



Performance Assessment Report

External Quality Assessment for: *Legionella* Isolation from Water Samples

Distribution Numbers: G62, G63, G64 and G65

Sample Numbers: G62A, G62B, G62C
G63A, G63B, G63C
G64A, G64B, G64C
G65A, G65B, G65C

Distribution Date:	April 2009
Results Due:	22 May 2009
Report Date:	9 June 2009
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This report accompanies the summary of results for *Legionella* Isolation Scheme Distribution G65. Please refer to the relevant summaries for individual sample details.

Performance assessments are designed to identify laboratories with ongoing problems with their examinations and are undertaken after every distribution.

Scores are allocated to results reported for every sample to help participants assess their performance. Cumulative scores are calculated for every participant for *Legionella* examinations for the current and previous three distributions. Participants' cumulative scores are compared with the maximum possible scores after every distribution.

Reporting an incomplete, incorrect or misleading identification of *Legionella* spp. from water samples may have serious public health implications. Correct reporting of the serogroup is essential for outbreak investigations. Outlying results may give a misleading impression of the severity of the risk associated with the water-source.

Individual comments are included in this report for those participants who achieved <70% of the maximum possible score over four distributions, which is deemed to indicate on-going problems with examinations for *Legionella* organisms.

A summary of the performance assessments and our comments is included on pages 2 – 13.

If you experienced problems with these examinations please refer to the 'Troubleshooting Section' on page 14 and request a repeat sample.

Please contact FEPTU staff for additional advice and information. Contact details are on page 15.

Information about other Health Protection Agency functions and services is available from the web-site www.hpa.org.uk

Sample specific comments:

Please note that we have not included any comments in this report relating to performance with sample G62A. We did not allocate scores for that sample because it was used to raise participants' awareness of the *Legionella* species included in the sample. We remind participants that this type of sample may occur in nature and we may allocate scores for similar samples in the future.

Note: Participants who can not perform one or more of the examinations requested are required to indicate this by writing 'NE' (not examined) in the appropriate area of the results form. Scores will not be allocated for these tests and the maximum possible score will be adjusted accordingly.

For Example:

Return of report	1
Isolation of a <i>Legionella</i> sp.	2
Correct identification of <i>L.pneumophila</i>	2
Correct serogroup	NE
Enumeration within the expected range	5
Total maximum score	10

Table 1: Performance assessment for *Legionella* isolation for samples **G62 – G65**

NE = not examined, N/A = not applicable

Lab no	Previous Lab number	G62			G63			G64			G65			Cumulative score	Max possible score	%	
		A	B	C	A	B	C	A	B	C	A	B	C				
8	L45	N/A	12	12	10	12	12	12	12	12	12	12	12	12	130	132	98.5
9	L58	N/A	12	12	12	12	12	12	12	12	12	12	12	12	132	132	100
12	L43	N/A	12	12	12	12	12	10	12	10	12	12	1	117	132	88.6	
14	L49	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
46	L3	N/A	12	12	12	12	12	12	12	12	12	12	1	121	132	91.7	
48	L28	N/A	12	12	12	12	12	12	12	12	12	12	10	130	132	98.5	
53	L4	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
67	L280	N/A	12	12	1	12	12	12	12	12	12	12	12	121	132	91.7	
78	L36	N/A	12	12	12	11	12	12	12	12	NE	NE	NE	95	96	99.0	
79	L40	N/A	0	0	12	12	12	NE	NE	NE	0	0	0	36	96	37.5	
89	L50	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
97	EL10	N/A	12	12	12	11	12	12	12	12	12	12	12	131	132	99.2	
123	L22	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
124	EL149	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
125	L164	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
126	EL220	N/A	12	1	12	NE	NE	12	12	12	12	12	12	97	108	89.8	
141	L15	N/A	12	12	10	11	12	12	12	12	12	12	12	129	132	97.7	
143	L8	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
145	L53	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
157	L207	N/A	12	12	1	12	12	10	12	12	12	12	12	119	132	90.2	
166	L108	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
175	EL99	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
183	EL180	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
212		NE	NE	NE	NE	NE	NE	NE	NE	NE	0	0	0	0	36	0.0	

Table 1 (cont'd): Performance assessment for *Legionella* isolation for samples **G62 – G65**
 NE = not examined, N/A = not applicable

Lab no	Previous Lab number	G62			G63			G64			G65			Cumulative score	Max possible score	%	
		A	B	C	A	B	C	A	B	C	A	B	C				
214	EL346	N/A	0	5	0	0	0	0	0	0	0	0	0	5	132	3.8	<ul style="list-style-type: none"> • Incorrect species was reported for G62A. • Count reported was lower than expected range for G62A. • Incorrect result was reported for G62B. • Serogroup and count not reported for G62C. • No reports were returned for distributions G63, G64 and G65.
243	L247	N/A	12	12	12	9	12	12	11	10	10	12	1	113	132	85.6	
253	EL32	N/A	12	12	1	12	12	12	12	11	12	12	12	120	132	90.9	
266		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	12	36	36	100	
293	EL74	N/A	12	12	8	9	1	12	12	12	12	12	12	114	132	86.4	
316	EL367	N/A	12	7	1	6	8	NE	NE	NE	8	12	1	55	84	65.5	
329	EL301	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
342	L90	N/A	12	6	12	9	12	11	12	12	12	12	12	122	132	92.4	
345		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	12	36	36	100	
355	EL126	N/A	12	12	12	12	12	12	12	12	10	12	12	130	132	98.5	
393		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	12	36	36	100	
394	EL175	N/A	12	12	12	12	12	12	12	11	12	12	10	129	132	97.7	
395	EL153	N/A	12	12	1	12	12	12	12	12	10	1	1	97	132	73.5	
401	EL235	NE	NE	NE	0	0	0	0	0	0				0	72	0.0	
405		NE	NE	NE	NE	NE	NE	NE	NE	NE	0	0	0	0	36	0.0	
411	EL344	N/A	12	7	1	12	12	12	12	12	12	12	12	116	132	87.9	
415	L278	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	

Table 1 (cont'd): Performance assessment for *Legionella* isolation for samples **G62 – G65**

NE = not examined, N/A = not applicable

Lab no	Previous Lab number	G62			G63			G64			G65			Cumulative score	Max possible score	%	
		A	B	C	A	B	C	A	B	C	A	B	C				
421	EL316	N/A	12	12	1	9	1	0	0	0	12	12	12	71	132	53.8	<ul style="list-style-type: none"> • <i>Legionella</i> sp. was not detected for G63A. • Count reported was lower than expected range for G63B. • <i>L.bozemanii</i> was not reported for G63B. • Incorrect result was reported for G63C. • No report was returned for distribution G64.
422	EL131	N/A	12	10	10	12	12	10	12	10	NE	NE	NE	88	96	91.7	
445	EL342	N/A	12	1	12	11	12	0	0	0	12	12	1	73	132	55.3	<ul style="list-style-type: none"> • <i>Legionella</i> sp. was not detected for G62A, G62C and G65C. • <i>L.bozemanii</i> was not reported for G63B. • No report was returned for distribution G64.
446	EL362	N/A	12	12	1	11	12	12	10	10	NE	NE	NE	80	96	83.3	
455	EL154	NE	NE	NE	7	6	12	NE	NE	NE	7	7	7	46	47	97.9	
463	EL54	N/A	12	5	1	9	12	10	12	12	12	12	12	109	132	82.6	
473	L77	N/A	3	1	12	12	12	12	12	12	10	12	10	108	112	96.4	
483	EL190	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
496		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	12	36	36	100	
502		NE	NE	NE	NE	NE	NE	NE	NE	NE	3	3	1	7	9	77.8	
506		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	1	25	36	69.4	
530	EL380	NE	NE	NE	1	12	12	0	0	0	NE	NE	NE	25	72	34.7	
532	L290	NE	NE	NE	12	12	12	12	12	12	12	12	12	108	108	100	
546	EL216	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
590	EL206	N/A	12	10	5	9	12	12	12	12	NE	NE	NE	84	96	87.5	
684	EL191	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
700	L289	NE	NE	NE	12	9	12	12	12	12	12	12	12	105	108	97.2	

Table 1 (cont'd): Performance assessment for *Legionella* isolation for samples **G62 – G65**
 NE = not examined, N/A = not applicable

Lab no	Previous Lab number	G62			G63			G64			G65			Cumulative score	Max possible score	%	
		A	B	C	A	B	C	A	B	C	A	B	C				
717	EL145	N/A	12	12	12	9	12	12	12	12	12	12	12	129	132	97.7	
723		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	12	36	36	100	
747	EL71	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
786	EL188	N/A	12	1	12	12	12	10	12	12	12	12	12	119	132	90.2	
789	EL155	N/A	12	12	NE	NE	NE	12	12	12	NE	NE	NE	60	60	100	
806		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	1	25	36	69.4	
825	825	NE	NE	NE	NE	NE	NE	11	12	12	NE	NE	NE	35	36	97.2	
834		NE	NE	NE	NE	NE	NE	NE	NE	NE	0	0	0	0	36	0.0	
854	EL336	NE	NE	NE	1	9	12	12	10	12	12	12	10	90	108	83.3	
858	EL143	N/A	0	0	1	11	12	0	0	0	0	0	0	24	132	18.2	<ul style="list-style-type: none"> • No reports were returned for distributions G62, G64 and G65. • <i>Legionella</i> sp. was not detected for G63A. • <i>L.bozemanii</i> was not reported for G63B.
877	EL89	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
901	EL1	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
903	EL114	N/A	2	6	NE	NE	NE	6	7	9	NE	NE	NE	30	60	50.0	
904	EL119	NE	NE	NE	12	12	12	12	12	12	12	12	1	97	108	89.8	
905	EL124	N/A	0	12	6	12	12	12	12	12	12	12	12	114	132	86.4	
906		NE	NE	NE	NE	NE	NE	NE	NE	NE	0	0	0	0	36	0.0	
907		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	10	34	36	94.4	
908	EL136	N/A	12	12	12	10	12	12	12	11	12	12	12	129	132	97.7	
909	EL14	N/A	12	12	12	11	12	12	12	11	10	12	1	117	132	88.6	
910	EL146	N/A	12	12	1	12	12	0	0	0	NE	NE	NE	49	96	51.0	
912		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	12	36	36	100	
914	EL158	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
915	EL16	N/A	12	12	1	11	12	12	12	12	12	12	12	120	132	90.9	
916		NE	NE	NE	NE	NE	NE	NE	NE	NE	10	12	7	29	36	80.6	
917		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	1	25	36	69.4	

Table 1 (cont'd): Performance assessment for *Legionella* isolation for samples **G62 – G65**

NE = not examined, N/A = not applicable

Lab no	Previous Lab number	G62			G63			G64			G65			Cumulative score	Max possible score	%	
		A	B	C	A	B	C	A	B	C	A	B	C				
919	EL176	N/A	12	12	1	12	12	0	0	0	0	0	0	49	132	37.1	<ul style="list-style-type: none"> • <i>Legionella</i> sp. was not detected for G63A. • No reports were returned for distributions G64 and G65.
921	EL185	N/A	12	12	10	12	12	12	12	12	12	12	12	130	132	98.5	
922	EL187	N/A	NE	NE	NE	NE	NE	12	12	12	12	12	12	72	72	100	
923	EL196	N/A	12	10	12	9	1	11	12	12	12	12	6	109	132	82.6	
924		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	10	34	36	94.4	
925	EL209	NE	NE	NE	NE	NE	NE	12	12	12	12	12	10	70	72	97.2	
926	EL21	N/A	12	10	12	12	12	12	12	12	12	12	12	130	132	98.5	
927	EL210	N/A	12	12	1	12	12	12	12	12	10	12	1	108	123	87.8	
928	EL213	N/A	12	12	0	0	0	12	12	10	12	12	12	94	132	71.2	
929	EL214	N/A	12	10	0	0	0	12	10	12	10	12	12	90	132	68.2	<ul style="list-style-type: none"> • Count reported was lower than expected range for G62C. • Count reported was higher than expected range for G64B. • No report was returned for distribution G63. • <i>L.pneumophila</i> was not reported for G65A.
930	EL218	N/A	12	12	1	10	12	10	10	12	10	12	12	113	132	85.6	
931	EL22	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
932	EL221	NE	NE	NE	12	11	12	12	12	12	NE	NE	NE	71	72	98.6	
933	EL225	N/A	12	11	1	12	12	12	12	12	12	12	1	109	132	82.6	
935	EL227	NE	NE	NE	NE	NE	NE	12	11	12	12	12	12	71	72	98.6	
936	EL230	N/A	12	12	12	9	12	10	10	10	10	12	12	121	132	91.7	
937	EL231	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
938	EL24	N/A	12	12	8	12	12	12	12	12	12	12	12	128	132	97.0	
939		NE	NE	NE	NE	NE	NE	NE	NE	NE	8	12	4	24	36	66.7	

Table 1 (cont'd): Performance assessment for *Legionella* isolation for samples **G62 – G65**

NE = not examined, N/A = not applicable

Lab no	Previous Lab number	G62			G63			G64			G65			Cumulative score	Max possible score	%	
		A	B	C	A	B	C	A	B	C	A	B	C				
940	EL250	N/A	12	11	1	9	12	1	1	1	12	12	12	84	132	63.6	<ul style="list-style-type: none"> • <i>Legionella</i> sp. was not detected for G63A and any G64 samples. • Counts reported were lower than expected range for G62C & G63B. • <i>L.bozemanii</i> was not reported for G63B.
942	EL30	N/A	12	10	12	12	12	12	12	12	12	12	12	130	132	98.5	
944	EL306	N/A	12	10	10	12	12	12	12	12	12	12	10	126	132	95.5	
950		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	12	36	36	100	
953	EL317	N/A	12	12	12	10	12	8	12	12	12	12	12	126	132	95.5	
954		NE	NE	NE	NE	NE	NE	NE	NE	NE	0	0	0	0	36	0.0	
955	EL320	N/A	3	1	1	11	12	10	1	1	12	12	1	65.3	132	49.5	<ul style="list-style-type: none"> • <i>Legionella</i> sp. was not detected for G62C, G63A, G64B, G64C and G65C. • Incorrect result was reported for G62B. • Count reported was lower than expected range for G64A. • <i>L.bozemanii</i> was not reported for G63B.
958	EL324	N/A	12	12	12	11	12	0	0	0	0	0	0	59	132	44.7	<ul style="list-style-type: none"> • No reports were returned for distributions G64 and G65. • <i>L.bozemanii</i> was not reported for G63B.
959	EL326	N/A	12	10	12	12	12	12	12	12	12	12	12	130	132	98.5	
960		NE	NE	NE	NE	NE	NE	NE	NE	NE	0	0	0	0	36	0.0	
961		NE	NE	NE	NE	NE	NE	NE	NE	NE	0	0	0	0	36	0.0	
964	EL339	NE	NE	NE	7	9	12	11	8	8	10	12	9	86	108	79.6	
965		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	1	25	36	69.4	
967		NE	NE	NE	NE	NE	NE	NE	NE	NE	0	0	0	0	36	0.0	

Table 1 (cont'd): Performance assessment for *Legionella* isolation for samples **G62 – G65**
 NE = not examined, N/A = not applicable

Lab no	Previous Lab number	G62			G63			G64			G65			Cumulative score	Max possible score	%	
		A	B	C	A	B	C	A	B	C	A	B	C				
968		NE	NE	NE	NE	NE	NE	NE	NE	NE	0	0	0	0	36	0.0	
972	EL35	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
979	EL36	N/A	12	10	NE	NE	NE	12	11	12	NE	NE	NE	57	60	95.0	
981	EL364	N/A	12	1	1	12	12	12	1	12	12	12	12	99	132	75.0	
985	985	NE	NE	NE	NE	NE	NE	12	12	12	1	12	8	57	72	79.2	
987		NE	NE	NE	NE	NE	NE	NE	NE	NE	0	0	0	0	36	0.0	
988		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	12	36	36	100	
989	EL375	NE	NE	NE	1	9	12	12	12	12	12	12	12	94	108	87.0	
991	EL378	NE	NE	NE	12	10	12	12	12	12	12	12	12	106	108	98.1	
992	EL381	NE	NE	NE	10	9	12	12	12	11	0	0	0	66	108	61.1	
993	EL382	NE	NE	NE	1	1	1	3	6	1	NE	NE	NE	13	72	18.1	
995	EL40	N/A	12	12	12	12	12	10	12	12	12	12	12	130	132	98.5	
997	EL42	N/A	0	0	12	10	12	12	12	12	12	12	12	106	132	80.3	
998	EL43	N/A	0	0	1	1	12	6	6	6	4	12	1	49	132	37.1	<ul style="list-style-type: none"> No report was returned for distribution G62. <i>Legionella</i> sp. was not detected for G63A, G63B and G65C. Isolation of <i>Legionella</i> and <i>Legionella</i> sp. was not reported for all G64 samples and G65A. Serogroup was not reported for G65A. Count reported was higher than expected range for G65A.
999		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	1	12	25	36	69.4	
1000	EL49	N/A	12	1	NE	NE	NE	12	12	12	NE	NE	NE	49	60	81.7	

Table 1 (cont'd): Performance assessment for *Legionella* isolation for samples **G62 – G65**
 NE = not examined, N/A = not applicable

Lab no	Previous Lab number	G62			G63			G64			G65			Cumulative score	Max possible score	%	
		A	B	C	A	B	C	A	B	C	A	B	C				
1001	EL5	N/A	12	10	11	9	12	11	10	10	0	0	0	85	132	64.4	<ul style="list-style-type: none"> Count reported was lower than expected range for G62C, G63A and all G64 samples. <i>L.pneumophila</i> and serogroup 1 not reported for G63B. No report was returned for distribution G65.
1002		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	1	25	36	69.4	
1003	EL57	N/A	12	12	NE	NE	NE	11	12	12	NE	NE	NE	59	60	98.3	
1004	EL60	N/A	12	1	12	12	12	10	10	12	12	12	12	117	132	88.6	
1005	EL63	N/A	NE	NE	12	12	12	12	12	12	12	12	12	108	108	100	
1006	EL64	N/A	12	12	12	12	12	NE	NE	NE	0	0	0	60	96	62.5	
1007	EL65	N/A	12	12	10	12	12	0	0	0	0	0	0	58	132	43.9	<ul style="list-style-type: none"> Count reported was higher than expected range for G63A. No reports were returned for distributions G64 and G65.
1009	L102	N/A	0	0	0	0	0	0	0	0	0	0	0	0	132	0.0	<ul style="list-style-type: none"> No reports were returned for distributions G62, G63, G64 and G65.
1010	L103	N/A	12	12	5	9	12	12	12	12	12	12	12	122	132	92.4	
1011		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	12	36	36	100	
1012	L13	N/A	NE	NE	NE	NE	NE	1	1	12	12	12	10	48	72	66.7	
1013	L175	N/A	3	8	12	12	12	11	12	12	12	12	1	107.25	132	81.3	
1014	L197	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
1015	L251	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
1016	L26	N/A	12	12	11	12	12	12	12	12	12	12	12	131	132	99.2	

Table 1 (cont'd): Performance assessment for *Legionella* isolation for samples **G62 – G65**
 NE = not examined, N/A = not applicable

Lab no	Previous Lab number	G62			G63			G64			G65			Cumulative score	Max possible score	%	
		A	B	C	A	B	C	A	B	C	A	B	C				
1017	L274	N/A	0	0	1	9	1	0	0	0	10	12	10	43	132	32.6	<ul style="list-style-type: none"> • <i>Legionella</i> sp. was not detected for G63A. • <i>L.pneumophila</i> and serogroup one was not detected for G63B. • Incorrect result was reported for G63C. • No reports were returned for distributions G62 and G64. • Count reported was lower than expected range for G65A and G65C.
1018	L275	N/A	12	12	12	12	12	12	12	12	12	12	1	121	123	98.4	
1019	L276	N/A	8	8	8	8	8	8	8	8	8	8	8	88	88	100.0	
1020	L277	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
1022	L281	NE	NE	NE	0	0	0	0	0	0	0	0	0	0	108	0.0	
1023	L285	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
1024	L287	N/A	7	1	1	7	7	7	7	7	7	7	7	65	75	86.7	
1025		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	12	36	36	100	
1029	L80	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
1041	EL178	N/A	12	1	10	7	12	12	10	11	12	12	10	109	132	82.6	
1050		NE	NE	NE	NE	NE	NE	NE	NE	NE	0	0	0	0	36	0.0	
1053	EL363	N/A	12	12	12	12	12	12	12	12	0	0	0	96	132	72.7	
1059	EL6	N/A	12	1	12	12	12	12	12	12	12	12	12	121	132	91.7	
1060	EL66	N/A	12	12	12	12	12	12	11	10	12	12	12	129	132	97.7	
1063	EL86	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
1064		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	12	36	36	100	
1072	L47	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
1154	L59	N/A	12	12	1	11	12	12	11	11	12	12	12	118	132	89.4	
1155	L273	N/A	12	12	12	12	12	8	9	12	12	12	12	125	132	94.7	
1159	L172	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
1160	L94	N/A	12	12	11	11	12	12	12	12	12	12	12	130	132	98.5	

Table 1 (cont'd): Performance assessment for *Legionella* isolation for samples **G62 – G65**

NE = not examined, N/A = not applicable

Lab no	Previous Lab number	G62			G63			G64			G65			Cumulative score	Max possible score	%
		A	B	C	A	B	C	A	B	C	A	B	C			
1161	L89	N/A	12	1	11	12	12	12	12	12	12	12	12	120	132	90.9
1162	L254	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100
1163		N/A	12	12	10	12	12	NE	NE	NE	12	12	12	36	36	100
1168		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	12	94	96	97.9
1174	EL170	N/A	12	12	12	12	12	8	12	12	12	12	12	128	132	97.0
1177	EL72	NE	NE	NE	12	12	12	12	12	12	NE	NE	NE	72	72	100
1187	L252	N/A	12	12	1	11	12	12	11	12	12	12	12	119	132	90.2
1204	EL53	N/A	12	12	11	12	12	0	0	0	12	12	12	95	132	72.0
1205	EL107	N/A	12	12	12	9	12	12	12	12	12	12	12	129	132	97.7
1212	EL174	N/A	12	12	12	9	12	12	10	12	12	12	12	127	132	96.2
1214	EL222	N/A	12	11	10	12	12	12	12	12	12	12	12	129	132	97.7
1215	EL223	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100
1216	EL258	N/A	8	1	1	8	8	7	8	8	8	8	1	66	88	75.0
1217	EL302	N/A	0	0	0	0	0	0	0	0	NE	NE	NE	0	96	0.0
1219	EL34	N/A	12	12	10	12	12	12	12	12	12	12	12	130	132	98.5
1220	EL370	N/A	12	12	12	12	12	0	0	0	12	12	12	96	132	72.7
1222	EL51	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100
1223	EL61	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100
1224	L104	N/A	12	12	12	12	12	8	12	12	12	12	12	128	132	97.0
1225	L109	N/A	12	10	12	12	12	12	12	12	12	12	12	130	132	98.5
1226	L112	N/A	12	12	12	12	12	12	12	12	12	12	1	121	132	91.7
1227	L12	N/A	12	12	5	12	12	12	12	11	12	12	12	124	132	93.9
1228	L132	N/A	12	1	NE	NE	NE	10	12	12	12	12	12	83	96	86.5
1229	L147	N/A	12	12	1	10	12	12	12	12	8	12	12	115	130	88.5
1230	L226	N/A	12	1	12	12	12	12	12	12	12	12	12	121	132	91.7
1232	L249	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100

Table 1 (cont'd): Performance assessment for *Legionella* isolation for samples **G62 – G65**

NE = not examined, N/A = not applicable

Lab no	Previous Lab number	G62			G63			G64			G65			Cumulative score	Max possible score	%	
		A	B	C	A	B	C	A	B	C	A	B	C				
1233	L259	N/A	0	0	10	10	1	10	10	11	12	12	12	88	132	66.7	<ul style="list-style-type: none"> No report was returned for distribution G62. Counts reported were higher than expected range for G63A and G63B. Incorrect result was reported for G63C. Counts reported were lower than expected range for all G64 samples.
1234	L279	N/A	12	12	11	12	12	12	12	12	12	12	12	131	132	99.2	
1235	L286	N/A	12	1	0	0	0	12	12	12	12	12	1	74	132	56.1	<ul style="list-style-type: none"> <i>Legionella</i> sp. was not detected for G62C and G65C. No report was returned for distribution G63.
1236	L56	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
1237	L70	N/A	12	12	12	9	12	12	12	12	12	12	12	129	132	97.7	
1238	L71	N/A	12	12	1	9	12	12	12	12	12	12	1	107	132	81.1	
1239	L74	N/A	12	12	12	12	12	12	12	12	12	12	12	132	132	100	
1241	L82	N/A	12	9	1	12	12	12	12	12	12	12	12	118	132	89.4	
1246	EL192	N/A	12	12	12	12	12	0	0	0	12	12	12	96	132	72.7	
1249	EL92	N/A	3	12	8	12	12	12	12	12	0	0	0	83.1	132	63.0	<ul style="list-style-type: none"> Incorrect result was reported for G62B. Incorrect species reported for G63A. No report was returned for distribution G65.
1258		NE	NE	NE	NE	NE	NE	12	12	12	12	12	12	72	72	100	
1260		NE	NE	NE	NE	NE	NE	10	1	10	NE	NE	NE	21	36	58.3	
1262		NE	NE	NE	NE	NE	NE	0	0	0				0	36	0.0	
1263		NE	NE	NE	NE	NE	NE	7	1	1	NE	NE	NE	9	31	29.0	
1265		NE	NE	NE	NE	NE	NE	12	1	12	12	12	12	61	72	84.7	

Table 1 (cont'd): Performance assessment for *Legionella* isolation for samples **G62 – G65**
 NE = not examined, N/A = not applicable

Lab no	Previous Lab number	G62			G63			G64			G65			Cumulative score	Max possible score	%
		A	B	C	A	B	C	A	B	C	A	B	C			
1267		NE	NE	NE	NE	NE	NE	12	11	12	12	12	12	71	72	98.6
1271		NE	NE	NE	NE	NE	NE	10	10	10	NE	NE	NE	30	36	83.3
1275		NE	NE	NE	NE	NE	NE	12	12	12	NE	NE	NE	36	36	100
1284		NE	NE	NE	NE	NE	NE	12	12	12	12	12	12	72	72	100
1285		NE	NE	NE	NE	NE	NE	12	12	12	12	12	10	70	72	97.2
1286		NE	NE	NE	NE	NE	NE	12	12	7	0	0	0	31	72	43.1
1287		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	12	36	36	100
1288		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	1	25	36	69.4
1289		NE	NE	NE	NE	NE	NE	NE	NE	NE	10	12	10	32	36	88.9
1295		NE	NE	NE	NE	NE	NE	NE	NE	NE	10	12	10	32	36	88.9
1313		NE	NE	NE	NE	NE	NE	NE	NE	NE	7	12	3	22	36	61.1
1347		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	12	36	36	100
1426		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	10	34	36	94.4
1435		NE	NE	NE	NE	NE	NE	NE	NE	NE	10	12	8	30	32	93.8
1436		NE	NE	NE	NE	NE	NE	NE	NE	NE	12	12	1	25	36	69.4

Troubleshooting

Checklist for Quality:

1. **Methods**
Are you using standard or validated, clearly documented methods for isolation, identification and enumeration of Legionella spp.?
2. **Culture media**
Is your culture media allowing optimal isolation of Legionella spp.? Do you have sufficiently challenging quality control procedures for your culture media?
3. **Control strains**
Do you use control strains, at appropriate levels, for all the processing procedures?
4. **Processing**
*Is the percentage recovery of legionellae as expected following heat and acid treatments?
Do you undertake trend analyses for these processes? Are you aware of the limitations of the method used?*
5. **Equipment**
Is all the equipment used for the procedures (incubators, refrigerators, measuring instruments, waterbaths etc.) calibrated and monitored regularly?
6. **Staff Training**
Are the staff who perform the examinations fully trained and familiar with all the procedural steps?
7. **Internal Quality Control (IQC)**
Do you have adequate IQC procedures in place with documented guidelines for dealing with IQC failures?
8. **Good Laboratory Practice (GLP)**
*Do staff adhere to GLP at all times?
If cross-contamination has occurred with EQA samples it can also occur with routine water samples.*
9. **Clerical Procedures**
*Are your laboratory numbering and clerical procedures adequate?
If you have reported EQA results incorrectly this may also happen with routine water samples*

Identification of *Legionella* spp.

There are at least 50 species of *Legionella* of which at least 20 have been associated with human disease. The species that is most commonly isolated both from the environment and from infections is *L.pneumophila*; this species can be divided into at least 16 serogroups on the basis of surface antigens. *L.pneumophila* serogroup 1 is the most common cause of outbreaks of Legionnaires' disease and, within serogroup 1, the strains most commonly associated with disease share a common epitope, as revealed by monoclonal subtyping. It is important, because of the risks to human health, to differentiate routinely between *L.pneumophila* and the other *Legionella* species and to be able to distinguish serogroup 1 from the other serogroups of *L.pneumophila*. However, monoclonal subtyping is normally performed only by specialist reference laboratories. Participants who do not identify *Legionella* spp. other than *L.pneumophila* should, where appropriate, report their results as '*Legionella* sp. not *L.pneumophila*' rather than '*Legionella* sp.'

Incomplete or misleading identification of *Legionella* spp. from water samples may have serious public health implications. Correct reporting of the serogroup is essential for outbreak investigations.

False Positive Results - *Legionella* sp. reported incorrectly as present

False positive results may arise due to cross-contamination, either from other test samples or control strains, mis-identification of background micro-organisms that are present in the sample, or sample-handling and clerical errors. False positive results may result in unnecessary treatment of the water-source with serious financial implications.

False Negative Results - *Legionella* sp. reported incorrectly as not detected

There are many reasons for false negative results including failures with processing, culture media or equipment, insufficiently sensitive methods, inadequately trained staff or sample-handling or clerical errors. False negative results may have serious public health implications.

Outlying Results for Enumerations

Outlying results may be due to errors such as preparation of dilutions, selectivity of culture media, errors in counting, mis-calculation, mis-identification, mis-reporting or sample-handling or clerical errors. Laboratories are advised to investigate the reasons for any anomalous results, particularly if they are occurring repeatedly. Participants who report consistently low levels should audit all stages of their procedure that might allow organisms to be lost, e.g. filtration, centrifugation and pre-treatment. Participants reporting consistently high counts should assess their identification processes but should consider also whether they use methods that differ from those used by the majority of other participants. Incorrect results for enumerations can give a misleading impression of the severity of the risk associated with the sample.

Repeat Samples

Participants should, where possible, determine the reason(s) for mis-identification, false positive and false negative results and outlying counts for enumerations. Repeat samples should be requested to ensure that causes of error have been eradicated. Repeat samples are free of charge, provided they are dispatched with the next distribution of samples. A handling fee will be charged for immediate dispatch.

Help and Advice

The Scheme Organisers will help participants to resolve issues relating to the testing of environmental water samples for *Legionella* spp. Participants should also contact FEPTU to discuss any issues relating to the schemes in general, data analysis or performance assessments.

Contact Details

Repeat samples

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Data analysis

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Microbiological advice

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General comments and complaints

Dr Nicola Lang or Julie Russell

Scheme Consultant

Dr John V. Lee