PERFLUOROALKYL SUBSTANCES (PFAS) MIGRATION IN AQUIFER SYSTEMS IN ISLANDS OF THE WESTERN PACIFIC

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Abstract - Perfluoroalkyl substances (PFAS) are a class of contaminants that pose significant environmental and human health concerns. In Saipan, five out of 23 water distribution systems that use groundwater as drinking water contained detectable levels of five PFAS chemicals: perfluorooctane sulfonic acid (PFOS), perfluorohexanesulfonic acid (PFHxS), perfluoroheptanoic acid (PFHpA), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). Guam also showed groundwater contamination by these PFAS compounds. This study analyzed the spatial distribution and migration patterns of PFAS in aquifer systems. Additionally, suspicious PFAS contamination sites, such as firefighting training areas and locations of aqueous film-forming foam spills, were investigated to understand the presence of PFAS in soils. The relationship between these potential sources of PFAS contamination and groundwater contamination was examined.

Keywords - Perfluoroalkyl Substances, PFOS, PFOA, Pfhxs, Groundwater Contamination, Aqueous Film-Forming Foam.