

Notes:

1. This annex has been compiled at the request of the Chair of SACMILL to assign areas where clarification is required by SACMILL to further understand the use of water cannon before operational deployment. Some of the points raised in this annex have been answered verbally, but SACMILL requests written answers to the issues raised in this annex.
2. It is probable that some of the issues raised in this annex are implicit in the documents referenced in this annex, however, SACMILL request explicit confirmation of the issues highlighted. A lead agency is identified in the right hand columns for ownership the issues raised. Where a single agency could not be identified, both The Metropolitan Police Service (MPS) and the Home Office Centre for Applied Science and Technology (CAST) are identified, however, only one response is required confirming the status of the issue.
3. *Annex A reference* relates to relevant source references listed towards the end of this annex.

Serial	Annex A reference	Relevant part of Annex A reference	Issue highlighted	Desired action	Responsibility	
					MPS	CAST
1.	2-6 7	Various. Section 12, Recommendation 1	There are inconsistencies in terminology. For example, in some places 'Cannoneer' is termed 'Water Cannon Operator' and the role of the 'Loggist' is undefined.	Paperwork should be updated by MPS (in liaison with CoP) to ensure consistency of terminology, that all roles are defined, and that there is general coherency across documents.	✓	
2.	8	3.4	CAST reported that they had received notification from MPS of changes to operational tactics that are not formally recorded elsewhere in the control paperwork. Some of these are reported elsewhere in this annex.	MPS should confirm that a "Loggist" will be deployed on the crew during every operational deployment and confirm their role.	✓	
3.	8	6.1	The pressure sensor on Vehicle 2 requires replacement/repair.	MPS should confirm that this sensor has been replaced or repaired and CAST should conduct tests to ensure that this has not affected the water jet output.	✓	✓
4.	8	6.1 and 8.1.2 (Table 3 item no. 4)	MPS have taken the decision to replace the water jet monitor cameras.	MPS should confirm whether these replacements have happened and CAST should conduct sufficient testing to ensure that these replacement cameras provide an image quality comparable with the cameras that were originally fitted.	✓	✓

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					MPS	CAST
5.	8	<redacted>	<redacted>	<redacted>	<redacted>	<redacted>
6.	8	7.1.1 8.1.2 (Table 4 item nos. 12 and 13)	Test VIE: Vehicle 3 - Controls to select the 20 bar pressure have been removed but the mechanical stop has not been sealed.	CAST to confirm that this stop has been sealed to ensure it is tamper evident.		✓
7.	8	7.1.1	Test VIF: Pipework for additive mixing should be removed.	CAST or MPS to confirm that the pipework for additive mixing has been removed.	?	✓
8.	8 and 9	<redacted>	<redacted>	<redacted>	<redacted>	<redacted>
9.	8	7.1.1	Test VIG: The cameras for the Commander's and Cannoneer's panel require to be fixed securely.	CAST to confirm that the cameras have been securely fixed.		✓
10.	8	<redacted>	<redacted>	<redacted>	<redacted>	<redacted>
11.	8	7.1.1 8.1.2 (Table 3, no. 7) 8.1.2 (Table 4, no. 10)	Test VIN: Signage not all in English.	MPS to confirm whether the signage has been changed or how this is otherwise to be mitigated.	✓	
12.	8	7.1.2 7.2 (Table 2, Test A) 8.1.2 (Table 4, no. 15)	Test VIH: Limit on minimum operational range of water jets.	CAST to confirm whether water monitor angle limiters have been made tamper evident.		✓
13.	8	7.1.2 8.1.2 (Table 3, no. 2) 8.1.3	Test VIJ: Water filling.	MPS to confirm that the water tank filling process is only trained and conducted through the external vehicle inlet.	✓	
14.	8 and 9	v	<redacted>	<redacted>	<redacted>	<redacted>

Serial	Annex A reference	Relevant part of Annex A reference	Issue highlighted	Desired action	Responsibility	
					MPS	CAST
15.	8	7.1.2	Test VIQ: Ensure padding has been fitted to vehicles.	CAST to confirm whether padding has been fitted to overhead aluminium trunking (currently a risk to crew).		✓
16.	8	7.1.2 7.3.1	Test VIQ (and others): Noticeable differences between vehicles.	MPS to confirm that personnel will be trained and assessed as being competent on the vehicle(s) with which they will deploy operationally.	✓	
17.	8 and 9	7.2 (Table 2, Test C) 8.2 (Table 8, WC-TR-18)	MPS to note the maximum operational range of the Ziegler WaWe9 is less than the Somati RCV 9000.	MPS to confirm whether the reduced maximum range of the Ziegler Water Cannon jets compared with the PSNI Somati vehicles has any operational significance.	✓	
18.	8 and 9	<redacted>	<redacted>	<redacted>	<redacted>	<redacted>
19.	8	<redacted>	<redacted>	<redacted>	<redacted>	<redacted>
20.	8 and 9	7.2 (Table 2, Test I) 8.1.5 8.2 (Table 9, WC-TR-29)	Public address system.	MPS to confirm that speech intelligibility is satisfactory and the public address system can be operated within the Control of Noise at Work Regulations.	✓	
21.	8 and 9	7.2 (Table 2, Test J) 8.2 (Table 7, WC-TR-32)	Audible reversing system.	MPS to confirm that reversing warning indicator and reversing camera are satisfactory and that the reversing indicator can be operated within the Control of Noise at Work Regulations.	✓	
22.	8 8 and 9	7.2 (Table 2, Test K) 8.2 (Table 9, WC-TR-40) 8.2 (Table 9, WC-TR-41)	External lighting.	MPS to confirm that there is adequate lighting from the vehicles to operate safely in all light conditions and describe any mitigation for the lack of external lighting.	✓	

Serial	Annex A reference	Relevant part of Annex A reference	Issue highlighted	Desired action	Responsibility	
					MPS	CAST
23.	8 and 9	7.2 (Table 2, Test L) 8.2 (Table 7, WC-TR-7)	Clarity of video cameras.	MPS to report whether the video cameras are being changed. If they are changed, CAST to repeat tests to ensure new camera system is acceptable. If the cameras are not changed then MPS to report whether video clarity is acceptable and confirm that clarity of imaging is included in Cannoneer training (with special reference to issues surrounding accountability and proportionality). See also item 61 of this annex.	✓	?
24.	8	7.2 (Table 2, Test M) 8.1.7 (Table 6)	Field of view of video cameras.	MPS to confirm that vehicle crews and support staff are aware of and are trained on the issues surrounding blind spots of camera coverage.	✓	
25.	8 and 9	7.2 (Table 2, Test N) 8.2 (Table 9, WC-TR-54)	Rear intercom.	MPS to confirm that speech intelligibility through the rear intercom is acceptable or that mitigation is possible.	✓	
26.	8 and 9	7.2 (Table 2, Test O) 8.2 (Table 7, WC-TR-7)	Water temperature.	MPS to change documentation to introduce checks to ensure that water is above 4°C in cold weather before the water jets are used operationally.	✓	
27.	8 and 9	7.2 (Table 2, Test P) 8.1.7 (Table 6) 8.2 (Table 7, WC-TR-53)	Noise level in cab.	MPS to confirm that noise levels inside the cab do not distract operators and that the levels do not exceed the Control of Noise at Work Regulations.	✓	
28.	8 and 9	7.2 (Table 2, Test Q) 8.1.7 (Table 6) 8.2 (Table 9, WC-TR-50)	Temperature in crew cabin.	MPS to ensure that the temperature in the cab does not affect operator performance (and to confirm issues around crew comfort are included in training).	✓	
29.	8	7.2 (Table 2, Test R) 8.1.7 (Table 6)	Internal (cabin) light levels.	MPS or CAST to conduct tests and confirm that internal light levels do not affect the ability to operate the vehicle safely (especially for Cannoneers and Crew Commanders working in low external light conditions).	✓	✓
30.	8 and 9	<redacted>	<redacted>	<redacted>	<redacted>	<redacted>

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					MPS	CAST
31.	8	7.2 (Table 2, Test U) 8.1.2 (Table 4, no. 17)	Video recording of pressure selection for audit purposes.	MPS to ensure that cannon crews are trained on positions of internal video recording equipment and ensure that field of view is not blocked.	✓	
32.	8	<redacted>	<redacted>	<redacted>	<redacted>	<redacted>
33.	8 and 9	7.2 (Table 2, Test X) 8.2 (Table 8, WC-TR-18)	Effect of water tank fill level on monitor angle.	MPS should ensure that Cannoneers and Commanders are trained and aware of the effect of tank fill mass and the resultant effect on water jet range.	✓	
34.	8 and 9	<redacted>	<redacted>	<redacted>	<redacted>	<redacted>
35.	8 and 9	<redacted>	<redacted>	<redacted>	<redacted>	<redacted>
36.	8	7.2 (Table 2, Test Z) 8.1.4 (Table 5)	Turning circle.	MPS to confirm that the turning circle of the vehicle is acceptable.	✓	
37.	8	7.2 (Table 2, Test AA)	Two water jets.	MPS to confirm that training for Cannoneers includes aspects of the use of multiple jets (this also relates to proportionality and accountability). See also item 61 of this annex.	✓	
38.	8	7.2 (Table 2, Test AB)	Maximum rotation of water cannon monitors.	MPS to report that they have noted the limits on the water cannon monitors and that this has been included in the training.	✓	
39.	8 and 9	<redacted>	<redacted>	<redacted>	<redacted>	<redacted>
40.	8 7	7.3.3 and 8 Section 12, Recommendation 2	Further verification tests required on CAST instrumentation.	CAST should conduct additional tests on other PSNI Somati RCV 9000 vehicles so that pressure measurement comparisons with the WaWe9 are based on more than one Somati vehicle.		✓
41.	8 and 9	8.1.2 (Table 3, no. 3) 8.2 (Table 7, WC-TR-16)	Use of diffuse mode tactic.	MPS to confirm that this tactic is not required.	✓	

Serial	Annex A reference	Relevant part of Annex A reference	Issue highlighted	Desired action	Responsibility	
					MPS	CAST
42.	8 and 9	8.2 (Table 9, WC-TR-1) 8.2 (Table 9, WC-TR-2) 8.2 (Table 8, WC-TR-3)	Use of water cannon in different meteorological conditions.	MPS should confirm that the vehicles will only be used within the vehicle specification and in weather conditions where they believe operation will be safe.	✓	
43.	8 and 9	8.2 (Table 9, WC-TR-31)	Audio message playback.	MPS to assess whether the inability to playback messages affects the capability.	✓	
44.	8 and 9	8.2 (Table 9, WC-TR-34)	Dot matrix display.	MPS to assess whether the inability to display messages affects the capability.	✓	
45.	8 and 9	8.2 (Table 9, WC-TR-37)	Audio and video recording.	MPS to report mitigation for no audio recording capability and reduced video recording all around vehicles.	✓	
46.	8 and 9	8.2 (Table 9, WC-TR-39)	Extendable camera mast.	MPS to report mitigation for no mast-mounted video recording capability.	✓	
48.	8 and 9	8.2 (Table 9, WC-TR-42)	Audio/visual data link.	MPS to report mitigation for no data link for the transmission of video and audio data to a control centre.	✓	
49.	8 and 9	8.2 (Table 9, WC-TR-44)	Range finding capability.	MPS to report mitigation for, and implications of, absence of rangefinders on monitors.	✓	
50.	8 and 9	<redacted>	<redacted>	<redacted>	<redacted>	<redacted>
51.	8	8.2 (Table 10)	Capabilities no longer required.	MPS to confirm that the capabilities from the technical requirement listed in Reference 8, Section 8.2, Table 10 are no longer required.	✓	
52.	8	<redacted>	<redacted>	<redacted>	<redacted>	<redacted>
53.	8 1	Section 10 Maintenance	Vehicle maintenance.	MPS to confirm that a robust maintenance schedule is adopted for the vehicles and pumps and that the pumps are routinely cleaned as part of this schedule.	✓	
54.	7	Appendix A, item 27	Lessons identified.	MPS should confirm that they have updated, and will continue to update, training to reflect any lessons identified from injuries from PSNI and other law enforcement agency use of water cannon in public disorder.	✓	

Serial	Annex A reference	Relevant part of Annex A reference	Issue highlighted	Desired action	Responsibility	
					MPS	CAST
55.	7	Appendix A, item 25	Modifications to system.	MPS should adopt a process where any modifications to the system should be reported to SACMILL (via the Less-Lethal Technologies and Systems Strategic Board).	✓	
56.	7 2	Appendix A, item 27 Para 3.6	Injuries during deployment and use of the WaWe9 system.	It should become the responsibility of the MPS Assistant Commissioner to monitor, collate and report any injurious events to SACMILL. Reference 2 should be amended to reflect this change.	✓	
57.	7	Section 6.1	Operational training.	MPS should ensure personnel are trained under operationally relevant conditions (for example, low-light and night-time conditions, rain, sunny conditions, smoke-contaminated areas, on realistic roads at realistic speeds, etc.) with representative support teams (cordon crews, etc.). This training should include “unplanned” events (such as the need to retreat) and a Cannoneer unable to fire because he or she feels unable to meet the requirements of accountability or proportionality. See also Item 61 of this annex.	✓	
58.	7	Section 6.3	Water quality.	MPS should confirm that checks are undertaken to ensure that the water used in the water cannon does not introduce the risk of disease or infection (to public, the operators or to the water supply).	✓	
59.	7	Section 7.1	Command structure.	MPS should confirm that Gold, Silver, Bronze and Bronze Water Cannon Commanders are all appropriately trained about the command and capability of water cannon.	✓	
60.	7	Section 7.1	Command of vehicle by Water Cannon Commander.	There is inconsistency in the description of the command roles. The MPS should clarify the location of the Water Cannon Commander relative to the vehicles during operational use and the possibility of replacement of this role in the event they become unable to conduct their tasks.	✓	

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61.	7	Section 7.3	Cannoneer responsibilities.	The Cannoneer is ultimately responsible for the application of force. MPS should confirm that the training module for Cannoneers (annex ref. 4) contains sufficient discussion and training on the aspects of proportionality and accountability for Cannoneers and that all Cannoneers understand when it is reasonable and unreasonable to be expected to fire the water jets. Cannoneers should also be trained to apply the minimum force to get a desired effect and conserve water (for tactical reasons).	✓	
62.	7	Section 7.6	Driver training.	MPS should develop a Driver training package.	✓	
63.	7	Section 10.	The WaWe9 system as a 'National Asset'.	It has not been confirmed whether this capability is a National Asset or only for use within the MPS. MPS should confirm whether/how this will be operated outside the MPS area of command.	✓	
64.	2 3	--- Section 4.4	Warning messages by public address system.	Section 4.4 of annex ref. 3 describes the preferred form of words to use to warn the public of potential or imminent use of water cannon jets. The MPS should reproduce this preferred formulation in their ' <i>Operational Use and Training</i> ' SOP (annex ref. 2).	✓	
65.	2 8	Section 7.5 Section 3.4	Fire fighting.	Annex ref. 2 states that "water cannon should not be used to extinguish fires", while annex ref. 8 states that "water cannons will NOT be used to tackle fires." The MPS should clarify whether the use of water jets on fires is prohibited or whether such use may be permitted under certain defined circumstances.	✓	

Serial	Annex A reference	Relevant part of Annex A reference	Issue highlighted	Desired action	Responsibility	
					MPS	CAST
66.	2 3	----	Document versions.	For the development of their inspections and tests (reported in annex ref. 8), CAST have relied on a draft version 0.4 of annex ref. 2 and version 2.03 of annex ref. 3. The versions of these documents reviewed by SACMILL are, respectively, 7.5 and 2.2. CAST should confirm that the outcome and interpretation of any inspections or tests undertaken on the basis of earlier documentation remain valid for the versions reviewed during the medical assessment.		✓
67.	4 5 6	----	Dating and version control of documents.	Several documents seen during the medical review process were undated and did not have version control. These documents included annex refs. 4, 5 and 6 and other documentation (such as the MPS vehicle maintenance schedule). A formal system of document control should be introduced by the MPS water cannon team as a matter of good practice.	✓	

REFERENCES

1. Email <redacted>'SACMILL response v1.1', dated 12 January 2015 08:56, plus attachments.
2. SC&O22(2) 'Water Cannon – Operational Use and Training SOP', version 7.5, dated 22 April 2014. (Provided as part of Ref [5].)
3. College of Policing 'National Police Public Order Training Curriculum, Module E4 – Water Cannon in Public Order', version 2.2, dated 2 January 2015 (NOTE: this supersedes the version in Ref [5] and the version used in Ref [7].)
4. SC&O 22 Metropolitan Police Specialist Training Centre 'Water Cannon Training Package January 2015-January 2016: Cannoneers' (undated, no version control).
5. SC&O 22 Metropolitan Police Specialist Training Centre 'Water Cannon Training Package January 2015-January 2016: Water Cannon Commanders and Crew Commanders' (undated, no version control).

6. Metropolitan Police Specialist Training Centre *Water Cannon Training Package 2015* (undated).
7. <redacted>, *'Review by Dstl of documents pertaining to the Ziegler WaWe 9 water cannon system for SACMILL consideration in February 2015'*, DSTL/CR86514, Version 2.1, Dated 21 February 2015.
8. CAST Project DISPERSE Team *'WaWe9 Trials – Summary Report'* version 1.0, 22 January 2015.
9. CAST Project DISPERSE Team *'Technical Requirements – WC Interim Option – Purchase'*, version 1.0, dated 16 August 2013.