

Supplemental TABLE S1 Summary of sampling sites, online survey, and sanitary survey

Sample No.	Sampling date	Access point	Connection status	Spigot distance (inches)	Gutter/Downspout material	Roof material	Overhanging trees	Age of barrel (years)	% roof connected to barrel	% time shade	Barrel cleaning frequency	Gutter cleaning frequency	Gutter covers	Wildlife evidence	Size of barrel (gallons)	Time to last rainfall (days)*	Sum of rainfall on 7 days prior to and including sampling day (inches)
1	11/17/14	Hose	Re-connected			Tar		3							50-100	0	22.3
2 and 24	11/18/2014, 6/23/2016	Spigot	Connected	12	aluminum	unknown	yes	1 month first sampling, 2 years second sampling			never cleaned				50-100	0 (11/18), 3 (6/23)	47.7, 0.8
3	12/12/2014	Spigot													50-100	0	45.5
4	11/23/14	Spigot	Connected					4							50-100	5	38.1
5 and 23	12/2/2014 and 7/13/16	Hose for first sampling, spigot for second sampling	Connected	12	aluminum	asphalt shingle, tar	yes	3 at first sampling, 5 at second sampling			tank has been cleaned before				50-100	0 (both sampling events)	36.4, 29.4
6	12/3/14	Spigot	Disconnected			Unknown		new (<1 month)							50-100	0	35.7
7 and 25	12/6/2014 and 7/14/16	Spigot	Disconnected during first sampling, connected during second sampling	5.5	aluminum	Asphalt shingle (11 years old)	yes	3	75	100	never cleaned	yearly	No	No	50-100	1 (12/6), 0 (7/14)	13.1, 16.8
8	12/6/14	Spigot	Disconnected			Painted flat roof		1							50-100	1	13.1
9	12/7/14	Spigot	Connected			slate		3 weeks						Yes	50-100	1	36.2
10 and 27	12/7/2014, 7/15/16	Spigot	Disconnected during first sampling, connected during second sampling	2.5	aluminum	unknown	no	2-3 at first sampling, 4-5 at second sampling	75		never cleaned	yearly		Yes	50-100	0 (both events)	29.1, 16.8
11	12/8/14	Hose	Connected			Plastic greenhouse		7 to 8				Gutters cleaned day			>100	1	29.1

												before sampling						
12	12/12/14	Spigot	Connected													50-100	0	44.5
13	6/29/16	Spigot	Connected	4.5	aluminum	slate	yes	3	50	50	never cleaned	never	Yes	Yes		50-100	1	22.9
14	6/29/16	Spigot	Connected	4.5	steel	unknown	yes	2	25	75	never cleaned	Semi- yearly or more as needed	No	Yes		50-100	1	22.9
15	6/29/16	Spigot	Connected	< 6	aluminum	asphalt shingle	yes	10	50	100	once (>1- 2 years ago)	Yearly	No	Yes		50-100	1	22.9
16	7/7/16	Spigot	Connected	12	aluminum	slate	no	1	50	100	never cleaned	never	No	Yes		50-100	2	16.1
17	7/7/16	Spigot	Connected	1.5	aluminum	asphalt shingle- 4 year old roof	no	8	75	25	>3 years	never	Yes	Yes		50-100	2	16.1
18	7/7/16	Spigot	Connected	0 at bottom	aluminum	asphalt shingle	yes	3	50	50	never cleaned	yearly	Yes	Yes		50-100	2	16.1
19	7/7/16	Spigot	Connected	5	aluminum	asphalt shingle	no			50	never cleaned					50-100	2	16.1
20	7/11/16	Top of barrel	Not connected		aluminum	plastic sheeting	no	>1	100	50	never cleaned	never	No but screen over top of barrel	No		50-100	1	14.8
21	7/12/16	Spigot	Connected	16	aluminum	unknown	yes	4	33	50	never cleaned	never	No			50-100	3	10.4
22	7/12/16	Spigot	Connected	0	Aluminium, plastic	plastic sheeting	no	5	75	25	never cleaned	Never	No	Yes		250	1	14.8
26	7/14/16	Spigot	Connected	4	aluminum	asphalt shingle	yes	2-3, 5-6		75	never cleaned	yearly	No	Yes		50-100	0	16.8
28	7/14/16	Spigot	Connected	0 at bottom	aluminum	asphalt shingle	no				never cleaned					50-100	0	16.8
29	7/14/16	Spigot	Connected	2.5	aluminum	unknown	no				never cleaned					50-100	0	16.8
30	7/14/16	Spigot	Connected	3	aluminum	unknown	no				never cleaned					50-100	0	16.8
31	8/14/16	Spigot	Connected	<6	aluminum	unknown	Yes				never cleaned	never	no			50-100	2	1.3
32	7/14/16	Spigot	Connected	<6	aluminum	unknown	No				never cleaned	never	no			50-100	0	16.8

33	7/21/16	Spigot	Connected	16	aluminum	tar and polyethylene sheeting-redone in March 2015	no	1			never cleaned	never			50-100	2	43.7
34	7/21/16	Spigot	Connected	4	unknown	asphalt shingle, multi-layer	unknown				never cleaned	twice yearly	No		unknown	3	10.2
36	7/21/16	Spigot	Connected	7.5	aluminum	asphalt shingle	yes	10-11 months		100	never cleaned			Yes	>100	2	43.7
37	7/21/16	Garden hose	Connected	3	aluminum	asphalt shingle	yes				never cleaned				50-100	2	43.7
38	8/3/2016	Spigot	Connected	<6	aluminum	Rubber flat, asphalt shingle	no		25-50		>6-12 months	Cleaned before gutter guards installed	Yes	No		1	40.9
39	8/4/2016	Spigot	Connected	1.5	aluminum	Rubber roof with white/silver coating	No	<1			never	never			50-100	2	40.9

*For time = 0, rainfall occurred on sampling day

Supplemental TABLE S2 Results of Kendall's Tau correlations between contaminants and meteorological (2014 and 2016 data) or survey parameters for 2016 data. Microbiological parameters with fewer than 5 positive detections were excluded. Significant values are bold-faced with $\alpha_{\text{corrected}} = 0.05/4 = 0.0125$.

Parameter	Spigot distance (Continuous)	Barrel age (Continuous)	Sum of rainfall during 7 antecedent days to sampling event (Continuous)	Time to last rainfall (Continuous)
<i>E. coli</i>	0.037 (0.802)	-0.044 (0.861)	0.145 (0.282)	-0.203 (0.115)
<i>Enterococcus</i> spp.	-0.087 (0.546)	-0.044 (0.861)	0.139 (0.320)	-0.292 (0.028)
<i>Acanthamoeba</i> spp.	-0.03 (0.724)	-0.047 (0.575)	0.014 (0.853)	-0.027 (0.672)
<i>Legionella</i> spp.	-0.007 (0.981)	-0.145 (0.248)	-0.087 (0.425)	0.115 (0.263)
<i>M. avium</i>	0.063 (0.560)	-0.062 (0.353)	0.073 (0.337)	-0.061 (0.365)
<i>M. intracellulare</i>	-0.047 (0.724)	0.170 (0.198)	0.038 (0.712)	0.003 (0.988)
Lead	-0.053 (0.718)	-0.275 (0.174)	0.009 (0.964)	-0.019 (0.908)
Zinc	-0.080 (0.582)	0.022 (0.955)	-0.092 (0.516)	0.009 (0.963)

Philadelphia rainwater barrel contact information.

Please provide the details for the owner or person responsible for the rainwater barrel whom we should contact directly about water sampling. All information will be kept confidential and will not be shared. This information is used to plan our sampling program only.

1. Last name

2. First name

3. Preferred email address

4. Preferred phone number

5. Street address of rainwater barrel location
(Example: 123 Walnut Street)

6. Zip code:

7. Please indicate your preferred sampling date (Month/Day). Choose a weekday between Wednesday June 29th through Tuesday, July 19th, 2016.

Kerry and a sampling assistant will visit your barrel location during normal business hours (9am-5pm) and it should take <10 minutes. Please contact Kerry (kahamilton17@gmail.com) if additional days/ weekend days are needed.

8. Please indicate your preferred sampling time.

Please indicate a time between 9am and 5pm if possible. If additional times are needed please contact Kerry (kahamilton17@gmail.com)

9. How many tanks are on your property would like us to sample?

System materials and characteristics

10. I got my barrel from:

Please indicate the source of your rainwater barrel.

Mark only one oval.

- ☐ The Philadelphia Water Department "Rain Check Program"
- ☐ A private vendor
- ☐ Other: _____

11. Size of rainwater barrel

Please indicate the size of your rainwater barrel

Mark only one oval.

- ☐ <50 gallons
- ☐ 50-100 gallons
- ☐ >100 gallons
- ☐ Not sure

12. Age of barrel (years)

Please provide the approximate age of your rainwater barrel in years.

13. Barrel material

Mark only one oval.

- ☐ Polyethylene (Plastic)
- ☐ Galvanized/ Metal
- ☐ Concrete
- ☐ Fiberglass
- ☐ Wood
- ☐ Not sure
- ☐ Other: _____

14. Gutter material

Mark only one oval.

- ☐ Aluminum
- ☐ PVC
- ☐ Steel
- ☐ Not sure
- ☐ Other: _____

15. Type of roof material?

Mark only one oval.

- ☐ Asphalt shingle
- ☐ Modified bitumen
- ☐ Metal
- ☐ Rubber (EPDM or TPO)
- ☐ Clay/concrete tile
- ☐ Slate
- ☐ Green roof
- ☐ Cool roof
- ☐ Not sure
- ☐ Other: _____

16. What proportion of the roof is connected to the barrel?

Mark only one oval.

- ☐ 1/4
- ☐ 1/2
- ☐ 3/4
- ☐ All
- ☐ Other: _____

17. Presence of overhanging trees on the roof?

Mark only one oval.

- ☐ Yes
- ☐ No (5% or less)

18. Is the rainwater barrel connected to a pump?

Mark only one oval.

- ☐ Yes
- ☐ No
- ☐ Not sure

Philadelphia rainwater barrel contact information.

19. TV aerial or antenna on the roof?

Mark only one oval.

- ☐ Yes
- ☐ No

20. % of time that the barrel is in the shade morning/afternoon

Mark only one oval.

- ☐ 0%
- ☐ 25%
- ☐ 50%
- ☐ 75%
- ☐ 100%

Maintenance

21. How frequently is the barrel cleaned?

Mark only one oval.

- ☐ 1-3 months
- ☐ >3-6 months
- ☐ >6-12 months
- ☐ >1-2 years
- ☐ >2-3 years
- ☐ >3 years
- ☐ Never cleaned

22. How frequently are the gutters cleaned?

Mark only one oval.

- ☐ weekly
- ☐ monthly
- ☐ yearly
- ☐ never been cleaned
- ☐ Other: _____

23. Do you use gutter covers or screens (gutter guards)?

Gutter covers or screens are meshes that fit over gutters to prevent leaves or debris from building up.

Mark only one oval.

- ☐ Yes
- ☐ No

Uses and treatment of rainwater

24. How is the rainwater from the barrel used?

Please check all that apply.

Check all that apply.

- ☐ Drinking
- ☐ Cooking
- ☐ Car washing
- ☐ Clothes laundering
- ☐ Bathing
- ☐ Showering
- ☐ Gardening
- ☐ Toilet flushing
- ☐ Filling a swimming pool
- ☐ Pets
- ☐ Other: _____

25. Any previous testing done on rain barrel water quality?

Check all that apply.

- ☐ Microbial quality
- ☐ Chemical quality
- ☐ Never been tested
- ☐ Other: _____

26. Is rain barrel water treated before use?

Mark only one oval.

- ☐ Yes
- ☐ No

27. What treatment method is applied before use?

Mark only one oval.

- ☐ No treatment method
- ☐ Chlorine
- ☐ Filtration
- ☐ Boiling
- ☐ UV
- ☐ Other: _____

28. Is there a first flush diverter installed?

First flush diverters remove the first wash of water that flows over the roof so that it does not enter the barrel.

Mark only one oval.

- ☐ Yes
- ☐ No

29. Is there evidence of wildlife or wildlife droppings on the roof? (birds, mice, rats, cats, etc.)

Mark only one oval.

☐ Yes

☐ No
