

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

Title of Requirement	Autonomous CB sensing with UAV platforms
Requisition No.	RQ0000021675
SoR Version	V2

1.	Statement of Requirements
1.1	Summary and Background Information
	Develop and demonstrate a multi-vehicle autonomous system capable of source-term estimation and real-time hazard mapping in complex environments. Investigate (and quantify) the impact that a UAV platform has on the concentrations observable by an on-board chemical sensor. In the event of an airborne release of hazardous material it is necessary to understand where the hazard will disperse and deposit in the environment, to allow appropriate mitigation strategies to be undertaken. This can be achieved either directly, through hazard “mapping”, or indirectly, via source-term estimation to facilitate an informed hazard prediction. Redacted under FOI exemption Redacted under FOI exemption Redacted under FOI exemption Redacted under FOI exemption This requirement sets out tasks to i) develop the existing methods to exploit multiple sensing platforms; and ii) investigate and <i>quantify</i> the effect the platforms themselves have on the dispersing material.
1.2	Requirement
	<u>Task 1 – Autonomous sensing with multiple sensors</u> This task will expand the Auto-STE and Hazard-Mapping algorithms to utilise multiple mobile “sensors”, working together to perform the relevant task. This will assess the benefits of multiple sensors – against the single sensor approach developed in previous years – and identify of the optimal number of sensors for a given use case / scenario.

Redacted under FOI exemption

[Redacted text block containing multiple paragraphs of information, all obscured by black bars.]

Task 2 – Assessment of impact of UAV on hazard plume

Ahead of further testing in live trials, with more sophisticated CB sensing technologies, there is a need to understand the limitations of sensing with a platform that will affect the air that it is trying to sample.

This task will undertake detailed (e.g. Computational Fluid Dynamics; CFD) modelling of a UAV platform located within a hazard "plume", to investigate the effect that the platform has on observable concentrations. [Redacted under FOI exemption]

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Redacted under FOI exemption

1.3 Options or follow on work

¹ To be provided by Dstl

² Modelled as an area source with a specified fixed concentration boundary condition.

³ For example, the Smiths Detection LCD 3.3: <https://www.smithsdetection.com/products/lcd-3-3/>
RCloud (version 4) Tasking Form – Part B (Statement of Requirement (SoR))

	None
1.4	Contract Management Activities
1.5	Health & Safety, Environmental, Social, Ethical, Regulatory or Legislative aspects of the requirement

1.6	Deliverables & Intellectual Property Rights (IPR)				
Ref.	Title	Due by	Format	Expected classification (subject to change)	What information is required for deliverables
D-1	Monthly progress report	Monthly	3 page report	Redacted under FOI exemption	Presentation pack to include: • Update on technical progress • Progress report against project plan • Review of risk management • Commercial aspects. • Review of deliverables. • Risks/issues. • GFA and supplier performance
D - 2	Final technical report – Multiple Sensors	T0+3 Months	Technical Report	Redacted under FOI exemption	Technical report detailing all work done on Task 1. Redacted under FOI exemption _____ _____ _____ _____ _____

D - 3	Model software – Multiple Sensors	T0+3 Months	Software	Redacted under FOI exemption	Software source code and enable Dstl to run and test t model.
D - 4	Final technical report – CFD modelling of UAV	T0+3 Months	Technical Report	Redacted under FOI exemption	Technical report detailing al under Task 2. Redacted under FOI exemption
D - 5	Model software – CFD modelling/analysis of UAV	T0+3 Months	Software	Redacted under FOI exemption	CFD models Redacted under FOI exemption

1.7	Deliverable Acceptance Criteria
	The two technical reports shall describe all work performed under the contract, and explain comprehensively the results achieved and under what conditions they were achieved (including hardware/software execution). The technical reports shall be in sufficient detail to enable reproduction of the processes developed and to recreate comparable results. Monthly reports shall capture in-month technical progress, any risks and issues, and review progress against deliverables. Delivered software must successfully build (where applicable) and run on Dstl Windows PC hardware. License requirements must be specified on delivery
1.8	Quality Control and Assurance
	Quality Control and Quality Assurance processes and standards that must be met by the contractor ☐ ISO9001 (Quality Management Systems) ☐ ISO14001 (Environment Management Systems) ☒ ISO12207 (Systems and software engineering — software life cycle) ☐ TickITPlus (Integrated approach to software and IT development) ☐ Other: (Please specify below)

2	Evaluation Criteria																								
2.1	Method Explanation																								
	The evaluation of the tender response shall be conducted by the technical and commercial team, who will use the below pass/fail criteria. Any criteria marked 'Fail' may result in the contract not being awarded.																								
2.2	Technical Evaluation Criteria																								
	<table><tr><th colspan="3">Technical Criteria</th></tr><tr><th>Response Number</th><th>Summary of Response – all responses shall be related in the delivery of the Statement of Requirement (SOR)</th><th>Satisfactorily demonstrated Pass/Fail</th></tr><tr><td>R1</td><td>Please demonstrate your understanding, expertise and proposed approach for capturing requirements of the Authority</td><td></td></tr><tr><td>R2</td><td> Please provide details of technical delivery, e.g.: Redacted under FOI exemption </td><td></td></tr><tr><td>R3</td><td>Please provide evidence of your capability and capacity to meet the requirements within the provided timeline for the work packages detailed above.</td><td></td></tr><tr><td>R4</td><td>Please clearly define your risk processes, risk register and appropriate mitigation activities you would use in this contract, and how it would benefit the project outcome.</td><td></td></tr><tr><td>R5</td><td>Please provide a project plan / Gantt chart detailing the process of producing each of the above work packages.</td><td></td></tr><tr><td colspan="2">Tender Satisfactory? (Y/N)</td><td></td></tr></table>	Technical Criteria			Response Number	Summary of Response – all responses shall be related in the delivery of the Statement of Requirement (SOR)	Satisfactorily demonstrated Pass/Fail	R1	Please demonstrate your understanding, expertise and proposed approach for capturing requirements of the Authority		R2	Please provide details of technical delivery, e.g.: Redacted under FOI exemption		R3	Please provide evidence of your capability and capacity to meet the requirements within the provided timeline for the work packages detailed above.		R4	Please clearly define your risk processes, risk register and appropriate mitigation activities you would use in this contract, and how it would benefit the project outcome.		R5	Please provide a project plan / Gantt chart detailing the process of producing each of the above work packages.		Tender Satisfactory? (Y/N)		
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2.3	Commercial Evaluation Criteria																								

Commercial Criteria	
Requirement	Pass/Fail
Tenderers are required to provide a full breakdown of the prices proposed for the requirement as per the SOR, utilising the rates which are to be used under RCloud.	
Provision of full details of the points of contacts for commercial, project management & technical, for the proposed contract duration.	
The Tenderer must provide a Firm Price to undertake the work detailed in the core requirement	
The Tenderer shows that they are compliant with ISO12207 (Systems and software engineering)	