The Low-Background Screening and Measurement Facility at the Boulby Underground Laboratory in the UK

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### Current Facility

- Currently 7 ultra-low background gamma-spectroscopy detectors, including 3 new S-ULB class detectors from Mirion (Canberra).

**Sensitivity down to <20ppt U/Th per sample, & improving**

- The XIA UltraLo-1800 is an ultra-low background surface alpha counter with backgrounds of 0.0001 alphas/cm²/hr.

- The low background allows the XIA to measure samples in days instead of weeks.

Located on the N.E coast of England, the laboratory is situated in a working potash, polyalite and rock-salt mine.
Outlook

- Acquire additional S-UBL detectors and add radon emanation measurement capabilities to create single center of excellence for both assay and cleanliness.

- BUGS can also carry out science measurements, such as using Ge to measure $^{96}$Zr double beta decay to 1st excited state.

- Screening for current and next generation neutrino experiments such Gd for SuperK, SuperNemo post demonstrator and the WATCHMAN experiment.
Thank you for listening!
Any Questions?