

Dalgety Bay Radiological Support Monthly Survey Plan for Dalgety Bay Beach (Ref: 23218N185i6)

1. Introduction

1.1 Background

The Defence Infrastructure Organisation (DIO) has commissioned AMEC Environment & Infrastructure UK Ltd (AMEC) to undertake monthly surveys and removal of radioactive radium-226 contamination at various areas in Dalgety Bay, Fife. It is considered by the Scottish Environmental Protection Agency (SEPA) that the contamination originated from the Second World War Maintenance Unit at the former Dalgety Bay airfield, and that it was incorporated into soil, which was then inadvertently spread onto headland and foreshore areas during the redevelopment of the airfield to the modern settlement of Dalgety Bay.

Both DIO and SEPA have undertaken several radiological surveying and intrusive investigation exercises in the past, which have been publicly reported. SEPA has recently undertaken a survey and recovery exercise at a much higher resolution and coverage than previously undertaken by either party. This has demonstrated the need for a programme of further investigation and for ongoing monthly surveys to provide continued assurance of public safety. DIO has requested that AMEC undertake these monthly surveys, as part of DIO's undertaking to continue to support the Dalgety Bay Forum in carrying on works at the site.

1.2 Aims and Objectives

The aims and objectives of the work are to undertake a surface walkover survey of the area of beach that is denoted to be 'contaminated' according to signage at the site. Any radioactively contaminated materials encountered will be removed from the beach to the on-site store. Limits of detection for these surveys will be as recommended by the independent Expert Group established by SEPA. The requirement is to detect point sources with an activity of up to 20kBq buried up to 0.1 m below ground level will be detected with a 95 % confidence level. A report providing evidence of the capability and the outcome of a trial carried out in February 2012 will be provided to SEPA and the Expert Group.

2. Radiological Surveys

2.1 Methodology

The radiological surveys shall be carried out as positionally-referenced surface surveys, using person-portable positionally-referenced 3" x 3" sodium iodide (NaI) detectors recording count rate. This methodology will yield a data set which comprises GPS-positioned count rates. The following optimised approach shall be used for the survey;

- Detector to be positioned 0.1 m above the ground;
- Walking speed 0.5 m/s
- Maximum traverse separation of 0.46 m

Using the above method each GPS positioned count rate recorded will represent 0.17 m² of beach.

Where areas of elevated counts (as detailed in section 3.1) are detected, further investigation will be required. Further investigation by 'static measurement' will comprise;

- Detector to be position 0.1 m above the ground;
- A static measurement (i.e. probe not moving for >1s).

Due to the variable nature of the local background across the survey area it will be necessary to survey the beach as two distinct areas; the upper shore, background approximately 200 counts per second (cps) and the lower mudflat areas, background approximately 150 cps.

3. Sampling / Recovery of Finds

3.1 Survey Interpretation / Recovery Trigger Level

Following the completion of survey of each survey zone, the data shall be downloaded onto a site laptop, and interrogated using GIS.

Based on a background of 220 cps recorded data points in excess of 34 cps above local background, based on the previous probe measurement, will be subject to further investigation by static measurement. Where static measurement results record readings in excess of 200 cps above local background intrusive investigation will be required and elevated material recovered to the site store.

4. Quality Control and Sample Management

Quality control and sample management procedures are detailed in 23218Q240i2.

4.1 Health and Safety Management

Health and safety management is the subject of additional documents, including the health and safety plan and the Local Rules (reference S23218Q049).

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