

Supplementary Material

Treatment reliability when reusing reclaimed water for irrigation. A risk assessment, ranking and management methodology

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Table S1. FMEA table format.

Subsystem	Compartment or equipment	Component	Identifier	Failure mode	Causes	Existing corrective actions	Consequences	Hazards for the environment and or human health

Table S2. FMECA table format.

Subsystem	Compartment or equipment	Component	Identifier	Failure mode	Causes	S _L	S _D	Existing corrective actions	Consequences	Hazards for the environment and or human health	S _M	RPN

Table S3. RPN values and the corresponding scores for L, M, D (RPN= $S_L \times S_M \times S_D$).

RPN	S_L	S_D	S_M	Comments	RPN	S_L	S_D	S_M	Comments	RPN	S_L	S_D	S_M	Comments	RPN	S_L	S_D	S_M	Comments
1	1	1	1		12	2	3	2		32	1	2	16		80	2	5	8	
2	1	2	1		12	3	2	2		32	2	1	16		80	4	5	4	
2	1	1	2		12	3	1	4		32	2	4	4		80	5	4	4	
2	2	1	1		12	3	4	1		32	4	4	2		80	5	2	8	
3	1	3	1		12	4	3	1		32	4	2	4		80	5	1	16	
3	3	1	1		15	3	5	1		32	2	2	8		96	2	3	16	
4	1	2	2		15	5	3	1		32	1	4	8		96	3	2	16	
4	2	2	1		16	1	1	16	Catastrophic effects, rare occurrence, ease detection	32	4	1	8		96	4	3	8	
4	2	1	2		16	1	2	8		36	3	3	4		96	3	4	8	
4	1	1	4		16	2	1	8		40	1	5	8		100	5	5	4	
4	1	4	1		16	1	4	4		40	2	5	4		120	3	5	8	
4	4	1	1		16	4	4	1		40	4	5	2		120	5	3	8	
5	1	5	1		16	4	1	4		40	5	4	2		128	2	4	16	
5	5	1	1		16	2	4	2		40	5	2	4		128	4	2	16	
6	1	3	2		16	2	2	4		40	5	1	8		128	4	4	8	
6	2	3	1		16	4	2	2		48	1	3	16	Catastrophic effects, rare occurrence, moderate ease in detection	144	3	3	16	Catastrophic effect, moderate occurrence, moderate ease of detection
6	3	2	1		18	3	3	2		48	3	1	16	Catastrophic effects, moderate occurrence, ease in detection	160	2	5	16	
6	3	1	2		20	1	5	4		48	2	3	8		160	5	2	16	
8	1	1	8		20	4	5	1		48	3	2	8		160	4	5	8	
8	1	4	2		20	5	4	1		48	3	4	4		160	5	4	8	
8	1	2	4		20	5	1	4		48	4	3	4		192	3	4	16	
8	2	4	1		20	2	5	2		50	5	5	2		192	4	3	16	
8	2	1	4		20	5	2	2		60	3	5	4		200	5	5	8	
8	2	2	2		24	2	3	4		60	5	3	4		240	3	5	16	
8	4	2	1		24	3	2	4		64	1	4	16	Catastrophic effects, rare occurrence, very scarce detection	240	5	3	16	
8	4	1	2		24	4	3	2		64	2	4	8		256	4	4	16	
9	3	3	1		24	3	4	2		64	2	2	16		320	4	5	16	
10	1	5	2		24	1	3	8		64	4	2	8		320	5	4	16	
10	2	5	1		24	3	1	8		64	4	4	4		400	5	5	16	
10	5	2	1		25	5	5	1		64	4	1	16						
10	5	1	2		30	3	5	2		72	3	3	8						
12	1	3	4		30	5	3	2		80	1	5	16						

Table S4. The values RPN may assume according to the defined scores of the three items, defined in tables 1–3 of the main text.

Position	RPN	Position	RPN
1	1	21	48
2	2	22	50
3	3	23	60
4	4	24	64
5	5	25	72
6	6	26	80
7	8	27	96
8	9	28	100
9	10	29	120
10	12	30	128
11	15	31	144
12	16	32	160
13	18	33	192
14	20	34	200
15	24	35	240
16	25	36	256
17	30	37	320
18	32	38	400
19	36		
20	40		

Table S5. (Excel file).

Table S6. Distribution of the scores for the three items L, D and M.

Score S_L, S_D	Score S_M	Likelihood	Detection	Magnitude
1	1	52	86	66
2	2	164	92	10
3	4	76	60	37
4	8	10	54	82
5	16	1	11	108

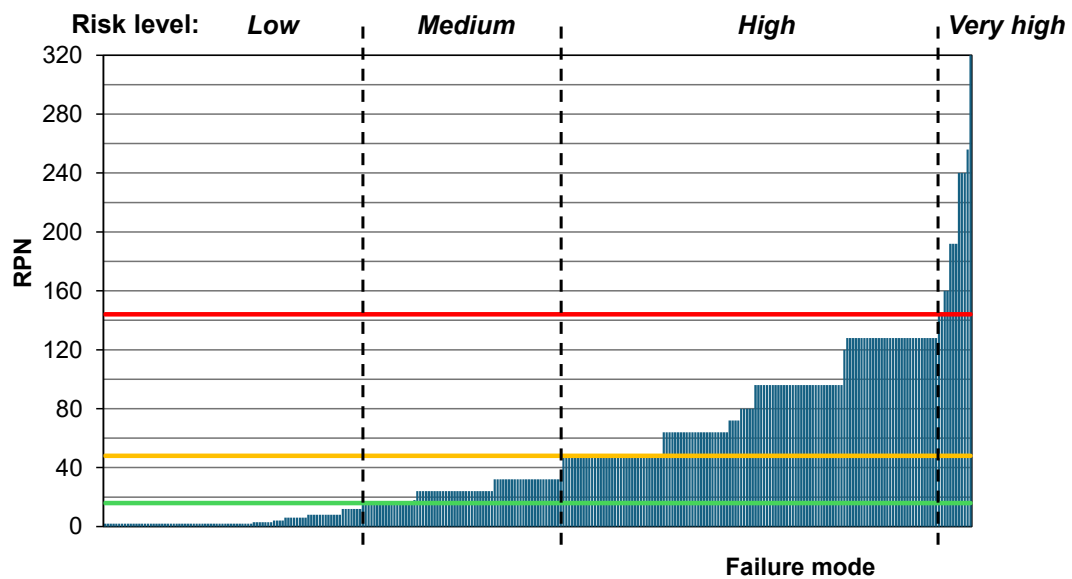


Figure S1. Distribution of the RPN values in ascending order.