An Examination of the First Ten Years Operational Experience of AWE Aldermaston's Tritium Facility

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During May 1999, AWE Aldermaston's "new" tritium research laboratory received its first tritium gas sample formally turning the building "radioactive". In the ten years since, considerable experience and knowledge has been gained and many teething problems overcome.

This paper will share some of that experience gained during inactive and radioactive commissioning and subsequent operations. The major engineered systems will be described including those necessary to maintain safety of the staff and of the wider environmental. The performance of such systems will be described in the light of regulatory pressures on discharges and by comparison to past performance. Recently, a complete review of safety has been conducted against "modern standards" following the latest UK regulatory requirements. The safety assessment methodology followed, its outcome and the means to address any shortfalls that arose will where possible be described.

The management and minimisation of waste balanced against environmental discharges, remains an area of particular interest. The current means of abatement is a traditional oxidation step to form tritiated water followed by long term storage on molecular sieve. In the absence of a UK waste repository for intermediate level waste this stream requires further minimisation. The outcomes of a study to reduce or eliminate further arisings will be described.

Looking to the next 10 years, a number of options are discussed to ensure that the building is able to continue to operate safely while reducing waste emissions and options.