RCloud Tasking Form – Part B: Statement of Requirement (SoR)

Title of Requirement	Continuation of Next Generation PAPR Miniaturised Blower
Requisition No.	RQ0000015499
SoR Version	**0.1**

1.	**Statement of Requirements**
1.1	**Summary and Background Information**
	Powered Air Purifying Respirators (PAPR) are respiratory protective equipment (RPE) that can provide enhanced levels of protection compared to conventional Air Purifying Respirators (APRs), whilst assisting the user by drawing air through highly resistive filters. Traditional PAPR systems consist of a man-mounted blower unit, connected to the respirator via a hose, which supplies a continuous flow of filtered air (typically around 120 L·min-1 to 150 L·min-1) into the face piece to create an over-pressure in the mask. This design is bulky, heavy and inefficient. Advances by industry have led to the development of more 'intelligent', breath-responsive systems that are smaller, lighter and mounted directly onto the respirator face piece; however, they are not compatible with military respirators. Therefore, there is an aspiration to reduce the size, mass and form factor of traditional PAPRs to deliver an intelligent, optimised solution, but with comparable protection performance capabilities. Previous Dstl research has been focused on developing its understanding of current and future PAPR technology options, and the feasibility from a technical and engineering perspective of what a small, compact, lightweight, breath-responsive PAPR could be. This research explored different design concepts, methods and technologies and assessed the performance and specifications of axial and centrifugal fans (in terms of size, mass, form factor, PQ (pressure/flow) curves, etc.) and the battery parameters required to deliver adequate power. From this, it was concluded that no commercial-off-the-shelf (COTS) products are likely to exist on the market and that bespoke solutions would be required to meet the space requirements for a miniaturised PAPR system.
1.2	**Requirement**
	This is a replacement activity for the work packages that currently exist under contract PO1000157751:

	WP1 Sept 22 - monthly research & design activity progress review WP2 Oct 22 - monthly research & design activity progress review WP3 Nov 22 - monthly research & design activity progress review WP4 Dec 22 - monthly research & design activity progress review WP5 Jan 22 - monthly research & design activity progress review WP6 Feb 22 - monthly research & design activity progress review WP7 Mar 22 - monthly research & design activity progress review WP8 Final delivery – Cartridge concept (delivery/Demo and report) WP9 Final delivery – Inline Concept (delivery/Demo and report) WP10 Technical report to cover power option considerations
1.3	**Options or follow on work** *(if none, write 'Not applicable')*
	Potential option to align adaptive breath controller research (Newcastle University) and integrate with blower development to enable completion of Next Generation PAPR user requirement.
1.4	**Contract Management Activities**
	Monthly progress meetings and report from contract award.
1.5	**Health & Safety, Environmental, Social, Ethical, Regulatory or Legislative aspects of the requirement**
	ISO9001 (Quality Management Systems)

1.6	Deliverables & Intellectual Property Rights (IPR)					
Ref.	**Title**	**Due by**	**Format**	**Expected classification (subject to change)**	**What information is required in the deliverable**	**IPR Condition**
D-0	Monthly Progress Review and Presentation	Monthly from contract award	PP	Redacted – FOI Exemption	Monthly Presentation to highlight progress in line with delivery plan.	**DEFCOM 705** Standard R-Cloud T&Cs MOD may want to exploit outputs and transition to DE&S MOD may want to share with other contractors and international partners

D-1	Q3 Review	Q3 22/23	Face to face	Redacted – FOI Exemption	Should include technical demonstrators where applicable – To be conducted in Dstl	**DEFCOM 705** Standard R-Cloud T&Cs MOD may want to exploit outputs and transition to DE&S MOD may want to share with other contractors and international partners
D-2	Q4 Review	Q4 FY22/23	Face to Face	Redacted – FOI Exemption	Should include technical demonstrators where applicable – To be conducted in Micronel AG	**DEFCOM 705** Standard R-Cloud T&Cs MOD may want to exploit outputs and transition to DE&S MOD may want to share with other contractors and international partners

D-3	Final delivery and report – Inline blower	NLT 31/3/23	Technical demonstrator/functional prototype and Technical report	Redacted – FOI Exemption	Should include a functional example of the blower, how it would be mounted and a demonstration of its performance. Technical report content to be discussed during monthly review meetings	**DEFCOM 705** Standard R-Cloud T&Cs MOD may want to exploit outputs and transition to DE&S MOD may want to share with other contractors and international partners
D-4	Final delivery and report – Cartridge blower	NLT 31/3/23	Technical demonstrator/functional prototype and Technical report	Redacted – FOI Exemption	Should include a functional example of the blower, how it would be mounted and a demonstration of its performance. Technical report content to be discussed during monthly review meetings	**DEFCOM 705** Standard R-Cloud T&Cs MOD may want to exploit outputs and transition to DE&S MOD may want to share with other contractors and international partners

D-5	Technical report – Power Options	NLT 31/3/23	Word/PDF	Redacted – FOI Exemption	Technical report identifying suitable power supply and delivery options to support low burden concept of the blower development	**DEFCOM 705** Standard R-Cloud T&Cs MOD may want to exploit outputs and transition to DE&S MOD may want to share with other contractors and international partners

1.7	**Deliverable Acceptance Criteria**
	All reports included as Deliverables under the Contract must comply with the Defence Research Reports Specification (DRRS) https://www.gov.uk/guidance/submit-a-report-to-athena , which defines the requirements for the presentation, format and production of scientific and technical reports, prepared for the MOD. This could be 'as per Framework T&C's' once an appropriate framework is later confirmed (links to section 13 of RCA). Consider the timeframe for our review of deliverable(s) (acceptance/rejection). All Reports included as Deliverables under the Contract e.g. Progress and/or Final Reports etc. must comply with the Defence Research Reports Specification (DRRS) which defines the requirements for the presentation, format and production of scientific and technical reports prepared for MoD. Interim or Progress Reports: The report should detail, document, and summarise the results of work done during the period covered and shall be in sufficient detail to comprehensively explain the results achieved; substantive performance; a description of current substantive performance and any problems encountered and/or which may exist along with proposed corrective action. An explanation of any difference between planned progress and actual progress, why the differences have occurred, and if behind planned progress what corrective steps are planned. Any Final Reports: shall describe the entire work performed under the Contract in sufficient detail to explain comprehensively the work undertaken and results achieved including all relevant technical details of any hardware, software, process or system developed there under. The technical detail shall be sufficient to permit independent reproduction of any such process or system. All Reports shall be free from spelling and grammatical errors and shall be set out in accordance with the Statement Of Requirement (1) above. Failure to comply with the above may result in the Authority rejecting the deliverables and requesting re-work before final acceptance.

2	**Evaluation Criteria**
2.1	Method Explanation
	The criteria for selection will be conducted as a single source contract and therefore no formal evaluation will be undertaken
2.2	Technical Evaluation Criteria

	N/A
2.3	Commercial Evaluation Criteria
	Commercial evaluation will be undertaken to ensure submission is in line with R-Cloud T&C’s