



**DEFENCE ESTATES**

*Delivering Estate Solutions to Defence Needs*

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Reply to: Iain B Robertson



Colin Bayes  
Director of Environmental Protection & Improvement  
Scottish Environmental Protection Agency  
Corporate Office, Erskine Court  
Castle Business Park  
STIRLING  
FK9 4TR

Your Ref

Our Ref

ROS/FFE/ESM/005

Date

02 March 2009

**By Email**

Dear Colin,

**DALGETY BAY– MOD PROGRAMME AND PROJECT MILESTONES**

Further to the Dalgety Bay Forum's acceptance of the package of proposals presented by Defence Estates on 09 February 2009 it was agreed that a plan detailing project milestones would be presented. The scope of works is presented within Annex A.

This plan supported by an initial intensive programme of identification will inform the need for further work to clarify movement of particles and to inform whether there is a need for future work and remediation.

As SEPA is aware DE has erected appropriate signage as an interim measure to ensure that beach users are aware of the potential issues allowing them to take sensible precautions to negate the potential for any contact with contaminants. This completes task 1 of our action plan.

It has been recognised that there is a need for further technical information, as previously expressed there are concerns in regards to assessments and assumptions made within SEPAs assessment report these mainly relate to the following: Assumptions in relation to skin contact and ingestion, and the particle characteristics and availability within the environment, the absence of consideration to the effect(s) of shielding and self shielding, and potential inconsistencies with respect to Radiochemical Equilibrium data

To expedite this work it is proposed, with SEPA and the Dalgety Bay Forum's agreement, that the Health Protection Agency (HPA) in consultation prepare proposals for a risk assessment methodology, negating the need for the additional cost and likely delay associated with establishing a sub committee or technical advisory committee. In view of HPA's association with the Dalgety Bay Forum, SEPA and wider Government it seems the most sensible course to follow. In the final analysis, it would be for each stakeholder to either agree or disagree but previous experience has shown that it is unlikely that MOD will disagree with the HPA's conclusions.



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I hope this meets with your approval and look forward to receiving acceptance of the works detailed at Annex A.

Regards

A handwritten signature in black ink, appearing to read 'Iain B Robertson'. The signature is fluid and cursive, with a long horizontal stroke at the end.

IAIN B ROBERTSON  
Senior Estate Advisor (Ops Policy & Environmental)  
DE UK Operations North  
Land Management Services  
Rosyth

CC: Dalgety Bay Forum Members

## ANNEX A

### TASK 2: INVESTIGATION OF SLIPWAY AREA

It is not at this time clearly understood whether these new sources originate from the land, from the foreshore itself (through sediment disturbance under wave action) or from offshore. The main locus of repopulation appears to be around the boat club slipways at the west headland. DE has suggested a method for determining the source of repopulation, by installing a membrane to encapsulate the foreshore sediments, followed by monitoring repopulation over time.

The membrane is intended to prevent 'churn' of the foreshore sediments by wave action. Periodic monitoring of the membrane surface would then reveal the extent of repopulation by radioactive sources. If such sources are found, this would indicate an offshore source. If no sources were found on the membrane, but were found on the adjacent unprotected foreshore, then churn would be the more likely source.

The membrane will then need to be radiologically monitored over a period of time to establish the frequency of repopulation and transfer of radioactive material, following which it will require removal. It is difficult to predict the frequency or overall duration of monitoring that would be necessary to provide a definitive answer.

### Deliverables

Because of the physically aggressive foreshore environment, the membrane will need to be robust and will require substantial anchorage. This may necessitate covering it with boulders, though such will hamper the monitoring exercise. Alternative anchorage options need to be considered and agreed. The membrane will also need to be of a suitable construction or surface texture to ensure that particles are retained and not rained off, to complete these works the following works will be carried out:

- Design and specification of membrane;
- Tendering for membrane installation works from suitable third party contractors, including site meeting with tendering contractors;
- Supervision of membrane installation (assumed one day's duration);
- It is envisaged that 5 No. post-installation monitoring rounds will be required on a monthly basis to provide a reasonable body of data to assess the movement of particles onto the targeted area. Each round will cover the membrane itself plus the foreshore up to 25 m each side and 5m to front and rear, and will require two day's work each time. The survey will comprise the following activities:
  - Outset Survey of area using positionally referenced radiometric system;
  - Download and interpretation of survey data and use of data to pinpoint and segregate any areas of elevated radioactivity to interim secure store on site;
  - Hand excavation of any accumulated radioactive material from the membrane, and its removal for interim secure storage on site;
  - Completion survey of membrane to validate removal of any radioactive materials.
- On completion of the monitoring programme, the membrane will be removed and the beach reinstated, which will be supervised by Entec;
- Once the membrane has been removed, the area will be subjected to intrusive investigation in order to establish the presence of any sub-surface particles. At this stage, it is envisaged that the intrusive survey will involve a further stage of works to be carried out by a contractor, to involve the progressive excavation and radiological analysis of the affected area of the beach in layers, with a radiometric survey of each successive layer using Entec's positionally referenced radiometric

survey equipment. This will permit the spatial positioning of each area of elevated radioactivity, which can then be removed for further sampling or storage as required. Tidal action, number of daylight hours and need for technical defensibility of the survey means that these works will be taken over an extended period of time;

- A single volume report will be produced as an interim final, the report will be then subject to external peer review by others under the auspices of the Dalgety Bay Forum, following which a further finalisation stage may be necessary. The report will contain observations on the following:
  - The objectives and method of survey works;
  - The findings of the survey works;
  - Outline recommendations for remedial options, and:
  - Any identified further works.

## Assumptions

It is apparent that there will be practical and regulatory obstacles on the membrane works which may potentially affect the technical performance of the repopulation study. Consequently, we intend to engage the regulatory bodies and likely contractors during the design phase to evaluate the project risks and potential mitigation measures associated with these potential obstacles.

The Dalgety Bay foreshore is part of the Firth of Forth SSSI, and any works of this kind will almost certainly need approval by Scottish Natural Heritage. The Local Authority and SEPA will also need to be consulted.

Ecologists will support DE in negotiations with SNH, as well as other key project staff to support the negotiations with the Local Authority and SEPA.

The following key assumptions are made:

- Access licences to the foreshore area and a necessary ancillary working / project support area will be provided by the relevant bodies;
- We have assumed that SEPA will provide an appropriate Radioactive Substances Act Authorisation;
- The works will result in the generation of a volume of waste contaminated with radioactivity which will be securely stored in the project support area throughout the lifetime of the project, prior to final appropriate disposal. Arrangements for any exempt waste will be made separately.
- All samples taken for analysis from the works will be analysed by DSTL RPS Alverstoke, and the sampled mass will be returned to Entec following analysis for incorporation into the project waste stream.
- The principal work activities which will be undertaken by the successful contractor are as follows:
  - Provision of all appropriate safety management systems, welfare and storage facilities etc;
  - Costs for provision and installation of geomembrane, and maintenance of same throughout the monitoring period, together with topographic survey costs;
  - Personnel support to the monitoring works (i.e. provision of labourers and equipment to remove accumulated sand under Entec supervision);

- Removal and disposal of the membrane following completion of the survey programme

## PROJECT MILESTONES

### Investigation of Slipway Area

Enabling Works	Apr – May 2009
Site Works (including 5no.Survey and removal)	Jun – Oct 2009
Interim results	23 Oct 2009
Additional Works	Oct – Nov 2009
Reporting	Nov – Dec 2009
<b>Draft Issue</b>	<b>16 Jan 2010</b>

## TASK 2B: INVESTIGATION OF THE COASTAL PATH

In order to provide added reassurance to the local community who use this important costal link it is intended to undertake a full radiological survey of the Fife coastal path between New Harbour in the west to St Bridget's Church in the east.

The survey will be conducted with our Radsurvey probe linked to a Trimble GPS system. The path will be surveyed in one metre strips reporting measurements at a distance of no more than 1 metre spacings. The results of the survey will be reported in GIS format with an explanatory technical note. Any particles detected during the survey will be logged and removed for storage, possible future analysis and final disposal. Should any point sources be removed from the costal path then the area will be resurveyed to ensure that risks posed by remain diffuse contaminant remains below the health protection criteria<sup>1</sup>.

### Deliverables

The deliverables for the survey will comprise a single volume report, summarising the approach, methodology and findings of the survey. Survey data will be presented on colour coded maps, together with point source spectrographic information if appropriate.

### Assumptions

Any finds of radioactive material will be placed in the same store under the same authorisation as those arising from the beach and foreshore works.

## PROJECT MILESTONES

### Costal Path Resurvey

Mobilisation	Mar – Apr 2009
Survey(s)	Apr – May 2009
Reporting	May – Jun 2009
<b>Draft Issue</b>	<b>30 Jun 2009</b>

<sup>1</sup> Health Protection Criteria as outlined in the previous Enviro reports.

### **TASK 3: INVESTIGATION OF BEACH AND FORESHORE**

The radiological survey is being carried out on the membrane area and immediately surrounding beach will not provide any information on repopulation of the remainder of the Bay which was survey by SEPA in 2008 survey an total area of some 7 hectares.

A nominal area of up to 5 hectares of beach will be surveyed, to be undertaken at the same time as the repopulation survey, on the five successive monitoring rounds. This work will provide information on the wider repopulation of the beach with radioactive material, in addition to the findings of the membrane area study. Regular monitoring and removal of any detected radioactive material will as a consequence minimise the radiological hazard over the period of the works and help build the confidence of the local community.

#### **PROJECT MILESTONES**

##### **Beach Area**

Surveys	Jun – Oct 2009
Interim Report	3 Oct 2009
Reporting	Nov – Dec 2009
<b>Draft Issue</b>	<b>16 Jan 2010</b>