From: Clark, David J CIV USN NAVFAC SW SAN CA (US)
To: Chang, Richard
Cc: Linz, Tahirih P CIV NAVFAC SW, SDAS
Subject: [External_Sender] Follow up on TI question regarding Ludlum 193-6
Date: Monday, July 22, 2019 11:03:39 PM

Good Evening Richard:

Following up from the question regarding equipment used for the TI housing scans. The equipment used was the Ludlum Model 193-6.

The instrument measures dose rate and detects changes in dose rate as small as 0.1 micro rad. The average background in the housing units was 4.0 micro rad.

Using Microshield, a 3 uCi LLRO (average LLRO) under 4 feet of soil provides a dose rate of 0.6 micro rad at the surface. Therefore, this LLRO was detectable during the housing unit surveys.

At 3 feet below ground surface, a 3 uCi LLRO provides 6 micro rad of dose.

The Microshield runs of 3 and 4 feet of soil do not include the concrete foundation. However, it does not affect the overall ability to detect items at depth.

The housing concrete foundations ranged in thickness from 2 to 4 inches (often were 2 inches). Concrete has a higher density than soil and reduces the dose rate at the surface; however, due to the relative thinness of the foundations, the change in dose rate is negligible.

Therefore, the 193-6 definitely was able to detect LLRO's several feet below the building foundations, similar to the RS-700.

Regards,

Dave Clark
Lead Remedial Project Manager
Former Naval Station Treasure Island
Naval Facilities Engineering Command
Navy BRAC PMO West
33000 Nixie Way
Bldg 50, 2nd floor
San Diego CA 92147
619-524-6870

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