

PARTICLES PROGRESS REPORT AS END OF JULY 2007

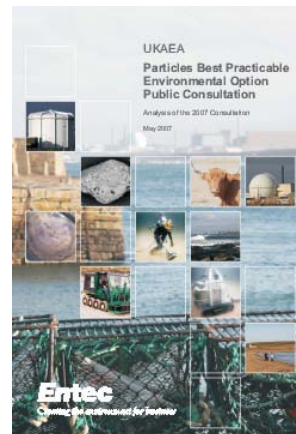
1. BPEO PROCESS

The aim of the best practicable environmental option (BPEO) is to aid the decision-making to identify a long term strategy for dealing with radioactive particles in the on-shore and off-shore environment which is environmentally and publicly acceptable.

Throughout the early part of 2007 consultation on the comparative importance of the assessment criteria took place. Entec UK Ltd has provided their report from the feedback of this consultation and UKAEA have published their response to Entec's recommendations.

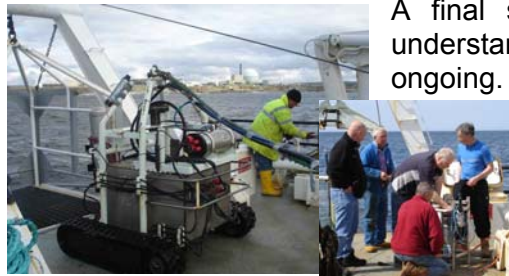
The preliminary BPEO will be updated to reflect the ongoing research work and the consultation feedback. It will be made available for a further period of comment before being finalised.

The External Consultation Steering Group (ECSG) will meet on the 14th August to discuss the final stages of the BPEO consultation.



2. OFFSHORE WORK

(a) Remotely Operated Vehicle (ROV) offshore mapping



A final season of off-shore mapping to further improve the understanding of the extent of particle contamination offshore is ongoing. This follows the 2005 and 2006 campaigns.

Area coverage (up to 24th July) is 107,000 m². Sixty-eight particles have been mapped. None of the 27 particles found west of the diffuser and into Sandside bay were in the significant category (classified in accordance with DPAG's Third Report). Significant

particles have been detected south of the diffuser. It is expected that this work will be completed in the next few days.

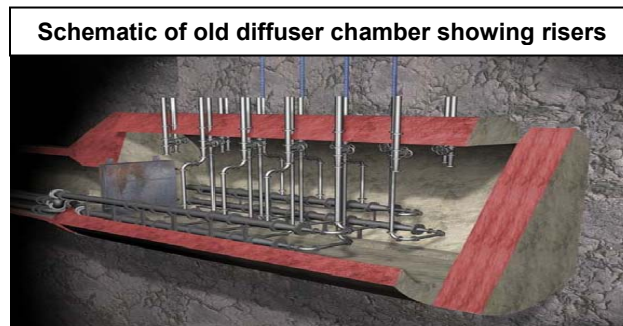
(b) Remote particle retrieval offshore

In November 2006 an advert resulted in nine expressions of interest for ROV monitoring technology with the capability of retrieving particles. Following an internal UKAEA assessment these were reduced to six and resulted in four tenders being received at the end of April 2007. Of the four tenders, three were deemed as compliant bids, and following assessment a further one was rejected (for the trials) on cost grounds and further dialogue with the remaining two tenders is underway. It is expected that sequential trials within the offshore plume will take place in September/October 2007, with one or two participating companies/consortia.

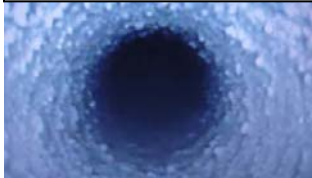
(c) Investigations at Old Diffuser structure

To increase the understanding of the condition of the rock mass above the old diffuser chamber UKAEA attempted to gain access down one of the risers in June/July. Having found a number to be blocked access was finally gained down riser no 1 and a video camera was lowered down.

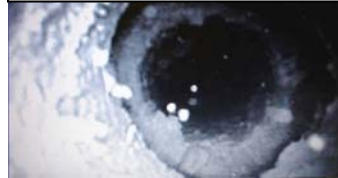
After the riser plug was removed the second lead plug expected to be below was not found. The camera was lowered down the riser to approximately 22.7 m below the seabed where the second lead plug was found lodged, obstructing further progress of the camera. Radiation dosimeters were also attached to the cable, 10 m from the camera and did not detect radiation level above background. An attempt to remove the second lead plug from the bottom of the riser will be undertaken later this year. Information gathered will assist in considering the options for remediation.



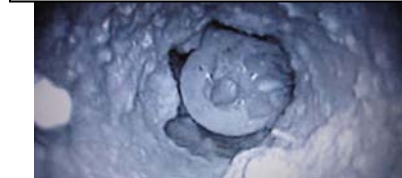
15 metres down riser



20 metres down riser



22 metres down – 2nd plug located



3. DOUNREAY PARTICLES ADVISORY GROUP (DPAG) MEETING

The work of DPAG is to continue after publication of their Third Report in November 2006. Meetings are held every two months to discuss the reports and information provided by UKAEA on their offshore and onshore particle monitoring/retrieval strategies and particle research work. A fourth report is expected in summer 2008 at which time SEPA and UKAEA will consider whether there is a requirement for DPAG to continue.



(a) Testing for particle dissolution

UKAEA is progressing work on the solubility characterisation of particles. Particles which dissolve in simulated human gut conditions would need a separate dose assessment. One hundred and fifty (150) samples are being subjected to these conditions and results will be provided to DPAG and COMARE when available. At the end of July 90 particles have been tested.

(b) **Particle density measurements**

Work is ongoing to provide information on particle densities. This is to allow a better understanding of whether the density of a particle is important in terms of particle movements. Results for 17 samples were provided to DPAG/SEPA on 17th July. The significance of the results in terms of particle transport is being considered.

(c) **Dounreay foreshore rock investigation**

UKAEA has been collaborating with DPAG on the likely nature and condition of the rock offshore above the old diffuser. In early July, two geology professors from DPAG visited the Dounreay foreshore where the structure of the rocks believed to be the same type occur. Results from their tests are currently being reviewed.



4. COMARE BEACH TRIALS

COMARE, with the assistance of DPAG, SEPA and UKAEA, carried out beach monitoring trials at Dunnet beach on 23rd/24th June to test the monitoring vehicles under realistic conditions. Preliminary results suggest that the Groundhog Evolution 2 performed well under the trial conditions. The data will be reviewed by COMARE/DPAG and published by the end of August.

COMARE expressed their thanks to UKAEA for arranging access, to the private landowners for their agreement for access and to the drivers of the monitoring vehicles.

5. DOUNREAY PARTICLES: EDINBURGH MEETING

A meeting was held in Edinburgh with Scottish Executive, COMARE, DPAG, SEPA, Highland Council, Food Standards Agency, Health Protection Agency and UKAEA in July 2007. A number of actions were identified to ensure a 'joined up' approach by all the agencies. Notes of these meetings can be found on UKAEA's website.

6. MONITORING OF BEACHES



Monitoring of the beaches in Dunnet bay commenced on 4th April and are now complete. No particles were found on Dunnet beach or at Peedie Sands. During monitoring of Murkle beach a particle, classified a 'minor' particle using the criteria specified by DPAG, was detected and retrieved.

In June 2007, as part of Dounreay's Environment Week, over 50 volunteers from the site carried out a beach clean on Dunnet beach. Over 400 bags of rubbish were collected.



Monitoring of Melvich beach commenced week beginning 16th July and is completed. No particles were detected.

Monitoring of the Dounreay foreshore was suspended during May to August due of the bird nesting season.

7. SANDSIDE BEACH

Permission for access to Sandside Beach to monitor for radioactive particles was withdrawn by the land-owner in April. Monitoring restarted on 8th August after access consent was reinstated. This followed positive dialogue between Sandside Estate and UKAEA.

Surveying of Reay Golf Course will continue with a different vehicle type to minimise the impact on the course. Sensitive areas, such as the putting greens, will continue to be monitored by hand-held detectors.

8. DOUNREAY PARTICLES TECHNICAL RESUME

The Dounreay Particles Technical Résumé has been updated and is now available on the website. The document summarises the research and investigations to date. It has been updated with new information as it became available from the various monitoring and research programmes. The present issue links with the recent DPAG report, and has been restructured, as far as possible, in a similar manner to the DPAG report for ease of cross-referencing. It takes on board comments from organisations and individuals independent of UKAEA, including DPAG.

9. KEY DATES

Date	Description
End July 2007	Results of particle density work
August 2007	Results of off-shore monitoring complete and summary report provided to DPAG.
14 th August 2007	Particles Consultation External Steering Group meeting to review preliminary BPEO and planning for stage 4 of the consultation process.
5 September 2007	DPAG meeting
September 2007	Preliminary BPEO made publicly available
September 2007	Publication of Nairn 2005 (updated) conference papers to be published in a special issue of Journal of Radiological Protection
Sept/Oct 2007	Off-shore testing of technologies for detection and remote retrieval of particles
3 October 2007	COMARE meeting
6 November 2007	DPAG meeting
12 December 2007	COMARE meeting
March 2008	Final BPEO
Summer 2008	DPAG Fourth Report

UKAEA, Dounreay
31 July 2007