September 2023

COMARE Statement on the completion of the remediation of radioactively contaminated land at Dalgety Bay

SEPA have announced the completion of remedial works at Dalgety Bay in a press release on 15th September 2023. The Committee on Medical Aspects of Radiation in the Environment (COMARE) welcomes the completion of the remediation, which it recommended in its 15th Report (Radium contamination in the area around Dalgety Bay). The Ministry of Defence has funded the installation of a membrane barrier and rock armour around the appropriate area, together with sifting of beach material to remove radioactively contaminated items.

Following the discovery of radioactive contamination on the beach at Dalgety Bay during the routine baseline monitoring campaign by Babcock Engineering Services for Rosyth Naval Base in June 1990, a limited survey was carried out which confirmed the presence of discrete sources of radium-226 on the beach. The source of contamination was identified as being due to the destruction of aircraft at the Royal Naval Air Station Donibristle after the second world war. Radium-226 was incorporated onto instrument dials to give night-time visibility; these were burned and the ash buried.

COMARE has been considering radioactive contamination in the Dalgety Bay area since 1991 at meetings of both the main committee and its Contaminations Working Group. Initial advice was provided to the Scottish Office, but this has been channelled through the Scottish Environment Protection Agency (SEPA) since its inception in 1997. There has been close collaboration between COMARE and SEPA in instituting a monitoring programme, analysing the finds, estimating the risks posed to the public and working towards a remediation programme.

Most of the early contamination found in the Dalgety Bay area was in terrestrial locations. In these cases, each area affected was small and the contamination was immobile, easily delineated (i.e. a static problem) and amenable to remediation by excavation and removal.

The sources found from 2009 onwards, however, were sited on the foreshore and appeared to be evidence of a more dynamic (changing) situation. Despite a letter suggesting that over 800 aircraft were dismantled on the site in 1946 alone, no records of the amount of radioactivity brought on to the site are available. It was not possible, therefore, to determine the radioactivity remaining or to estimate the longevity or magnitude of the associated hazard. Under such circumstances, it was not possible to make accurate predictions about future hazard from past evidence.

In 2011, the most recent series of finds of radioactive sources located by SEPA was notified to COMARE. The committee took the view that these finds represented a significant change to the previous situation, requiring more in-depth investigation and set up a Working Group to produce a formal report.

Using aerial photographs, the changes in coastline since WW2 were investigated. These suggested that the finds were due to coastal erosion exposing sites where ash from the

burning of aircraft instruments containing radium had been dumped, with radioactive material leaching into the Forth Estuary. It was likely, therefore, that sources would continue to be found.

In November 2011, COMARE requested that the NHS Scotland Information Services Division (ISD) conduct an analysis of the incidence of cancers in the vicinity of Dalgety Bay, comparing local incidence rates with the national averages for the whole of Scotland.

The Committee's final report was made available to the Scottish Government in 2013 and published in 2014. It concluded that there was no evidence of a significant increase in those cancers which might be relatable to radium-226 contamination. However, it was concluded there was a risk to the public which should be addressed by a large-scale remediation project. The latter would involve both a coastal barrier to contain the contamination and removal of sources from beach area. Such a programme was agreed between SEPA and the Ministry of Defence, endorsed by COMARE and commenced in 2019.

Given the latent period between exposure to radiation and the development of any cancer which could be caused by it, COMARE will consider the value of a repeat survey of cancer incidence rates in the surrounding area by the end of the decade to study any effect of the later, higher-activity contamination.