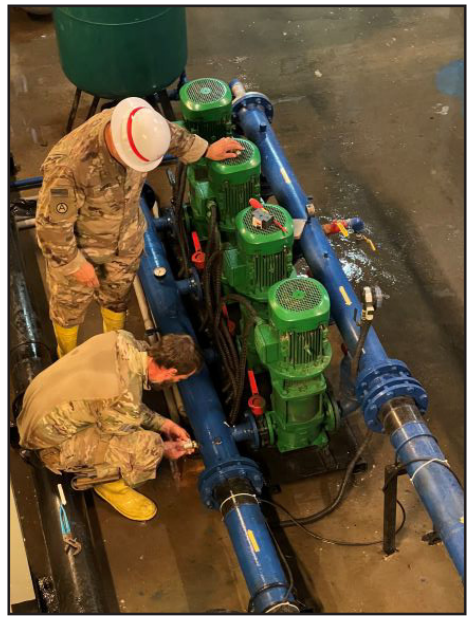
Hamid Karzai International Airport Prime Power Mission

By Chief Warrant Officer Two Darius J. Cooper

On 17 August 2021, the U.S. Central Command requested that U.S. Army Central provide prime power support for the evacuation of joint international military forces, Special Immigrant Visa applicants, and civilian personnel from the United States and other nations at the Hamid Karzai International Airport (HKIA) in Kabul, Afghanistan, via the U.S. Army Corps of Engineers 249th Engineer Battalion (Prime Power), Fort Bragg, North Carolina, forward element prior to the conclusion of the operation on 31 August 2021. The primary mission of the 249th was to replace contractors from Ecolog International (who were stationed at HKIA electrical power plants) with prime power Soldiers. While it was necessary to quickly evacuate the contractors from Afghanistan, the requirement for reliable, uninterrupted electrical power continued for the duration of the military retrograde and removal of evacuees.

On 19 August 2021, Chief Warrant Officer Two Darius J. Cooper led a team of five prime power noncommissioned officers (Military Occupational Specialty 12P—Prime Power Production Specialists) from Camp Arifjan, Kuwait, to HKIA to begin the relief-in-place mission and take control of power plants. HKIA electrical power generation systems consisted of three diesel-fueled prime power plants that provided electrical power to critical facilities, with tactical spot generation units distributed throughout the airport for remote facilities with minimal power requirements (such as guard towers and maintenance workshops). By 21 August 2021, all contractors from Ecolog International had properly transitioned from their assignment and their duties as prime power operators, repairers, and maintainers were reassigned. Cooper and his team felt confident in performing the assigned mission, as they were familiar with the model of Caterpillar® generators since they were made by the same company that had manufactured their organic equipment generator engines. The team immediately assumed responsibility of the three power plants and the corresponding obligations.



A Soldier assists an environmental engineer from the U.S. Army Corps of Engineers while he works to get the pumps back online at the water treatment plant.

Since the team was not augmented with additional qualified operators from the Prime Base Engineer Emergency Force, 1st Expeditionary Civil Engineer Group, U.S. Air Forces Central, Chief Warrant Officer Two Cooper and Staff Sergeant (now Sergeant First Class) Roy Adkins, the noncommissioned officer in charge, decided to make use of roving teams to simultaneously run all three plants. This decision was critical, as a minimum of eight prime power Soldiers working 12-hour shifts is normally required to safely operate one power plant with 24/7 coverage. Each team consists of a control room operator, log book recorder, equipment operator, and plant supervisor. The three plant operator noncommissioned officers (Staff Sergeant Jeffrey Bevington, Sergeant [now Staff Sergeant] Alfonso Marquez, and Sergeant Myles Keyser) and Cooper developed a roving two-man team shift schedule in which personnel rotated and conducted checks on each plant throughout the day. This was done based on the shortage of personnel. Cooper and Adkins focused on overseeing, reporting, and attending daily meetings to ensure that all stakeholders from U.S. Forces–Afghanistan and the 82d Airborne Division were informed of any power plant operational updates. When not interacting with stakeholders, Cooper and Adkins also roved and checked on the teams and power plants. They set up the shift schedule to attend the one dining facility meal each day, allowing them an opportunity to physically check on the team members' well-being and update them with mission timelines and other pertinent information.

Power Plant 1 (PP1), a 6-megawatt plant, controlled more than 8,000 coalition and U.S. forces housing units, the North Atlantic Treaty Organization Support and Procurement Agency, the North Atlantic Treaty Organization helicopter hanger, and Dining Facility 1 (the only dining facility operational during retrograde operations). Power Plant 2 (PP2), a 7.6-megawatt plant, controlled the water and wastewater treatment plants, hospital, flight line lighting, and airfield operations facilities. Power Plant 3 (PP3), a 6-megawatt plant, controlled the new mosque, joint

operations center, and joint force living quarters. In total, the three power plants produced 19.6 megawatts of power.

On 12 August 2021, Chief Warrant Officer Two Cooper instructed his team to visit the water and wastewater treatment plants and develop a simple standard operating procedure so that a responsible unit could assume control of both locations after the contractors were evacuated. The standard operating procedure was delivered to the logistics officer (J-4), to be transferred to the unit responsible for operation of the plants on 24 August 2021. It was critical to keep the water and wastewater treatment plants properly functioning throughout the evacuation and retrograde because of the need for clean water for the hospital as well as for the life, health, and safety of all U.S. and coalition forces. Unfortunately, due to a lack of consistent monitoring of the pumps, the water treatment plant shut down and was flooded. Sergeant First Class Adkins, a certified state electrician, worked tirelessly to get the power restored after the floodwater was drained from the water treatment plant. Additionally, he assisted U.S. Army Special Operations Command operators and an environmental engineer from the U.S. Army Corps of Engineers in getting the water plant back online.

Containment material was placed on the ground to soak up the excess fuel after the generator day tank overflowed.

While in control of the three power plants, the prime power teams manually and independently calibrated the PP1 and PP2 generator controls so that all of the prime generators equally shared electrical loads. Load sharing was an enduring challenge in these two power plants when all five generators were synchronized and put online at the same time. A problem associated with the fuel tanks at PP3 was also corrected, and all four fuel tanks were left in good working condition, improving the fuel storage capacity of the power plant.

After a terrorist attack at Abbey Gate on 26 August 2021, Chief Warrant Officer Two Cooper decided to redeploy the three plant-operating noncommissioned officers who had developed the roving teams back to Camp Arifjan. Cooper and Sergeant First Class Adkins remained at HKIA as the trail element in order to maintain continuous power and then retrograded with the 82d Headquarters and Headquarters Battalion trail company on 30 August 2021.

A Soldier discusses the fuel level readings at PP2 with two plant operator noncommissioned officers and an employee from Ecolog International.

The main body departed on 27 August 2021, and the joint operations center authorized the sanitation and demilitarization of equipment and the clearing of facilities at HKIA. During the facility clearing, the PP3 fuel monitoring and transfer system was damaged, causing an overflow of diesel fuel on the morning of 28 August 2021. After minimal spillage, Sergeant First Class Adkins shut off the switching system and the fuel system was brought back online. With help from nearby fuelers, Chief Warrant Officer Two Cooper used a spill containment kit to soak up the remaining fuel. Cooper and Adkins continued to conduct daily checks of each plant to ensure that operation, routine maintenance, and fuel deliveries continued.

On 29 August 2021, all 15 prime power generators from the three HKIA power plants were started, synchronized, and connected to the distribution system in order to support the last phases of the Central Command operation after the departure of the main body. The 10 fuel storage tanks from the combined power plants were filled to maximum capacity to ensure that the power plants would run for the maximum possible time following the joint tactical exfiltration. Based on the number of tanks topped off the morning of their scheduled trail element departure, Chief Warrant Officer Two Cooper and Sergeant First Class Adkins estimated that each power plant could generate more than 2 to 3 weeks of continuous power. Also on that day, the bulk water treatment plant flooded and shut down for a second time, causing a complete loss of the HKIA potable water supply for 12 hours. Cooper and Adkins unsuccessfully tried to correct the issue. The plant was deemed a low priority and remained non-mission-capable for the duration of the retrograde.

During the check of PP3, Sergeant First Class Adkins discovered that the fuel system had suffered damage due to

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[5]John T. Greenwood, "The U.S. Army and Amphibious Warfare During World War II," *Army History*, Summer 1993, p. 2, <http://www.jstor.org/stable/26304100>, accessed on 28 November 2022.

[6]Donald W. Boose Jr., *Over the Beach: U.S. Army Amphibious Operations in the Korean War*, Combat Studies Institute Press, Fort Leavenworth, Kansas, December 2008, pp. 35–38, <https://apps.dtic.mil/sti/pdfs/ADA507443.pdf>, accessed on 28 November 2022.

[7]Joshua P. Bost, "Amphibian Engineers in the Southwest Pacific," School of Advanced Military Studies, Fort Leavenworth, Kansas, 8 March 2017, p. 10, <https://apps.dtic.mil/sti/pdfs/AD1038874.pdf>, accessed on 28 November 2022.

[8]Boose, pp. 37, 327, 328.

[9]*Force Design 2030*.

[10]Ibid., p. 2.

[11]ATP 7-100.3, pp. A–1, A–2.

[12]ATP 3-34.80, *Geospatial Engineering*, 22 February 2017.

[13]Ibid, p. 1-8.

[14]Ademola D. Fabayo, "Marine Corps Engineering Pre-Mortem," Marine Corps University, 2021, p. 21, <https://usmc.primo.exlibrisgroup.com/view/delivery/01USMCU_INST/1254146290005241>, accessed on 29 November 2022.

[15]Robert F. Gold, "The Engineer Amphibious Support Brigade: Concept for Future Operations, Rooted in the Past," *Engineer*, January–April 2020, pp. 32–33.

[16]Ibid, p. 32.

[17]Walt Carr, "The Marine Combat Engineer Regiment," *Marine Corps Gazette*, Vol. 104, Issue 5, May 2020, p. 37, <https://www.proquest.com/docview/2397845819?accountid=14746&parentSessionId=a37AbJNoV3%2Bf1J%2BiZVxSsfWxX%2FdA9OaCVrMfrKNBzCI%3Dpqorigsite=primo>, accessed on 29 November 2022.

[187]Ibid.

[19]R. Daren Payne and Carol L. Anderson, "Joint Engineer Culture Clash—Lessons Learned from a Marine Expeditionary Force," *Engineer*, July–September 2006, pp. 11–13.

[20]*Force Design 2030*, pp. 2, 8, 9.

[21]Ibid.

[22]Payne and Anderson, p. 13.

[23]Ibid, pp. 11, 14.

[24]Rachel M. Walkenbach, "The Joint Engineering Way Ahead," *Engineer*, January–March 2008, p. 24.

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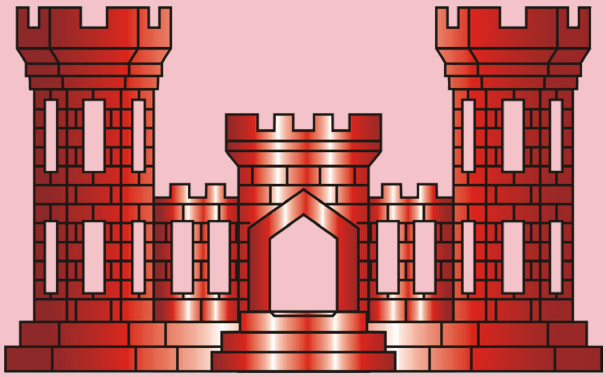
the actions of the previous day. As a result, the pumps no longer transferred fuel from the four bulk fuel storage tanks to the generator day tanks. Coordination was immediately conducted with the fuel delivery unit to directly fill the day tanks for continued operations. For fueling to take place, disassembly of the inlet pipes was required. This course of action reduced the continuous operations timeline of PP3 to 16–24 hours because fuel was being drawn from the day tanks—not the underground storage tanks. The operation time that had previously been calculated for the generators at PP3 was roughly 21 days. On the evening of 29 August 2021, the Counter Rocket Artillery Mortar System lost electrical power. This required a controlled power reset. After this corrective action was taken, the power for the building was restored and was no longer dependent on its uninterrupted power supply system.

On the morning of 30 August 2021, the Counter Rocket Artillery Mortar System was back online and managed to thwart an attempted rocket attack aimed at HKIA. The end-of-mission plan consisted of one final check for all three plants. Since PP3 was slated to run out of fuel first, Chief Warrant Officer Two Cooper and Sergeant First Class Adkins ensured that the joint operations center powered by this plant was notified of the impending loss of power. Fortunately, all tactical operations had been switched over to the 82d Airborne Division. Cooper and Adkins completed their final checks of the power plants, prepared to retrograde with the trail element, and joined the 82d Headquarters and Headquarters Battalion Company later that afternoon. They departed HKIA in a C-17 aircraft and returned to Camp Arifjan that evening, completing the mission.

Chief Warrant Officer Two Cooper was the prime power officer in charge of a forward element from Company B, 249th Engineer Battalion (Prime Power), during the events described in this article. He now serves as a facilities engineer technician, 44th Medical Brigade, Fort Bragg, North Carolina. Chief Warrant Officer Two Cooper holds a bachelor's degree in construction management from Southern Polytechnic State University, Marietta, Georgia, and a master's of business administration degree in project management from Liberty University, Lynchburg, Virginia.