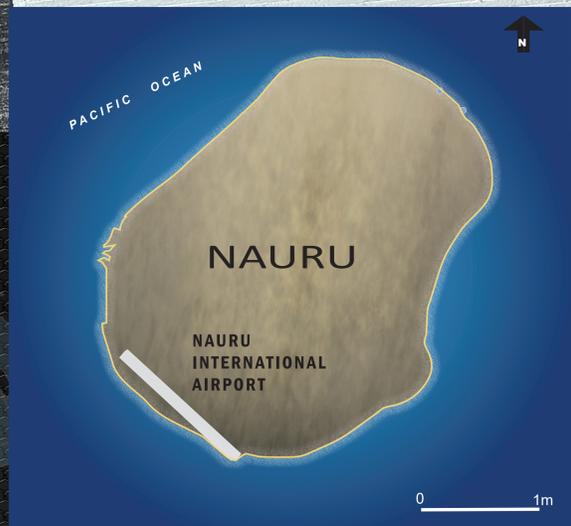


Using Advanced Sensor Technologies

to Optimize UXO Remediation at Nauru Airport



NAURU

HISTORICAL SUMMARY



During World War Two, Nauru was attacked by both sides of the conflict. In December 1940, German auxiliary cruiser Komet shelled Australian mining facilities, oil storage depots, and the ship loading cantilever on Nauru. On 25 August 1942, Japanese troops captured Nauru and subsequently built an airfield on the island and operated for three years (26 August 1942 – 13 September 1945). At that time, Nauru was under Australian administration and occupied by the Japanese military as part of its operations in the Pacific. The most important infrastructure built by Japan was an airfield, which was the target of repeated Allied air strikes until the end of the war.



Scan here to read about the project in the Nauru Bulletin (p. 9)

INTRODUCTION

Upgrades to Nauru International Airport required subsurface works across the runway, taxiways, and apron in an environment with extensive, documented World War II bombing and naval shelling. The airport's role as the island's primary transport link made it critical to minimize operational disruptions while providing safe remediation of legacy unexploded ordnance (UXO). Funded by Australia's Department of Foreign Affairs and Trade (DFAT) and delivered in cooperation with the Government of Nauru (GoN), National Police, the Civil Aviation Authority, and Downer, Tetra Tech and Gap EOD conducted a targeted UXO survey and clearance program ahead of pavement replacement works. A cornerstone of the project's success was strong cooperation and advance planning with local stakeholders. Early coordination with GoN and airport representatives established evacuation procedures, access controls, emergency response pathways, and stakeholder communication protocols that allowed clearance activities to proceed safely while preserving airport operations.

METHODOLOGY

Tetra Tech and GapEOD employed advanced sensors to discriminate thousands of benign metallic clutter and potential ordnance. An initial 2023 towed electromagnetic screening survey returned 237 anomalies. Due to the critical need to minimize impacts to airport operations, in 2023 Tetra Tech redeployed Gap EOD's UltraTEM IV system with a refined data collection and processing capability that reduced this list by approximately 60 percent, to 96 anomalies. Field investigations used excavators and hand tools with engineering controls and strict safety procedures. Three UXO items were located beneath the existing runway footprint: two 500-lb aerial bombs and one 5-inch Naval projectile. Each item was neutralized in situ using controlled thermite burn techniques and protective works to limit potential fragmentation and blast effects. All three render-safe procedures were completed within 8 hours each, minimizing runway closure and protecting airport infrastructure.



KEY LESSONS

Advanced sensor systems and robust discrimination workflows can significantly reduce intrusive investigations on sensitive infrastructure sites. When combined with disciplined investigative procedures and strong coordination, precise geophysical profiling and insitu neutralization enabled safe, efficient remediation with minimal operational impact. Tetra Tech's work in Nauru demonstrates how data-driven geophysics, tailored render-safe procedures, and proactive stakeholder engagement can optimize UXO remediation on critical infrastructure projects and provide a scalable model for similar sites worldwide.