

OBTAINING PROBATIVE RESULTS FROM HUMAN REMAINS RECOVERED FROM CONFLICT REGIONS USING MULTIPLE SYSTEMS IN PARALLEL

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DNA Solutions has developed a specialized workflow for processing human remain samples recovered from multiple conflict regions around the world. This process yields maximum data from downstream systems, including the PowerPlex® Fusion System, a 24-locus autosomal multiplex for human identification, the PowerPlex® Y 23 System, a 23-locus Y chromosomal multiplex for human male identification, the InnoTyper™ 21 bi-allelic, small amplicon DNA typing system, and the mitochondrial sequencing of regions, HV1 and HV2. These samples are highly degraded and have been exposed to multiple PCR inhibitors, including salt, soil, and sewage. To date, multiple human remains' samples from different conflict areas have been processed using this workflow, obtaining informative results.

Genetic data recovered from multiple samples will be shared. Pedigree mapping will also be shown to demonstrate the difficulties of confirming relatedness when comparing the results to known family reference samples. In some cases, artifacts found with the remains can be valuable in determining presumptive identifications where known family members can then be compared directly to the remains to confirm the presumptive relationship. Maternal relations are confirmed using mitochondrial sequencing and male lineages can be confirmed using the Y-STR analysis.

This workflow has resulted in the successful repatriation of a number of soldier's remains who have subsequently been given proper military burials.