2018 Secretary of Defense

Environmental Awards

Environmental Restoration, Individual/Team
Ms. Rebecca L. Hobbs

Background

Ms. Rebecca L. Hobbs is an Environmental Engineer for the Air Force Civil Engineer Center (AFCEC) at Edwards Air Force Base (AFB), California. Ms. Hobbs began her career with the United States Air Force in 1986 as a Palace Acquire Intern in the safety engineering career field at Tinker AFB, Oklahoma. She completed her two-year training and rotational development program at McClellan AFB, California in 1988, and outplaced into a safety engineering position. In 1991, Ms. Hobbs took a position of increased responsibility at Wright-Patterson AFB, Ohio, and later joined the Edwards AFB team in 1993.

During her 31 years of dedicated service to the Department of Defense (DoD), Ms. Hobbs has proactively developed and professionally managed Environmental Restoration Program (ERP) investigation and remediation projects, pioneered innovative solutions to environmental contamination, and directed large-scale remediation and construction projects. A specialization in Industrial Engineering from Texas A&M University, a Masters of Business Administration from Webster University, and a portfolio of Defense Acquisition University certifications has thoroughly equipped Ms. Hobbs to strengthen a mission-capable DoD now and well into the future.

Ms. Hobbs demonstrates dynamic public outreach and enjoys mentoring opportunities to ensure technical proficiencies of future generations. She mentored a Science, Technology, Engineering, and Math student from the National Aeronautics and Space Administration, as well as Public Policy Masters students from The University of California - Riverside.

Position Description

Ms. Hobbs is an Edwards AFB ERP Manager. In this role, she has successfully facilitated negotiations for a highly-complex Federal Facility Agreement (FFA) schedule with Remedial Project Manager (RPM) representatives from the United States Environmental Protection Agency, California Environmental Protection Agency Department of Toxic Substances Control, and Regional Water Quality Control Board for World War II-era sites located at both the former Muroc Army Airfield (AAF) and a 1950s-1970s-era landfill.

The location of former Muroc AAF, the historic home to groundbreaking rocket engine test flights, is comprised of 64 sites, including areas with soil or groundwater contamination, and a former Edwards AFB landfill. These areas, collectively under Edwards AFB, were placed on the Environmental Protection Agency National Priorities List as a Superfund site in 1990. Ms. Hobbs's strong environmental background enables her to conduct extensive technical reviews of documents prepared for cleanup sites, align conclusions to strategic restoration goals, and provide skilled recommendations. Ms. Hobbs possesses an expert level of technical knowledge and effectively communicates her expertise, which results in her regularly being requested to assist peers and supervisors with superior document reviews. Her attention to detail and time management skills result in maintaining the FFA schedule free and clear of regulatory and monetary penalties associated with untimely regulatory document submittals.

Ms. Hobbs is responsible for managing ERP projects that span decades into the future to ensure protection of human health and the environment. She substantiates project validations, oversees the fieldwork of funded contracts, and ensures timely cleanup of contaminants. She professionally determines

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Ms. Rebecca Hobbs is an Environmental Restoration Program Manager at Edwards AFB. She manages multiple cleanup sites and led the reuse of more than 500,000 tons of former runway concrete.

sub-activities and tasks in work scopes, budgeting, and scheduling, and risk reduction techniques required in complicated ERP management processes. Her efforts involve formal written communication, compilation of presentations on technical and historical information, and development of informative project cost estimating documents.

At her assigned sites, Ms. Hobbs is responsible for project initiation, planning, and oversight. She proactively attains funding to achieve site cleanup, working cohesively with all stakeholders to achieve those goals. As a fiscally astute ERP Manager, she has overseen projects valued at greater than $45 million in Environmental Restoration Account funds. She effectively communicates her projects and program with

multiple stakeholders including RPMs, procurement officers, Edwards AFB personnel and leadership, surrounding public, AFCEC Program Managers, and Air Staff personnel. Her superior verbal skills ensure successful, informative briefings to the Edwards AFB Restoration Advisory Board and the public where Ms. Hobbs is a known, trusted, and respected Air Force representative to the public.

Recent Awards

- 2015 412th Civil Engineering Group Scientific and Engineering Quarterly Award, Winner
- 2016 AFMC/AFCEC Annual Excellence Award, Nominee
- 2017 AFCEC Director's Coin Recipient
- 2017 Air Force General Thomas D. White Award Environmental Restoration Individual/Team, Winner

Summary of Accomplishments

Ms. Hobbs' dedication to the DoD mission and support of the Air Force ERP are recognizable through several outstanding achievements. Accomplishments include implementing successful restoration projects, cleaning up groundwater, and creating collaborative partnerships. These achievements have resulted in vital protection of human health and the environment.

Accelerated Environmental Cleanup

Ms. Hobbs strongly advocated for the use of direct push drilling technology (DPT) to refine the extents of former Muroc AAF groundwater contaminant plumes more quickly and efficiently than using traditional sampling methods. The RPMs agreed with her plan to install wells in a stepwise fashion until areas of no contamination were reached. Ms. Hobbs' plan took only one month to execute, and included sampling farther from the source area of the plumes each time contamination was encountered, until the plume extents were determined. The speed and mobility advantages of DPT soil sampling also allowed a more complete and accurate determination of site geology. Ms. Hobbs identified an earthquake fault that had not previously been mapped, where groundwater dropped from 55 feet below ground surface to more than 100 feet. This action significantly impacted what was previously believed to be the scope of the cleanup work required to remediate the site. Leveraging DPT saved $250,000 and thousands of man-hours of field labor. Once Ms. Hobbs had verified the groundwater contamination, she was able to begin the remediation process.

Accelerated Environmental Cleanup

Ms. Hobbs supported a timely redesign of the Edwards AFB inactive landfill cover. Her efforts helped to reduce the document preparation and regulatory approval process by six months and averted $490,000 in equipment costs.

Ms. Hobbs managed a landfill remediation project and encountered unexpected debris during excavation of drainage channels. Instead of capping trenches at the landfill separately, all areas excavated for drainage also required capping. Ms. Hobbs skillfully explained the discovery of the debris and the need for a redesigned landfill cover to the RPMs. Within one week, staunch regulators granted Ms. Hobbs approval to install the newly designed cover on the eastern portion of the landfill. Her initiative and follow-through then ensured the proper

documentation for installation of the western portion of the landfill cover. These decisive actions slashed document preparation requirements, compressed the regulatory approval process by six months, and saved more than $490,000 in equipment and labor costs.

Ms. Hobbs decisively piloted the first Edwards AFB *in situ* bioremediation groundwater treatment system at two sites. This treatment technology injected gaseous nutrients into the groundwater to feed naturally occurring microbes that destroy floating jet fuel, fuels, and solvents through biological processes. Bioremediation is completed in one step, going from solvents to non-hazardous compounds. The implementation of *in situ* treatment has drastically shortened plume life by 20 years and reduced operations and maintenance costs of the treatment system by $900,000.

Innovative Technology Demonstration/ Validation and Implementation

To support success of the Edwards AFB aircraft test missions, the Base replaced the main runway ten years ago, amassing more than 500,000 tons of demolition and construction concrete debris. For eight years, Kern County inspected to ensure progress was being made in reducing the volume of concrete on the site. The Base crushed enough concrete for appreciable progress to be noted, but had no long-term solution for the concrete. If no solution could be devised, the Base would be found to have an unauthorized dump, and the concrete would require disposal. Ms. Hobbs developed a strategy for the use of crushed concrete to cover lead shot, which is a hazard to protected bird species that use gravel in their digestive processes. Base leadership, AFCEC, the RPMs, and the public overwhelmingly concurred with her proposal. Ms. Hobbs obtained funding to crush and use the concrete. In only two years,

Concrete Crushing Operations

500,000 tons of former runway crushed concrete is being used to support Edwards AFB projects. This photo shows an aerial view of concrete crushing operations in progress.

she transformed a decade-long, $50 million environmental liability for Edwards AFB into an ERP asset.

Ms. Hobbs proposed and obtained RPM approval for an evapotranspirative landfill cover, appropriate for arid climates, to cap a 64-acre former Edwards AFB landfill. She implemented green remediation at the site by using the evapotranspirative cover that included a layer of soil, a layer of topsoil, and shallow rooted plants. The shallow rooted plants take up any rainfall, keeping it from landfill waste, and ultimately protect the groundwater. The plants also protect the cover from erosion, thereby reducing overall cover maintenance costs. In order to minimize capping costs, Ms. Hobbs proposed and obtained RPM approval to move waste from outlying areas into the main trench area of the landfill. This has resulted in a 43% landfill size reduction from approximately 56 acres to 32 acres, and cost avoidance of approximately $8 million in landfill cover installation and maintenance costs. This is further proof of a dedicated Federal service engineer with shrewd and pragmatic business acumen.

Landfill Size Reductions
Waste consolidation at the Edwards AFB inactive landfill reduced the size requiring cover from approximately 56 to 32 acres. Cost savings to install a larger cover and maintain the landfill of more than $4 million were realized.

Ms. Hobbs identified and tested soil in a streambed adjacent to the landfill and confirmed it had the properties conducive for an evapotranspirative cover. She engineered a 300,000 cubic yard borrow area that serves as an 8 million gallon, 100-year flood retention basin. The capture of stream and surface water flow alleviates a significant 50-year issue with runway area flooding and an elevated bird air strike hazard. Her initiatives have a direct impact to the flying mission and safety of Edward AFB operational personnel.

Retention Basin Headwall and Pipes
A 300,000-cubic yard landfill borrow area was designed on Edwards AFB. The borrow area acts as an 8 million gallon, 100-year flood retention basin, alleviating a 50-year issue with runway area flooding. This picture shows the pipes coming into the retention basin from the landfill run-on and run-off channels.

Partnerships

Ms. Hobbs consistently seeks to resolve long-standing problems with viable, fiscally responsible solutions. She advocated with the RPMs to remove illegally dumped trash, tires, and asbestos containing material from the surface of a 1950-1970s-era landfill. She deftly argued the debris must be removed to install a landfill cover. The RPMs agreed the hazardous and non-hazardous debris could be removed with no further regulatory agency involvement. This was a monumental achievement in an already overly regulated state. Thirty-five tons of asbestos-containing material, 1,000 tons of non-hazardous surface debris, and four tons of tires were transported off-site for disposal. Fifty-two tons of metal surface debris and 125 tons of concrete were recycled. Organic debris, including vegetation and wood, were mulched on site and spread on the ground surface. Her superior accomplishments solved a 40-year environmental compliance issue, avoiding a Notice of Violation and $500,000 in retroactive fines.

Ms. Hobbs is a powerful negotiator and is successfully diplomatic. Through field discussions with state regulators, Ms. Hobbs single-handedly facilitated discussions which led to an agreement that nearby horse stables were the source of nitrates detected in groundwater at an inactive landfill. Because the source of nitrates is not the landfill, the regulators confirmed that Monitored Natural Attenuation is the appropriate remedy for the groundwater contamination.

Ms. Hobbs coordinated with the RPMs to develop a streamlined process for ERP document review and approvals. The streamlined process incorporates the use of written responses to comments and marked up redline documents for RPM review. Review times have been reduced by one month for each of the 20 or more documents prepared by the Edwards ERP each year. These are administrative and technical man-

hour savings any Federal agency would be proud to accomplish.

At a former Muroc AAF landfill, where munitions had previously been encountered, Ms. Hobbs coordinated and established processes with the RPMs that allowed landfill investigation while ensuring the protection of site workers. She worked with the Air Force Safety Center and DoD Explosives Safety Board to document her test pit excavation procedures. The work was performed using an up-armored long-reach excavator with munitions-trained observers. No munitions were encountered and the buried debris were safely mapped. Her mitigation of risks is key to any professional project manager.

Ms. Hobbs led a tour of former Muroc AAF sites for community representatives that serve on the Restoration Advisory Board. She fostered a positive relationship with the public by describing concrete crushing operations, an *in situ* bioremediation system, plans for two former skeet ranges, and landfill cover operations. She presented complicated technical engineering solutions in understandable, layman's verbiage. Additionally, she provided vital information to the public through briefings at each semiannual Restoration Advisory Board meeting and through articles in the bimonthly ERP publication, *The Report to Stakeholders*.

In addition to the external partnerships Ms. Hobbs cultivated during the accomplishment period, she trained three new remedial managers to the Edwards ERP team. An epitome of a team player, she is respected for her technical expertise, experience, and ability to mentor colleagues new to the Edwards mission.

Reducing Risk to Human Health and the Environment

Ms. Hobbs monitored 340 groundwater monitoring wells at the former location of Muroc AAF, thereby defining the extents of the groundwater contamination. She proactively implemented land use controls, ensuring no new construction of structures above the contamination, which could create an indoor air contamination concern. Ms. Hobbs operates three treatment systems at the former Muroc AAF, remediating contamination that would preclude the use of the water for drinking water purposes. Utilizing *in situ* bioremediation and *in situ* chemical oxidation, she is treating floating fuels and dissolved-phase fuels and solvents at three groundwater contaminant plumes. Through these actions, Ms. Hobbs protected the health of several thousand base employees.

Several species of Federally-protected migratory birds at Edwards AFB use gravel in their digestive processes. Lead shot, which can be mistaken for gravel, was identified at two former skeet ranges and the lakebed surface on Base. Ms. Hobbs advocated for the use of more than 250,000 tons of former runway crushed concrete to cover the lead shot found at the skeet range and coordinated a surface sweep followed by watering of the lakebed surface. The RPMs and the California Department of Fish and Wildlife wanted the lakebed surface to be excavated. Through field discussions, Ms. Hobbs was able to successfully demonstrate subsurface lead shot is not available to the graveling birds. Her greater efforts ultimately protected natural resources, including migratory birds. Simultaneously, she ensured the lakebed could continue to be used as an emergency landing surface to a multitude of test aircraft, further providing critical support to the operational mission of the Base.

Green Remediation

Ms. Hobbs identified a close-proximity soil source for a 300,000-cubic yard landfill cover. She avoided $6 million in costs, diverted 30,000 truckloads from Edwards AFB roads, and reduced the emission of greenhouse gases and other air pollutants.

Ms. Hobbs implemented the use of an X-ray fluorescence analyzer for metals at a former landfill, negating the need to transport more than 175 soil samples to a fixed-base laboratory. The resulting real-time field measurements allowed Ms. Hobbs to determine the next course of action during a single sampling event.

Ms. Hobbs advocated with the RPMs for the use of DPT, which requires half the time in the field as rotary drill rigs, to refine the extents of four groundwater contaminant plumes. Based on her demonstration of the usefulness of the technique, her coworkers have used DPT when investigating their contaminant plumes.

Ms. Hobbs designed *in situ* bioremediation systems, which log the volumes of gaseous nutrients being injected into the groundwater, with Supervisory Control and Data Acquisition Systems. Field personnel can monitor the systems without driving to each well in the treatment networks.

Each of the 340 wells that Ms. Hobbs manages is monitored using low-flow sampling equipment, which minimizes the production of groundwater that would then need to be disposed, and reduces energy consumption.

A former Edwards AFB landfill is underlain by low-yield groundwater-bearing fractured bedrock and geologic faults that impact plume migration and make contaminant treatment by standard engineering methods such as pump-and-treat impossible. Ms. Hobbs used high-level technical knowledge, judgment, discretion, and creativity to successfully advocate with the RPMs that Monitored Natural Attenuation is the appropriate groundwater cleanup remedy, thereby avoiding excess land disturbance and fuel consumption.

In summary, Ms. Hobbs is a superior ERP Manager. Her actions are technically merited and fiscally responsible, strengthening the Edwards AFB flight test mission. She is an exceptionally effective communicator, and has made far reaching impacts into the future with both her program management skills and mentoring of colleagues and future leaders.

World War II-Era Site Remediation

Ms. Hobbs protects human health and the environment through her remediation of World War II-era sites, including the former area of underground storage tanks used to fuel the X-1 test program. She has strengthened the current test mission by ensuring the runway area no longer floods and the lakebed remains available as an emergency landing surface.