



FY 2016 Secretary of Defense

Environmental Awards

Environmental Restoration, Individual/Team, Mrs. Lori Burnam

Introduction

The Environmental Directorate of the Air Force Civil Engineer Center (AFCEC) provides environmental programming, planning, and technical support to Air Force installations world-wide. Mrs. Lori Burnam is a member of the AFCEC East Region Robins Installation Support Team (IST) and serves as the Moody Air Force Base (AFB) Environmental Restoration Program (ERP) Manager.

Moody AFB is located 10 miles northeast of the City of Valdosta in Lowndes and Lanier counties in south-central Georgia. Comprising approximately 11,000 acres of federally owned land, the installation includes the main base, Grand Bay Range, and the Grassy Pond Recreational Annex. Military use of this area began in early 1942 with the establishment of the Moody Field Advanced Pilot Training School. The installation was closed in 1946 but was reopened permanently in 1951 to train pilots during the Korean conflict. Moody Field gained official, permanent status as an AFB in 1954.

Moody AFB is home to the 23rd Wing (23 WG), which consists of six groups and is tasked to organize, train, and employ combat-ready pararescuemen, A/OA-10, HH-60, and HC-130 forces totaling 5,500 military and civilian personnel including three geographically separated units. The 23 WG executes worldwide

close air support and combat search and rescue operations in support of humanitarian interests, national security, and the global war on terrorism.

The ERP is a unique and key component of environmental stewardship on Moody AFB. Like most Department of Defense (DoD) installations, Moody AFB has sites where soil and groundwater has been contaminated by past industrial operations essential to the base mission. These sites include areas formerly used for landfills, fire protection training, and waste disposal. Mrs. Burnam has been aggressively pursuing clean-up at these sites in order to protect human health and the environment as well as return these assets to productive use in installation military readiness operations.

Background

Mrs. Burnam is the focal point for Moody AFB's award-winning ERP. Mrs. Burnam's primary role in the Robins IST is the Moody AFB Environmental Restoration Program Manager. She performs her routine duties and responsibilities remotely at Moody AFB, Georgia and assists the Robins IST with other duties as assigned. She has overseen restoration program efforts at Moody for 15 years and has solely managed the Environmental



Mrs. Lori Burnam

Mrs. Burnam is a member of the AFCEC East Region Robins IST and serves as the Moody AFB Environmental Restoration Program Manager. She has managed the program for over 15 years.

Restoration and Military Munitions Response Programs for the majority of that time. Her continuing commitment to environmental stewardship and improved environmental performance plays an important role in enabling the Moody AFB mission. Mrs. Burnam has created a model ERP for the DoD through environmental excellence, stewardship of community resources, and sustainability of the warfighter. Environmental excellence is exemplified by the Moody AFB Restoration Program's receipt of multiple awards to include:

- Air Force Major Command (MAJCOM) Environmental Restoration Award (Installation 2010, 2014)
- MAJCOM Environmental Restoration Award (Individual/Team 2005, 2006, 2007)
- Air Force General Thomas D. White Environmental Restoration Award (Individual/Team 2015)

A total of 42 restoration sites have been identified on Moody AFB. To date, 31 of these sites have received Site Closeout status. Moody AFB achieved Remedy-in-Place (RIP) at all sites by 2009, five years ahead of the DoD's goal of achieving RIP by 2014.

Position Description

Mrs. Burnam is a highly qualified restoration expert and is key to executing a successful ERP. As the Restoration Program Manager, she is the overall program lead with responsibility to coordinate, direct, and review all tasks performed in support of the ERP. She provides guidance for ensuring timely and appropriate actions are taken to reduce or eliminate potential risks while supporting the warfighter.

The objective of the Moody AFB restoration program is to Support the Warfighter through Environmental Excellence. Moody AFB ERP program goals include:

- Reduce or eliminate potential risks to human health and the environment
- Minimize impact to the warfighter
- Exceed Air Force clean-up goals
- Ensure remedial strategies are based on sound scientific judgment
- Reduce cost-to-complete and schedule-to-complete
- Execute intensive Remedial Process Optimization Program
- Monitor Operational Efficiency Index to evaluate restoration systems performance
- Use performance based contracting where possible
- Support Air Force goals to use small business where possible
- Foster a good neighbor policy by keeping the public informed
- Encourage community participation in the clean-up process

As a dynamic leader and expert in her field, Mrs. Burnam ensures that the base effectively meets mission objectives while protecting human health and the environment. She has integrated

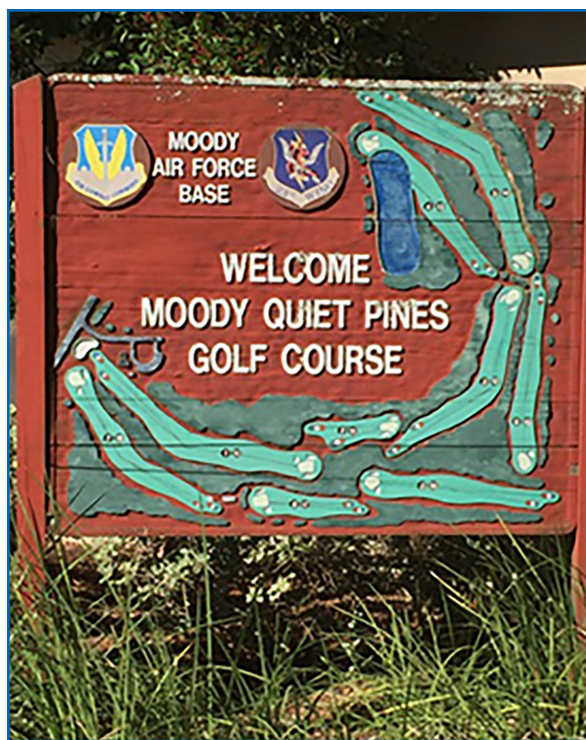
environmental accountability into day-to-day decision making and long-term planning down to the shop level. Mrs. Burnam works with Moody AFB and the IST to reduce new environmental risks and to strengthen lines of communication. She has coordinated on over \$150M in construction projects during this accomplishment period, to include a new Military Service Station and several proposed training campus sites and designs. Although the level of contamination does not prevent construction on most of the Moody AFB ERP sites, close coordination and communication must be maintained to ensure proper information is disseminated to all stakeholders during the planning phase of construction projects. Mrs. Burnam's knowledge and expertise has allowed those construction projects to proceed, while ensuring ERP activities are not impacted. She also routinely assists the Moody AFB environmental office on National Environmental Policy Act and compliance document reviews and serves as the Moody AFB environmental lead on all installation dig permit requests. During the accomplishment period, Mrs. Burnam reviewed and coordinated on over 400 dig permit requests.

Accomplishments

Accelerated Environmental Cleanup

Through Mrs. Burnam's efforts, Moody AFB is exceeding all goals. As of June 2009, Moody AFB had achieved RIP at all sites covered under the ERP, five years ahead of DoD goals. In July 2012, she implemented a performance-based remediation contract that will achieve eight site closeouts by 2020. Mrs. Burnam successfully achieved site closeout at one of those sites in October 2013. To date, 31 of 42 sites have received site closeout status. Her program is on track to restore over 1,000 acres to unrestricted use/unlimited exposure, eliminating all future liabilities.

Mrs. Burnam strives to implement remedial strategies that are innovative, have proven effectiveness, and will accelerate cleanups. During the accomplishment period, she managed a \$3.8M project to remediate chlorinated solvent contamination in the groundwater beneath the



Golf Course Remediation

The Quiet Pines Golf Course is adjacent to Moody AFB and is open to members of the public as well as all DoD cardholders. The golf course falls within an ERP site, and groundwater remediation efforts are on-going. Mrs. Burnam ensures remediation activities are adequately communicated and do not impact golf course operations.

Moody AFB golf course and privatized housing area. The 160 acre project site included installation of 86 remediation wells and five groundwater treatment systems. She provided the housing management office with detailed presentations at the beginning of each phase of work and then provided weekly (sometimes daily) email status updates, which included the type of work, equipment used, and contractor locations. The housing management office would then share information with residents. Mrs. Burnam's efforts to coordinate and disseminate information from the environmental contractor working with residents, golf course operations/manager, and base operations kept all parties aware resulting in no project disruptions. Innovative treatment system designs will allow the contaminated groundwater to be extracted, amended with organic carbon to promote natural biodegradation of the contaminants, and re-injected into the groundwater

plume. The injection and groundwater recirculation approach is used to promote aggressive treatment within the areas that contain the highest contaminant concentrations. Once the plume size has been reduced, the system design allows the extraction and injection wells to be reversed, which will provide a more extensive treatment of the remaining dilute plumes. This innovative treatment approach has accelerated site closeout by 10 years.

Innovation

Several challenges arose during the golf course and privatized housing project construction activities, but Mrs. Burnam was able to work closely with the contractor to find solutions and keep the project on track. One of the biggest challenges was the inability to drill wells using conventional drilling techniques (e.g., direct push or auger). Moody AFB's lithology is comprised of clayey sand, with silty sand to silty clay lenses of varying thickness and depths. The tight clays were binding up the drill rigs and generating up to 25 drums of drilling waste per well. Mrs. Burnam initiated the use of sonic drilling, which can penetrate very quickly through a wide variety of geological formations. This change reduced waste generation by 80% and allowed the wells to be installed at a rate two to six times quicker than other drilling methods. Sonic drilling allows for shorter

overall drill times which equated to oversight and labor savings.

To better refine the conceptual site model and ensure the wells were placed properly, soil core samples were being pulled from each of the wells. This was also slowing the drilling process. However, sonic drilling allows for collection of a large continuous, undisturbed core sample, which is very cost effective on projects like this where it is necessary to pull numerous core samples. Mrs. Burnam has applied lessons learned to other ERP projects, which has accelerated field work, increased the efficiency of gathering data, and reduced overall project costs.

Another major project challenge was the extensive network of underground utilities in the area. Since the site encompasses both Moody AFB property and privatized property, getting the utilities properly marked was a difficult task. Due to her expertise and knowledge of the site, Mrs. Burnam had prepared for this challenge by building requirements into the contract scope. The contractor had to hand dig to verify all markings and have a third party company locate and verify the utility markings prior to intrusive work. As a result, only one line break incident occurred during the project. However, it was quickly repaired with minimal disturbance to residents.



Well Drilling

A remediation well is being drilled along the edge of the Moody AFB golf course. Mrs. Burnam was able to work with the contractor and golf course manager to locate wells and system infrastructure in areas that prevent golf course damage and continue operations as usual.



Groundwater Cleanup

Contractors use a geoprobe rig to install temporary injection points at a Moody AFB ERP site. Substances such as lactate or vegetable oil are inserted into the subsurface, where they act as a stimulating food source for naturally-occurring microbes. These microbes will then work to break down the contaminants in the groundwater.

Mrs. Burnam has initiated the use of direct push injection techniques at Moody AFB. Due to the heterogeneous nature of the subsurface lithology at the sites, injections need to be adjusted during field implementation. This technique allows better distribution of the injection substrates and more precise targeting of the source. The versatility of the injection technique allows the use of different injection substrates based on the type of contaminant and site conditions. Substrates used at Moody AFB include emulsified vegetable oil, slurried organic carbon and zero valent iron solution, sodium lactate, and slurried calcium peroxide. Mrs. Burnam's use of direct push injection has been very successful. At one site this technique has fully remediated a benzene plume after only one injection event, using a slurried calcium peroxide, which accelerated the site closeout date by one year. With over 1,200 existing remediation wells on over

5,000 acres, she also wanted to reduce permanent remediation infrastructure, such as treatment systems and wells, at the sites. This not only reduces long term operating costs associated with the sites, but will also allow Moody AFB to continue to meet their training and mission needs with fewer constraints.

Green Remediation

During the accomplishment period, Mrs. Burnam managed a \$3.6M excavation project on a former landfill. The landfill was in use from 1941 to 1946 and from 1951 to 1953. Over 11,000 tons of landfill waste and non-hazardous soils were removed during this operation. The removal of the landfill will allow the base to achieve site closeout and remove all future liabilities once the benzene groundwater plume is fully remediated in 2019. Through partnering with the Georgia Environmental Protection Division (GA EPD) during the development of the project work plan, Mrs. Burnam was able to negotiate site specific soil screening levels and sampling the soils on a grid pattern prior to removal. This allowed the soils to be removed by trucks as excavated, rather than stockpiled and sampled. This expedited the excavation completion time by several months. The waste and soils were disposed of at an approved off-site landfill.

The former landfill site is located southwest of the airfield and falls within the airfield no construction zone. This required an airfield construction waiver to be obtained. Mrs. Burnam held an operational risk management table top meeting with base stakeholders to ensure all issues were adequately addressed, prior to the waiver package being coordinated and routed to the 23 WG/CC. Contractors maintained radio communication with the airfield during the length of the project and communicated daily with the airfield manager.

Another challenge with the project was that the only access road for the southeast side of the base crossed over the former landfill. Mrs. Burnam had to determine the best solution to prevent mission impacts and avoid impacts to the



Project Monitoring

Mrs. Burnam observes as an excavator backfills a former landfill trench. In 2014, approximately 11,000 tons of soil and waste were removed from the Former Burma Road Landfill to remove future land use controls at the site. Once the waste and soils were removed, clean soils were brought on-site.

contractor schedule. She held multiple planning meetings to ensure an open dialogue between base stakeholders to mitigate potential impacts, due to the planned environmental restoration activities. Those stakeholders included Wing Safety, Security Forces, Airfield Operations, Civil Engineering Squadron, Fire Emergency Services, Munitions Storage Area, Small Arms Range, Explosive Ordnance Disposal, and the Force Support Squadron. The excavation was completed in phases to prevent the road from being impacted during the project. During the second phase of the project, a temporary two-lane gravel road was constructed to handle the weight limit requirements of vehicles that may use the road, (e.g., emergency vehicles, ammunition carriers, semi-trucks, privately owned vehicles, etc.). Mrs. Burnam sent notices to the base population through the public affairs office and the 23 Civil Engineer Squadron Commander. The permanent road was reconstructed at the end of the project and then the temporary road was removed. Mrs. Burnam provided weekly updates to the base on the status of the project. Weather and equipment delays caused the project to extend from the

estimated four to eight months, but there were no traffic incidents, mission impacts, or stakeholder complaints.

Partnerships

Through partnering, Mrs. Burnam has an outstanding rapport with the GA EPD, which plays an integral role in ERP success. GA EPD provides regulatory guidance and support resulting in expediting clean-up processes. When Mrs. Burnam started working as the Restoration Program Manager at Moody AFB 15 years ago, the document review backlog was as long as three years, with strained communications between the two agencies. She was able to successfully initiate partnering and foster open communications and teamwork. She collaborated with GA EPD to develop and prioritize a list of documents in need of review. This initiative has reduced document review times by 70%. During the accomplishment period, Mrs. Burnam received 42 document review approvals from GA EPD and Moody AFB became the first Georgia installation to achieve up-to-date document review status. She is applying lessons learned from the GA EPD collaboration



Public Outreach

Mrs. Burnam hands out Earth Day T-Shirts at the Moody AFB Exchange. Moody celebrated Earth Day to help the recycling initiative and improve the base's environment.

to also expedite implementation of restoration field work.

Constant communication on the pre-design investigations at 10 sites allowed for real-time decision making and ultimately the overall project schedule was accelerated by eight months. Mrs. Burnam held monthly teleconferences with GA EPD to keep them informed of project process, as well as to provide an opportunity to discuss potential issues that may have resulted in project delays.

Mrs. Burnam is also a member of the Georgia Environmental Restoration Tier II Partnering Team and serves as member of the East Region Restoration Panel. Involvement in these partnerships allows her to continually improve the ERP by facilitating communications and cross-feed among other agencies and within the ERP community. GA EPD continually praises the Moody AFB ERP on the excellent quality of documents submitted and their implementation in the field.

Outreach and Education

Mrs. Burnam is not only dedicated to the ERP, but she strives to inspire others to be good stewards of the environment. She volunteers routinely at environmental awareness events hosted

on Moody AFB. Several events are held annually and include Earth Day, Recycle Day, and Arbor Day. By helping educate others about environmental stewardship, she is helping to preserve resources for future generations.

Mrs. Burnam is continually expanding her knowledge of innovative environmental technologies and project management. During the accomplishment period, she completed several training seminars and in turn has transferred knowledge to her colleagues enhancing overall program performance. These educational opportunities allow Mrs. Burnam to make command decisions in the interest of the Air Force and prevent future liabilities. Seminars and training sessions include:

- Project Risk Management for Site Remediation
- Why Are So Many Groundwater Contaminant Plumes Persistent? Insights from Modeling and Characterization
- Key Advances in Vapor Intrusion Assessments at Contaminated Sites
- Remedy Selection for Contaminated Sediments
- Perfluorinated Compounds: Preliminary Assessment of Potential Releases