additional time, and by expanding the list of eligible candidates, according to OPM guidance.

EM does not have direct hire authority for all of its mission-critical occupations. Out of its 14 mission-critical occupations, EM has direct hire authority for four of them via government-wide direct-hire authorities. OPM has approved specific occupations and positions for which agencies can use government-wide direct-hire authorities. Yet, these occupations do not fully align with those that EM has determined are mission critical. In particular, EM does not have direct hire authority for program management as an occupation series, even though it is a key part of acquisitions and EM has identified it as mission critical. EM has a total of 249 program management positions, of which 36 were vacant, as of October 2023. Of the 213 current staff in these positions, 117 (55 percent) will be eligible to retire by 2030.

Agencies can request direct hire authority from OPM for occupations and positions where there is a critical hiring need.⁷⁵ Principles for effective strategic workforce planning state that agencies should develop long-term strategies for acquiring, developing, and retaining staff to achieve programmatic goals, and develop strategies tailored to address gaps and human capital conditions in critical skills and competencies that need attention.⁷⁶ EM does not have direct hire authority for all of its mission-critical occupations in part because it has not requested direct hire authority from OPM for critical hiring needs, and instead relies on the government-wide direct hire authorities, which do not align with all of EM's hiring needs.

In addition to mission-critical hiring needs, agencies can also request direct hiring authority from OPM where there is a severe shortage of

⁷⁵ C.F.R. § 337.205. OPM templates for such a request describe what information is needed for OPM to grant additional direct hire authority.

⁷⁶ [GAO-04-39](#).

candidates, such as in remote locations.⁷⁷ Based on comments made by EM officials, certain EM sites—including EMLA and Carlsbad—have a severe shortage of candidates and would benefit from direct hire authority. In addition, SRS has struggled to hire contract specialists (1102s) and noted a severe shortage of candidates for certain positions, such as a cost estimator position that the site could not fill after six separate hiring efforts, according to officials.

In addition to occupation series, there is a mismatch between the individual positions that EM identifies as mission critical and those for which it has direct hire authority, including positions that are critical for safety. For example, EM considers fire protection engineers and nuclear criticality safety engineers as mission critical, but these positions are not included under OPM's government-wide direct hire authorities. To obtain direct hire authority for these positions, EM would need to request that authority from OPM.⁷⁸ Additional flexibility in direct hire authority may allow EM to target vacancy announcements to fill these specific specialized mission-critical positions, instead of posting for more generic occupation series that currently have government-wide direct hire authority. By requesting additional direct hire authority from OPM, where appropriate, EM would be better able to target vacancy announcements for certain specialized mission-critical positions, reduce hiring time frames, increase staffing levels, and fill mission-critical positions necessary for effective oversight.

EM Has Not Established a Comprehensive or Standardized Approach to Staff Development

Training

EM has not taken a comprehensive or standardized approach to staff development; instead, EM generally focuses training on newly hired staff in specific positions and uses ad hoc efforts for knowledge transfer.

Although many EM staff are required to take training to be qualified for their positions, training at EM does not comprehensively cover all position types, is not always available, and can take a long time to complete for certain positions. GAO's *Standards for Internal Control in the Federal Government* and related GAO reports state that organizations should demonstrate a commitment to training, specifically for critical

⁷⁷5 C.F.R. § 337.204.

⁷⁸The importance of fire protection engineers was demonstrated at Los Alamos National Laboratory on November 6, 2023, when there was a fire in a glovebox in a plutonium facility that was part of the effort to clean up legacy radioactive material. Although no one was injured, the incident shutdown the facility for 2 weeks.

competencies that can be tailored to the needs of the role, and assess curricula on a recurring basis to ensure mission success.⁷⁹ According to EM documentation, there is no guarantee that new hires will have the necessary skills and abilities to conduct the work needed without comprehensive training that is targeted to their roles. EM documentation also explains that there are not consistent approaches to EM training and development, and a learning culture has not been established enterprise wide.⁸⁰ EM documentation further explains that there is a desire in EM to create more developmental programs, define competencies needed for job proficiency and advancement, and map out training for mission-critical occupations.⁸¹

- **Training does not cover all position types.** EM has been developing some training programs for specific roles, but its efforts are not comprehensive for all position types. For example, EMCBC has developed cohort training for contract specialists under the EM Career Acquisition Program as of FY 2023, and EM headquarters has training planned in 2024 for Pathways Recent Graduate cohorts. The Hanford Site has also had some success in grouping new facility representatives together for cohort training, according to site officials. However, these efforts were for a small portion of the new hires and managers that were hired in FY 2023, and do not cover all mission-critical positions or occupation series. EM also does not have a plan for collecting data or assessing whether the training these new programs provide meets mission needs.

⁷⁹GAO, *Defense Acquisition Workforce: Opportunities Exist to Improve Practices for Developing Program Managers*, [GAO-18-217](#) (Washington, D.C.: Feb. 15, 2018); *Program Management: DOE Needs to Develop a Comprehensive Policy and Training Program*, [GAO-17-51](#) (Washington, D.C.: Nov. 21, 2016); *Human Capital: A Guide for Assessing Strategic Training and Development Efforts in the Federal Government*, [GAO-04-546G](#) (Washington, D.C.: Mar. 1, 2004); and [GAO-14-704G](#).

⁸⁰EM, *EM Strategic Human Capital Plan Fiscal Year 2023*.

⁸¹According to officials, EM is responsible for training EM staff, although the SSC does develop and provide training courses that some EM staff have taken.

Office of Environmental Management Facility Representative Qualifications

Facility representatives oversee safety at nuclear waste cleanup sites for the Department of Energy's Office of Environmental Management (EM). It can take 18 months or more for facility representatives to complete required training and gain full qualification.

During the interim qualification phase, these staff are eligible to conduct limited portions of their position's responsibilities. The rest of the responsibilities must be covered by other qualified staff. In practice, several sites told us they have had to rely on support contractors to fill the gaps while new facility representatives complete their training.

Some sites also told us that once facility representatives are fully trained, certified, and experienced, they may take advantage of opportunities for advancement into leadership positions within EM, or they may opt to move to a completely different agency altogether. This turnover can disrupt continuity of oversight and monitoring within facilities.

In addition, the specialized skill set and knowledge required for the facility representative position can limit the pool of potential candidates, further exacerbating understaffing and training time frames.

Source: GAO analysis of agency documentation and interviews. | GAO-24-106479

- **Training is not always available.** Training availability has also impacted staff development at EM. Officials at one site told us that DOE staff can be bumped out of federal trainings to make room for Department of Defense staff. Officials at another site said there was not enough training for EM staff interested in moving into Senior Executive Service positions; EM staff must take this training to qualify to apply for open Senior Executive Service positions. Additionally, EM officials said that classes on leadership, specifically for EM staff, have been cancelled more than once because of low enrollment, even though certain staff are required to take this training every few years.
- **Positions can require years of training.** According to EM officials, many EM positions require a year or more of training before new staff are fully qualified to fulfill the positions they were hired for (see sidebar). Federal project directors in particular require extensive training for qualification and, because the position is specific to DOE, no outside hires would have the necessary experience or training, according to EM officials. For example, to become fully trained and qualified to oversee certain capital asset projects at Hanford, federal project directors need to go through an extensive qualification process that can take up to 10 years. Officials at Hanford said that an employee who has been there for 2 to 5 years can still be considered a "new hire" because of the technicality of the role and the amount they have to learn.

In addition, EMCBC-New York is currently expanding its workload to take on cleanup of Naval Reactor facilities. The site recently hired two new staff and there is a plan for both of them to work on their federal project director level 1 qualifications to help the site manager with federal project director workload as the number of sites and projects expands.

Developing staff is especially important for positions that EM has identified as being mission critical because those positions are considered an integral part to carrying out the agency's mission. By taking steps to establish a training program for each occupation series and collecting and assessing training performance data on a recurrent basis, EM would have better assurance its training curricula align with the needed competencies for each position.

Knowledge Transfer

EM currently has no program-wide knowledge transfer program and instead creates programs for certain positions and relies on sites to conduct their own knowledge transfer. Leading practices in staff development state that organizations should facilitate mentoring as a way of encouraging and supporting people, and capture and convey

knowledge, such as through information repositories that document lessons learned.⁸²

EM headquarters is planning or has recently started some staff development and knowledge transfer efforts, such as a mentoring program for Pathways participants. Senior EM officials said they planned to focus on mentoring and knowledge transfer in FY 2024 because EM hired more than 300 people in FY 2023, according to OPM data.

In addition, some sites have ad hoc efforts for knowledge transfer. For example, contract specialists at EMCBC document lessons learned and best practices in the site's acquisitions portal. However, this information repository is not accessible to all EM staff who work on contract management and who could benefit from the information. Other EM sites reported that rehiring retired federal staff as contractors has been a successful way to encourage knowledge transfer. However, EM officials said that this method should not be relied upon and that it would be better to conduct knowledge transfer while staff are federal employees.

EM officials said that because of staffing shortages, they have not had time to prioritize knowledge transfer or training. A 2020 OPM study found that EM supervisors were not able to engage in knowledge transfer activities because of their heavy workloads. The study also noted that when experienced staff left, other staff were not always prepared to take on the additional duties. Site officials told us similar information. For example, at Carlsbad, the significant oversight responsibilities and amount of work that experienced staff must manage prevent them from having the time needed to mentor new staff, according to site officials. The constant staff turnover at Carlsbad also means that experienced staff do not have the time or ability to train or mentor new staff, especially when many staff leave the site after 1 to 3 years. Carlsbad officials told us they wished they could make mentoring and training a higher priority, but that they would need to fill their staffing gaps before they could assign resources to such efforts.

EM's FY 2023 Strategic Human Capital Plan also noted that the high number of staff eligible to retire could leave EM in a vulnerable position, losing institutional knowledge and critical skills.⁸³ The plan states that there is a need for knowledge transfer prior to employee departure, but

⁸²[GAO-18-217](#).

⁸³EM, *EM Strategic Human Capital Plan Fiscal Year 2023*.

that such a learning culture has not been established complex-wide. By developing a standardized approach to capture knowledge and train new staff across the EM complex, EM would help address the risk to EM's mission when staff in critical positions resign or retire.

EM Uses Retention Mechanisms Inconsistently and Does Not Align Them with Current and Future Needs

EM uses financial incentives to retain staff but has not aligned the retention mechanisms it uses across the EM complex, or with its current and future needs. Leading practices in retention state that management should develop strategies to address gaps in critical skills and competencies through available workplace flexibilities—which may include remote work—and determine the appropriate corrective actions to address any identified deficiencies from evaluations, including actions to improve employee morale.⁸⁴ However, in addressing its challenges with attrition rates, particularly for specific occupational groups and series, EM has used or considered several retention mechanisms with varying degrees of success, including retention incentives for GS employees, alternative pay scales, remote work options, and retention efforts targeted to mission-critical occupations.

EM Attrition and Projected Employment Duration Rates

EM had an overall attrition rate of 10.6 percent for FY 2023, and experienced different types of attrition across the complex (see table 8).

Table 8: Attrition for the Department of Energy's Office of Environmental Management (EM), Fiscal Year 2023

Attrition type	Total number	Locations
Retirement (voluntary and involuntary)	39	All EM sites and headquarters except Idaho Cleanup Project Site (ICP)
Resignation (voluntary and death)	24	All EM sites and headquarters except ICP and Portsmouth/Paducah Project Office (PPPO)
Removal ^a	19	All EM sites and headquarters except ICP and PPPO
Total	82^b	

Source: GAO analysis of Department of Energy data. | GAO-24-106479

^aRemoval includes two instances in which an employee reached the end of a not-to-exceed date of a temporary appointment.

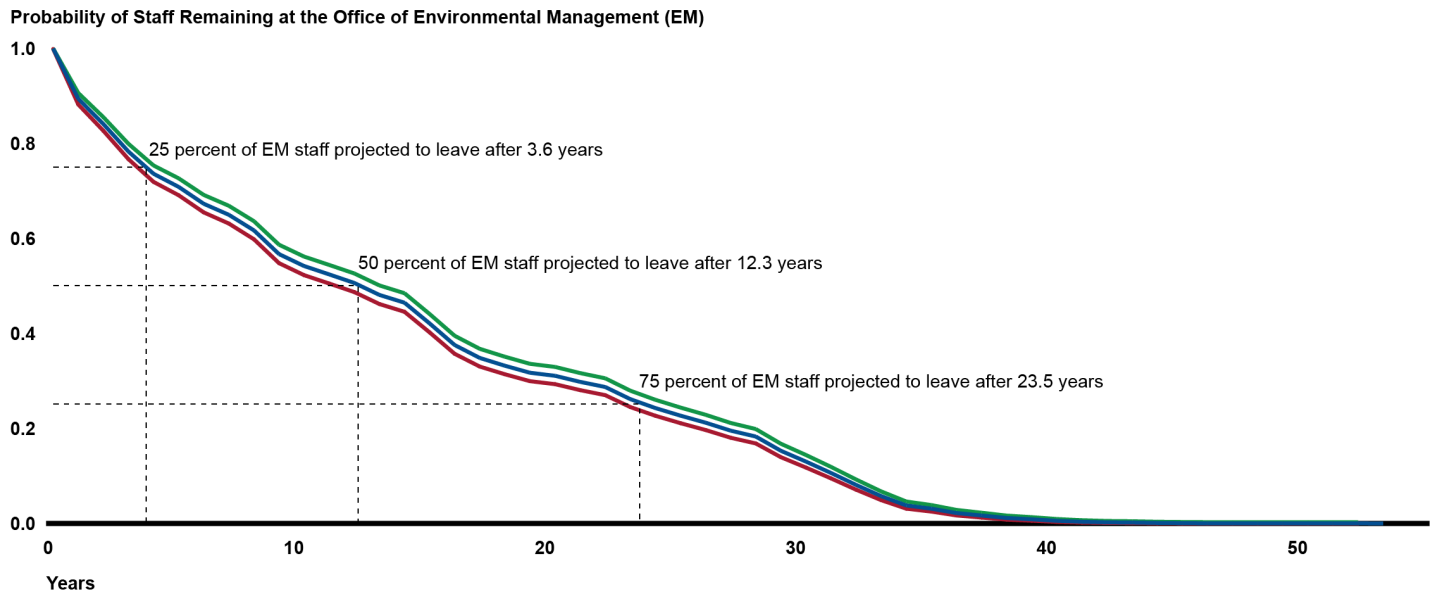
^bOf the 82 employees that left EM in fiscal year 2023, 56 were in mission-critical occupations.

We conducted survival analyses to determine the risk of separation to EM's workforce (see app. I for a full description of these analyses and underlying data). We found that almost 50 percent of EM staff, regardless

⁸⁴GAO, *State Department: Additional Actions Needed to Address IT Workforce Challenges*, [GAO-22-105932](#) (Washington, D.C.: July 12, 2022).

of location, pay, or occupation, are projected to leave EM within the first 12 years of employment (see fig. 9).

Figure 9: Survival Analysis for the Department of Energy’s Office of Environmental Management’s Workforce of Staff Projected to Leave



Source: GAO analysis of Department of Energy data. | GAO-24-106479

Note: The graph illustrates the Kaplan Meier survival curve for EM staff over time. The blue line represents the estimated percentages of staff remaining in EM. The teal line represents the upper bound of the 95 percent confidence interval, and the red line represents the lower bound of the 95 percent confidence interval.

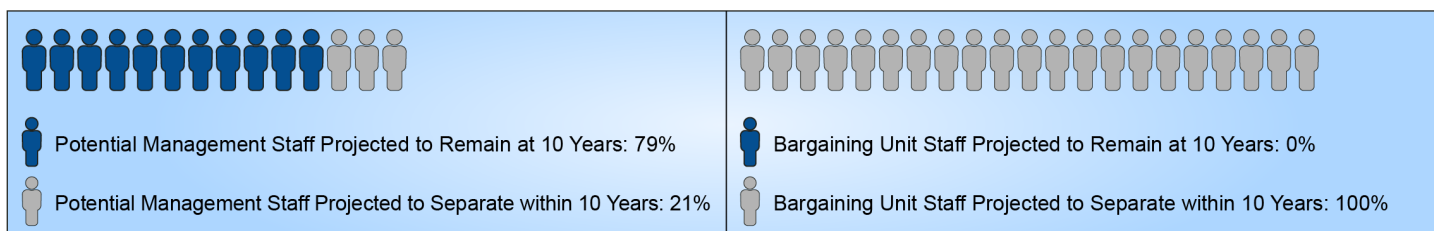
When compared, however, the sites and occupations had statistically significant differences in projected staff duration times, and some sites and occupations experienced higher rates of separations.⁸⁵ The sites with the highest risk were Carlsbad, with the highest risk score of 20.48, and EMCBC, with a risk score of 16.13. Overall, the Carlsbad median staff survival—how long staff stay—was about 8 years while the median for EMCBC was about 10 years.

Analysis of the difference in staff type, particular groups also demonstrated higher risks of separations. For example, workforce stability at EMLA and Carlsbad sites had shorter tenure predictions for their non-

⁸⁵Appendix I discusses the underlying data and analysis for all time series and survival analyses in this report and displays full risk tables by occupation group and EM site.

management staff.⁸⁶ Our analysis determined that no non-management staff at EMLA are projected to remain at Los Alamos for more than for 7 years (see fig. 10).

Figure 10: Survival Analysis for the Department of Energy’s (DOE) Office of Environmental Management Los Alamos Workforce for Year 10 Projected Staff Proportions

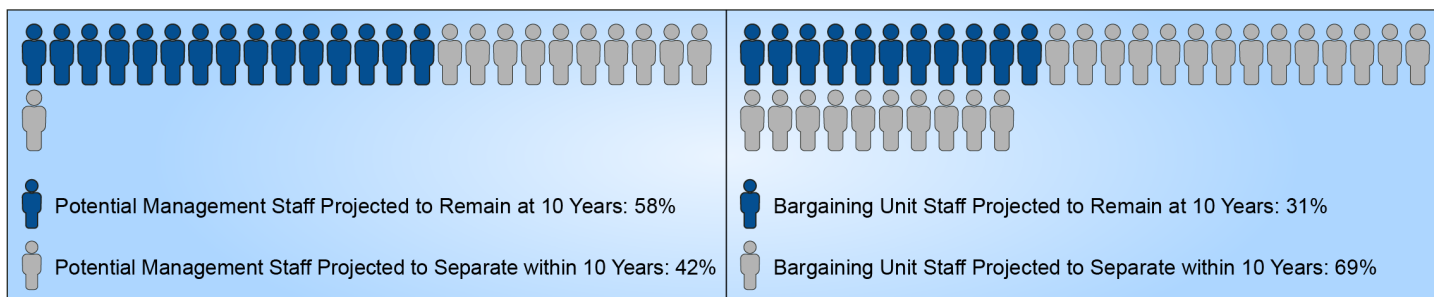


Sources: GAO analysis of DOE information; GAO (icons). | GAO-24-106479

Note: Figure proportions are rounded to whole numbers.

Similarly, our analysis found that about 69 percent of non-management staff at Carlsbad are projected to separate after less than 10 years on the job, with only 31 percent (11 staff) projected to stay (see fig. 11).⁸⁷

Figure 11: Survival Analysis for the Department of Energy’s (DOE) Office of Environmental Management Carlsbad Field Office Workforce Year 10 Projected Staff Proportions



Sources: GAO analysis of DOE information; GAO (icons). | GAO-24-106479

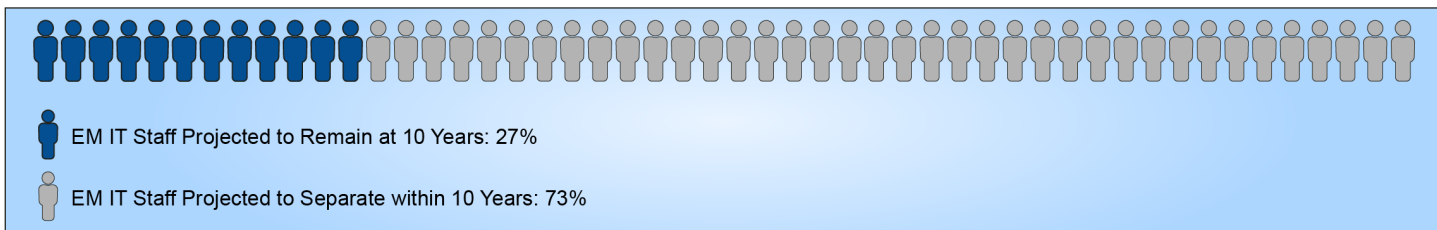
Note: Figure proportions are rounded to whole numbers.

⁸⁶The DOE data labeled this group as bargaining unit staff, which indicates that the staff included are not managers and for purposes of this report, we refer to this group as non-management staff. However, it is possible that the non-bargaining unit staff group also includes some non-management positions.

⁸⁷Survival analysis proportions are transformed into counts as an example based on the current staffing levels as of FY 2023, and do not account for potential future hires or unexpected shifts in the economy.

In reviewing occupational groups, we found that EM has a high risk of separations for IT staff, such as for the mission-critical occupation series 2210, relative to other occupation groups in EM.⁸⁸ Our analysis found that IT, occupation group series 2200, have a statistically significant shorter median survival time compared to non-IT employees. The risk models project the median employment duration for non-IT employees is 12.5 years, while for IT employees it was 5 years. In 10 years, EM is projected to have 27 percent (12 staff) remaining for IT related positions (see fig. 12).⁸⁹

Figure 12: Survival Analysis for the Department of Energy’s (DOE) Office of Environmental Management’s (EM) Information Technology Workforce for Year 10 Projected Staff Proportions



Sources: GAO analysis of DOE information; GAO (icons). | GAO-24-106479

Note: Figure proportions are rounded to whole numbers.

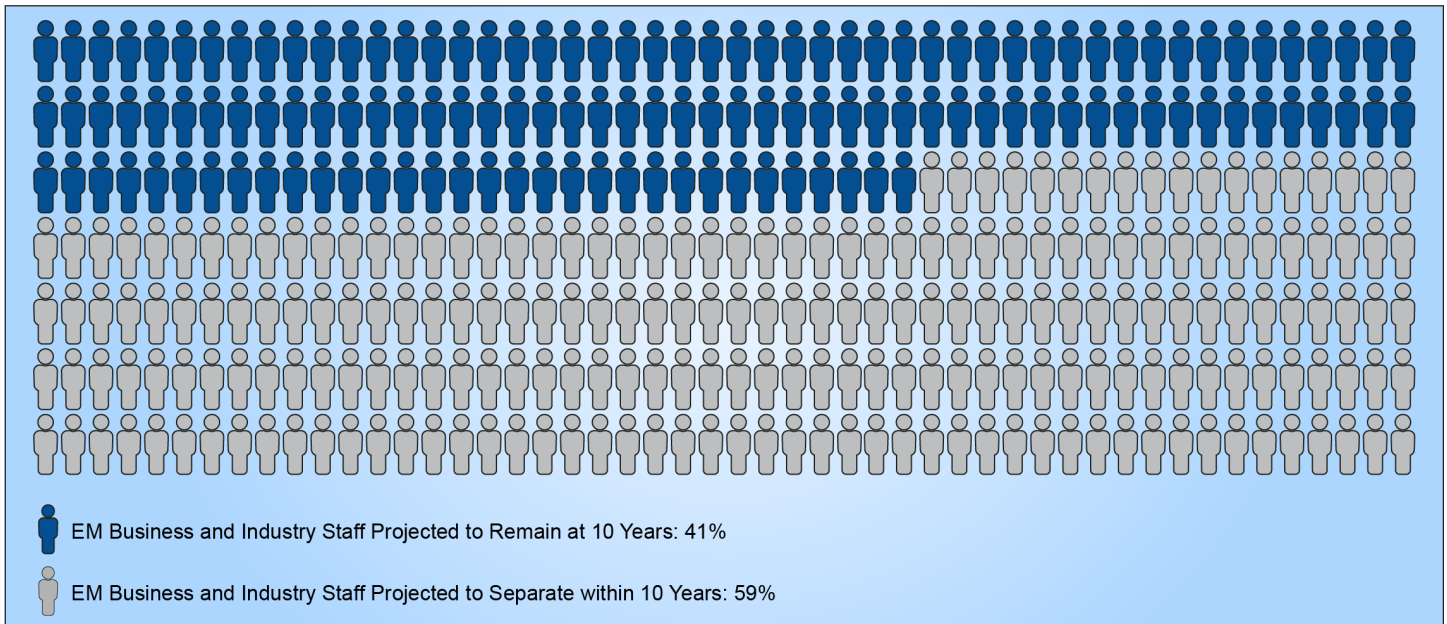
Similarly, the occupation group with contract specialists, business and industry (1100), also has a higher risk of separations relative to other occupation groups at EM. Our analysis shows that the risk models project the median employment duration for occupation group 1100 falls at 8.4 years, compared to non-1100 at 13 years, a statistically significant shorter median survival time. In 10 years, EM is projected to have only 41

⁸⁸Our analysis found that the IT group had the third highest risk score of 26.17 when compared to other occupations groups. The business and industry group which includes contract specialists had the second highest risk score of 31.05 while general administrative occupations had the highest at 41.30. However, general administrative median survival is projected as longer than both the IT and business groups at 15.4 years compared to 5 and 8.35, respectively.

⁸⁹Survival analysis proportions are transformed into counts as an example based on the current staffing levels as of FY 2023, and do not account for potential future hires or unexpected shifts in the economy.

percent (132 staff) remaining for all business and industry related positions (see fig. 13).⁹⁰

Figure 13: Survival Analysis for the Department of Energy’s (DOE) Office of Environmental Management’s (EM) Business and Industry Workforce for Year 10 Projected Staff Proportions



Sources: GAO analysis of DOE information; GAO (icons). | GAO-24-106479

Note: Figure proportions are rounded to whole numbers.

Retention Incentives for GS Staff

EM can typically offer retention incentives to staff in the GS system, but sites have experienced mixed results. Retention incentives can be provided on a yearly basis, according to EM officials. ICP site officials said that nuclear facility representatives at Idaho receive an annual 10 percent retention bonus to help the site keep those critical staff. Site officials at the Hanford Site also stated that an annual 10 percent retention bonus is in place to keep critical facility representatives, but the use of the incentive may conclude once the group is at 80 percent staffing levels for at least 3 years. This is not aligned with future needs, according to EM officials, because it could cause staff to leave as EM fills vacancies.

⁹⁰Survival analysis proportions are transformed into counts as an example based on the current staffing levels as of FY 2023, and do not account for potential future hires or unexpected shifts in the economy.

EM has not provided uniform guidance and training across the complex on how and when to use retention incentives. For example, officials at one site said that they were unsure how to use retention incentives to benefit their site. As described previously, EM officials have also expressed confusion about hiring flexibilities and incentives. By including clear information on the use of retention incentives in its guidance and training on the use of all available flexibilities, benefits, and incentives, EM would have better assurance its sites are more effectively using retention incentives to address high attrition rates.

Alternative or Different Pay Scales

The majority of EM's federal positions are on the GS system and pay scale, but EM has offered alternative pay scales for EK/EJ positions, and considered alternative or different pay scales for certain positions such as contract specialists and positions in remote locations. However, these efforts have not been successful complex-wide in retaining staff or encouraging future retention, as illustrated in the following examples.

- **Excepted service – EK/EJ.** EM has used the EK/EJ alternative pay scale to help with retention but has not used it consistently across its sites or for all critical positions. For example, EM has used EK/EJ for some of its 1301 (physical scientist) and 801 (general engineer) occupational series positions, which are mission-critical occupations and can be used to fill a facility representative position. In FY 2023, to aid retention of facility representatives, for which turnover is high, SRS successfully converted most of them from GS to EK positions with a higher salary to encourage retention. However, West Valley, where high-level waste is solidified and a commercial nuclear fuel reprocessing plant is set to be deactivated and decommissioned, does not use any EK/EJ positions for its facility representatives. Furthermore, Oak Ridge converted some staff to EK positions for retention purposes but does not currently have any federal staff in its criticality safety positions. Those positions are filled by GSSC/TACs instead, which allows for more pay scale flexibility. Oak Ridge also has not been able to use EK positions for facility representatives, because they were not allocated enough EK/EJ positions, which has led to employees leaving for positions with the National Nuclear Security Administration, which is co-located and has higher pay ranges, according to site officials.
- **Contract specialists.** EM's workforce assessments and a 2023 external review recommended an alternative pay band for contract specialists (1102s), but EM has not developed a separate pay scale

for that series, according to EM officials.⁹¹ The external review found that Hanford only had half of the contract specialists it needed, in light of the increasing demands that resulted from EM's implementation of the End State Contracting Model.⁹² This report found that if EM's contract specialist staffing needs were not met, it would not be able to ensure existing and future contracts are properly awarded or managed. In addition, as of March 2024, there is a lawsuit challenging EMCBC's bid review process and decision to award a contract.⁹³

- **Remote locations.** EM's remote locations, such as Carlsbad, are currently designated as "Rest of United States" for determining locality pay. The "Rest of United States" designation provides a lower level of pay than for metropolitan areas.⁹⁴ EM officials said they have attempted to address this pay scale issue at Carlsbad in the past, but could not provide documentation on why that effort had failed.

Remote Work Policy

EM does not have an updated complex-wide policy that clearly communicates the process and criteria for approving remote work. Most sites generally do not, or are not allowed to offer remote work, according to site officials. In contrast, EM headquarters allows remote work in many cases, and EMCBC has a pilot for remote work that is under review.⁹⁵ EMCBC officials said the remote work pilot has proven effective in hiring and retaining staff. Leading practices in retention state that management should develop strategies to address gaps in critical skills and

⁹¹Catawba and Trinity Engineers Associates, Inc., *Acquisition Assessment: Independent Staffing Analysis of EM's Acquisition (1102) and Acquisition Support Workforce* (Aug. 1, 2023).

⁹²EM began switching to the End State Contracting Model in 2019. EM officials and GAO have found that this change would increase the administrative burden for 1102s. GAO, *Nuclear Waste Cleanup: Actions Needed to Determine Whether DOE's New Contracting Approach Is Achieving Desired Results*, [GAO-22-105417](#) (Washington, D.C.: Sept. 28, 2022).

⁹³Sealed Complaint, *Hanford Tank Disposition Alliance, LLC v. United States*, No. 1:24-cv-00440 (Fed. Cl. Mar. 26, 2024).

⁹⁴For example, the difference in starting annual salary of the metropolitan area of Dallas-Fort Worth, TX, in 2023, was about \$8,000 more for GS-13 and \$10,000 more for GS-14 than the "Rest of United States" GS starting annual salary. OPM, 2023 General Schedule Locality Pay Tables (effective January 2023).

⁹⁵This pilot allows approved employees to work within 125 miles of EMCBC's office in Cincinnati, Ohio.

competencies through available workplace flexibilities, which may include remote work.⁹⁶

Other EM sites reported losing staff to EM headquarters due to the greater flexibility for remote work there. Additionally, SRS transferred several FTE positions to EMCBC because the site could not fill vacant contract specialist positions at the site; EMCBC has had more success hiring contract specialists because of its remote work pilot, according to EM officials.⁹⁷ For EM to be able to compete with other agencies and the private sector for contract specialists, EM's 2022 and 2023 internal workforce assessments recommended that EM offer remote work positions for the 1102 occupational series complex-wide.

EM headquarters officials said that the current remote work policy is determined and approved on a case-by-case basis for each position or employee. However, some sites and hiring managers outside of EMCBC and EM headquarters did not understand this process, and criteria for this determination were not clear. For example, officials at one site said that telework and remote work were not available at their location, while officials at another site said that telework was allowed, but not remote work.

Some site managers do not want their sites to have remote options or believe that remote work is not conducive to completing their mission. However, in a few cases, the assigned duty station for staff at EM field sites did not match the work the staff were conducting. For example, the Carlsbad Field Office works closely with the Idaho Cleanup Project Site because most of the waste shipped to Carlsbad's Waste Isolation Pilot Plant is shipped from Idaho. Certain Carlsbad Field Office staff work at Idaho—as well as other sites—about 75 percent of their time, according to officials. However, the Carlsbad Field Office cannot approve transferring staff to other sites where they work more frequently. The Carlsbad City Government has requested that DOE keep as many staff in Carlsbad Field Office as possible. In addition, the Secretary of Energy sent a letter to Carlsbad Field Office asking it to keep staff in Carlsbad. Carlsbad Field Office was able to allow some of these staff to live in

⁹⁶[GAO-22-105932](#).

⁹⁷SRS transferred seven vacant contract specialist FTE positions from the Savannah River Site to EMCBC with the understanding that any staff hired into those positions will assist SRS with contract work in advance of assisting any other EM site. Hanford also transferred an FTE to EMCBC so the staff member could work remotely on Hanford's contract grants, according to EM officials.

Albuquerque—about 4 hours away—so they could be closer to a large airport, but even that change in duty station process was difficult, according to site officials.

EM site officials reported losing candidates, including for mission-critical occupations, because of the lack of an EM-wide approach to remote work. EMCBC officials stated that they would likely lose staff if they were unable to continue their remote work program permanently. According to EMCBC officials, this pilot has been key to hiring and retaining staff, including for staff in mission-critical occupations, as a form of a workforce management strategy. According to EM officials, EMCBC is currently assessing the pilot, which EM headquarters will review in Spring 2024 and make a recommendation on whether to continue it.

According to EM officials, EM has not created an updated complex-wide policy on remote work because it was waiting for DOE to update its remote work policy. However, other DOE offices, such as the Office of Clean Energy Demonstrations, have developed their own policies. DOE recently issued an updated policy in FY 2024 and, according to EM officials, EM is developing related documentation and guidance, but could not provide the related documents. By updating EM's remote work policy, EM would be able to ensure that it follows the latest DOE requirements and consistently applies this workplace flexibility across the complex.

Targeted Retention Efforts for Mission-Critical Occupations

EM has used or considered some of the retention mechanisms described earlier in this report, but it has not implemented them consistently or conducted stay surveys to identify where best to focus its efforts. Leading practices in retention state that management should develop strategies to address gaps in critical skills and competencies through additional workplace flexibilities and determine the appropriate corrective actions to address any identified deficiencies from evaluations, including actions to improve employee morale.⁹⁸ Some EM sites have developed or used retention efforts focused on mission-critical occupations or positions, such as for IT. For example, EMCBC officials said that they have used the DOE Cybersecurity Retention Incentive Program, through which certain cyber professionals are eligible for a 25 percent salary bonus annually after working in federal service for 1 year and in a qualifying position for 6 months.⁹⁹ EMCBC has successfully used this in combination with its

⁹⁸[GAO-22-105932](#).

⁹⁹Of the 17 participants in this incentive program for EM in FY 2023 across its sites, 16 remained with EM through FY 2023.

remote work pilot to retain IT staff. SRS similarly provided retention benefits for cyber professionals. Because the site had a 75 percent vacancy rate for cybersecurity federal staff as of October 2023, SRS also included GSSC/TACs cyber professionals in its retention efforts.¹⁰⁰ EM is projected to experience a higher attrition rate for IT federal staff than for other occupational groups, as discussed above.

Beyond efforts by specific sites, as previously described for retirement and other types of attrition, EM has not targeted retention benefits or efforts to meet staff needs. For example, some sites, such as EMCBC, have successfully used phased retirement, such as for contract specialists. Other sites, such as Hanford and Carlsbad, have not been able to use this type of retention tool because opportunities to use it are difficult to identify early on, although site officials said they were interested in using that retention option. EM officials also said that when people have decided to retire, it is difficult to offer an incentive that would convince them to stay.

Our analyses show that retirement is not the only type of separation EM has faced, and certain locations and groups have a higher rate of separations than others. Overall, we found about 50 percent of EM staff currently onboard are projected to leave between the end of FY 2023 and FY 2035 and in FY2023 about half of all separations were retirements. As previously described, EM has struggled to retain staff because of pay and the inability to offer remote work. In addition, Federal Employee Viewpoint Survey data for FY 2020 and 2022 showed that workload is a major concern for many staff at EM.

However, EM has not targeted retention efforts for work-life balance, according to agency officials. OPM recommended that EM institute human capital management strategies to better balance workload among existing FTE at EM headquarters.¹⁰¹ EM has considered conducting a stay survey for current staff to identify changes EM could make to retain staff, but it has not yet started such a survey, according to officials. Some EM officials explained that they did not see a need to have targeted retention efforts because retirement was the main issue for their office or site. EM documentation reports that implementation and communication

¹⁰⁰In June 2024, EM issued the final request for proposals for a contractor to provide technical support services to various EM sites and offices, which could increase the number of GSSC/TACs working on EM's IT.

¹⁰¹OPM, *Organization and Workload Analysis Findings and Recommendations*.

of a more consistent methodology for using retention incentives may be beneficial in increasing retention levels at EM, but that EM does not deploy complex-wide survey mechanisms to regularly collect feedback from its employees. By conducting a stay survey, EM may better understand staff needs, identify causes of low morale and attrition, and know how to better target its retention efforts and mechanisms to retain staff, especially in critical occupations and locations.

Conclusions

EM faces long-standing challenges with recruiting, hiring, developing, and retaining the staff it needs to accomplish its mission to oversee the cleanup of radioactive and chemical contamination from nuclear weapons production and research across the country. Although EM hired over 300 staff in FY 2023, it still had 263 vacancies and faces the possibility of high attrition from upcoming retirements.

EM has opportunities to learn from and leverage leading practices of other federal agencies that have made progress in addressing persistent workforce capacity challenges. We identified four areas where EM's human capital management efforts do not fully incorporate standards for strategic human capital management, hampering its ability to maintain the staffing levels it needs to achieve its mission. By developing a human capital plan following OPM standards, aligning internal and external strategic documents, and conducting comprehensive succession planning, EM would be better equipped to address severe staffing shortages that threaten its ability to meet its mission.

EM has taken some actions to recruit, hire, develop, and retain personnel, but it has not fully implemented leading practices in these areas that are critical to building a successful workforce. Implementing leading practices to enhance collaboration between EM and the SSC and updating their MOA to address these leading practices would better position EM and the SSC to address EM's long-standing recruitment and hiring challenges. Furthermore, taking actions to use various flexibilities and available tools more consistently for recruiting, hiring, training, and retention, would help EM address high vacancy numbers, heavy workloads, reliance on high numbers of support contractors, and limit the risks of staff in single point of failure positions.

Finally, EM has made limited progress in addressing the dozens of recommendations that DOE, EM itself, OPM, GAO, and others have made since 2019 related to improving its workforce management. Many of these recommendations addressed the same recurring workforce

problems. Annual reporting to Congress on EM's actions to address these recurring problems would help ensure steps are taken to address them.

Matter for Congressional Consideration

To support its ability to conduct oversight, Congress should consider implementing an annual reporting requirement to help ensure EM prioritizes workforce management and addresses recurring workforce problems. Such a requirement could include annual reporting on EM's efforts to implement recommendations and strategies, or additional direction on how EM and DOE should address workforce problems that numerous reports have identified. (Matter 1)

Recommendations for Executive Action

We are making the following 10 recommendations to DOE:

The Senior Advisor for EM should revise EM's workforce planning to align with leading practices, including being forward-looking, clearly documenting human capital performance targets and measures, and developing comprehensive succession plans, while also ensuring that internal and external planning documents align. (Recommendation 1)

The Secretary of Energy should ensure the Office of the Chief Human Capital Officer and EM review and update their MOA to address key collaboration practices including reviewing and updating guidance, use and access of human capital data, and a regular feedback mechanism to identify and address problems continually as service needs change. (Recommendation 2)

The Senior Advisor for EM should ensure that EM provides guidance and training to hiring and resource managers on the use of all available recruitment, hiring, and retention flexibilities, benefits, and incentives. (Recommendation 3)

The Senior Advisor for EM should develop and implement a strategy for a multigenerational pipeline, which includes, where appropriate, reclassifying vacant EM positions to cover a broader range of GS levels and prioritizing the use of intern and fellowship programs that provide authority to convert such staff to permanent appointments. (Recommendation 4)

The Senior Advisor for EM should develop a strategy, based on forward-looking planning, for using EK and EJ positions across the complex, which, depending on its authority, may be used to propose the authorization of additional EK or EJ positions for EM. (Recommendation 5)

The Senior Advisor for EM should work with the DOE Office of the Chief Human Capital Officer to request additional direct hire authorities from OPM to include EM's mission-critical job series, as well as positions where EM encounters a severe shortage of candidates. (Recommendation 6)

The Senior Advisor for EM should ensure that EM (1) establishes a training program for each occupation series and (2) collects training data and assesses training curricula, on a recurring basis, to ensure that training aligns with needed competencies. (Recommendation 7)

The Senior Advisor for EM should ensure that, as EM develops mentoring and knowledge transfer programs, EM improves access to, and develops information repositories to help ensure a standardized knowledge transfer approach. (Recommendation 8)

The Senior Advisor for EM should update and distribute an EM-wide strategy for telework, including remote work that clarifies eligibility and the administrative process for remote work requests. (Recommendation 9)

The Senior Advisor for EM should ensure that EM regularly conducts a stay survey to be proactive in retention. (Recommendation 10)

Agency Comments


We provided a draft of this report to DOE and OPM for review and comment.

In its comments, reproduced in appendix IV, DOE concurred with our recommendations. In its comments, DOE described actions it is taking or planning to take to address these recommendations. DOE also provided technical comments, which we incorporated as appropriate throughout the report.

OPM informed us that they had no comments on the draft report.

We are sending copies of this report to the appropriate congressional committees, the Secretary of Energy, and the Director of OPM. In addition, this report is available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff members have any questions about this report, please contact Nathan Anderson at (202) 512-3841 or andersona@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made significant contributions to the report are listed in appendix V.

A handwritten signature in black ink that reads "Nathan Anderson". The signature is written in a cursive style with a large, prominent initial "N".

Nathan Anderson
Director, Natural Resources and Environment

List of Committees

The Honorable Jack Reed
Chairman
The Honorable Roger Wicker
Ranking Member
Committee on Armed Services
United States Senate

The Honorable Patty Murray
Chair
The Honorable John Kennedy
Ranking Member
Subcommittee on Energy and Water Development
Committee on Appropriations
United States Senate

The Honorable Mike Rogers
Chairman
The Honorable Adam Smith
Ranking Member
Committee on Armed Services
House of Representatives

The Honorable Cathy McMorris Rodgers
Chair
The Honorable Frank Pallone, Jr.
Ranking Member
Committee on Energy and Commerce
House of Representatives

The Honorable Chuck Fleischmann

Chair

The Honorable Marcy Kaptur

Ranking Member

Subcommittee on Energy and Water Development, and Related Agencies

Committee on Appropriations

House of Representatives

The Honorable Jeff Duncan

Chair

The Honorable Diana DeGette

Ranking Member

Subcommittee on Energy, Climate, and Grid Security

Committee on Energy and Commerce

House of Representatives

The Honorable H. Morgan Griffith

Chair

The Honorable Kathy Castor

Ranking Member

Subcommittee on Oversight and Investigations

Committee on Energy and Commerce

House of Representatives

Appendix I: Time Series and Survival Analyses

In this appendix, we describe our methods for analyzing the federal workforce in the Department of Energy's (DOE) Office of Environmental Management (EM) to determine if there were any statistically significant differences in employee group hiring and retention statistics through time series and survival analyses. The survival analysis was also used to determine a ranking of which sites or parts of EM's mission are most at risk due to separation.

Data Sources and Analytic Variables

The analyses used data with variables from DOE's Corporate Human Resources Information System, as examined from the DOEInfo system from fiscal year (FY) 2014 to FY 2023. The DOEInfo system is a data repository which houses data, such as human resources actions, performance actions, employee demographic information, and similar data.

DOE provided two data files to us; one file included any active employees from FY 2014 through FY 2023. The second file included any employees who separated from FY 2014 through FY 2023. For the in-scope employees, there were ultimately 1,272 active EM employees in the data and 1,036 separated EM employees. The data contain a wide variety of employee variables. Most employees had multiple rows in the active employee data file and the duplicates were removed before the analyses were run.

All employee data contained sites at which each employee was assigned a duty station and the data were limited to EM sites. The sites relevant to these analyses included EM headquarters, EM Consolidated Business Center (EMCBC), EM's Los Alamos Field Office (EMLA), Hanford Site, Idaho Cleanup Project Site, Oak Ridge Reservation Site, Portsmouth/Paducah Project Office (PPPO), Savannah River Site, and Carlsbad Field Office (Carlsbad).¹ Analyses were also examined on the EM overall level.

The first task was to perform time series analyses to examine the hiring and separation trends at the sites. The second task was to perform survival analyses to project when employees will leave the agency by site and by occupation series. Of note is the COVID-19 pandemic which led to

¹EMCBC has responsibility for the line management of several small sites and as such was analyzed as one site. PPPO and Hanford are also technically two sites each, but as they are managed by one site manager each, we analyzed them as one site each.

nation-wide adjustments to how employees worked which may impact how these data are interpreted.

Task 1: Time Series Analysis

For the time series analysis, we used the CausalImpact R package which allows us to estimate the impact of an intervention on a time series. We are describing the general trends in the findings.

This package uses the autoregressive moving average process. This process predicts the future value based on past values using lagged moving averages which smooth the time series data. The main assumption in the autoregressive moving average process is that the future resembles the past. Limitations to this may be shown in cases where sites are winding down operations so hiring is reduced, but higher separations are planned.

The basic time series analysis ARIMA formula is as follows:

$$ARIMA(p, d, q): Y_d = c + \sum_{i=1}^p \phi_i Y_{d-i} + \sum_{i=1}^q \theta_i \epsilon_{t-i} + \epsilon_t$$

ARIMA(p, d, q): defines an autoregressive moving average process with a *p* -order autoregressive moving average process, *d* -degree of differencing, and *q* - order moving average process.

Y_d : is the *d* difference of series Y_t

c: represents a constant (or drift)

p: defines the number of lags to regress against Y_t

ϕ_i : is the coefficient of the *i* lag of the series

Y_{d-i} : is the *d* difference of the *i* lag of the series

q: defines the number of past error terms to be used in the equation

θ_i : is the corresponding coefficient of ϵ_{t-i}

$\epsilon_{t-q}, \dots, \epsilon_t$: are white noise error terms

ϵ_t : represents the error term, which is white noise

The data were transformed into time data by retaining one row of data for each employee's unique hire and termination dates. This means that when there was an employee with multiple hire or termination dates, we retained each unique row based on those date variables. In other words,

there were some employee IDs which appropriately appeared in the data multiple times. In the separated employees data file, there were six employees with multiple hire dates and eight employees with multiple separations dates. In the active employees data file, there were 24 employees with multiple hire dates. There were no terminations reflected in the active employees data file.

Counts of the hires per month, separations per month, and total number of employees overall were obtained for each site within the in-scope time frame. The site counts for those three variables were then combined into one file for the analyses. All of the time series analysis models are statistically significant for the larger sites and EM overall. The hiring, separation, and staffing level trends are stable, not random, and the models can be used to make predictions of future hiring, separations, and staffing levels.

Task 2: Survival Analysis

The basic survival analysis formula is as follows:

$$S(t) = P(T > t)$$

S being the survival probability,

P is the probability that

T , the separation event, is after

t , some point in time

The employee data were structured in a way to note separation as the event. A new column called, "status" was created, and all employee rows were identified as "1" for terminated or "0" for still employed, to indicate the data are right censored. Current employees have a status column value of 0, former employees show 1 in that column, and any current employees with prior terminations would show a value of 1 in the status column in the row which contains a termination date. All other rows for those formerly separated employees should show a 0 after they are rehired.

The survival analyses examined two main groups: sites and occupation groups. The data were filtered into new datasets by the sites, and occupation groups. For the site analyses, we examined overall predicted survival durations at the sites, predicted survival durations of combined occupation groups at specific sites, predicted survival durations of pay groups, and predicted survival durations of non-managers compared to possible managers.

Occupation group filters for the occupation survival analysis models included:

- Miscellaneous Occupations Group 0000,
- Social Science, Psychology, and Welfare Group 0100,
- Human Resources Management Group 0200,
- General Administrative, Clerical, and Office Services Group 0300,
- Natural Resources Management and Biological Sciences Group 0400,
- Accounting and Budget Group 0500,
- Medical, Hospital, Dental, and Public Health Group 0600,
- Engineering and Architecture Group 0800,
- Legal and Kindred Group 0900,
- Information and Arts Group 1000,
- Business and Industry Group 1100,
- Physical Sciences Group 1300,
- Mathematical Sciences Group 1500,
- Inspection, Investigation, Enforcement, and Compliance Group 1800,
- Quality Assurance, Inspection, and Grading Group 1900,
- Transportation Group 2100, and
- Information Technology Group 2200.

We created several new variables to examine the different sub-groups found within those main groups. Mission-critical occupations were compared via recoded occupation groups. As much as possible given the occupation groups, an attempt was made to group the occupations in logical groupings by job function.

Potential manager and non-manager sub-groups were separated into two groups using bargaining unit membership as a proxy for management because the data did not explicitly tell us if the employee was in management. The assumption is that not all employees who can have direct reports do and not all employees who are not in the bargaining unit are managers, per U. S. Office of Personnel Management guidance.

The tables below show overall median survival duration and number of staff at risk by site and by occupation group.

Some of the goals of these survival analyses were to determine separation risks at sites, within occupations, and among employee statuses. The overall median DOE employment for all employees in this data was 12.28 years; this may not be the same as the median risk we see in the survival analyses.

We saw statistically significant differences in many of the survival analyses, some targeted findings follow. The scores presented below pertain to risk scores, defined as the measure of how much the observed number of events deviates from what was expected under the assumption of no difference between the groups in the models. The occupation groups with the highest risk were:

- the General Administrative Group 0300 with the highest risk score of 41.30,
- Business and Industry Group 1100 was next with a risk score of 31.05,
- then the IT group 2200 with a risk score of 26.17.

The projected occupation group median staff survival for those three higher risk occupation groups individually were 15.40 years for the General Administrative Group 0300, 8.35 years for the Business and Industry Group 1100, and 5.00 years for the IT Group 2200.

When compared to non-IT employees, the IT occupation group series 2200 employees have a statistically significant shorter median survival time. The risk models project the median employment duration for non-IT employees was 12.5 years. In comparison, the risk models project the median employment duration for IT employees at 5.00 years.

The business occupation group series 1100 employees have a statistically significant shorter median survival time compared to non-Business employees. The risk models project the median employment duration for non-Business employees was 13.01 years. The risk models project the median employment duration for Business employees was 8.35 years.

When compared together in one model, the sites had statistically significant differences in projected staff duration times. The sites with the highest risk were Carlsbad with the highest risk score of 20.48, EMCBC was next with a risk score of 16.13, then EM headquarters with a risk score of 10.31. The projected site median staff survival for those three

Appendix I: Time Series and Survival Analyses

higher risk sites individually were 7.99 years at Carlsbad, 10.25 years at EMCBC, and 14.69 years at EM headquarters.

Table 9: Site Risk and Median Survival for the Department of Energy’s Office of Environmental Management (EM), based on Fiscal Year 2023 Data

Site	Median Survival at Focus Site ^a (years)	Median Survival at All Other Sites ^b (years)	Risk Score ^a
Overall	12.30	—	—
Carlsbad Field Office	7.99	12.60	20.478
EM Consolidated Business Center (EMCBC)	10.25	12.50	16.131
EM headquarters ^c	14.69	11.22	10.310
Oak Ridge Reservation Site	14.58	12.17	7.108
EM’s Los Alamos Field Office (EMLA) ^d	5.88	12.49	6.990
Portsmouth/ Paducah Project Office (PPPO)	9.14	12.36	1.638
Savannah River Site	11.24	12.49	0.600
Hanford Site	12.59	12.21	0.423
Idaho Cleanup Project Site	15.12	12.24	0.004

Legend: Dash — = The overall agency row contains all the sites combined thus there are no sites to compare it to for the “Median Survival Value at All Other Sites” column and there is no relative risk score which could be compared to other sites in the model, thus the two columns do not have values in this row. The dash represents that no comparison value could be obtained.

Source: GAO analysis of Department of Energy data. | GAO-24-106479

^aThe values in this table are rounded. These values were obtained from the survival analysis for all sites compared to one another (i.e., site versus site versus site, etc.; one versus many).

^bThese values were obtained from the survival analysis for the individual sites compared to all others (i.e., site versus non-site; one versus one).

^cDespite having one of the higher median survival times, this site is in the top three highest risk sites, this is likely because of a right skewed distribution of survival times shown by the employees who have stayed for longer than 40 years.

^dEven though EMLA had a shorter staff duration than Carlsbad Field Office, the risk score was lower, most likely because the number of staff are smaller, giving more weight to the separations, we notice a similar phenomenon when look at PPPO compared to EMCBC.

Appendix I: Time Series and Survival Analyses

Table 10: Occupation Group Risk and Median Survival for the Department of Energy’s Office of Environmental Management (EM), Based on Fiscal Year 2023 Data

Occupation Group ^a	Median Survival for Occupation Group ^b in years (Confidence Intervals)	Risk Score ^b
Overall	12.30	-
General Administrative 0300 ^c	15.40 (15.00, 16.73)	41.302
Business and Industry 1100	8.35 (6.72, 9.18)	31.049
Information Technology 2200	5.00 (2.43, 8.60)	26.167
Quality Assurance, Inspection and Grading 1900	4.89 (2.89, 8.30)	19.038
Accounting and Budget 0500	8.62 (7.72, 9.52)	15.112
Information and Arts1000	5.86 (2.72, 15.29)	6.831
Engineering and Architecture 0800	13.88 (12.40, 14.81)	4.648
Transportation 2100	10.02 (8.87, 37.50)	1.994
Legal 0900	8.26 (6.72, 13.98)	2.474
Medical, Hospital Public Health 0600	5.61 (2.43, 18.79)	2.082
Inspection, Investigation, Compliance 1800 ^d	2.89	1.718
Supply Group 2000 ^d	33.39	1.367
Natural Resources Management 0400 ^d	22.96	0.672
Social Science, Psychology and Welfare 0100 ^d	7.66	0.382
Mathematics 1500 ^d	22.34	0.329
Physical Sciences 1300	13.79 (9.32, 15.35)	0.063
Miscellaneous 0000	9.63 (7.87, 14.07)	0.012
Human Resources 0200	14.25 (12.24, 17.95)	0.001

Legend: Dash — = The overall row contains all the occupation groups combined thus there is no relative risk score which could be compared to other groups in the model. The dash represents that no comparison value could be obtained.

Source: GAO analysis of Department of Energy data. | GAO-24-106479

^aThe values in this table are rounded.

Appendix I: Time Series and Survival Analyses

^bThese values were obtained from the survival analysis for all occupation groups compared to one another (i.e., occ group versus occ group versus occ group, etc.; one versus many).

^cDespite having one of the higher median survival times, this occupation group is in the top three highest risks, this is likely because of a right skewed distribution of survival times shown by the employees who have stayed for longer than 40 years.

^dThere were not enough cases in these occupation groups to obtain confidence intervals for the median survival years.

Appendix II: Objectives, Scope, and Methodology

Our review examines (1) whether the Office of Environmental Management's (EM) federal staff levels align with identified needs to meet EM's mission; (2) the extent to which EM conducts workforce planning; and (3) the extent to which EM is taking actions to recruit, hire, develop, and retain personnel with the necessary skills to meet its mission.

To address our first objective, we examined data and documentation on EM's federal staff levels and identified needs. We reviewed documents from headquarters and field sites related to assessed staffing needs and missions. We examined data from the human capital information repository for the Department of Energy (DOE), called DOEInfo, which is its official repository for personnel records. This effort focused on gathering information on all federal employees, but not on contractor employees who work for EM. We examined data from DOEInfo from October 1, 2013, to October 7, 2023, (fiscal years 2014–2023) for a variety of data elements related to human capital management.¹ DOE provided this information in two separate data files, one for separations and one for active employees. In addition to these 10 years of data, we also obtained data on vacancies at the end of FY 2023 from DOEInfo and hiring data for FY 2023 from USA Staffing to compare to hiring counts in DOEInfo.

The datasets were used to calculate descriptive statistics about EM's workforce in FY 2023, to run time series analyses to examine the hiring and separation trends at EM's sites, and for survival analyses to project when employees will leave EM by site and by occupation series. For each of the datasets used in our analyses, we reviewed documentation, interviewed and corresponded with officials responsible for the data, tested for outliers and missing data or variables, and cleaned the data as

¹The variables gathered included employee id, employment status, nature of action codes effective date, last action date, nature of action code, last nature of action code, nature of action code descriptions, last nature of action code description, pay plan code, grade or level, step or rate, type of appointment code, occupational series code, position title classification, last promotion date, basic pay salary, veterans preference code, handicap code, gender, minority code, highest education level code, performance ratings, tenure group description, work schedule code, position sensitivity code, position bargaining unit, location code, duty station city name, duty station code, duty station state abbreviation, course completes, position control number, age decimal, federal service time decimal, federal start date, entry on duty date, projected retirement date, employee organization code, employee organization title, organization 1st tier title, DOE element code, separation date, separation remark, and processed year pay period.

necessary.² We determined that these data were sufficiently reliable for the purposes of describing and analyzing EM's workforce composition and projected workforce in the future.

We also requested data on EM's use of general support service contractors and technical assistance contractors (GSSC/TACs) from fiscal years 2019 through 2023. While some EM sites did track information on how many GSSC/TAC worked at their site and how much EM was spending on these contractors, not all EM sites and offices could provide full-time equivalents or spending information for GSSC/TACs. We determined that while the information provided was incomplete, it was sufficient to demonstrate GSSC/TACs reliance at a minimum level.

In support of all the objectives, we held semi-structured interviews with officials from EM headquarters and each of the EM sites where EM has federal staff.³ These included the Office of Field Operations and the Office of Corporate Services, EM Consolidated Business Center, Carlsbad Field Office, Energy Technology Engineering Center Site, Hanford Site, Idaho Cleanup Project Site, Lawrence Berkeley/Livermore National Laboratories, EM's Los Alamos Field Office, Moab Uranium Mill Tailings Remedial Action Project Site, Nevada National Security Site, Oak Ridge Reservation Site, Portsmouth/Paducah Project Office, Savannah River Site, and the West Valley Demonstration Project Site. We also interviewed officials from DOE's Office of the Chief Human Capital Officer, DOE's Office of Enterprise Assessments, and the U.S. Office of Personnel Management (OPM). We interviewed representatives from the Environmental Management Advisory Board and the Consortium for Risk Evaluation with Stakeholder Participation. During these discussions, we asked officials and representatives for details about EM's workforce including challenges, best practices, and ongoing programs, among other things.

To address our second objective, we identified and compared EM's workforce planning efforts to strategic human capital management standards and analyzed assessments done on EM's workforce management. First, we reviewed EM documentation and interviews with

²For instance, with the DOEInfo data on active employees, we removed employees that were making less than \$10,000, because they were not full-time equivalent employees, but rather hired for a limited time or for a limited purpose.

³There are no EM federal staff located at Sandia National Laboratories or at Bettis Atomic Power Laboratory. According to officials, EM federal staff from other sites travel to those locations as needed.

DOE and EM officials involved with EM's workforce planning to identify EM's workforce planning efforts. Examples of documents we reviewed include strategic plans, program plans, mission and priority documents, budget justification documentation, annual staffing plans, and succession planning documentation. Examples of DOE and EM officials involved with EM's workforce planning we interviewed include staff that contribute to workforce planning at DOE, EM headquarters, and EM field sites including staff at DOE's Shared Service Center, Office of Corporate Services, Office of Workforce Management, EM-Consolidated Business Center, and all EM field sites that have EM staff.

Second, we compared EM's workforce planning efforts to selected strategic human capital management standards. We selected standards based on the relevance of those practices to EM challenges. For example, EM's workforce planning significantly changed after DOE centralized human capital efforts by removing certain forward-looking elements from EM's workforce planning, and by moving many officials previously involved in EM workforce planning to positions outside of EM, such as in DOE's Shared Service Center.⁴ We focused on the EM efforts to address the challenges that came with these changes in workforce planning.

We selected three standards from OPM's Human Capital Framework and one from OPM's Federal Workforce Priorities Report, all of which are based in 5 C.F.R. Part 250. OPM's Human Capital Framework directs agencies to (1) plan for and manage current and future workforce needs, including working to close skills gaps;⁵ (2) align human capital management strategies to support the agency strategic plan and budget plans;⁶ and (3) ensure human capital management strategies contain measurable targets.⁷ The OPM Federal Workforce Priorities Report from

⁴Federal guidance emphasizes the importance of forward-thinking planning and aligning the workforce with agency workload. However, EM completed its most recent forward-looking workforce planning and analyses in 2019, prior to implementing two initiatives that have significantly impacted EM's workload and workforce. First, EM implemented the End State Contract Model and issued its first contract under this model in December 2019. In 2021, the National Academies of Sciences, Engineering, and Medicine reported that EM's planned implementation of this model could increase the management and oversight burden for EM. Second, EM finalized its Program Management Protocol in 2020, but implementation has been slow because of workforce challenges, according to EM officials.

⁵5 C.F.R. § 250.203(b)(1)-(3).

⁶5 C.F.R. §§ 250.203(a)(1), 250.204(a)(1).

⁷5 C.F.R. § 250.203(a)(2).

2022 identified the standard that agencies should maintain a multi-faceted succession plan.⁸ We evaluated the extent to which EM implemented each standard, based on evidence EM provided, and how such efforts compared to these standards. For each selected standard, one analyst provided sufficient justification for the extent to which the effort followed the standard and a second analyst reviewed each, and either provided concurrence or discussed with the first analyst how differences could be resolved to ensure accuracy from both analyses.

Finally, we conducted a content analysis of 19 assessments done on EM's workforce from 2019 through 2023 to identify recommendations and suggested strategies made to EM on how to improve its workforce planning and management. We determined how many had been addressed, not addressed, or partially addressed by EM. We identified these assessments through internet searches of key terms, and targeted searches on websites of organizations involved in the management and oversight of EM. We also we asked officials in interviews with EM, OPM, and DOE, and other experts to identify and provide assessments conducted on EM's workforce. In addition, to ensure we did not miss any relevant assessments, we conducted a literature search for reports and journal articles relevant to EM workforce planning and management. The literature search did not identify any additional sources of information.

We initially identified some assessments that were not ultimately included in our analysis because their scope was too narrow; for example, they focused on only a small subset of EM's workforce or were site-specific. The organizations with relevant workforce assessments included in our analysis are from the Defense Nuclear Facilities Safety Board; EM; the EM Advisory Board; GAO; the National Academies of Sciences, Engineering and Medicine; the National Academy of Public Administration; and OPM. Given time and resource constraints, we did not evaluate each individual recommendation contained in the assessments. However, we did assess the overall quality of the reports and their approaches and using professional judgment determined that they were sufficiently methodologically sound for the purposes of our analysis and report.

To determine how many of the recommendations or strategies had been addressed by EM, team members conducted an independent analysis of

⁸⁵ C.F.R. § 250.204(a)(1); OPM, 2022 Federal Workforce Priorities Report (Washington, D.C.: 2022).

the recommendations and strategies included in the assessments to identify those recommendations and strategies most relevant to our objectives. Two team members then discussed those identified by each and came to concurrence on which to include in the analysis. The team determined that some recommendations or strategies were duplicative, so combined them into single follow-up questions to EM on whether they had been addressed.

We sent follow-up questions to EM on the status of its efforts for recommendations or strategies made in 11 reports. For the additional eight assessments included in our analysis, five of those were GAO reports, which we confirmed whether the recommendations or strategies had been addressed through routine recommendation follow-up done by GAO. The recommendations and strategies in the other three documents were not included in follow-up questions to EM, because they were duplicative with other questions that were sent to EM on how, if at all, they had addressed the recommendations or strategies. After receiving responses and supporting documentation from EM officials, team members reviewed the information independently and then decided together on whether the recommendations and strategies had been:

- **addressed**—action was taken, or determination made to not take action;
- **partially addressed**⁹—some aspect of the recommendation or strategy was addressed, but not consistently, comprehensively, or completely; or
- **not addressed**—no evidence of related action was found or provided.

In total, the analysis encompassed 77 recommendations and strategies made in 19 reports.

To address our third objective, we relied on time series and survival analyses¹⁰, documentation reviews and interviews with DOE and EM offices and sites as described above to gather information on EM's efforts to recruit, hire, develop, and retain federal staff. We conducted two sites visits to EM sites with more than 100 staff to speak with each suboffice and with hiring managers about these topics. In July 2023, we visited and

⁹Some recommendations or suggested strategies have multiple parts or multiple steps. If EM only took action on part of a recommendation or suggested strategy, but did not take action on the other part, we determined that one was partially addressed.

¹⁰For more information on these data analyses see appendix I.

spoke with officials in Cincinnati, Ohio at the EM Consolidated Business Center. In August 2023, we visited and spoke with officials in Richland, Washington at the Hanford Site. We also toured the Hanford Site to observe progress and distances between active cleanup projects. We also obtained other pertinent information, such as information on EM's internship programs through documentation and interviews with EM sites and with EM's Office of Workforce Management and Office of Technology Development.

We found that collaboration between DOE and EM is critical for hiring and strategic planning and therefore reviewed the extent to which EM and DOE incorporated the eight GAO leading practices on collaboration, most recently discussed in [GAO-23-105520](#), which validates and updates GAO's 2012 leading interagency collaboration practices.¹¹ These practices are:

1. Define common outcomes,
2. Ensure accountability,
3. Bridge organizational cultures,
4. Identify and sustain leadership,
5. Clarify roles and responsibilities,
6. Include relevant participants,
7. Leverage resources and information, and
8. Develop and update written guidance and agreements.

We also considered the importance of internal communication and collaboration such as in GAO leading practices for effective strategic workforce planning, [GAO-04-39](#) and *Standards for Internal Control in the Federal Government*, [GAO-14-704G](#). We collected and compared EM and DOE efforts in each of these categories to recruit and hire staff for EM by reviewing documentation, data, and interviewing officials as described above.

To assess staff development efforts, we compared EM documentation and testimonial evidence on training, mentoring, and knowledge transfer against leading practices in staff development, recently discussed in

¹¹GAO, *Government Performance Management: Leading Practices to Enhance Interagency Collaboration and Address Crosscutting Challenges*, [GAO-23-105520](#) (Washington, D.C.: May 24, 2023).

[GAO-18-217](#) as having four areas.¹² We assessed actions EM has taken on developing staff in the four areas of staff development:

1. Training,
2. Mentoring,
3. Retaining, and
4. Selecting managers for program needs.

We did this by reviewing related agency documentation and interviewing different EM sites and offices on this topic. For example, we gathered and reviewed agency documentation on training, mentoring, and performance management efforts. Due to the hiring surge EM experienced in FY 2023, we focused our efforts on the first three areas of staff development as EM indicated that training and mentoring would be high priorities in FY 2024 and retention is the third phase of the staff development areas.

In reviewing retention efforts, we conducted survival analyses using DOEInfo data to project when employees will leave EM. These analyses were also used to determine a ranking of which sites or parts of EM's mission are most at risk due to separations. We used the survival analyses to help determine the risk in EM's workforce that EM could better address or model in other locations/situations as well as to determine at what level(s) of experience EM is losing staff at each site and in each mission-critical occupational group.¹³

To assess retention efforts, we obtained and reviewed agency documentation on retention programs and efforts, such as information on student loan repayment, and moving and relocation expenses programs. We also reviewed documentation from the Federal Employee Viewpoint Survey about EM staff's satisfaction with working at EM, especially questions about job workload and expectations. We compared these documented efforts and testimonial evidence from interview with officials across the EM complex to leading practices in retention, most recently

¹²Leading practices in staff development encompass many aspects such as training and knowledge transfer. See GAO, *Defense Acquisition Workforce: Opportunities Exist to Improve Practices for Developing Program Managers*, [GAO-18-217](#) (Washington, D.C.: Feb. 15, 2018); *Program Management: DOE Needs to Develop a Comprehensive Policy and Training Program*, [GAO-17-51](#) (Washington, D.C.: Nov. 21, 2016); *Human Capital: A Guide for Assessing Strategic Training and Development Efforts in the Federal Government*, [GAO-04-546G](#) (Washington, D.C.: Mar. 1, 2004); and [GAO-14-704G](#).

¹³See appendix I for more information on these analyses.

discussed in [GAO-22-105932](#), such as ensuring employee morale and tailoring benefits and incentives to employees' needs.¹⁴

We conducted this performance audit from January 2023 to July 2024, in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

¹⁴GAO, *State Department: Additional Actions Needed to Address IT Workforce Challenges*, [GAO-22-105932](#) (Washington, D.C.: July 12, 2022).

Appendix III: Site Workforce Status End of Fiscal Year 2023

The following summaries describe the workforce situation, such as full-time equivalent (FTE) staff, at each of the Department of Energy (DOE) Office of Environmental Management (EM) sites as of the end of fiscal year (FY) 2023. These summaries are based on our review of EM documentation and data, and interviews with agency officials.



Carlsbad Field Office (Carlsbad) Office of Environmental Management Carlsbad, New Mexico

The Waste Isolation Pilot Plant, managed by the Carlsbad Field Office, is the nation's only deep geologic repository for transuranic waste. Waste is disposed of in a set of panels located nearly one-half mile below the surface in a salt bed formed 250 million years ago. As of January 2024, the Waste Isolation Pilot Plant had received over 13,000 shipments.

Source: Department of Energy. | GAO-24-106479

Mission-Critical Occupations

By FY 2026, 4 of 8 general engineers will be eligible to retire

By FY 2030, 1 of the 2 contract specialists will be eligible to retire

Carlsbad staffing

In FY 2023:

- 48 total EM staff
- FTE cap of 65 staff
- Attrition rate was 13.6 percent

By FY 2030:

- 29 staff will be eligible to retire

From FY 2013 through 2023:

- 59 staff had voluntarily left
- 61 staff had been hired

Workforce management best practice and challenge examples

Qualifications: According to officials, Carlsbad recently lost a key staff member in the federal project director role. To fill the gap, a federal project director from a different site was put on a detail at Carlsbad so that new capital building projects would not be delayed. Becoming a federal project director takes substantial training across four levels. The first two levels may take 1–4 years to earn, and the latter two levels may take 5–10 years. Across DOE there is a lack of federal project directors at the higher levels.

Retention: Carlsbad reported losing staff for several reasons, including high cost of living, isolated location, hot desert environment, and high paying jobs outside of DOE.

Recruitment and retention: According to officials, competition for staff among DOE sites and across the private-government line makes attracting and retaining staff difficult. For example, Carlsbad recently hired a facility representative, who, after receiving training, was able to find a higher paying job in an area with available childcare. Many childcare places shut down during the COVID-19 pandemic. There are only one or two facilities for childcare, and there is a high demand in the Carlsbad community.

Recruitment: According to EM officials, Carlsbad is struggling to hire new staff. Carlsbad loses 20 percent of its staff a year, which creates gaps that are covered by support service contractors.

Detailees: Carlsbad uses the detail process (temporary reassignment) to help bring additional staff onboard. Carlsbad is working to extend the duration allowed for these staff.

Carlsbad Site Staff Eligible to Retire by Fiscal Year (FY)

By FY 2025	25%
By FY 2026	38%
By FY 2027	44%
By FY 2030	60%

Source: GAO analysis of Department of Energy information. | GAO-24-106479



EM Consolidated Business Center (EMCBC) Office of Environmental Management Cincinnati, Ohio

EMCBC is located in downtown Cincinnati, Ohio and was established on June 24, 2004. The EMCBC provides contracting, diversity management, financial and project management, human resources, information resources management, logistics, legal, public affairs, and technical support for its line managed EM sites. In addition, EMCBC provides various support services to other EM sites on an as needed and requested basis.

Source: Department of Energy. | GAO-24-106479

Mission-Critical Occupations

By FY 2025:

8 of 16 management and program analysis positions will be eligible to retire

6 of 14 program managers will be eligible to retire

By FY 2030:

11 of the 25 physical scientists will be eligible to retire

14 of the 58 contract specialists will be eligible to retire

EMCBC staffing

In FY 2023:

- 175 total EM staff
- FTE cap of 203 staff
- 35 new staff were hired
- Attrition rate was 7.6 percent

By FY 2030:

- 67 staff will be eligible to retire

From FY 2013 through 2023:

- 134 staff had been hired

Workforce management best practice and challenge examples

Remote work: EMCBC staff are concerned about the number of staff that may leave if the ongoing remote work pilot ends. In addition, the lack of clarity over the continuation of the program has complicated the hiring process.

Knowledge transfer: EMCBC staff stated that, as part of updating their staffing plan, they identified three issues: (1) the increased time for new staff to learn about their roles and responsibilities, (2) the need for additional knowledge transfer and documentation, and (3) the need for double encumbering to learn about the full nature of some complex positions.

Hiring authorities: Officials said EMCBC competes with other federal entities, such as the Army, Navy, and National Nuclear Security Administration for contract specialists. These other entities have special direct hiring authorities that increase the speed and ease in hiring. EMCBC lacks specialized authorities and has substantial hiring process timeframes.

Hiring: While double encumbering is a useful tool, it is complicated by the long time it takes to hire, which can be 8 to 9 months.

Consolidated Business Center Staff Eligible to Retire by Fiscal Year (FY)

By FY 2025	23%
By FY 2026	29%
By FY 2027	30%
By FY 2030	38%

Source: GAO analysis of Department of Energy information. | GAO-24-106479



EMCBC Managed Sites Office of Environmental Management Various Locations

EMCBC assists in the operation of seven cleanup sites across the country. These efforts vary in mission and purpose and can have multiple locations for one site. EMCBC staff expect an increase in work across these sites over the next five years that will then decrease over time. For example, Moab is planning on closing within the FY 2029 timeframe.

Source: Department of Energy. | GAO-24-106479

EMCBC managed sites

EMCBC oversees:

- Sandia National Laboratories
- Environmental Management Consolidated Business Center New York Office (EMCBC-New York)
- EM Nevada at the Nevada National Security Site
- Lawrence Berkeley National Laboratory and Lawrence Livermore National Laboratory
- Energy Technology Engineering Center Site
- Moab Uranium Mill Tailing Remedial Action Project Site (Moab)
- West Valley Demonstration Project Site (West Valley)

EMCBC managed sites staffing

In FY 2023:

- 39 total EM staff
- West Valley was the largest site with 15 total EM staff
- Energy Technology Engineering Center and Lawrence Berkeley/Livermore National Laboratories were the smallest with 2 total EM staff each
- 11 staff were hired
- Attrition rate was 7.6 percent

By FY 2030:

- 18 of these staff will be eligible to retire

From FY 2013 through 2023:

- 26 staff were hired

Workforce management best practice and challenge examples

Workload/understaffing: EMCBC-New York staff stated that increasing workloads and staffing shortages have increased the use of general support contractors, lowered the quality of some reviews, and increased burnout risk.

Knowledge transfer: While EM's Nevada program staff noted that there is enough knowledge and training for the long-term continuation of the mission, one area of concern is that three or four staff may be retiring in the next 5–7 years in a single area of work.

Single point of failure: Energy Technology Engineering Center staff expressed concern about the single point of failure positions at their site with only two staff.

Recruitment: EM had two federal staff at the Livermore and Berkeley sites in FY 2023. Staff at these sites stated that recruitment is hard due to the high cost of living and competitive salaries outside EM.

Retention: Officials stated that Moab is highly remote, with limited housing, and high living costs.

Workload: West Valley staff stated that they expect an increase of work due to a new contract. West Valley has lost staff to expected retirements and unexpected transfers to other agency offices or contractors.

Small Office of Environmental Management Sites Staff Eligible to Retire by Fiscal Year (FY)

By FY 2025	26%
By FY 2026	31%
By FY 2027	33%
By FY 2030	46%

Source: GAO analysis of Department of Energy information. | GAO-24-106479



Hanford Site Office of Environmental Management Richland, Washington

The Hanford Site, a 580-square-mile section of semi-arid desert in southeast Washington, was established in 1943 as part of the Manhattan Project to produce plutonium. Cleanup of the Hanford Site is managed by two offices, the Richland Operations Office and the Office of River Protection, although there are plans to merge the two in 2025.

Source: Department of Energy. | GAO-24-106479

Mission-Critical Occupations

By FY 2025:

12 of 66 general engineers will be eligible to retire

7 of 12 nuclear engineers will be eligible to retire

3 of the 31 contract specialists will be eligible to retire

Hanford staffing

In FY 2023:

- 314 total EM staff
- FTE cap of 385 staff
- Attrition rate was 12.7 percent

By FY 2030:

- 124 staff will be eligible to retire

From FY 2013 through 2023:

- 292 staff had voluntarily left
- 253 staff had been hired

Workforce management best practice and challenge examples

Coordination: The Position Management Council, which includes all assistant manager level staff, discusses succession planning and votes on any changes to band level for positions. Hanford officials said they are in constant contact with the Department of Energy's Shared Service Center.

Training: Hanford officials said that the DOE training, such as the National Training Center, and outside training from nearby universities, has helped their staff.

Recruitment: According to officials, Hanford is located in a remote location and lacks amenities that may make it appealing to some potential staff. In addition, the lack of remote work may remove some applicants from the job pool.

Hiring authority: Officials said they would like to have direct hiring authorities for nuclear engineers. In a few cases there have been four selection rounds for nuclear engineers, due to declinations. This means that the hiring process must restart each time since there is no continuous direct hire announcement for the nuclear engineers.

Coordination: Hanford officials are trying to develop more career pathways in lower levels to aid in succession planning.

Knowledge transfer: When Hanford managers hear that someone will retire, Hanford officials said they will double encumber the position 6 months to a year in advance.

Hanford Site Staff Eligible to Retire by Fiscal Year (FY)

By FY 2025	23%
By FY 2026	27%
By FY 2027	29%
By FY 2030	39%

Source: GAO analysis of Department of Energy information. | GAO-24-106479



Idaho Cleanup Project Site (ICP) Office of Environmental Management Idaho Falls, Idaho

The ICP is in southeast Idaho. EM's remaining scope at ICP includes soil and groundwater remediation; completion of deactivation and decommissioning activities; and retrieval, management, and disposal of transuranic waste, among other things.

Source: Department of Energy. | GAO-24-106479

Mission-Critical Occupations

By FY 2025, 3 of 16 general engineers will be eligible to retire

By FY 2030, 4 of the 9 physical scientists will be eligible to retire

Workforce management best practice and challenge examples

Hiring: According to ICP staff, ICP would like to hire staff prior to another staff member retiring. ICP is allowed to double encumber these positions, but it carries significant risk. It takes so long to hire new staff, and typically ICP does not have enough warning from a retiring staff member to complete the hiring process in time.

Single point of failure: Managers at ICP expressed concerns about burnout for certain single point of failure positions at the site. These individuals may be denied vacation.

Understaffed/workload: ICP staff stated that with more than ten open positions, many other staff have had to informally and formally fill the open needs left from those vacancies.

Recruitment: ICP staff reported that its location is a barrier to hiring, due to the isolated location and long, snowy winters at the site. Also, ICP faces competition from fully remote positions at other EM sites and EM headquarters, as being on site is important to the work. ICP has recently lost several staff to EM headquarters due to the fully remote positions and higher pay grade.

ICP staffing

In FY 2023:

- 43 total EM staff
- FTE cap of 51 staff
- Attrition rate was 5.1 percent

By FY 2030:

- 15 staff will be eligible to retire

From FY 2013 through 2023:

- 37 staff had voluntarily left
- 33 staff had been hired

Idaho Cleanup Project Site Staff Eligible to Retire by Fiscal Year (FY)

By FY 2025	16%
By FY 2026	16%
By FY 2027	23%
By FY 2030	35%

Source: GAO analysis of Department of Energy information. | GAO-24-106479



Los Alamos National Laboratory Environmental Management's Los Alamos Field Office (EMLA) Los Alamos, New Mexico

EMLA is dedicated to the cleanup resulting from operations during the Manhattan Project and Cold War eras at the Los Alamos National Laboratory. EMLA's cleanup scope includes legacy waste remediation and disposition, soil and groundwater remediation, and deactivation and decommissioning of excess buildings and facilities.

Source: Department of Energy. | GAO-24-106479

Mission-Critical Occupations

In FY 2023, of EMLA's four facility representative positions, two were vacant, and one staff member was only partially trained.

In FY 2023, 13 vacancies were mission-critical occupations and the site manager announced plans to leave in FY 2024.

EMLA staffing

In FY 2023:

- 27 total staff
- FTE cap of 39 staff
- Attrition rate was 16.7 percent

By FY 2030:

- 13 staff will be eligible to retire

From FY 2013 through 2023:

- 23 staff had voluntarily left
- 35 staff had been hired

Workforce management best practice and challenge examples

Workload: EMLA staff reported that current workload is high due to vacancies at the site. EMLA's 2021 survey noted high workload as a concern. EMLA stated that additional hiring and use of general support contractors has allowed them to meet mission needs.

Hiring: According to EMLA staff, after a candidate signs a tentative offer, they go through security and suitability reviews, which requires Department of Justice coordination and clearance reviews. This phase once occurred in 2 days, but it has also taken 9–10 months. When reviews take that long, candidates leave and that is a huge hurdle.

Incentives: According to officials, filling out the paperwork for incentives early in the process before a candidate is selected can improve the hiring time frames on the back end.

Recruitment: EMLA staff stated that its location can be a recruitment hurdle—housing is scarce and there is little shopping available around the site. The remote location combined with competition within the agency and with contractors means there is a very low candidate pool for any type of vacancy.

Environmental Management's Los Alamos Field Office Staff Eligible to Retire by Fiscal Year (FY)

By FY 2025	11%
By FY 2026	22%
By FY 2027	30%
By FY 2030	48%

Source: GAO analysis of Department of Energy information. | GAO-24-106479



Oak Ridge Reservation Site Office of Environmental Management Oak Ridge, Tennessee

The Oak Ridge Reservation Site, located in eastern Tennessee, is one of the three original sites in the Manhattan Project. The site purified isotopes, conducted advanced research, manufactured weapons components, and enriched uranium. The cleanup mission is to remove environmental legacies resulting from more than 60 years of nuclear weapons development and government-sponsored nuclear energy research.

Source: Department of Energy. | GAO-24-106479

Mission-Critical Occupations

By FY 2025, 11 of 31 general engineers will be eligible to retire

By FY 2030, 8 of the 17 physical scientists will be eligible to retire

Oak Ridge staffing

In FY 2023:

- 74 total EM staff
- FTE cap of 81 staff
- Attrition rate was 7.1 percent
- Between 40-50 general support contractors

By FY 2030:

- 34 staff will be eligible to retire

From FY 2013 through 2023:

- 42 staff had voluntarily left
- 47 staff had been hired

Workforce management best practice and challenge examples

Resources: After some of the human capital functions were centralized, Oak Ridge still had to complete some human capital functions, such as training and performance management. However, officials said they had lost the human capital staff that had once completed this work.

Understaffed: According to Oak Ridge staff, the site currently has 13 facility representatives, 11 of which are currently qualified. A recent survey of the site's needs said the site needed between 30–36 facility representatives. The highest number of facility representatives the site has ever had is 18. There are currently three or four support service contractors assisting this work.

Hiring and retention: According to officials, contracting officer and facility representative roles are difficult to hire and retain. Once a staff member is trained and certified, they can easily be recruited by the co-located National Nuclear Security Administration (NNSA). For example, the site has recently lost facility representatives, federal project managers, and an industrial hygienist to NNSA.

Knowledge transfer: Officials said the long hiring times mean that even when you know when someone is retiring, it is unclear if you will have the new staff there long enough to learn the role.

Oak Ridge Reservation Site Staff Eligible to Retire by Fiscal Year (FY)

By FY 2025	30%
By FY 2026	36%
By FY 2027	36%
By FY 2030	46%

Source: GAO analysis of Department of Energy information. | GAO-24-106479



Portsmouth/Paducah Project Office (PPPO)

Office of Environmental Management

Piketon, Ohio, & Paducah and Lexington, Kentucky

PPPO manages cleanup efforts at two gaseous diffusion plant sites – Portsmouth, Ohio, and Paducah, Kentucky. The office provides consolidated management and services including project, risk, and contract management, and other business support services to each site.

Source: Department of Energy. | GAO-24-106479

Mission-Critical Occupations

By FY 2025:

4 of 9 general engineers will be eligible to retire

1 of 2 program managers will be eligible to retire

By FY 2030:

4 of the 14 physical scientists will be eligible to retire

6 of the 11 contract specialists will be eligible to retire

PPPO staffing

In FY 2023:

- 54 total EM staff
- FTE cap of 58 staff
- Attrition rate was 7.7 percent
- 174 technical support contractors

By FY 2030:

- 27 staff will be eligible to retire

From FY 2013 through 2023:

- 26 staff had voluntarily left
- 39 staff had been hired

Workforce management best practice and challenge examples

Succession planning: PPPO officials said they are trying to develop more career pathways in lower General Schedule (GS) levels. For instance, when a GS-13 leaves, PPPO plans to evaluate whether the GS level is appropriate.

Workloads: According to PPPO staff, there are many positions at PPPO that are only one staff deep and have been for many years. The Federal Employee Viewpoint Survey results show that heavy workloads weigh on staff.

Recruitment: According to PPPO staff, PPPO has had a lot of success with word-of-mouth recruiting. PPPO reaches out to local colleges, military bases, promotes information online, and attends job fairs.

Interns: According to PPPO staff, internship viability decreased during the COVID-19 pandemic because there was not enough office support to have a successful internship program. Now, the mentors are back in the office and PPPO wants to bring interns back as well.

Hiring: The added flexibility in the hiring process of excepted service hiring authority (EK/EJ), including for pay, has increased the speed of the hiring process, according to officials.

Position conversion: PPPO has a staffing plan that is regularly updated. This helped the site to hire new staff by converting GS positions to EK positions outside of the regular annual staffing plan update.

Portsmouth and Paducah Sites Staff Eligible to Retire by Fiscal Year (FY)

By FY 2025	24%
By FY 2026	35%
By FY 2027	35%
By FY 2030	50%

Source: GAO analysis of Department of Energy information. | GAO-24-106479



Savannah River Site (SRS) Office of Environmental Management Aiken, South Carolina

The Savannah River Site, a 310-square-mile site in Aiken, South Carolina, focused on the production of plutonium and tritium for use in the manufacture of nuclear weapons from the early 1950s until the end of the Cold War. In 1992 SRS began environmental cleanup, nuclear materials management, and research and development activities.

Source: Department of Energy. | GAO-24-106479

Mission-Critical Occupations

By FY 2025:

12 of 46 general engineers will be eligible to retire

6 of 14 nuclear engineers will be eligible to retire

11 of the 35 physical scientists, who can function as facility representatives, will be eligible to retire

SRS staffing

In FY 2023:

- 220 total EM staff
- FTE cap of 259 staff
- Attrition rate was 10.4 percent

By FY 2030:

- 106 staff will be eligible to retire

From FY 2013 through 2023:

- 208 staff had voluntarily left
- 209 staff had been hired

Workforce management best practice and challenge examples

Knowledge transfer: When SRS managers hear that someone will retire, they try to double encumber the position 6 months out. In addition, SRS officials said they are trying to use phased retirement and cross-training to educate the workforce.

Recruitment programs: SRS works with the DOE Scholars Program, Oak Ridge Institute for Science and Education, a student volunteer program, the Minority Serving Institutions Partnership Program, and participates in job fairs at local universities to help recruit new staff.

Remote work: SRS officials said that their next challenge is getting authority to offer 100 percent remote work, because some potential staff turn down promotions and go to other sites since they cannot work remotely for SRS.

Hiring: Technical positions, such as fire protection engineers, nuclear criticality safety engineers, and project management series positions are harder to hire for, according to SRS staff.

Career advancement: While SRS has sufficient training, certain positions, like federal project director, require that a person manage certain types or sizes of projects to be qualified for some positions. SRS lacks larger projects that are required for this training, so officials said that some staff are unable to “move up”.

Retention: SRS officials said they used excepted service, EK, hiring authority to help with staff leaving by converting existing employees from the GS to the EK pay scale. This prevented competition with other DOE sites, and loss of staff who would have needed to compete for EK-level pay, including supervisors. SRS used 32 EK positions in FY 2023.

Savannah River Site EM Staff Eligible to Retire by Fiscal Year (FY)

By FY 2025	32%
By FY 2026	34%
By FY 2027	38%
By FY 2030	48%

Source: GAO analysis of Department of Energy information. | GAO-24-106479

Appendix IV: Comments from the Department of Energy



Department of Energy

Washington, DC 20585

July 8, 2024

Mr. Nathan Anderson
Director
Natural Resources and Environment
U.S. Government Accountability Office
Washington, DC 20548

Dear Mr. Anderson:

The Department of Energy (DOE) Office of Environment Management (EM) appreciates the opportunity to comment on the U.S. Government Accountability Office (GAO) draft report, *NUCLEAR WASTE CLEANUP: Changes Needed to Address Current and Growing Shortages in Mission Critical Positions (GAO-24-106479)*.

EM's significant progress in cleaning up the environmental legacy resulting from decades of nuclear weapons development, including remediation of contaminated soils and groundwater, treatment and disposition of toxic and radioactive wastes, and stabilization and removal of contaminated facilities from the Cold War, is possible because of EM's highly skilled and qualified workforce, past and present. EM remains committed to maintaining a world-class workforce to meet the challenges of completing the world's largest environmental cleanup program.

To build and maintain its next generation workforce, EM has implemented several initiatives, such as fellowship and internship programs, participating in DOE's Minority Serving Institutions Partnership Program, direct engagement with universities and colleges, and partnerships with other local learning institutions across the EM complex. Furthermore, EM continues to pursue direct hire authority and expanded use of excepted service to streamline the hiring process. EM also supports retention among its current workforce by maintaining a welcoming and supportive workplace and offering training and career development opportunities.

The Department appreciates GAO's recognition of EM's progress in addressing its human resource challenges. As noted above, many actions that fulfill the GAO recommendations are already in progress. EM concurs with the recommendations and will implement, and continue to implement, actions to address the issues identified by GAO. EM's response to the ten recommendations is provided in the enclosure. Technical comments on the draft report have been provided separately.

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of Energy**

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If you have any questions, please contact me or Mr. Dae Y. Chung, Associate Principal
Deputy Assistant Secretary for Corporate Services, at (202) 586-9636.

Sincerely,



Candice Trummell Robertson
Senior Advisor for Environmental Management

Enclosure

Enclosure

Management Response to Recommendations
GAO-24-106479 Draft Report, *NUCLEAR WASTE CLEANUP: Changes Needed to*
Address Current and Growing Shortages in Mission Critical Positions

Recommendation 1: The Senior Advisor for the Office of Environmental Management (EM) should revise EM's workforce planning to align with leading practices, including being forward-looking, clearly documenting human capital performance targets and measures, and developing comprehensive succession plans, while also ensuring that internal and external planning documents align.

Management Response: Concur.

The Office of Environmental Management (EM) plans several key steps to effectively implement this recommendation. First, EM will conduct a thorough analysis of current practices guided by U.S. Office of Personnel Management (OPM) standards, the EM Strategic Human Capital Plan (SHCP), and leading industry practices for innovation, identifying areas needing improvement. EM will then revise its procedures and as needed, its SHCP to address the areas needing improvement, incorporating forward-looking strategies, and clearly defined human capital performance targets and measures. Precise performance targets and metrics, including key indicators such as employee engagement and retention rates, will also be established. Moreover, EM will develop comprehensive succession plans (in addition to the existing Senior Executive Service Succession Plan) for critical roles, ensuring smooth transitions and minimizing disruptions.

Estimated Completion Date: December 31, 2026.

Recommendation 2: The Secretary of Energy should ensure the Office of Chief Human Capital Officer and EM review and update their Memorandum of Agreement (MOA) to address key collaboration practices including reviewing and updating guidance, use and access of human capital data, and a regular feedback mechanism to identify and address problems continually as service needs change.

Management Response: Concur.

To effectively implement this recommendation, EM will collaborate with the Office of Chief Human Capital Officer (CHCO) to review and update their MOA, i.e., the Service Level Agreement. This process will focus on addressing key collaboration practices, including reviewing and updating guidance concerning the use and access of human capital data. Additionally, EM will continue to engage in regular feedback via our established bi-weekly meetings with the Shared Service Center to identify and address any concerns or challenges as service needs change.

Estimated Completion Date: September 30, 2025.

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Recommendation 3: The Senior Advisor for EM should ensure that EM provides guidance and training to hiring and resource managers on the use of all available recruitment, hiring, and retention flexibilities, benefits, and incentives.

Management Response: Concur.

EM will continue to work with the Shared Service Center to provide comprehensive guidance and training to hiring and resource managers regarding the use of all available recruitment, hiring, and retention flexibilities, benefits, and incentives. In addition to the established bi-weekly EM Resource Managers and monthly EM Supervisors collaboration meetings, EM will identify and implement other venues and initiatives to ensure that managers are equipped with the knowledge and tools necessary to make informed decisions throughout the hiring and retention process. By improving training for managers, EM can improve its workforce management strategies to attract top talent and retain valuable employees more effectively—ultimately contributing to the organization’s overall success and performance.

Estimated Completion Date: September 30, 2025.

Recommendation 4: The Senior Advisor for EM should develop and implement a strategy for a multigenerational pipeline, which includes, where appropriate, reclassifying vacant EM positions to cover a broader range of GS levels and prioritizing the use of intern and fellowship programs that provide authority to convert such staff to permanent appointments.

Management Response: Concur.

EM will use our SHCP, workforce plan, and staffing plan to effectively implement this recommendation. EM will develop a path forward for a diverse pipeline, which includes, where appropriate, reclassifying vacant EM positions to cover a broader range of General Schedule (GS) levels and prioritizing the use of intern and fellowship programs that provide authority to convert such staff to permanent appointments. EM will continue to work to diversify its talent pool, foster multigenerational collaboration, and recruit skilled personnel across different career stages, thereby enhancing organizational resilience, continuity, and effectiveness in meeting EM’s objectives.

Estimated Completion Date: December 31, 2026.

Recommendation 5: The Senior Advisor for EM should develop a strategy, based on forward-looking planning, for using EK and EJ positions across the complex, which, depending on its authority, may be used to propose the authorization of additional EK and EJ positions for EM.

Management Response: Concur.

To implement this recommendation, EM will develop strategy-based workforce planning

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principles and existing EM planning documentation to effectively use Excepted Service (EK and EJ positions) across the complex. This strategy will involve a comprehensive assessment of current staffing needs, future workforce requirements, and emerging environmental challenges. By leveraging its authority, EM can propose the authorization of additional EK and EJ positions where necessary to address critical skill gaps and enhance operational capabilities. This proactive approach will ensure that EM remains agile and responsive to evolving environmental priorities while maximizing the effectiveness of its workforce across the complex.

Estimated Completion Date: December 31, 2026.

Recommendation 6: The Senior Advisor for EM should work with the DOE Office of the Chief Human Capital Officer to request additional direct hire authorities from OPM to include EM's mission critical job series, as well as positions where EM encounters a severe shortage of candidates.

Management Response: Concur.

To implement this recommendation, EM will work with the CHCO to request additional direct hire authorities from OPM when appropriate. This effort will focus on EM's mission critical job series, as well as on positions in areas where EM encounters severe shortages of qualified candidates. By partnering with OPM, EM aims to streamline the hiring process for identified essential positions, enabling the agency to swiftly onboard top talent and address critical workforce needs and skill gaps. This proactive approach underscores EM's commitment to optimizing its recruitment efforts and ensuring the availability of skilled professionals to support its mission objectives effectively.

Estimated Completion Date: September 30, 2025.

Recommendation 7: The Senior Advisor for EM should ensure that EM (1) establishes a training program for each occupation series and (2) collects training data and assesses training curricula, on a recurring basis, to ensure that training aligns with needed competencies.

Management Response: Concur.

To implement this recommendation, EM will establish a comprehensive training program for mission critical occupations and selected administrative positions, such as the management/program analyst series. These programs will be designed to equip employees with the necessary skills and competencies to excel in their respective roles at each professional level. EM will institute a process for collecting training data and assessing training curricula to ensure alignment with required competencies and skills needed.

Estimated Completion Date: December 31, 2027.

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Recommendation 8: The Senior Advisor for EM should ensure that, as EM develops mentoring and knowledge transfer programs, EM improves access to and develops information repositories to help ensure a standardized knowledge transfer approach.

Management Response: Concur.

EM will continue to enhance access to and develop comprehensive information repositories, while advancing mentoring and knowledge transfer programs. EM is streamlining the knowledge transfer process to ensure a standardized approach organization-wide by consolidating pertinent resources and best practices into easily accessible repositories. These repositories will encompass a variety of materials, including training modules, documentation, and lessons learned, providing employees with essential tools and guidance for effective mentorship and knowledge exchange.

Estimated Completion Date: December 31, 2027.

Recommendation 9: The Senior Advisor for EM should update and distribute an EM-wide strategy for telework, including remote work that clarifies eligibility and the administrative process for remote work requests.

Management Response: Concur.

EM will develop a strategy consistent with government-wide and DOE policies concerning telework. In April, EM issued a Work Environment Plan, which provided further guidance on telework and remote work. EM will partner with the CHCO to offer training and guidance where appropriate to employees and managers on DOE Order 314.1A, *Telework Remote Work Program*, Policy Memorandum #106B, *DOE's Tele/Remote Work Program*, applicable telework articles in collective bargaining agreements, and negotiated memorandums of understanding. This strategy will provide guidance on eligibility criteria and outline the administrative process for submitting remote work requests. By establishing transparent and standardized procedures, EM can ensure consistency and fairness across the organization.

Estimated Completion Date: December 31, 2025.

Recommendation 10: The Senior Advisor for EM should ensure that EM regularly conducts a stay survey to be proactive in retention.

Management Response: Concur.

EM will develop stay surveys to proactively gauge employee satisfaction and identify factors influencing retention. These surveys will encompass various aspects of the employee experience, including job satisfaction, work environment, career development opportunities, and organizational culture. The stay surveys will be in addition to the already established Federal Employee Viewpoint Survey. Through the systematic collection and analysis of feedback from stay surveys, EM can identify areas for

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improvement to better support EM's commitment to employee well-being and retention, as well as strategies to strengthen employee engagement, diversity, equity, inclusion, and accessibility.

Estimated Completion Date: December 31, 2025.

Appendix V: GAO Contact and Staff Acknowledgments

GAO Contact

Nathan Anderson, (202) 512-3841 or andersona@gao.gov

Staff Acknowledgments

In addition to the contact named above, Wyatt R. Hundrup (Assistant Director), Natalie Block (Analyst in Charge), Emily E. Eischen, Skip McClinton, Janelle Ikard, Tara Congdon, Cindy Gilbert, Denise Cook, Adrian Apodaca, Wil Gerard, and Linda Tsang made key contributions to this report.

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