

## PARTICLES RETRIEVAL ADVISORY GROUP (DOUNREAY)

### SUMMARY OF DISCUSSION and RECORD OF RECOMMENDATIONS and ACTIONS

#### 4<sup>th</sup> MEETING OF THE PARTICLES RETRIEVAL ADVISORY GROUP (DOUNREAY) – 23<sup>rd</sup> June 2010

##### Present:

Prof Campbell Gemmell – **CG (Acting Chair)**  
 Prof Tim Atkinson (Member) – **TA**  
 Prof Alex Elliott (Member) – **AE** (Also Observer for COMARE)  
 Prof Marian Scott (Member) – **MS**  
 Dr Andrew Tyler (Member) – **AT**  
 Dr Paul Dale (Technical Secretary) – **Tec Sec**

##### In Attendance:

Mr Phil Cartwright (Observer, DSRL) – **PC**  
 Mr Hugh Fearn (Observer, SEPA) – **HF**  
 Mr Stuart Hudson (Observer, The Scottish Government) – **SH**  
 Mr Richard Lennon (SEPA) – **RL**  
 Mr Bill Thomson (Observer, DSRL) – **BT**  
 Dr Jim Gemmill (Observer, SEPA) – **JG**  
 Mrs June Moore (Administration) – **JM**

##### Apologies:

Prof Keith Boddy (Chairman) – **KB**  
 Mr Randall Bargelt (Observer, NDA) – **RB**  
 Ms Joanne Brown (Observer, HPA) – **JB**  
 Mr Alastair MacDonald (Observer, DSG) – **AMacD**  
 Dr Will Munro (Observer, FSA) – **WM**

Agenda Item	Summary of Discussion	Recommendation/Agreed	Action	Status	Target Date
<b>Members' Update (Members Only)</b>	CG addressed the Members, to inform them that due to the absence of Professor Boddy through illness he would act as Chairman for this meeting only. The Members were consulted on the suggested format for future PRAG(D) meetings.	CG confirmed that SEPA's mission for the Group remains unchanged. He suggested that the Members should proceed with the pre-planned meeting schedule, in order to continue the work of the Group. This was <b>agreed</b> .	<b>CG</b> to invite <b>Members</b> to consider appointment of Acting Chair, to provide cover on an entirely interim basis.	<b>Open</b>	<b>By end of M4</b>
			It was <b>agreed</b> that the Members' best wishes would be conveyed to Professor Boddy and his family. <b>Tec Sec</b>	<b>Open</b>	<b>ASAP</b>

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( continued) <b>Members' Update (Members Only)</b>			It was <b>noted</b> that KB has indicated that he wishes to continue to receive PRAG(D)-related information. PD requested that KB be included in the dissemination of all PRAG(D) documentation and e-mail circulation. <b>All: via Tec Sec</b>	<b>Open</b>	<b>Ongoing</b>
<b>1 Chairman's Introduction</b>	<p>The Observers joined the Members and CG welcomed them to the meeting. He advised that he would be chairing this meeting, on a one-off basis, as Professor Boddy is ill and unable to attend today.</p> <p>CG advised the meeting that:</p> <p>Since the last meeting, Allyson Wilson, who was previously part of the support to DPAG, has left SEPA;</p> <p>Bryon Tilly has also now left SEPA and is replaced by Dr Jim Gemmill.</p>	<p>CG informed the Observers that he intends to discuss with Members interim arrangements to chair future meetings, as necessary during KB's absence, and that he will provide any assistance and support the Group may require to ensure the continuity of PRAG(D)'s work.</p> <p>It was <b>noted</b> that two further meetings would be held before the end of the current FY, as previously agreed.</p>	<p>The interim arrangements for future meetings will be communicated to the Group in due course. <b>CG/Tec Sec.</b></p> <p>October meeting to proceed as planned. Further meeting to be arranged for early 2011. <b>Tec Sec/JM</b></p>	<p><b>Open</b></p> <p><b>Open</b></p>	

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<b>2</b> <b>Membership/Observers Update</b>	<p>CG invited PD to report on apologies and amendments to membership.</p> <p>PD advised that apologies had been received from Professor Boddy.</p> <p>HPA were unable to attend due to their current pressure of work and had conveyed their apologies, but provided a comment on monitoring end points.</p> <p>Will Munro had communicated his apologies and indicated that, following a review of their resources, the FSA will no longer attend PRAG(D) meetings. However, the FSA plans to obtain PRAG(D) feedback via the Environmental Monitoring Task Team (ERMTT), of which the FSA is a permanent member. The FSA had provided a brief comment regarding end points.</p> <p>PD had received a communication from the Dounreay Stakeholder Group Environment sub-group (DSG) regarding it's involvement with PRAG(D). DSG had suggested that their link to the work of PRAG(D) could be maintained solely through a DSRL contact, although they expressed their requirement to continue to receive the full meeting packs.</p>	<p>It was <b>noted</b> that, the FSA would no longer attend PRAG(D) meetings.</p> <p>Following discussion, it was <b>agreed</b> that the DSG should retain formal Observer status and would continue to receive the full PRAG(D) meeting papers. However, any issues it wishes to raise or views it provides relating to the work of the Group should be communicated directly to the PRAG(D) Technical Secretary, rather than through any third party.</p>	<p>DSG to be advised accordingly.  <b>Tec Sec.</b></p> <p>DSG to receive all meeting documentation.  <b>JM</b></p>	<p><b>Open</b></p>	

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<b>2 (continued)</b> <b>Membership/Observers Update</b>	The NDA were due to attend today's meeting but had conveyed late apologies. PD said it was the NDA's intention to continue as an Observer to the Group.				
<b>3 Minutes</b>	CG asked the Group to consider Papers M4/001 and M4/002.				
<b>3.1</b> <b>Record of Previous Meeting</b>  <i>Paper 001</i>	The draft Summary of Discussion and Record of Recommendations and Actions from the meeting held on 17 <sup>th</sup> February was accepted.	It was <b>agreed</b> that, in future, Professor Alex Elliott's presence should be recorded as a Member only, to avoid duplication.	AE's name to be removed from the list of Observers and the role as COMARE Observer noted with his Membership. <b>JM</b>	<b>Open</b>	
<b>3.2</b> <b>Actions Arising</b>  <i>Paper 002</i>	The Tec Sec led the Group through the actions arising from the previous three meetings. Action points were considered and were closed, superseded or carried forward, as discussed and agreed.		Actions carried forward or deferred from previous meetings to be recorded as an appendix to this document. <b>Tec Sec &amp; JM</b>	<b>Open</b>	
<b>4</b> <b>Group's Annual Report to SEPA</b>	PD informed the Group that the PRAG(D) Annual Report was completed on time, following some late changes, and published on the SEPA website on 1 <sup>st</sup> April 2010. To date, it had received little media reportage.	CG commended the Group on the Report. It was <b>noted</b> that the Members will need to give their consideration to a second Annual Report during the next meeting.			
<b>5</b> <b>Monitoring Regarding Radioactive Contaminated Land Regulations</b>	The Chairman invited JG to provide an update on this item. During his report, JG advised that SEPA had not yet commenced the RCLR assessment, pending data required from the HPA on particle hazards which had been requested almost a year ago.	CG <b>noted</b> that it was unfortunate that it has taken so long for this information to be forthcoming from HPA and that he would be pleased to take whatever action is			

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<b>5 (continued)</b> <b>Monitoring Regarding Radioactive Contaminated Land Regulations</b>	It was suggested that if HPA cannot provide this information within the near future, the assessment could be undertaken without the required data from HPA and it would be identified as one of the assessment uncertainties.	deemed appropriate in an endeavour to try to assist with expediting the work.  SH said that the SG could also encourage HPA to provide the data.  It was <b>agreed</b> that it would be preferable to obtain HPA's advice prior to the assessment.	Clarify with HPA how long it will take to provide the data requested. <b>Tec Sec</b>	<b>Open</b>	<b>ASAP</b>
<b>6</b> <b>Offshore Retrieval Work</b>	Chairman asked DSRL to comment on the current position of the offshore particle recovery programme.				
<b>6.1</b> <b>ROV</b>  <i>Paper 003</i>	The Group received a presentation update from BT and were informed that the new ROV is currently under construction at Bromborough, with testing scheduled for early July. Members were advised that the new equipment has: a two metre swathe width; a sand tank capacity of 336 litres; a 500 metre umbilical cable; weighs 7.5 tonnes.  The presentation continued with an update on beach monitoring, recorded under Agenda item 8 below.  The presentation and verbal update from DSRL was accepted as a Tabled Paper, PRAG(D)/2010/M4/006(T).	It was <b>noted</b> that, if the new system performed to the required specification, it should be capable of monitoring a larger area and detecting and recovering more potentially <i>significant</i> particles.			
<b>6.2 and 6.3</b> <b>Implications from 2008/2009 Retrieval Work and</b>	The Tec Sec invited Dr Tyler to give the Group a verbal report, in the absence of written further assessment from the Monitoring Sub-Group.				

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<p><i>(continued)</i></p> <p><b>Monitoring Sub-Group's Review of 2008 and 2009 Retrieval Reports</b></p>	<p>AT said that he had prepared a brief update, based on the Sub-Group's previous report, but it had not been completed in time to circulate to the Group for this meeting. AT and MS gave an outline summary of the Monitoring Sub-Group's views on the information provided by the 2008 and 2009 offshore recovery work. The Group discussed the potential implications at length.</p> <p>MS expressed her concern about the level of data available on which to base calculations. She said that the evidence to support the calculations is extremely patchy. MS said that this year's retrieval work creates either one of two possible scenarios; offshore removal of particles may result in less particles eventually arriving on beaches, or; the disturbance caused by the offshore retrieval work may provide the potential for more particles to transport onto the beaches.</p> <p>The capabilities of the new retrieval equipment were considered again and further discussion ensued. TA asked about the coverage area of the retrieval work and PC confirmed that, as recommended by the Group in previous meetings, the intention is to cover at least 20 hectares. PC said that if the system works well, it may be possible to extend the amount of coverage this year. He added that</p>	<p>The Group <b>noted</b> that the new equipment did not have the potential to retrieve as many mobile particles as recovered by the system used last year.</p> <p>PD expressed his concern that the new system may not retrieve many of the 20% of particles which are mobile and, consequently,</p>			

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<b>6.2 and 6.3 (continued)</b>  <b>Implications from 2008/2009 Retrieval Work and Monitoring Sub-Group's Review of 2008 and 2009 Retrieval Reports</b>	<p>DSRL believe that the new system will provide a better opportunity to recover more particles from greater depths, but coverage may be reduced if the ROV is picking up a lot of particles – perhaps reducing to approximately 12.5 hectares. The possible long-term benefit of retrieving particles from greater depths was discussed.</p> <p>There was further general discussion concerning the capabilities of the new system and the area to be covered (or re-covered) during this year's work. PC also advised the Group that the DSG Environmental Sub-Group had raised several questions in respect of the new equipment and briefly outlined the issues discussed in that forum.</p>	<p>those most likely to be deposited onto public beaches. TA agreed that it might be beneficial to intercept mobile particles in the potential process of being transported onto beaches. It was <b>recommended</b> that this issue be revisited in future for further deliberations.</p> <p>The Members <b>requested</b> that PRAG(D) be kept informed of the retrieval work on a regular basis.</p>	<p>Regular reports/updates to the Group on the on-going ROV work. <b>DSRL/Tec Sec</b></p>	<b>Open</b>	
<b>7</b> <b>Review of DPAG'S Calculations on Half Clearance Times</b>  <i>Paper 004</i>	<p>PD advised the Group that during the last meeting KB had agreed to review DPAG work on half clearance times to determine if these were consistent with the initial data from the offshore work undertaken in 2008. KB had prepared a paper for the Group's consideration, providing a review and update of the data. PD invited TA to comment on this item. TA suggested that the Members give their consideration to KB's paper first. Afterwards, he would provide a verbal report to the Group with his views, having examined the half clearance times data again. He had also prepared some interim diagrams on this issue to present to the Members for their consideration.</p>				

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<b>7 (continued)</b> <b>Review of DPAG'S Calculations on Half Clearance Times</b>  <i>Paper 004</i>	<p>AT led the Group through KB's paper on the clearance of significant particles in the offshore environment, and on the Foreshore, and various aspects of the report were discussed.</p> <p>The Group reconvened after lunch and received a verbal report from TA, examining the possible result of particle breakup. This was accompanied by a slide presentation TA had produced on the possible distribution of activities after particle splitting or fragmentation. The interim diagrams in the presentation were accepted as Tabled Paper, PRAG(D)/2010/M4/007(T).</p> <p>A wide-ranging discussion ensued; several points were raised for further examination and suggestions made to further test the hypothesis.</p> <p>It was hoped that the offshore recovery programme undertaken during 2010 would provide additional evidence for this work.</p>	<p>CG thanked TA for his presentation and for the 'significant step' the ensuing discussion represented in the Group's deliberations. It was <b>agreed</b> that further work was required on this issue and that a more comprehensive paper should be prepared on this item for consideration at the next meeting.</p> <p>It was also <b>agreed</b> that it would be useful to correct the half clearance times (HCT) predictions for radioactive decay.</p>	<p>Further work to be undertaken by TA, this also to incorporate comments and suggestions raised by the Members during the discussion today.  <b>TA</b></p> <p>Members were asked to provide their comments on this issue directly to Prof Atkinson, with copy to the Tec Sec.  <b>TA; Members; Tec Sec</b></p>	<p><b>Open</b></p> <p><b>Open</b></p>	<p><b>For Oct meeting (27/10)</b></p> <p><b>By end Sept</b></p>
<b>8</b> <b>Surveys Update - Beaches</b>  <i>Paper 005</i>	<p>The Group received a verbal update and presentation from DSRL on beach monitoring.</p>				
<b>8.1</b> <b>Sandside</b>	<p>A verbal report was made to the Group on the monitoring undertaken at Sandside during May. Members were informed that four particles were</p>	<p>It was <b>noted</b> that the survey in May was the only monitoring conducted on Sandside beach since</p>			



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<b>8.1 (continued)</b> <b>Sandside</b>	<p>recovered during the survey: two <i>minor</i> and two <i>relevant</i>.</p> <p>PC was invited to report on the current situation regarding agreement for monitoring access to Sandside beach and gave a verbal assessment of the most recent information available. He read a statement from DSRL's legal advisors, as follows:</p> <p><i>"We have made excellent progress and are very close to reaching agreement on all the documents. However, final resolution will depend on the outcome of the work of an independent panel which will be asked to determine the rent of a lease and levels of compensation. The panel will be able to start work only once the documents are finalised and it is clear and agreed exactly when certain payments will be made."</i></p> <p>PC added that continuous monitoring of the beach would commence at the time the independent panel starts work.</p>	<p>December last year, due to the withdrawal of access permissions.</p> <p>PRAG(D) <b>noted</b> PC's comments and DSRL's hopes for reaching an early agreement for access to permit continuous monitoring, but pointed out that the Group had been advised that a potential agreement was imminent several times in the past. The Members expressed their hope for a successful resolution on this occasion and for an extensive period of uninterrupted monitoring to commence as soon as possible.</p>			
<b>8.2</b> <b>Dounreay Foreshore</b>	The Group were informed of the surveys conducted on the Foreshore since the last meeting.	It was <b>noted</b> that the erection of fences to limit access to the Foreshore was completed last week.			
<b>8.3</b> <b>Dunnet</b>	The Group was informed that Dunnet beach had been monitored, with no particles detected.				

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<p><b>8.4</b> <b>Others</b></p>	<p>BT reported that all other beaches had been monitored as scheduled (including Melvich), with no particle finds. The survey footprint on other beaches from January to June 2010 was considered.</p> <p>The Chairman thanked DSRL for the report and invited comments from the Group. Views were exchanged on the infrequency of monitoring on Sandside beach and, consequently, the lack of consistent data available. The issue of accretion on beaches was discussed. It was acknowledged that beaches do accrete and erode at different times of the year and this may affect survey results. The two different objectives of beach monitoring were also discussed.</p> <p>The Group considered the fluctuations in particle recovery rates and various possible contributory factors.</p> <p>The type of sand currently on the beaches was discussed and potential impact of the recent “quiet” weather in creating the level of coarseness or fine-graining of sand accumulation on the beaches was considered.</p> <p>AE asked, in the event of the ROV detecting a second cache of particles, how it would be managed. PC suggested that this would need to be reviewed following this summer’s offshore recovery programme.</p>	<p>The Group <b>noted</b> PC’s assurance that DSRL takes account of various sources of weather data in considering its monitoring and recovery programme.</p> <p>It was <b>noted</b> that the coarseness and accumulation of sand varied on the beaches, even during the recent relatively “quiet” weather/tidal periods.</p>			

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<b>9</b> <b>Particle Retrieval Project: Group's Recommendations for Potential End-Points</b>	<p>JG said that SEPA's primary tool for determining an end point for monitoring requirements is the Radioactive Contaminated Land Regulations. If any of the land satisfies the criteria stipulated in these regulations, SEPA will determine the most appropriate intervention requirements. However, until HPA is able to provide the information to allow the assessment to be completed, SEPA is unable to determine what interventions may be needed.</p> <p>PD reminded the Group that, at the last meeting, KB had tasked the Observers with providing their recommendations on a suggested end point for beach monitoring. PD reported that written responses had been received from Joanne Brown on behalf of the HPA and Will Munro for the FSA, which PD conveyed verbatim to the meeting. No comments had been received from the NDA.</p> <p>Members exchanged views on various considerations, including the medical and environmental aspects, as well as justifications within the current period of financial restraint. AE suggested that at least one further year of sub-sea recovery was required before any assessment could be considered. TA said it might be helpful to encourage further consideration of this issue through a separate discussion forum.</p>	<p>The Group <b>noted</b> comment from the FSA: <i>"On the end point, I think it's too early to give a detailed definition as the ongoing work creates a dynamic situation; at this stage all we can say is that we would be likely to undertake a similar dose/risk assessment as before; based on post-retrieval particle distribution and activity data."</i></p> <p>The Group <b>noted</b> comment from the HPA: <i>"Regarding the action on HPA to provide information on possible endpoints for monitoring, I would like to suggest that this topic is postponed and discussed a bit further at the October</i></p>	<p>The Chairman suggested that the Group give further consideration to this matter and that the discussion should be continued at a future meeting.  <b>Tec Sec</b></p>	<p><b>Open</b></p>	<p><b>October meeting</b></p>

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<b>9 (continued)</b> <b>Particle Retrieval Project: Group's Recommendations for Potential End-Points</b>	<p>It was acknowledged that there may always be risks attached to predictive judgements and that caveats may need to be applied to any recommendations, from whatever source.</p> <p>At the conclusion of the discussion, PC said that DSRL would endeavour to provide as much information as possible to the Group, as quickly as possible, to assist its deliberations.</p>	<i>meeting. Given the on-going characterisation and retrieval of significant particles offshore and the limited additional monitoring on Sandside beaches that has taken place since the DPAG 4<sup>th</sup> report, it is, in my opinion, premature to be making any statements on endpoints for beach monitoring. Further knowledge on the potential offshore source of significant particles and evaluation of the estimated population is needed to provide any further statements on the need for and level of monitoring required into the future. At this time, HPA continue to support the view of DPAG that regular monitoring of the beach should continue to ensure that the probability of a member of the public encountering a significant particle is at an acceptable level."</i>			
<b>10</b> <b>Particle Retrieval Future Work Programme</b>	<p>The Chairman suggested that the Particle Retrieval Future Work Programme had been fully discussed within agenda item 6 – Offshore Retrieval Work.</p>	<p>It was <b>agreed</b> that this item had been sufficiently covered during the Group's earlier discussions.</p>	<p>The new equipment is to be tested in early July; the proposed retrieval work programme is due to commence as soon as possible thereafter. <b>DSRL</b></p>	<b>Open</b>	<b>ASAP</b>

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<b>11 Future Meetings</b>	The Chairman confirmed that the next meeting should go ahead as planned, on 27 <sup>th</sup> October.	It was <b>agreed</b> that the next meeting of the Group will be held on Wednesday, 27 <sup>th</sup> October 2010, venue to be advised.	Convenient location for the meeting to be agreed and venue to be arranged. <b>Acting Chair/Tec Sec/JM</b>	<b>Open</b>	<b>Papers required by 6<sup>th</sup> October</b> Meeting packs issued 13/10/10
	CG intended to confer with the Members directly regarding interim chairmanship for that meeting. The whole Group will be made aware of the decision in due course.				
	The most convenient location for holding the October meeting should be decided by the interim Acting Chair, in discussion with the Tec Sec.	It was <b>noted</b> that CG will communicate the conclusion of his discussion with Members to appoint, on an interim basis, an Acting Chair for the Group during KB's absence.	Nomination for Acting Chair to be agreed and appointed. <b>Members/CG/Tec Sec</b>	<b>Open</b>	<b>ASAP</b>
	One further meeting will be required before the end of the current FY, to facilitate the work of the Group.	It was <b>agreed</b> that a further meeting will be held in February/March 2011 and suitable dates will be identified as soon as an Acting Chair has been appointed.	Date for February/March meeting to be sought. <b>Acting Chair/Tec Sec/JM</b>	<b>Open</b>	<b>ASAP</b>
<b>12 Chairman's Closing Summary</b>	The Chairman summarised the major issues for the October meeting.	It was <b>agreed</b> that the findings from the offshore recovery programme and how it will feed into the Group's Annual Report to SEPA will be the focus of the October meeting.	The Group's second Annual Report to SEPA is due at the end of the current FY, 1 <sup>st</sup> April 2011. <b>All</b>	<b>Open</b>	
	The Chairman thanked everyone present for their forbearance and for their contributions under the unusual circumstances in which the Group had had to work today. He thanked TA in				

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<b>12</b> <i>(continued)</i> <b>Chairman's Closing Summary</b>	<p>particular for his presentation regarding HCT and said that his input into today's meeting, and the discussion it had raised, was very much appreciated.</p> <p>CG concluded, on behalf of all present, by conveying the Group's very best wishes for the health of its Chairman.</p>				
<b>13</b> <b>AOB</b>	There were no other items of recorded business and the meeting closed at 2:15 pm.	It was <b>noted</b> that the Chairman and Members remained, post-closure of the formal meeting and departure of the Observers, to discuss the matter of interim chairing of the Group.			

#### Acronyms:

COMARE	Committee on Medical Aspects of Radiation in the Environment
DSG	Dounreay Stakeholder Group
DPAG	Dounreay Particles Advisory Group
DSRL	Dounreay Site Restoration Limited
ERMTT	Environmental Monitoring Task Team
FSA	Food Standards Agency (Scotland)
FY	SEPA Financial Year: period from 1 <sup>st</sup> April to 31 March
HCT	Half Clearance Times
HPA	Health Protection Agency
NDA	Nuclear Decommissioning Authority
PRAG(D)	Particles Retrieval Advisory Group (Dounreay)
RCLR	Radioactive Contaminated Land Regulations
ROV	Remotely Operated Vehicle
SG	(The) Scottish Government
SEPA	Scottish Environment Protection Agency