2004 Secretary of Defense Environmental Award

Environmental Restoration-Installation

INTRODUCTION

Keesler Air Force Base (KAFB) is an urban base surrounded by the city of Biloxi, MS. It hosts the world's largest high-technology training program and, since 1941, is home to more than 13,000 military and civilians. The 81st Training Wing is the largest mission at KAFB and proudly serves more than 40,000 students annually in 500 different courses in support of the Air Education and Training Command (AETC).

Keesler's superlative reputation for training and educating our nation's present and future military leaders has led it to become one of the two largest employers in the Jackson-Harrison County area. Covering 1,668 acres of wetlands and coastal scrub, KAFB is located in an environmentally sensitive area along the Back Bay of Biloxi. This area is home to ospreys, least terns, and many other species of concern.

Keesler, along with the seafood industry and gaming/tourism, are the strongest contributors to Biloxi's economy. Keesler impacts the local economy with contributions of more than $1.8 billion dollars annually.

Listed as Naval Oaks, Live Oaks on KAFB are managed by the Natural Resource Program.

BACKGROUND

THE MANAGEMENT

Keesler's Restoration Program Manager (RPM) single handedly coordinates the restoration program. During the award period, the RPM executed a program totaling $9.2 million. RPM responsibilities consist of cost estimating, programming projects, construction management, and keeping wing leadership abreast of late breaking news. AETC and the Air Force Center for Environmental Excellence (AFCEE) support the RPM in planning and contracting requirements. Each member of the Keesler Tier I Partnering Team staff serves a vital role. The RPM provides the guidance required for the successful elimination of risk to human health and the environment while supporting the installation mission capability and completion.

In the past two years, Keesler has presented at conferences, Chambers of Commerce, technical meetings, and has led discussions at local schools and served on judging panels at science fairs.

THE TEAM

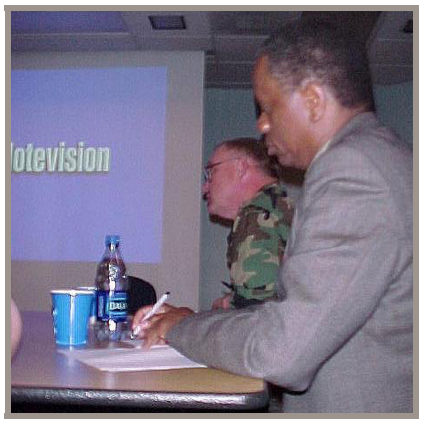

PARTNERING AGREEMENT

In 1996, both the Keesler Partnering Team and the Tier 1 Restoration Advisory Board (RAB) were established. The United States Environmental Protection Agency (USEPA) Region IV, the Mississippi Department of Environmental Quality (MDEQ), AFCEE, the United States Fish and Wildlife Service (US F&WL), the National Oceanic Atmospheric Administration (NOAA), and their long-term contractor, Parsons, comprise the Keesler Tier 1 Team. Each agency is an integral team member that addresses technical and/or regulatory issues and works together to utilize innovative technologies and management techniques to achieve program objectives. Thorough research and quick decision making has been key to Keesler's success. Working as a "high-performing" team has evolved through the facilitated partnering process.

THE COMMUNITY

Keesler's community relations program resulted in effective communication between the Partnering Team and community members. The

RAB includes members of the local government, civic leaders, educational organizations, citizens, military, and members of the Tier 1 Team.



Reverend James Black

The RAB is co-chaired by the KAFB Support Group Commander and Reverend James Black from the local community. Reverend Black has been the civilian co-chair since the RAB's inception. The RAB has grown from a group that questioned restoration actions at KAFB to one that works closely and in full confidence with the installation.

THE CHALLENGES

2002-2004 Restoration Program Challenges
- Cleanup four high risk sites
- Work with four regulatory agencies
- Meet schedules and budgets
- Maintain community confidence

KAFB faces environmental restoration challenges with the superior and consistent commitment necessary for meeting all Air Force and regulatory cleanup requirements. Frequent and thorough communication between stakeholders and the KAFB Partnering Team has allowed Keesler to maintain the trust and confidence of the community. The environmental program has exceeded the Defense Environmental Restoration Program (DERP) goals of Remedy in Place (RIP) for high, medium, and low risk sites by at least 3 years. In partnership with local, state, and federal regulatory agencies, they are committed to identifying innovative solutions that are cost effective and compliment both the Air Force (AF) mission and the local community.

The Restoration Team recognizes that frequent and effective communication among Team members, AF stakeholders, and community members is essential to the successful implementation of the Restoration Program.

KAFB RPM, Lisa Noble and MDEQ RPM, Bob Merrill

"Keesler is the model DoD program. From their scientific approach during site investigations to innovative technologies used in cleanup actions, their program is top-notch. They have set the standard for the way an environmental program should be managed."

- Bob Merrill, RPM, MDEQ

PROGRAM SUMMARY

The KAFB Partnering Team is committed to meeting the objectives of the Installation Restoration Program (IRP). The objectives of the program are to identify, remediate, and restore any condition which poses a risk to human health and/or the environment. Between 1987 and 1995, 24 IRP sites were identified as potential hazardous waste sites at Keesler. These sites included old landfills, waste piles, spill sites and petroleum sites.

IRP Objectives
- Implement Land Use Controls;
- Reach RIP or closure on the remaining sites that were still active in the IRP process;
- Keep communications open in the community.

ACCOMPLISHMENTS

Keesler originated and signed a two-party Memorandum of Agreement (MOA) on Land Use Controls between USEPA and the AF. A Land Use Controls Assurance Plan (LUCAP) was prepared that ensures long-term AF stewardship allowing restricted use on IRP sites. This LUCAP/MOA is the only one of its kind in Mississippi and is part of the final remedy for all sites at Keesler, eliminating

residential clean-up standards and saving millions of taxpayer's dollars.

Site Name	DD/S Date	Status
TEL Drum Disposal	01/99	Site Closed
Landfill 1	12/99	LTM/LUC
Landfill 2	01/02	LTM/LUC
Landfill 3	03/01	LTM/LUC
Etch Shop/Silver Recovery	05/01	LTM/MNA/LUC
Old CE Storage Area	03/00	Site Closed
Pest Rinse Disposal	01/99	Site Closed
Old Service Station USTs	12/99	LTM/LUC
Bldg 4038 USTs	12/99	LTM/MNA/LUC
AAFES Service St USTs	12/99	LTM/MNA/LUC
Low Level Radioactive Site	12/99	LTM/LUC
TEL Sludge Burial Pit	12/99	LTM/LUC
Old Fire Training Area	03/01	LTM/LUC
Asphalt Sealant Spray	03/01	LTM/LUC

To date, all IRP sites have been closed or have a final RIP. With exemplary performance, Keesler has become one of few to ever exceed the DERP defense planning guidance goals!

"KAFB has actively sought out natural resource trustees. They have used this input to help develop and implement cost-effective, environmentally protective remedies. I believe the environmental program at Keesler serves as a model for the rest of the Air Force as well as DoD."

- Tom Dillon, NOAA

The DERP "High risk" goals were exceeded by 3 years. Keesler attained the medium and low risk goals 10 and 15 years ahead of schedule, respectively. The team earned "Positive" ratings for the EPA Resource Conservation Recovery Act (RCRA) Corrective Action (CA), Environmental Indicators (EI) reflecting a highly efficient Environmental Program for taking innovative action to limit the expansion of contamination and to speed up final remedial action. Strategic planning resulted in surpassing the RCRA Government Performance Results Act (GPRA) 2005 EI goals by three years, thus saving millions of taxpayer's dollars. With the exceptional integration of the military mission and environmental stewardship, the KAFB Restoration Team restored low, medium, and high-risk sites to safe and usable land and water for residents and visitors to the coastal area. The KAFB Partnering Team with RAB and community participation has raised the "bar".

"KAFB's ERP sets the standards for the AF Cleanup programs. Keesler is the first federal facility in the state of Mississippi to have all corrective measures implemented and one of the few in the Air Force."

- Michele Thornton, EPA Restoration Program Mgr. Region IV

Each member of the KAFB Partnering Team is active in the RAB. The Team incorporates an EPA and MDEQ perspective into each RAB, enhancing Keesler's commitment to clean up contaminated sites. Keesler's support at local and regional meetings of the Deep South Center for Environmental Justice has strengthened the trust between the RAB and the base. RAB meetings and community outreach activities are frequently conducted with community members, facilitating personalized communication for questions and answers from Keesler's environmental experts. In addition, the KAFB Partnering Team welcomes local media involvement promoting the AF commitment to responsible environmental stewardship. The Keesler Restoration Program has been recognized on numerous occasions by the local news media for its outstanding community involvement and concern for human health and the environment.

Information repositories are located at local libraries and tours of project sites are conducted annually.

FAST TRACK CLEANUP

The mission of the KAFB Restoration Team is to restore environmentally challenged areas to clean and inhabitable property.

Aerial view showing proximities of LF 2 and LF 3

The remediation of two high profile sites, Landfill 2 (LF 2) and Landfill 3 (LF 3) was expedited by the close working relationship between team members, AF personnel, and the community. Keesler's open door policy with community members led to increased trust and confidence, facilitating the cleanup process.

INNOVATIVE TECHNOLOGIES

With the dynamic management techniques of the RPM, the Partnering Team successfully revitalized LF 2 and LF 3 into a portion of the Bay Breeze Golf Course. Holes 10 and 11 are built on former LF 2, while holes 13 and 14 are built on former LF 2 and LF 3. The Partnering Team has consistently met challenges to use cost effective, environmentally friendly technologies. LF 3, which was a "dump" where waste and rubble were piled on the old fire training areas, is now a revitalized peninsula covered by golf course. Final corrective actions involved placement of a low permeability cover, a methane venting system, and long-term monitoring with land use controls. Cost and time savings were recognized at LF 2 when geosynthetic textile tubes were creatively used to dewater and contain contaminated sediment rather than treating and disposal off-site. In a second application, a 250-foot geotube jetty was created to cover contaminated sediment "hot spots" and also to reduce wave energy that will eliminate future shoreline erosion along the landfill. Sediments that were contaminated and posed ecological risks were either disposed of in LF 2 under the low permeability cover or were covered in place by geotubes.

These applications were shared with the Mississippi Marine Resources to address similar issues.

Geotube Jetty

Site	Conventional Technology (000)	Actual Cost (000)	Innovative Solution
OT39	$250	$125	Moved PCB cont. soils to LF3 & placed under low-perm cover
LF 3	$40,000	$10,000	Contained BTEX, PCBs, Pest., PAHs, & Pb using vertical sheetpiles, low-perm cover
LF 2	$800	$300	Dredged pesticide & metal cont. sediments and placed in geo-tubes under low-perm cover
LF 3	Subjective	Free	Used onsite concrete rubble as rip-rap to create hard-bottom substrate for marine life habitat
LF 2	$500	$255	Used geotube to create jetty that stopped shoreline erosion & covered pesticide cont. sediments

"Keesler AFB addressed ecological risk assessment issues that have stumped other DoD facilities and teams throughout the country. The Team evaluated and used several innovative cleanup technologies and methods. The ultimate success of the cleanup technologies has led to appropriate re-use and re-development of several of the waste units."

- Robert H. Pope, USEPA, Region IV.

PARTNERSHIPS

The environmental integrity and stewardship exemplified by the team has earned them the trust of communities both on and off base. Early in the partnering process, it was determined that having the Natural Resource Trustees on the team would benefit the restoration program. Keesler and EPA invited NOAA and the US F&WS to become team members. The results of this have been the ability to make decisions at the table, the completion of an Ecological Risk Assessment (ERA) to the satisfaction of all parties (one of the first ERAs completed in Region IV), and the avoidance of a Natural Resource Damage Assessment.

The KAFB Partnering Team works closely with outside organizations and universities to research and explore new technologies. For example, in partnership with the Louisiana State University, a doctoral student is performing the first ever Microbial degradation of pesticide dichlorodiphenyltrichloroethane (DDT) in sediments interceded by *Phanerochaete Chryosporium.*

The KAFB Partnering Team also works to identify new technologies and cost saving techniques. In conjunction with the AFCEE Technology Transfer, the Restoration Team studied the use of passive diffusion bag samplers (PDBSs) in 14 monitoring wells. The test concluded the PDBS method costs significantly less than conventional volatile organic compound sampling methodology.

Opportunities for Small Business

Keesler supports the AF goals to use small disadvantaged businesses in support of the IRP. For example, during the LF 3 restoration project, $2.5 million was subcontracted to small businesses. Equally impressive, 91% of $3 million was subcontracted to small or small disadvantaged businesses for the restoration of LF 2. Subcontracted small and locally-owned business categories included Native American and woman–owned businesses.

Protecting Human Health and the Environment

Keesler's superior management strategies have proven successful in eliminating human health and ecological risks at Keesler. Because Keesler is an active base, land is not transferred to the community after restoration but is retained for use by the military. Part of Keesler's success is the continued use of established principles and concepts and applying these standards to new projects that arise. Specific standards routinely applied are inclusive of the principles detailed in the following chart.

Lessons Learned

- Partner with stakeholders to focus and define objectives in early stages.
- Establish milestones for routine evaluation of results by Partnering Team.
- Document acceptance each step of the way.
- Site-specific ecological evaluations are imperative for identification of remedial measures particularly in dynamic ecosystems.
- Expedited document review using verbal agreements replaces time consuming written comments with savings of more than $5,000 per document and 2200 man-hours per year.
- Actuate early investigations to identify human/ecological potential receptors from contamination by performing in-depth human health and ecological risk assessments.
- Working closely with regulators and the community expedites remediation
- Continuity among partnering members expedites remediation.
- Working closely with National Trustees, e.g., NOAA and US F&WL expedites remediation.

CONCLUSION

The Environmental Restoration Program at KAFB is acknowledged as a model Air Force Program. The Partnering Team is dedicated to environmentally friendly solutions, innovative technologies, and cost control to solve complex and challenging issues. Through strategic planning, Keesler AFB continues to exceed DoD goals and expectations by meeting RIP for all IRP sites several years in advance. The restoration team is committed to their mission of eliminating human health and ecological risks at Keesler Air Force Base and for the surrounding community.

"Keesler AFB has won the prestigious General Thomas D. White Environmental Restoration Award above all other installations for 2004 because of their superior commitment and leadership in cleaning up and preserving the environment. We are impressed with the transformation of two former landfills from environmental hazards into beautiful and ecologically prosperous areas."

- Congressman Gene Taylor