Appendix D – Table and Plots for 17 Constituents in Background Area

Table D1. Summary of 17 Constituents Measured in the Background Area.

					Nondetects		Detects	
Analyte	**Unit**	**N**	**Nondetects (%)**	**Outliers**	**Min**	**Max**	**Min**	**Max**
Arsenic	mg/kg	71	0 (0%)	3			1.9	5.29
Benzo(a)pyrene	µg/kg	71	29 (41%)	5	0.33	21	0.53	53
Bis(2-ethylhexyl) phthalate	µg/kg	67	15 (22%)	4	3.2	31	4.2	2100
Cadmium	mg/kg	67	9 (13%)	1	0.04	0.11	0.04	0.3
Total Chlordanes	µg/kg	48	15 (31%)	1	0.04	0.26	0.12	1.18
cPAHs	µg/kg	71	12 (17%)	5	0.39	10	0.66	76.99
Total DDx	µg/kg	48	1 (2%)	2	0.18	0.18	0.2	6.7
Hexachlorobenzene	µg/kg	34	10 (29%)	7	0.07	0.43	0.08	1.04
Total HPAHs	µg/kg	71	12 (17%)	3	1	10	4.73	450
Lead	mg/kg	67	0 (0%)	6			3.96	31.6
Total LPAHs	µg/kg	71	23 (32%)	1	1.5	10	2.34	96
Phenanthrene	µg/kg	69	36 (52%)	2	0.59	13	0.91	71
Total PAHs	µg/kg	71	11 (15%)	3	1.5	10	6.12	464.48
Total PCBs (Congeners)	µg/kg	33	0 (0%)	4			0.6	47.98
Total PCBs (Aroclors)	µg/kg	48	25 (52%)	5	1.3	5.2	4.95	53.45
Total PCDD/Fs	µg/kg	33	0 (0%)	1			0.01	0.31
Zinc	mg/kg	67	0 (0%)	1			40.4	165

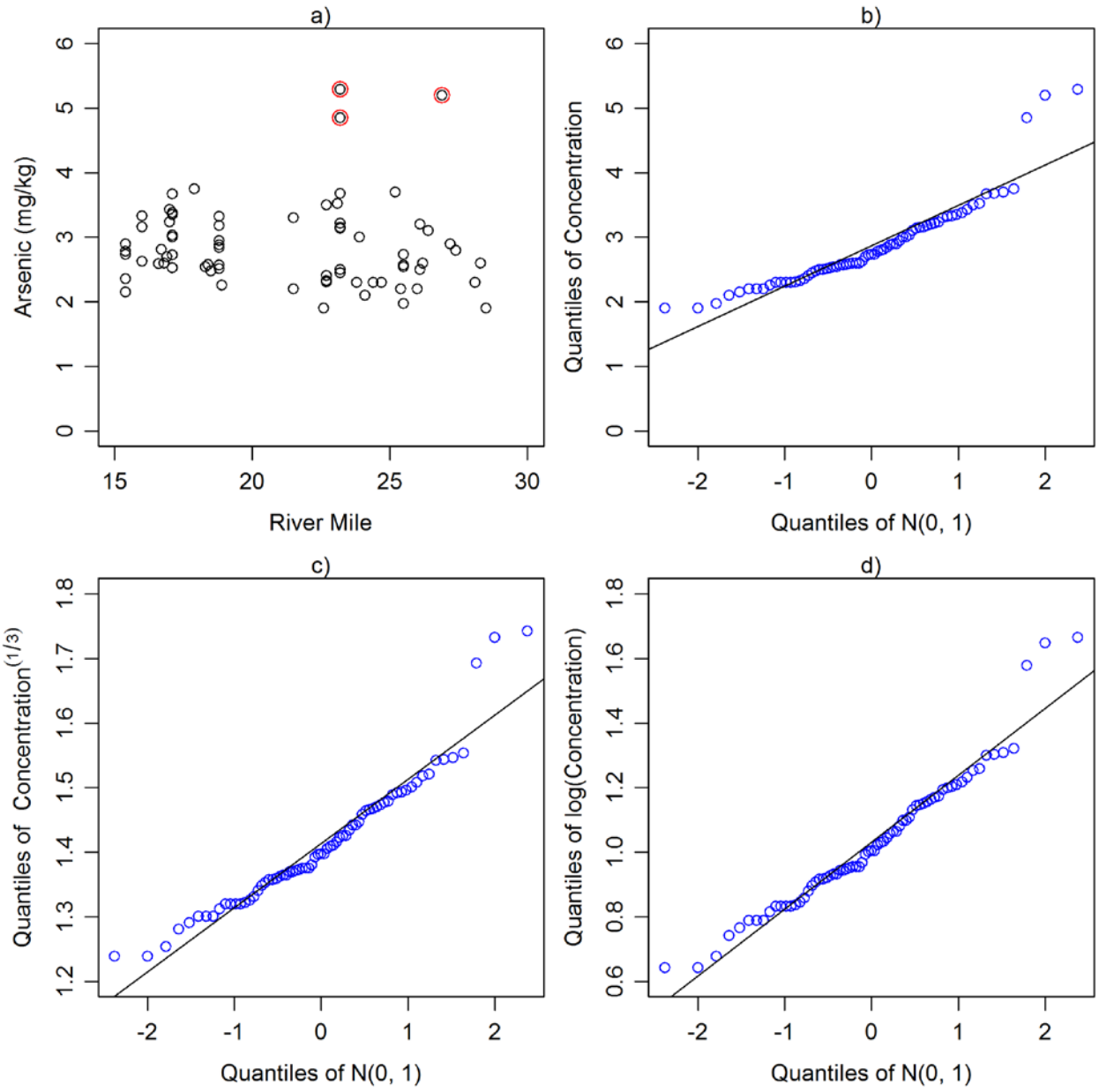

Figure D1. Distribution of arsenic (mg/kg) in the background area: a) concentration versus river mile (observations circled in red ○are outliers according to Rosner's test based on raw data); b) normal Q-Q plot; c) same as b) but using cube root-transformed observations; d) same as b) but using log-transformed observations. Fitted lines are based on least squares.

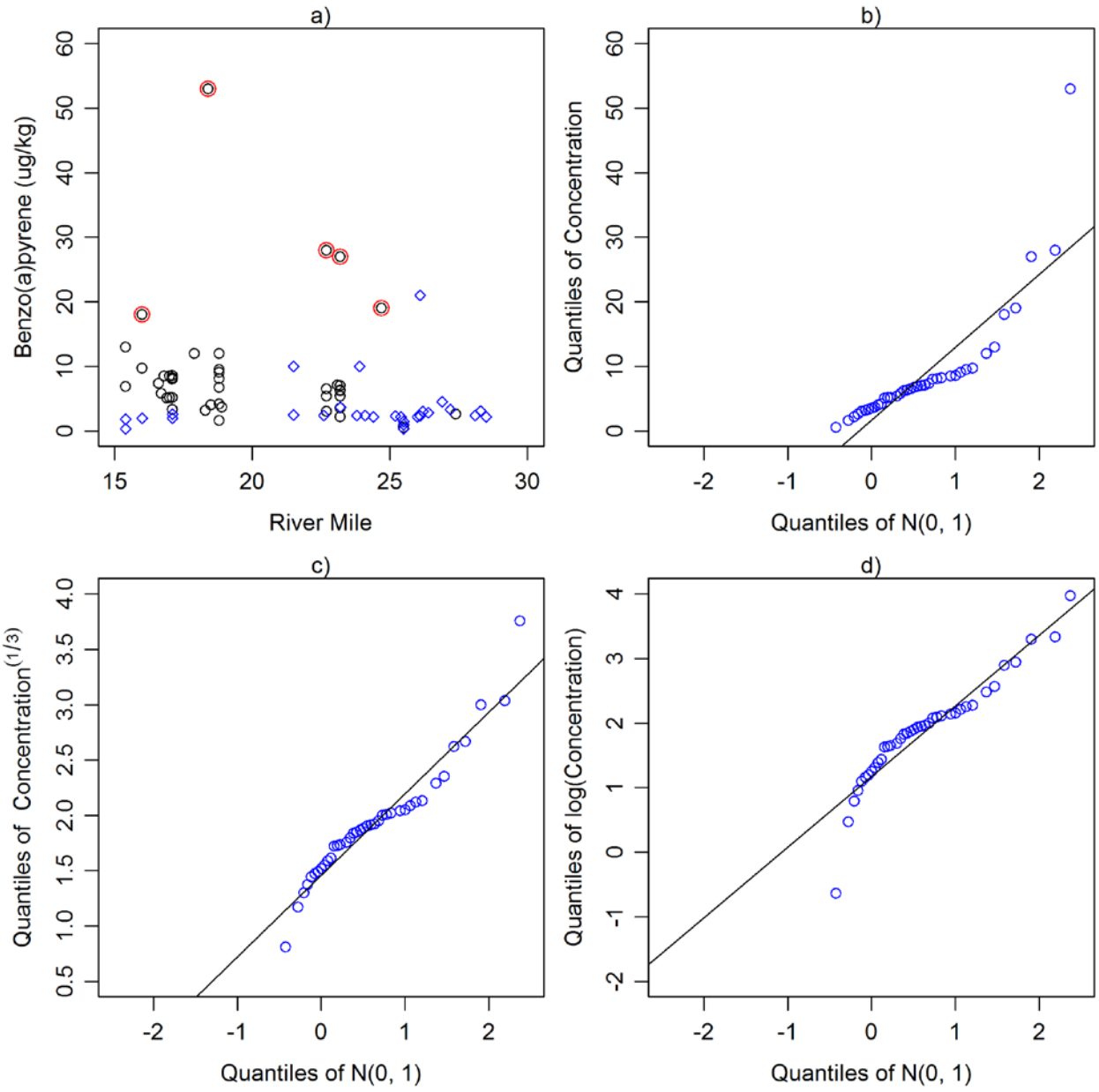

Figure D2. Distribution of benzo(a)pyrene (µg/kg) in the background area: a) concentration versus river mile (blue diamonds ◊are nondetects shown at the detection limit, and observations circled in red ○are outliers according to Rosner's test based on raw data with nondetects set to half the detection limit as per ProUCL; b) normal Q-Q plot using the Kaplan-Meier method of USEPA (2009, p. 15-7); c) same as b) but using cube root-transformed observations; d) same as b) but using log-transformed observations. Fitted lines are based on least squares.

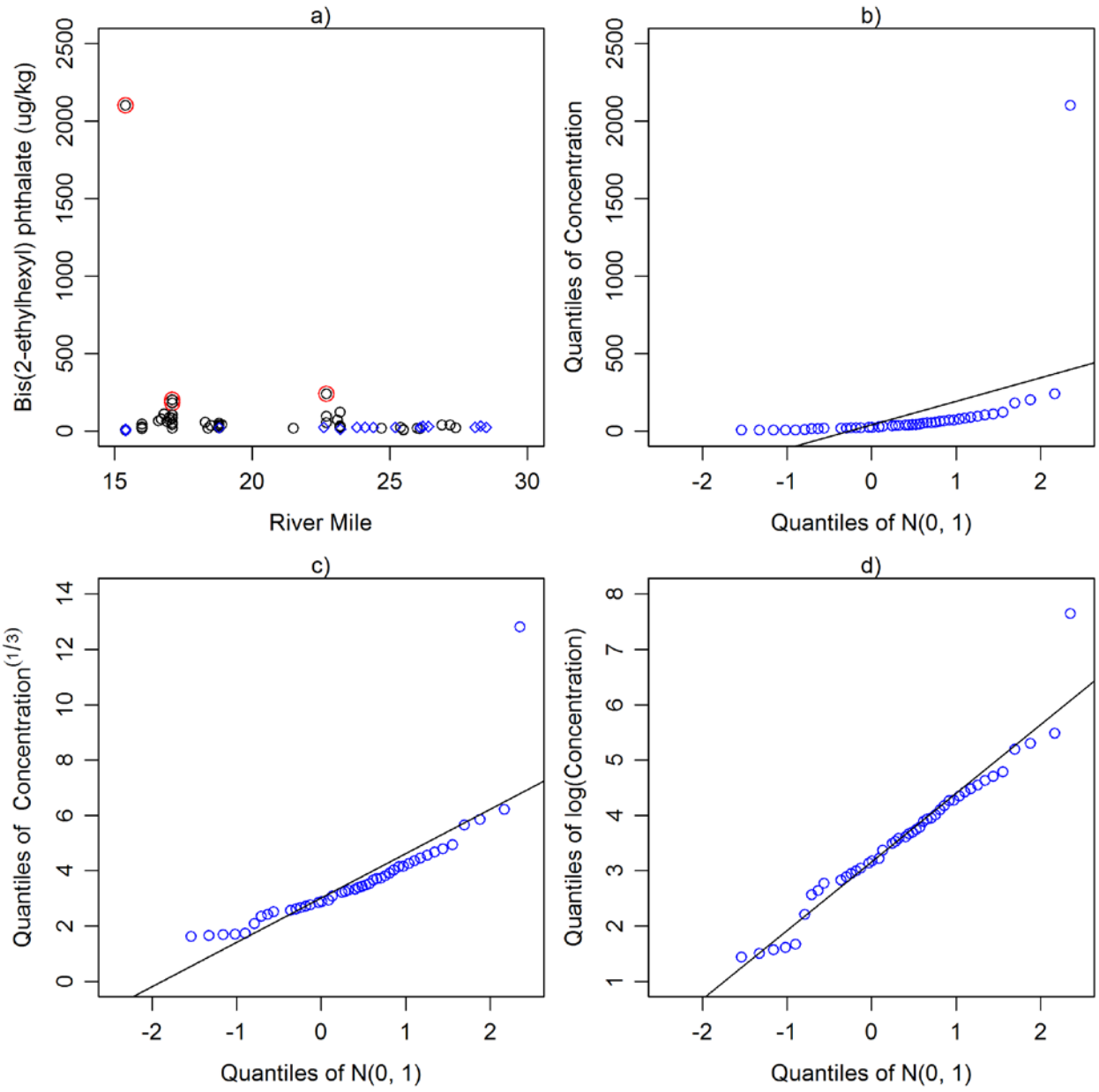

Figure D3. Distribution of bis(2-ethylhexyl) phthalate (µg/kg) in the background area: a) concentration versus river mile (blue diamonds ◊are nondetects shown at the detection limit, and observations circled in red ○are outliers according to Rosner's test based on raw data with nondetects set to half the detection limit as per ProUCL); b) normal Q-Q plot using the Kaplan-Meier method of USEPA (2009, p. 15-7); c) same as b) but using cube root-transformed observations; d) same as b) but using log-transformed observations. Fitted lines are based on least squares.

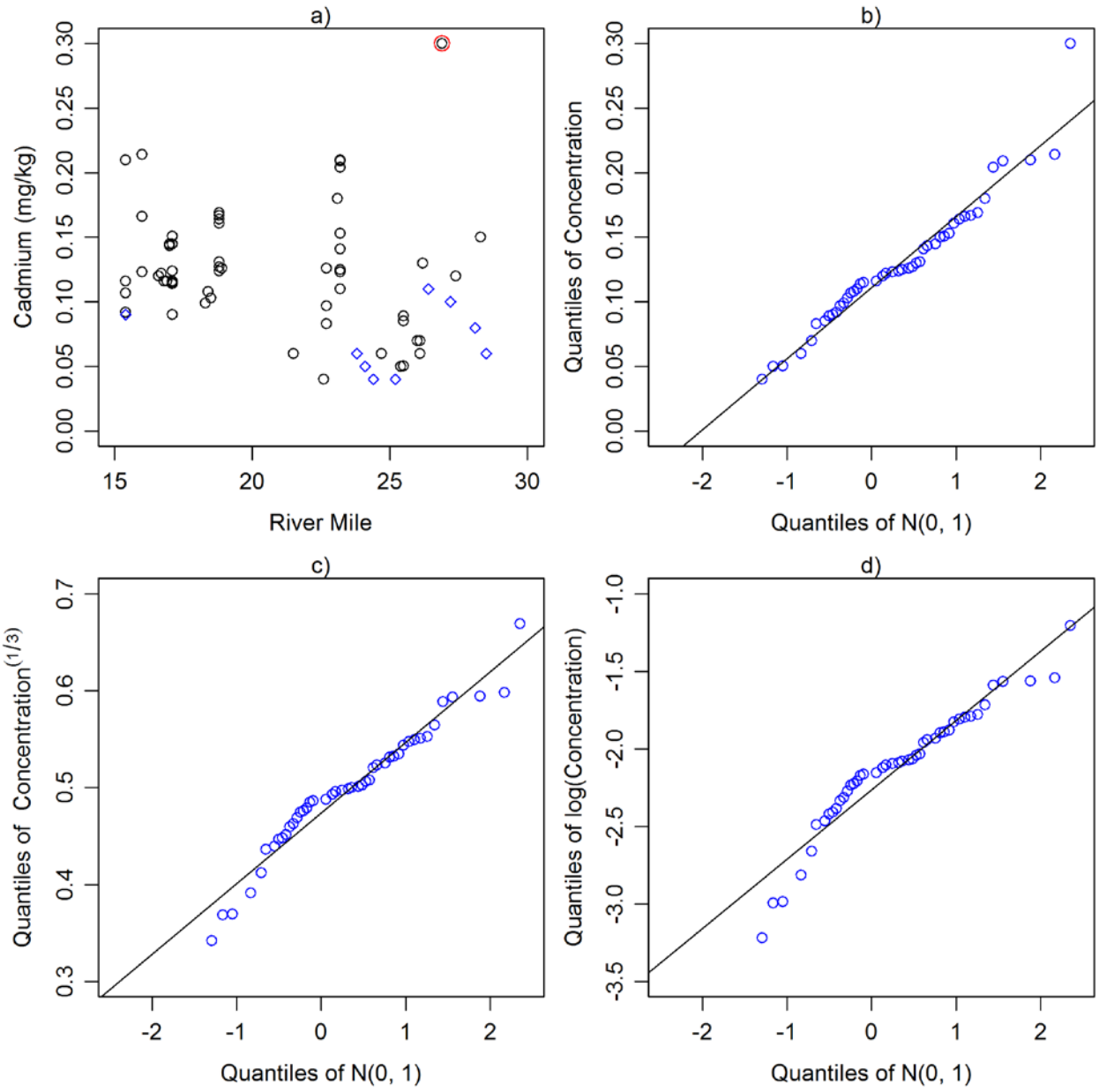

Figure D4. Distribution of cadmium (mg/kg) in the background area: a) concentration versus river mile (blue diamonds ◊are nondetects shown at the detection limit, and observations circled in red ○are outliers according to Rosner's test based on raw data with nondetects set to half the detection limit as per ProUCL; b) normal Q-Q plot using the Kaplan-Meier method of USEPA (2009, p. 15-7); c) same as b) but using cube root-transformed observations; d) same as b) but using log-transformed observations. Fitted lines are based on least squares.

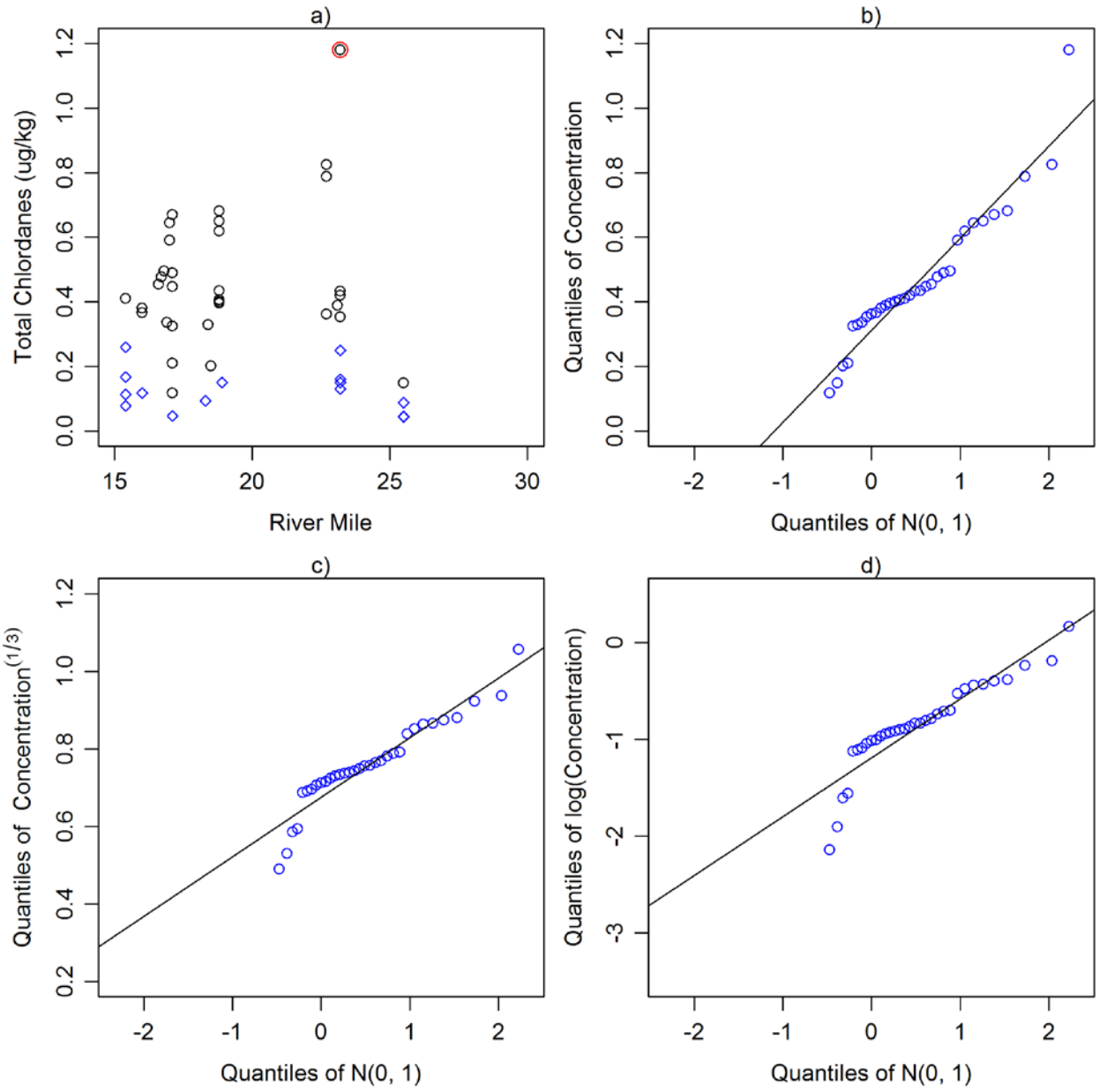

Figure D5. Distribution of total chlordanes (µg/kg) in the background area: a) concentration versus river mile (blue diamonds ◊are nondetects shown at the detection limit, and observations circled in red ○are outliers according to Rosner's test based on raw data with nondetects set to half the detection limit as per ProUCL; b) normal Q-Q plot using the Kaplan-Meier method of USEPA (2009, p. 15-7); c) same as b) but using cube root-transformed observations; d) same as b) but using log-transformed observations. Fitted lines are based on least squares.

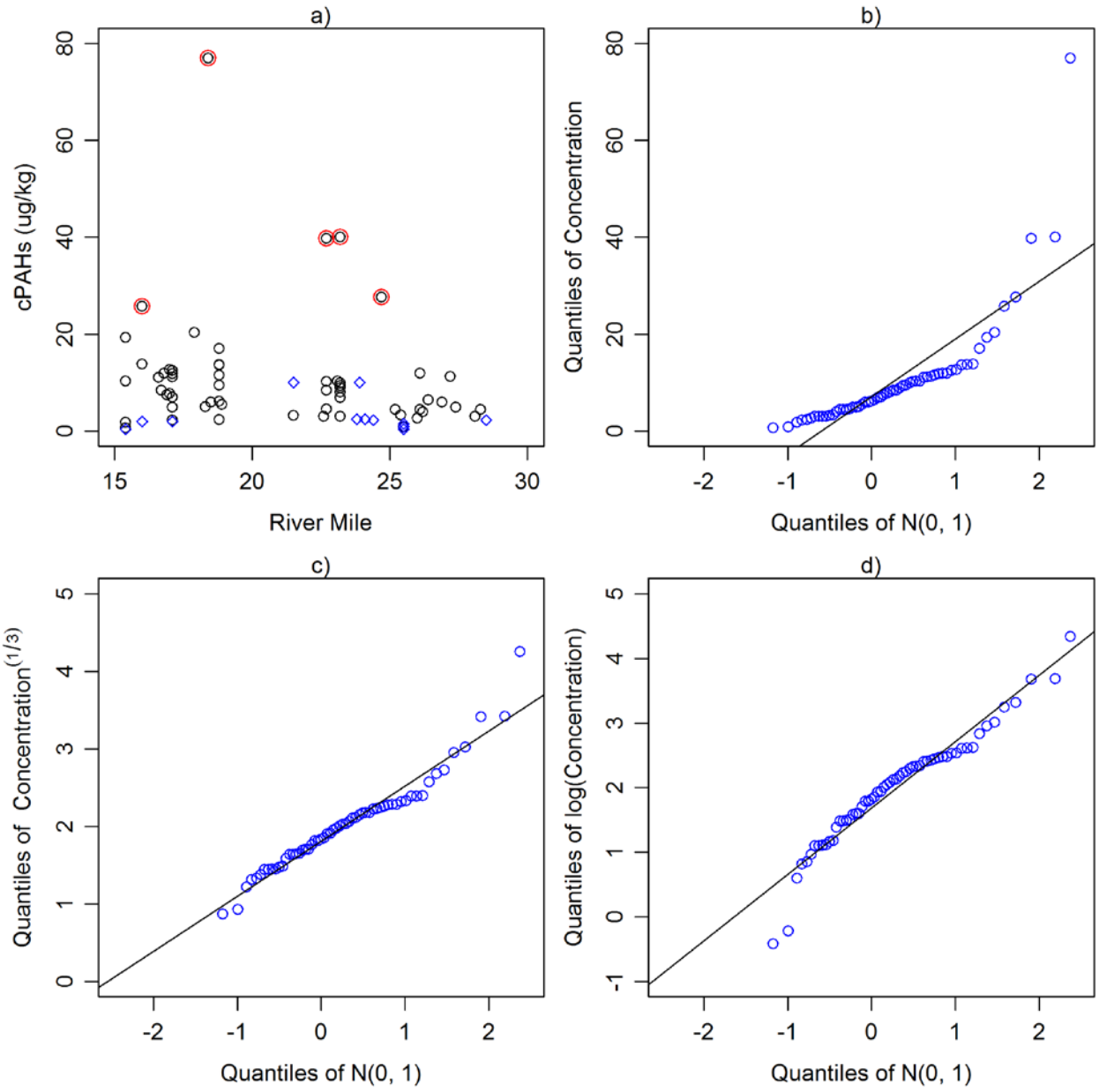

Figure D6. Distribution of cPAHs (µg/kg) in the background area: a) concentration versus river mile (blue diamonds ◊are nondetects shown at the detection limit, and observations circled in red ○are outliers according to Rosner's test based on raw data with nondetects set to half the detection limit as per ProUCL; b) normal Q-Q plot using the Kaplan-Meier method of USEPA (2009, p. 15-7); c) same as b) but using cube root-transformed observations; d) same as b) but using log-transformed observations. Fitted lines are based on least squares.

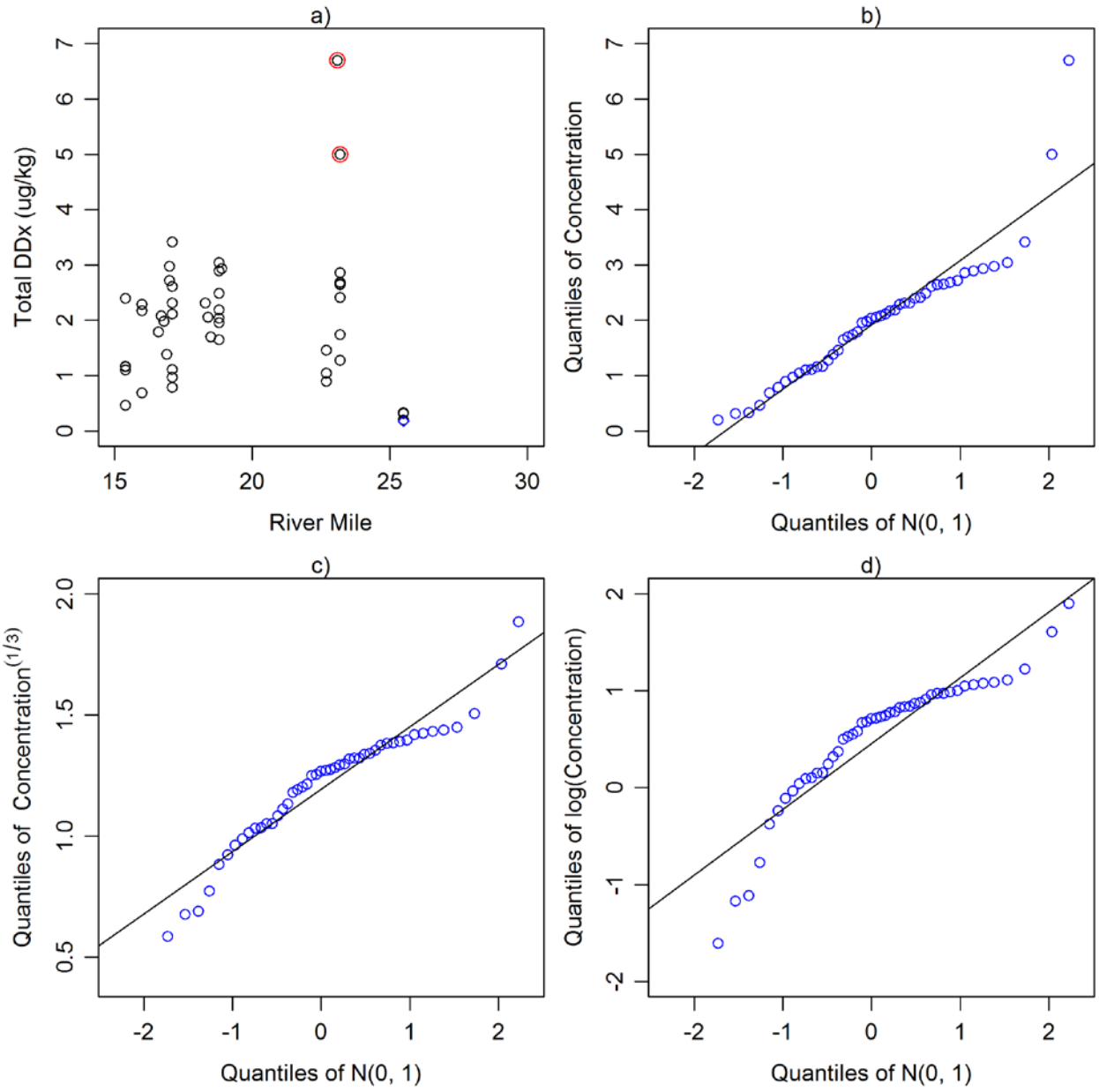

Figure D7. Distribution of total DDx (µg/kg) in the background area: a) concentration versus river mile (blue diamonds ◊are nondetects shown at the detection limit, and observations circled in red ○are outliers according to Rosner's test based on raw data with nondetects set to half the detection limit as per ProUCL; b) normal Q-Q plot using the Kaplan-Meier method of USEPA (2009, p. 15-7); c) same as b) but using cube root-transformed observations; d) same as b) but using log-transformed observations. Fitted lines are based on least squares.

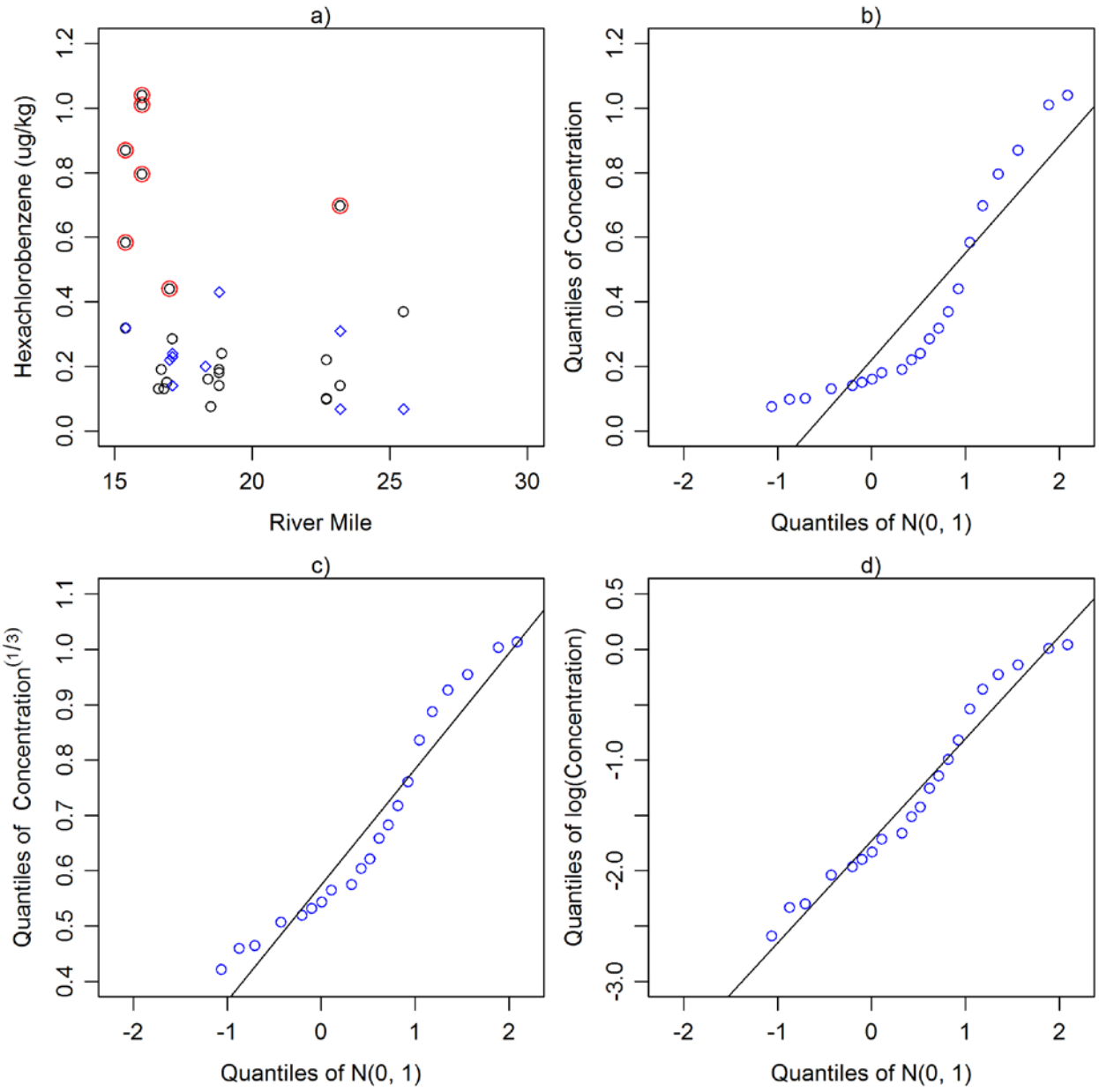

Figure D8. Distribution of hexachlorobenzene (µg/kg) in the background area: a) concentration versus river mile (blue diamonds ◊are nondetects shown at the detection limit, and observations circled in red ○are outliers according to Rosner's test based on raw data with nondetects set to half the detection limit as per ProUCL; b) normal Q-Q plot using the Kaplan-Meier method of USEPA (2009, p. 15-7); c) same as b) but using cube root-transformed observations; d) same as b) but using log-transformed observations. Fitted lines are based on least squares.

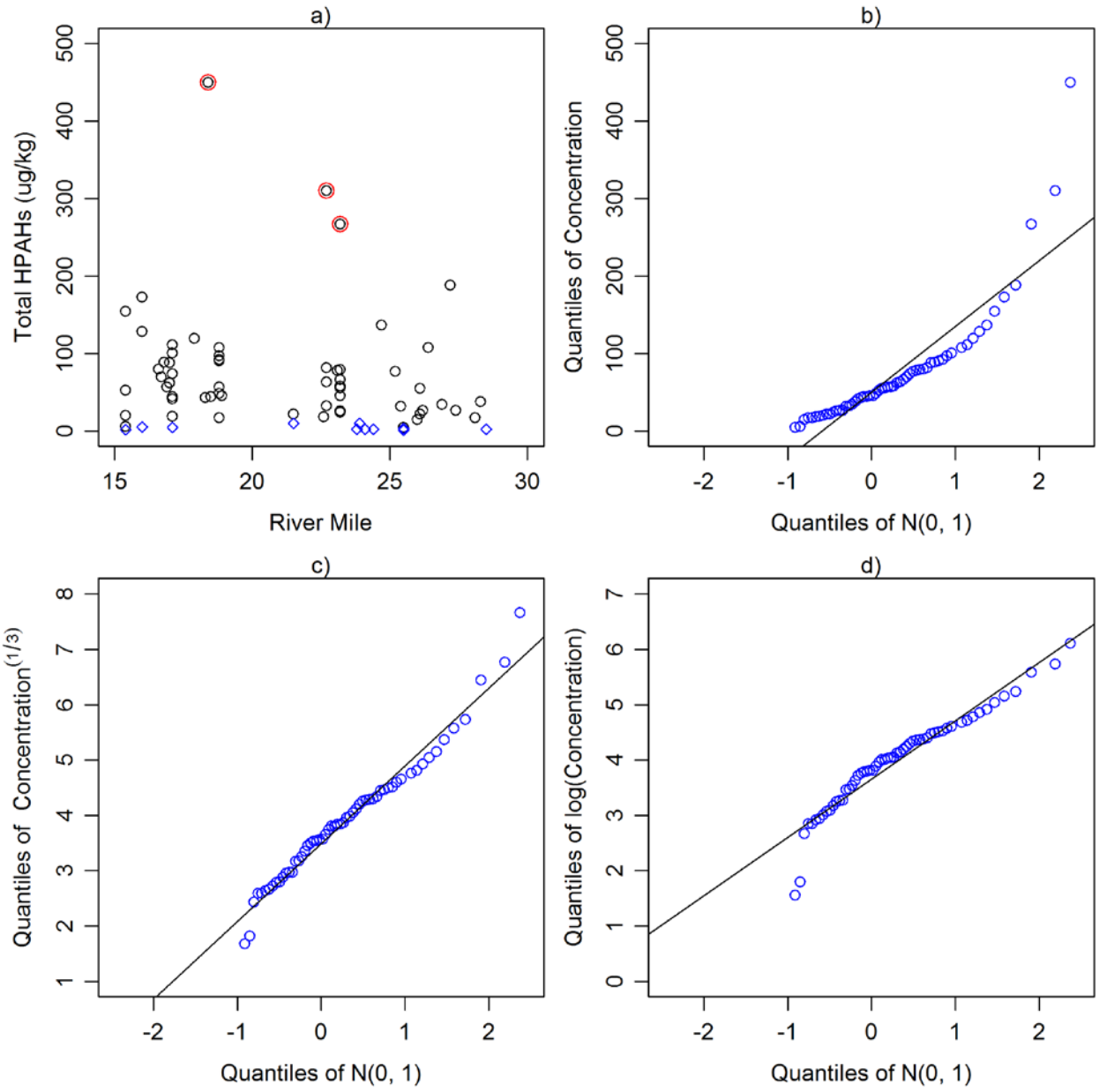

Figure D9. Distribution of total HPAHs (µg/kg) in the background area: a) concentration versus river mile (blue diamonds ◊are nondetects shown at the detection limit, and observations circled in red ○are outliers according to Rosner's test based on raw data with nondetects set to half the detection limit as per ProUCL; b) normal Q-Q plot using the Kaplan-Meier method of USEPA (2009, p. 15-7); c) same as b) but using cube root-transformed observations; d) same as b) but using log-transformed observations. Fitted lines are based on least squares.

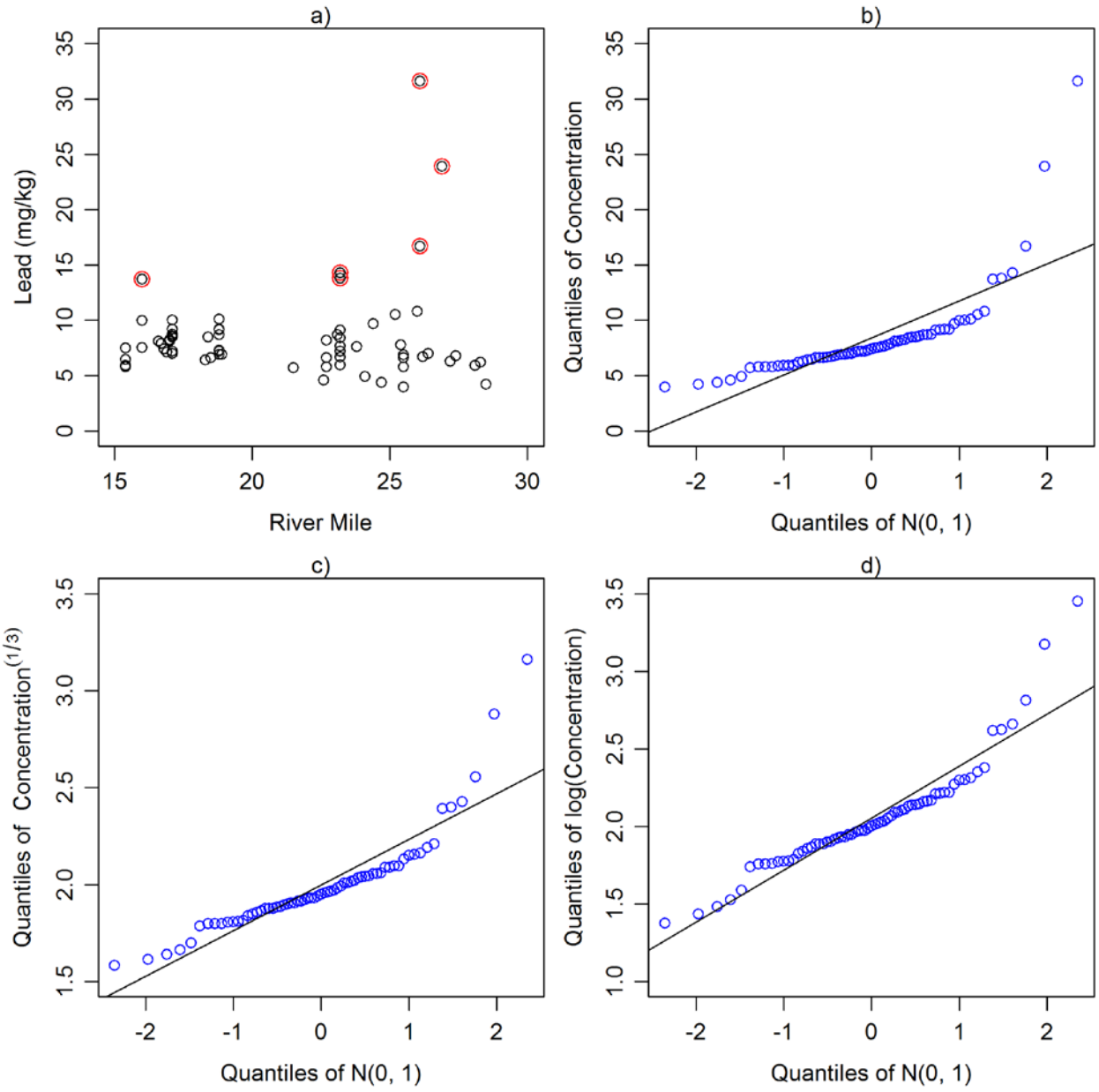

Figure D10. Distribution of lead (mg/kg) in the background area: a) concentration versus river mile (observations circled in red ○are outliers according to Rosner's test based on raw data); b) normal Q-Q plot; c) same as b) but using cube root-transformed observations; d) same as b) but using log-transformed observations. Fitted lines are based on least squares.

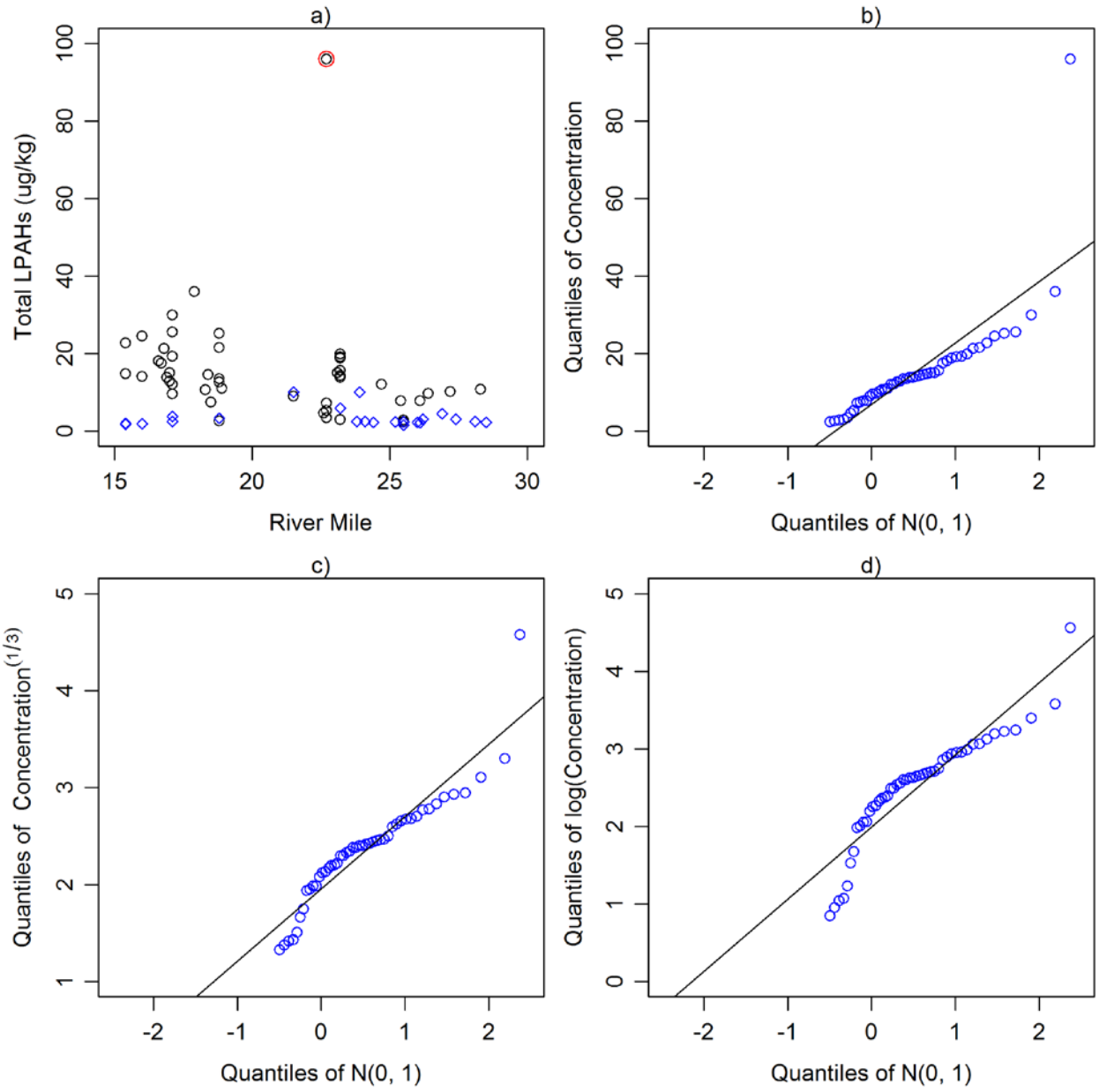

Figure D11. Distribution of total LPAHs (µg/kg) in the background area: a) concentration versus river mile (blue diamonds ◊are nondetects shown at the detection limit, and observations circled in red ○are outliers according to Rosner's test based on raw data with nondetects set to half the detection limit as per ProUCL; b) normal Q-Q plot using the Kaplan-Meier method of USEPA (2009, p. 15-7); c) same as b) but using cube root-transformed observations; d) same as b) but using log-transformed observations. Fitted lines are based on least squares.

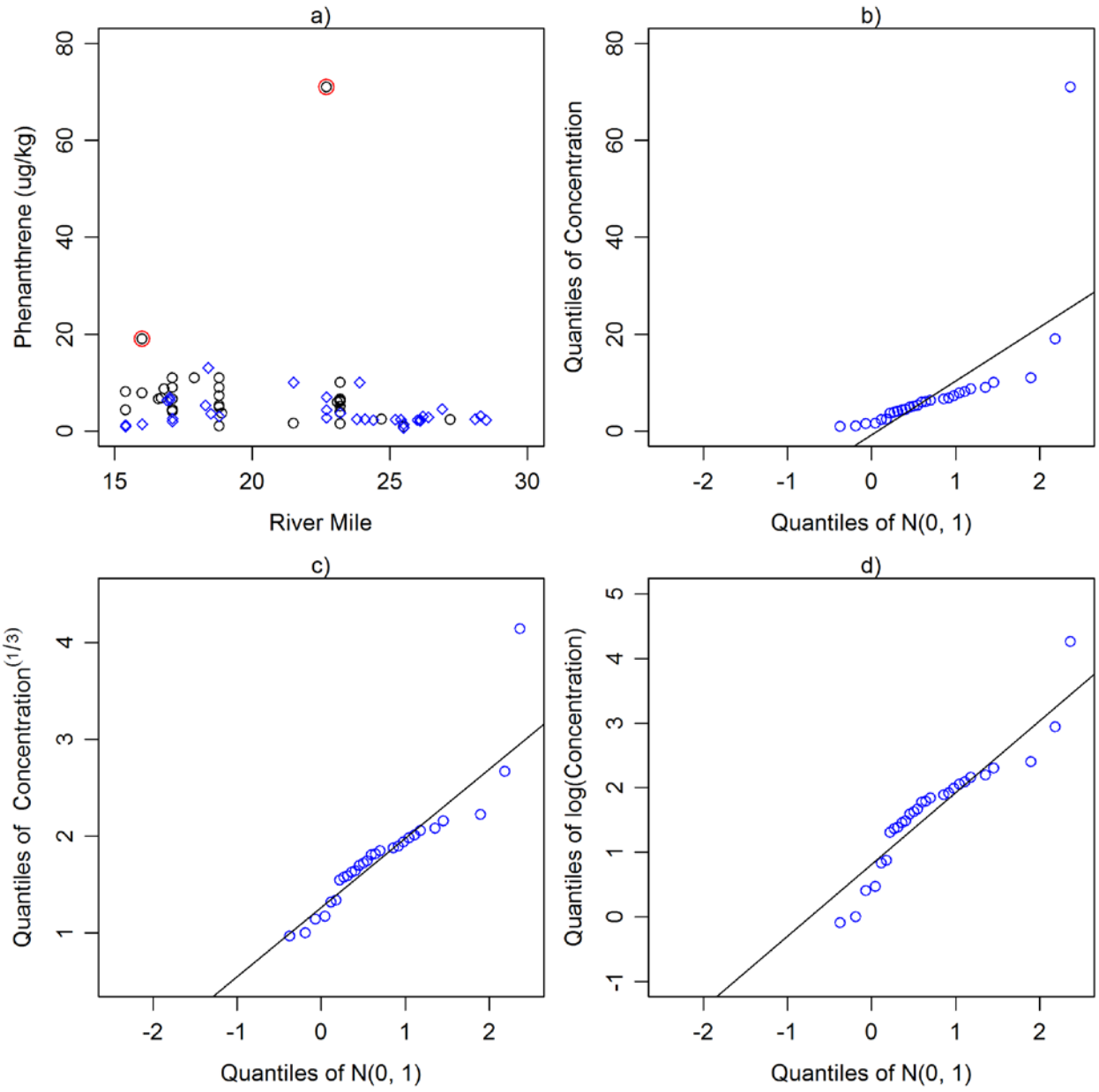

Figure D12. Distribution of phenanthrene (µg/kg) in the background area: a) concentration versus river mile (blue diamonds ◊are nondetects shown at the detection limit, and observations circled in red ○are outliers according to Rosner's test based on raw data with nondetects set to half the detection limit as per ProUCL; b) normal Q-Q plot using the Kaplan-Meier method of USEPA (2009, p. 15-7); c) same as b) but using cube root-transformed observations; d) same as b) but using log-transformed observations. Fitted lines are based on least squares.

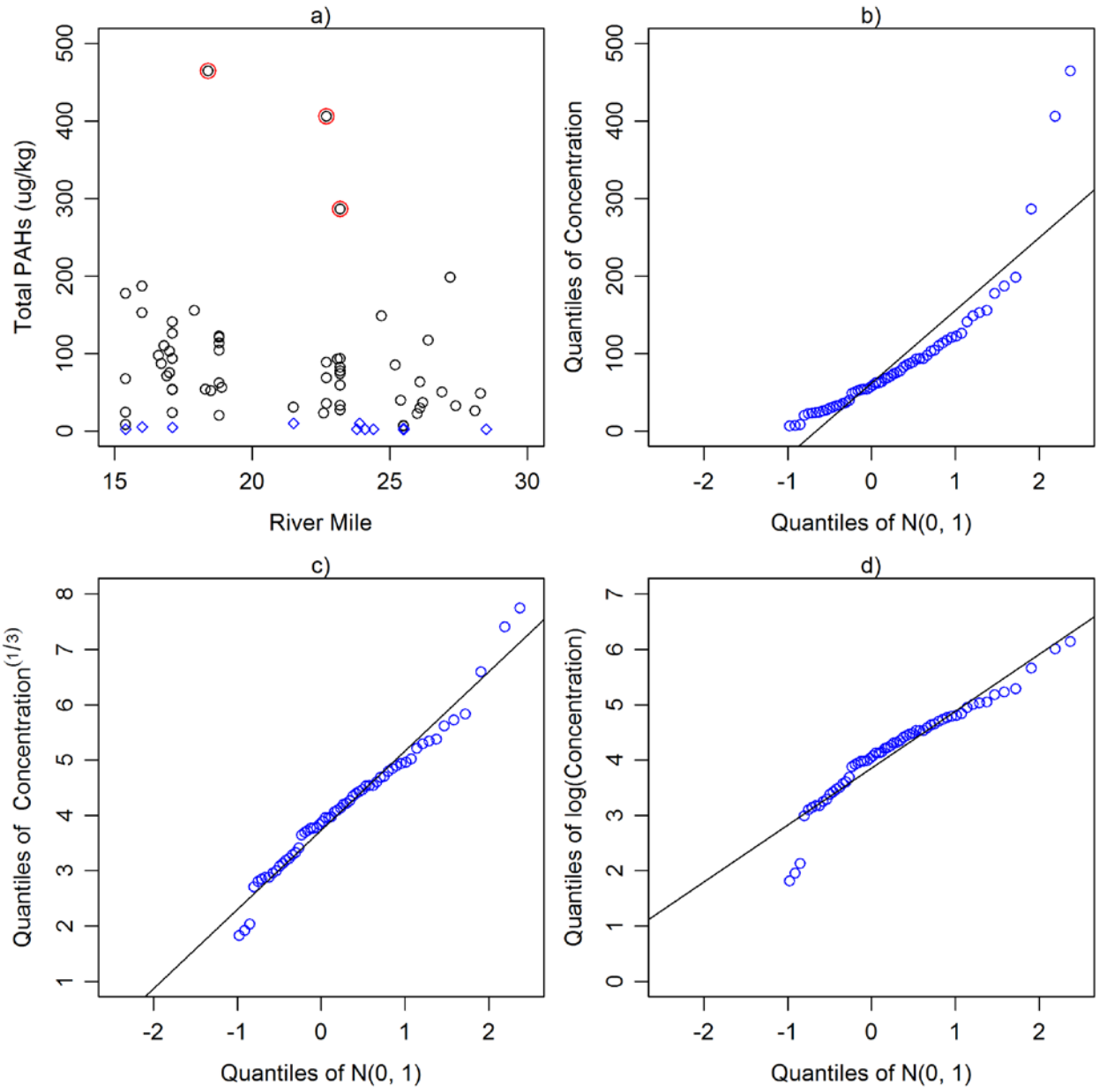

Figure D13. Distribution of total PAHs (µg/kg) in the background area: a) concentration versus river mile (blue diamonds ◊are nondetects shown at the detection limit, and observations circled in red ○are outliers according to Rosner's test based on raw data with nondetects set to half the detection limit as per ProUCL; b) normal Q-Q plot using the Kaplan-Meier method of USEPA (2009, p. 15-7); c) same as b) but using cube root-transformed observations; d) same as b) but using log-transformed observations. Fitted lines are based on least squares.

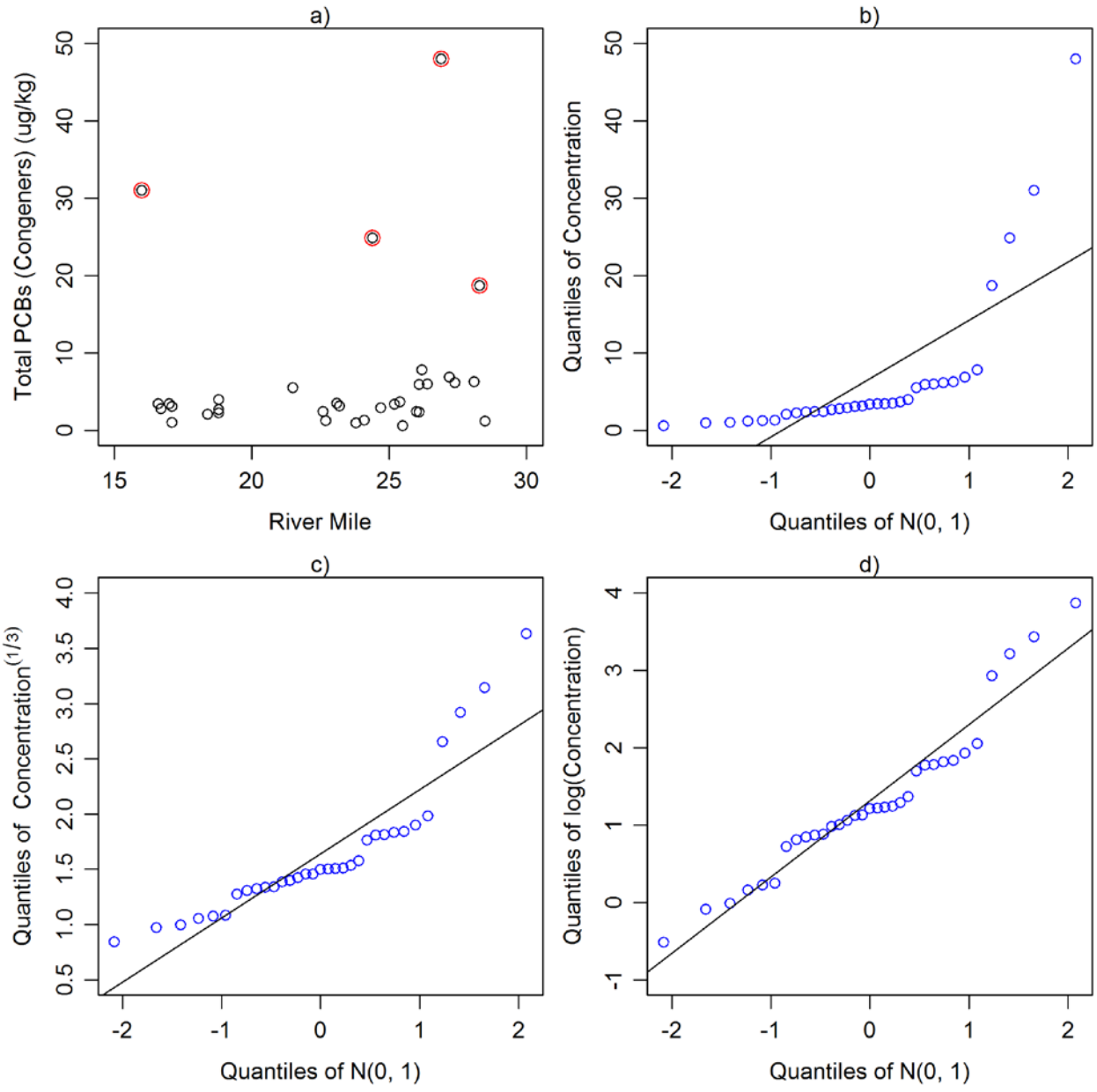

Figure D14. Distribution of total PCBs in the form of congeners (µg/kg) in the background area: a) concentration versus river mile (observations circled in red ○are outliers according to Rosner's test based on raw data); b) normal Q-Q plot; c) same as b) but using cube root-transformed observations; d) same as b) but using log-transformed observations. Fitted lines are based on least squares.

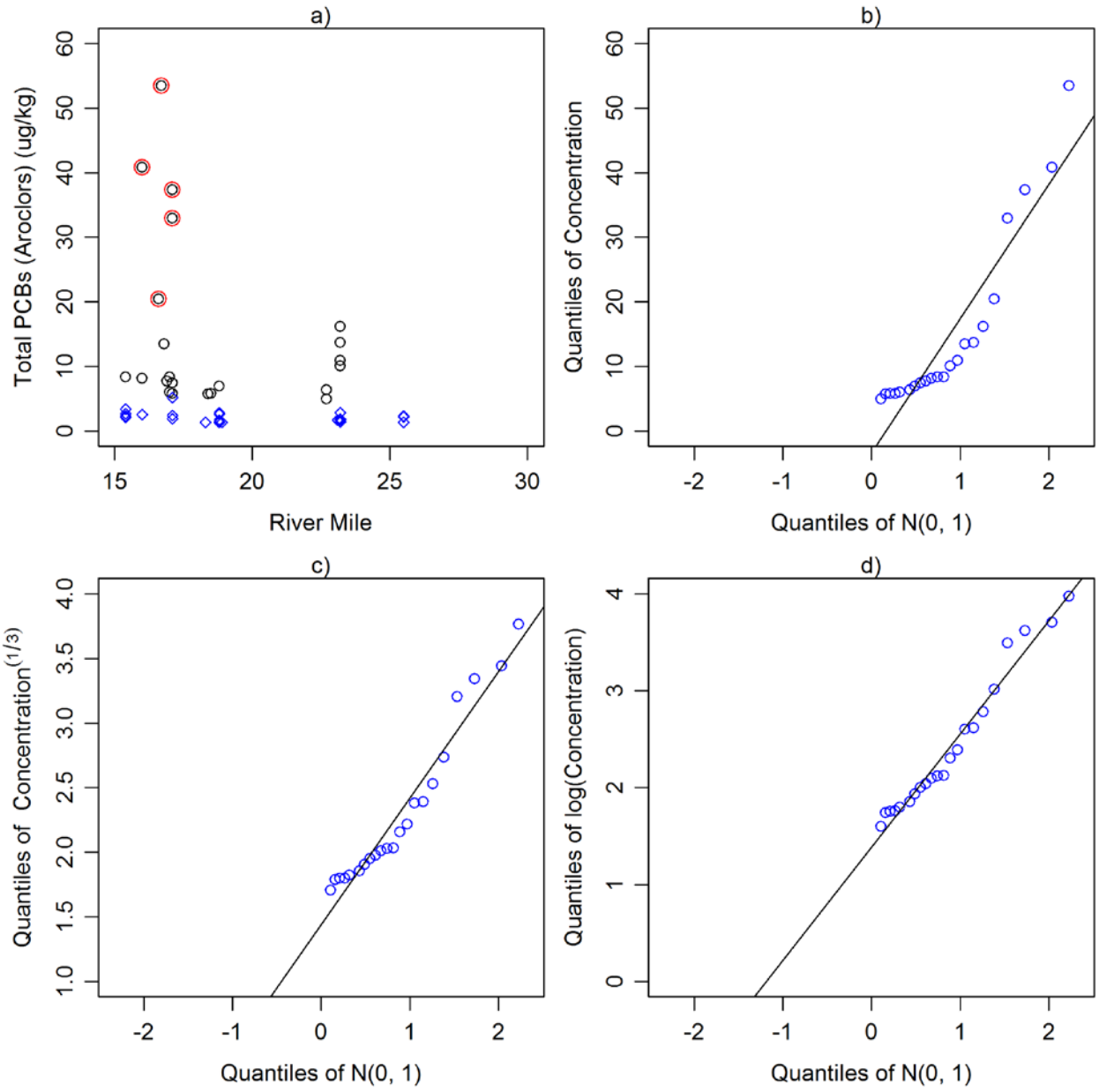

Figure D15. Distribution of total PCBs in the form of aroclors (µg/kg) in the background area: a) concentration versus river mile (blue diamonds ◊are nondetects shown at the detection limit, and observations circled in red ○are outliers according to Rosner's test based on raw data with nondetects set to half the detection limit as per ProUCL; b) normal Q-Q plot using the Kaplan-Meier method of USEPA (2009, p. 15-7); c) same as b) but using cube root-transformed observations; d) same as b) but using log-transformed observations. Fitted lines are based on least squares.

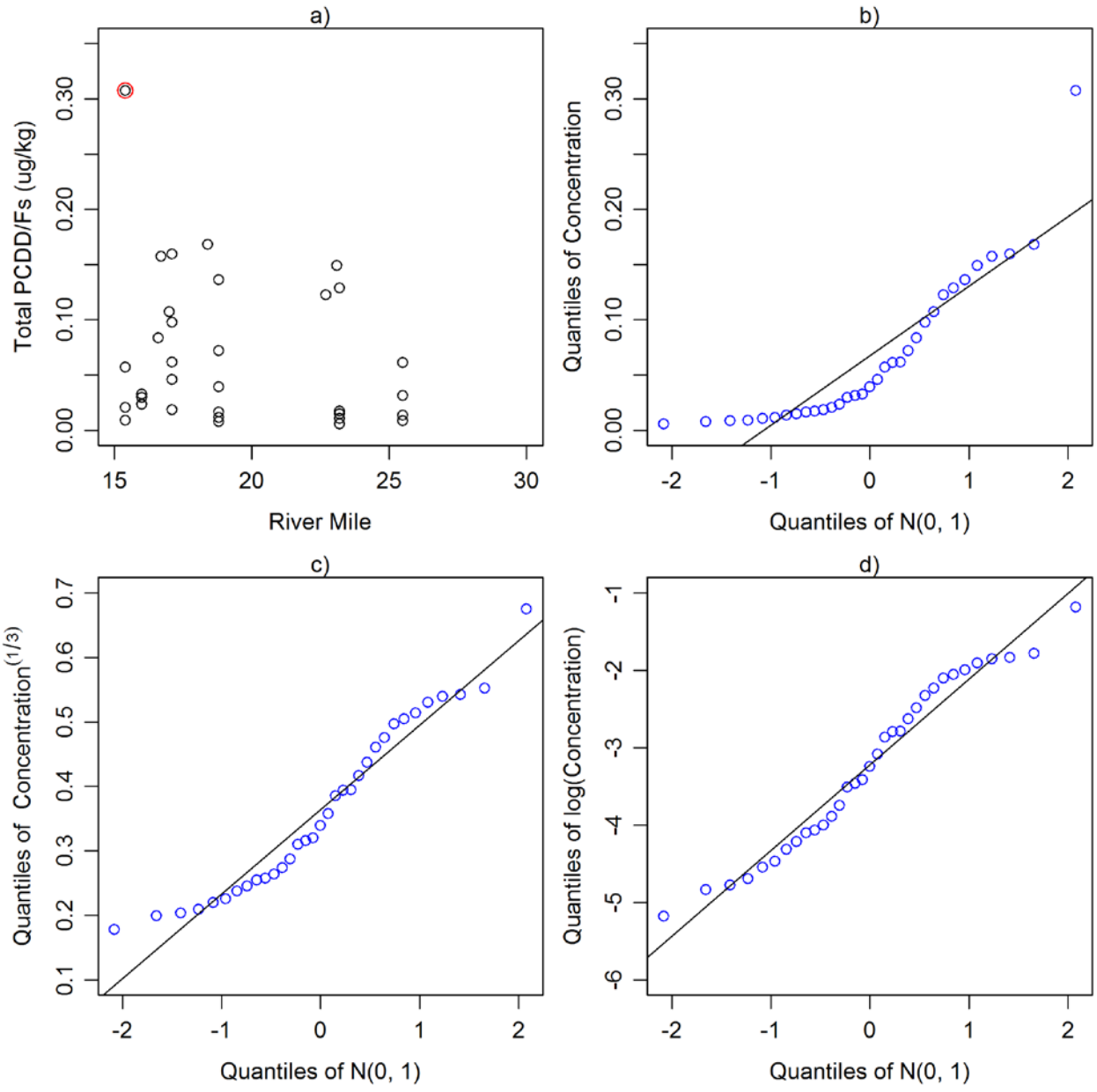

Figure D16. Distribution of total PCDD/Fs (µg/kg) in the background area: a) concentration versus river mile (observations circled in red ○ are outliers according to Rosner's test based on raw data); b) normal Q-Q plot; c) same as b) but using cube root-transformed observations; d) same as b) but using log-transformed observations. Fitted lines are based on least squares.

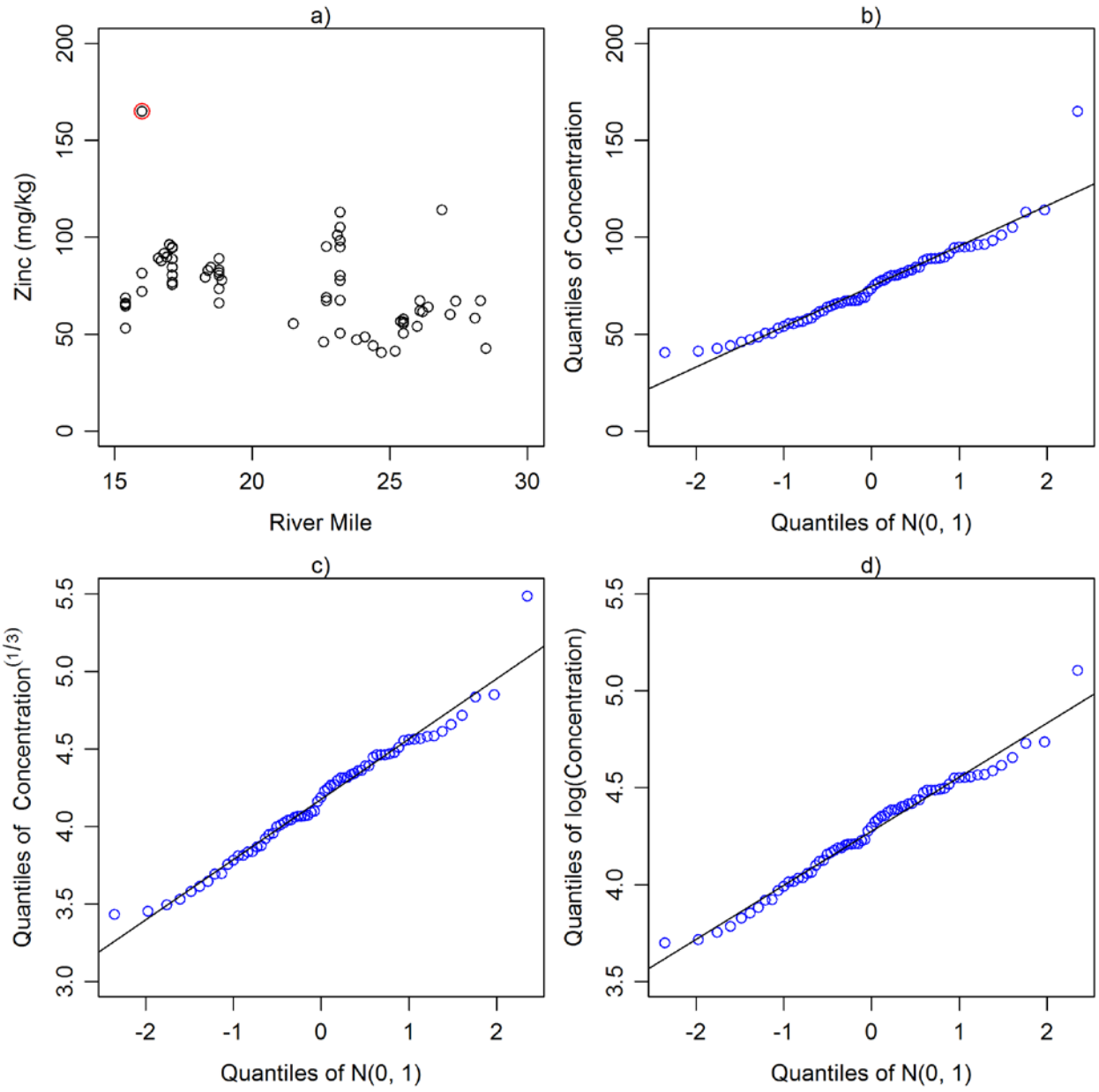

Figure D17. Distribution of zinc (mg/kg) in the background area: a) concentration versus river mile (observations circled in red ○ are outliers according to Rosner's test based on raw data); b) normal Q-Q plot; c) same as b) but using cube root-transformed observations; d) same as b) but using log-transformed observations. Fitted lines are based on least squares.