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POLLUTANT LOADINGS AND IMPACTS FROM HIGHWAY STORMWATER RUNOFF Volume IV: Research Report Data Appendix

Research, Development, and Technology
Turner-Fairbank Highway Research Center
6300 Georgetown Pike
McLean, Virginia 22101-2296

FOREWORD

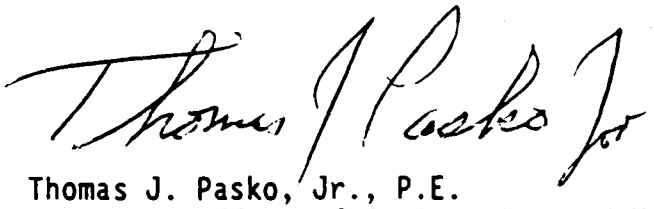
The highway system is a potential source of a wide variety of possible pollutants to surrounding surface and subsurface waters through the mechanisms of the natural hydrologic cycle. The effects of a highway system on the environment plays an increasingly important role in the planning, design, construction, and operation of a transportation system. The Federal Highway Administration and State highway agencies, charged with the responsibility of protecting the environment from pollution from highway sources, have approached the problem in a multi-phase, multi-million dollar research effort including studies to:

Phase 1 - Identify and quantify the constituents of highway runoff.
Phase 2 - Identify the sources and migration paths of these pollutants from the highways to the receiving waters.
Phase 3 - Analyze the effects of these pollutants in the receiving waters.
Phase 4 - Develop the necessary abatement/treatment methodology for objectionable constituents.

This investigation, primarily a Phase 3 item, is a culminating analytical effort utilizing other research studies and their data coupled with applied hydraulics and related environmental and highway concerns. A largely statistical based design procedure for estimating highway stormwater pollutant loadings is presented.

This publication will be of interest primarily to those engineers and scientists wanting to verify or extend this investigation, or to pursue other work using this data base.

Copies for the public only are available from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161.



Thomas J. Pasko, Jr., P.E.
Director, Office of Engineering and Highway Operations Research and Development

NOTICE

Technical Report Documentation Page

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FHWA-RD-88-009		

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POLLUTANT LOADINGS AND IMPACTS FROM HIGHWAY STORMWATER RUNOFF, Volume IV: Research Report Data Appendix	April 1990
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FHWA Contract Manager - Howard A. Jongedyk and Byron N. Lord (HNR-30)
Others - Dave Gaboury, Wayne Huber, Frank Johnson, John Mancini

16. Abstract

This is one of four final documents of an investigation dealing with the characterization of stormwater runoff pollutant loads from highways, and the prediction of water quality impacts they cause. Study results are based on monitoring data from 993 individual storm events at 31 highway runoff sites in 11 States. Impact prediction is based on a methodology previously developed and applied to urban runoff and adapted for highway runoff applications. This document provides a tabulated summary of all of the monitored data on storm rainfall, runoff volume, and pollutant concentrations. Data were recorded in spreadsheet format on microcomputer disks. Master copies of these disks have been provided to FHWA in both "Lotus 1-2-3" and "Excel" spreadsheet documents.
The publications which collectively represent a final report are:

FHWA-RD-88-006, Volume I: Design Procedure. This document presents a step-by-step procedure for determining and evaluating water quality impacts.

FHWA-RD-88-007, Volume II: Users Guide for Interactive Computer Implementation of Design Procedure. A Users Guide for an interactive computer based user-friendly version of the design procedure of document FHWA-RD-88-006.

FHWA-RD-88-008, Volume III: Analytical Investigation and Research Report. The basic research report, which provides a description of the analysis procedures employed and a summary and discussion of study results.

FHWA-RD-88-009, Volume IV: Research Report Data Appendix This document.

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Unclassified	Unclassified	143	

Form DOT F 1700.7 (8-72)

SI* (MODERN METRIC) CONVERSION FACTORS

APPROXIMATE CONVERSIONS TO SI UNITS

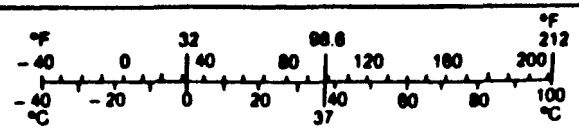
Symbol	When You Know	Multiply By	To Find	Symbol
LENGTH				
in	inches	25.4	millimetres	mm
ft	feet	0.305	metres	m
yd	yards	0.914	metres	m
mi	miles	1.61	kilometres	km
AREA				
in^2	square inches	645.2	millimetres squared	mm^2
ft^2	square feet	0.093	metres squared	m^2
yd^2	square yards	0.836	metres squared	m^2
ac	acres	0.405	hectares	ha
mi^2	square miles	2.59	kilometres squared	km^2
VOLUME				
fl oz	fluid ounces	29.57	millitres	mL
gal	gallons	3.785	litres	L
ft^3	cubic feet	0.028	metres cubed	m^3
yd^3	cubic yards	0.765	metres cubed	m^3

NOTE: Volumes greater than 1000 L shall be shown in m^3.

MASS				
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams	Mg
TEMPERATURE (exact)				
°F	Fahrenheit temperature	5(F-32)/9	Celcius temperature	°C

APPROXIMATE CONVERSIONS FROM SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
LENGTH				
mm	millimetres	0.039	inches	in
m	metres	3.28	feet	ft
m	metres	1.09	yards	yd
km	kilometres	0.621	miles	mi
AREA				
mm^2	millimetres squared	0.0016	square inches	in^2
m^2	metres squared	10.764	square feet	ft^2
ha	hectares	2.47	acres	ac
km^2	kilometres squared	0.386	square miles	mi^2
VOLUME				
mL	millitres	0.034	fluid ounces	fl oz
L	litres	0.264	gallons	gal
m^3	metres cubed	35.315	cubic feet	ft^3
m^3	metres cubed	1.308	cubic yards	yd^3
MASS				
g	grams	0.035	ounces	oz
kg	kilograms	2.205	pounds	lb
Mg	megagrams	1.102	short tons (2000 lb)	T
TEMPERATURE (exact)				
°C	Celcius temperature	1.8C + 32	Fahrenheit temperature	°F



* SI is the symbol for the International System of Measurement

(Revised April 1999)

TABLE OF CONTENTS

INTRODUCTION

This Data Appendix presents tabulated summaries of all of the stormwater runoff data that was assembled under this contract. Monitoring data from 31 highway sites throughout the continental United States are provided, along with three grass sites which were adjacent to three of the highway sites. General identification of the sites in the data base is indicated in the table of contents, which also shows the order in which the site data summaries appear. Each site has up to four summary items.

The first item provides general and physical data for the site. The second item provides the concentrations and the rainfall and runoff volumes for each of the storm events that were monitored at that site. These summary spreadsheets are dated November 12, 1986, and are referred to as the Master Data Base (MDB) throughout the report.

The third item presents an edited data set, referred to as the Working Data Base (WDB). The data in these spreadsheets, dated December 15, 1986, reflect the edited data set used in the analyses and evaluations described in the research report (FHWA-RD-88-008), which also discusses the basis for the editing that was performed. For certain sites, the WDB listing segregates the event data into two separate groupings. In all such cases, the second group represents those runoff events associated with snow melt. Note that some of the highway sites are not included in the WDB, and do not have have a second, edited spreadsheet.

All values listed in these tables (items 2 and 3 for each site) are either the total for the event (e.g., volume of rainfall, volume of runoff) or an average for the event, where this is more appropriate. All pollutant levels are expressed as "event mean concentrations" (EMCs). In most cases, this is the concentration reported for a flow-weighted composite sample of the runoff. Where discrete sequential samples were taken, the event mean was computed from the time series of flow and concentration data reported.

At the end of each data listing (items 2 and 3 for each site) is a statistical summary of all event values for that site. For variables that are log normally distributed, the best estimate of the arithmetic mean, median, and coefficient of variation is provided by performing the standard computation of mean and standard deviation using the log transform of the individual values. Accordingly, the site statistics listed in the table for each variable were computed from the natural log-mean and log-standard deviation using the following relationships.

$$\text{MEAN} = \exp(U + 0.5 * W^2)$$

$$\text{MEDIAN} = \exp(U)$$

$$\text{COEFFICIENT of VARIATION} = \sqrt{\exp(W^2) - 1}$$

where:

U = log-mean (mean of the natural log transforms of data values)

W = log-standard deviation (standard deviation of natural log transforms)

The fourth and last item in the summary for each site presents a set of log probability plots for individual storm EMCs for the following parameters: Suspended solids (SS), total kjeldahl nitrogen (TKN), total phosphorous (PO4-P), total copper (CU), total lead (PB), and total zinc (ZN). These log probability plots are based on the data from the MDB spreadsheets. An illustrative log probability plot is presented in Figure 1 to explain the information presented in the plots.

The horizontal axis scale, the "Z Score," is the standard normal deviate, or the number of standard deviations more (+) or less (-) than the mean. Each value of Z corresponds to a specific probability. For example, 16 percent of all values in a set of variables having a normal probability distribution will have values equal to or greater than the mean plus 1 standard deviation (Z = +1). For Z=2, the probability of exceedance is about 2 percent, and for Z=3 it is about 0.1 percent. The exact relationship between Z Score and probability is provided by statistical tables, such as Table 13 in the design report (document FHWA-RD-88-006). For information, and as an aid to interpreting the plots presented later, the illustrative figure below shows both the exceedance probabilities and the Z scale.

The vertical axis is a log scale for the observed EMCs in individual monitored runoff events at the site. The concentration is expressed as 10 to a power (e.g., 10^2 = 100, 10^0 = 1, 10^-1 = 0.1, etc.). Note that all concentrations are in mg/l for the plots. Figure 1 shows the concentrations in normal notation on the right.

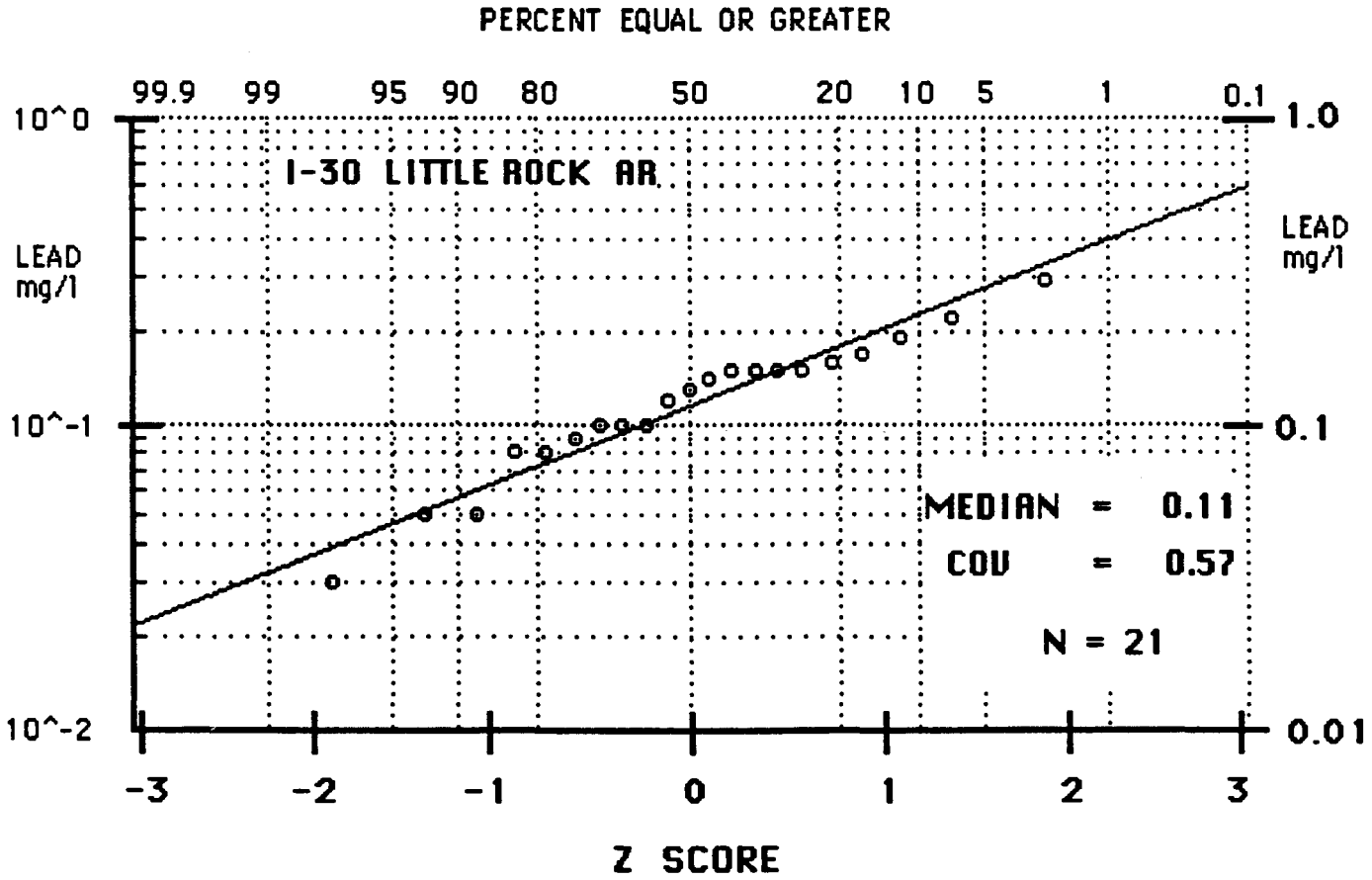


Figure 1. Illustrative log probability plot.

Other information on the plots include:

1. The name of the site.
2. The pollutant represented on the left above the vertical concentration axis.
3. The median and coefficient of variation of all the EMCs, and the number of observations, printed in the lower right-hand corner of the plot.
4. The individual plotted points represent the measured EMCs. The line is the lognormal distribution that best fits the observed data.

SITE: AR LITTLE ROCK
I-30

STATE: Arkansas

LOCATION: At the South Terminal Interchange, approximately 2.0 miles south of downtown Little Rock

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 4

NO. OF TRAFFIC LANES MONITORED: 4

AVERAGE DAILY TRAFFIC - ADT (VPD): 42,000

ADT PER LANE (VPD): 10,500

DRAINAGE AREA (ACRES): 1.5

PERCENT IMPERVIOUS: 90

LENGTH OF ROAD SURFACE (FEET):

ROAD SURFACE TYPE: ASPHALT

CURB: NO

SECTION TYPE: BRIDGE, FILL

LAND USE: URBAN, UNDEVELOPED

AVERAGE ANNUAL PRECIPITATION (IN): 48.7

AVERAGE WIND SPEED (FT/SEC): 8.2

NO. OF EVENTS MONITORED: 21

NO. OF SNOW EVENTS MONITORED: 3

MONITORING PERIOD: May 1983 to May 1984

SOURCE:

Report: "Analysis of Highway Runoff for Interstate 30, Little Rock Arkansas, Demonstration Project No. 56," John L. Harris, and Carl E. Lindstrom, Arkansas State Highway and Transportation Department, 1986.

REMARKS:

Data were extracted from report tables. Event means were calculated from reported discrete data samples (ranging from 4 to 12 samples per event). Some composite samples were also available.

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	51183	0.31	2.08	0.31	1.00	105		121	0.11		0.020	0.100	0.140	7.1					11	2.94				
2	70183	0.46	4.83	0.06	0.12	127		74	0.13		0.010	0.100	0.150	6.2					3	2.54				
3	83183	0.71	2.50	0.26	0.37	185		98	0.47		0.020	0.160	0.350	6.1		40			3	4.91				
4	92083	0.37						109			0.040	0.220	0.310	6.3						7.96				
5	10483	0.34	0.42	0.04	0.12	248		65	0.29		0.030	0.150	0.280	6.2		35			6	3.00				
6	101183	0.58	8.00	0.43	0.74	54		385	0.70		0.010	0.100	0.080	5.7		21			4	1.80				
7	110483	0.14	2.67	0.00	0.01	232		233	1.51		0.040	0.150	0.310	6.6		48			18	7.50				
8	111983	1.43	5.17	1.20	0.84	70		25	0.45		0.010	0.050	0.140	6.6		20			3	3.00				
9	120583	0.57	1.00	0.35	0.62	83		21	0.44		0.020	0.150	0.140	6.7		0			3	4.10				
10	121183	1.50	15.83	0.99	0.66	62		64	1.50		0.020	0.080	0.120	6.8		12			6	2.70				
11	122183					0			1.50		0.020	0.050	0.360	6.4		0			127	3.90				
12	10284					26		374	3.00		0.040	0.190	0.330	7.3		2			2417	2.73				
13	11084	0.25	10.00			57		125	1.59		0.040	0.150	0.280	6.8		40			223	4.80				
14	12384	0.99	25.42	0.63	0.64	151		106	1.01		0.030	0.290	0.300	7.3		20			138	6.02				
15	22684	1.87	18.00	1.18	0.62	66		60	0.43		0.010	0.090	0.100	7.1		11			7	1.10				
16	31184					71		130	2.05		0.020	0.130	0.130	7.2		36			16	2.00				
17	32484	0.47	8.45	0.16	0.34	146		118	2.84		0.030	0.120	0.440	6.8		14			13	4.70				
18	40284	1.60	12.25	1.25	0.78	197		198	0.90		0.020	0.170	0.180	6.7		31			6	4.60				
19	42784	0.27	5.00			180		114	1.45		0.020	0.140	0.340	6.9					25	3.60				
20	50684	0.36	2.42	0.31	0.85	85		65	0.84		0.010	0.080	0.050	7.0		3			2	2.80				
21	52084	0.30	9.08	0.07	0.22			130	2.63		0.020	0.030	0.090	7.0					6	0.40				
	Mean	0.66	8.36	0.60	0.86	122		134	1.33		0.023	0.131	0.226	6.7		28			80	3.94				
	Median	0.51	4.04	0.30	0.31	101		102	0.84		0.021	0.114	0.188	6.7		18			14	3.12				
	COV	0.81	1.81	1.71	2.58	0.67		0.85	1.22		0.52	0.57	0.66	0.06		1.23			5.65	0.77				
	N	18	17	14	15	19	0	20	20	0	21	21	21	21	0	16	0	0	20	21	0	0	0	0

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv		SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	51183	0.31	2.08	0.31	1.00		105		121	0.11		0.020	0.100	0.140	7.1					11	2.94				
2	70183	0.46	4.83	0.08	0.12		127		74	0.13		0.010	0.100	0.150	6.2					3	2.54				
3	83183	0.71	2.50	0.26	0.37		185		98	0.47		0.020	0.160	0.350	6.1		40			3	4.91				
4	92083	0.37							109			0.040	0.220	0.310	6.3						7.96				
5	10483	0.34	0.42	0.04	0.12		248		65	0.29		0.030	0.150	0.280	6.2		35			6	3.00				
6	101183	0.58	8.00	0.43	0.74		54		385	0.70		0.010	0.100	0.080	5.7		21			4	1.80				
7	110483	0.14	2.67	0.00	0.01		232		233	1.51		0.040	0.150	0.310	6.6		48			18	7.50				
8	111983	1.43	5.17	1.20	0.84		70		25	0.45		0.010	0.050	0.140	6.6		20			3	3.00				
9	120583	0.57	1.00	0.35	0.62		83		21	0.44		0.020	0.150	0.140	6.7		0			3	4.10				
10	121183	1.50	15.83	0.99	0.66		62		64	1.50		0.020	0.080	0.120	6.8		12			6	2.70				
15	22684	1.87	16.00	1.16	0.62		66		60	0.43		0.010	0.090	0.100	7.1		11			7	1.10				
16	31184						71		130	2.05		0.020	0.130	0.130	7.2		36			16	2.00				
17	32484	0.47	8.45	0.16	0.34		146		118	2.84		0.030	0.120	0.440	6.8		14			13	4.70				
18	40284	1.60	12.25	1.25	0.78		197		198	0.90		0.020	0.170	0.180	6.7		31			6	4.60				
19	42784	0.27	5.00				180		114	1.45		0.020	0.140	0.340	6.9					25	3.60				
20	50884	0.36	2.42	0.31	0.85		85		65	0.84		0.010	0.080	0.050	7.0		3			2	2.80				
21	52084	0.30	9.08	0.07	0.22				130	2.63		0.020	0.030	0.090	7.0					6	0.40				
	Mean	0.71	7.35	0.61	0.76		129		122	1.16		0.021	0.122	0.201	6.6		27			8	3.80				
	Median	0.54	4.32	0.30	0.35		112		94	0.71		0.019	0.108	0.167	6.6		20			6	2.90				
	COV	0.86	1.38	1.76	1.92		0.56		0.83	1.28		0.50	0.52	0.67	0.06		0.95			0.89	0.84				
	N	16	15	14	14	0	15	0	17	16	0	17	17	17	17	0	12	0	0	16	17	0	0	0	0
12	10284						26		374	3.00		0.040	0.190	0.330	7.3		2			2417	2.73				
13	11084	0.25	10.00				57		125	1.59		0.040	0.150	0.280	6.8		40			223	4.80				
14	12384	0.99	25.42	0.63	0.64		151		106	1.01		0.030	0.290	0.300	7.3		20			138	6.02				
	Mean	0.80	19.82				90		216	1.96		0.037	0.214	0.304	6.6		40			1363	4.66				
	Median	0.50	15.94	0.63	0.64		61		170	1.69		0.036	0.202	0.303	7.1		12			421	4.29				
	COV	1.26	0.74				1.08		0.77	0.59		0.17	0.34	0.08	0.06		3.27			3.08	0.42				
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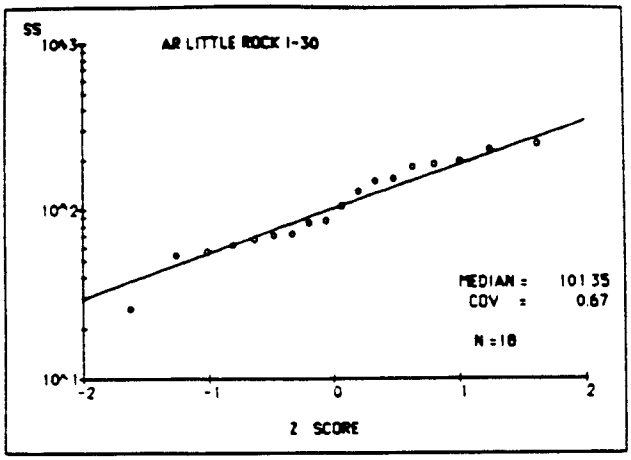
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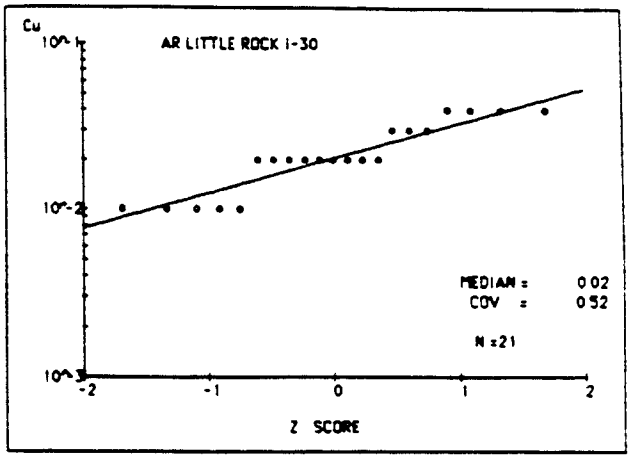
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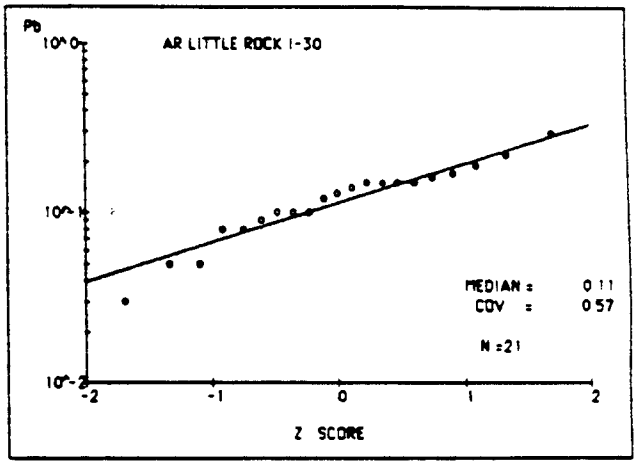
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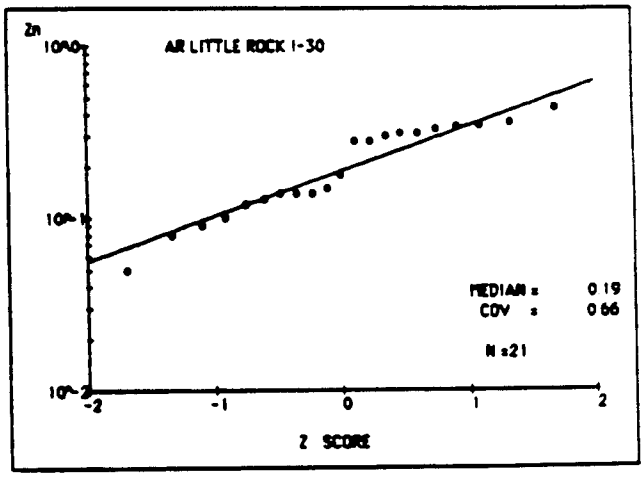

Zn
AR LITTLE ROCK I-30
MEDIAN = 0.19
COV = 0.66
N = 21
Z SCORE

SITE: CA Los Angeles
I-405

STATE: California

LOCATION: On the San Diego Freeway, 2 miles from airport

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 8

NO. OF TRAFFIC LANES MONITORED: 8

AVERAGE DAILY TRAFFIC - ADT (VPD): 200,000

ADT PER LANE (VPD): 25,000

DRAINAGE AREA (ACRES): 3.2

PERCENT IMPERVIOUS: 100

LENGTH OF ROAD SURFACE (FEET): 950

ROAD SURFACE TYPE: CONCRETE

CURB: YES

SECTION TYPE: FILL

LAND USE: URBAN, COMMERCIAL/RESIDENTIAL

AVERAGE ANNUAL PRECIPITATION (IN): 12.6

AVERAGE WIND SPEED (FT/SEC): 7.3

NO. OF EVENTS MONITORED: 7

NO. OF SNOW EVENTS MONITORED: 0

MONITORING PERIOD: January 1981 to March 1981

SOURCE:

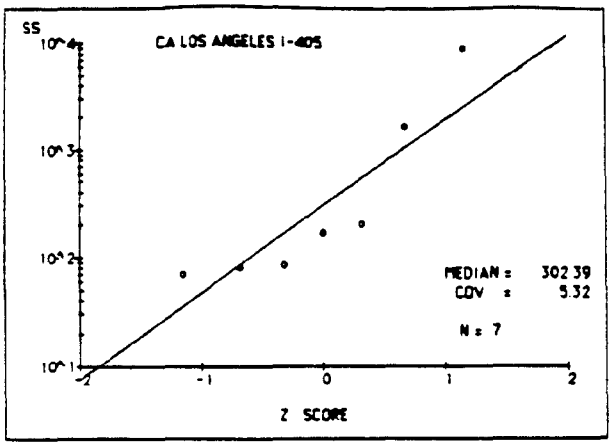
Report: "Estimating Highway Runoff Quality," Office of Transportation Laboratory, California Department of Transportation, Racin et al., Report No. FHWA/CA/TL-82/11, September, 1982.

REMARKS:

Data extracted from published summary tables in this report. Event mean pollutant concentrations (EMCs) were computed from tabulated values of runoff volumes and concentrations measured during 1 to 6 samples per event.

VENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	11181			0.02		166		478		0.730		0.710	2.200					1.70			0.020			
2	12381			0.15		200						0.510	0.950								0.003			
3	12781			0.56		8,864		358		1.240		1.890	0.980					9.15			0.009			8.0
4	20881			0.31		1,630		473		0.850		1.780	1.090					9.21			0.010			11.0
5	22581			0.47		70		95		0.330		1.930	0.380					2.82			0.003			7.0
6	30481			0.72		81		65		0.170		1.020	0.220					1.76			0.002			7.0
7	31981			0.72		85		112		0.200		0.380	0.310					1.99			0.000			9.0
	Mean			0.64		1,637		291		0.634		1.233	0.935					4.62			0.008			8.4
	Median			0.28		302		196		0.453		0.987	0.666					3.35			0.006			8.3
	COV			2.07		5.32		1.10		0.98		0.75	0.99					0.95			1.11			0.19
	N	0	0	7	0	7	0	6	0	6	0	7	7	0	0	0	0	6	0	0	7	0	0	5

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
1	11181			0.02		166		478		0.730		0.710	2.200					1.70			0.020			
2	12381			0.15		200						0.510	0.950								0.003			
3	12781			0.56				358		1.240		1.890	0.980					9.15			0.009			8.0
4	20881			0.31		1,630		473		0.850		1.780	1.090					9.21			0.010			11.0
5	22581			0.47		70		95		0.330		1.930	0.380					2.82			0.003			7.0
6	30481			0.72		81		65		0.170		1.020	0.220					1.76			0.002			7.0
7	31981			0.72		85		112		0.200		0.380	0.310					1.99			0.000			9.0
	Mean			0.64		345		291		0.634		1.233	0.935					4.62			0.008			8.4
	Median			0.28		172		196		0.453		0.987	0.666					3.35			0.006			8.3
	COV			2.07		1.74		1.10		0.98		0.75	0.99					0.95			1.11			0.19
	N	0	0	7	0	6	0	6	0	6	0	7	7	0	0	0	0	6	0	0	7	0	0	5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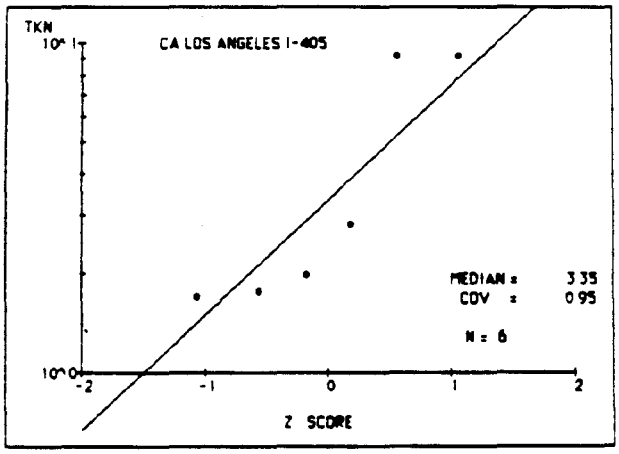
Z SCORE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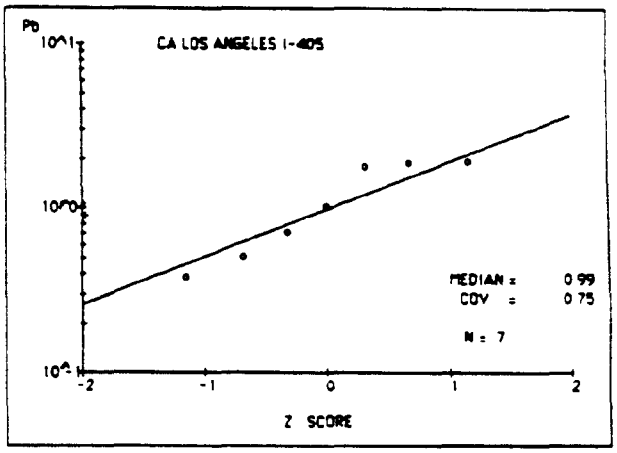
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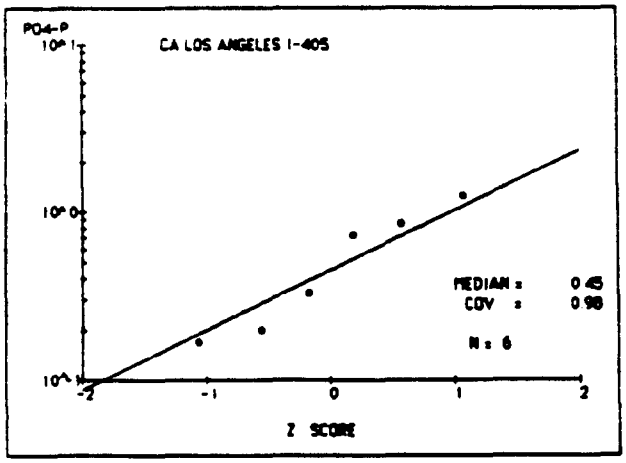
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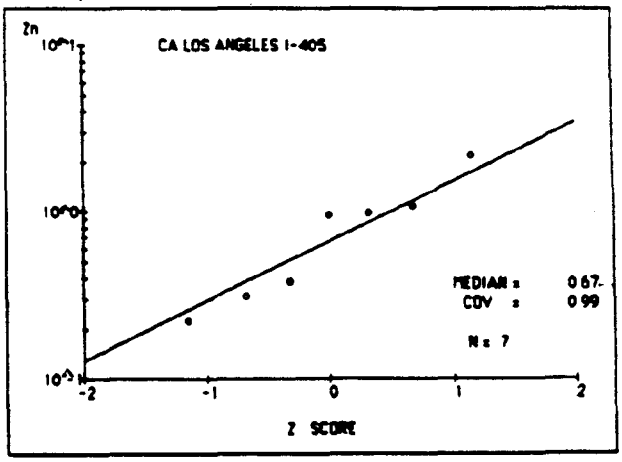
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CA LOS ANGELES I-405
MEDIAN = 0 67
COV = 0 99
N = 7
Z SCORE

SITE: CA Sacramento
US 50

STATE: California

LOCATION: In a suburban area of Sacramento, in the central part of the State

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 8

NO. OF TRAFFIC LANES MONITORED: 4

AVERAGE DAILY TRAFFIC - ADT (VPD): 86,000

ADT PER LANE (VPD): 10,750

DRAINAGE AREA (ACRES): 2.45

PERCENT IMPERVIOUS: 82

LENGTH OF ROAD SURFACE (FEET): 1,400

ROAD SURFACE TYPE: CONCRETE

CURB: YES

SECTION TYPE: AT GRADE

LAND USE: URBAN, AGRICULTURAL

AVERAGE ANNUAL PRECIPITATION (IN): 16.3

AVERAGE WIND SPEED (FT/SEC): 8.5

NO. OF EVENTS MONITORED: 34

NO. OF SNOW EVENTS MONITORED: 0

MONITORING PERIOD: December 1979 to December 1981

SOURCE:

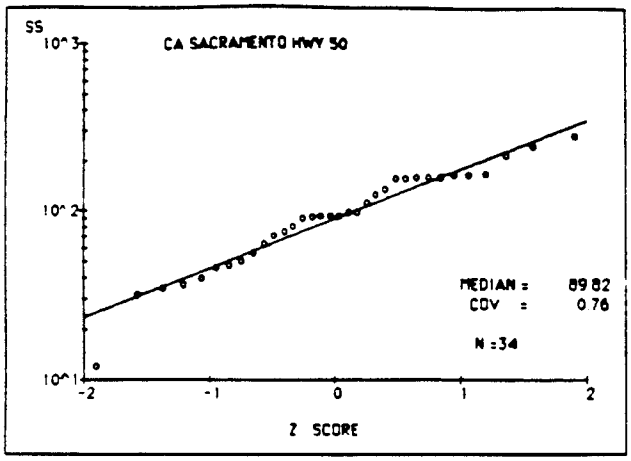
Volume 1: Sources and Migration of Highway Runoff Pollutants, Executive Summary, N.P. Kobringer, Federal Highway Administration, Report No. FHWA/RD-84/057, May, 1984

REMARKS:

Data extracted from computer tapes. EMCs were calculated using discretely collected data and flow averaging.

EVENT	DATE (MDY)	RAIN (in.)	DUR. (HR.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	121979	0.50		0.30	0.60	216					0.120	0.600	0.370	6.7		46			7	10.00	0.030	0.010	340	
2	10980	1.01		0.81	0.80	163		86	0.81	0.210	0.160	0.700	0.300	7.0	0.001	35	21	1.70	6	7.20	0.005	0.040	294	11.0
3	11080	0.94		0.79	0.84	57		28	0.15	0.030	0.120	0.200	0.210	6.8	0.001	18	10	0.30	15	3.50	0.005	0.020	147	
4	11180	1.05		0.96	0.91	155		42	0.11	0.060	0.160	0.400	0.370	6.8		30	11	0.60	10	5.90	0.005	0.030	255	21.0
5	11580	0.18		0.15	0.83	111					0.060	0.600	0.260	7.2						4.80	0.005	0.020	170	
6	11680	0.34		0.29	0.85	35					0.060	0.300	0.170	7.6						1.60	0.030	0.020	103	
7	11780	0.97		0.75	0.77	93		47	0.16	4.450	0.060	0.400	0.220	7.5	0.001	17	13	6.00	10	3.00	0.020	0.020	186	
8	21480	0.14		0.08	0.57	164					0.120	0.600	0.400	6.7					10	6.50	0.030	0.020	301	13.0
9	21480	0.06		0.06	1.00	94						0.400	0.290	7.4						4.00			200	
10	21480	0.13		0.12	0.92	124					0.130	0.400	0.310	6.8		32			6	4.30	0.020	0.030	230	6.0
11	21580	0.29		0.20	0.69	48					0.070	0.200	0.770	6.9		22			5	1.30	0.040	0.040	134	
12	21580	0.40		0.31	0.78	133					0.070	0.400	0.270	6.8		34			5	4.00	0.030	0.020	249	11.0
13	21580	0.25		0.20	0.80	154					0.070	0.300	0.270	6.8		32			9	5.10	0.040	0.005	300	
14	21680	0.43		0.42	0.98	46		42	0.12	0.070	0.090	0.050	0.800	6.9		13	26	5.00	8	1.90	0.020	0.020	112	
15	21680	0.33		0.19	0.58	75		83	0.17	0.090	0.060	0.300	0.330	6.9		20	46	2.00	4	2.20	0.030	0.005	148	
16	21780	0.11		0.14	1.27	37						0.050	0.240	6.9		12				1.40			108	
17	21780	0.06		0.05	0.83	12						0.050	0.200	7.7						0.40			71	
18	21780	0.68		0.60	0.88	90		50	0.10	0.110	0.010	0.400	0.170	7.2	0.001	22	34	2.00	110	3.30	0.005	0.005	176	
19	21880	1.62		1.40	0.86	166					0.010	0.400	0.150	7.4		23				3.50	0.005	0.005	317	
21	22080	0.47		0.39	0.83	72			0.06	0.100	0.050	0.400	0.150	7.1		18		2.00	3	2.10	0.020	0.005	146	
22	22180	0.54		0.50	0.93	32			0.04	0.080	0.050	0.100	0.090	7.2		7		2.00	6	0.90	0.005	0.005	107	
23	22780	0.10		0.08	0.80	93					0.130	0.400	0.540	6.9						3.40	0.005	0.005	190	10.0
24	22780	0.40		0.32	0.80	98			0.26	0.140	0.070	0.300	0.390	6.8		17		2.00	4	3.30	0.005	0.005	255	
25	30480	0.35		0.31	0.89	51		16	0.22	0.150	0.080	0.200	0.120	6.9		15	40	2.00	4	1.40	0.010	0.005	120	
26	30580	0.04		0.03	0.75	157						0.500	0.330	7.2						8.40			263	
27	30580	0.10		0.06	0.60	279						0.700	0.260	7.3						10.70			411	
28	30580	0.05		0.03	0.60	158						0.500	0.450	7.2						6.80			218	
29	30580	0.60		0.52	0.87	40			0.20	0.190	0.050	0.100	0.180	7.0		12		2.00	4	1.80	0.020	0.005	68	
30	32580	0.70		0.53	0.76	98		82	0.33	0.200	0.110	0.400	0.230	8.9	0.001	22	36	2.00	9	4.90	0.005	0.005	201	3.0
31	40480	0.83		0.69	0.83	64		42	0.34	0.070	0.090	0.100	0.210	7.1		14	14	1.00	8	2.20	0.005	0.020	111	8.0
32	120380	0.40		0.33	0.83	244		99	0.35	0.250	0.060	0.600	0.360	6.7	0.001	38	21	1.68	4	8.30	0.020	0.030	373	5.0
33	120380	0.24		0.23	0.96	159			0.36	0.130	0.050	0.500	0.330	6.5		25		2.90	5	4.60	0.005	0.005	269	
34	120380	0.35		0.33	0.94	81			0.42	0.030	0.040	0.050	0.230	6.6		14		0.56	3	1.20	0.020	0.005	139	
35	12281	1.27		1.25	0.98	92		63	0.62	0.080	0.080	0.380	0.245	5.8	0.010	13	20		5	5.50	0.010	0.080	192	
	Mean	0.52		0.44	0.82	113		58	0.28	0.220	0.085	0.387	0.300	7.0	0.002	22	25	2.21	9	4.29	0.017	0.017	205	10.1
	Median	0.32		0.26	0.81	90		51	0.21	0.123	0.068	0.278	0.269	6.9	0.001	20	22	1.67	7	3.23	0.012	0.012	184	8.5
	COV	1.29		1.40	0.18	0.76		0.56	0.91	1.49	0.74	0.97	0.49	0.05	1.06	0.47	0.56	0.86	0.84	0.87	0.98	1.09	0.49	0.63
	N	34		34	34	34	0	12	18	18	28	34	34	34	7	25	12	17	24	24	28	28	34	9

EVENT	DATE (MDY)	RAIN (in.)	DUR. (HR.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	121979	0.50		0.30	0.60	216					0.120	0.600	0.370	6.7		46			7	10.00	0.030	0.010	340	
2	10980	1.01		0.81	0.80	163		86	0.81	0.210	0.160	0.700	0.300	7.0	0.001	35	21	1.70	6	7.20	0.005	0.040	294	11.0
3	11080	0.94		0.79	0.84	57		28	0.15	0.030	0.120	0.200	0.210	6.8	0.001	18	10	0.30	15	3.50	0.005	0.020	147	
4	11180	1.05		0.96	0.91	155		42	0.11	0.060	0.160	0.400	0.370	6.8		30	11	0.60	10	5.90	0.005	0.030	255	21.0
5	11580	0.18		0.15	0.83	111					0.060	0.600	0.260	7.2						4.80	0.005	0.020	170	
6	11680	0.34		0.29	0.85	35					0.060	0.300	0.170	7.6						1.60	0.030	0.020	103	
7	11780	0.97		0.75	0.77	93		47	0.16		0.060	0.400	0.220	7.5	0.001	17	13	6.00	10	3.00	0.020	0.020	186	
8	21480	0.14		0.08	0.57	164					0.120	0.600	0.400	6.7					10	6.50	0.030	0.020	301	13.0
9	21480	0.06		0.06	1.00	94						0.400	0.290	7.4						4.00			200	
10	21480	0.13		0.12	0.92	124					0.130	0.400	0.310	6.8		32			6	4.30	0.020	0.030	230	6.0
11	21580	0.29		0.20	0.69	48					0.070	0.200	0.770	6.9		22			5	1.30	0.040	0.040	134	
12	21580	0.40		0.31	0.78	133					0.070	0.400	0.270	6.8		34			5	4.00	0.030	0.020	249	11.0
13	21580	0.25		0.20	0.80	154					0.070	0.300	0.270	6.8		32			9	5.10	0.040	0.005	300	
14	21680	0.43		0.42	0.98	46		42	0.12	0.070	0.090	0.050	0.800	6.9		13	26	5.00	8	1.90	0.020	0.020	112	
15	21680	0.33		0.19	0.58	75		83	0.17	0.090	0.060	0.300	0.330	6.9		20	46	2.00	4	2.20	0.030	0.005	148	
16	21680	0.11		0.14	1.27	37						0.050	0.240	6.9		12				1.40			108	
17	21780	0.06		0.05	0.83	12						0.050	0.200	7.7						0.40			71	
18	21780	0.68		0.60	0.88	90		50	0.10	0.110	0.010	0.400	0.170	7.2	0.001	22	34	2.00	110	3.30	0.005	0.005	176	
19	21880	1.62		1.40	0.86	166					0.010	0.400	0.150	7.4		23				3.50	0.005	0.005	317	
21	22080	0.47		0.39	0.83	72			0.06	0.100	0.050	0.400	0.150	7.1		18		2.00	3	2.10	0.020	0.005	148	
22	22180	0.54		0.50	0.93	32			0.04	0.080	0.050	0.100	0.090	7.2		7		2.00	6	0.90	0.005	0.005	107	
23	22780	0.10		0.06	0.60	93					0.130	0.400	0.540	6.9						3.40	0.005	0.005	190	10.0
24	22780	0.40		0.32	0.80	98			0.26	0.140	0.070	0.300	0.390	6.6		17		2.00	4	3.30	0.005	0.005	255	
25	30480	0.35		0.31	0.89	51		16	0.22	0.150	0.080	0.200	0.120	6.9		15	40	2.00	4	1.40	0.010	0.005	120	
26	30580	0.04		0.03	0.75	157						0.500	0.330	7.2						8.40			263	
27	30580	0.10		0.06	0.60	279						0.700	0.260	7.3						10.70			411	
28	30580	0.05		0.03	0.60	158						0.500	0.450	7.2						6.80			218	
29	30580	0.60		0.52	0.87	40			0.20	0.190	0.050	0.100	0.180	7.0		12		2.00	4	1.60	0.020	0.005	68	
30	32580	0.70		0.53	0.76	98		82	0.33	0.200	0.110	0.400	0.230	6.9	0.001	22	36	2.00	9	4.90	0.005	0.005	201	3.0
31	40480	0.83		0.69	0.83	64		42	0.34	0.070	0.090	0.100	0.210	7.1		14	14	1.00	8	2.20	0.005	0.020	111	8.0
32	120380	0.40		0.33	0.83	244		99	0.35	0.250	0.060	0.600	0.360	6.7	0.001	38	21	1.68	4	8.30	0.020	0.030	373	5.0
33	120380	0.24		0.23	0.96	159			0.36	0.130	0.050	0.500	0.330	6.5		25		2.90	5	4.60	0.005	0.005	269	
34	120380	0.35		0.33	0.94	81			0.42	0.030	0.040	0.050	0.230	6.6		14		0.56	3	1.20	0.020	0.005	139	
35	12281	1.27		1.25	0.98	92		63	0.62	0.080	0.080	0.380	0.245	5.8	0.010	13	20		5	5.50	0.010	0.080	192	
	Mean	0.52		0.44	0.82	113		58	0.28	0.121	0.085	0.387	0.300	7.0	0.002	22	25	2.21	9	4.29	0.017	0.017	205	10.1
	Median	0.32		0.26	0.81	90		51	0.21	0.099	0.068	0.278	0.269	6.9	0.001	20	22	1.67	7	3.23	0.012	0.012	184	8.5
	COV	1.29		1.40	0.18	0.76		0.56	0.91	0.69	0.74	0.97	0.49	0.05	1.06	0.47	0.56	0.86	0.84	0.87	0.98	1.09	0.49	0.63
	N	34		34	34	34	0	12	18	17	28	34	34	34	7	25	12	17	24	34	28	28	34	9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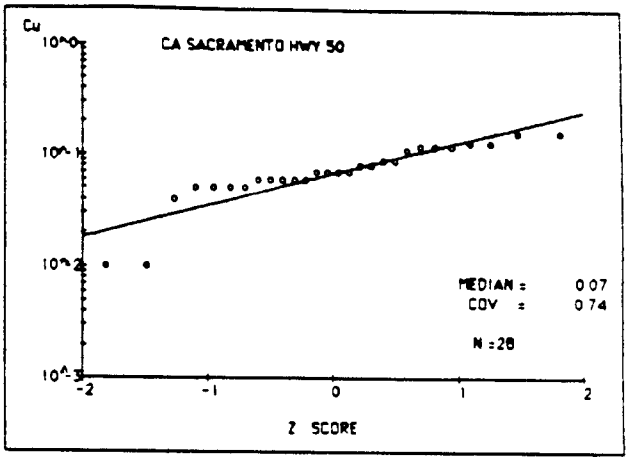
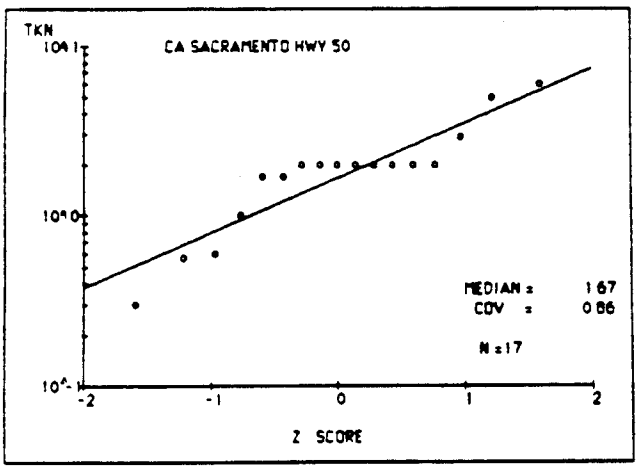
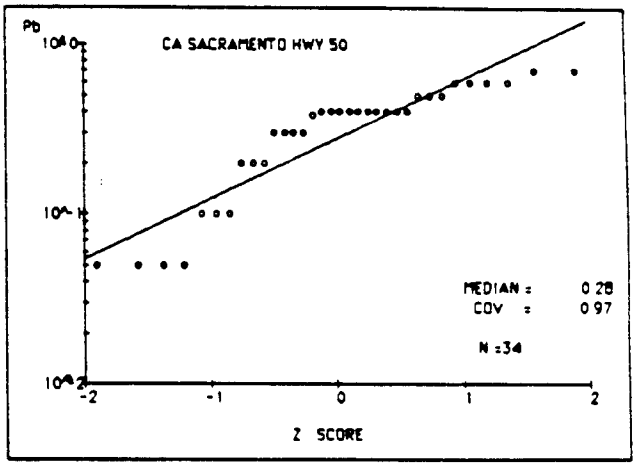
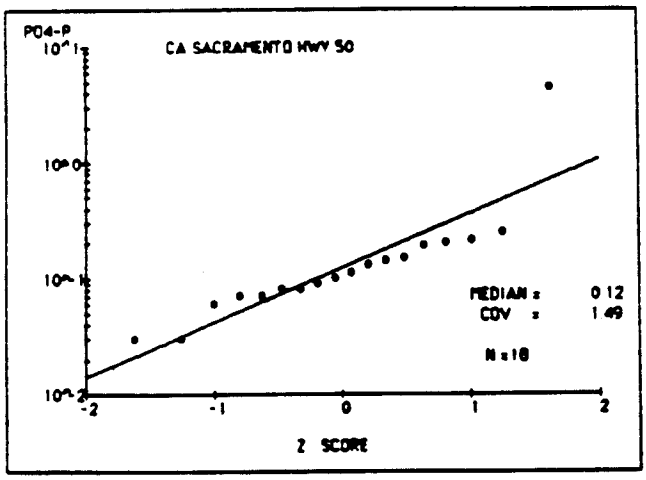
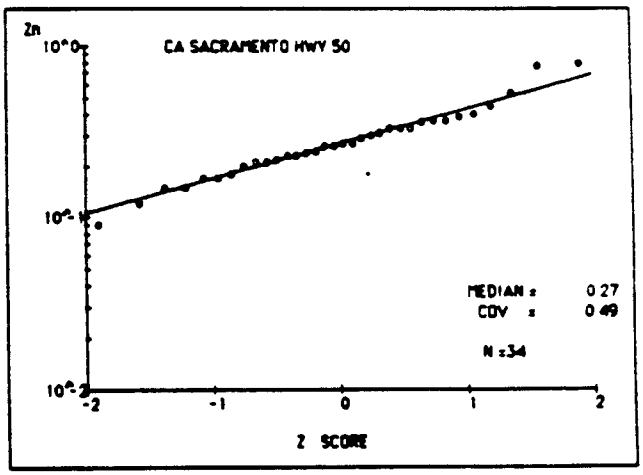
CA SACRAMENTO HWY 50
MEDIAN = 89 82
COV = 0 76
N =34
Z SCORE


Cu
CA SACRAMENTO HWY 50
MEDIAN = 0 07
COV = 0 74
N =28
Z SCORE


TKN
CA SACRAMENTO HWY 50
MEDIAN = 1 67
COV = 0 66
N =17
Z SCORE


Pb
CA SACRAMENTO HWY 50
MEDIAN = 0 28
COV = 0 97
N =34
Z SCORE


PO4-P
CA SACRAMENTO HWY 50
MEDIAN = 0 12
COV = 1 49
N =18
Z SCORE


Zn
CA SACRAMENTO HWY 50
MEDIAN = 0 27
COV = 0 49
N =34
Z SCORE

SITE: CA WALNUT CREEK
I-680

STATE: California

LOCATION: In the Walnut Creek urban area, in the central part of the state

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 6

NO. OF TRAFFIC LANES MONITORED: 6

AVERAGE DAILY TRAFFIC - ADT (VPD): 70,000

ADT PER LANE (VPD): 11,667

DRAINAGE AREA (ACRES): 2.1

PERCENT IMPERVIOUS: 100

LENGTH OF ROAD SURFACE (FEET): 20.3

ROAD SURFACE TYPE: CONCRETE

CURB: YES

SECTION TYPE: HILLSIDE

LAND USE: URBAN, UNDEVELOPED

AVERAGE ANNUAL PRECIPITATION (IN): 20.3

AVERAGE WIND SPEED (FT/SEC): 6.5

NO. OF EVENTS MONITORED: 10

NO. OF SNOW EVENTS MONITORED: 0

MONITORING PERIOD: December 1980 to March 1981

SOURCE:

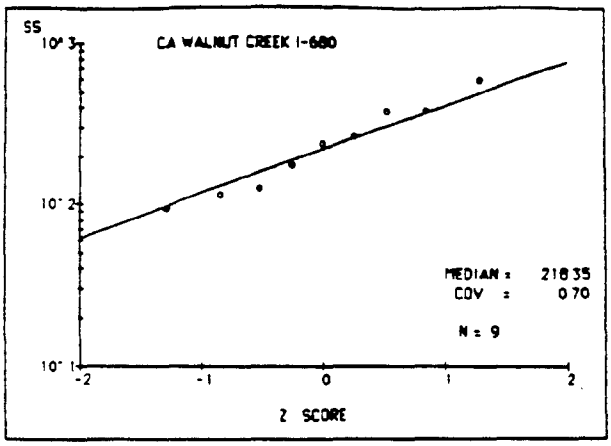
Report: "Estimating Highway Runoff Quality," Racin et al., Office of Transportation Laboratory, California Department of Transportation Report No. FHWA/CA/TL-82/11, September, 1982.

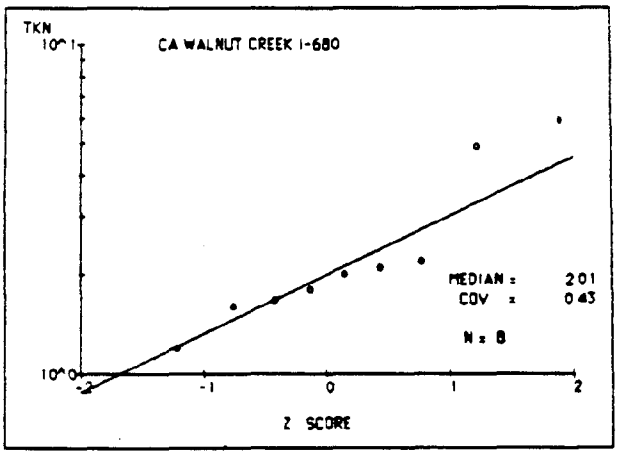
REMARKS:

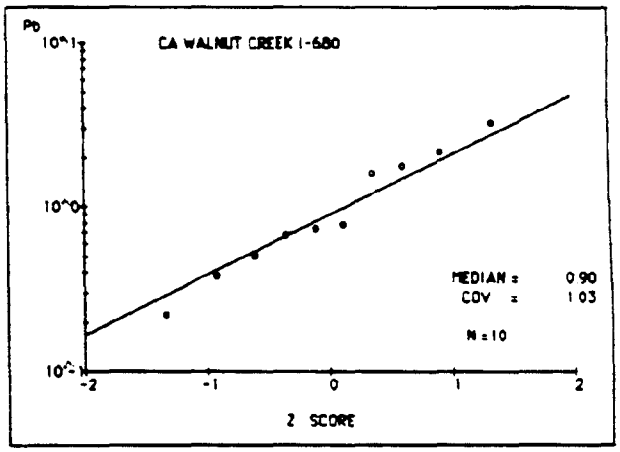
Data extracted from published summary tables in the report. Event mean pollutant concentrations (EMCs) were computed from tabulated values of runoff volumes and concentrations (which varied from 1 to 9 samples per event).

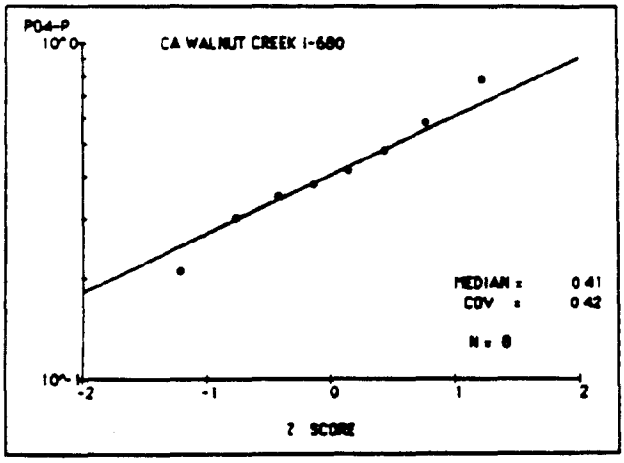
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
1	120380			1.02		235		161		0.580		0.740	0.280					2.20			0.001			11.0
2	12281			0.26		377		162		0.420		0.680	0.380					2.00						14.0
3	12781			1.52		381		84		0.350		0.510	0.230					1.67						16.0
4	22481			0.07		93		27		0.780		1.800	0.460					4.90						
5	22481			0.03								3.300	0.670											
6	22681			0.08		587		282				2.200	0.520											
7	30481			0.07		112		215		0.480		1.600	0.410					2.10						11.0
8	31581			0.67		122		107		0.210		0.220	0.160					1.20						6.0
9	31881			0.14		262		169		0.380		0.780	0.360					1.80						
10	32581			0.72		171		116		0.300		0.380	0.230					1.60						
	Mean			0.58		267		158		0.442		1.291	0.375					2.18						11.8
	Median			0.22		218		125		0.408		0.900	0.341					2.01			0.001			11.0
	COV			2.39		0.70		0.77		0.42		1.03	0.46					0.43						0.39
	N	0	0	10	0	9		9	0	8	0	10	10	0	0	0	0	8	0	0	1	0	0	5

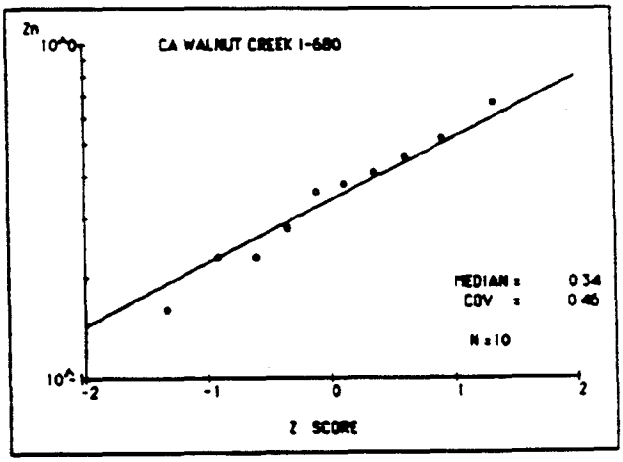
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
1	120380			1.02		235		161		0.580		0.740	0.280					2.20			0.001			11.0
2	12281			0.26		377		162		0.420		0.680	0.380					2.00						14.0
3	12781			1.52		381		84		0.350		0.510	0.230					1.67						16.0
4	22481			0.07		93		27		0.780		1.800	0.460					4.90						
5	22481			0.03								3.300	0.670											
6	22681			0.08		587		282				2.200	0.520											
7	30481			0.07		112		215		0.480		1.600	0.410					2.10						11.0
8	31581			0.67		122		107		0.210		0.220	0.160					1.20						6.0
9	31881			0.14		262		169		0.380		0.780	0.360					1.80						
10	32581			0.72		171		116		0.300		0.380	0.230					1.60						
	Mean			0.58		267		158		0.442		1.291	0.375					2.18						11.8
	Median			0.22		218		125		0.408		0.900	0.341					2.01			0.001			11.0
	COV			2.39		0.70		0.77		0.42		1.03	0.46					0.43						0.39
	N	0	0	10	0	9		9	0	8	0	10	10	0	0	0	0	8	0	0	1	0	0	5


SS
CA WALNUT CREEK I-680
MEDIAN = 218.35
COV = 0.70
N = 9
Z SCORE


TKN
CA WALNUT CREEK I-680
MEDIAN = 2.01
COV = 0.43
N = 8
Z SCORE


Pb
CA WALNUT CREEK I-680
MEDIAN = 0.90
COV = 1.03
N = 10
Z SCORE


PO4-P
CA WALNUT CREEK I-680
MEDIAN = 0.41
COV = 0.42
N = 8
Z SCORE


Zn
CA WALNUT CREEK I-680
MEDIAN = 0.34
COV = 0.46
N = 10
Z SCORE

SITE: CO DENVER
I-25

STATE: Colorado

LOCATION: Denver, Colorado

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 10

NO. OF TRAFFIC LANES MONITORED: 10

AVERAGE DAILY TRAFFIC - ADT (VPD): 149,000

ADT PER LANE (VPD): 14,900

DRAINAGE AREA (ACRES): 35.3

PERCENT IMPERVIOUS: 37

LENGTH OF ROAD SURFACE (FEET): 3,600

ROAD SURFACE TYPE: ASPHALT

CURB: YES

SECTION TYPE: AT GRADE

LAND USE: URBAN, AGRICULTURAL

AVERAGE ANNUAL PRECIPITATION (IN): 14.8

AVERAGE WIND SPEED (FT/SEC): 9.3

NO. OF EVENTS MONITORED: 16

NO. OF SNOW EVENTS MONITORED: 0

MONITORING PERIOD: August 1976 to July 1977

SOURCE:

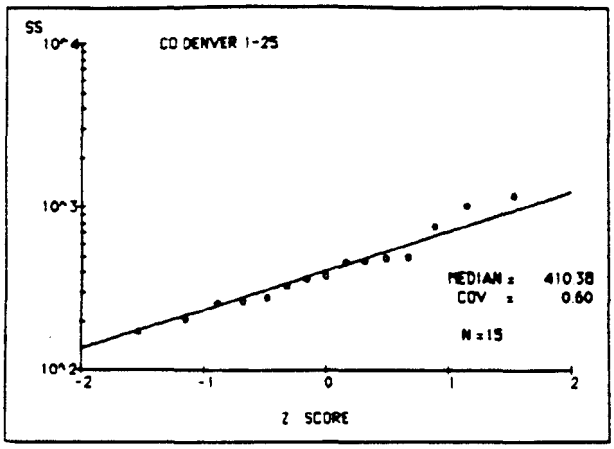
Constituents of Highway Runoff, Volume VI: Executive Summary, M.K. Gupta, Federal Highway Administration Report No. FHWA/RD-81/047, February, 1981

REMARKS:

Data were extracted from computer tapes. EMCs were calculated using discretely collected data and flow-weighted averaging.

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	80276	0.42	7.75	0.26	0.63	171		143		0.490	0.030	0.300	0.360	7.2	0.500	46		2.18	20	6.50	0.010	0.090	351	
2	91376	0.15	0.75	0.04	0.30	347		328				1.300	1.060	6.8		69	128	6.00		14.70			551	
3	92576	0.40	6.00	0.22	0.56	206		119		0.480	0.100	0.400	0.330	6.7	0.500	28	37	2.30	12	7.70	0.010	0.010	295	
4	92676	1.11	8.00	0.73	0.66	281		119		0.530	0.100	0.600	0.360	6.5	0.500	36	34	2.30	8	10.60	0.010	0.040	390	
5	41177	0.29	2.67	0.06	0.20	1,185	37	665		1.420	0.190	1.700	1.300	7.0	0.250	240	240	3.40	81	37.00	0.030	0.040	1,585	
6	41277	0.10	1.67	0.04	0.40	766	66	553		1.330	0.200	1.100	1.000	7.2	0.750	230	212	4.50	90	30.00	0.020	0.030	1,200	
7	41577	0.46	6.25	0.16	0.36	379		236		0.580	0.130	0.600	0.450	7.5	1.750	94	110	1.60	24	14.00	0.010	0.010	555	
8	41977	0.65	13.25	0.35	0.54	329		262		0.550	0.120	0.600	0.410	7.3	0.250	83	77	2.00	30	13.00	0.040	0.020	578	
9	50777	0.20	0.25	0.04	0.19	1,029	49	540		1.440	0.190	1.800	1.500	6.5	2.250	176	147	14.00	52	32.60	0.040	0.060	1,334	
10	60677	0.08	0.25	0.02	0.24	500		316		0.940	0.010	0.800	0.750	6.7	0.500	100	66	1.70	25	19.30	0.020	0.010	751	
11	60977	0.09	1.67	0.02	0.23	473	73	718		0.880	0.150	0.800	1.020	6.7	0.750	137	148	4.50	40	17.40	0.050	0.010	896	
12	62377	0.05	0.17	0.01	0.16	490	320	630		2.360	0.260	0.800	1.220	6.8	0.500	175	96	15.70	63	19.60	0.080	0.030	1,000	
13	70577	0.80	1.08	0.37	0.46	463	20	200		0.900	0.140	0.400	0.580	8.8	0.300	72	60	4.10	15	13.20	0.020	0.010	618	
14	72077	0.70	12.50	0.21	0.29	265	29	230		0.550	0.100	0.500	0.390	7.0	12.50	66	65	2.17	22	8.50	0.010	0.030	480	
15	72477	0.34	1.17	0.04	0.12	370		325		0.750	0.090	0.800	0.770	7.3	2.500	50	90	3.87	50	10.00	0.010	0.030	710	
16	72577	0.30	1.33	0.09	0.31	260		151		0.660	0.110	0.400	0.330	6.8	4.000	10	45	2.67	15	8.20	0.010	0.040	445	
	Mean	0.42	5.23	0.19	0.36	469	83	352		0.921	0.145	0.610	0.748	6.9	1.670	109	105	4.42	37	16.45	0.025	0.032	738	
	Median	0.27	1.93	0.09	0.31	406	55	291		0.821	0.104	0.705	0.644	6.9	0.886	77	88	3.51	29	14.32	0.019	0.024	655	
	COV	1.14	2.51	2.01	0.54	0.58	1.11	0.68		0.51	0.97	0.57	0.59	0.04	1.60	1.01	0.65	0.77	0.82	0.57	0.82	0.84	0.52	
	N	16	16	16	16	16	7	16	0	15	15	16	16	16	15	16	15	16	15	16	15	15	16	0

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4 P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	80276	0.42	7.75	0.26	0.63	171		143		0.490	0.030	0.300	0.360	7.2	0.500	46		2.18	20	6.50	0.010	0.090	351	
2	91376	0.15	0.75	0.04	0.30	347		328				1.300	1.060	6.8		69	128	6.00		14.70			551	
3	92576	0.40	6.00	0.22	0.56	206		119		0.480	0.100	0.400	0.330	6.7	0.500	28	37	2.30	12	7.70	0.010	0.010	295	
4	92676	1.11	8.00	0.73	0.66	281		119		0.530	0.100	0.600	0.360	6.5	0.500	36	34	2.30	8	10.60	0.010	0.040	390	
5	41177	0.29	2.67	0.06	0.20	1,185	37	665		1.420	0.190	1.700	1.300	7.0	0.250	240	240	3.40	81	37.00	0.030	0.040	1,585	
6	41277	0.10	1.67	0.04	0.40	766	66	553		1.330	0.200	1.100	1.000	7.2	0.750	230	212	4.50	90	30.00	0.020	0.030	1,200	
7	41577	0.46	6.25	0.16	0.36	379		236		0.580	0.130	0.600	0.450	7.5	1.750	94	110	1.60	24	4.00	0.010	0.010	555	
8	41977	0.65	13.25	0.35	0.54	329		262		0.550	0.120	0.600	0.410	7.3	0.250	83	77	2.00	30	13.00	0.040	0.020	578	
9	50777	0.20	0.25	0.04	0.19	1,029	49	540		1.440	0.190	1.800	1.500	6.5	2.250	176	147	14.00	52	32.60	0.040	0.060	1,334	
10	60677	0.08	0.25	0.02	0.24	500		316		0.940	0.010	0.800	0.750	6.7	0.500	100	66	1.70	25	19.30	0.020	0.010	751	
11	60977	0.09	1.67	0.02	0.23	473	73	718		0.880	0.150	0.800	1.020	6.7	0.750	137	148	4.50	40	17.40	0.050	0.010	896	
12	62377	0.05	0.17	0.01	0.16	490	320	630		2.360	0.260	0.800	1.220	6.8	0.500	175	96	15.70	63	19.60	0.080	0.030	1,000	
13	70577	0.80	1.08	0.37	0.46	463	20	200		0.900	0.140	0.400	0.580	6.8	0.300	72	60	4.10	15	13.20	0.020	0.010	618	
14	72077	0.70	12.50	0.21	0.29	265	29	230		0.550	0.100	0.500	0.390	7.0	12.50	66	65	2.17	22	8.50	0.010	0.030	480	
15	72477	0.34	1.17	0.04	0.12	370		325		0.750	0.090	0.800	0.770	7.3	2.500	50	90	3.87	50	10.00	0.010	0.030	710	
16	72577	0.30	1.33	0.09	0.31	260		151		0.660	0.110	0.400	0.330	6.8	4.000	10	45	2.67	15	8.20	0.010	0.040	445	
	Mean	0.42	5.23	0.19	0.36	469	83	352		0.921	0.145	0.810	0.748	6.9	1.670	109	105	4.42	37	16.45	0.025	0.032	738	
	Median	0.27	1.93	0.09	0.31	406	55	291		0.821	0.104	0.705	0.644	6.9	0.886	77	88	3.51	29	14.32	0.019	0.024	655	
	COV	1.14	2.51	2.01	0.54	0.58	1.11	0.68		0.51	0.97	0.57	0.59	0.04	1.60	1.01	0.65	0.77	0.82	0.57	0.82	0.84	0.52	
	N	16	16	16	16	16	7	16	0	15	15	16	16	16	15	16	15	16	15	16	15	15	16	0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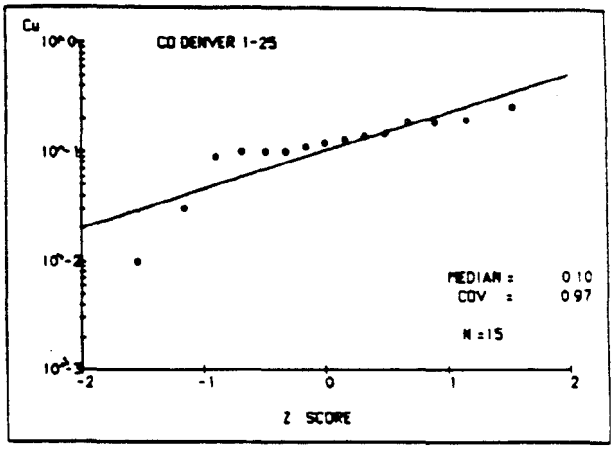
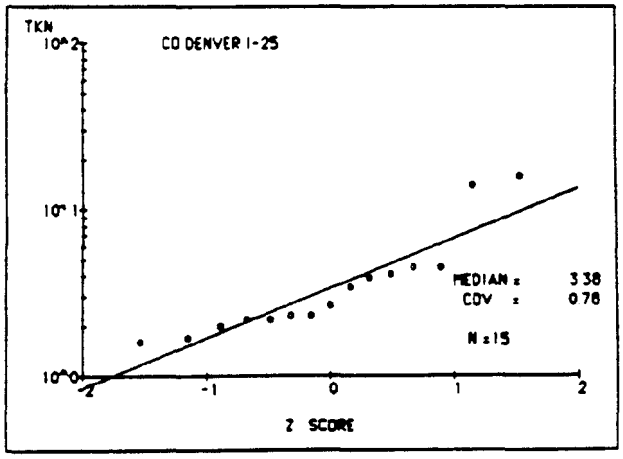
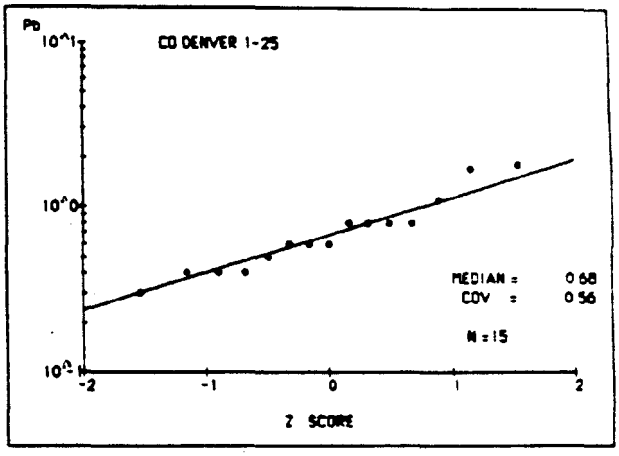
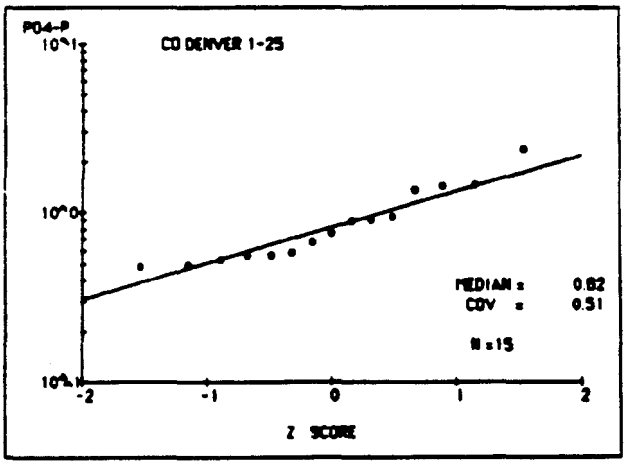
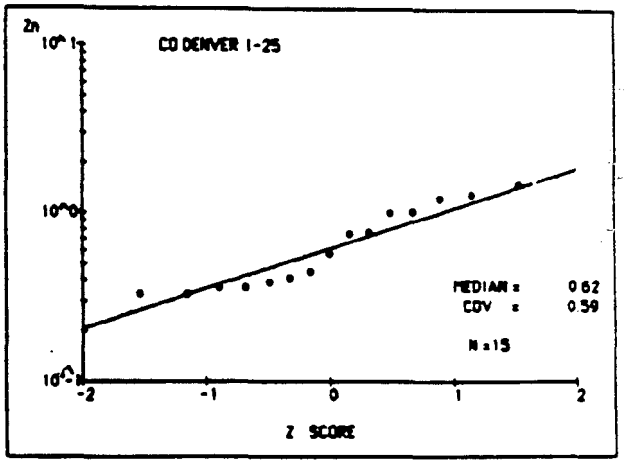
CO DENVER 1-25
MEDIAN = 410.38
COV = 0.60
N = 15
Z SCORE


Cu
CO DENVER 1-25
MEDIAN = 0.10
COV = 0.97
N = 15
Z SCORE


TKN
CO DENVER 1-25
MEDIAN = 3.38
COV = 0.78
N = 15
Z SCORE


Pb
CO DENVER 1-25
MEDIAN = 0.68
COV = 0.56
N = 15
Z SCORE


PO4-P
CO DENVER 1-25
MEDIAN = 0.82
COV = 0.51
N = 15
Z SCORE


Zn
CO DENVER 1-25
MEDIAN = 0.62
COV = 0.59
N = 15
Z SCORE

SITE: FL BROWARD COUNTY
Sample Road S-384

STATE: Florida

LOCATION: In southeast Florida, near the city of Pompano Beach

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 6

NO. OF TRAFFIC LANES MONITORED: 6

AVERAGE DAILY TRAFFIC - ADT (VPD): 20,000

ADT PER LANE (VPD): 3,333

DRAINAGE AREA (ACRES): 58.3

PERCENT IMPERVIOUS: 36

LENGTH OF ROAD SURFACE (FEET): 3,000

ROAD SURFACE TYPE: ASPHALT

CURB: BOTH

SECTION TYPE: AT GRADE

LAND USE: URBAN, COMMERCIAL/RESIDENTIAL

AVERAGE ANNUAL PRECIPITATION (IN): 62

AVERAGE WIND SPEED (FT/SEC): 9.0

NO. OF EVENTS MONITORED: 40

NO. OF SNOW EVENTS MONITORED: 0

MONITORING PERIOD: April 1975 to July 1977

SOURCE:

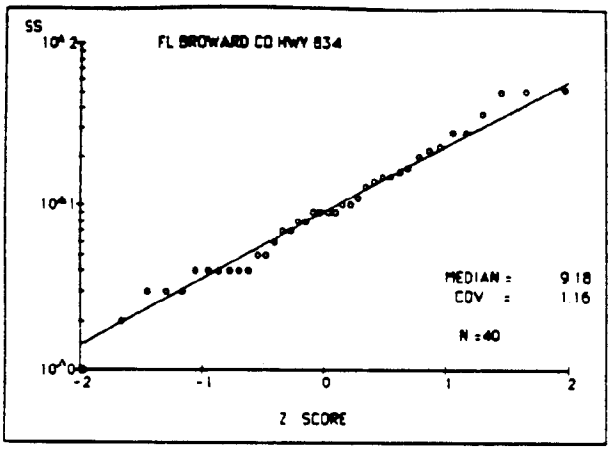
Report: "Stormwater Runoff Data for a Highway Area, Broward County, Florida," J. Hardee, et al., U.S. Geological Survey Open File Report 78-612, June 1978
(prepared in cooperation with Florida Dept. of Transportation)

REMARKS:

Data extracted from published summary tables in this report. Event mean pollutant concentrations (EMCs) were computed from tabulated values of total mass load per event, and total inches of runoff per event. The EMCs shown may differ slightly from the measured values (which were not reported) due to rounding.

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	Cl (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	41575	0.06	2.17	0.01	0.12	50		255	0.76	0.189							95	3.88		0.79				
2	50575	0.22	2.42	0.01	0.03	37		173	0.97	0.108	0.021	0.465	0.314				85	4.11		0.37	0.002			
3	50975	0.33	3.67	0.01	0.16	51		107	0.91	0.151	0.014	0.560	0.182				42	2.72		0.35	0.001			
8	52275	0.12	1.50	0.01	0.09	13	27	96	0.62	0.069	0.017	0.502	0.282				45	1.38		0.32	0.001			
9	52975	0.88	2.50	0.05	0.06	5	8	9	0.20	0.029	0.003	0.160	0.039				5	0.28		0.09	0.001			
11	71475	0.21	1.92	0.03	0.14	5		24	0.10	0.026	0.004	0.084	0.025				7	0.23		0.05	0.001			
22	82375	1.20	3.17	0.20	0.17	28		52	0.18	0.030	0.006	0.487	0.131				16	0.61		0.37	0.001			
23	82975	0.27	2.08	0.04	0.14	6	6	36	0.20	0.040	0.002	0.197	0.044				12	0.32		0.11	0.001			
26	91775	0.41	2.75	0.09	0.22	8	5	34	0.19	0.034	0.056	0.235	0.061				13	0.45		0.13	0.001			
32	102275	0.33	1.75	0.03	0.09	16	4	14	0.10	0.130	0.009	0.188	0.091				4	0.50		0.22	0.003			
34	102775	0.40	1.75	0.05	0.13	1	3	11	0.25	0.030	0.002	0.145	0.034				4	0.30		0.09	0.001			
39	110576	0.27	3.17	0.06	0.21	4		41	0.60	0.066	0.005	0.239	0.077				15	0.76		0.27	0.001			
42	51576	0.63	5.33	0.13	0.21	4		66	0.25	0.028	0.007	0.192	0.033				11	0.42		0.13	0.002			
43	51778	0.30	2.67	0.06	0.19	4		39	0.60	0.040	0.004	0.159	0.031				11	0.46		0.08	0.001			
44	52178	0.63	3.50	0.13	0.21	2		24	0.08	0.028	0.003	0.158	0.041				7	0.38		0.14	0.001			
47	52878	2.25	7.00	0.37	0.16	11		21	0.18	0.029	0.004	0.249	0.039				4	0.26		0.29	0.001			
50	60478	0.38	2.83	0.09	0.23	4		37	0.18	0.017	0.002	0.224	0.086				8	0.37		0.10	0.001			
51	60778	0.64	3.75	0.14	0.21	26	7	32	0.29	0.022	0.003	0.188	0.066				9	0.26		0.10	0.001			
53	61078	0.84	7.75	0.15	0.18																			
54	61178	0.62	9.42	0.19	0.23																			
55	61878	0.05	1.58	0.01	0.22	8		66	0.07	0.007	0.006	0.365	0.103				15	0.41		0.19	0.003			
57	61978	1.39	4.42	0.27	0.19	3		56	0.11	0.031	0.031	0.189	0.028				6	0.19		0.17	0.002			
58	62378	0.96	5.83	0.20	0.21	22		26	0.12	0.022	0.002	0.270	0.037				11	0.27		0.13	0.001			
60	62578	0.62	5.00	0.09	0.14	4		29	0.06	0.026	0.007	0.141	0.035				5	0.14		0.04	0.001			
61	62778	0.20	3.00	0.09	0.43	3		23	0.11	0.017	0.003	0.191	0.057				9	0.23		0.10	0.001			
62	70678	0.18	2.42	0.02	0.10	9	7	185	0.38	0.042	0.015	0.757	0.366				67	1.39		0.42	0.002			
63	70778	0.53	3.50	0.16	0.30	20	2	32	0.12	0.019	0.010	0.421	0.071				7	0.24		0.26	0.001			
64	71378	0.13	2.67	0.03	0.20	15	15	99	0.64	0.029	0.007	0.408	0.183				38	0.87		0.22	0.001			
65	72278	1.92	3.17	0.24	0.13	53	6	26	0.39	0.037	0.005	0.279	0.065				11	0.47		0.16	0.001			
66	81678	1.39	4.33	0.33	0.23	23	6	26	0.27	0.040	0.006	0.193	0.075				10	0.36		0.26	0.002			
67	81878	0.56	5.42	0.11	0.19	14		26	0.09	0.028	0.002	0.147	0.061				9	0.32		0.09	0.001			
75	100976	0.37	2.42	0.09	0.24	9		143	0.51	0.034	0.007	0.328	0.109				20	0.82		0.21	0.001			
78	110276	2.42	9.00	0.59	0.25	7	85	17	0.11	0.022	0.002	0.127	0.050				8	0.18		0.05	0.002			
79	111776	1.07	3.00	0.24	0.23	10	171	31	0.18	0.028	0.004	0.223	0.053				7	0.28		0.10	0.001			
83	121376	2.50	6.42	0.50	0.20	10		15	0.43	0.038	0.004	0.273	0.044				6	0.19		0.14	0.001			
88	20877	0.71	8.08	0.16	0.23		4	46	0.25	0.037	0.008	0.464	0.111				10	0.48		0.30	0.001			
90	41077	0.32	4.00	0.05	0.16	9		47	0.32	0.058	0.015	0.218	0.277				17	0.73		0.41	0.001			
91	41277	0.27	2.75	0.03	0.11	9	14	66	0.25	0.050	0.007	0.235	0.111				23	0.81		0.22	0.001			
92	41377	1.14	5.00	0.17	0.15	3		38	0.17	0.036	0.005	0.041					12	0.32		0.16	0.001			
93	42477	0.16	1.58	0.02	0.10	17		95	0.19	0.047	0.009	0.464	0.132				23	0.80		0.27	0.001			
94	50477	2.08	8.33	0.36	0.18																			
96	50977	0.88	3.75	0.14	0.16	4		26	0.10	0.022	0.002	0.192	0.037				7	0.25		0.13	0.001			
97	51077	1.04	4.75	0.19	0.18	7		18	0.36	0.024	0.001	0.183	0.029				4	0.35		0.12	0.001			
102	60177	1.48	9.50	0.28	0.19																			
108	70177	0.29	2.00	0.06	0.21	15		90	0.17	0.047	0.006	0.307	0.085					0.80		0.28	0.001			
	Mean	0.80	4.06	0.17	0.18	14	19	55.34	0.30	0.043	0.008	0.275	0.093				17	0.63		0.21	0.001			
	Median	0.51	3.55	0.08	0.17	9	9	40.86	0.23	0.036	0.005	0.236	0.071				12	0.46		0.17	0.001			
	COV	1.21	0.56	1.80	0.46	1.16	1.75	0.91	0.85	0.68	1.01	0.60	0.83				1.00	0.92		0.71	0.31			
	N	45	45	45	45	40	16	41	41	41	40	40	39	0	0	0	40	41	0	41	40	0	0	0

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	Cl (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	41575	0.06	2.17	0.01	0.12	50		255	0.76	0.189							95	3.88		0.79				
2	50575	0.22	2.42	0.01	0.03	37		173	0.97	0.108	0.021	0.465	0.314				85	4.11		0.37	0.002			
3	50975	0.33	3.67	0.01	0.16	51		107	0.91	0.151	0.014	0.560	0.182				42	2.72		0.35	0.001			
6	52275	0.12	1.50	0.01	0.09	13	27	96	0.62	0.069	0.017	0.502	0.282				45	1.38		0.32	0.001			
9	52975	0.88	2.50	0.05	0.06	5	8	9	0.20	0.029	0.003	0.160	0.039				5	0.28		0.09	0.001			
11	71475	0.21	1.92	0.03	0.14	5		24	0.10	0.026	0.004	0.084	0.025				7	0.23		0.05	0.001			
22	82375	1.20	3.17	0.20	0.17	28		52	0.18	0.030	0.006	0.487	0.131				16	0.61		0.37	0.001			
23	82975	0.27	2.08	0.04	0.14	6	6	36	0.20	0.040	0.002	0.197	0.044				12	0.32		0.11	0.001			
26	91775	0.41	2.75	0.09	0.22	8	5	34	0.19	0.034	0.056	0.235	0.061				13	0.45		0.13	0.001			
32	102275	0.33	1.75	0.03	0.09	16	4	14	0.10	0.130	0.009	0.188	0.091				4	0.50		0.22	0.003			
34	103175	0.40	1.75	0.05	0.13	1	3	11	0.25	0.030	0.002	0.145	0.034				4	0.30		0.09	0.001			
39	10576	0.27	3.17	0.06	0.21	4		41	0.60	0.066	0.005	0.239	0.077				15	0.76		0.27	0.001			
42	51576	0.83	5.33	0.13	0.21	4		66	0.25	0.028	0.007	0.192	0.033				11	0.42		0.13	0.002			
43	51776	0.30	2.67	0.06	0.19	4		39	0.60	0.040	0.004	0.159	0.031				11	0.46		0.08	0.001			
44	52176	0.63	3.50	0.13	0.21	2		24	0.08	0.028	0.003	0.158	0.041				7	0.38		0.14	0.001			
47	52876	2.25	7.00	0.37	0.16	11		21	0.18	0.029	0.004	0.249	0.039				4	0.26		0.29	0.001			
50	60476	0.38	2.83	0.09	0.23	4		37	0.18	0.017	0.002	0.224	0.086				8	0.37		0.10	0.001			
51	60776	0.84	3.75	0.14	0.21	28	7	32	0.29	0.022	0.003	0.188	0.066				9	0.26		0.10	0.001			
53	61076	0.84	7.75	0.15	0.18																			
54	61176	0.82	9.42	0.19	0.23																			
55	61676	0.05	1.58	0.01	0.22	8		66	0.07	0.007	0.008	0.365	0.103				15	0.41		0.19	0.003			
57	61976	1.39	4.42	0.27	0.19	3		56	0.11	0.031	0.031	0.189	0.028				6	0.19		0.17	0.002			
58	62376	0.98	5.83	0.20	0.21	22		28	0.12	0.022	0.002	0.270	0.037				11	0.27		0.13	0.001			
60	62576	0.62	5.00	0.09	0.14	4		29	0.06	0.026	0.007	0.141	0.035				5	0.14		0.04	0.001			
61	62776	0.20	3.00	0.09	0.43	3		23	0.11	0.017	0.003	0.191	0.057				9	0.23		0.10	0.001			
62	70676	0.18	2.42	0.02	0.10	9	7	185	0.38	0.042	0.015	0.757	0.366				67	1.39		0.42	0.002			
63	70776	0.53	3.50	0.16	0.30	20	2	32	0.12	0.019	0.010	0.421	0.071				7	0.24		0.28	0.001			
64	71376	0.13	2.67	0.03	0.20	15	15	99	0.84	0.029	0.007	0.408	0.183				38	0.87		0.22	0.001			
65	72276	1.92	3.17	0.24	0.13	53	6	28	0.39	0.037	0.005	0.279	0.085				11	0.47		0.16	0.001			
66	81676	1.39	4.33	0.33	0.23	23	6	28	0.27	0.040	0.006	0.193	0.075				10	0.36		0.26	0.002			
67	81676	0.56	5.42	0.11	0.19	14		28	0.09	0.028	0.002	0.147	0.061				9	0.32		0.09	0.001			
75	100976	0.37	2.42	0.09	0.24	9		143	0.51	0.034	0.007	0.328	0.109				20	0.82		0.21	0.001			
76	110276	2.42	9.00	0.59	0.25	7		17	0.11	0.022	0.002	0.127	0.050				8	0.18		0.05	0.002			
79	111776	1.07	3.00	0.24	0.23	10		31	0.16	0.028	0.004	0.223	0.053				7	0.28		0.10	0.001			
83	121376	2.50	6.42	0.50	0.20	10		15	0.43	0.038	0.004	0.273	0.044				6	0.19		0.14	0.001			
88	20877	0.71	8.08	0.16	0.23		4	46	0.25	0.037	0.008	0.464	0.111				10	0.46		0.30	0.001			
90	41077	0.32	4.00	0.05	0.16	9		47	0.32	0.058	0.015	0.218	0.277				17	0.73		0.41	0.001			
91	41277	0.27	2.75	0.03	0.11	9	14	66	0.25	0.050	0.007	0.235	0.111				23	0.61		0.22	0.001			
92	41377	1.14	5.00	0.17	0.15	3		38	0.17	0.036	0.005	0.041					12	0.32		0.16	0.001			
93	42477	0.16	1.58	0.02	0.10	17		95	0.19	0.047	0.009	0.464	0.132				23	0.80		0.27	0.001			
94	50477	2.08	8.33	0.38	0.18																			
96	50977	0.88	3.75	0.14	0.16	4		26	0.10	0.022	0.002	0.192	0.037				7	0.25		0.13	0.001			
97	51077	1.04	4.75	0.19	0.18	7		18	0.36	0.024	0.001	0.183	0.029				4	0.35		0.12	0.001			
102	60177	1.48	9.50	0.28	0.19																			
108	70177	0.29	2.00	0.06	0.21	15		90	0.17	0.047	0.006	0.307	0.085					0.80		0.28	0.001			
	Mean	0.80	4.06	0.17	0.18	14	8	55.34	0.30	0.043	0.008	0.275	0.093				17	0.63		0.21	0.001			
	Median	0.51	3.55	0.08	0.17	9	6	40.86	0.23	0.036	0.005	0.236	0.071				12	0.46		0.17	0.001			
	COV	1.21	0.56	1.80	0.48	1.16	0.75	0.91	0.85	0.68	1.01	0.60	0.83				1.00	0.92		0.71	0.31			
	N	45	45	45	45	40	14	41	41	41	40	40	39	0	0	0	40	41	0	41	40	0	0	0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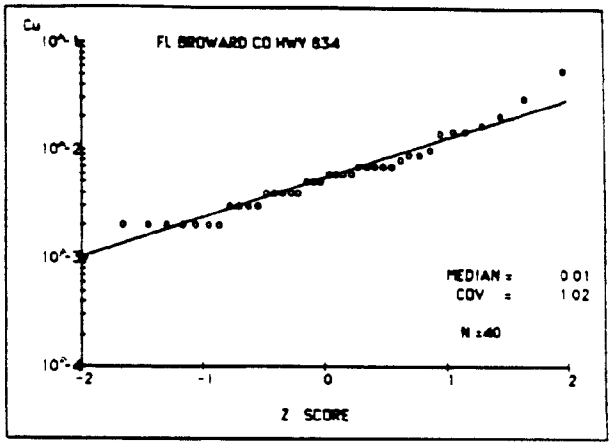
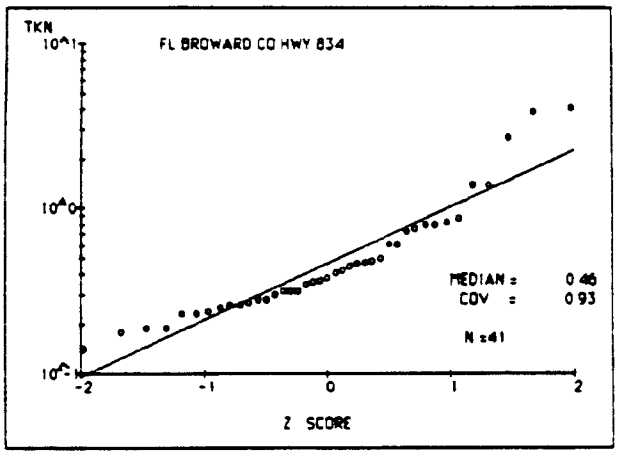
FL BROWARD CO HWY 834
MEDIAN = 9.18
COV = 1.16
N = 40
Z SCORE


Cu
FL BROWARD CO HWY 834
MEDIAN = 0.01
COV = 1.02
N = 40
Z SCORE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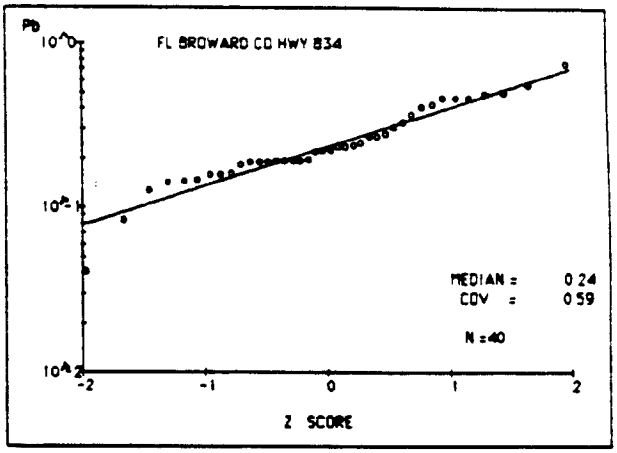
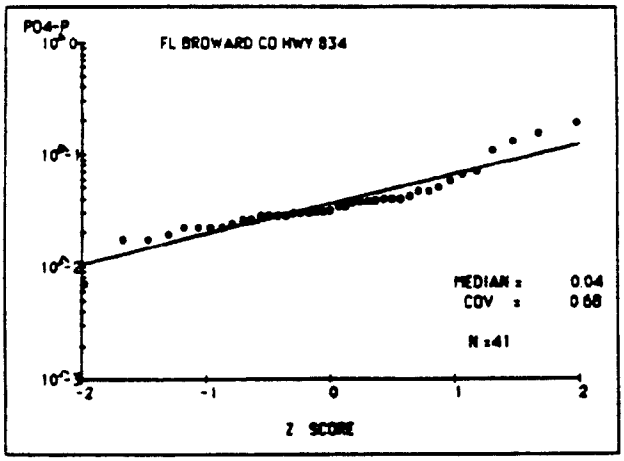
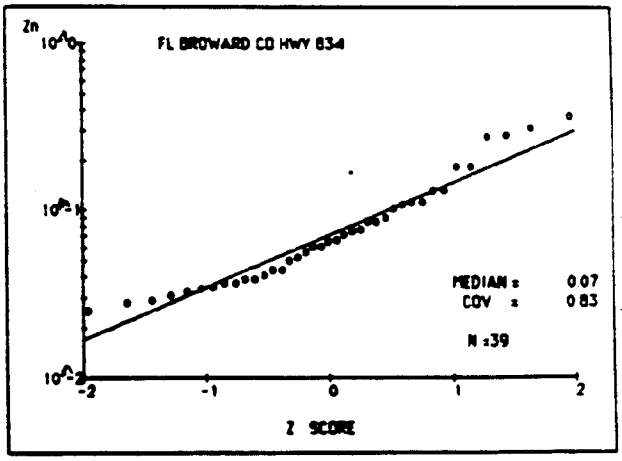
FL BROWARD CO HWY 834
MEDIAN = 0.46
COV = 0.93
N = 41
Z SCORE


Pb
FL BROWARD CO HWY 834
MEDIAN = 0.24
COV = 0.59
N = 40
Z SCORE


PO4-P
FL BROWARD CO HWY 834
MEDIAN = 0.04
COV = 0.68
N = 41
Z SCORE


Zn
FL BROWARD CO HWY 834
MEDIAN = 0.07
COV = 0.83
N = 39
Z SCORE

SITE: FL GAINESVILLE SR-24 **STATE:** Florida

LOCATION: In Gainesville, Florida near the intersection of Highway 232 and State Route 24

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 4

NO. OF TRAFFIC LANES MONITORED: 4

AVERAGE DAILY TRAFFIC - ADT (VPD): 17,000

ADT PER LANE (VPD): 4,250

DRAINAGE AREA (ACRES): 72.9

PERCENT IMPERVIOUS:

LENGTH OF ROAD SURFACE (FEET):

ROAD SURFACE TYPE:

CURB: YES

SECTION TYPE: AT GRADE

LAND USE: URBAN

AVERAGE ANNUAL PRECIPITATION (IN): 53.0

AVERAGE WIND SPEED (FT/SEC): 6.0

NO. OF EVENTS MONITORED: 6

NO. OF SNOW EVENTS MONITORED:

MONITORING PERIOD: August 1983 to April 1984

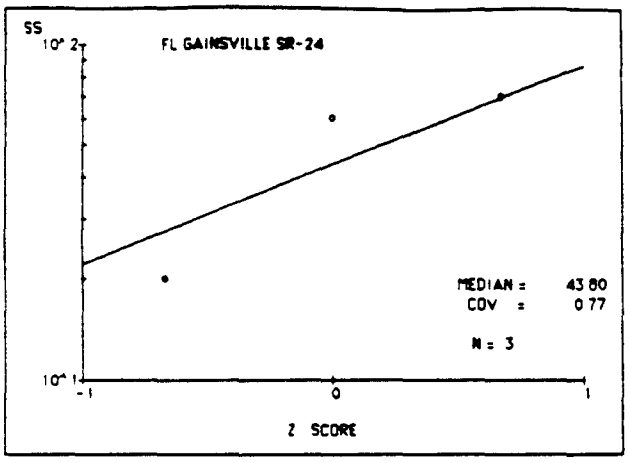
SOURCE:

Report: "Final Report. Runoff Monitoring, Part II, Demonstration Project No. 56," L.D. Barfield and G.L. Evink, Florida Department of Transportation, December, 1984

REMARKS:

Data were extracted from report table. Only those events reported as composite samples (total of 3 storms) were used, as data were insufficient (runoff quantities were not reported at the time of sampling) for determining event means from other discretely sampled storms.

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	82383	0.14	7.00	0.02	0.13	70		80	0.10	0.500	0.016	0.170	0.110	7.0		17	66	1.10	7	3.00			240	2.5
2	90283	0.86	6.50	0.18	0.21	60		38	0.11	0.480	0.016	0.158	0.058	7.5		19	20	1.30	4	2.80			136	0.5
3	91283	0.65	7.00	0.09	0.15	20		36	0.23	0.190	0.004	0.038	0.038	7.7		18	17	1.10	4	0.90			90	1.0
	Mean	0.69	6.84	0.13	0.16	55		53	0.15	0.415	0.014	0.14	0.07	7.4		18	37	1.17	5	2.47			162	1.5
	Median	0.43	6.83	0.07	0.16	44		48	0.14	0.357	0.010	0.10	0.06	7.4		18	28	1.16	5	1.96			143	1.1
	COV	1.26	0.04	1.67	0.23	0.77		0.47	0.48	0.59	0.95	1.02	0.58	0.05		0.06	0.85	0.10	0.33	0.76			0.52	0.96
	N	3	3	3	3	3	0	3	3	3	3	3	3	3	0	3	3	3	3	3	0	0	3	3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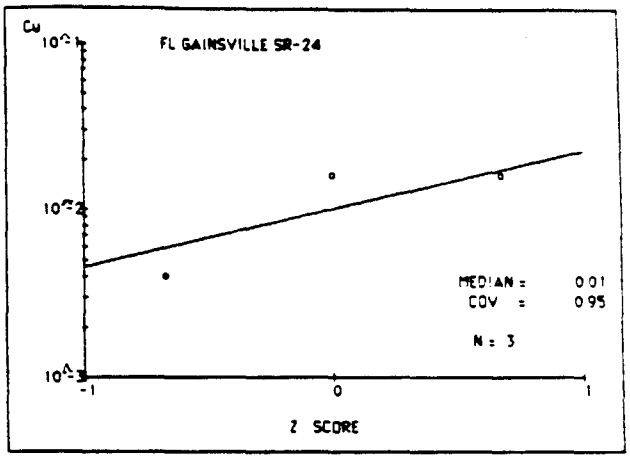
FL GAINSVILLE SR-24
MEDIAN = 43.80
COV = 0.77
N = 3
Z SCORE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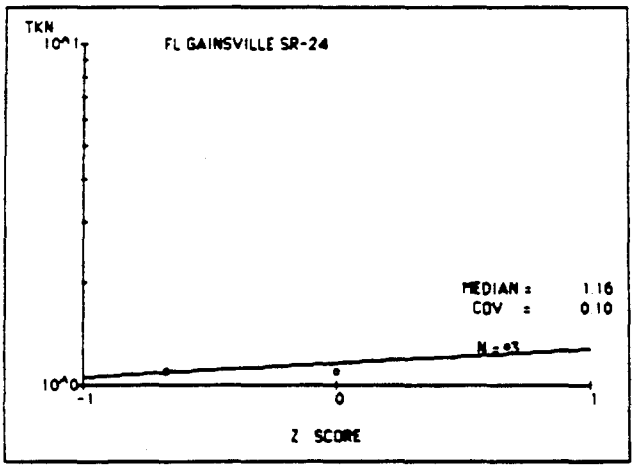
FL GAINSVILLE SR-24
MEDIAN = 0.01
COV = 0.95
N = 3
Z SCORE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FL GAINSVILLE SR-24
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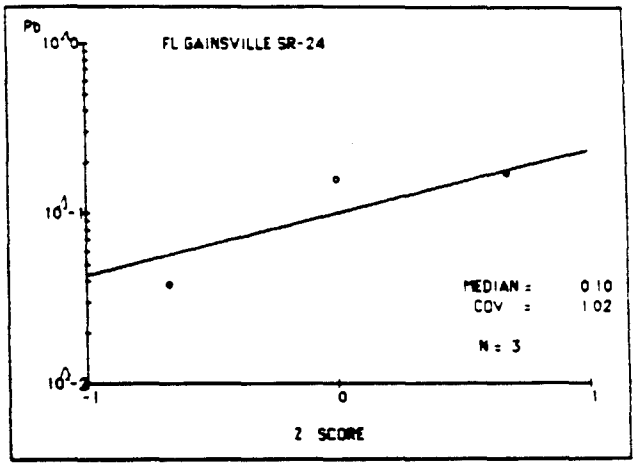
Z SCORE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FL GAINSVILLE SR-24
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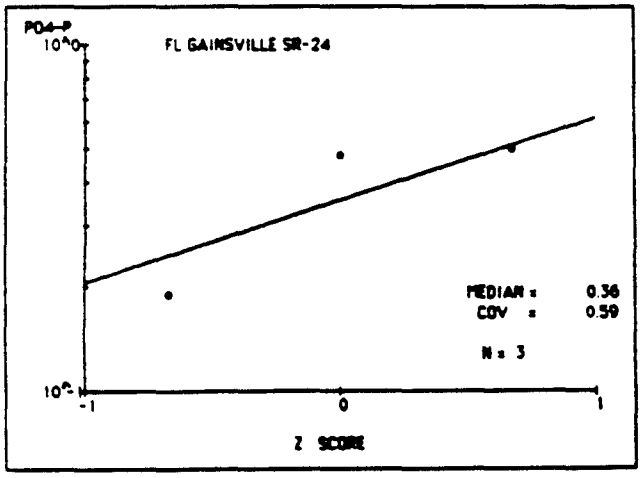
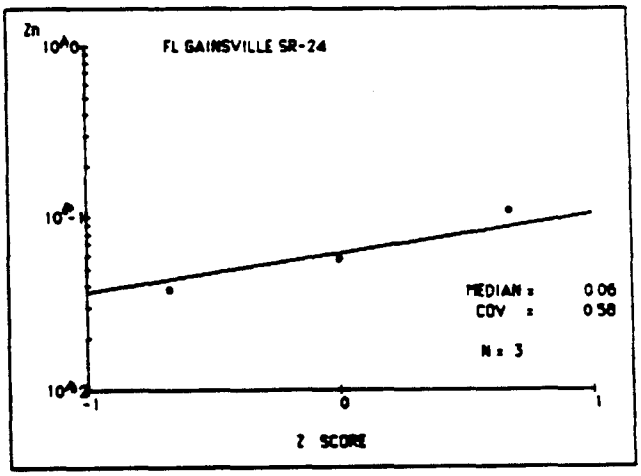
COV = 1.02
N = 3
Z SCORE


PO4-P
FL GAINSVILLE SR-24
MEDIAN = 0.36
COV = 0.59
N = 3
Z SCORE


Zn
FL GAINSVILLE SR-24
MEDIAN = 0.06
COV = 0.58
N = 3
Z SCORE

SITE: FL MIAMI
I-95 Bridge

STATE: Florida

LOCATION: A northbound bridge on I-95 just north of State Road 836 in the central Miami urban area of southeast Florida

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 6

NO. OF TRAFFIC LANES MONITORED: 3

AVERAGE DAILY TRAFFIC - ADT (VPD): 140,000

ADT PER LANE (VPD): 23,333

DRAINAGE AREA (ACRES): 1.43

PERCENT IMPERVIOUS: 100

LENGTH OF ROAD SURFACE (FEET): 1,387

ROAD SURFACE TYPE: ASPHALT

CURB: YES

SECTION TYPE: BRIDGE

LAND USE: URBAN, UNDEFINED

AVERAGE ANNUAL PRECIPITATION (IN): 59.8

AVERAGE WIND SPEED (FT/SEC): 9.0

NO. OF EVENTS MONITORED: 5

NO. OF SNOW EVENTS MONITORED: 0

MONITORING PERIOD: November 1979 to May 1981

SOURCE:

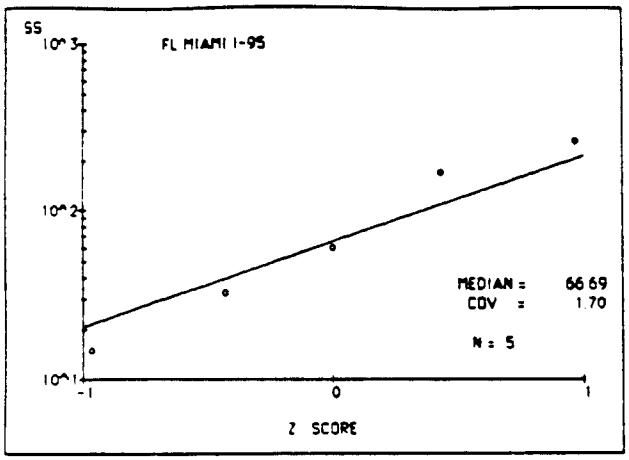
Report: "Water-Quality Assessment of Stormwater Runoff from a Heavily Used Urban Highway Bridge in Miami, Florida.", Donald J. McKinzie and G.A. Irwin. U.S. Geological Survey Water-Resources Investigation Report 83-4153,1983.
(Prepared in cooperation with the Florida Department of Transportation)

REMARKS:

Data extracted from report tables. Event averages were computed from the reported values for individual discrete samples, which ranged from 6 to 11 per event.

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	110379	0.40		0.33	0.83	33		290	3.32	0.240	0.050	0.690	0.240			234	98	4.40			0.002	0.015	720	
2	112079	0.55		0.22	0.39	260		382			0.160	1.530	0.870			241	171					0.018	890	
3	32381	0.12		0.01	0.07	168		232	1.31	0.190	0.060	1.180	0.640			120	79	2.50			0.003	0.010	435	
4	50181	0.08		0.32	4.00	61		142	0.71	0.140	0.030	0.470	0.190			25	23.2	1.10			0.001	0.016	145	
5	52081	0.65		0.41	0.63	15		37.4	0.35	0.060	0.010	0.160	0.100			10	6.4	0.20			0.001	0.012	48	
	Mean	0.42		0.57	1.65	132		257	1.61	0.168	0.072	0.924	0.450			193	109	3.09			0.002	0.014	604	
	Median	0.27		0.15	0.56	67		169	1.02	0.140	0.043	0.623	0.303			70	46	1.25			0.002	0.014	287	
	COV	1.20		3.59	2.79	1.70		1.15	1.22	0.67	1.34	1.10	1.10			2.57	2.16	2.26			0.59	0.24	1.86	
	N	5	0	5	5	5	0	5	4	4	5	5	5	0	0	5	5	4	0	0	4	5	5	0

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4 P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	110379	0.40		0.33	0.83	33		290	3.32	0.240	0.050	0.690	0.240			234	98	4.40			0.002	0.015	720	
2	112079	0.55		0.22	0.39	260		382			0.160	1.530	0.870			241	171					0.018	890	
3	32381	0.12		0.01	0.07	168		232	1.31	0.190	0.060	1.180	0.640			120	79	2.50			0.003	0.010	435	
4	50181	0.08		0.32	4.00	61		142	0.71	0.140	0.030	0.470	0.190			25	23.2	1.10			0.001	0.016	145	
5	52081	0.65		0.41	0.63	15		37.4	0.35	0.060	0.010	0.160	0.100			10	6.4	0.20			0.001	0.012	48	
	Mean	0.42		0.57	1.65	132		257	1.61	0.168	0.072	0.924	0.450			193	109	3.09			0.002	0.014	604	
	Median	0.27		0.15	0.56	67		169	1.02	0.140	0.043	0.623	0.303			70	46	1.25			0.002	0.014	287	
	COV	1.20		3.59	2.79	1.70		1.15	1.22	0.67	1.34	1.10	1.10			2.57	2.16	2.26			0.59	0.24	1.86	
	N	5	0	5	5	5	0	5	4	4	5	5	5	0	0	5	5	4	0	0	4	5	5	0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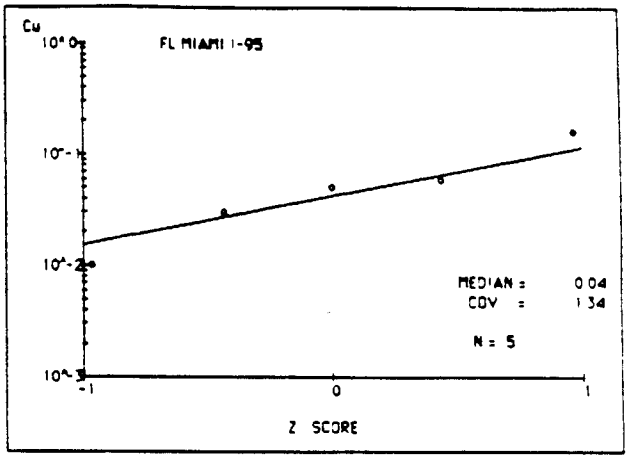
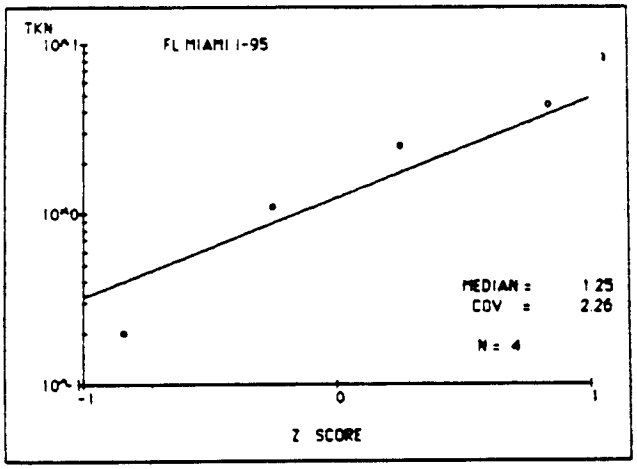
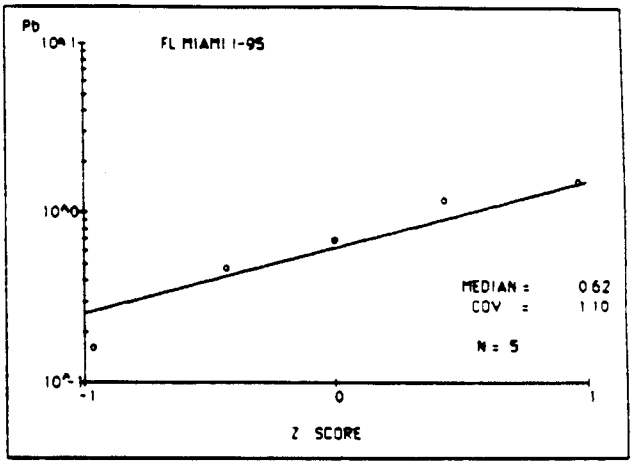
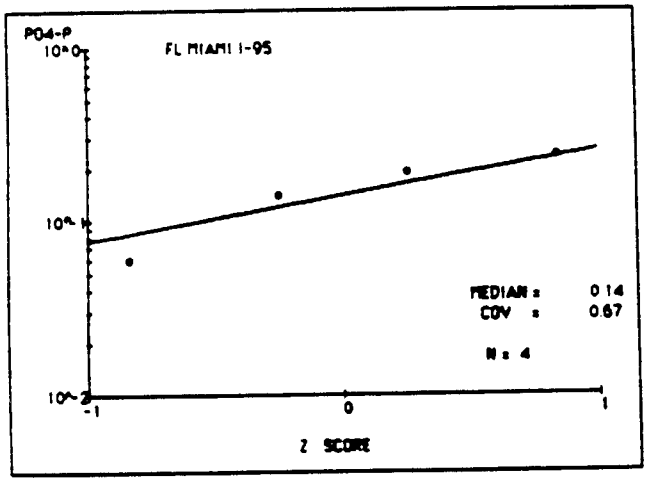
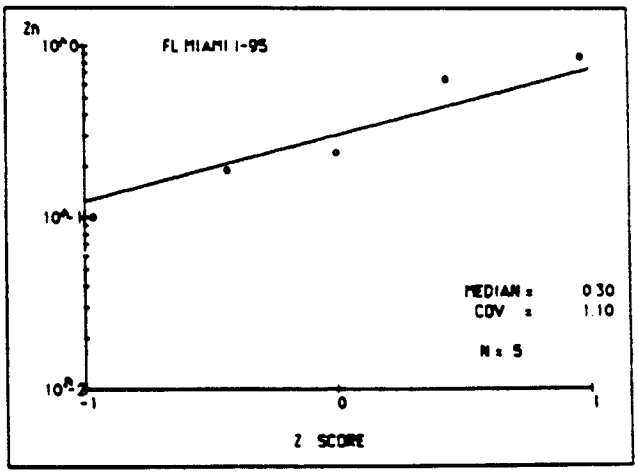
FL MIAMI I-95
MEDIAN = 66.69
COV = 1.70
N = 5
Z SCORE


Cu
FL MIAMI I-95
MEDIAN = 0.04
COV = 1.34
N = 5
Z SCORE


TKN
FL MIAMI I-95
MEDIAN = 1.25
COV = 2.26
N = 4
Z SCORE


Pb
FL MIAMI I-95
MEDIAN = 0.62
COV = 1.10
N = 5
Z SCORE


PO4-P
FL MIAMI I-95
MEDIAN = 0.14
COV = 0.67
N = 4
Z SCORE


Zn
FL MIAMI I-95
MEDIAN = 0.30
COV = 1.10
N = 5
Z SCORE

SITE: IA AMES 2.0% SLOPE
I-35

STATE: Iowa

LOCATION: Near Ames, Iowa, 3.5 miles south of the intersection of Highway 30 and Interstate 35

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 2

NO. OF TRAFFIC LANES MONITORED: 2

AVERAGE DAILY TRAFFIC - ADT (VPD): 12,600

ADT PER LANE (VPD): 6,300

DRAINAGE AREA (ACRES): 1.7

PERCENT IMPERVIOUS: 49

LENGTH OF ROAD SURFACE (FEET):

ROAD SURFACE TYPE:

CURB:

SECTION TYPE:

LAND USE: RURAL

AVERAGE ANNUAL PRECIPITATION (IN): 30.4

AVERAGE WIND SPEED (FT/SEC): 11.4

NO. OF EVENTS MONITORED: 7

NO. OF SNOW EVENTS MONITORED:

MONITORING PERIOD: April 1984 to March 1985

SOURCE:

Final Report: Highway Runoff Study, Robert E. Baumann and Harvey A. Gullicks, Iowa Department of Transportation, June, 1985

REMARKS:

Discretely collected data were extracted from report tables. Flow-weighted averaging was used to calculate EMCs.

Note: This site was situated next to the IA AMES 0.24% SLOPE site to compare the effect of slope on runoff water quality.

VENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
1	42984	2.15		1.250	0.58	139		40	0.07	0.180	0.010	0.030	0.020				10	0.66	24	7.00			285	
2	61484	1.83		1.840	1.01	111		25	0.19	0.170	0.010	0.020	0.030	7.5			12	0.65	1	4.60			184	
3	92484	1.38		0.570	0.41	38		43				0.010							16	4.70			188	
4	100584					38		43	0.31	1.480	0.010	0.010	0.010	7.2			22	1.35	16	4.70			188	
5	101484	1.09		0.390	0.36	23		43				0.010							13	1.10			216	
6	110684					23		43	0.02	0.190	0.010	0.010	0.040				18	0.71	13	1.10			216	
7	30385	0.63		0.520	0.83	46		40				0.030		7.9			11		272	1.40			718	
	Mean	1.46		0.949	0.65	61		40	0.20	0.531	0.010	0.017	0.027	7.5			15	0.85	61	3.80			282	
	Median	1.30		0.767	0.59	47		39	0.10	0.305	0.010	0.015	0.022	7.5			14	0.80	16	2.76			251	
	COV	0.51		0.73	0.46	0.81		0.20	1.83	1.43	0.00	0.57	0.66	0.05			0.35	0.36	3.65	0.95			0.52	
	N	5	0	5	5	7	0	7	4	4	4	7	4	3	0	0	5	4	7	7	0	0	7	0

SITE: IA AMES 0.24% SLOPE
I-35

STATE: Iowa

LOCATION: Near Ames, Iowa, 3.5 miles south of the intersection of Highway 30 and Interstate 35

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 2

NO. OF TRAFFIC LANES MONITORED: 2

AVERAGE DAILY TRAFFIC - ADT (VPD): 12,600

ADT PER LANE (VPD): 6,300

DRAINAGE AREA (ACRES): 1.87

PERCENT IMPERVIOUS: 49

LENGTH OF ROAD SURFACE (FEET):

ROAD SURFACE TYPE:

CURB:

SECTION TYPE:

LAND USE: RURAL

AVERAGE ANNUAL PRECIPITATION (IN): 30.4

AVERAGE WIND SPEED (FT/SEC): 11.4

NO. OF EVENTS MONITORED: 2

NO. OF SNOW EVENTS MONITORED:

MONITORING PERIOD: April 1984 to June 1984

SOURCE:

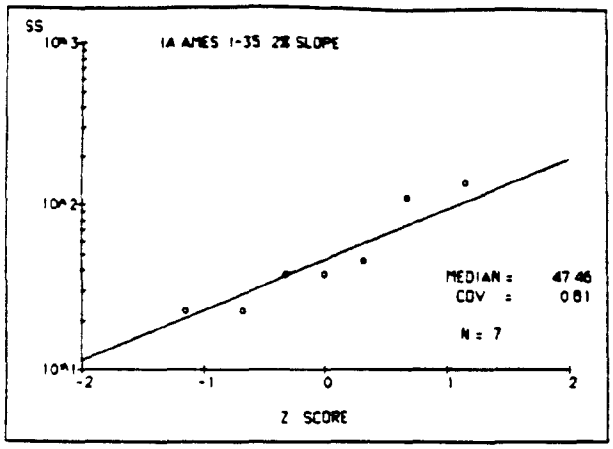
Final Report: Highway Runoff Study, Robert E. Baumann and Harvey A. Gullicks, Iowa Department of Transportation, June, 1985

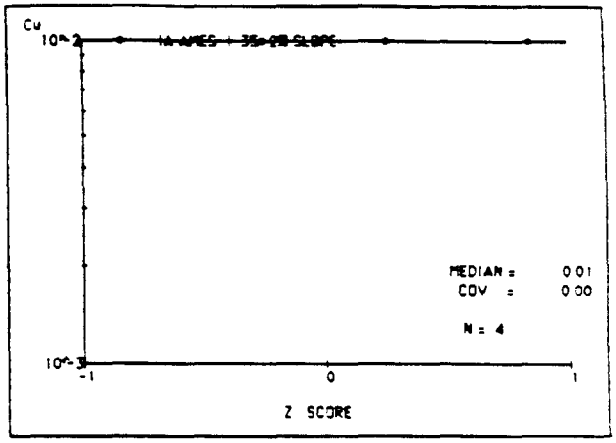
REMARKS:

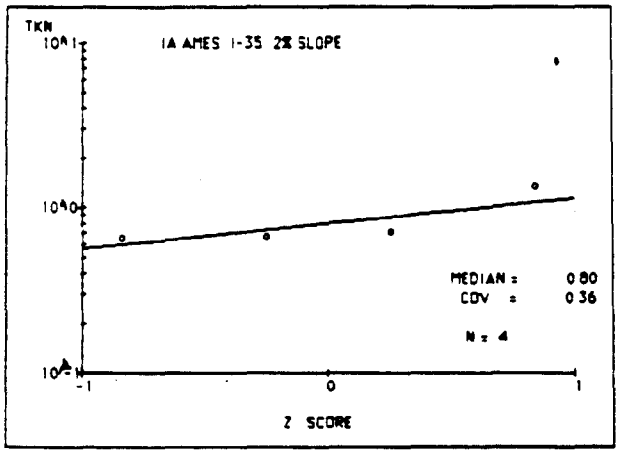
Discretely collected data were extracted from report tables. Flow-weighted averaging was used to calculate EMCs.

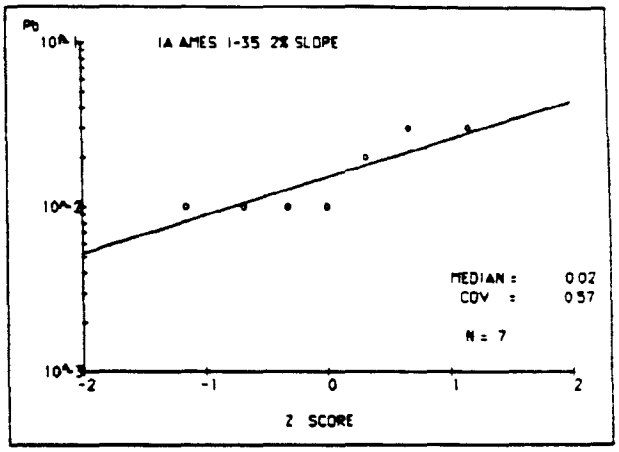
Note: This site was situated next to the IA AMES 2% SLOPE Site to compare the effect of slope on runoff water quality.

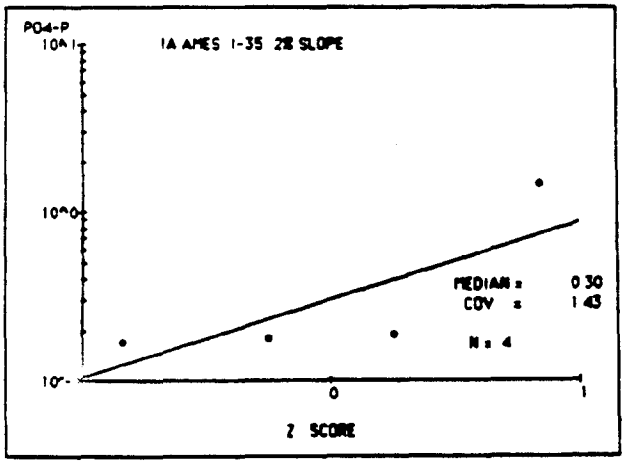
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
1	42984	2.15		1.80	0.84	39		26	0.07	0.110	0.003	0.010	0.010	7.9			9	0.57	15	1.30			169	
2	61484	1.83		1.90	1.04	41		22	0.22	0.120	0.010	0.010	0.010	7.4			11	0.52	1	1.30			122	
	Mean	2.00		1.85	0.94	40		24	0.17	0.115	0.008	0.010	0.010	7.7			10	0.55	24	1.30			147	
	Median	1.98		1.85	0.93	40		24	0.12	0.115	0.005	0.010	0.010	7.6			10	0.54	4	1.30			144	
	COV	0.11		0.04	0.15	0.04		0.12	0.96	0.06	1.03	0.00	0.00	0.05			0.14	0.06	6.17	0.00			0.23	
	N	2	0	2	2	2	0	2	2	2	2	2	2	2	0	0	2	2	2	2	0	0	2	0

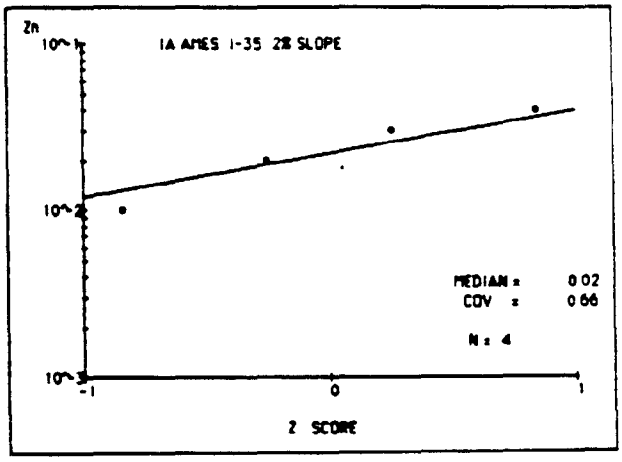

SS
IA AMES I-35 2% SLOPE
MEDIAN = 47.46
COV = 0.61
N = 7
Z SCORE


Cu
MEDIAN = 0.01
COV = 0.00
N = 4
Z SCORE


TKN
IA AMES I-35 2% SLOPE
MEDIAN = 0.80
COV = 0.36
N = 4
Z SCORE


Pb
IA AMES I-35 2% SLOPE
MEDIAN = 0.02
COV = 0.57
N = 7
Z SCORE


PO4-P
IA AMES I-35 2% SLOPE
MEDIAN = 0.30
COV = 1.43
N = 4
Z SCORE


Zn
IA AMES I-35 2% SLOPE
MEDIAN = 0.02
COV = 0.66
N = 4
Z SCORE

SITE: MN MINNEAPOLIS
I-94

STATE: Minnesota

LOCATION: The site is located in north Minneapolis between 29th Avenue North and 35th Avenue North on Interstate 94

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 10

NO. OF TRAFFIC LANES MONITORED: 10

AVERAGE DAILY TRAFFIC - ADT (VPD): 80,000

ADT PER LANE (VPD): 8,000

DRAINAGE AREA (ACRES): 21

PERCENT IMPERVIOUS: 55

LENGTH OF ROAD SURFACE (FEET):

ROAD SURFACE TYPE: CONCRETE

CURB: YES

SECTION TYPE: CUT

LAND USE: URBAN, COMMERCIAL/RESIDENTIAL

AVERAGE ANNUAL PRECIPITATION (IN): 24.8

AVERAGE WIND SPEED (FT/SEC): 10.6

NO. OF EVENTS MONITORED: 88

NO. OF SNOW EVENTS MONITORED: 19

MONITORING PERIOD: July 1982 to June 1983

SOURCE:

Characteristics of Urban Freeway Runoff, Kenneth L. Moxness, Minnesota Department of Transportation, FHWA/MN-86/02, March, 1986

REMARKS:

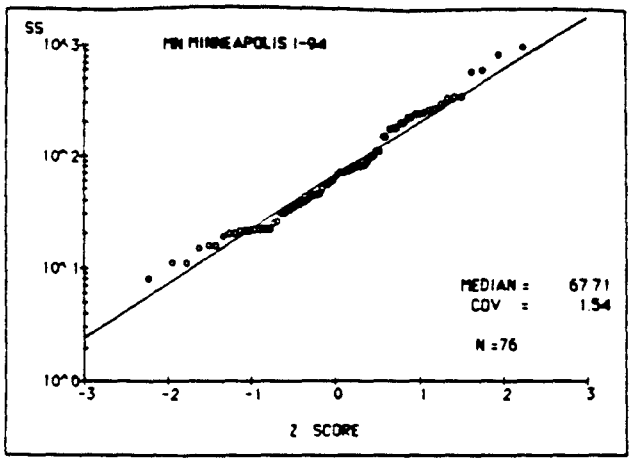
Data were extracted directly from tables in report which listed event mean concentrations.

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
1	71082	1.33		0.66	0.50	220				0.263	0.022	0.160					7	1.00	4					
2	71582	0.02		0.00	0.25	44				0.202	0.013	0.074					26	1.54	15					
3	72682	0.25		0.06	0.24	150				0.190	0.009	0.083					15	0.52	4					
4	81382	0.04		0.01	0.14	330				0.840	0.095	0.460					140	6.62	33					
5	81682	0.24		0.14	0.60	100				0.394	0.023	0.170					19	1.50	22					
6	81782	0.13		0.03	0.22	22				0.114	0.009	0.040					19	0.79	11					
7	82482	1.06		0.19	0.18	15				0.110	0.007	0.047					10	0.51	2					
8	82682	0.32		0.07	0.23	110				0.198	0.024	0.160					11	0.84	3					
9	82982	0.82		0.15	0.18	22				0.092	0.007	0.047					7	0.35	1					
10	83182	0.04		0.06	1.48	20				0.128	0.015	0.053					13	0.67	4					
11	90982	0.11		0.02	0.21	66				0.170	0.014	0.110					22	1.00	4					
12	91082	1.82		0.61	0.33	33				0.110	0.006	0.027					7	0.62	1					
13	91282	0.19		0.04	0.21	11				0.120	0.007	0.045					17	0.50	8					
14	91482	0.31		0.08	0.27	20				0.142	0.005	0.038					9	0.37	4					
15	91782	0.35		0.13	0.38	39				0.068	0.003	0.017					9	0.43	4					
16	92982	0.04		0.02	0.39	342				0.672	0.079	0.690					100	4.67	19					
17	92982	0.34		0.12	0.34	19				0.127	0.010	0.060					12	0.74	4					
18	100182	0.15		0.03	0.18	176				0.360	0.096	0.580					41	1.74	6					
19	100282	0.25		0.02	0.07	16				0.092	0.006	0.032					12	0.69	2					
20	100282	0.17		0.01	0.03	22				0.069	0.006	0.037					11	0.70	3					
21	100582	0.46		0.07	0.15	21				0.091	0.010	0.230					14	0.84	2					
22	100682	0.17		0.05	0.32	150				2.430	0.075	1.700					24	1.37	3					
23	100782	0.12		0.01	0.09	80				0.179	0.011	0.100					21	0.71	3					
24	100982	0.03		0.00	0.12	11				0.123	0.010	0.072					16	0.98	3					
25	101082	0.04		0.00	0.02	28				0.308	0.012	0.095					16	0.98	5					
26	101282	0.09		0.01	0.08	35				0.160	0.017	0.160					14	0.82	7					
27	101582	0.05		0.00	0.05	80				0.236	0.021	0.100					37	1.93	53					
28	101982			0.27		36				0.153	0.014	0.088					12	0.74	8					
29	102982	0.05		0.00	0.01	41				0.288	0.022	0.110					36	2.14	14					
30	103182	0.05		0.00	0.02	8													7					
31	110282	0.12		0.00	0.02	21				0.132	0.019	0.081					15	0.77	29					
32	110982			0.00		54													80					
33	110982			0.00		75				0.292	0.029	0.160					24	0.92	13					
34	110982			0.23		43				0.169	0.015	0.100					10	0.50	3					
35	111182			0.23		58				0.228	0.018	0.110					18	0.86	550					
36	111682			0.01		950				1.640	0.230	2.100					110	4.48	5000					
37	111782			0.00		80				0.683	0.061	0.250					24	1.84	960					
38	111982	0.13		0.09	0.66	260				0.540	0.100	0.620					44	1.59	570					
39	111982	0.13		0.09	0.70	98				0.385	0.065	0.280					39	1.49	170					
40	112182			0.00		89				0.240	0.047	0.300					33	1.18	95					
41	122482	0.32		0.10	0.33	250				0.642	0.150	0.620					48	2.00	99					
42	122482			0.73		220				0.684	0.099	0.480					41	1.64	210					
43	10883			0.15		270				0.552	0.120	0.550					31	2.60	3700					
44	10983			0.17		70				0.218	0.055	0.120					32	1.67	2600					
45	31583			0.01		300				0.712	0.190	0.930					22	2.50	7700					
46	32883			0.01		200				0.579	0.100	0.480					26	1.53	86					
47	32983			0.00		200				0.377	0.080	0.380					32	1.30	160					
48	33183			0.10		570				0.417	0.030	0.550					21	1.31	21					
49	40183			0.00		55				0.200	0.044	0.190					24	1.85	81					
50	40183			0.03		240				0.360	0.092	0.480					32	1.37	25					
51	40583			0.11		74				0.259	0.046	0.220					21	1.10	2300					
52	40583			0.19		180				0.388	0.100	0.570					8	1.10	1400					
53	40983			0.12		72				0.294	0.048	0.170					22	0.82	60					
54	41283	0.55		0.49	0.90	83				0.242	0.027	0.150					12	0.77	16					
55	41383			0.15		240				0.359	0.064	0.350					9	1.19	13					
56	41383			0.02		44				0.209	0.030	0.130					8	1.09	31					
57	41483			0.02		69				0.187	0.031	0.160					12	1.22	34					
58	41583			0.29		340				0.487	0.150	0.930					13	1.49	2700					
59	41683			0.06		39				0.212	0.022	0.088					5	0.52	380					
60	41783			0.04		32				0.174	0.020	0.080					5	0.51	91					
61	41883			0.03		51				0.233	0.026	0.088					5	0.68	32					
62	42883	0.29		0.07	0.23	590				1.580	0.330	1.500					66	6.70	210					
63	50183	0.25		0.04	0.17	70				0.229	0.027	0.130					12	0.63	16					

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
64	50583			0.11		810				0.410	0.037	0.220					17	2.03	4					
65	50683			0.14		180				0.320	0.059	0.410					10	1.27	3					
66	51983	0.57		0.10	0.17	30				0.222	0.020	0.079					9	1.10	4					
67	60283	1.42		0.21	0.15	21				0.205	0.015	0.069					6	0.97	2					
68	61383	1.56		0.23	0.15	16				0.140	0.015	0.039					11	0.80	8					
69	61483	0.05		0.00	0.08	22				0.235	0.016	0.056					12	0.95	18					
70	62083	0.08		0.00	0.03	45				0.407	0.042	0.130					34	3.10	23					
71	62183	0.32		0.05	0.14	59				0.271	0.019	0.160					22	2.10	6					
72	62783	0.22		0.03	0.14	36				0.238	0.016	0.056					14	1.54	6					
73	62883	0.10		0.00	0.03	110				0.261	0.027	0.130					20	1.43	9					
74	62983	0.06		0.00	0.04	22				0.478	0.017	0.066					12	1.17	10					
75	62983	0.25		0.03	0.11	25				0.200	0.012	0.061					6	0.81	3					
76	63083	0.02		0.00	0.02	30				0.711	0.110	0.360					34	5.03	28					
	Mean	0.34		0.20	0.27	124				0.343	0.047	0.272					23	1.42	274					
	Median	0.17		0.03	0.16	68				0.266	0.028	0.156					18	1.16	24					
	COV	1.69		7.80	1.41	1.54				0.81	1.36	1.42					0.81	0.70	11.42					
	N	47	0	76	47	76	0	0	0	74	74	74	0	0	0	0	74	74	76	0	0	0	0	0

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
1	71082	1.33		0.66	0.50	220				0.263	0.022	0.160					7	1.00	4					
2	71582	0.02		0.00	0.25	44				0.202	0.013	0.074					26	1.54	15					
3	72682	0.25		0.06	0.24	150				0.190	0.009	0.083					15	0.52	4					
4	81382	0.04		0.01	0.14	330				0.840	0.095	0.460					140	6.62	33					
5	81682	0.24		0.14	0.60	100				0.394	0.023	0.170					19	1.50	22					
6	81782	0.13		0.03	0.22	22				0.114	0.009	0.040					19	0.79	11					
7	82482	1.06		0.19	0.18	15				0.110	0.007	0.047					10	0.51	2					
8	82682	0.32		0.07	0.23	110				0.198	0.024	0.160					11	0.84	3					
9	82982	0.62		0.15	0.18	22				0.092	0.007	0.047					7	0.35	1					
10	83182	0.04				20				0.128	0.015	0.053					13	0.67	4					
11	90982	0.11		0.02	0.21	66				0.170	0.014	0.110					22	1.00	4					
12	91082	1.82		0.61	0.33	33				0.110	0.006	0.027					7	0.62	1					
13	91282	0.19		0.04	0.21	11				0.120	0.007	0.045					17	0.50	8					
14	91482	0.31		0.08	0.27	20				0.142	0.005	0.038					9	0.37	4					
15	91782	0.35		0.13	0.38	39				0.068	0.003	0.017					9	0.43	4					
16	92982	0.04		0.02	0.39	342				0.672	0.079	0.690					100	4.67	19					
17	92982	0.34		0.12	0.34	19				0.127	0.010	0.060					12	0.74	4					
18	100182	0.15		0.03	0.18	178				0.360	0.096	0.580					41	1.74	6					
19	100282	0.25		0.02	0.07	18				0.092	0.006	0.032					12	0.69	2					
20	100282	0.17		0.01	0.03	22				0.069	0.006	0.037					11	0.70	3					
21	100582	0.48		0.07	0.15	21				0.091	0.010	0.230					14	0.84	2					
22	100682	0.17		0.05	0.32	150				2.430	0.075	1.700					24	1.37	3					
23	100782	0.12		0.01	0.09	60				0.179	0.011	0.100					21	0.71	3					
24	100982	0.03		0.00	0.12	11				0.123	0.010	0.072					16	0.98	3					
25	101082	0.04		0.00	0.02	26				0.308	0.012	0.095					16	0.98	5					
26	101282	0.09		0.01	0.08	35				0.160	0.017	0.160					14	0.82	7					
27	101582	0.05		0.00	0.05	80				0.236	0.021	0.100					37	1.93	53					
28	10198			0.27		36				0.153	0.014	0.088					12	0.74	8					
29	[illegible]			0.00	0.01	41				0.288	0.022	0.110					36	2.14	14					
30	103182	0.05		0.00	0.02	8													7					
31	110282	0.12		0.00	0.02	21				0.132	0.019	0.081					15	0.77	29					
32	110982			0.00		54													80					
33	110982			0.00		75				0.292	0.029	0.160					24	0.92	19					
34	110982			0.23		43				0.169	0.015	0.100					10	0.50	3					
53	40983			0.12		72				0.294	0.048	0.170					22	0.82	60					
54	41283	0.55		0.49	0.90	83				0.242	0.027	0.150					12	0.77	16					
55	41383			0.15		240				0.359	0.064	0.350					9	1.19	13					
56	41383			0.02		44				0.209	0.030	0.130					8	1.09	31					
57	41483			0.02		69				0.187	0.031	0.160					12	1.22	34					
58	41583			0.29		340				0.487	0.150	0.930					13	1.49	2700					
59	41683			0.08		39				0.212	0.022	0.088					5	0.52	380					
60	41783			0.04		32				0.174	0.020	0.080					5	0.51	91					
61	41883			0.03		51				0.233	0.026	0.088					5	0.68	32					
62	42883	0.29		0.07	0.23	590				1.580	0.330	1.500					66	6.70	210					
63	50183	0.25		0.04	0.17	70				0.229	0.027	0.130					12	0.63	16					
64	50583			0.11		810				0.410	0.037	0.220					17	2.03	4					
65	50683			0.14		180				0.320	0.059	0.410					10	1.27	3					
66	51983	0.57		0.10	0.17	30				0.222	0.020	0.079					9	1.10	4					
67	60283	1.42		0.21	0.15	21				0.205	0.015	0.069					6	0.97	2					
68	61383	1.56		0.23	0.15	16				0.140	0.015	0.039					11	0.80	4					
69	61483	0.05		0.00	0.08	22				0.235	0.016	0.056					12	0.95	1.8					
70	62083	0.08		0.00	0.03	45				0.407	0.042	0.130					34	3.10	23					
71	62183	0.32		0.05	0.14	59				0.271	0.019	0.160					22	2.10	6					
72	62783	0.22		0.03	0.14	36				0.238	0.016	0.056					14	1.54	6					
73	62883	0.10		0.00	0.03	110				0.261	0.027	0.130					20	1.43	9					
74	62983	0.06		0.00	0.04	22				0.478	0.017	0.066					12	1.17	10					
75	62983	0.25		0.03	0.11	25				0.200	0.012	0.061					6	0.81	3					
76	63083	0.02		0.00	0.02	30				0.711	0.110	0.360					34	5.03	28					
	Mean	0.35		0.17	0.22	87				0.289	0.031	0.184					19	1.30	29					
	Median	0.17		0.03	0.14	51				0.227	0.020	0.116					15	1.04	10					
	COV	1.78		6.27	1.24	1.38				0.78	1.15	1.24					0.78	0.74	2.74					

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
	N	44	0	57	43	58	0	0	0	56	56	56	0	0	0	0	56	56	58	0	0	0	0	0
35	111182			0.23		58				0.228	0.018	0.110					18	0.86	550					
36	111682			0.01		950				1.640	0.230	2.100					110	4.48	5000					
37	111782			0.00		80				0.683	0.061	0.250					24	1.84	960					
38	111982	0.13		0.09	0.66	260				0.540	0.100	0.620					44	1.59	570					
39	111982	0.13		0.09	0.70	96				0.385	0.065	0.280					39	1.49	170					
40	112182			0.00		89				0.240	0.047	0.300					33	1.18	95					
41	122482	0.32		0.10	0.33	250				0.642	0.150	0.620					48	2.00	99					
42	122482			0.73		220				0.684	0.099	0.480					41	1.64	210					
43	10683			0.15		270				0.552	0.120	0.550					31	2.60	3700					
44	10983			0.17		70				0.218	0.055	0.120					32	1.67	2600					
45	31583			0.01		300				0.712	0.190	0.930					22	2.50	7700					
46	32883			0.01		200				0.579	0.100	0.480					26	1.53	86					
47	32983			0.00		200				0.377	0.080	0.380					32	1.30	160					
48	33183			0.10		570				0.417	0.030	0.550					21	1.31	21					
49	40183			0.00		55				0.200	0.044	0.190					24	1.85	81					
50	40183			0.03		240				0.360	0.092	0.480					32	1.37	25					
51	40583			0.11		74				0.259	0.046	0.220					21	1.10	2300					
52	40583			0.19		180				0.388	0.100	0.570					8	1.10	1400					
58	41583			0.29		340				0.487	0.150	0.930					13	1.49	2700					
	Mean	0.20		0.50	0.58	239				0.503	0.096	0.541					33	1.72	2341					
	Median	0.18		0.03	0.53	175				0.438	0.078	0.416					28	1.61	443					
	COV	0.56		18.08	0.45	0.93				0.56	0.71	0.83					0.59	0.38	5.19					
	N	3	0	19	3	0 19	0	0	0	19	19	19	0	0	0	0	19	19	19	0	0	0	0	0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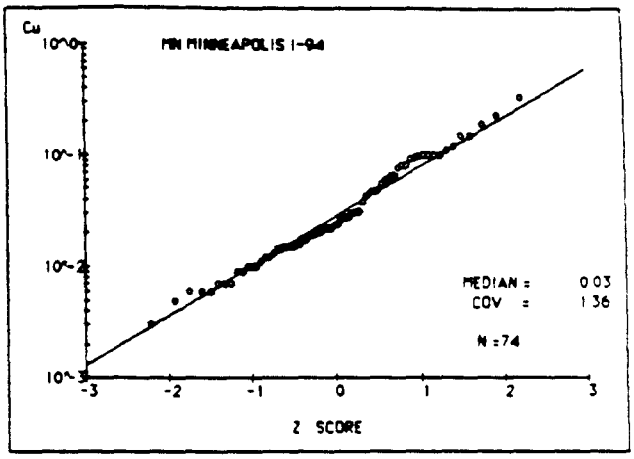
COV = 1.54
N = 76
Z SCORE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COV = 1.36
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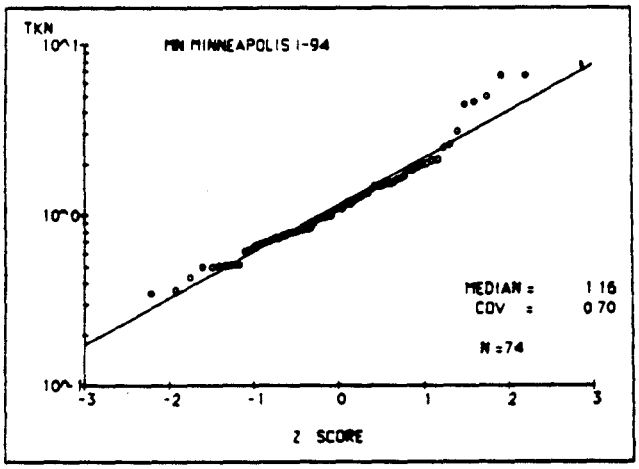
Z SCORE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MN MINNEAPOLIS 1-94
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COV = 0.70
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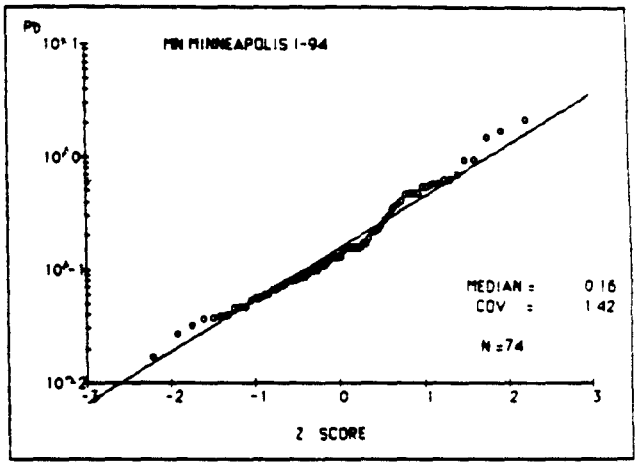
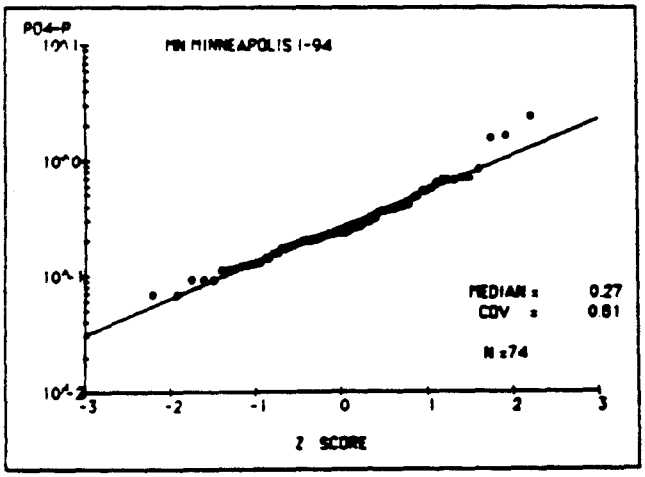
Z SCORE


Pb
MN MINNEAPOLIS 1-94
MEDIAN = 0.16
COV = 1.42
N = 74
Z SCORE


PO4-P
MN MINNEAPOLIS 1-94
MEDIAN = 0.27
COV = 0.81
N = 74
Z SCORE

SITE: MN ST PAUL
I-94

STATE: Minnesota

LOCATION: The site is located in St. Paul, Minnesota, near the intersection of I-94 with U.S. 61

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 6

NO. OF TRAFFIC LANES MONITORED: 6

AVERAGE DAILY TRAFFIC - ADT (VPD): 65,000

ADT PER LANE (VPD): 10,833

DRAINAGE AREA (ACRES): 24.8

PERCENT IMPERVIOUS: 49

LENGTH OF ROAD SURFACE (FEET): 2,400

ROAD SURFACE TYPE: CONCRETE

CURB: YES

SECTION TYPE: CUT, FILL

LAND USE: URBAN, COMMERCIAL/RESIDENTIAL

AVERAGE ANNUAL PRECIPITATION (IN): 24.8

AVERAGE WIND SPEED (FT/SEC): 10.6

NO. OF EVENTS MONITORED: 36

NO. OF SNOW EVENTS MONITORED: 6

MONITORING PERIOD: March 1978 to September 1978

SOURCE:

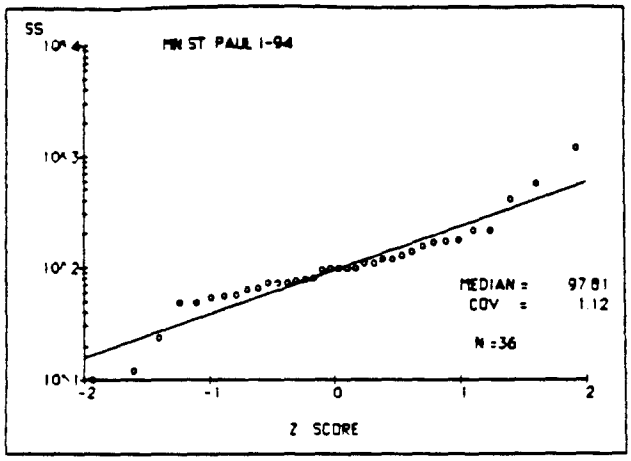
Characteristics of Urban Highway Runoff (Phase I) Interstate 94, St. Paul, Minnesota. John E. Howard, Minnesota Department of Transportation FHWA/MN-81/6 June, 1981

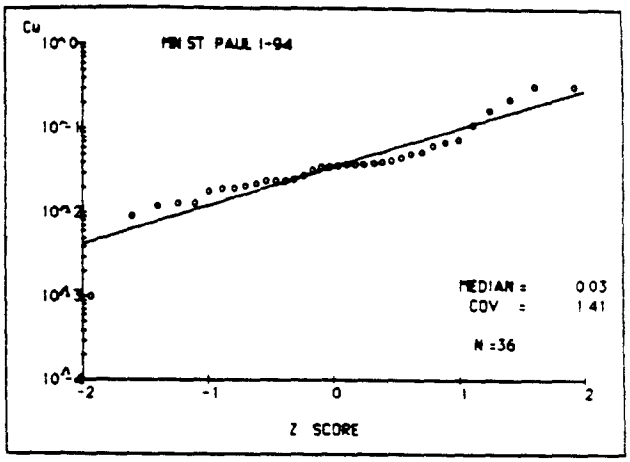
REMARKS:

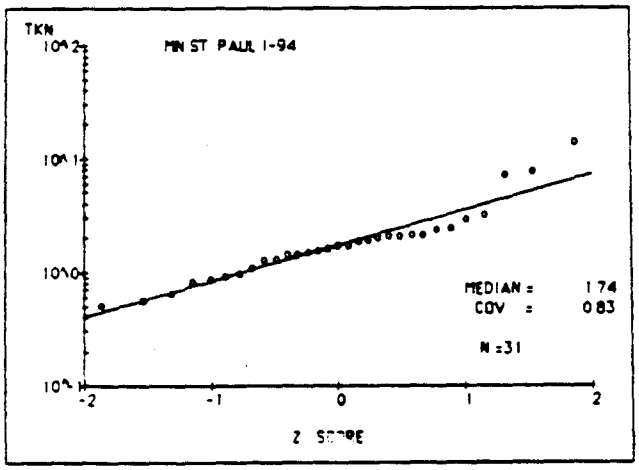
Data were extracted directly from tables in report which listed event mean concentrations (EMCs). The report also contained data on rainfall water quality.

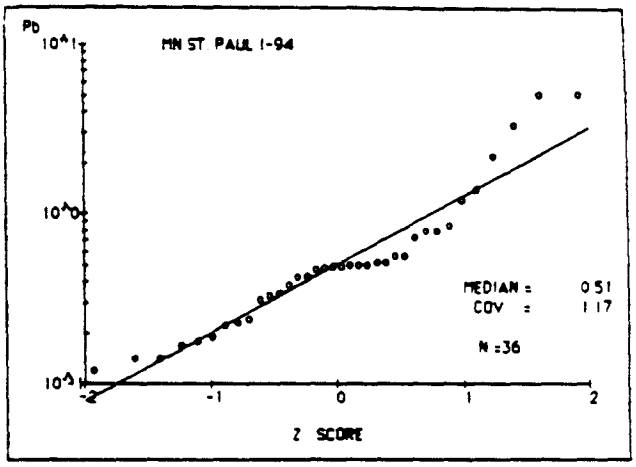
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	32078	0.09		0.02	0.25	220				2.090	0.110	1.400					58	7.20	630					
2	40178			0.00		420				1.590	0.160	2.200					230	7.70	1370					
3	40278			0.03		1,200				2.300	0.320	5.100					83	0.96	200					
4	40278			0.02		180				0.560	0.320	5.100					25	1.71	1080					
5	40278			0.06		55				0.502	0.051	0.570					21	2.44	640					
6	40578	0.78		0.34	0.44	120				0.713	0.073	1.200					12	2.08	70					
7	41878	0.93		0.38	0.41	82				0.408	0.037	0.500					7	1.43	22					
8	42078			0.00		58				0.308	0.036	0.340					21	1.88	410					
9	42278	0.44		0.17	0.39	100				0.429	0.041	0.500					23	1.61	28					
10	50778	0.54		0.21	0.39	12				1.010	0.035	0.520					25	2.40	23					
11	50878	0.10		0.03	0.27	220				0.699	0.062	0.790					34	1.49	29					
12	51278	0.19		0.04	0.23	178				0.174	0.035	0.490					40	2.90	34					
13	52678	0.09		0.01	0.11	580				3.350	0.040	0.570					16	2.15	100					
14	52678	0.21		0.11	0.55	10				4.080	0.220	3.300					180	14.10	21					
15	60778	0.24		0.09	0.37	110				0.667	0.037	0.500					22	1.92	38					
16	61178	0.22		0.13	0.58	170				0.490	0.032	0.470					32		13					
17	61978	0.24		0.06	0.24	81				0.285	0.018	0.180					28	1.40	14					
18	62378	0.27		0.07	0.25	74				0.238	0.050	0.140					20	0.91	10					
19	62378	0.08		0.01	0.11	130				1.630	0.024	0.490					35	1.55	22					
20	62578	0.07				100				0.316	0.068	0.480					30		34					
21	63078	1.50		0.80	0.54	99				0.316	0.019	0.140					10	1.26	3					
22	70578	0.12		0.04	0.30	65				0.283	0.021	0.230					26	2.15	30					
23	70778	0.75		0.49	0.66	75				0.304	0.001	0.220					11		3					
24	70778	0.53		0.33	0.63	79				0.288	0.025	0.240					13		5					
25	71278	0.29				50				0.229	0.019	0.380					28	2.09	15					
26	71878	0.08				140				0.458	0.044	0.730					48		43					
27	72178	0.13		0.49	3.80	110				0.365	0.024	0.420					23	1.09	12					
28	72278	0.66				74				0.201	0.013	0.310					12	0.51	8					
29	80178	0.70		0.36	0.52	24				0.335	0.039	0.800					8	2.02	3					
30	81578	0.39		0.11	0.27	66				0.170	0.013	0.190					15	0.64	5					
31	81578	0.07		0.01	0.10	120				0.324	0.028	0.330					17	1.31	11					
32	81878	0.27		0.12	0.43	100				0.359	0.022	0.520					28	1.71	9					
33	82678	2.75		1.71	0.62	56				0.219	0.009	0.120					5	0.57	2					
34	83178	0.50		0.17	0.34	50				0.291	0.012	0.170					8	0.87	4					
35	91278	0.48		0.20	0.43	160				0.470	0.037	0.860					26	3.20	9					
36	91278	1.55		0.53	0.34	98				0.335	0.024	0.430					10	0.83	3					
	Mean	0.50		0.38	0.47	147				0.687	0.060	0.785					32	2.26	113					
	Median	0.30		0.08	0.37	98				0.489	0.035	0.510					23	1.74	25					
	COV	1.30		4.64	0.60	1.12				0.99	1.41	1.17					0.97	0.83	4.46					
	N	31	0	32	27	0 36	0	0	0	36	36	36	0	0	0	0	36	31	36	0	0	0	0	0

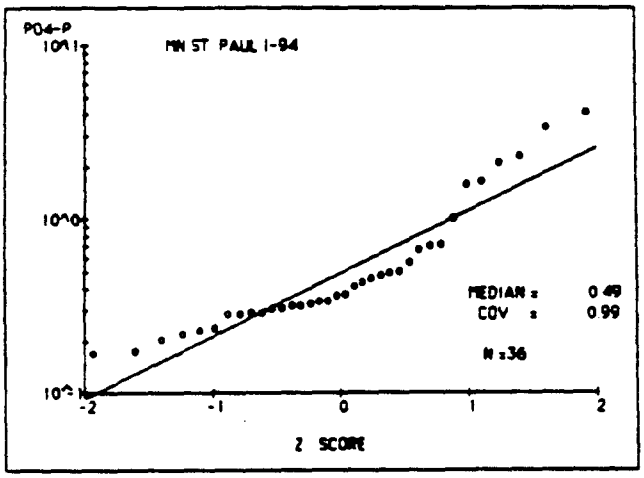
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv		SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4 P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
6	40578	0.78		0.34	0.44		120				0.713	0.073	1.200					12	2.08	70					
7	41878	0.93		0.38	0.41		82				0.408	0.037	0.500					7	1.43	22					
9	42278	0.44		0.17	0.39		100				0.429	0.041	0.500					23	1.61	28					
10	50778	0.54		0.21	0.39		12				1.010	0.035	0.520					25	2.40	23					
11	50878	0.10		0.03	0.27		220				0.699	0.062	0.790					34	1.49	29					
12	51278	0.19		0.04	0.23		178				0.174	0.035	0.490					40	2.90	34					
13	52678	0.09		0.01	0.11		580				3.350	0.040	0.570					16	2.15	100					
14	52678	0.21		0.11	0.55		10				4.080	0.220	3.300					180	14.10	21					
15	60778	0.24		0.09	0.37		110				0.667	0.037	0.500					22	1.92	38					
16	61178	0.22		0.13	0.58		170				0.490	0.032	0.470					32		13					
17	61978	0.24		0.06	0.24		81				0.285	0.018	0.180					28	1.40	14					
18	62378	0.27		0.07	0.25		74				0.238	0.050	0.140					20	0.91	10					
19	62378	0.08		0.01	0.11		130				1.630	0.024	0.490					35	1.55	22					
20	62578	0.07					100				0.316	0.068	0.480					30		34					
21	63078	1.50		0.80	0.54		99				0.316	0.019	0.140					10	1.26	3					
22	70578	0.12		0.04	0.30		65				0.283	0.021	0.230					26	2.15	30					
23	70778	0.75		0.49	0.66		75				0.304		0.220					11		3					
24	70778	0.53		0.33	0.63		79				0.288	0.025	0.240					13		5					
25	71278	0.29					50				0.229	0.019	0.380					28	2.09	15					
26	71878	0.08					140				0.458	0.044	0.730					48		43					
27	72178	0.13					110				0.365	0.024	0.420					23	1.09	12					
28	72278	0.66					74				0.201	0.013	0.310					12	0.51	8					
29	80178	0.70		0.36	0.52		24				0.335	0.039	0.800					8	2.02	3					
30	81578	0.39		0.11	0.27		66				0.170	0.013	0.190					15	0.64	5					
31	81578	0.07		0.01	0.10		120				0.324	0.028	0.330					17	1.31	11					
32	81878	0.27		0.12	0.43		100				0.359	0.022	0.520					28	1.71	9					
33	82678	2.75		1.71	0.62		56				0.219	0.009	0.120					5	0.57	2					
34	83178	0.50		0.17	0.34		50				0.291	0.012	0.170					8	0.87	4					
35	91278	0.46		0.20	0.43		180				0.470	0.037	0.860					26	3.20	9					
36	91278	1.55		0.53	0.34		98				0.335	0.024	0.430					10	0.83	3					
	Mean	0.51		0.34	0.39		115				0.577	0.037	0.524					25	1.95	22					
	Median	0.31		0.13	0.34		85				0.429	0.030	0.407					20	1.56	13					
	COV	1.29		2.49	0.58		0.92				0.90	0.72	0.81					0.81	0.75	1.36					
	N	30	0	25	25	0	30	0	0	0	30	29	30	0	0	0	0	30	25	30	0	0	0	0	0
1	32078	0.09		0.02	0.25		220				2.090	0.110	1.400					58	7.20	630					
2	40178			0.00			420				1.590	0.160	2.200					230	7.70	1370					
3	40278			0.03			1,200				2.300	0.320	5.100					83	0.96	200					
4	40278			0.02			180				0.560	0.320	5.100					25	1.71	1080					
5	40278			0.08			55				0.502	0.051	0.570					21	2.44	640					
6	42078			0.00			58				0.308	0.036	0.340					21	1.88	410					
	Mean			0.05			402				1.341	0.186	2.957					76	3.87	768					
	Median	0.09		0.01	0.25		200				0.934	0.122	1.579					48	2.73	605					
	COV			5.11			1.74				1.03	1.15	1.58					1.23	1.00	0.78					
	N	1	0	6	1	0	6	0	0	0	6	6	6	0	0	0	0	6	6	6	0	0	0	0	0


SS
MN ST PAUL 1-94
MEDIAN = 97.81
COV = 1.12
N = 36
Z SCORE


Cu
MN ST PAUL 1-94
MEDIAN = 0.03
COV = 1.41
N = 36
Z SCORE


TKN
MN ST PAUL 1-94
MEDIAN = 1.74
COV = 0.83
N = 31
Z SCORE


Pb
MN ST PAUL 1-94
MEDIAN = 0.51
COV = 1.17
N = 36
Z SCORE


PO4-P
MN ST PAUL 1-94
MEDIAN = 0.49
COV = 0.99
N = 36
Z SCORE

SITE: NC EFLAND
I-85

STATE: North Carolina

LOCATION: Efland, North Carolina

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 4

NO. OF TRAFFIC LANES MONITORED: 3

AVERAGE DAILY TRAFFIC - ADT (VPD): 26,000

ADT PER LANE (VPD): 6,500

DRAINAGE AREA (ACRES): 2.49

PERCENT IMPERVIOUS: 51

LENGTH OF ROAD SURFACE (FEET): 1,025

ROAD SURFACE TYPE: ASPHALT

CURB: NO

SECTION TYPE: AT GRADE

LAND USE: NON-URBAN, UNDEFINED

AVERAGE ANNUAL PRECIPITATION (IN): 43.6

AVERAGE WIND SPEED (FT/SEC): 7.9

NO. OF EVENTS MONITORED: 38

NO. OF SNOW EVENTS MONITORED: 4

MONITORING PERIOD: August 1981 to June 1982

SOURCE:

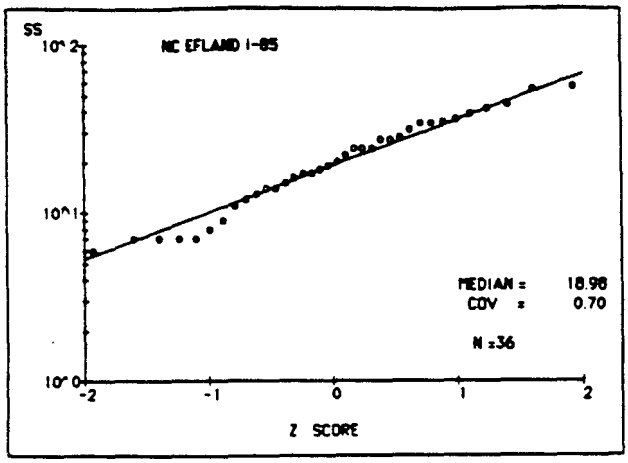
Volume I: Sources and Migration of Highway Runoff Pollutants, Executive Summary, N.P. Kobringer, Federal Highway Administration Report No. FHWA/RD-84/057, May, 1984

REMARKS:

Data were extracted from computer tapes. EMCs were calculated using discretely collected data and flow-weighted averaging.

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
1	81181	1.79		1.22	0.68	13					0.056	0.005	0.051	6.4		4			8	1.35	0.002	0.038	120	
2	81981	1.23		0.77	0.63	9					0.045	0.005	0.040	6.3						1.12	0.001	0.002	74	
3	90781	3.70		3.53	0.95	18			0.08	0.160	0.042	0.020	0.038	6.0		5		1.18	5	1.96	0.001	0.001	95	
4	90881	0.58		0.46	0.79	7					0.036	0.030	0.048	4.9						1.15	0.001	0.001	78	
5	102581	0.78		0.29	0.37	11					0.045	0.005	0.062	6.5					20	1.40	0.001	0.002	140	
6	102681	0.35		0.28	0.80	8								6.3									70	
7	102681	0.32		0.16	0.50	14					0.035	0.020	0.049	6.5						2.00	0.001	0.004	95	
8	102781	0.15		0.09	0.60	19								6.2									95	
9	102781	0.58		0.51	0.88	7					0.028	0.005	0.038	6.6						2.10	0.003	0.002	75	
10	121581	1.77		1.20	0.68	16					0.023	0.005	0.036	6.3		6			20	1.60	0.001	0.001	109	
11	122481	1.05		0.96	0.91	14								6.6					102				282	
12	11682			0.12		24		26	0.24	0.140	0.023	0.050	0.153	6.5		5	16	8.00	2,250	0.54	0.007	0.003	3,860	
13	11982	0.31		0.23	0.74	6						0.030	0.147	6.5					870	0.30			1,580	
14	12082			0.13		7						0.005	0.092	6.5					594	0.50			852	
15	12382	0.51		0.39	0.76	15								6.6					638				1,140	
16	20382	1.09		1.04	0.95	35					0.025	0.020	0.051	6.3		7			78	5.90	0.001	0.005	252	
17	20982	0.46		0.10	0.22	27								6.1					86				365	
18	21282	0.49		0.18	0.37	17								6.3					65				345	
19	22782	1.40		0.91	0.65	12					0.023	0.005	0.079	6.8						1.30	0.001	0.003	505	
20	30682	0.33		0.05	0.15									6.7									368	
21	30782	0.65		0.58	0.89	20		50		0.100	0.029	0.020	0.044	6.8		6	26	2.00		5.60	0.001	0.003	224	
22	32082	0.90		0.64	0.71	34		89	0.45	0.120	0.031	0.020	0.039	6.9		7	22	2.00	16	4.80	0.001	0.001	200	
23	40882	0.64		0.11	0.17	17					0.038	0.020	0.051	6.1						4.30	0.004	0.001	235	
24	42082	0.39		0.01	0.03									6.0									348	
25	42682	0.31		0.09	0.29	28								6.4									355	
26	42782	0.18		0.02	0.11	42								6.5									442	
27	42782	0.36		0.11	0.31	39								6.7									457	
28	52482	0.45		0.03	0.07	34					0.068	0.010	0.073	6.3						5.10	0.003	0.006	315	3.0
29	52485	1.60		1.52	0.95	57					0.081	0.020	0.078	6.5						3.90	0.003	0.004	155	10.0
30	52782	0.44		0.25	0.57	31								6.2									230	1.0
31	52982	0.45		0.16	0.36	55								6.2									710	11.0
32	53182	0.25		0.06	0.24	36								6.3									250	
33	60382	2.08		1.42	0.68	24								6.3									120	
34	60482	0.67		0.51	0.76	24								6.3									155	
35	61082	2.03		2.01	0.99	22								6.7									80	
36	61082	0.60		0.62	1.03	27								6.7									135	
37	61782	1.10		0.76	0.69	44								6.7									190	
38	62982	1.12		0.79	0.71	7								6.7									117	3.0
	Mean	0.86		0.72	0.67	23		59	0.30	0.131	0.039	0.017	0.065	6.4		6	22	3.47	532	2.67	0.002	0.004	357	6.5
	Median	0.66		0.29	0.47	19		49	0.21	0.128	0.036	0.012	0.058	6.4		6	21	2.48	83	1.82	0.002	0.002	234	4.0
	COV	0.85		2.25	1.01	0.70		0.68	1.07	0.20	0.40	0.95	0.47	0.05		0.21	0.25	0.98	6.36	1.08	0.73	1.69	1.15	1.30
	N	36		38	36	36	0	3	3	4	16	18	18	38	0	7	3	4	13	18	16	16	38	5

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	81181	1.79		1.22	0.68	13					0.056	0.005	0.051	6.4		4			8	1.35	0.002		120	
2	81981	1.23		0.77	0.63	9					0.045	0.005	0.040	6.3						1.12	0.001	0.002	74	
3	90781	3.70		3.53	0.95	18			0.08	0.160	0.042	0.020	0.038	6.0		5		1.18	5	1.96	0.001	0.001	95	
4	90881	0.58		0.46	0.79	7					0.036	0.030	0.048	4.9						1.15	0.001	0.001	78	
5	102581	0.78		0.29	0.37	11					0.045	0.005	0.062	6.5					20	1.40	0.001	0.002	140	
6	102681	0.35		0.28	0.80	8								6.3									70	
7	102681	0.32		0.16	0.50	14					0.035	0.020	0.049	6.5						2.00	0.001	0.004	95	
8	102781	0.15		0.09	0.60	19								6.2									95	
9	102781	0.58		0.51	0.88	7					0.028	0.005	0.038	6.6						2.10	0.003	0.002	75	
10	121581	1.77		1.20	0.68	16					0.023	0.005	0.036	6.3		6			20	1.60	0.001	0.001	109	
11	122481	1.05		0.96	0.91	14								6.6					102				282	
16	20382	1.09		1.04	0.95	35					0.025	0.020	0.051	6.3		7			78	5.90	0.001	0.005	252	
17	20982	0.46		0.10	0.22	27								6.1					86				365	
18	21282	0.49		0.18	0.37	17								6.3					65				345	
19	22782	1.40		0.91	0.65	12					0.023	0.005	0.079	6.8						1.30	0.001	0.003	505	
20	30682	0.33		0.05	0.15									6.7									368	
21	30782	0.65		0.58	0.89	20		50		0.100	0.029	0.020	0.044	6.8		6	26	2.00		5.60	0.001	0.003	224	
22	32082	0.90		0.64	0.71	34		89	0.45	0.120	0.031	0.020	0.039	6.9		7	22	2.00	16	4.80	0.001	0.001	200	
23	40882	0.64		0.11	0.17	17					0.038	0.020	0.051	6.1						4.30	0.004	0.001	235	
24	42082	0.39		0.01	0.03									6.0									348	
25	42682	0.31		0.09	0.29	28								6.4									355	
26	42782	0.18		0.02	0.11	42								6.5									442	
27	42782	0.36		0.11	0.31	39								6.7									457	
28	52482	0.45		0.03	0.07	34					0.068	0.010	0.073	6.3						5.10	0.003	0.006	315	3.0
29	52485	1.60		1.52	0.95	57					0.081	0.020	0.078	6.5						3.90	0.003	0.004	155	10.0
30	52782	0.44		0.25	0.57	31								6.2									230	1.0
31	52982	0.45		0.16	0.36	55								6.2									710	11.0
32	53182	0.25		0.06	0.24	36								6.3									250	
33	60382	2.08		1.42	0.68	24								6.3									120	
34	60482	0.67		0.51	0.76	24								6.3									155	
35	61082	2.03		2.01	0.99	22								6.7									80	
36	61082	0.60		0.62	1.03	27								6.7									135	
37	81782	1.10		0.76	0.69	44								8.7									190	
38	62982	1.12		0.79	0.71	7								6.7									117	3.0
	Mean	0.90		0.82	0.66	24		72	0.40	0.128	0.040	0.015	0.052	6.4		6	24	1.76	52	2.95	0.002	0.003	231	6.5
	Median	0.68		0.31	0.46	20		67	0.19	0.124	0.038	0.011	0.050	6.4		6	24	1.68	28	2.42	0.001	0.002	187	4.0
	COV	0.87		2.48	1.04	0.67		0.43	1.86	0.24	0.39	0.82	0.27	0.06		0.22	0.12	0.31	1.55	0.70	0.58	1.17	0.72	1.30
	N	34	0	34	34	32	0	2	2	3	15	15	15	34	0	6	2	3	9	15	15	14	34	5
12	11682			0.12		24		26	0.24	0.140	0.023	0.050	0.153	6.5		5	16	8.00	2,250	0.54	0.007	0.003	3,860	
13	11982	0.31		0.23	0.74	6						0.030	0.147	6.5					870	0.30			1,580	
14	12082			0.13		7						0.005	0.092	6.5					594	0.50			852	
15	12382	0.51		0.39	0.76	15								6.6					638				1,140	
	Mean	0.42		0.22	0.75	14						0.041	0.133	6.5					1,120	0.46			1,933	
	Median	0.40		0.19	0.75	11		26	0.24	0.140	0.023	0.020	0.127	6.5		5	16	8.00	928	0.43	0.007	0.003	1,560	
	COV	0.36		0.59	0.02	0.73						1.62	0.29	0.01					0.68	0.33			0.73	
	N	2	0	4	2	0 4	0	1	1	1	1	3	3	4	0	1	1	1	4	3	1	1	4	0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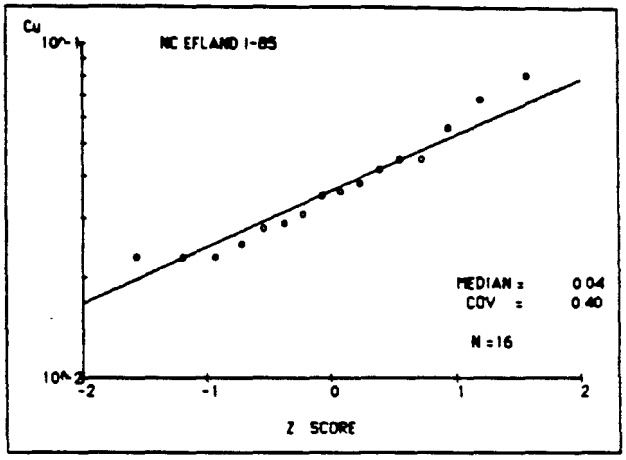
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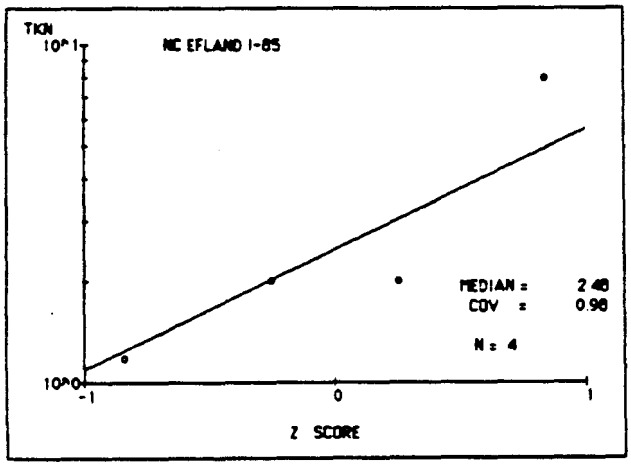
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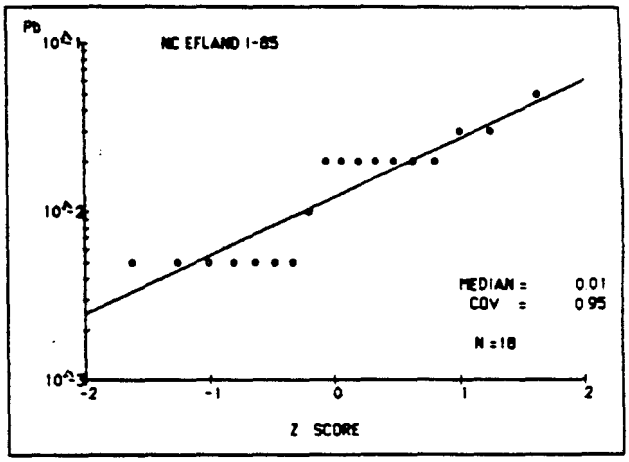
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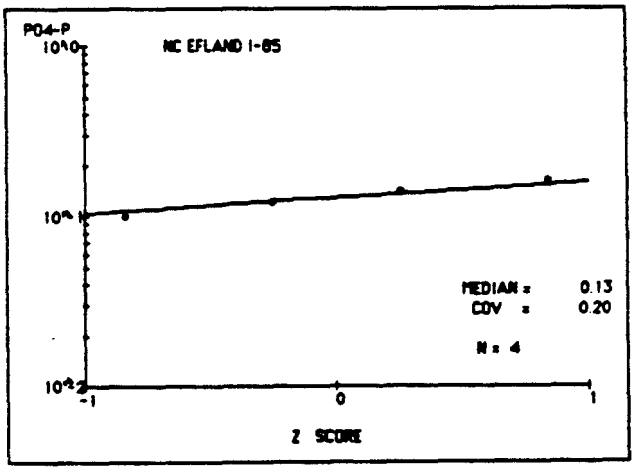
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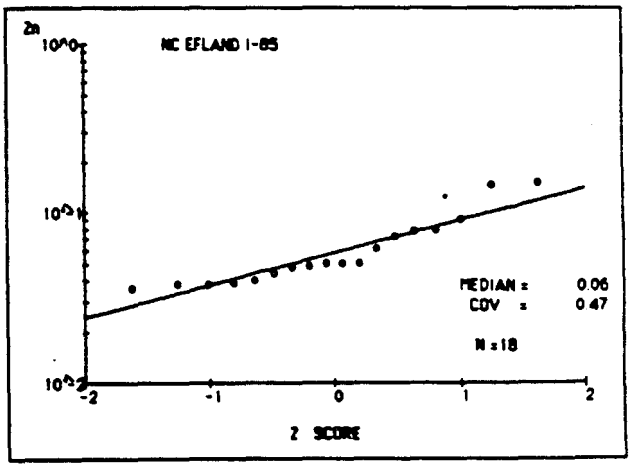
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SITE: PA HARRISBURG (Ph. 1)
I-81

STATE: Pennsylvania

LOCATION: Harrisburg, Pennsylvania

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 6

NO. OF TRAFFIC LANES MONITORED: 6

AVERAGE DAILY TRAFFIC - ADT (VPD): 24,000

ADT PER LANE (VPD): 4,000

DRAINAGE AREA (ACRES): 18.5

PERCENT IMPERVIOUS: 27

LENGTH OF ROAD SURFACE (FEET): 2,000

ROAD SURFACE TYPE: CONCRETE

CURB: NO

SECTION TYPE: AT GRADE

LAND USE: URBAN, AGRICULTURAL

AVERAGE ANNUAL PRECIPITATION (IN): 37.7

AVERAGE WIND SPEED (FT/SEC): 7.7

NO. OF EVENTS MONITORED: 25

NO. OF SNOW EVENTS MONITORED: 3

MONITORING PERIOD: February 1976 to June 1977

SOURCE:

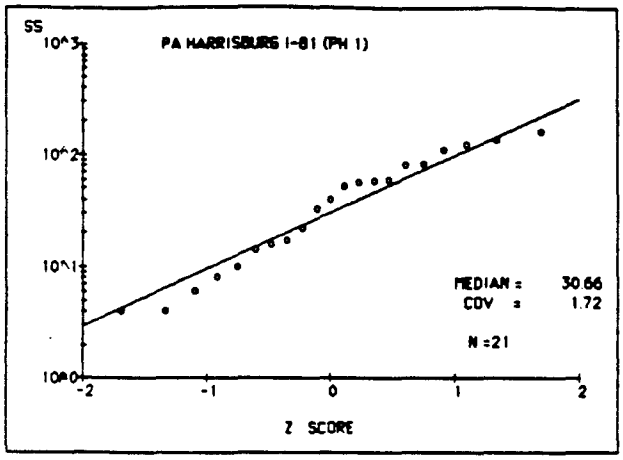
Constituents of Highway Runoff, Volume VI: Executive Summary, M.K. Gupta, Federal Highway Administration Report No. FHWA/RD-81/047, February, 1981

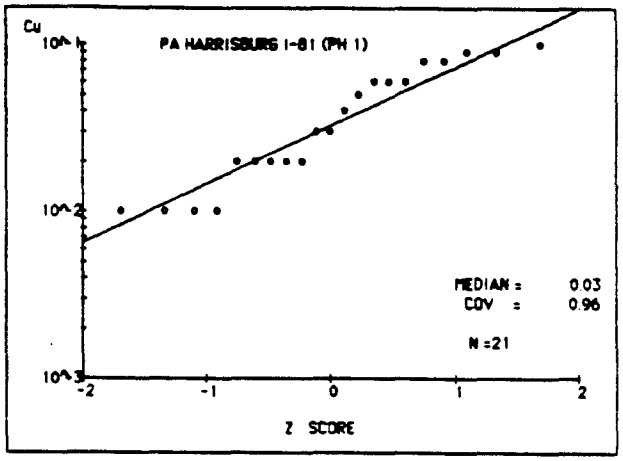
REMARKS:

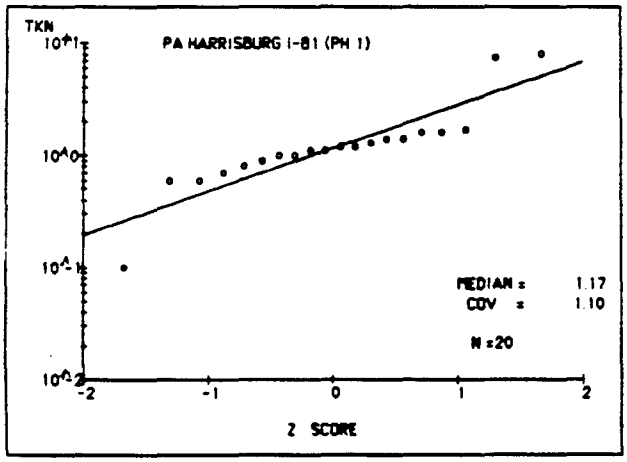
Data were extracted from computer tapes. EMCs were calculated using discretely collected data and flow-weighted averaging.

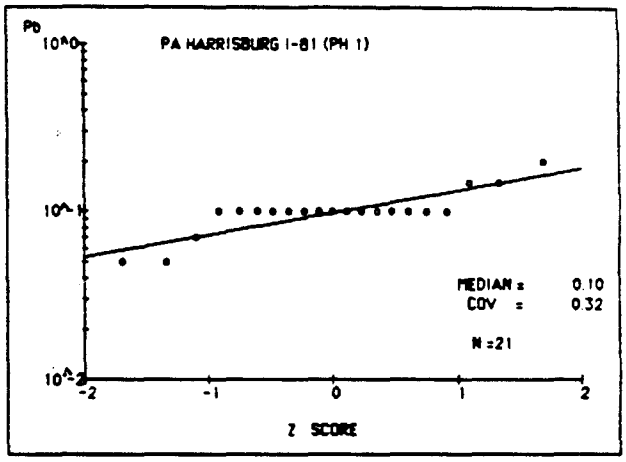
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	21676	0.19	1.33	0.09	0.47	109	4		1.34	0.860	0.090	0.150	0.150	7.1	25.00	21	24	1.30	800	4.20	0.020	0.020	1,948	
2	21776	0.30	3.00	0.22	0.73	123	4		0.97	0.460	0.090	0.150	0.130	7.3	0.350	23	21	1.10	575	4.30	0.020	0.020	1,490	
3	30476	0.30	2.50	0.04	0.14	79	6	42	1	0.240	0.030	0.200	0.230	7.5	49.00	17	22	1.60	365	3.10	0.010	0.020	1,044	
4																								
5	51676	0.65	16.50	0.12	0.19	40	2		0.61	0.540	0.060	0.070	0.100	7.5	25.00	8	17	1.10	74	1.21	0.010	0.080	371	
6	70376	1.21	2.58	0.74	0.61																			
7	70776	0.49	0.50	0.15	0.31	136	4	32		0.420	0.010	0.100	0.080	7.6	30.00	14	16	1.60	25	6.40	0.030	0.110	358	
8	70776	1.53	2.50	1.46	0.96	83				0.510	0.020	0.100	0.060	7.2	1.400	16	14		26	3.40	0.010	0.060	219	
9	71576	0.57	0.50	0.30	0.52																			
10	91076	1.00	6.00	0.15	0.15	17		32		0.300	0.060	0.100	0.120	7.2	0.350	6		1.40	28	0.80	0.020	0.010	316	
11	102076	1.38	18.50	0.84	0.61	6		22		0.560	0.020	0.100	0.020	6.8		5	12	1.70	20	0.60	0.010	0.010	180	
12	112876	0.20	4.83	0.05	0.23	4	2	26		0.170	0.020	0.100	0.030	7.7		1	12	0.80	134	0.29	0.020	0.020	567	
13	120676	1.29	11.92	1.02	0.79	33		89		0.390	0.020	0.100	0.020	7.0		15	10	0.60	20	0.87	0.020	0.020	301	
14	21077																							
15	22477	0.96	7.92	0.85	0.89	163		47		0.510	0.080	0.050	0.150	7.6	0.500	21	6	1.20	250	6.60	0.030	0.020	990	
16	31277	1.42	12.75	0.98	0.69	52	6	28		0.650	0.030	0.100	0.130	7.7	5.000	7	8	1.40	92	2.50	0.020	0.010	392	
17	31877	0.45	15.33	0.15	0.34	10		26		0.300	0.060	0.100	0.070	8.1	0.250	6	15	0.10	265	0.60	0.010	0.010	928	
18	40277	1.40	12.00	0.85	0.60	18		21		0.250	0.010	0.050	0.050	7.7	0.500	6	10	0.60	44	1.00	0.010	0.010	236	
19	42477	0.78	8.58	0.22	0.28	60		31		0.240	0.050	0.100	0.070	7.5	0.250	14	14	0.70	72	2.10	0.010	0.010	362	
20	60677	0.46	12.67	0.02	0.04	8		28		0.070	0.010	0.100	0.010	7.7	0.250	3	8	1.00	85	0.38	0.060	0.010	402	
21	60977	0.31	6.00	0.02	0.06	4		21		0.050	0.010	0.100	0.030	7.6	0.450	1	8	1.00	110	0.10	0.040	0.010	540	
22	61477	0.83	5.08	0.13	0.16	14		23		0.130	0.080	0.100	0.050	7.9	0.400	6	8	0.90	66	0.24	0.070	0.010	488	
23	61777	0.33	4.58	0.06	0.16	22		22		0.160	0.100	0.100	0.060	7.7	0.400	16	8	1.20	105	0.42	0.070	0.010	420	
24	82577	0.64	1.75	0.08	0.12	56		29		0.320	0.040	0.100	0.050	7.7	0.300	47	11	7.50	31	1.84	0.030	0.010	276	
25	62577	0.36	0.58	0.13	0.36	57		59		0.270	0.020	0.100	0.040	7.6	0.400	48	14	8.10	40	1.74	0.020	0.010	306	
	Mean	0.76	8.14	0.40	0.44	61	4	34	0.99	0.373	0.045	0.104	0.083	7.5	7.671	16	13	1.73	151	2.33	0.026	0.022	568	
	Median	0.61	4.35	0.16	0.31	31	4	31	0.94	0.288	0.033	0.099	0.061	7.5	1.200	9	12	1.17	83	1.20	0.021	0.018	464	
	COV	0.74	1.56	2.03	1.72	1.72	0.46	0.41	0.33	0.82	0.96	0.32	0.93	0.04	6.31	1.39	0.43	1.10	1.52	1.66	0.74	0.86	0.71	
	N	23	23	23	23	21	7	17	4	21	21	21	21	21	18	21	20	20	21	21	21	21	21	0

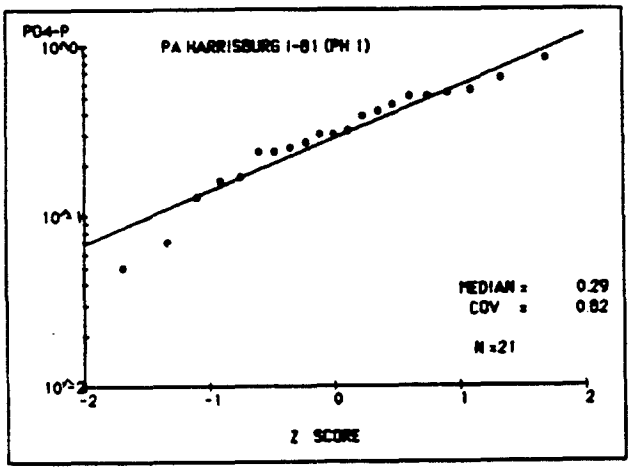
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv		SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
5	51676	0.65	16.50	0.12	0.19		40	2		0.61	0.540	0.060	0.070	0.100	7.5	25.00	8	17	1.10	74	1.21	0.010	0.080	371	
6	70376	1.21	2.58	0.74	0.61																				
7	70776	0.49	0.50	0.15	0.31		136	4	32		0.420	0.010	0.100	0.080	7.6	30.00	14	16	1.60	25	6.40	0.030	0.110	358	
8	70776	1.53	2.50	1.46	0.96		83				0.510	0.020	0.100	0.060	7.2	1.400	16	14		26	3.40	0.010	0.060	219	
9	71576	0.57	0.50	0.30	0.52																				
10	91076	1.00	6.00	0.15	0.15		17		32		0.300	0.060	0.100	0.120	7.2	0.350	6		1.40	28	0.80	0.020	0.010	316	
11	102076	1.38	16.50	0.84	0.61		6		22		0.560	0.020	0.100	0.020	6.8		5	12	1.70	20	0.60	0.010	0.010	180	
12	112876	0.20	4.83	0.05	0.23		4	2	26		0.170	0.020	0.100	0.030	7.7		1	12	0.80	134	0.29	0.020	0.020	567	
13	120676	1.29	11.92	1.02	0.79		33		89		0.390	0.020	0.100	0.020	7.0		15	10	0.60	20	0.87	0.020	0.020	301	
15	22477	0.96	7.92	0.85	0.89		163		47		0.510	0.080	0.050	0.150	7.6	0.500	21	6	1.20	250	6.60	0.030	0.020	990	
16	31277	1.42	12.75	0.98	0.69		52	6	28		0.650	0.030	0.100	0.130	7.7	5.000	7	8	1.40	92	2.50	0.020	0.010	392	
17	31677	0.45	15.33	0.15	0.34		10		26		0.300	0.060	0.100	0.070	8.1	0.250	6	15	0.10	265	0.60	0.010	0.010	928	
18	40277	1.40	12.00	0.85	0.60		16		21		0.250	0.010	0.050	0.050	7.7	0.500	6	10	0.60	44	1.00	0.010	0.010	236	
19	42477	0.76	6.58	0.22	0.28		60		31		0.240	0.050	0.100	0.070	7.5	0.250	14	14	0.70	72	2.10	0.010	0.010	362	
20	60677	0.46	12.67	0.02	0.04		8		28		0.070	0.010	0.100	0.010	7.7	0.250	3	8	1.00	85	0.38	0.060	0.010	402	
21	60977	0.31	6.00	0.02	0.06		4		21		0.050	0.010	0.100	0.030	7.6	0.450	1	8	1.00	110	0.10	0.040	0.010	540	
22	61477	0.83	5.08	0.13	0.16		14		23		0.130	0.080	0.100	0.050	7.9	0.400	6	8	0.90	66	0.24	0.070	0.010	488	
23	61777	0.33	4.58	0.08	0.18		22		22		0.160	0.100	0.100	0.060	7.7	0.400	16	6	1.20	105	0.42	0.070	0.010	420	
24	62577	0.64	1.75	0.08	0.12		56		29		0.320	0.040	0.100	0.050	7.7	0.300	47	11	7.50	31	1.64	0.030	0.010	276	
25	62577	0.36	0.58	0.13	0.36		57		59		0.270	0.020	0.100	0.040	7.6	0.400	48	14	8.10	40	1.74	0.020	0.010	306	
	Mean	0.83	9.45	0.47	0.44		46	4	33		0.345	0.040	0.093	0.066	7.5	3.065	15	11	1.82	84	1.87	0.027	0.022	424	
	Median	0.70	4.83	0.20	0.30		25	3	31	0.61	0.267	0.029	0.091	0.051	7.5	0.831	8	11	1.14	60	0.99	0.022	0.016	384	
	COV	0.66	1.68	2.18	1.65		1.65	0.59	0.42		0.82	0.94	0.24	0.82	0.04	3.55	1.46	0.34	1.24	0.96	1.61	0.78	0.95	0.47	
	N	20	20	20	20		18	4	16	1	18	18	18	18	18	15	18	17	17	18	18	18	18	18	0
1	21676	0.19	1.33	0.09	0.47		109	4		1.34	0.860	0.090	0.150	0.150	7.1	25.000	21	24	1.30	600	4.20	0.020	0.020	1,948	
2	21776	0.30	3.00	0.22	0.73		123	4		0.97	0.460	0.090	0.150	0.130	7.3	0.350	23	21	1.10	575	4.30	0.020	0.020	1,490	
3	30476	0.30	2.50	0.04	0.14		79	6	42	1.00	0.240	0.030	0.200	0.230	7.5	49.00	17	22	1.60	365	3.10	0.010	0.020	1,044	
	Mean	0.27	2.36	0.13	0.52		105	5		1.11	0.559	0.076	0.167	0.172	7.3	273.553	20	22	1.34	596	3.89	0.017	0.020	1,520	
	Median	0.26	2.15	0.09	0.36		102	5	42	1.09	0.456	0.062	0.165	0.165	7.3	7.541	20	22	1.32	552	3.83	0.018	0.020	1,447	
	COV	0.27	0.45	1.01	0.23		0.23	0.24		0.18	0.71	0.70	0.17	0.30	0.03	36.26	0.16	0.07	0.19	0.41	0.18	0.42	0.00	0.32	
	N	3	3	3	3	0	3	3	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0

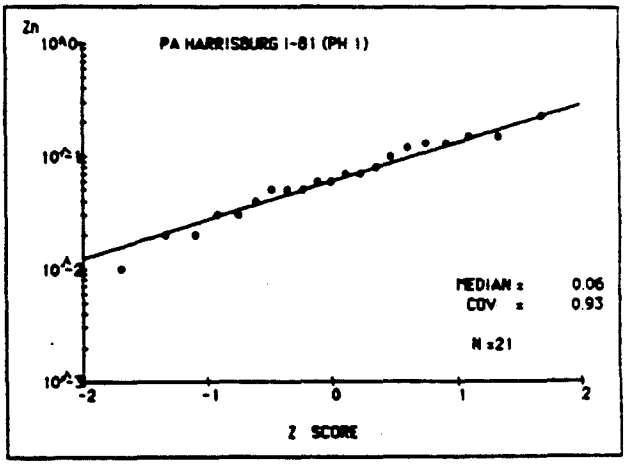

SS
PA HARRISBURG I-81 (PH 1)
MEDIAN = 30.66
COV = 1.72
N =21
Z SCORE


Cu
PA HARRISBURG I-81 (PH 1)
MEDIAN = 0.03
COV = 0.96
N =21
Z SCORE


TKN
PA HARRISBURG I-81 (PH 1)
MEDIAN = 1.17
COV = 1.10
N =20
Z SCORE


Pb
PA HARRISBURG I-81 (PH 1)
MEDIAN = 0.10
COV = 0.32
N =21
Z SCORE


PO4-P
PA HARRISBURG I-81 (PH 1)
MEDIAN = 0.29
COV = 0.82
N =21
Z SCORE


Zn
PA HARRISBURG I-81 (PH 1)
MEDIAN = 0.06
COV = 0.93
N =21
Z SCORE

SITE: PA HARRISBURG (Ph. 2)
I-81

STATE: Pennsylvania

LOCATION: Harrisburg, Pennsylvania

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 4

NO. OF TRAFFIC LANES MONITORED: 2

AVERAGE DAILY TRAFFIC - ADT (VPD): 56,000

ADT PER LANE (VPD): 14,000

DRAINAGE AREA (ACRES): 2.81

PERCENT IMPERVIOUS: 45

LENGTH OF ROAD SURFACE (FEET): 1,345

ROAD SURFACE TYPE: CONCRETE

CURB: NO

SECTION TYPE: AT GRADE

LAND USE: URBAN, SUBURBAN

AVERAGE ANNUAL PRECIPITATION (IN): 37.7

AVERAGE WIND SPEED (FT/SEC): 7.7

NO. OF EVENTS MONITORED: 21

NO. OF SNOW EVENTS MONITORED: 0

MONITORING PERIOD: June 1980 to April 1981

SOURCE:

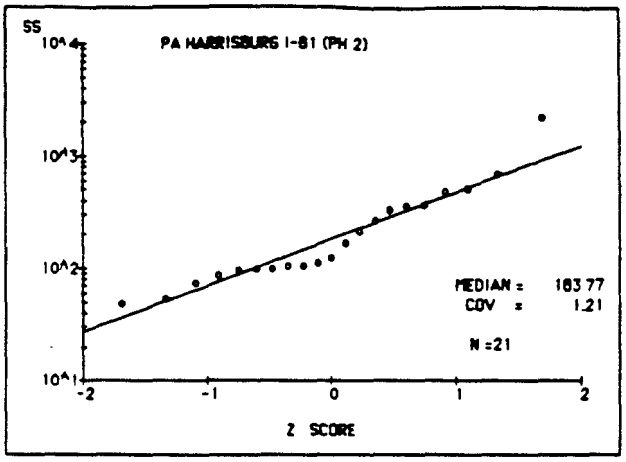
Volume I: Sources and Migration of Highway Runoff Pollutants, Executive Summary, N.P. Kobringer, Federal Highway Administration Report No. FHWA/RD-84/057, May, 1984

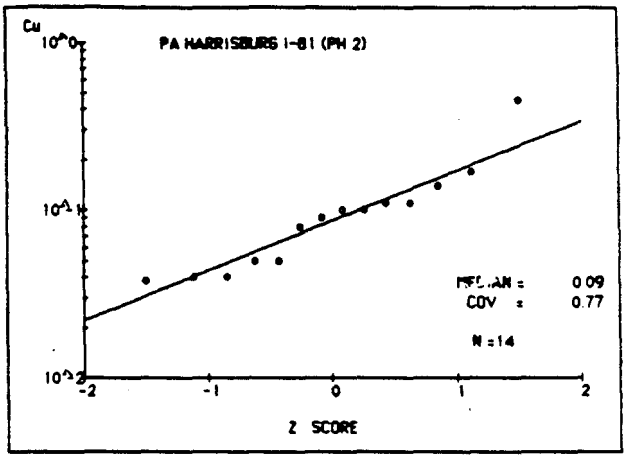
REMARKS:

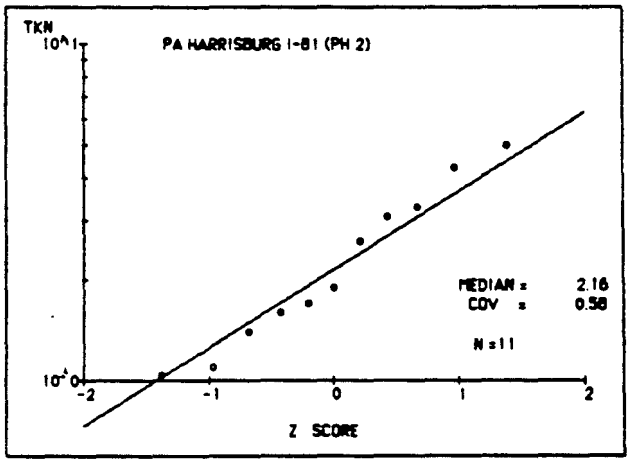
Data were extracted from computer tapes. EMCs were calculated using discretely collected data and flow-weighted averaging.

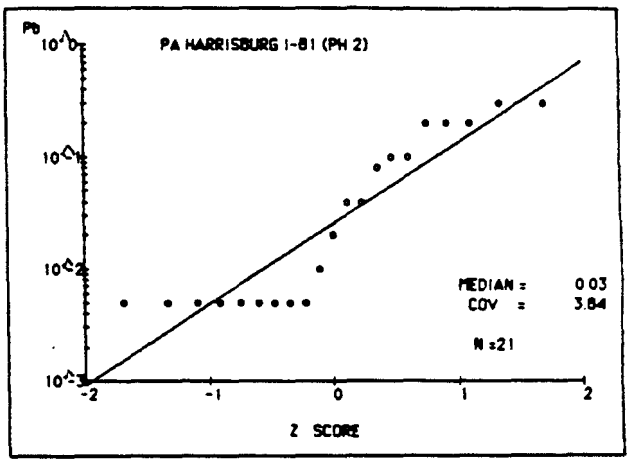
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	Cl. (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
1	62680	0.60		0.01	0.02	682			3.60	3.600	0.110	0.100	0.210	6.2		62		5.00	41	30.00	0.005	0.050	1,120	
2	62980	0.30		0.01	0.02	324			4.00	1.640	0.090	0.005	0.120	6.4	1.300	40		4.30	38	9.60	0.005	0.050	588	
3	72180	2.02		0.09	0.05	358		54	9.00	1.820	0.080	0.300	0.220	5.5	0.600	37	23	3.30	25	15.00	0.005	0.060	540	
4	72280	0.40		0.02	0.04	96			3.10	1.530	0.040	0.005	0.120	6.5		12		3.10	27	5.00	0.020	0.060	323	
5	72380	0.19		0.00	0.01	88			1.79	1.210	0.140	0.300	0.180	6.5		9		2.60	21	4.50	0.030	0.080	285	
6	81180	0.42		0.03	0.07	482					0.110	0.005	0.090	6.4		32				14.00	0.005	0.005	732	
7	101880	0.32		0.00	0.00	264					0.170	0.005	0.330	6.1		32			20	10.40	0.010	0.030	438	
8	102580	1.18		0.06	0.05	105		33	1.27	0.930	0.050	0.005	0.160	6.5	0.800	7	17	1.70	8	4.60	0.005	0.005	238	
9	102580	0.39		0.05	0.13	123			2.18	0.900	0.050	0.200	0.200	6.5		8		1.40	19	6.50	0.005	0.005	320	
10	102580	0.21		0.02	0.09	54			1.54	0.800	0.100	0.005	0.180	6.5		6		1.60	13	2.80	0.005	0.005	239	
11	112460	1.97		0.60	0.30	112		21	6.00	0.570	0.040	0.100	0.170	6.7	0.010	12	13	1.04	35	5.20	0.005	0.005	365	
12	20281	1.37		0.33	0.24	166						0.200	0.220	7.5						8.10			1,030	
13	21081	1.58		1.02	0.65	503						0.040	0.140							15.40			1,040	
14	22081	1.02		0.11	0.11	366			7.30	0.770	0.460	0.040	0.190	7.4		34		1.90	197	12.00	0.006	0.008	979	
15	22081	0.35		0.01	0.03	104						0.005	0.200	7.5					123	4.40			436	
16	41181	0.23		0.00	0.01	214						0.080	0.330	7.2					39	23.00			441	
17	41281	0.18		0.00	0.01	48						0.010	0.120	7.4					68	3.30			395	
18	41481	0.80		0.08	0.10	101		35	3.98	0.380	0.038	0.020	0.065	7.8		11	13	1.10	27	5.10	0.005	0.006	257	
19	42381	0.31		0.00	0.01	100						0.005	0.090	7.4						4.70			271	
20	42481	0.10		0.00	0.01	75						0.005	0.110	7.5						3.50			252	
21	42881	0.47		0.03	0.06	2160					0.100	0.200	0.450	6.9					22	11.50	0.005	0.190	2,590	
	Mean	0.70		0.16	0.10	288		36	4.07	1.300	0.110	0.101	0.186	6.8	3.507	24	17	2.49	44	9.45	0.008	0.045	597	
	Median	0.49		0.02	0.04	184		34	3.32	1.075	0.087	0.026	0.167	6.8	0.281	18	16	2.16	32	7.58	0.007	0.019	485	
	COV	1.03		7.76	2.22	1.21		0.40	0.71	0.68	0.77	3.64	0.50	0.09	12.44	0.94	0.28	0.58	0.94	0.75	0.64	2.21	0.72	
	N	21		21	21	21	0	4	11	11	14	21	21	20	4	13	4	11	16	21	14	14	21	0

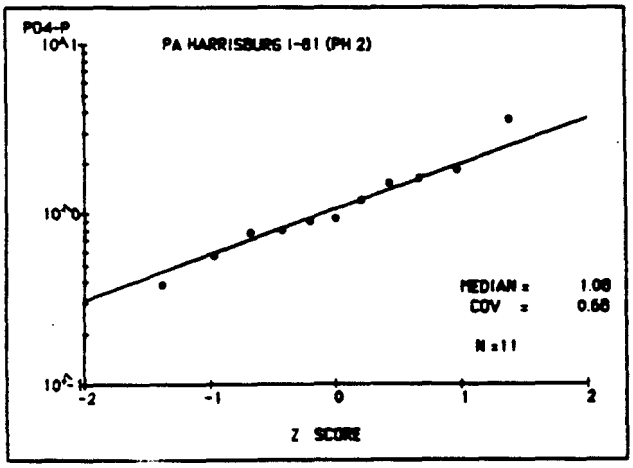
EVENT	DATE (MDY)	RAIN (in.)	DUR (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	62680	0.60		0.01	0.02	682			3.60	3.600	0.110	0.100	0.210	6.2		62		5.00	41	30.00	0.005	0.050	1,120	
2	62980	0.30		0.01	0.02	324			4.00	1.640	0.090	0.005	0.120	6.4	1.300	40		4.30	38	9.60	0.005	0.050	588	
3	72180	2.02		0.09	0.05	358		54	9.00	1.820	0.080	0.300	0.220	5.5	0.600	37	23	3.30	25	15.00	0.005	0.060	540	
4	72280	0.40		0.02	0.04	96			3.10	1.530	0.040	0.005	0.120	6.5		12		3.10	27	5.00	0.020	0.060	323	
5	72380	0.19		0.00	0.01	88			1.79	1.210	0.140	0.300	0.180	6.5		9		2.60	21	4.50	0.030	0.080	285	
6	81180	0.42		0.03	0.07	482					0.110	0.005	0.090	6.4		32				14.00	0.005	0.005	732	
7	101880	0.32		0.00	0.00	264					0.170	0.005	0.330	6.1		32			20	10.40	0.010	0.030	438	
8	102580	1.18		0.06	0.05	105		33	1.27	0.930	0.050	0.005	0.160	6.5	0.800	7	17	1.70	8	4.60	0.005	0.005	238	
9	102580	0.39		0.05	0.13	123			2.18	0.900	0.050	0.200	0.200	6.5		8		1.40	19	6.50	0.005	0.005	320	
10	102580	0.21		0.02	0.09	54			1.54	0.800	0.100	0.005	0.180	6.5		6		1.60	13	2.80	0.005	0.005	239	
11	112480	1.97		0.60	0.30	112		21	6.00	0.570	0.040	0.100	0.170	6.7	0.010	12	13	1.04	35	5.20	0.005	0.005	365	
12	20281	1.37		0.33	0.24	166						0.200	0.220	7.5						8.10			1,030	
13	21081	1.58		1.02	0.65	503						0.040	0.140							15.40			1,040	
14	22081	1.02		0.11	0.11	366			7.30	0.770	0.460	0.040	0.190	7.4		34		1.90	197	12.00	0.006	0.008	979	
15	22081	0.35		0.01	0.03	104						0.005	0.200	7.5					123	4.40			436	
16	41181	0.23		0.00	0.01	214						0.080	0.330	7.2					39	23.00			441	
17	41281	0.18		0.00	0.01	48						0.010	0.120	7.4					68	3.30			395	
18	41481	0.80		0.08	0.10	101		35	3.98	0.380	0.038	0.020	0.065	7.8		11	13	1.10	27	5.10	0.005	0.006	257	
19	42381	0.31		0.00	0.01	100						0.005	0.090	7.4						4.70			271	
20	42481	0.10		0.00	0.01	75						0.005	0.110	7.5						3.50			252	
21	42881	0.47		0.03	0.06	2160					0.100	0.200	0.450	6.9					22	11.50	0.005	0.190	2,590	
	Mean	0.70		0.16	0.10	288		36	4.07	1.300	0.110	0.101	0.186	6.8	3.507	24	17	2.49	44	9.45	0.008	0.045	597	
	Median	0.49		0.02	0.04	184		34	3.32	1.075	0.087	0.026	0.167	6.8	0.281	18	16	2.16	32	7.58	0.007	0.019	485	
	COV	1.03		7.76	2.22	1.21		0.40	0.71	0.68	0.77	3.84	0.50	0.09	12.44	0.94	0.28	0.58	0.94	0.75	0.64	2.21	0.72	
	N	21		21	21	21	0	4	11	11	14	21	21	20	4	13	4	11	16	21	14	14	21	0

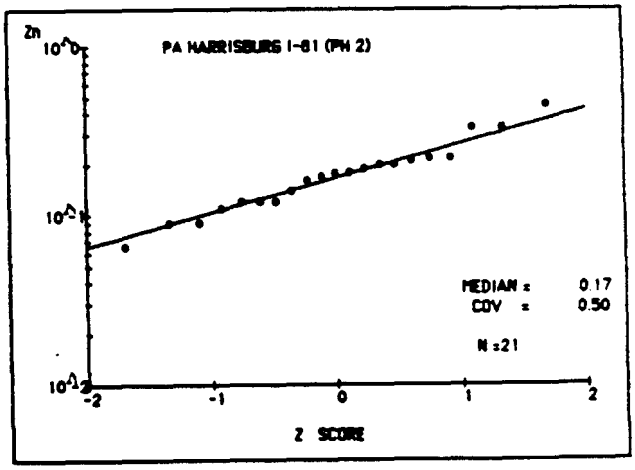

SS
PA HARRISBURG I-81 (PH 2)
MEDIAN = 183.77
COV = 1.21
N = 21
Z SCORE


Cu
PA HARRISBURG I-81 (PH 2)
MEDIAN = 0.09
COV = 0.77
N = 14
Z SCORE


TKN
PA HARRISBURG I-81 (PH 2)
MEDIAN = 2.16
COV = 0.58
N = 11
Z SCORE


Pb
PA HARRISBURG I-81 (PH 2)
MEDIAN = 0.03
COV = 3.84
N = 21
Z SCORE


PO4-P
PA HARRISBURG I-81 (PH 2)
MEDIAN = 1.08
COV = 0.68
N = 11
Z SCORE


Zn
PA HARRISBURG I-81 (PH 2)
MEDIAN = 0.17
COV = 0.50
N = 21
Z SCORE

SITE: TN HAMILTON CO.
SR-27

STATE: Tennessee

LOCATION: Northeastern part of Hamilton County within the Greater Valley System of East Tennessee in the North Chickamauga Creek Floodplain

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 4

NO. OF TRAFFIC LANES MONITORED: 2

AVERAGE DAILY TRAFFIC - ADT (VPD): 8,360

ADT PER LANE (VPD): 2,090

DRAINAGE AREA (ACRES): 0.078

PERCENT IMPERVIOUS: 100

LENGTH OF ROAD SURFACE (FEET): 100

ROAD SURFACE TYPE: ASPHALT

CURB:

SECTION TYPE: ELEVATED

LAND USE: RURAL

AVERAGE ANNUAL PRECIPITATION (IN): 51.8

AVERAGE WIND SPEED (FT/SEC): 6.7

NO. OF EVENTS MONITORED: 26

NO. OF SNOW EVENTS MONITORED:

MONITORING PERIOD: July 1982 to May 1983

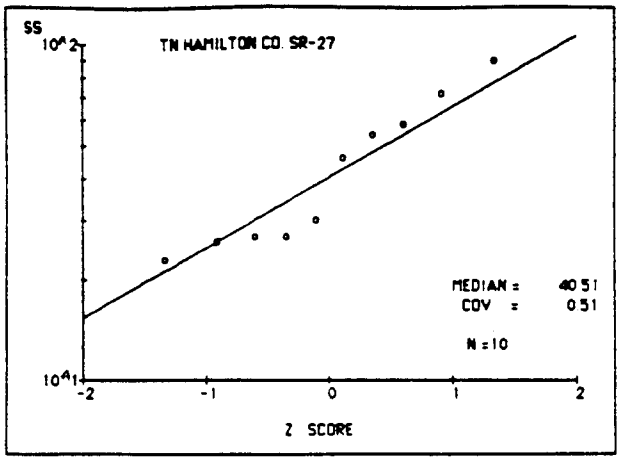
SOURCE:

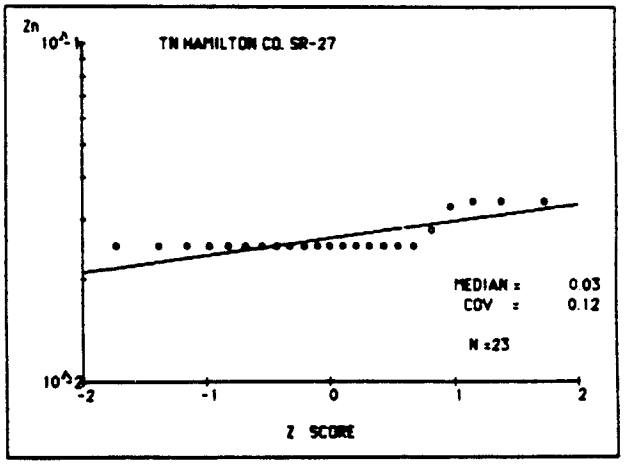
Report: "Demonstration Project 56, Runoff Monitoring and Ecosystem Dispersal, North Chickamauga Creek Floodplain, Hamilton County, Tennessee" by C.B. Coburn, Jr. and Ginger K. Ensor. Department of Biology, Tennessee Technological University, Cookville, Tennessee, March, 1985

REMARKS:

Data were extracted from tables in report. Samples were taken at equal flow intervals, so event mean concentrations (EMCs) were calculated by direct averaging of reported values. Rainfall water quality data are also presented in the report.

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
1	70882	0.80		0.30	0.38						0.050	0.100	0.025							0.12				
2	71982	0.50		0.70	1.40						0.050	0.100	0.025							0.10				
3	72482	0.54		0.40	0.74						0.050	0.100	0.025							0.10				
4	72882			0.70							0.050	0.100	0.025							0.10				
5	73182			1.00							0.050	0.100	0.025							0.10				
6	100782	0.80		0.40	0.50						0.050	0.100	0.028							0.10				
7	101282	1.10			0.00																			
8	110282	1.79			0.00																			
9	111782			1.00							0.050	0.100	0.025							0.16				
10	112182	0.40		0.20	0.50					0.000	0.050	0.100	0.025							0.11				
11	112882	0.80		0.60	0.75					0.000	0.050	0.100	0.025							0.10				
12	113082									0.000	0.050	0.100	0.025							0.10				
13	20683	0.40		1.90	4.75	23					0.050	0.100	0.025	7.7		9			42	0.10			114	
14	22283	3.50		1.30	0.37	89					0.050	0.100	0.025	7.2		23			7	0.10			104	
15	30683			0.50		46					0.050	0.100	0.025	7.6		14			10	0.10			100	
16	31683			0.30		27					0.050	0.100	0.025	7.6		5				0.10			67	
17	32083			0.50		58					0.050	0.100	0.025	7.6		9				0.10			120	
18	40583			1.00		30					0.050	0.100	0.025	7.4		4				0.10			61	
19	40883			0.50							0.050	0.100	0.025							0.10				
20	40983	0.40		0.30	0.75						0.050	0.100	0.034	7.5					8	0.41				
21	41483	0.40		0.20	0.50						0.050	0.100	0.025	7.6					6	0.10				
22	42383	1.90		2.30	1.21						0.050	0.100	0.034	7.3					10	0.10				
23	50383	0.40		0.30	0.75	71								7.3		29								
24	50883	0.40		0.40	1.00	54					0.050	0.100	0.033	7.5		16			9	0.10				
25	51583			1.00		27					0.050	0.100	0.034	7.6		8			12	0.10				
26	51983	2.30		1.80	0.78	26					0.050	0.100	0.025	7.1		7				0.10				
	Mean	1.01		0.77	0.97	46					0.050	0.100	0.027	7.5		13			13	0.12			95	
	Median	0.78		0.60	0.79	41					0.050	0.100	0.027	7.5		10			11	0.11			91	
	COV	0.84		0.80	0.73	0.51					0.00	0.00	0.12	0.02		0.71			0.66	0.32			0.29	
	N	16	0	23	16	10	0	0	0	3	23	23	23	13	0	10	0	0	8	23	0	0	6	0


SS
TN HAMILTON CO. SR-27
MEDIAN = 40.51
COV = 0.51
N = 10
-2
-1
0
1
2
Z SCORE


Zn
TN HAMILTON CO. SR-27
MEDIAN = 0.03
COV = 0.12
N = 23
-2
-1
0
1
2
Z SCORE

SITE: TN NASHVILLE
I-40

STATE: Tennessee

LOCATION: Nashville, Tennessee

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 6

NO. OF TRAFFIC LANES MONITORED: 6

AVERAGE DAILY TRAFFIC - ADT (VPD): 88,000

ADT PER LANE (VPD): 14,667

DRAINAGE AREA (ACRES): 55.6

PERCENT IMPERVIOUS: 37

LENGTH OF ROAD SURFACE (FEET): 100

ROAD SURFACE TYPE: CONCRETE

CURB: YES

SECTION TYPE: CUT, AT GRADE

LAND USE: URBAN, UNDEFINED

AVERAGE ANNUAL PRECIPITATION (IN): 45

AVERAGE WIND SPEED (FT/SEC): 6.7

NO. OF EVENTS MONITORED: 31

NO. OF SNOW EVENTS MONITORED: 0

MONITORING PERIOD: October 1976 to September 1977

SOURCE:

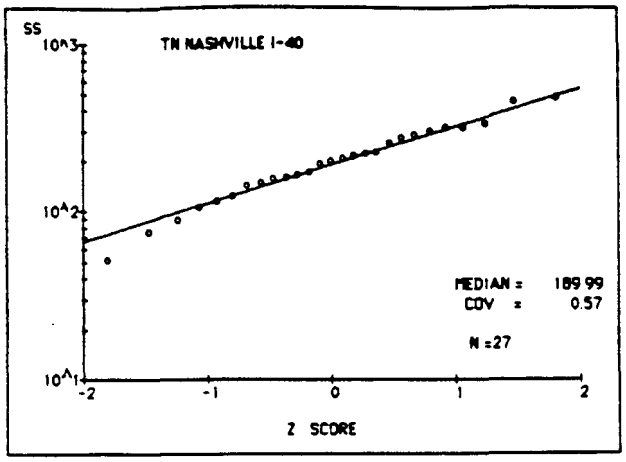
Constituents of Highway Runoff, Volume VI: Executive Summary, M.K. Gupta, Federal Highway Administration Report No. FHWA/RD-81/047, February, 1981

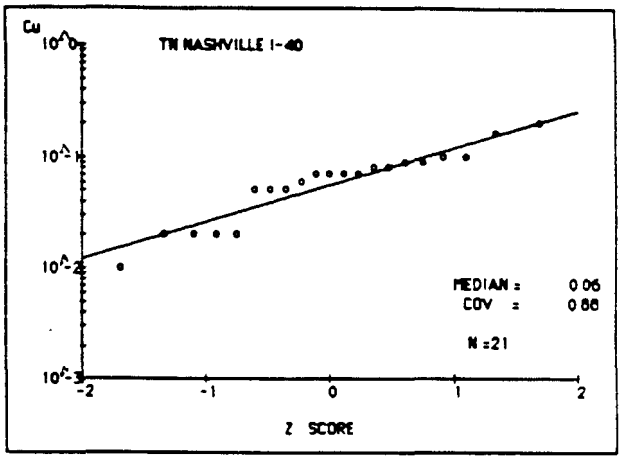
REMARKS:

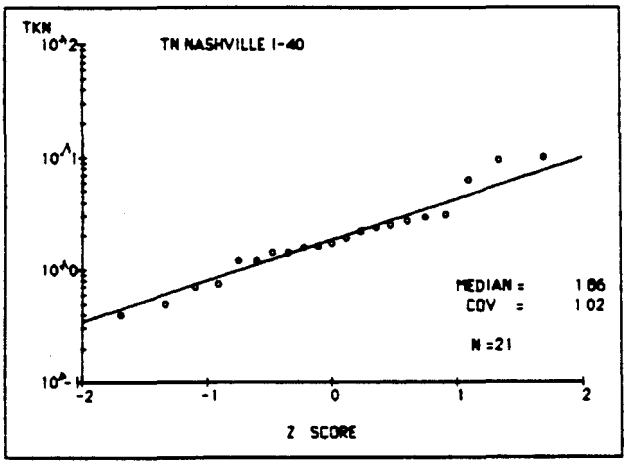
Data were extracted from computer tapes. Event means were calculated using discretely collected data and flow-weighted averaging.

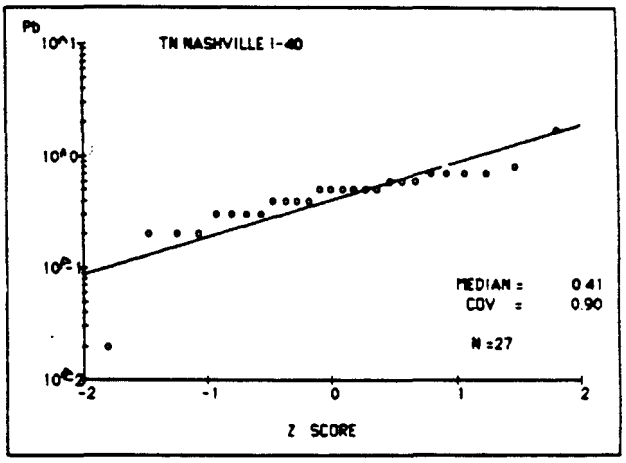
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
1	102376	0.58	14.17	0.11	0.18																			
2	103076	1.09	8.25	0.38	0.35	89	5	48		0.780	0.050	0.300	0.110	7.3		23	16	0.70	7	3.10	0.020	0.030	246	
3	22377	2.05	10.50	0.36	0.18	478	21	155		3.500	0.070	0.600	0.390	7.6	2.000	65	38	1.40	55	9.20	0.030	0.020	904	
4	22677	0.62	3.00	0.15	0.24	301		130		1.780	0.080	0.500	0.360	7.5	6.700	43	26	1.20	32	6.30	0.030	0.020	552	
5	30377	2.90	17.50	0.62	0.21	149		55		0.950	0.070	0.400	0.250	7.2	1.500	33	14	0.40	25	4.30	0.020	0.020	412	
6	31177	0.55	6.75	0.15	0.27	319		96		1.950	0.090	0.600	0.410	7.6	5.000	55	35	2.50	30	8.00	0.010	0.050	509	
7	31277	2.00	8.00	1.13	0.56	224		85		1.410	0.060	0.400	0.200	7.8	1.250	27	13	1.20	9	8.00	0.010	0.030	355	
8	32877	0.21	1.50	0.08	0.40	338	39	181		3.400	0.070	0.700	0.330	6.9	0.800	70	56	6.20	40	6.20	0.020	0.040	1,001	
9	40277	1.21	3.00	0.27	0.22	192		125		3.460	0.050	0.700	0.330	7.7	0.500	11	28	1.70	9	9.50	0.010	0.030	613	
10	40377	1.91	9.25	1.15	0.60	75		31		0.770	0.010	0.020	0.100	7.3	0.500	17	12	0.50	5	2.40	0.010	0.010	223	
11	42177	0.99	11.42	0.35	0.36	207	16	133		1.660	0.090	0.500	0.270	7.2	0.750	34	38	1.90	20	4.90	0.030	0.020	350	
12	42277	0.41	10.58	0.25	0.61	198	16	109		1.400	0.100	0.400	0.230	7.6	1.120	26	23	0.75	25	5.40	0.030	0.010	400	
13	42877	0.20	2.17	0.03	0.14	214	23	178			0.100	0.600	0.500	7.5	0.850	54		2.70	16	6.00	0.010	0.020	434	
14	50777	0.47	8.92	0.15	0.33																			
15	61277	0.05	0.75	0.01	0.18																			
16	61377	0.09	1.58	0.02	0.19	125	52	264		1.100	0.070	0.500	0.220	7.5	2.100	92	74	2.40	45	2.44	0.060	0.010	602	
17	61477	0.12	1.67	0.08	0.64	287		165		2.350	0.050	0.800	0.410	7.2	1.100	264	48	2.90	20	8.60	0.040	0.010	624	
18	61977	0.69	3.50	0.22	0.32	457	14	234		3.440	0.080	1.700	0.610	7.8	2.500	397	50	3.08	15	12.00	0.060	0.030	698	
19	62277	1.21	5.75	0.41	0.34	106		56		0.770	0.200	0.200	0.120	7.2	1.750	29	20	1.62	12	1.51	0.040	0.010	238	
20	62377	0.76	2.25	0.45	0.59	278	36	122		2.450	0.160	0.700	0.260	7.6	0.750	91	25	2.18	10	7.60	0.050	0.010	502	
21	62477	0.30	0.42	0.24	0.80	256		104		1.780	0.020	0.500	0.240	7.8	1.250	215	23	9.50	25	5.90	0.040	0.010	595	
22	62577	0.86	1.42	0.45	0.53	317		78		2.770	0.020	0.700	0.240	8.3	1.000	271	25	10.00	6	8.10	0.030	0.010	478	
23	72377	0.04	0.56	0.04	1.03																			
24	90577	0.42	1.17	0.12	0.28	145		138		1.190	0.020	0.300	0.300	7.2		41	42	1.60	8	3.50	0.010	0.050	281	
25	90677	0.10	0.17	0.01	0.14	167	40	190		1.320	0.020	0.500	0.250	7.9		28	69	1.40	17	4.20	0.040	0.040	430	
26	91377	0.15	0.92	0.03	0.20	174						0.500	0.460	8.0		50				4.20			449	
27	91377	0.53	4.58	0.21	0.39	52						0.200	0.160	8.1		18				1.60			229	
28	91477	0.23	1.33	0.11	0.48	116						0.300	0.210	7.9		26				2.90			265	
29	91477	0.92	9.17	0.75	0.82	159						0.200	0.230	7.7		34				3.90			357	
30	91677	0.19	0.75	0.09	0.46	226						0.300	0.230	8.3		38				5.70			542	
31	91977	0.60	2.83	0.16	0.26	161						0.400	0.230	7.8		35				4.20			277	
	Mean	0.63	5.34	0.34	0.41	219	28	132		1.932	0.074	0.552	0.286	7.6	1.704	72	34	2.65	21	5.65	0.029	0.023	467	
	Median	0.44	2.76	0.16	0.35	190	22	113		1.687	0.056	0.411	0.259	7.6	1.330	49	29	1.86	17	4.69	0.024	0.019	429	
	COV	1.58	1.66	1.97	0.58	0.57	0.78	0.60		0.56	0.88	0.90	0.46	0.05	0.80	1.10	0.58	1.02	0.78	0.58	0.71	0.65	0.43	
	N	31	31	31	31	27	10	21	0	20	21	27	27	27	18	27	20	21	21	27	21	21	27	0

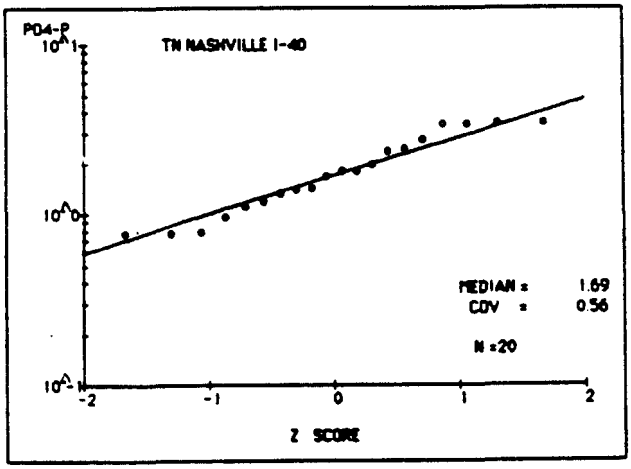
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
1	102376	0.58	14.17	0.11	0.18																			
2	103076	1.09	8.25	0.38	0.35	89	5	48		0.780	0.050	0.300	0.110	7.3		23	16	0.70	7	3.10	0.020	0.030	246	
3	22377	2.05	10.50	0.36	0.16	478	21	155		3.500	0.070	0.600	0.390	7.6	2.000	65	38	1.40	55	9.20	0.030	0.020	904	
4	22677	0.62	3.00	0.15	0.24	301		130		1.780	0.080	0.500	0.360	7.5	6.700	43	26	1.20	32	6.30	0.030	0.020	552	
5	30377	2.90	17.50	0.62	0.21	149		55		0.950	0.070	0.400	0.250	7.2	1.500	33	14	0.40	25	4.30	0.020	0.020	412	
6	31177	0.55	6.75	0.15	0.27	319		96		1.950	0.090	0.600	0.410	7.6	5.000	55	35	2.50	30	8.00	0.010	0.050	509	
7	31277	2.00	8.00	1.13	0.56	224		85		1.410	0.060	0.400	0.200	7.8	1.250	27	13	1.20	9	8.00	0.010	0.030	355	
8	32877	0.21	1.50	0.08	0.40	338	39	181		3.400	0.070	0.700	0.330	6.9	0.800	70	56	6.20	40	6.20	0.020	0.040	1,001	
9	40277	1.21	3.00	0.27	0.22	192		125		3.460	0.050	0.700	0.330	7.7	0.500	11	28	1.70	9	9.50	0.010	0.030	613	
10	40377	1.91	9.25	1.15	0.60	75		31		0.770	0.010	0.020	0.100	7.3	0.500	17	12	0.50	5	2.40	0.010	0.010	223	
11	42177	0.99	11.42	0.35	0.36	207	16	133		1.660	0.090	0.500	0.270	7.2	0.750	34	38	1.90	20	4.90	0.030	0.020	350	
12	42277	0.41	10.58	0.25	0.61	198	16	109		1.400	0.100	0.400	0.230	7.6	1.120	26	23	0.75	25	5.40	0.030	0.010	400	
13	42877	0.20	2.17	0.03	0.14	214	23	178			0.100	0.600	0.500	7.5	0.850	54		2.70	16	6.00	0.010	0.020	434	
14	50777	0.47	8.92	0.15	0.33																			
15	61277	0.05	0.75	0.01	0.18																			
16	61377	0.09	1.58	0.02	0.19	125	52	264		1.100	0.070	0.500	0.220	7.5	2.100	92	74	2.40	45	2.44	0.060	0.010	602	
17	61477	0.12	1.67	0.08	0.64	287		185		2.350	0.050	0.800	0.410	7.2	1.100	264	48	2.90	20	8.60	0.040	0.010	624	
18	81977	0.69	3.50	0.22	0.32	457	14	234		3.440	0.080	1.700	0.610	7.8	2.500	397	50	3.08	15	12.00	0.060	0.030	698	
19	82277	1.21	5.75	0.41	0.34	106		56		0.770	0.200	0.200	0.120	7.2	1.750	29	20	1.62	12	1.51	0.040	0.010	238	
20	82377	0.76	2.25	0.45	0.59	278	36	122		2.450	0.160	0.700	0.260	7.6	0.750	91	25	2.18	10	7.60	0.050	0.010	502	
21	82477	0.30	0.42	0.24	0.80	256		104		1.780	0.020	0.500	0.240	7.8	1.250	215	23	9.50	25	5.90	0.040	0.010	595	
22	82577	0.86	1.42	0.45	0.53	317		78		2.770	0.020	0.700	0.240	8.3	1.000	271	25	10.00	6	8.10	0.030	0.010	478	
23	72377	0.04	0.58	0.04	1.03																			
24	90577	0.42	1.17	0.12	0.28	145		138		1.190	0.020	0.300	0.300	7.2		41	42	1.60	8	3.50	0.010	0.050	281	
25	90677	0.10	0.17	0.01	0.14	167	40	190		1.320	0.020	0.500	0.250	7.9		28	69	1.40	17	4.20	0.040	0.040	430	
26	91377	0.15	0.92	0.03	0.20	174						0.500	0.460	8.0		50				4.20			449	
27	91377	0.53	4.58	0.21	0.39	52						0.200	0.160	8.1		18				1.60			229	
28	91477	0.23	1.33	0.11	0.48	116						0.300	0.210	7.9		26				2.90			265	
29	91477	0.92	9.17	0.75	0.82	159						0.200	0.230	7.7		34				3.90			357	
30	91677	0.19	0.75	0.09	0.46	226						0.300	0.230	8.3		38				5.70			542	
31	91977	0.60	2.83	0.18	0.26	161						0.400	0.230	7.8		35				4.20			277	
	Mean	0.83	5.34	0.34	0.41	219	28	132		1.932	0.074	0.552	0.288	7.6	1.704	72	34	2.65	21	5.65	0.029	0.023	467	
	Median	0.44	2.76	0.16	0.35	190	22	113		1.687	0.056	0.411	0.259	7.6	1.330	49	29	1.86	17	4.89	0.024	0.019	429	
	COV	1.58	1.66	1.97	0.58	0.57	0.78	0.60		0.56	0.88	0.90	0.46	0.05	0.80	1.10	0.58	1.02	0.78	0.58	0.71	0.65	0.43	
	N	31	31	31	31	27	10	21	0	20	21	27	27	27	18	27	20	21	21	27	21	21	27	0

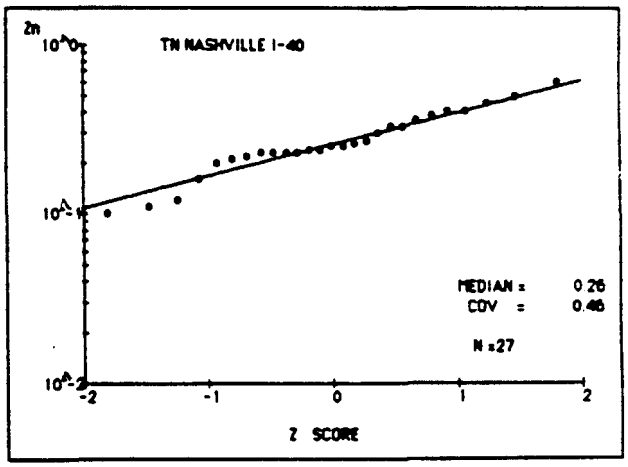

SS
TN NASHVILLE I-40
MEDIAN = 189.99
COV = 0.57
N =27
Z SCORE


Cu
TN NASHVILLE I-40
MEDIAN = 0.06
COV = 0.86
N =21
Z SCORE


TKN
TN NASHVILLE I-40
MEDIAN = 1.86
COV = 1.02
N =21
Z SCORE


Pb
TN NASHVILLE I-40
MEDIAN = 0.41
COV = 0.90
N =27
Z SCORE


PO4-P
TN NASHVILLE I-40
MEDIAN = 1.69
COV = 0.56
N =20
Z SCORE


Zn
TN NASHVILLE I-40
MEDIAN = 0.26
COV = 0.46
N =27
Z SCORE

SITE: WA MONTESANO (5)
SR-12

STATE: Washington

LOCATION: 0.5 mile west of Montesano, in the western Olympic coastal region

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 2

NO. OF TRAFFIC LANES MONITORED: 2

AVERAGE DAILY TRAFFIC - ADT (VPD): 7,300

ADT PER LANE (VPD): 3,650

DRAINAGE AREA (ACRES): 0.28

PERCENT IMPERVIOUS: 100

LENGTH OF ROAD SURFACE (FEET): 310

ROAD SURFACE TYPE: ASPHALT

CURB: YES

SECTION TYPE: AT GRADE

LAND USE: NON-URBAN, AGRICULTURAL

AVERAGE ANNUAL PRECIPITATION (IN): 84

AVERAGE WIND SPEED (FT/SEC):

NO. OF EVENTS MONITORED: 27

NO. OF SNOW EVENTS MONITORED: 1

MONITORING PERIOD: June 1980 to May 1981

SOURCE:

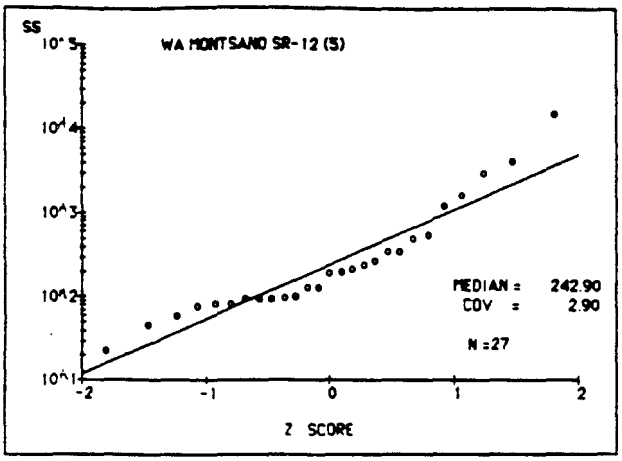
Report: "Summary -- Washington State Highway Runoff Water Quality Study, 1977-1982," by Mar, et al., Department of Civil Engineering, University of Washington (September 1982). Prepared for the Washington State Department of Transportation

REMARKS:

Runoff data were extracted from a computer tape of a data base of all sites studied in the State program, provided by the University of Washington. The concentrations on the tape were listed as EMCs.

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)		RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
28	62080	0.74	48.00	0.57	0.56	0.76	15,010		355	3.14		0.330	0.990	4.010	5.5		95	5	3.88						
29	70380	0.90	31.00	0.66	0.67	0.74	500			2.09		0.180	0.830	0.390	5.6		50	19	1.45						
30	71180	0.65	4.00	0.50	0.49	0.76	3,014		103	0.65	2.000	0.100	0.540	0.240			46	4	3.38						
31	80480	0.05	1.00	0.00	0.00	0.04	346		201	0.80		0.070	0.420	0.290	5.1		57	8							
32	81480	0.25	1.00	0.20	0.20	0.78	1,612		157	1.08	1.140	0.080	1.030	0.520	8.6		65		2.28						
33	81880	0.39	1.00	0.15	0.16	0.40	348		119	0.49	0.520	0.650	0.570	0.200	5.3		37	4	0.96						
34	82980	0.45	3.00	0.29	0.29	0.65	264		97	0.50	0.250				5.4		23	7	0.89						
35	90280	1.45	19.00				4,110		685	0.09	1.840	0.220	4.180	0.910	6.1		264	19	5.83						
36	90980	0.25	6.00	0.34	0.34	1.37	128		53	0.37	0.210				5.9		18		0.39						
37	91680	0.29	13.00	0.37	0.37	1.26	58		54	0.50	0.110	0.040	0.100	0.230	5.9		12	2							
38	91980	0.30	11.00	0.40	0.40	1.34	200		116	0.54	0.290	0.050	0.420	0.270	5.9		40		0.97						
39	92380	0.76	5.00	0.51	0.52	0.68	541		132	0.32	0.240	0.050	0.310	0.150	6.3		55	7	0.50						
40	101380	1.23	22.00	0.34	0.34	0.28	190		102		0.200	0.020	0.210	0.090	6.0		34								
41	102480	0.37	12.00	0.33	0.33	0.90	237		69		0.400				5.4		41								
44	110580	1.34	5.00	1.90	1.90	1.42	76		22		0.090	0.010	0.090	0.020	5.9		12								
47	111780	0.59	24.00	0.49	0.49	0.83	95		43		0.110		0.150	0.080	5.3		24								
48	111980	0.79	11.00	0.60	0.60	0.76	215		55		0.220	0.020	0.300	0.120	5.6		35	1							
49	112180	2.10	24.00	1.68	1.68	0.80	46		9		0.040		0.040	0.020	5.4		10								
52	120480	1.21	30.00	1.21	1.17	0.97	98		22		0.140				5.6		19								
53	121280	2.01	32.00	1.54	1.55	0.77	1,202		250		2.330				5.9		17062								
57	10281	1.62	13.00	1.92	1.91	1.18	82		37		0.090				5.7		14	1							
58	12181	1.05	42.00	0.58	0.57	0.54	95		44		0.270	0.020	0.090	0.100	5.8		17								
59	20281	2.07	42.00	1.99	1.99	0.96	93		40		0.110	0.020	0.140	0.020	5.7		19	1							
60	21381	3.55	28.00	2.84	2.84	0.80	132		57	0.65	0.280	0.020	0.100		5.9		23		0.43						
63	30481	0.76	22.00	0.48	0.47	0.62	23		7		0.080				5.5		4	0	0.45						
65	33081	3.33	52.00	1.73	1.73	0.52	80		30	7.32	0.230	0.010	0.070		5.6		12	0	0.31						
67	41081	2.00	1.00				100		49	0.23					5.6		18	1							
71	52081	1.50		1.50	1.50	1.00																			
	Mean	1.26	24.34		1.43	0.90	744		115	1.20	0.460	0.111	0.535	0.437	5.8		105	7	1.71						
	Median	0.81	10.83		0.54	0.71	243		67	0.68	0.257	0.052	0.272	0.168	5.8		35	4	1.07						
	COV	1.19	2.01		2.43	0.79	2.90		1.39	1.46	1.48	1.88	1.70	2.40	0.11		2.86	1.50	1.25						
	N	28	27		26	26	27	0	26	15	23	17	19	17	26	0	27	15	13	0	0	0	0	0	0

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
29	70380	0.90	31.00	0.67	0.74	500			2.09		0.180	0.830	0.390	[illegible]		50	19	1.45						
31	80480	0.05	1.00		0.04	346		201	0.80		0.070	0.420	0.290	5.1		57	8							
33	81880	0.39	1.00	0.16	0.40	348		119	0.49	0.520	0.650	0.570	0.200	5.3		37	4	0.96						
34	82980	0.45	3.00	0.29	0.65	264		97	0.50	0.250				5.4		23	7	0.89						
36	90980	0.25	6.00	0.34	1.37	128		53	0.37	0.210				5.9		18		0.39						
37	91680	0.29	13.00	0.37	1.26	58		54	0.50	0.110	0.040	0.100	0.230	5.9		12	2							
38	91980	0.30	11.00	0.40	1.34	200		116	0.54	0.290	0.050	0.420	0.270	5.9		40		0.97						
40	101380	1.23	22.00	0.34	0.28	190		102		0.200	0.020	0.210	0.090	6.0		34								
41	102480	0.37	12.00	0.33	0.90	237		69		0.400				5.4		41								
44	110580	1.34	5.00	1.90	1.42	76		22		0.090	0.010	0.090	0.020	5.9		12								
47	111780	0.59	24.00	0.49	0.83	95		43		0.110		0.150	0.080	5.3		24								
48	111980	0.79	11.00	0.60	0.76	215		55		0.220	0.020	0.300	0.120	5.6		35	1							
49	112180	2.10	24.00	1.68	0.80	46		9		0.040		0.040	0.020	5.4		10								
52	120480	1.21	30.00	1.17	0.97	98		22		0.140				5.6		19								
57	10281	1.62	13.00	1.91	1.18	82		37		0.090				5.7		14	1							
58	12181	1.05	42.00	0.57	0.54	95		44		0.270	0.020	0.090	0.100	5.8		17								
59	20281	2.07	42.00	1.99	0.96	93		40		0.110	0.020	0.140	0.020	5.7		19	1							
60	21381	3.55	28.00	2.84	0.80	132		57	0.65	0.280	0.020	0.100		5.9		23		0.43						
63	30481	0.76	22.00	0.47	0.62	23		7		0.080				5.5		4	0	0.45						
65	33081	3.33	52.00	1.73	0.52	80		30	7.32	0.230	0.010	0.070		5.6		12	0	0.31						
67	41081	2.00	1.00			100		49	0.23					5.6		18	1							
71	52081	1.50		1.50	1.00																			
	Mean	1.35	24.73	1.02	0.94	166		65	1.19	0.208	0.077	0.260	0.180	5.6		25	5	0.75						
	Median	0.82	11.37	0.72	0.70	126		46	0.73	0.168	0.036	0.175	0.100	5.6		21	3	0.64						
	COV	1.32	1.93	1.00	0.91	0.86		0.99	1.28	0.73	1.87	1.10	1.50	0.04		0.70	1.59	0.60						
	N	21	21	19	20	21	0	20	10	18	12	14	12	21	0	21	11	8	0	0	0	0	0	0
53	121280	2.01	32.00	1.55	0.77	1,202		250		2.330				5.9		17062								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COV = 2.90
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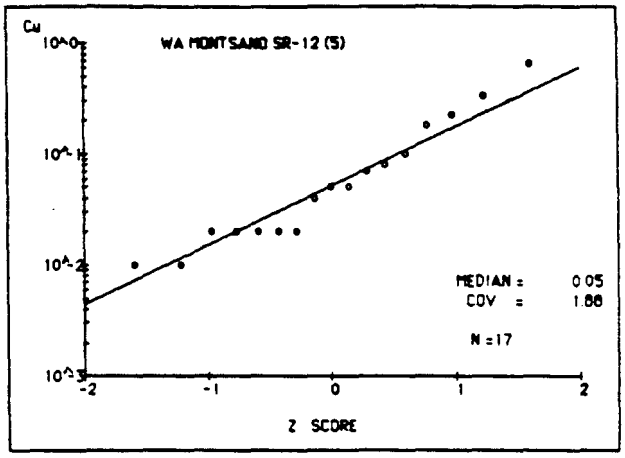
Z SCORE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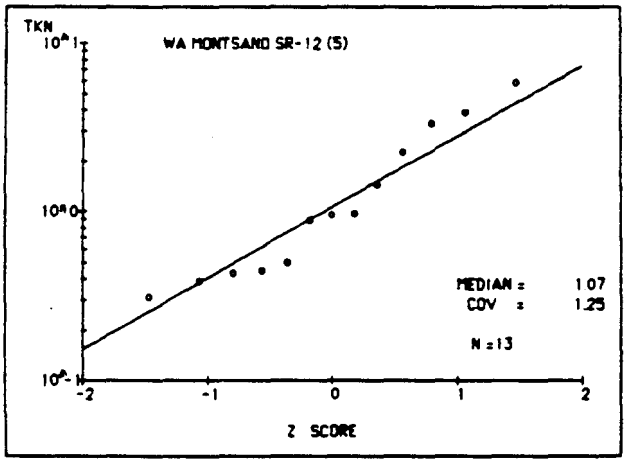
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COV = 1.25
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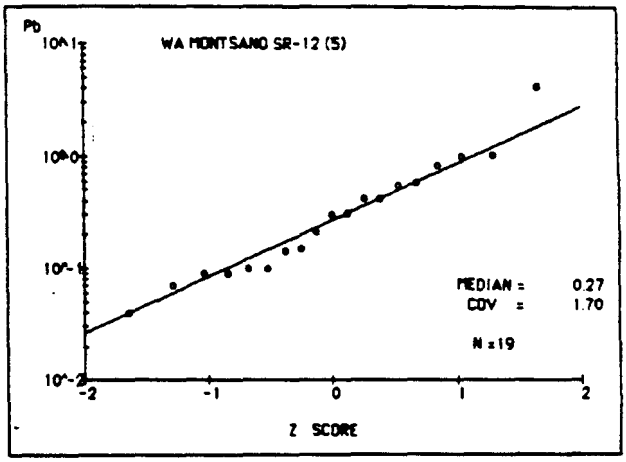
Z SCORE


Pb
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COV = 1.70
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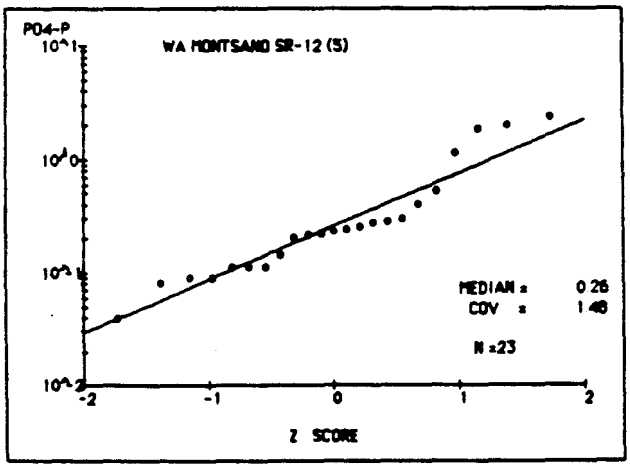
Z SCORE


PO4-P
WA MONTSANO SR-12 (5)
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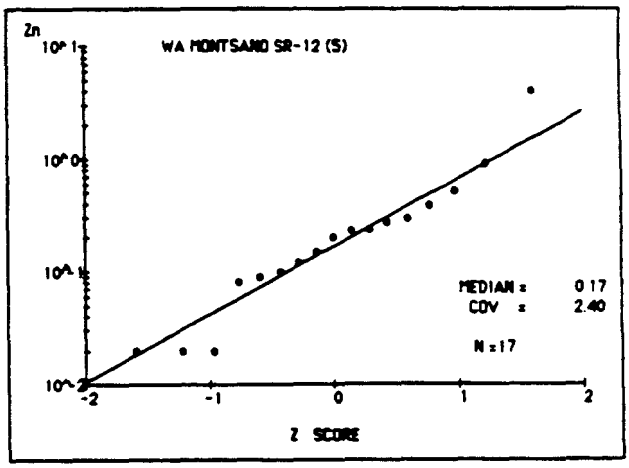
COV = 1.48
N = 23
Z SCORE


Zn
WA MONTSANO SR-12 (5)
MEDIAN = 0.17
COV = 2.40
N = 17
Z SCORE

SITE: WA PASCO (6)
SR-12

STATE: Washington

LOCATION: Near the Interchange of SR-12 and SR-195, eastbound lanes SR-12

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 4

NO. OF TRAFFIC LANES MONITORED: 2

AVERAGE DAILY TRAFFIC - ADT (VPD): 4,000

ADT PER LANE (VPD): 1,000

DRAINAGE AREA (ACRES): 1.25

PERCENT IMPERVIOUS: 100

LENGTH OF ROAD SURFACE (FEET): 1,090

ROAD SURFACE TYPE: CONCRETE

CURB: YES

SECTION TYPE: CUT

LAND USE: NON-URBAN, DESERT

AVERAGE ANNUAL PRECIPITATION (IN): 7.5

AVERAGE WIND SPEED (FT/SEC): 5.3

NO. OF EVENTS MONITORED: 39

NO. OF SNOW EVENTS MONITORED: 5

MONITORING PERIOD: October 1979 - November 1981

SOURCE:

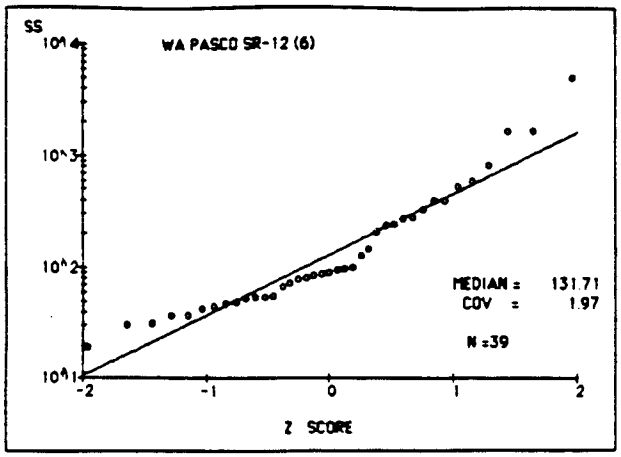
Report: "Summary -- Washington State Highway Runoff Water Quality Study, 1977-1982," by Mar, et al., Department of Civil Engineering, University of Washington (September 1982). Prepared for the Washington State Department of Transportation

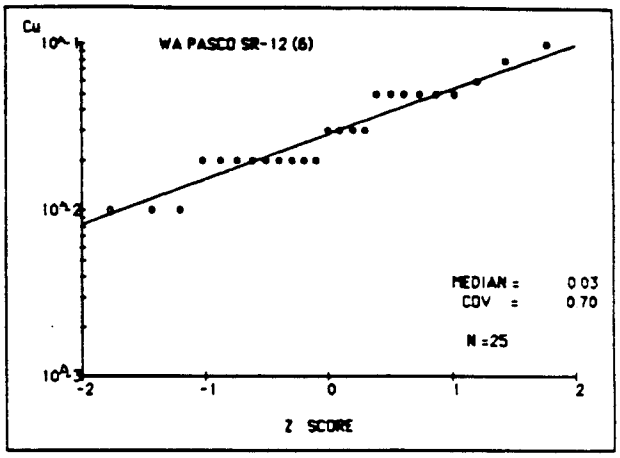
REMARKS:

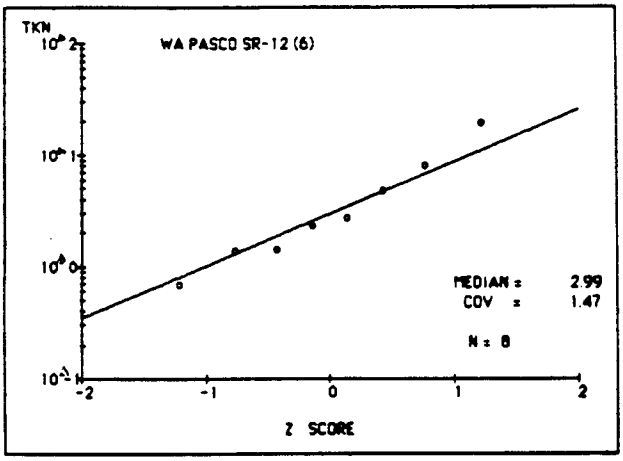
Runoff data were extracted from a computer tape of a data base of all sites studied in the State program, provided by the University of Washington. The concentrations on the tape were listed as EMCs.

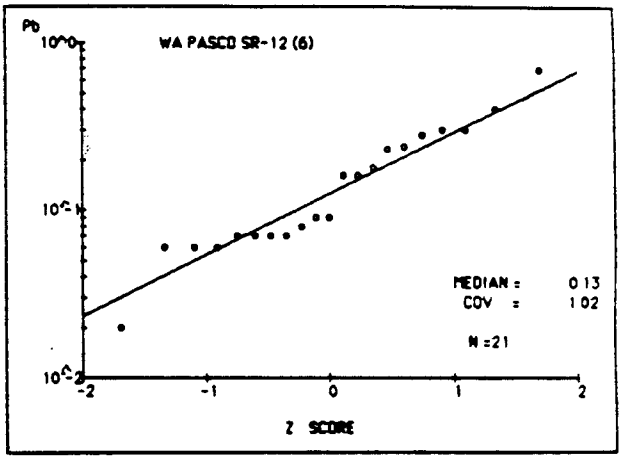
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
1	101979	0.85	11.00	0.60	0.70	54		105	0.78	0.530	0.020	0.020	0.310	5.9		22	23							
3	110579	0.14	2.00	0.10	0.70	19		151	0.71	0.260	0.000	0.000	0.110	5.8		5	3							
6	120379	0.12	2.00	0.08	0.70	67		101	0.67	0.500	0.000	0.000	0.190	5.3		27	21	0.69	36					
8	122679	0.14	4.00	0.10	0.70	78		86	0.91	0.600	0.000	0.000	0.820	5.8		23	20	1.39	32					
9	10280	0.18	5.00	0.13	0.70	81		132	1.02	0.720	0.000	0.300	0.180	5.7		24	54	2.74	71					
10	22880	0.40	6.00	0.28	0.70	126		123	0.81	0.910	0.000	0.300	0.160	6.2		30		1.42	27					
13	50680	0.24	3.00	0.17	0.70	244		162	1.82		0.050	0.000	0.440	7.4		34								
14	50980	0.18	2.00	0.13	0.70	273		108	0.54		0.000	0.000	0.300	7.3		39								
15	51280	0.11	1.00	0.08	0.70	144		214	0.67		0.050	0.000	0.230	6.8		52								
16	51680	0.04	1.00	0.03	0.70	396		300	2.06		0.050	0.000	0.580	6.2		72								
17	52780	1.00	8.00	0.70	0.70	587		175			0.050	0.000	0.380	5.8		47								
18	61680	0.79	24.00	0.50	0.63	207		151	0.51		0.050	0.160	2.020	4.5		20	9							
19	62680	0.08	9.00	0.08	0.99	234		213	2.07		0.060	0.280	1.510	5.8		35	9							
20	70380	0.03	1.00	0.02	0.79	5,050		568	0.60		0.080	0.230	1.740	5.7		85	25							
21	71080	0.43	1.00	0.26	0.61	827		188	0.73		0.050	0.690	1.310	5.4		97	8							
22	90480	0.07	6.00	0.00	0.01	526		840	1.19	2.010	0.100	0.400	7.190	6.9		142	34	19.43						
23	90880	0.02	1.00	0.00	0.04	398		793	0.70	1.610				6.5		122	36	8.01						
24	101580	0.83	15.00	0.55	0.66	87				0.350	0.020	0.070	0.250	6.1		38	2							
25	102880	0.22	10.00	0.21	0.96	31		40		0.550	0.010	0.060	0.320	5.6		9	3							
26	110380	0.15	9.00	0.16	1.06	55		73		0.430	0.020	0.090	0.640	5.9		22								
27	111080	0.30	18.00	0.33	1.11	37		65		0.370	0.020	0.070	0.290	6.0		16	2							
29	120480	0.81	29.00	0.63	1.03	48		55		0.170				5.9		18								
31	122980	0.50	7.00	0.35	0.69	1,670		1,106						6.0		585								
32	12981	0.37	64.00	0.14	0.37	99		112	0.65	0.790	0.020	0.180	0.360	5.9		49		4.79						
33	32681	0.62	71.00	0.81	1.31	84		72	0.64	0.580	0.010	0.070	0.220	6.1		21	2	2.30						
34	42481	0.12	1.00	0.06	0.53	1,651		518	0.56					6.3		200								
35	51581	0.50	64.00	0.39	0.77	324		121	0.29		0.020	0.090	0.240			28	5							
36	52081	0.05	22.00	0.06	1.12	89		125						5.8		15	10							
37	52681	0.70	7.00	0.56	0.80			69																
38	61581	0.10		0.08	0.80	282		121								42	33							
39	61781	0.08		0.06	0.80	94		142			0.030	0.070	0.250			22	50							
40						98										27	46							
42	92881	0.65	22.00	0.63	0.97	37		112		0.710	0.020		0.520	5.6		13	21							
43	100881	0.11	27.00	0.06	0.56	47		125			0.030	0.180	0.050	5.9		15								
44	101381	0.11	4.00	0.05	0.48	54		119		0.790	0.030	0.240	0.260	5.8		13	18							
45	103081	0.36	12.00	0.27	0.76	42		81		0.740	0.010	0.060	0.320	5.9		11	16							
46	111281	0.12	12.00	0.10	0.80	52		87		0.680	0.030	0.060	0.510	5.7		16	18							
47	111881	0.88	64.00	0.54	0.61	30		45		0.330	0.020		0.200	6.1		19	27							
	Mean	0.36	17.48	0.45	0.90	311		197	0.89	0.684	0.036	0.186	0.637	6.0		48	23	5.32	42					
	Median	0.21	7.29	0.13	0.61	138		144	0.79	0.581	0.029	0.128	0.395	6.0		31	13	2.99	39					
	COV	1.39	2.18	3.31	1.08	2.02		0.94	0.52	0.62	0.71	1.05	1.27	0.09		1.17	1.43	1.47	0.44					
	N	37	35	37	37	37	0	36	20	20	30	28	30	33	0	37	25	8	4	0	0	0	0	0

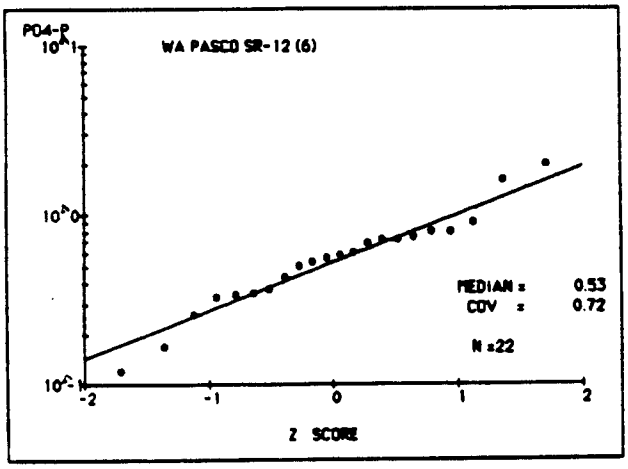
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	101979	0.85	11.00			54		105	0.78	0.530	0.020	0.020	0.310	5.9		22	23							
3	110579	0.14	2.00			19		151	0.71	0.260	0.000	0.000	0.110	5.8		5	3							
13	50680	0.24	3.00			244		162	1.82		0.050	0.000	0.440	7.4		34								
14	50980	0.18	2.00			273		108	0.54		0.000	0.000	0.300	7.3		39								
15	51280	0.11	1.00			144		214	0.67		0.050	0.000	0.230	6.8		52								
16	51680	0.04	1.00			396		300	2.06		0.050	0.000	0.580	6.2		72								
19	62680	0.08	9.00	0.08	0.99	234		213	2.07		0.060	0.280	1.510	5.8		35	9							
21	71080	0.43	1.00	0.26	0.61	827		188	0.73		0.050	0.690	1.310	5.4		97	8							
24	101580	0.83	15.00	0.55	0.66	87				0.350	0.020	0.070	0.250	6.1		38	2							
25	102880	0.22	10.00	0.21	0.96	31		40		0.550	0.010	0.060	0.320	5.6		9	3							
26	110380	0.15	9.00	0.16	1.06	55		73		0.430	0.020	0.090	0.640	5.9		22								
27	111080	0.30	18.00	0.33	1.11	37		65		0.370	0.020	0.070	0.290	6.0		16	2							
29	120480	0.61	29.00	0.63	1.03	48		55		0.170				5.9		18								
32	12981	0.37	64.00	0.14	0.37	99		112	0.65	0.790	0.020	0.160	0.360	5.9		49		4.79						
33	32681	0.62	71.00	0.81	1.31	84		72	0.64	0.580	0.010	0.070	0.220	6.1		21	2	2.30						
34	42481	0.12	1.00	0.06	0.53	1,651		518	0.56					6.3		200								
35	51581	0.50	64.00	0.39	0.77	324		121	0.29		0.020	0.090	0.240			28	5							
36	52081	0.05	22.00	0.06	1.12	89		125						5.8		15	10							
37	52681	0.70	7.00	0.56	0.80			69																
38	81581	0.10		0.08	0.80	282		121								42	33							
39	81781	0.08		0.06	0.80	94		142			0.030	0.070	0.250	-		22	50							
40						98										27	46							
42	92881	0.65	22.00	0.63	0.97	37		112		0.710	0.020		0.520	5.6		13	21							
43	100881	0.11	27.00	0.06	0.56	47		125			0.030	0.180	0.050	5.9		15								
44	101381	0.11	4.00	0.05	0.48	54		119		0.790	0.030	0.240	0.260	5.8		13	18							
45	103081	0.36	12.00	0.27	0.76	42		81		0.740	0.010	0.060	0.320	5.9		11	16							
46	111281	0.12	12.00	0.10	0.80	52		87		0.680	0.030	0.060	0.510	5.7		16	18							
47	111881	0.88	64.00	0.54	0.61	30		45		0.330	0.020		0.200	6.1		19	27							
	Mean	0.35	23.94	0.31	0.82	181		134	0.97	0.530	0.029	0.144	0.424	6.1		34	19	3.80						
	Median	0.23	9.05	0.19	0.78	101		114	0.81	0.478	0.025	0.101	0.325	6.0		25	10	3.32						
	COV	1.16	2.45	1.22	0.33	1.49		0.62	0.66	0.49	0.59	1.02	0.84	0.08		0.90	1.54	0.56						
	N	27	25	21	21	27	0	26	12	14	22	20	22	23	0	27	18	2	0	0	0	0	0	0
6	120379	0.12	2.00	0.08	0.70	67		101	0.87	0.500	0.000	0.000	0.190	5.3		27	21	0.69	36					
8	122679	0.14	4.00	0.10	0.70	78		86	0.91	0.600	0.000	0.000	0.820	5.8		23	20	1.39	32					
9	10280	0.18	5.00	0.13	0.70	81		132	1.02	0.720	0.000	0.300	0.180	5.7		24	54	2.74	71					
10	22880	0.40	6.00	0.28	0.70	126		123	0.81	0.910	0.000	0.300	0.160	8.2		30		1.42	27					
31	122980	0.50	7.00	0.35	0.69	1,670		1,106						8.0		585								
	Mean	0.28	4.98	0.19	0.70	385		301	0.86	0.688	1.000	0.300	0.349	5.8		128	33	1.63	42					
	Median	0.23	4.42	0.16	0.70	155		173	0.84	0.666	1.000	0.300	0.259	5.8		48	28	1.39	39					
	COV	0.71	0.52	0.71	0.01	2.28		1.42	0.18	0.26	0.00	0.00	0.90	0.06		2.46	0.61	0.61	0.44					
	N	5	5	5	5	5	0	5	4	4	4	4	4	5	0	5	3	4	4	0	0	0	0	0

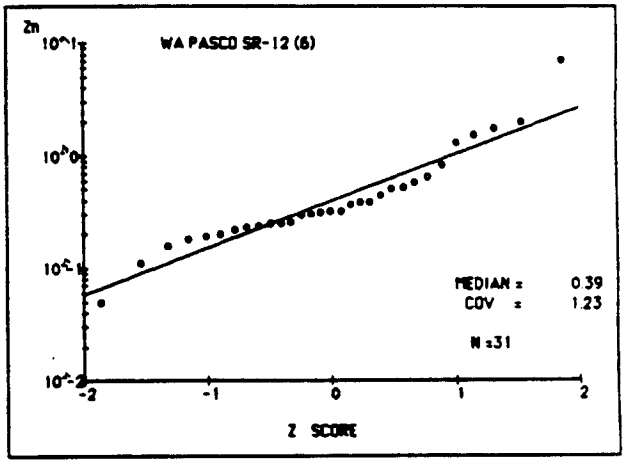

SS
WA PASCO SR-12 (6)
MEDIAN = 131.71
COV = 1.97
N =39
Z SCORE


Cu
WA PASCO SR-12 (6)
MEDIAN = 0.03
COV = 0.70
N =25
Z SCORE


TKN
WA PASCO SR-12 (6)
MEDIAN = 2.99
COV = 1.47
N = 8
Z SCORE


Pb
WA PASCO SR-12 (6)
MEDIAN = 0.13
COV = 1.02
N =21
Z SCORE


PO4-P
WA PASCO SR-12 (6)
MEDIAN = 0.53
COV = 0.72
N =22
Z SCORE


Zn
WA PASCO SR-12 (6)
MEDIAN = 0.39
COV = 1.23
N =31
Z SCORE

SITE: WA PULLMAN (8)
SR-270E

STATE: Washington

LOCATION: Eastbound lanes, 2.5 miles west of the city

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 2

NO. OF TRAFFIC LANES MONITORED: 1

AVERAGE DAILY TRAFFIC - ADT (VPD): 5,000

ADT PER LANE (VPD): 2,500

DRAINAGE AREA (ACRES): 0.22

PERCENT IMPERVIOUS: 100

LENGTH OF ROAD SURFACE (FEET): 500

ROAD SURFACE TYPE: ASPHALT

CURB: YES

SECTION TYPE: AT GRADE

LAND USE: AGRICULTURE

AVERAGE ANNUAL PRECIPITATION (IN): 18.0

AVERAGE WIND SPEED (FT/SEC): 5.3

NO. OF EVENTS MONITORED: 5

NO. OF SNOW EVENTS MONITORED:

MONITORING PERIOD: October 1979 to March 1980

SOURCE:

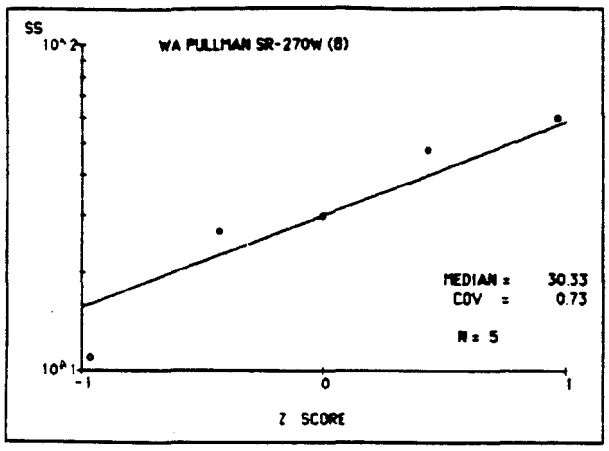
Report: "Summary -- Washington State Highway Runoff Water Quality Study, 1977-1982," by Mar, et al., Department of Civil Engineering, University of Washington (September 1982). Prepared for the Washington State Department of Transportation

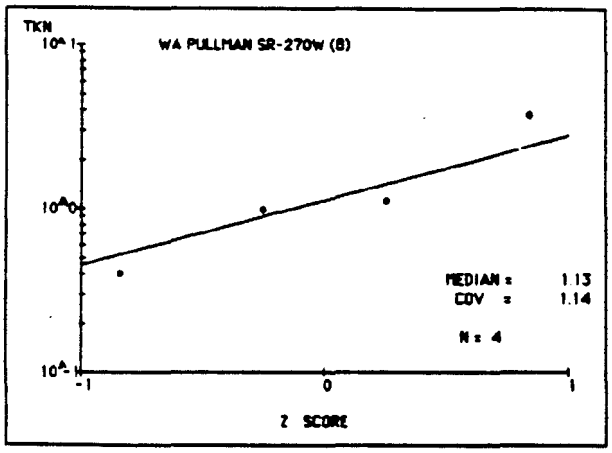
REMARKS:

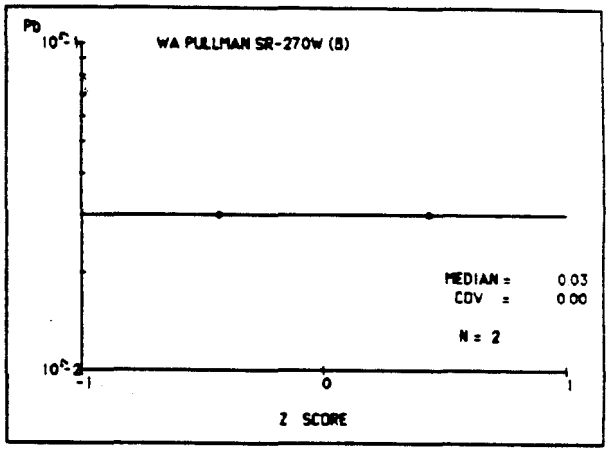
Runoff data were extracted from a computer tape of a data base of all sites studied in the State program, provided by the University of Washington. The concentrations on the tape were listed as EMCs.

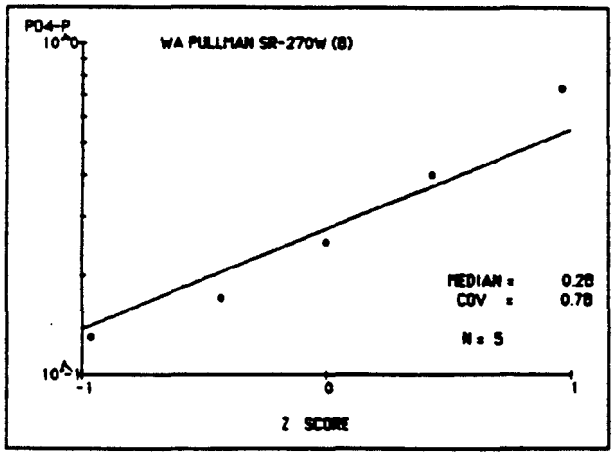
Note: This site is at same location as site WA Pullman (9). It is the traffic lane in the opposite direction.

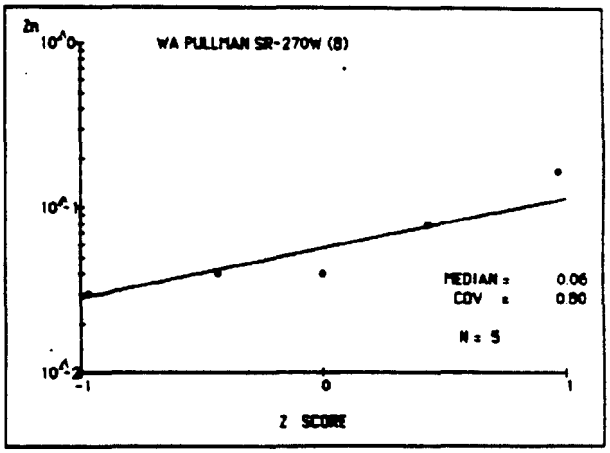
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
1	101479	0.23		0.17	0.72	27		191	0.01	0.730	0.000	0.000	0.170	4.8		11		3.71						
2	101979	1.15		0.63	0.55	11		57	0.26	0.130	0.000	0.000	0.040	6.0		11		0.99						
3	102679	0.90		0.66	0.73	48		30	0.40	0.250	0.000	0.000	0.040	5.9		9		1.12						
4	122779					60		34	0.34	0.400	0.000	0.030	0.080	5.2		15		0.40	10					
6	30380	0.60				30		31	0.53	0.170	0.000	0.030	0.030	5.5		3								
	Mean	0.79		0.56	0.67	38		69	0.68	0.350	0.000	0.030	0.074	5.5		11		1.72						
	Median	0.61		0.41	0.66	30		51	0.18	0.276	0.000	0.030	0.058	5.5		9		1.13	10					
	COV	0.81		0.92	0.16	0.73		0.92	3.67	0.78	0.00	0.00	0.80	0.09		0.69		1.14						
	N	4	0	3	3	5	0	5	5	5	5	5	5	5	0	5	0	4	1	0	0	0	0	0


SS
WA PULLMAN SR-270W (8)
MEDIAN = 30.33
COV = 0.73
N = 5
Z SCORE


TKN
WA PULLMAN SR-270W (8)
MEDIAN = 1.13
COV = 1.14
N = 4
Z SCORE


Pb
WA PULLMAN SR-270W (8)
MEDIAN = 0.03
COV = 0.00
N = 2
Z SCORE


PO4-P
WA PULLMAN SR-270W (8)
MEDIAN = 0.28
COV = 0.78
N = 5
Z SCORE


Zn
WA PULLMAN SR-270W (8)
MEDIAN = 0.06
COV = 0.50
N = 5
Z SCORE

SITE: WA PULLMAN (9)
SR-270W

STATE: Washington

LOCATION: Westbound lanes, 2.5 miles west of the city

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 2

NO. OF TRAFFIC LANES MONITORED: 1

AVERAGE DAILY TRAFFIC - ADT (VPD): 5,000

ADT PER LANE (VPD): 2,500

DRAINAGE AREA (ACRES): 0.25

PERCENT IMPERVIOUS: 100

LENGTH OF ROAD SURFACE (FEET): 500

ROAD SURFACE TYPE: ASPHALT

CURB: YES

SECTION TYPE: AT GRADE

LAND USE: NON-URBAN, AGRICULTURAL

AVERAGE ANNUAL PRECIPITATION (IN): 18

AVERAGE WIND SPEED (FT/SEC): 5.3

NO. OF EVENTS MONITORED: 39

NO. OF SNOW EVENTS MONITORED: 2

MONITORING PERIOD: October 1979 to December 1981

SOURCE:

Report: "Summary -- Washington State Highway Runoff Water Quality Study, 1977-1982," by Mar, et al., Department of Civil Engineering, University of Washington (September 1982). Prepared for the Washington State Department of Transportation

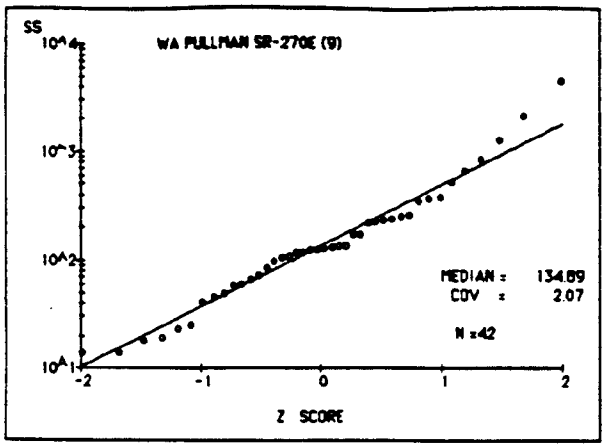
REMARKS:

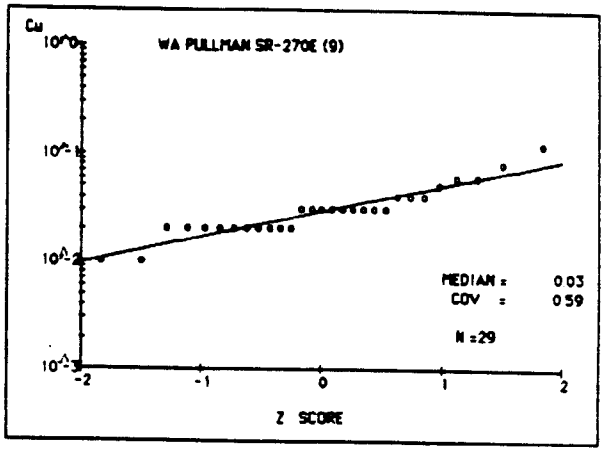
Runoff data were extracted from a computer tape of a data base of all sites studied in the State program, provided by the University of Washington. The concentrations on the tape were listed as EMCs.

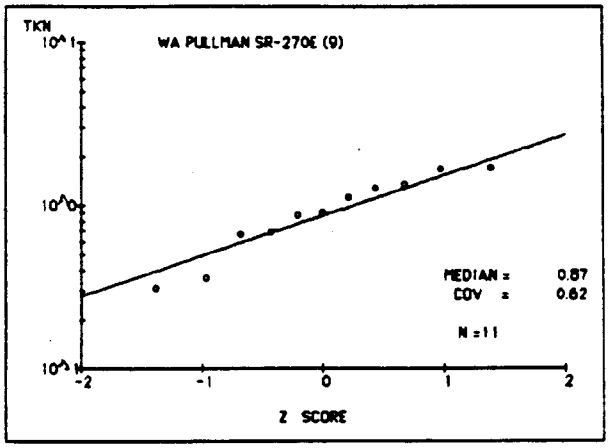
Note: This site is at same location as site WA Pullman (8). It is the traffic lane in the opposite direction.

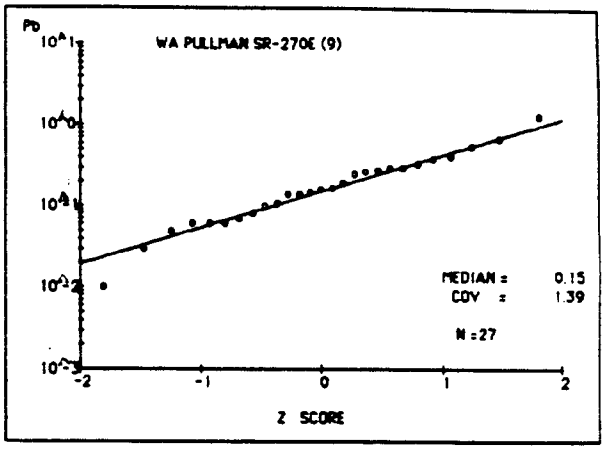
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	101479	0.23		0.13	0.56	45		276	0.01	0.95	0.020	0.100	0.470	5.1		14								
2	101979	1.15		0.79	0.69	19		57	0.33	0.21	0.000	0.000	0.040	6.0		8								
3	102879	0.90		0.51	0.57	14		25	0.45	0.08	0.000	0.000	0.080	6.0		5		0.66						
4	122779					116		140	0.60	0.66	0.000	0.300	0.230	4.0		35		1.26	7					
5	11180					522		152	0.24	1.69	0.040	0.300	0.100	4.4		116		0.36	0					
6	30380	0.60				41		32	0.58	0.13	0.040	0.000	0.010	5.3		4			11					
7	50180	0.30		0.13	0.44	58		220	2.75		0.060	0.000	0.410	6.4		22								
8	50880	0.25		0.12	0.47	256		132	0.77		0.000	0.000	0.150	6.1		41								
9	50980	0.45		0.69	1.54	23		48	0.38		0.000	0.000	0.090	6.8		6								
10	51080					25		23	0.32		0.040	0.000	0.030	7.8		18								
11	61380	2.25	54.00	0.47	0.21	4,545		198	0.50		0.120	0.250	0.540	5.1		35	2							
12	62080	1.05	23.00	0.36	0.34	2,112		241	0.26	2.06	0.060	0.680	0.200	4.4		93	6	1.66						
13	62980	0.25	1.00	0.18	0.72	368		95	0.46	0.50	0.030	0.170	0.190	5.2		35	3	1.70						
14	90380	0.60	7.00	0.31	0.51	59		35	0.45	0.16	0.030	0.030	0.070	5.1		9	1	1.33						
15	92180	0.90	28.00	0.45	0.50	118		53		0.25	0.030	0.080	0.110	5.2		31	19	0.69						
16	101580	0.65	43.00	1.31	2.01	107		78		0.45	0.010	0.060		5.4		28		0.91						
17	110280	0.30	10.00	0.07	0.24	232		177		0.67	0.020	0.280	0.160	5.3		54	4							
18	110880	1.33	19.00	0.70	0.53	134		34						5.1		21								
19	112280	1.20	22.00	0.53	0.44	125		78		0.27				5.3		24								
20	21881	0.18	296.00	0.08	0.47	169		56		0.56	0.020	0.110		4.7		18								
21	22281	0.45	3.00	0.10	0.22	1,280		523		3.73	0.080	1.300	0.310	4.0		117								
22	22581	0.16	8.00	0.08	0.48	73		43	0.66	0.19		0.050	0.030	5.3		16		0.31						
24	33081	1.50	35.00	0.75	0.50	66		29	1.82	0.39				5.3		7	0	1.12						
25	40181	0.53	8.00	0.30	0.56	126		52	0.57					5.4		18		0.87						
26	40881	0.22	15.00	0.09	0.41	838		93	0.63					4.8		82	10							
29	42481	0.53	22.00	0.52	0.99	240		62	0.35					5.2		12								
30	50181	0.38	15.00	0.31	0.82			107																
31	92081	0.17	8.00	0.13	0.79	220		102		0.87	0.030	0.410	0.220	5.0		30								
32	92881	0.40	43.00	0.09	0.23	375		97		1.15	0.030	0.270	0.140	5.9		92								
33	100381	0.36	17.00	0.16	0.44	49		1		0.35	0.020	0.070	0.070	5.1		9								
34	100881	0.74	29.00	0.21	0.29	18				0.25	0.020	0.010	0.040	6.2		7								
35	101281	0.34	43.00	0.05	0.15	106		22		0.40	0.020	0.060	0.100	5.1		11	17							
36	103081	0.75	459.00	0.24	0.32	170		88		0.66	0.020	0.140	0.170	5.4		35	18							
37	100981	0.28	6.00	0.10	0.37	124		81		0.54	0.010	0.060	0.080	4.6		28								
38	111681	0.18	37.00	0.08	0.43	663		154		1.37	0.020	0.540	0.180	5.4		86	17							
39	111381	0.34	12.00	0.10	0.29	98		89		0.79	0.030	0.140	0.140	4.8		49	26							
40	111681	1.05	37.00	0.39	0.37	138		58		0.41	0.020	0.160	0.090	5.2		27								
41	112181	0.30	23.00	0.11	0.35	85		42		0.36	0.020	0.150	0.080	5.0		18	32							
42	112381	0.45	16.00	0.18	0.35	14		24		0.12	0.050	0.330	0.120	4.6		6	24							
43	120281	0.57	17.00	0.20	0.35	222		100		0.69				6.2		34	29							
44	120881	1.52	34.00	0.15	0.10	342		76		1.04	0.030	0.390	0.130	5.9		73	41							
45	121481	0.40	7.00	0.20	0.50	249		78		0.79	0.030	0.190	0.120	5.1		24	90							
46	121781	0.35	28.00	0.14	0.40	132				0.28	0.030		0.090	6.0		19								
	Mean	0.81	37.76	0.29	0.51	310		112	0.79	0.70	0.034	0.265	0.159	5.3		35	26	1.02	9					
	Median	0.48	19.60	0.21	0.43	135		68	0.43	0.49	0.029	0.155	0.112	5.3		23	12	0.87	9					
	COV	0.77	1.65	0.98	0.61	2.07		1.31	1.51	1.04	0.59	1.39	0.99	0.14		1.11	1.83	0.62	0.33					
	N	40	33	39	39	42	0	41	19	33	34	34	33	42	0	42	17	11	3	0	0	0	0	0

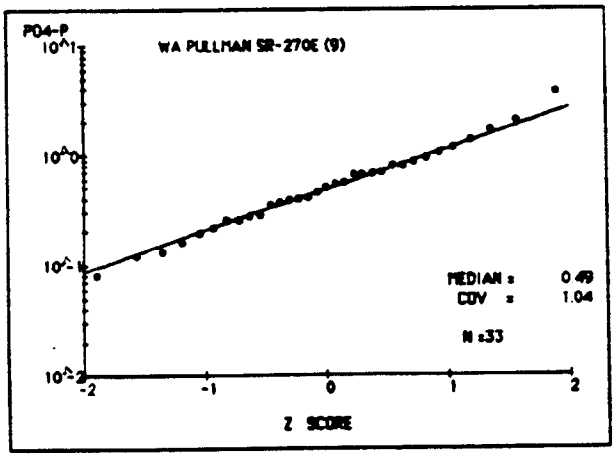
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	101479	0.23		0.13	0.56	45		276		0.95	0.020	0.100	0.470	5.1		14								
2	101979	1.15		0.79	0.69	19		57	0.33	0.21	0.000	0.000	0.040	6.0		8								
3	102679	0.90		0.51	0.57	14		25	0.45	0.08	0.000	0.000	0.080	6.0		5		0.66						
4	122779					116		140	0.60	0.66	0.000	0.300	0.230	4.0		35		1.26	7					
5	11180					522		152	0.24	1.69	0.040	0.300	0.100	4.4		116		0.36	0					
6	30380	0.60				41		32	0.56	0.13	0.040	0.000	0.010	5.3		4			11					
7	50180	0.30		0.13	0.44	58		220	2.75		0.060	0.000	0.410	6.4		22								
8	50880	0.25		0.12	0.47	256		132	0.77		0.000	0.000	0.150	6.1		41								
9	50980	0.45		0.69	1.54	23		48	0.38		0.000	0.000	0.090	6.8		6								
10	51080					25		23	0.32		0.040	0.000	0.030	7.8		18								
14	90380	0.60	7.00	0.31	0.51	59		35	0.45	0.16	0.030	0.030	0.070	5.1		9	1	1.33						
15	92180	0.90	28.00	0.45	0.50	116		53		0.25	0.030	0.080	0.110	5.2		31	19	0.69						
16	101580	0.85	43.00	1.31	2.01	107		78		0.45	0.010	0.060		5.4		28		0.91						
17	110280	0.30	10.00	0.07	0.24	232		177		0.67	0.020	0.260	0.160	5.3		54	4							
18	110880	1.33	19.00	0.70	0.53	134		34						5.1		21								
19	112280	1.20	22.00	0.53	0.44	125		76		0.27				5.3		24								
22	22581	0.18	8.00	0.08	0.48	73		43	0.66	0.19		0.050	0.030	5.3		16		0.31						
24	33081	1.50	35.00	0.75	0.50	66		29	1.62	0.39				5.3		7	0	1.12						
25	40181	0.53	8.00	0.30	0.56	128		52	0.57					5.4		18		0.87						
26	40881	0.22	15.00	0.09	0.41	838		93	0.63					4.8		82	10							
29	42481	0.53	22.00	0.52	0.99	240		62	0.35					5.2		12								
30	50181	0.38	15.00	0.31	0.82			107																
31	92081	0.17	6.00	0.13	0.79	220		102		0.87	0.030	0.410	0.220	5.0		30								
32	92881	0.40	43.00	0.09	0.23	375		97		1.15	0.030	0.270	0.140	5.9		92								
33	100381	0.38	17.00	0.16	0.44	49		1		0.35	0.020	0.070	0.070	5.1		9								
34	100881	0.74	29.00	0.21	0.29	18				0.25	0.020	0.010	0.040	6.2		7								
35	101281	0.34	43.00	0.05	0.15	106		22		0.40	0.020	0.060	0.100	5.1		11	17							
36	103081	0.75	459.00	0.24	0.32	170		68		0.66	0.020	0.140	0.170	5.4		35	18							
37	100981	0.26	6.00	0.10	0.37	124		81		0.54	0.010	0.060	0.080	4.6		28								
38	111681	0.18	37.00	0.08	0.43	663		154		1.37	0.020	0.540	0.180	5.4		86	17							
39	111381	0.34	12.00	0.10	0.29	98		69		0.79	0.030	0.140	0.140	4.8		49	26							
40	111681	1.05	37.00	0.39	0.37	136		58		0.41	0.020	0.160	0.090	5.2		27								
41	112181	0.30	23.00	0.11	0.35	85		42		0.36	0.020	0.150	0.080	5.0		18	32							
42	112381	0.45	16.00	0.16	0.35	14		24		0.12	0.050	0.330	0.120	4.6		6	24							
43	120281	0.57	17.00	0.20	0.35	222		100		0.69				6.2		34	29							
44	120881	1.52	34.00	0.15	0.10	342		76		1.04	0.030	0.390	0.130	5.9		73	41							
45	121481	0.40	7.00	0.20	0.50	249		78		0.79	0.030	0.190	0.120	5.1		24	90							
46	121781	0.35	28.00	0.14	0.40	132				0.28	0.030		0.090	6.0		19								
	Mean	0.58	30.00	0.30	0.53	180		96	0.70	0.58	0.028	0.211	0.135	5.4		31	31	0.88	9					
	Median	0.48	20.29	0.21	0.45	104		60	0.57	0.43	0.026	0.130	0.099	5.4		21	17	0.75	9					
	COV	0.70	1.09	1.00	0.61	1.41		1.23	0.72	0.91	0.45	1.28	0.93	0.13		1.07	1.57	0.56	0.33					
	N	35	28	34	34	37	0	36	15	29	29	29	29	37	0	37	14	9	3	0	0	0	0	0
20	21881	0.16	296.00	0.08	0.47	169		56		0.56	0.020	0.110		4.7		18								
21	22281	0.45	3.00	0.10	0.22	1,280		523		3.73	0.080	1.300	0.310	4.0		117								

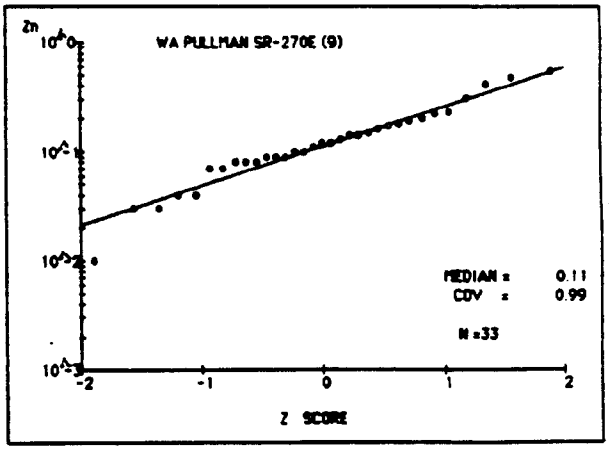

SS
WA PULLMAN SR-270E (9)
MEDIAN = 134.89
COV = 2.07
N =42
Z SCORE


Cu
WA PULLMAN SR-270E (9)
MEDIAN = 0.03
COV = 0.59
N =29
Z SCORE


TKN
WA PULLMAN SR-270E (9)
MEDIAN = 0.87
COV = 0.62
N =11
Z SCORE


Pb
WA PULLMAN SR-270E (9)
MEDIAN = 0.15
COV = 1.39
N =27
Z SCORE


PO4-P
WA PULLMAN SR-270E (9)
MEDIAN = 0.49
COV = 1.04
N =33
Z SCORE


Zn
WA PULLMAN SR-270E (9)
MEDIAN = 0.11
COV = 0.99
N =33
Z SCORE

SITE: WA PULLMAN CONTROL (10)
SR-270E

STATE: Washington

LOCATION: Eastbound lanes, 2.3 miles west of the City of Pullman

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 2

NO. OF TRAFFIC LANES MONITORED: 1

AVERAGE DAILY TRAFFIC - ADT (VPD): 5,000

ADT PER LANE (VPD): 2,500

DRAINAGE AREA (ACRES): 0.30

PERCENT IMPERVIOUS: 100

LENGTH OF ROAD SURFACE (FEET): 500

ROAD SURFACE TYPE: ASPHALT

CURB: YES

SECTION TYPE: AT GRADE

LAND USE: AGRICULTURE

AVERAGE ANNUAL PRECIPITATION (IN): 18.0

AVERAGE WIND SPEED (FT/SEC): 5.3

NO. OF EVENTS MONITORED: 10

NO. OF SNOW EVENTS MONITORED:

MONITORING PERIOD: December 1979 to December 1981

SOURCE:

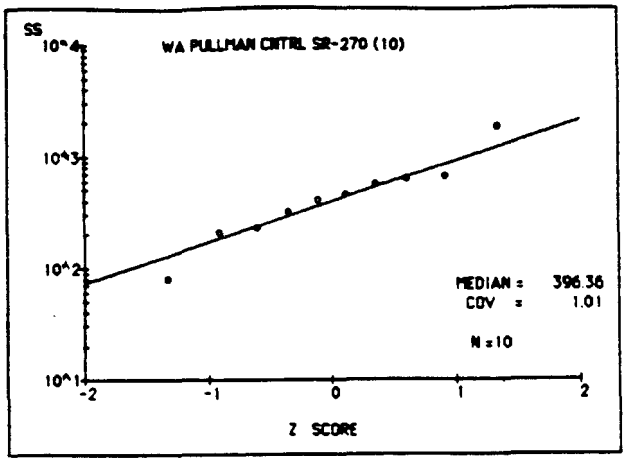
Report: "Summary -- Washington State Highway Runoff Water Quality Study, 1977-1982," by Mar, et al., Department of Civil Engineering, University of Washington (September 1982). Prepared for the Washington State Department of Transportation

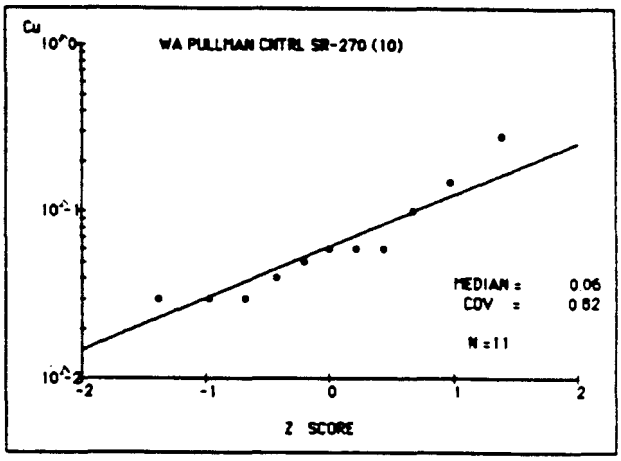
REMARKS:

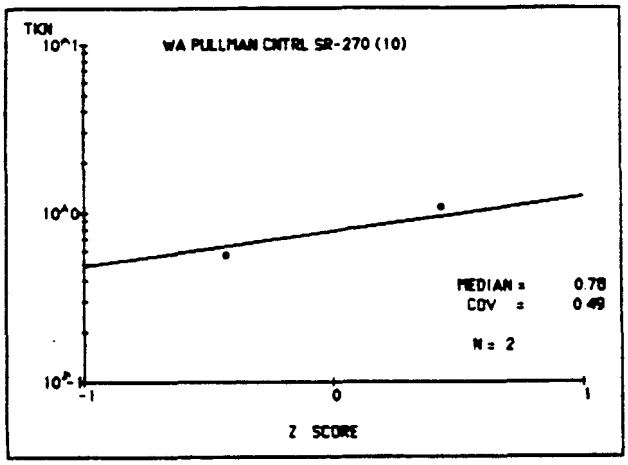
Runoff data were extracted from a computer tape of a data base of all sites studied in the State program, provided by the University of Washington. The concentrations on the tape were listed as EMCs.

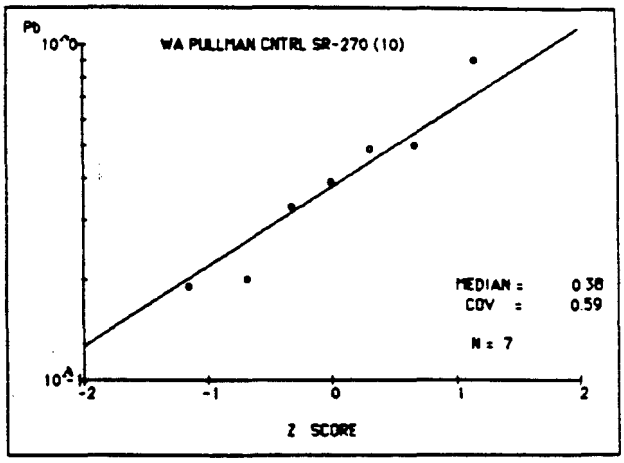
NOTE: This site is only 0.2 mile from sites WA Pullman (8) and (9) on the same highway.

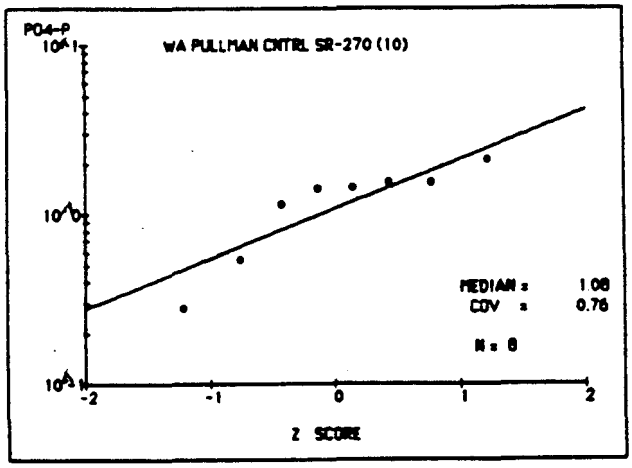
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
4	122779					318		128	0.37	0.280	0.060	0.000	0.130	5.9		82		1.08	6					
5	11180					626		302	0.31	1.550	0.050	0.000	0.170	5.7		120		0.56	0					
7	50380	0.30		0.13	0.44	566		206	1.50		0.060		0.050	7.2		71								
8	50880	0.25		0.12	0.47				0.54		0.280	0.900	0.980	7.3										
9	50980	0.45		0.19	0.43	402		64	0.41		0.060	0.000	0.090	7.9		44								
38	111681	0.18	37.00	0.12	0.67	1,855		198		2.100	0.150	0.490	0.310	6.1		200								
39	111381	0.48	12.00	0.17	0.35	458		147		1.560	0.040	0.390	0.180	5.7		108								
41	112181	0.30	23.00	0.20	0.67	665		86		1.420	0.030	0.200	0.090	5.8		70	18							
42	112381	0.45	16.00	0.30	0.67	80		14		0.540	0.100	0.500	0.230	5.9		22	27							
45	121461	0.40	7.00	0.33	0.82	228		81		1.450	0.030	0.190	0.060	6.0		55	16							
46	121781	0.35	28.00	0.29	0.83	205		222		1.140	0.030	0.330	0.100	5.3		32	26							
	Mean	0.35	21.43	0.21	0.60	564		168	0.63	1.350	0.080	0.438	0.208	6.3		83	22	0.87	9.69					
	Median	0.34	17.82	0.19	0.57	396		112	0.52	1.076	0.062	0.377	0.147	6.2		67	21	0.78	1.55					
	COV	0.33	0.67	0.42	0.32	1.01		1.09	0.69	0.76	0.82	0.59	1.01	0.13		0.73	0.27	0.49	6.17					
	N	9	8	9	9	10	0	10	5	8	11	10	11	11	0	10	4	2	2	0	0	0	0	0

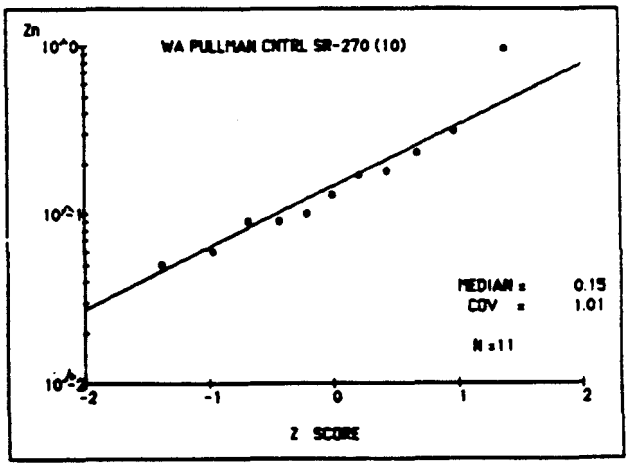

SS
WA PULLMAN CNTRL SR-270 (10)
MEDIAN = 396.36
COV = 1.01
N = 10
Z SCORE


Cu
WA PULLMAN CNTRL SR-270 (10)
MEDIAN = 0.06
COV = 0.62
N = 11
Z SCORE


TKN
WA PULLMAN CNTRL SR-270 (10)
MEDIAN = 0.78
COV = 0.49
N = 2
Z SCORE


Pb
WA PULLMAN CNTRL SR-270 (10)
MEDIAN = 0.38
COV = 0.59
N = 7
Z SCORE


PO4-P
WA PULLMAN CNTRL SR-270 (10)
MEDIAN = 1.08
COV = 0.76
N = 8
Z SCORE


Zn
WA PULLMAN CNTRL SR-270 (10)
MEDIAN = 0.15
COV = 1.01
N = 11
Z SCORE

SITE: WA SEATTLE (1)
I-5

STATE: Washington

LOCATION: Northbound lanes of I-5, near 158th NW in the Seattle urban area

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 8

NO. OF TRAFFIC LANES MONITORED: 4

AVERAGE DAILY TRAFFIC - ADT (VPD): 106,000

ADT PER LANE (VPD): 13,250

DRAINAGE AREA (ACRES): 1.2

PERCENT IMPERVIOUS: 100

LENGTH OF ROAD SURFACE (FEET): 780

ROAD SURFACE TYPE: CONCRETE

CURB: YES

SECTION TYPE: AT GRADE

LAND USE: NON-URBAN, AGRICULTURAL

AVERAGE ANNUAL PRECIPITATION (IN): 18

AVERAGE WIND SPEED (FT/SEC): 10.2

NO. OF EVENTS MONITORED: 97

NO. OF SNOW EVENTS MONITORED: 3

MONITORING PERIOD: February 1979 to April 1981

SOURCE:

Report: "Summary -- Washington State Highway Runoff Water Quality Study, 1977-1982," by Mar, et al., Department of Civil Engineering, University of Washington (September 1982). Prepared by the Washington State Department of Transportation

REMARKS:

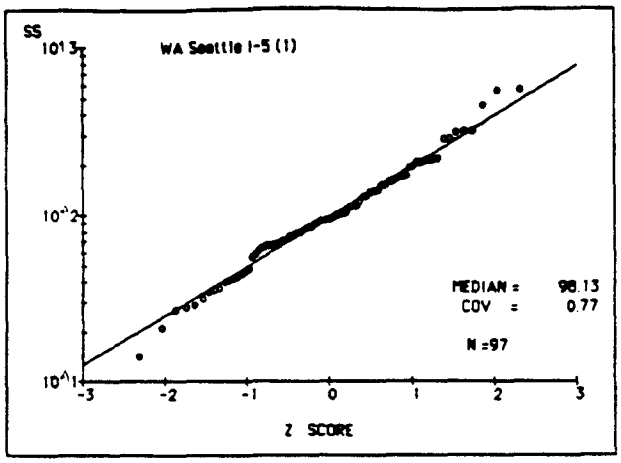
Runoff data were extracted from a computer tape of a data base of all sites studied in the State program, provided by the University of Washington. The concentrations on the tape were listed as EMCs.

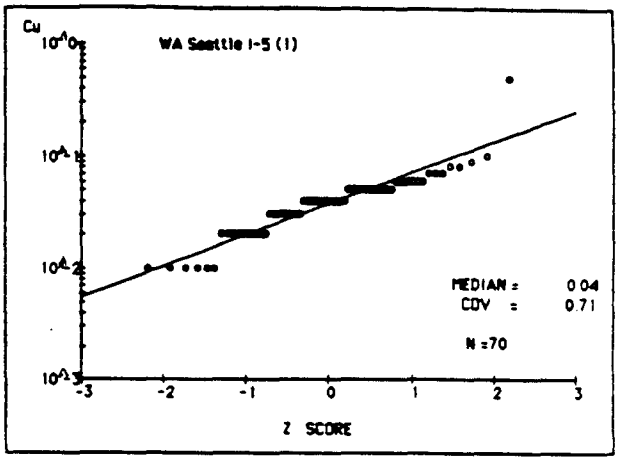
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
36	20579	0.15	4.00	0.13	0.84	216		152		0.260	0.040	0.800	0.400	7.0		80	35	0.80						
37	20679	0.28	8.00	0.18	0.58	194		194		0.390	0.050	0.800	0.390	6.5		86	29	0.80						
39	21079	0.36	12.00	0.08	0.21	114		103	0.73	0.370	0.040	0.900	0.400	6.8		56	26	1.40						
40	21379	1.76	33.00	0.87	0.38	206		87		0.120	0.040	0.900	0.320	7.1		56	6	0.80						
42	21679	0.50	9.00	0.18	0.31	192		101			0.030	1.100	0.350	6.9		66	27	0.80						
43	21979	0.04	1.00	0.02	0.51	96		93			0.010	0.200	0.200	7.0		34	30	0.80						
47	30479	0.66	18.00	0.20	0.30	130		75	0.52		0.030	0.600	0.230	6.7		29	10	0.80						
48	30779	0.10	1.00	0.11	1.10	312		189	0.59	0.200	0.050	1.200	0.420	5.5		46	20	0.90						
49	31579	0.47	10.00	0.14	0.30	284		211	0.49	0.550	0.080	0.800	0.440	6.6		100	21	1.40						
50	32979	0.12	3.00	0.04	0.34	136		141	1.13	0.290	0.010	0.800	0.490	6.2		24	34	1.80						
51	40279	0.12	5.00	0.03	0.27	43		125	1.60	0.270	0.010	0.400	0.350	6.0		25	31	2.00						
52	40479	0.19	7.00	0.17	0.92	77		157	0.71	0.310	0.010	0.400	0.210	6.8		36	19	1.00						
54	40879	0.10	2.00	0.08	0.78	101		158	0.96	0.400	0.050	0.900	0.490	6.1		27	47	1.30						
64	50479	0.14	4.00	0.13	0.96	112		103	0.32		0.020	0.500	0.350	6.9		12	13							
65	50579	0.26	9.00	0.26	1.00	72		79	0.31		0.020	0.300	0.250	6.4		14	13							
66	51679	0.04	1.00	0.04	1.00	91		206			0.040	0.600	0.650	6.1		49	42							
68	52779	0.04	1.00	0.04	1.08	95		160			0.070	1.400	1.100	6.2		32	43							
69	60579	0.17	1.00	0.28	1.62	320		202			0.020	0.900	0.400	5.1		81	40							
73	71079	0.32	7.00	0.44	1.37	103		111	0.52			0.800	0.390	6.6		26	37							
75	90579	0.27	6.00	0.15	0.56	130		87								8								
76	90779	0.11	2.00	0.10	0.91	67		84	0.43		0.500	0.500	0.700	7.5		21	20							
77	90879	0.19	1.00	0.16	0.83	169		158						6.9		35	19							
78	101479	0.25	7.00	0.21	0.82	97		81	1.41	0.200	0.040	0.800	0.750	5.4		26	22	1.22						
79	102079	0.74	18.00	0.29	0.39	32		81	0.50	0.110	0.040	0.100	0.320	5.9		12	18	0.83						
80	102479	1.08	18.00	0.72	0.67	59		53	0.35	0.120	0.020	0.100	0.150	5.4		15	9							
82	102779	0.68	12.00	0.50	0.74	84		23	0.48	0.140	0.000	0.000	0.060	6.0		14	12	0.14						
83	110379	0.28	8.00	0.18	0.58	36		65	0.49	0.130	0.000	0.100	0.310	5.7		10	15	0.50						
84	111979	0.33	19.00	0.11	0.33	209		72	1.00	0.560	0.000	0.400	0.360	5.0		48	34	1.69						
85	112379	1.01	19.00	0.49	0.49	27		39	0.43	0.120	0.000	0.400	0.290	5.7		7	19	1.05						
86	112779	0.45	14.00	0.23	0.51	37		51	0.72	0.110	0.000	0.000	0.190	5.8		17	17							
87		1.20	18.00	0.85	0.71	72		59	0.79	0.130	0.000	0.300	0.170	4.3		10	13	0.00						
88	120379	0.10	5.00	0.08	0.83	89		88	0.36	0.160	0.000	0.700	0.390	7.7		19	62	0.44						
89	120479	1.00	17.00	0.71	0.71	79		53	0.50	0.090	0.000	0.300	0.190	5.2		17	13	0.36						
90	120879	0.51	17.00	0.27	0.53	76		78	0.58	0.170	0.000	0.400	0.360	5.1		32	19	0.55						
94	121979	0.77	20.00	0.65	0.85	76		59	0.48	0.180	0.000	0.900	0.190	5.4		21	9	0.23						
95	122179	0.44	29.00	0.40	0.90	115		97	0.49	0.180	0.040	1.100	0.300	5.4		35	14	0.46						
99	11780	0.58	30.00	0.40	0.69	79		84	0.64	0.370	0.040	0.400	0.290	5.5		36		0.38	1					
100	20180	0.85	26.00	0.41	0.48	171		97	0.58	0.400	0.050	0.600	0.350	5.0		22		1.28	0					
101	20380	0.94	19.00	0.82	0.87	127		74	0.68	0.240	0.000	0.400	0.210	5.4		20		0.79	0					
102	20480	0.13	5.00	0.11	0.81	543		204	2.20	0.470	0.090	1.700	0.310	5.4		84		1.62	1					
108	30580	0.18	5.00	0.08	0.46	151		214	1.55	0.620	0.000	1.000	0.550	5.9		29		1.84	3					
110	31380	0.63	11.00	0.81	0.97	152		87	1.13	0.350	0.000	0.400	0.300	5.7		28		0.48	4					
111	31580	0.14	3.50	0.08	0.59	103		90	0.84	0.340	0.000	0.400	0.330	5.4		19		0.65	4					
112	31780	0.47	8.00	0.26	0.55	205		94	1.23	0.380	0.040	0.700	0.170	5.5		35		0.69	4					
114	32080	0.18	4.00	0.14	0.77	149		70	1.15	0.230	0.000	0.400	0.380	5.0		45		0.39	3					
115	32180	0.12	1.25	0.10	0.82	286		226	1.64	1.260	0.100	0.900	0.590	6.2		74		1.51	4					
121		0.17	2.00	0.11	0.67	140		115	0.55	0.000	0.060	0.600	0.290	5.8		29		0.58	1					
122	41480	0.10	1.50	0.06	0.58	86		21	2.06	0.310	0.060	0.400	0.570	5.7		36		1.68	2					
127	43080	0.10	2.25	0.05	0.50	40		102	1.92		0.000	0.300	0.360	7.4		8								
128	50480	0.05	1.50	0.03	0.58	35		231	4.66		0.050	0.400	1.050	7.2		14								
129	51580	0.11	2.00	0.05	0.49	219		247	1.80		0.080	1.100	1.010	7.0		50								
130	52160	0.65	9.00	0.49	0.76	64		79	0.55		0.040	0.400	0.330	7.4		19								
132	60180	0.45	7.50	0.50	1.11	78		166	0.54		0.000	0.400	0.340	5.9		19								
133	60280	0.27	8.00	0.23	0.86	82		130	0.91		0.060	0.400	0.360	6.3		26								
134	60680	0.40	10.00	0.25	0.63	86		126	1.06		0.050	0.500	0.390	5.8		35								
135	60980	0.43	10.00	0.43	1.01	139		101	0.86		0.000	0.400	0.340	5.7		34								
136	61680	0.65	13.00	0.54	0.83	141		126	1.01		0.060	0.740	0.640	5.9		36	6	1.71						
137	62580	0.68	9.00	0.90	1.33	92		90	0.64		0.040	0.400	0.290	6.1		20	4	0.56						
138	62680	0.09	3.00	0.02	0.22	161		277	1.59	0.420	0.070	1.170	1.150	6.1		55	11	1.84						
139	71180	0.18	5.00	0.02	0.11	73		299	2.99	0.330	0.060	0.610	3.090	5.2		37	12	2.97						
140	71480	0.15	6.00	0.05	0.36	94		209	1.74	0.250	0.050	0.670	1.360	4.7		32	11	1.08						
141	80280	0.18	5.00	0.07	0.40	86		220	2.66		0.070	0.930	2.430	5.1		33	7							
144	82780	0.18	4.00	0.05	0.30	452		549			0.050	0.570	0.580			126								
145	90380	0.52	16.00	0.16	0.30	167		211	0.22	0.450				6.6		42		0.87						39.0
146	90780	0.15	9.00	0.00	0.03	29		139	1.20	0.670	0.050	0.210	1.020	6.3		11	8	2.00						

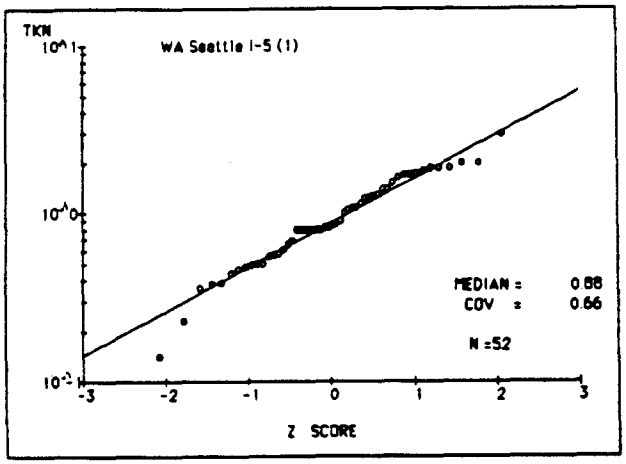
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv		SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	Cl (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
147	91580	0.17	9.00	0.00	0.02		14		130	1.25	0.170	0.050	0.320	2.580	6.0		11	91	1.87						
148	92380	0.25	6.00	0.06	0.24		120		244	0.66	0.260	0.050	0.860	0.910	6.4		50	16	1.24						
149	93080	0.36	7.00	0.11	0.31		169		253	0.96		0.060	0.880	0.880	6.3		65	11	1.14						
150	100980	0.14	7.00	0.03	0.24		104		169		0.350	0.050	0.720	1.200	5.8		44	10							
151	101380	0.22	7.00	0.09	0.42		62		134		0.170	0.030	0.500	1.540	6.3		22	3							464.0
152	102180	0.25	6.00	0.10	0.40		215		205						5.6		56	7							40.0
153	102680	0.33	6.00	0.17	0.50		100		120		0.310				6.0		48	0							23.0
154	110480	1.64	35.00	1.23	0.75		67		79		0.190	0.030	0.430	0.250	6.3		25								
155	110580	0.43	4.00	0.49	1.14		552		141		0.300	0.050	0.830	0.360	6.3		428								
156	110780	1.09	16.00	0.92	0.84		68		38		0.160	0.030	0.410	0.210	6.7		27	0							
157	111080	0.41	10.00	0.31	0.75		28		36		0.110	0.020	0.210	0.110	6.5		13	3							
158	111880	0.20	2.00	0.04	0.22		48		80		0.110	0.030	0.300	0.640	6.4		26								
159	112080	0.16	3.00	0.13	0.81		94		107		0.130	0.030	0.560	0.360	6.5		35	4							
160	112280	1.51	16.00	1.21	0.80		102		79		0.140	0.030	0.470	0.230	6.0		28	11							
161	112460	0.07	3.00	0.06	0.90		41		91		0.060	0.010	0.220	0.370	5.7		16	3							
162	120180	1.75	34.00	1.87	1.07		46		52			0.020	0.250	0.130	6.3		16								943.0
163	120380	1.50	28.00	1.44	0.96		68		70		0.090	0.040	0.350	0.190	6.5		24								
164	120680	0.27	13.00	0.12	0.46		115		82		0.150	0.020	0.510	0.310	6.3		42	3							
165	122380	1.62	35.00	1.30	0.80		93		85		0.170				6.3		29								
167	122680	0.29	7.00	0.27	0.93		66		37		0.140	0.010	0.260	0.170	6.5		17								
168	123180	1.18	34.00	0.73	0.62		95		64		0.220	0.030	0.440	0.270	6.6		21								
169	12081	0.45	18.00	0.38	0.84		65		124		0.250				6.4		22	0							7.0
170	12581	1.09	48.00	0.94	0.86		158		1291		0.310				6.6		51	11							
171	20181	1.34	32.00	1.13	0.84		137					0.040	0.450	0.290	6.6		36								
172	21881	2.36	80.00	1.98	0.84		159		83		0.370	0.040	0.540	0.310	6.6		30	3	0.85						19.0
173	22081	1.11	16.00	1.34	1.21		320		130		0.580	0.060	0.960	0.430	6.7		35								
174	22681	0.97	38.00	0.78	0.80		57		91	0.99	0.300	0.030	0.260	0.280	6.4		17								
175	30481	0.46	18.00	0.28	0.60		69		114	1.36	0.040	0.040	0.410	0.400	6.7		25		0.82						
176	31681	0.69	25.00	0.50	0.72		112		160	1.39	0.310	0.050	0.410	0.380	6.4		32		1.08						
177	32581	0.90	25.00	0.74	0.82		45		62	1.26	0.150	0.020	0.170	0.190	6.5		14	4	0.50						
178	33081	0.34	11.00	0.38	1.13		42		60	0.66	0.150	0.020	0.120	0.170	6.6		12	10	0.49						
179	40381	0.42	12.00	0.37	0.88		21		34	1.04	0.110	0.020	0.080	0.180	6.8		4	50	0.61						
181	41081	1.38	14.00	1.19	0.86				69	0.70															
182	42481	0.30	9.00	0.18	0.59		30		86	1.71		0.021	0.158	0.422			6								29.9
183	42981	0.60	15.00	0.44	0.73		56		65	1.03		0.026	0.282	0.303			17	2							
184	50481	0.26	5.00	0.13	0.49		64		89	0.60		0.035	0.400	0.742	6.2		20	5							
185	51081	0.10	10.00	0.03	0.28		35		158	1.76		0.283	0.112	0.684	6.2		6								
186	51281	0.56	4.00	0.88	1.21		74		79	0.82		0.026	0.069	0.097	6.0		17	2							
187	51581	0.11	3.00	0.06	0.53		268		231	0.12		0.060	0.780	0.610			67	15							
188	52181	0.64	25.00	0.31	0.49		57		95	0.97		0.025	0.187	0.289	6.1		19	6							
189	52781	0.21	9.00	0.13	0.64		21		71								9								
190	60481	0.19	8.00	0.07	0.39		131		183						5.7		45	27							
191	61381	1.10	34.00	0.59	0.54		57		79						6.0		16	4							
	Mean	0.52	13.25	0.43	0.72		120		128	1.03	0.272	0.047	0.566	0.484	6.1		34	19	1.05	3					211.1
	Median	0.33	8.11	0.19	0.58		94		106	0.84	0.225	0.038	0.453	0.383	6.1		27	13	0.88	2					53.0
	COV	1.20	1.29	1.94	0.73		0.80		0.68	0.70	0.68	0.74	0.75	0.77	0.11		0.80	1.10	0.66	0.69					3.85
	N	106	106	106	106	0	107	0	107	71	69	95	96	96	101	0	107	68	53	12	0	0	0	0	8

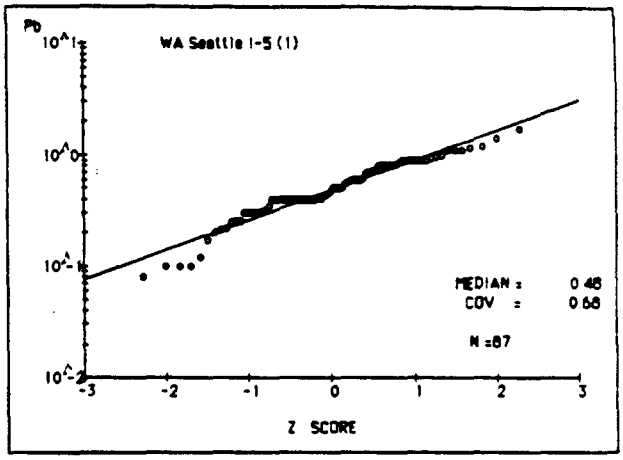
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	Cl (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
36	20579	0.15	4.00	0.13	0.84	216		152		0.260	0.040	0.800	0.400	7.0		80	35	0.80						
37	20679	0.28	8.00	0.16	0.56	194		194		0.390	0.050	0.800	0.390	6.5		86	29	0.80						
39	21079	0.36	12.00	0.08	0.21	114		103	0.73	0.370	0.040	0.900	0.400	6.8		56	26	1.40						
40	21379	1.76	33.00	0.67	0.38	206		67		0.120	0.040	0.900	0.320	7.1		56	6	0.80						
42	21679	0.50	9.00	0.16	0.31	192		101			0.030	1.100	0.350	6.9		66	27	0.80						
43	21979	0.04	1.00	0.02	0.51	96		93			0.010	0.200	0.200	7.0		34	30	0.80						
47	30479	0.66	18.00	0.20	0.30	130		75	0.52		0.030	0.600	0.230	6.7		29	10	0.80						
48	30779	0.10	1.00	0.11	1.10	312		189	0.59	0.200	0.050	1.200	0.420	5.5		46	20	0.90						
49	31579	0.47	10.00	0.14	0.30	284		211	0.49	0.550	0.080	0.800	0.440	6.6		100	21	1.40						
50	32979	0.12	3.00	0.04	0.34	136		141	1.13	0.290	0.010	0.800	0.490	6.2		24	34	1.80						
51	40279	0.12	5.00	0.03	0.27	43		125	1.60	0.270	0.010	0.400	0.350	6.0		25	31	2.00						
52	40479	0.19	7.00	0.17	0.92	77		157	0.71	0.310	0.010	0.400	0.210	6.8		36	19	1.00						
54	40879	0.10	2.00	0.08	0.78	101		158	0.96	0.400	0.050	0.900	0.490	6.1		27	47	1.30						
64	50479	0.14	4.00	0.13	0.96	112		103	0.32		0.020	0.500	0.350	6.9		12	13							
65	50579	0.26	9.00	0.26	1.00	72		79	0.31		0.020	0.300	0.250	6.4		14	13							
66	51679	0.04	1.00	0.04	1.00	91		206			0.040	0.600	0.650	6.1		49	42							
68	52779	0.04	1.00	0.04	1.08	95		160			0.070	1.400	1.100	6.2		32	43							
69	60579	0.17	1.00			320		202			0.020	0.900	0.400	5.1		81	40							
73	71079	0.32	7.00			103		111	0.52			0.800	0.390	6.6		26	37							
75	90579	0.27	6.00	0.15	0.56	130		87								8								
76	90779	0.11	2.00	0.10	0.91	67		84	0.43		0.500	0.500	0.700	7.5		21	20							
77	90879	0.19	1.00	0.16	0.83	169		158						6.9		35	19							
78	101479	0.25	7.00	0.21	0.82	97		61	1.41	0.200	0.040	0.800	0.750	5.4		26	22	1.22						
79	102079	0.74	18.00	0.29	0.39	32		61	0.50	0.110	0.040	0.100	0.320	5.9		12	18	0.83						
80	102479	1.06	18.00	0.72	0.67	59		53	0.35	0.120	0.020	0.100	0.150	5.4		15	9							
82	102779	0.68	12.00	0.50	0.74	84		23	0.48	0.140	0.000	0.000	0.060	6.0		14	12	0.14						
83	110379	0.26	6.00	0.16	0.58	36		65	0.49	0.130	0.000	0.100	0.310	5.7		10	15	0.50						
84	111979	0.33	19.00	0.11	0.33	209		72	1.00	0.560	0.000	0.400	0.360	5.0		48	34	1.69						
85	112379	1.01	19.00	0.49	0.49	27		39	0.43	0.120	0.000	0.400	0.290	5.7		7	19	1.05						
86	112779	0.45	14.00	0.23	0.51	37		51	0.72	0.110	0.000	0.000	0.190	5.8		17	17							
87		1.20	16.00	0.85	0.71	72		59	0.79	0.130	0.000	0.300	0.170	4.3		10	13	0.00						
88	120379	0.10	5.00	0.08	0.83	89		88	0.36	0.160	0.000	0.700	0.390	7.7		19	62	0.44						
89	120479	1.00	17.00	0.71	0.71	79		53	0.50	0.090	0.000	0.300	0.190	5.2		17	13	0.36						
90	120879	0.51	17.00	0.27	0.53	76		76	0.58	0.170	0.000	0.400	0.360	5.1		32	19	0.55						
94	121979	0.77	20.00	0.65	0.85	76		59	0.48	0.180	0.000	0.900	0.190	5.4		21	9	0.23						
95	122179	0.44	29.00	0.40	0.90	115		97	0.49	0.180	0.040	1.100	0.300	5.4		35	14	0.46						
100	20180	0.85	26.00	0.41	0.48	171		97	0.58	0.400	0.050	0.600	0.350	5.0		22		1.28	0					
101	20380	0.94	19.00	0.82	0.87	127		74	0.68	0.240	0.000	0.400	0.210	5.4		20		0.79	0					
102	20480	0.13	5.00	0.11	0.81	543		204	2.20	0.470	0.090	1.700	0.310	5.4		84		1.62	1					
108	30580	0.18	5.00	0.08	0.46	151		214	1.55	0.620	0.000	1.000	0.550	5.9		29		1.84	3					
110	31380	0.63	11.00	0.61	0.97	152		87	1.13	0.350	0.000	0.400	0.300	5.7		28		0.48	4					
111	31580	0.14	3.50	0.08	0.59	103		90	0.84	0.340	0.000	0.400	0.330	5.4		19		0.65	4					
112	31780	0.47	8.00	0.26	0.55	205		94	1.23	0.380	0.040	0.700	0.170	5.5		35		0.69	4					
121		0.17	2.00	0.11	0.67	140		115	0.55	0.000	0.060	0.600	0.290	5.8		29		0.58	1					
122	41480	0.10	1.50	0.06	0.58	86		21	2.06	0.310	0.060	0.400	0.570	5.7		36		1.68	2					
127	43080	0.10	2.25	0.05	0.50	40		102	1.92		0.000	0.300	0.360	7.4		8								
128	50480	0.05	1.50	0.03	0.58	35		231	4.66		0.050	0.400	1.050	7.2		14								
129	51580	0.11	2.00	0.05	0.49	219		247	1.80		0.080	1.100	1.010	7.0		50								
130	52180	0.65	9.00	0.49	0.76	64		79	0.55		0.040	0.400	0.330	7.4		19								
132	60180	0.45	7.50	0.50	1.11	78		166	0.54		0.000	0.400	0.340	5.9		19								
133	60280	0.27	8.00	0.23	0.86	82		130	0.91		0.060	0.400	0.360	6.3		26								
134	60680	0.40	10.00	0.25	0.63	86		126	1.06		0.050	0.500	0.390	5.8		35								
135	60980	0.43	10.00	0.43	1.01	139		101	0.86		0.000	0.400	0.340	5.7		34								
136	61680	0.65	13.00	0.54	0.83	141		126	1.01		0.060	0.740	0.640	5.9		36	6	1.71						
137	62580	0.68	9.00	0.90	1.33	92		90	0.64		0.040	0.400	0.290	6.1		20	4	0.56						
138	62680	0.09	3.00	0.02	0.22	161		277	1.59	0.420	0.070	1.170	1.150	6.1		55	11	1.84						
139	71180	0.18	5.00	0.02	0.11	73		299	2.99	0.330	0.060	0.610	3.090	5.2		37	12	2.97						
140	71480	0.15	6.00	0.05	0.36	94		209	1.74	0.250	0.050	0.670	1.360	4.7		32	11	1.08						
141	80280	0.18	5.00	0.07	0.40	86		220	2.66		0.070	0.930	2.430	5.1		33	7							
144	82780	0.18	4.00	0.05	0.30	452		549			0.050	0.570	0.580			126								
145	90380	0.52	16.00	0.16	0.30	167		211	0.22	0.450				6.6		42		0.87						
146	90780	0.15	9.00			29		139	1.20	0.670	0.050	0.310	1.020	6.3		11	6	2.00						39.0
147	91580	0.17	9.00			14		130	1.25	0.170	0.050	0.320	2.580	6.0		11	91	1.87						
148	92380	0.25	6.00	0.06	0.24	120		244	0.66	0.260	0.050	0.860	0.910	6.4		50	16	1.24						

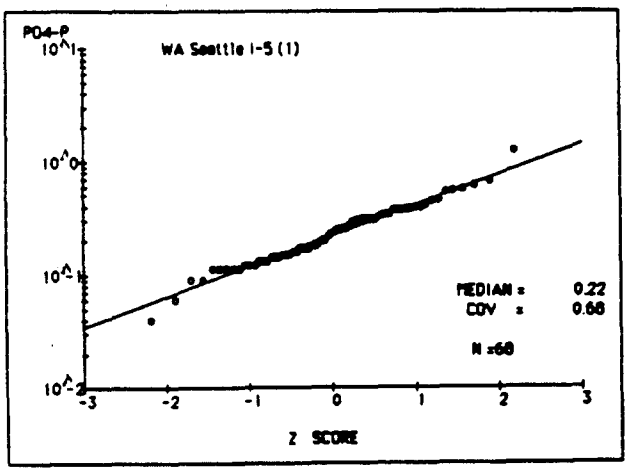
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
149	93080	0.36	7.00	0.11	0.31	169		253	0.96		0.060	0.880	0.880	6.3		65	11	1.14						
150	100980	0.14	7.00	0.03	0.24	104		169		0.350	0.050	0.720	1.200	5.8		44	10							
151	101380	0.22	7.00	0.09	0.42	62		134		0.170	0.030	0.500	1.540	6.3		22	3							464.0
152	102180	0.25	8.00	0.10	0.40	215		205						5.6		56	7							40.0
153	102680	0.33	6.00	0.17	0.50	100		120		0.310				6.0		48	0							23.0
154	110480	1.64	35.00	1.23	0.75	67		79		0.190	0.030	0.430	0.250	6.3		25								
155	110580	0.43	4.00	0.49	1.14	552		141		0.300	0.050	0.830	0.360	6.3		428								
156	110780	1.09	16.00	0.92	0.84	68		36		0.160	0.030	0.410	0.210	6.7		27	0							
157	111080	0.41	10.00	0.31	0.75	28		36		0.110	0.020	0.210	0.110	6.5		13	3							
158	111880	0.20	2.00	0.04	0.22	48		80		0.110	0.030	0.300	0.640	6.4		26								
159	112080	0.16	3.00	0.13	0.81	94		107		0.130	0.030	0.560	0.360	6.5		35	4							
160	112280	1.51	16.00	1.21	0.80	102		79		0.140	0.030	0.470	0.230	6.0		28	11							
161	112480	0.07	3.00	0.06	0.90	41		91		0.060	0.010	0.220	0.370	5.7		16	3							
162	120180	1.75	34.00	1.87	1.07	46		52			0.020	0.250	0.130	6.3		18								943.0
163	120380	1.50	26.00	1.44	0.96	68		70		0.090	0.040	0.350	0.190	6.5		24								
164	120680	0.27	13.00	0.12	0.46	115		82		0.150	0.020	0.510	0.310	6.3		42	3							
165	122380	1.62	35.00	1.30	0.80	93		85		0.170				6.3		29								
167	122880	0.29	7.00	0.27	0.93	66		37		0.140	0.010	0.260	0.170	6.5		17								
168	123180	1.18	34.00	0.73	0.62	95		64		0.220	0.030	0.440	0.270	6.6		21								
169	12081	0.45	18.00	0.38	0.84	65		124		0.250				6.4		22	0							7.0
170	12581	1.09	48.00	0.94	0.86	158		1291		0.310				6.6		51	11							
171	20181	1.34	32.00	1.13	0.84	137					0.040	0.450	0.290	6.6		36								
172	21881	2.36	80.00	1.98	0.84	159		83		0.370	0.040	0.540	0.310	6.6		30	3	0.85						19.0
173	22081	1.11	16.00			320		130		0.580	0.060	0.960	0.430	6.7		35								
174	22681	0.97	38.00	0.78	0.80	57		91	0.99	0.300	0.030	0.260	0.280	6.4		17								
175	30481	0.46	18.00	0.28	0.60	69		114	1.36	0.040	0.040	0.410	0.400	6.7		25		0.82						
176	31681	0.69	25.00	0.50	0.72	112		160	1.39	0.310	0.050	0.410	0.380	6.4		32		1.08						
177	32581	0.90	25.00	0.74	0.82	45		62	1.26	0.150	0.020	0.170	0.190	6.5		14	4	0.50						
178	33081	0.34	11.00	0.38	1.13	42		60	0.66	0.150	0.020	0.120	0.170	6.6		12	10	0.49						
179	40381	0.42	12.00	0.37	0.88	21		34	1.04	0.110	0.020	0.080	0.180	6.8		4	50	0.61						
181	41081	1.38	14.00	1.19	0.86			69	0.70															
182	42481	0.30	9.00	0.18	0.59	30		86	1.71		0.021	0.156	0.422			6								29.9
183	42981	0.60	15.00	0.44	0.73	56		65	1.03		0.026	0.262	0.303			17	2							
184	50481	0.26	5.00	0.13	0.49	64		89	0.60		0.035	0.400	0.742	6.2		20	5							
185	51081	0.10	10.00	0.03	0.28	35		158	1.76		0.283	0.112	0.684	6.2		6								
186	51281	0.56	4.00			74		79	0.82		0.026	0.069	0.097	6.0		17	2							
187	51581	0.11	3.00	0.06	0.53	268		231	0.12		0.060	0.780	0.610			67	15							
188	52181	0.64	25.00	0.31	0.49	57		95	0.97		0.025	0.187	0.289	6.1		19	6							
189	52781	0.21	9.00	0.13	0.64	21		71								9								
190	60481	0.19	8.00	0.07	0.39	131		183						5.7		45	27							
191	61381	1.10	34.00	0.59	0.54	57		79						6.0		16	4							
	Mean	0.53	13.24	0.39	0.67	118		128	1.02	0.258	0.046	0.566	0.486	6.2		34	19	1.07	3					211.1
	Median	0.34	8.20	0.20	0.60	93		106	0.83	0.217	0.037	0.451	0.382	6.1		26	13	0.90	2					53.0
	COV	1.20	1.27	1.66	0.50	0.80		0.68	0.71	0.65	0.74	0.76	0.79	0.10		0.80	1.10	0.65	0.70					3.85
	N	105	105	99	99	104	0	104	68	66	92	93	93	98	0	104	68	50	9	0	0	0	0	6
99	11780	0.58	30.00	0.40	0.69	79		84	0.64	0.370	0.040	0.400	0.290	5.5		36		0.38	1					
114	32080	0.18	4.00	0.14	0.77	149		70	1.15	0.230	0.000	0.400	0.380	5.0		45		0.39	3					
115	32180	0.12	1.25	0.10	0.82	286		226	1.64	1.260	0.100	0.900	0.590	6.2		74		1.51	4					
	Mean	0.32	19.35	0.23	0.76	184		134	1.19	0.698	0.078	0.585	0.429	7.0		53		0.83	3					
	Median	0.23	5.31	0.18	0.76	150		110	1.06	0.475	0.063	0.524	0.402	5.5		49		0.61	2					
	COV	0.98	3.50	0.84	0.09	0.72		0.70	0.50	1.08	0.72	0.50	0.37	1.38		0.38		0.93	0.84					
	N	3	3	3	3	3	0	3	3	3	3	3	3	3	0	3	0	3	3	0	0	0	0	0

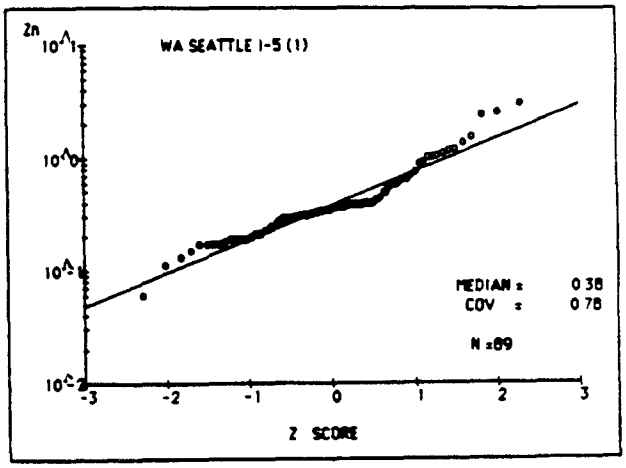

SS
WA Seattle I-5 (1)
MEDIAN = 98.13
COV = 0.77
N =97
Z SCORE


Cu
WA Seattle I-5 (1)
MEDIAN = 0.04
COV = 0.71
N =70
Z SCORE


TKN
WA Seattle I-5 (1)
MEDIAN = 0.88
COV = 0.66
N =52
Z SCORE


Pb
WA Seattle I-5 (1)
MEDIAN = 0.48
COV = 0.68
N =87
Z SCORE


PO4-P
WA Seattle I-5 (1)
MEDIAN = 0.22
COV = 0.68
N =68
Z SCORE


Zn
WA SEATTLE I-5 (1)
MEDIAN = 0.38
COV = 0.78
N =89
Z SCORE

SITE: WA SEATTLE (11)
I-5*

STATE: Washington

LOCATION: Northbound lanes of I-5, near 158th NW in the Seattle urban area

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 8

NO. OF TRAFFIC LANES MONITORED: 4

AVERAGE DAILY TRAFFIC - ADT (VPD): 53,000

ADT PER LANE (VPD): 6,625

DRAINAGE AREA (ACRES): 1.2

PERCENT IMPERVIOUS: 100

LENGTH OF ROAD SURFACE (FEET): 780

ROAD SURFACE TYPE: CONCRETE

CURB: YES

SECTION TYPE: AT GRADE

LAND USE: URBAN

AVERAGE ANNUAL PRECIPITATION (IN): 34.1

AVERAGE WIND SPEED (FT/SEC): 10.2

NO. OF EVENTS MONITORED: 25

NO. OF SNOW EVENTS MONITORED:

MONITORING PERIOD: August 1980 to December 1980

SOURCE:

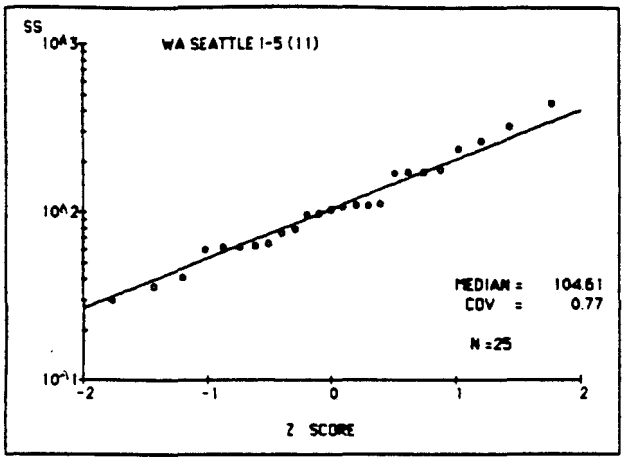
Report: "Summary -- Washington State Highway Runoff Water Quality Study, 1977-1982," by Mar, et al., Department of Civil Engineering, University of Washington (September 1982). Prepared for the Washington State Department of Transportation

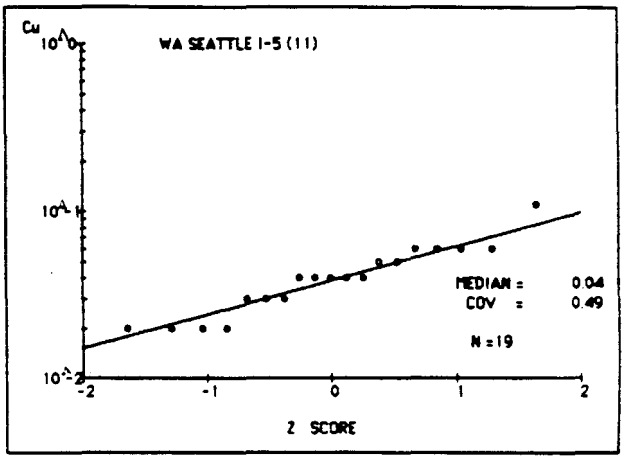
REMARKS:

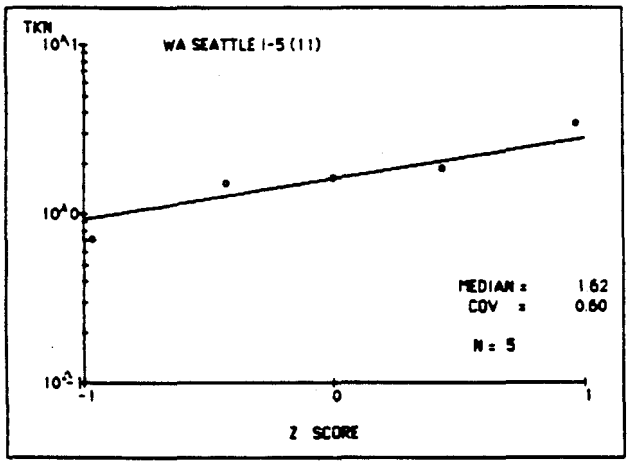
Runoff data were extracted from a computer tape of a data base of all sites studied in the State program, provided by the University of Washington. The concentrations on the tape were listed as EMCs.

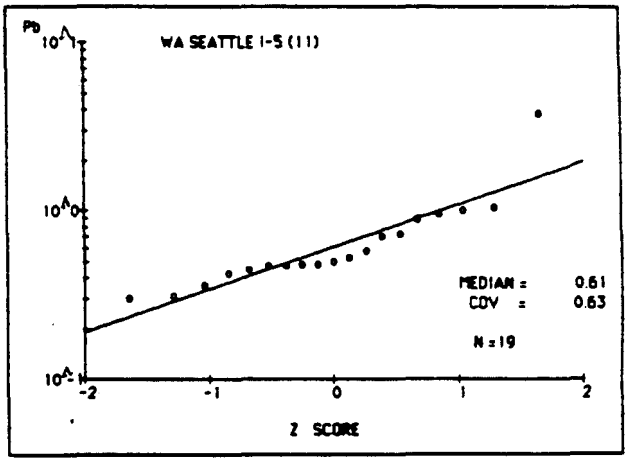
* Note: Adjacent site to WA Seattle I-5 (1), but used a different sampling technique to test reliability of sampling procedure.

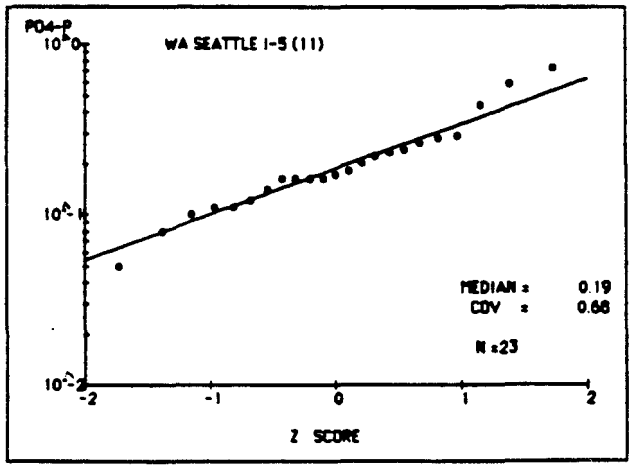
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	82780	0.18	4.00	0.01	0.07	452		549	0.23	0.730	0.110	3.770	4.770	6.2		126		3.41						
2	90380	0.53	16.00	0.06	0.12	97		140	0.54	0.170	0.060	0.700	0.670	6.3		29		0.72						
3	90780	0.15	9.00	0.07	0.45	30		128	1.22	0.140	0.050	0.360	0.980	6.2		16								
4	91580	0.17	9.00	0.07	0.41	41		134	2.86	0.110	0.040	0.500	2.550	5.9		25		1.84						
5	92380	0.25	6.00	0.17	0.69	76		136	1.18	0.240	0.040	0.580	1.040	6.1		42		1.63						
6	93060	0.36	7.00	0.18	0.49	168		187	1.04	0.160	0.060	0.960	0.980	6.3		69		1.51						
7	100960	0.14	7.00	0.04	0.29	112		177			0.060	0.890	1.610	5.7		45								
8	101360	0.22	7.00	0.11	0.50	62		79		0.160	0.040	0.470	0.590	6.5		21								
9	102160	0.25	6.00	0.08	0.32	324		272						5.8		86								
10	102680	0.33	6.00	0.18	0.54	99		136		0.280	0.040	0.730	0.690	5.8		36								
11	110480	1.64	35.00	1.46	0.89	60		68		0.200	0.030	0.480	0.270	6.6		16								
12	110580	0.43	4.00	0.50	1.16	178		96		0.260				6.3		40								
13	110780	1.09	16.00	0.87	0.80	237		111		0.590	0.060	1.040	0.390	6.2		48								
14	111060	0.41	10.00	0.35	0.85	63		47		0.180	0.020	0.420	0.450	7.0		22								
15	111860	0.20	2.00	0.04	0.21	36		76		0.080	0.020	0.300	1.040	6.1		19								
16	112060	0.16	3.00	0.12	0.73	174		155		0.220	0.050	1.010	0.610	6.5		52								
17	112260	1.51	16.00	1.21	0.80	110		68		0.120	0.020	0.480	0.230	6.0		24								
18	112480	0.07	3.00	0.01	0.21	110		117		0.100	0.020	0.450	0.870	5.6		27								
19	120160	1.75	34.00	1.66	0.95	62		60		0.050	0.030	0.310	0.200	6.4		21								
20	120360	1.50	28.00	1.59	1.06	108		47		0.160	0.040	0.530	0.230	6.7		36								
21	120680	0.27	13.00	0.02	0.07	267		180		0.440				6.4		62								
22	122360	1.62	35.00	1.31	0.81	80		110		0.230				6.3		25								
23	122680	2.18	36.00	1.74	0.80	104		85		0.160	0.030	0.470	0.200	6.0		26								
24	122880	0.29	7.00	0.41	1.42	65		73		0.110				6.5		13								
25	123180	1.18	34.00	0.78	0.66	172		137		0.290				6.4		48								
	Mean	0.69	14.52	0.71	0.67	132		133	1.30	0.225	0.043	0.722	0.953	6.2		39		1.89						
	Median	0.42	9.97	0.20	0.48	105		114	0.90	0.186	0.039	0.611	0.652	6.2		33		1.62						
	COV	1.29	1.06	3.34	0.99	0.77		0.60	1.04	0.68	0.49	0.63	1.07	0.05		0.61		0.60						
	N	25	25	25	25	25	0	25	6	23	19	19	19	25	0	25	0	5	0	0	0	0	0	0

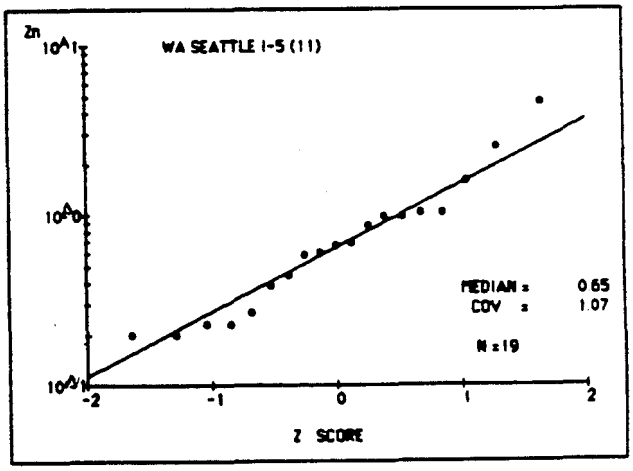

SS
WA SEATTLE I-5 (11)
MEDIAN = 104.61
COV = 0.77
N =25
Z SCORE


Cu
WA SEATTLE I-5 (11)
MEDIAN = 0.04
COV = 0.49
N =19
Z SCORE


TKN
WA SEATTLE I-5 (11)
MEDIAN = 1.62
COV = 0.60
N = 5
Z SCORE


Pb
WA SEATTLE I-5 (11)
MEDIAN = 0.61
COV = 0.63
N =19
Z SCORE


PO4-P
WA SEATTLE I-5 (11)
MEDIAN = 0.19
COV = 0.66
N =23
Z SCORE


Zn
WA SEATTLE I-5 (11)
MEDIAN = 0.65
COV = 1.07
N =19
Z SCORE

SITE: WA SEATTLE (2)
SR-520

STATE: Washington

LOCATION: Near Montlake, westbound lanes, NOAA parking lot

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 4

NO. OF TRAFFIC LANES MONITORED: 2

AVERAGE DAILY TRAFFIC - ADT (VPD): 84,000

ADT PER LANE (VPD): 21,000

DRAINAGE AREA (ACRES): 0.099

PERCENT IMPERVIOUS: 100

LENGTH OF ROAD SURFACE (FEET): 150

ROAD SURFACE TYPE: CONCRETE

CURB: YES

SECTION TYPE: BRIDGE

LAND USE: URBAN, UNDEFINED

AVERAGE ANNUAL PRECIPITATION (IN): 35

AVERAGE WIND SPEED (FT/SEC): 10.2

NO. OF EVENTS MONITORED: 37

NO. OF SNOW EVENTS MONITORED: 9

MONITORING PERIOD: October 1979 to May 1980

SOURCE:

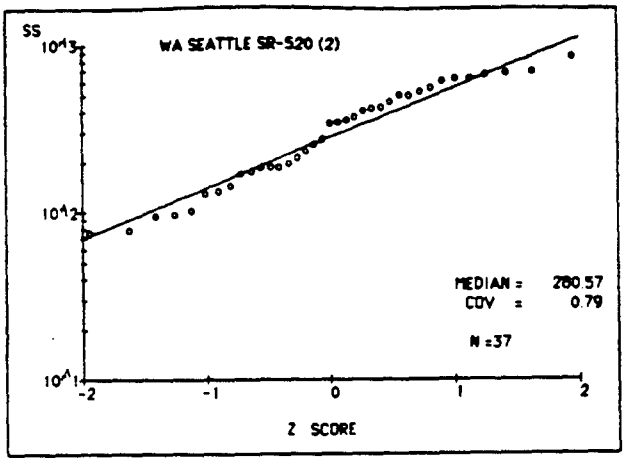
Report: "Summary -- Washington State Highway Runoff Water Quality Study, 1977-1982," by Mar, et al., Department of Civil Engineering, University of Washington (September 1982). Prepared for the Washington State Department of Transportation

REMARKS:

Runoff data were extracted from a computer tape of a data base of all sites studied in the State program, provided by the University of Washington. The concentrations on the tape were listed as EMCs.

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	101579	0.45	12	0.32	0.70	195		42	1.90	0.270	0.060	0.900	0.250	5.1		60	24	1.19						
2	101979	0.69	27	0.48	0.70	498		337	0.29	0.230	0.150	2.600	0.830	5.5		121	63	1.68						
3	102379	1.27	18	0.89	0.70	76		135	1.01	0.200	0.070	1.100	0.240	5.4		37	20	1.06						
4	102479	0.54	9	0.38	0.70	185		151		0.280	0.090	1.400	0.290	5.6		27	23							
5	102679	0.56	14	0.39	0.70	187		24	0.34	0.470	0.090	2.100	0.410	5.6		36		1.96						
6	102979	1.11	18	0.78	0.70	365		19	0.52	0.380	0.060	1.400	0.350	5.6		32	27	1.08						
7	110579	0.41	16	0.29	0.70	102		151	2.41	0.390	0.060	0.200	0.260	5.2		9	34	1.96						
8	111979	0.29	7	0.20	0.70	689		74	0.99	1.430	0.080	2.500	0.550	5.7		206	62							
9	112379	1.02	23	0.71	0.70	95		70	0.21	0.240	0.000	0.000	0.090	5.4		21	30	0.65						
10	112779	0.50	17	0.35	0.70	168		178		0.340	0.000	0.300	0.110	5.5		66	34	0.50						
11	120279	1.39	17	0.97	0.70	335		271	0.29	0.420	0.000	0.800	0.220	4.8		115	37	1.46						
12	120379	0.16	16	0.11	0.70	524		304	0.28	0.580	0.040	0.800	0.300	5.0		124	33	1.62						
13	121079	1.23	21	0.86	0.70	177		181	0.96	0.350	0.040	0.900	0.240	4.9		57	28	0.91	33					
14	121579	2.03	58	1.42	0.70	353		244	0.35	0.510	0.060	1.400	0.360	5.6		126	37	1.48	1					
15	121879	2.88	43	2.02	0.70	662		344	0.24	0.790	0.120	3.000	0.600	5.7		156	37	2.15	3					
16	121979	0.70	19	0.49	0.70	144		130	0.29	0.150	0.040	0.500	0.650	5.5		53	26	1.26	3					
17	10480	0.35	11	0.25	0.70	343		244	0.51	0.690	0.110	2.200	0.470	5.5		71	84	1.32	10					
18	11480	3.18	80	2.23	0.70	854		391	0.96	1.780	0.150	4.000	1.030	5.3		140		1.14	1					
19	11880	0.83	26	0.58	0.70	184		150	0.76	0.480	0.050	1.100	0.330	5.6		64		3.42	1					
20	20180	0.85	19	0.60	0.70	496		278	0.84	0.920	0.100	2.300	0.550	5.7		130			1					
21	22180	3.04	92	2.13	0.70	552		232		0.680				6.0		107			1					
22	22580	0.29	11	0.20	0.70	630		292	0.35	0.800	0.130	3.000	0.640	5.8		134		2.12	1					
23	22680	0.96	20	0.67	0.70	630		320	0.40	0.960	0.120	2.600	0.560	5.7		132		1.43	1					
24	22780	0.78	25	0.55	0.70	456		250	0.39	0.850	0.090	2.300	0.530	5.8		82		1.79	1					
25	22980	0.26	8	0.18	0.70	97		111	0.53	0.190	0.000	0.300	0.130	5.8		24		0.66	1					
26	30480	0.17	4	0.12	0.70	129		132	2.38	0.300	0.050	0.500	0.150	5.4		21		1.23	20					
27	31280	0.63	11	0.44	0.70	418		239	0.66	1.070	0.080	1.700	0.050	5.6		80		1.13	5					
28	31480	0.57	22	0.40	0.70	428		289	1.21	0.540	0.090	1.700	1.190	5.6		136		1.43	10					
29	31880	0.85	14	0.60	0.70	613		355	3.01	0.900	0.110	2.500	0.740	5.5		135		2.03	3					
30	32080	0.22	7	0.15	0.70	253		155	0.86	0.320	0.060	1.100	0.330	5.4		54		1.29	5					
31	32780	0.42	8	0.29	0.70	401		381	2.40	0.360	0.090	1.600	0.460	5.4		103		1.63	5					
32	33180	0.22	7	0.15	0.70	210		170	2.30	0.590	0.060	0.900	0.250	5.6		61		1.06	5					
33	40780	0.72	14	0.50	0.70	231		119	0.40	0.410	0.000	1.000	0.250	5.9		70		0.29	2					
34	40880	0.09	3	0.06	0.70	78		68	0.74	0.200	0.000	0.600	0.130	5.7		26		0.25	1					
36	41080	0.19	4	0.13	0.70	269		172	0.42	0.700	0.000	0.000	0.080	5.7		77		1.21	0					
39	42980	0.34	4	0.24	0.70	682		343	1.14		0.110	2.800	0.670	6.5		146			0					
40	50780	0.12	5	0.08	0.70	134		124	2.05		0.060	0.600	0.670	7.3		36								
	Mean	0.83	20	0.58	0.70	357		217	0.95	0.573	0.084	1.628	0.435	5.6		87	37	1.41	5					
	Median	0.56	14	0.40	0.70	281		166	0.70	0.476	0.078	1.236	0.329	5.6		67	35	1.21	3					
	COV	1.09	0.95	1.09		0.79		0.84	0.91	0.67	0.40	0.86	0.86	0.08		0.83	0.41	0.60	1.52					
	N	37	37	37	37	37	0	37	34	35	36	36	36	37	0	37	16	31	24	0	0	0	0	0

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv		SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	101579	0.45	12				195		42	1.90	0.270	0.060	0.900	0.250	5.1		60	24	1.19						
2	101979	0.69	27				498		337	0.29	0.230	0.150	2.600	0.830	5.5		121	63	1.68						
3	102379	1.27	18				76		135	1.01	0.200	0.070	1.100	0.240	5.4		37	20	1.06						
4	102479	0.54	9				185		151		0.280	0.090	1.400	0.290	5.6		27	23							
5	102679	0.56	14				187		24	0.34	0.470	0.090	2.100	0.410	5.6		36		1.96						
6	102979	1.11	18				365		19	0.52	0.380	0.060	1.400	0.350	5.6		32	27	1.08						
7	110579	0.41	16				102		151	2.41	0.390	0.060	0.200	0.260	5.2		9	34	1.96						
8	111979	0.29	7				689		74	0.99	1.430	0.080	2.500	0.550	5.7		206	62							
9	112379	1.02	23				95		70	0.21	0.240	0.000	0.000	0.090	5.4		21	30	0.65						
10	112779	0.50	17				168		178		0.340	0.000	0.300	0.110	5.5		66	34	0.50						
11	120279	1.39	17				335		271	0.29	0.420	0.000	0.800	0.220	4.8		115	37	1.46						
12	120379	0.16	16				524		304	0.28	0.580	0.040	0.800	0.300	5.0		124	33	1.62						
13	121079	1.23	21				177		181	0.96	0.350	0.040	0.900	0.240	4.9		57	28	0.91	33					
14	121579	2.03	58				353		244	0.35	0.510	0.060	1.400	0.360	5.6		126	37	1.48	1					
24	22780	0.78	25				456		250	0.39	0.850	0.090	2.300	0.530	5.8		82		1.79	1					
25	22980	0.26	8				97		111	0.53	0.190	0.000	0.300	0.130	5.8		24		0.66	1					
26	30480	0.17	4				129		132	2.38	0.300	0.050	0.500	0.150	5.4		21		1.23	20					
27	31280	0.63	11				418		239	0.66	1.070	0.080	1.700	0.050	5.6		80		1.13	5					
28	31480	0.57	22				428		289	1.21	0.540	0.090	1.700	1.190	5.6		136		1.43	10					
29	31880	0.85	14				613		355	3.01	0.900	0.110	2.500	0.740	5.5		135		2.03	3					
30	32080	0.22	7				253		155	0.86	0.320	0.060	1.100	0.330	5.4		54		1.29	5					
31	32780	0.42	6				401		381	2.40	0.360	0.090	1.600	0.460	5.4		103		1.63	5					
32	33180	0.22	7				210		170	2.30	0.590	0.060	0.900	0.250	5.6		61		1.06	5					
33	40780	0.72	14				231		119	0.40	0.410	0.000	1.000	0.250	5.9		70		0.29	2					
34	40880	0.09	3				78		68	0.74	0.200	0.000	0.600	0.130	5.7		26		0.25	1					
36	41080	0.19	4				269		172	0.42	0.700	0.000	0.000	0.080	5.7		77		1.21	0					
39	42980	0.34	4				682		343	1.14		0.110	2.800	0.670	6.5		146			0					
40	50780	0.12	5				134		124	2.05		0.060	0.600	0.670	7.3		36								
	Mean	0.64	15				305		196	1.10	0.479	0.076	1.369	0.374	5.6		78	35	1.28	7					
	Median	0.46	12				244		145	0.79	0.415	0.072	1.065	0.280	5.6		59	33	1.09	4					
	COV	0.94	0.80				0.75		0.91	0.98	0.57	0.34	0.81	0.88	0.08		0.87	0.35	0.61	1.70					
	N	28	28	0	0	0	28	0	28	26	26	28	28	28	28	0	28	13	24	15	0	0	0	0	0
15	121879	2.86	43				662		344	0.24	0.790	0.120	3.000	0.600	5.7		156	37	2.15	3					
16	121979	0.70	19				144		130	0.29	0.150	0.040	0.500	0.650	5.5		53	26	1.26	3					
17	10480	0.35	11				343		244	0.51	0.890	0.110	2.200	0.470	5.5		71	84	1.32	10					
18	11480	3.18	80				854		391	0.96	1.780	0.150	4.000	1.030	5.3		140		1.14	1					
19	11880	0.83	26				184		150	0.76	0.480	0.050	1.100	0.330	5.6		64		3.42	1					
20	20180	0.85	19				496		278	0.84	0.920	0.100	2.300	0.550	5.7		130			1					
21	22180	3.04	92				552		232		0.680				6.0		107			1					
22	22580	0.29	11				630		292	0.35	0.800	0.130	3.000	0.640	5.8		134		2.12	1					
23	22680	0.96	20				630		320	0.40	0.960	0.120	2.600	0.560	5.7		132		1.43	1					
	Mean	1.55	36				525		268	0.55	0.886	0.106	2.517	0.607	5.6		111	52	1.85	2					
	Median	1.03	27				435		250	0.48	0.705	0.094	2.004	0.577	5.6		103	43	1.71	2					
	COV	1.12	0.91				0.67		0.38	0.55	0.76	0.51	0.76	0.33	0.04		0.41	0.66	0.41	0.99					
	N	9	9	0	0	0	9	0	9	8	9	8	8	8	9	0	9	3	7	9	0	0	0	0	0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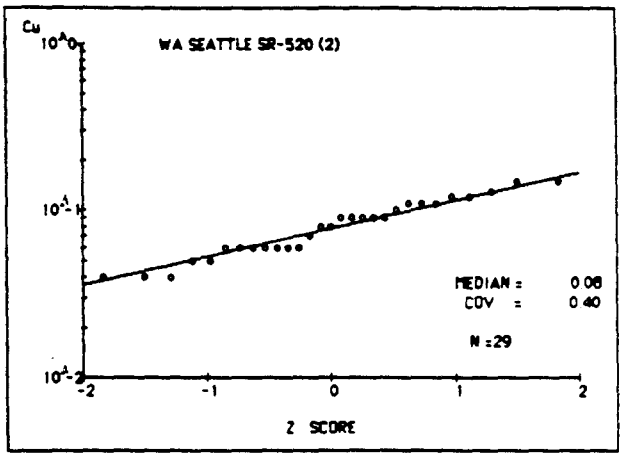
Z SCORE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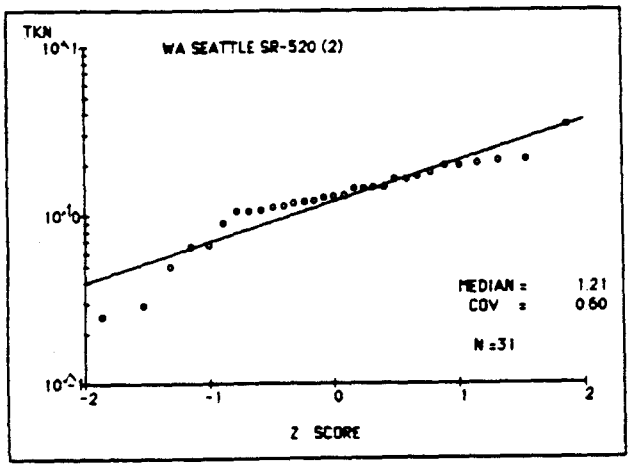
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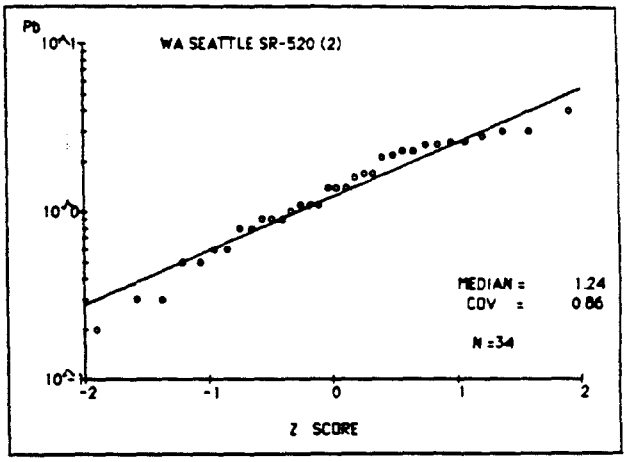
Z SCORE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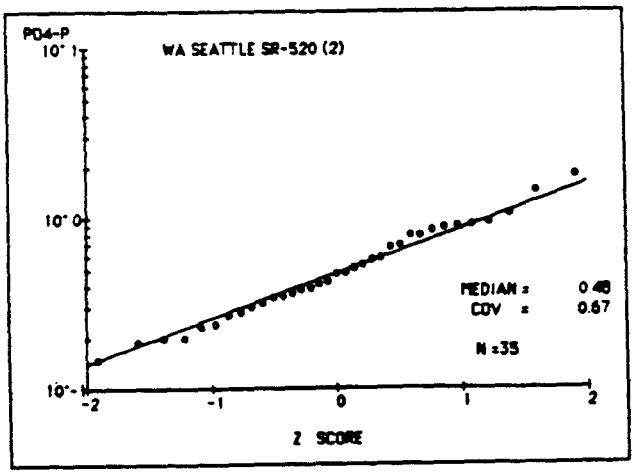
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COV = 0.67
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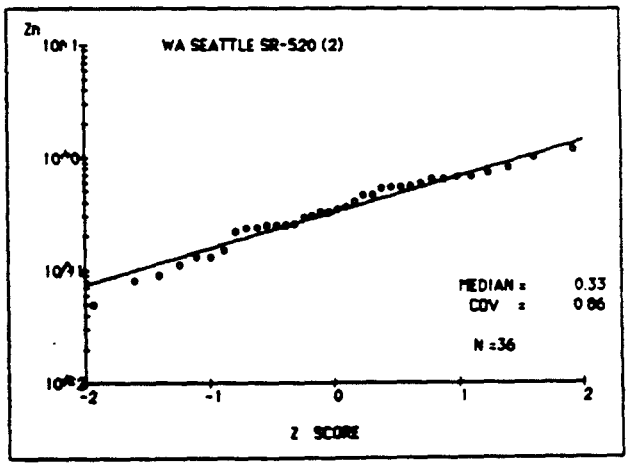
Z SCORE


Zn
WA SEATTLE SR-520 (2)
MEDIAN = 0.33
COV = 0.86
N =36
Z SCORE

SITE: WA SNOQUALMIE PASS (4)
I-90

STATE: Washington

LOCATION: West slope of Cascades, at mile post 41.5, eastbound lanes North Bend, WA

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 6

NO. OF TRAFFIC LANES MONITORED: 3

AVERAGE DAILY TRAFFIC - ADT (VPD): 15,400

ADT PER LANE (VPD): 2,567

DRAINAGE AREA (ACRES): 0.18

PERCENT IMPERVIOUS: 100

LENGTH OF ROAD SURFACE (FEET): 140

ROAD SURFACE TYPE: CONCRETE

CURB: YES

SECTION TYPE: AT GRADE

LAND USE: NON-URBAN, COMMERCIAL/RESIDENTIAL

AVERAGE ANNUAL PRECIPITATION (IN): 97

AVERAGE WIND SPEED (FT/SEC):

NO. OF EVENTS MONITORED: 32

NO. OF SNOW EVENTS MONITORED: 5

MONITORING PERIOD: September 1979 to May 1981

SOURCE:

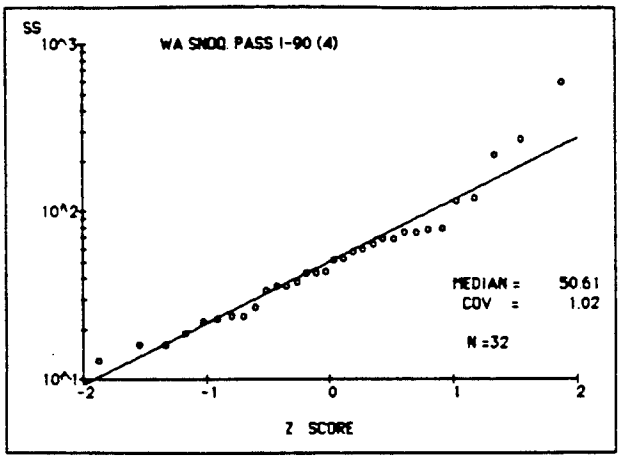
Report: "Summary -- Washington State Highway Runoff Water Quality Study, 1977-1982," by Mar, et al., Department of Civil Engineering, University of Washington (September 1982). Prepared for the Washington State Department of Transportation

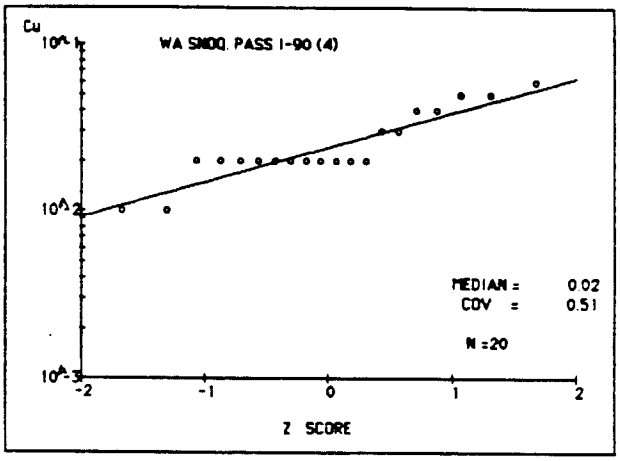
REMARKS:

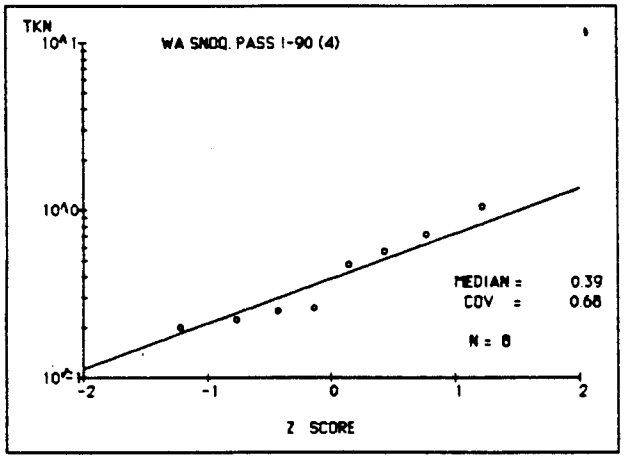
Runoff data were extracted from a computer tape of a data base of all sites studied in the State program, provided by the University of Washington. The concentrations on the tape were listed as EMCs.

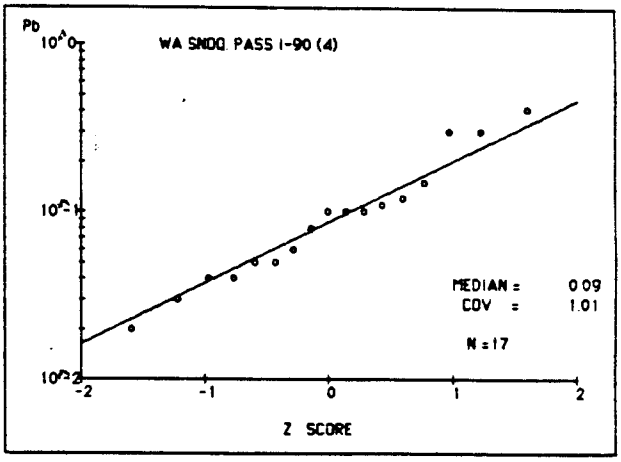
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	90479	2.53	66.00	1.06	0.42	117		515	0.26		0.000	0.000	0.000	6.4		17	11	0.00						
2	91279	1.02	48.00	0.83	0.81	36		20	0.31		0.000	0.000	0.030	7.2		23	5	0.00						
4	102479	1.70	36.00	1.22	0.72	23		60	0.24	0.050	0.000	0.000	0.030	5.9		12	6							
8	121979	16.71	300.00	11.70	0.70	586		117	0.23	0.980	0.060	0.300	0.200	5.8		66	10	0.72	3					
10	42480	2.15	72.00	1.51	0.70	52		30	0.42		0.050	0.000	0.050	7.3		10			1					
11	50280	0.17		0.09	0.55	24		61	0.95		0.000	0.000	0.040	7.3		8								
12	52380	1.06		0.91	0.86	43		47	0.66		0.040	0.300	0.330	5.8		11								
13	60980	4.06	38.00	1.22	0.30	27		18	0.51		0.040	0.020	0.560	5.8		4	1							
14	61380	1.95	24.00	1.21	0.62	13		14	0.66	0.080	0.020		0.030	5.4		1	1							
15	71680	1.34	133.00	0.90	0.67	78		57	2.43		0.030	0.100	0.040	6.9		8	1	0.47						
16	80460	0.22	15.00	0.12	0.54	16		74	0.38	0.090	0.030	0.030	0.000	5.8		10	3	1.05						
17	81880	1.98	27.00	1.21	0.61	60		52	0.94	0.150	0.020	0.120	0.090	6.8		16		0.20						
18	90280	3.25	66.00	1.17	0.36	36		24	0.31	0.140	0.020	0.040	0.070	7.0		13	1	0.22						
19	100280	3.57	105.00	1.21	0.34	38		57		0.060	0.020	0.060		6.5		6	1							
20	101080	0.15	4.00	0.11	0.72	34		71		0.190				5.7		10	1							
21	101780	0.62	16.00	0.57	0.92	22		36		0.080				6.1		2								
22	102480	0.83	13.00	0.72	0.87	58		57		0.200	0.020	0.150	0.100	6.7		20	1							
29	120280	0.53	9.00	0.49	0.92	64		37		0.080	0.010	0.100	0.060	6.8		17								
30	120380	1.12	9.00	0.77	0.69	24		36		0.150	0.010	0.110	0.070	6.7		14	0							
31	120480	0.15	9.00	0.11	0.74	270		96		0.450	0.050	0.410	0.280	7.0		39	6							
32	120580	0.04	9.00	0.03	0.80	220		81		0.480				6.9		39	4							
34	11081	1.37	42.00	1.18	0.86	16		19		0.060	0.020	0.040		6.6		3								
35	21081	3.50	107.00	2.80	0.80	69		33		0.210	0.020	0.080	0.040	6.8		19	16							
36	21881	8.00	66.00	6.40	0.80	121		36	0.60	0.250	0.020	0.100	0.080	6.6		11		0.25						
37	30381	0.20	58.00	0.11	0.53	44		24	0.40		0.020			6.7		5		0.26						
38	31781	0.61	42.00	0.49	0.80	69		48	0.44	0.170	0.020	0.050		6.5		11	1	0.56						
39	32581	0.48	33.00	0.38	0.80	43		37	0.78					6.7		9	2							
40	33181	2.75	25.00	1.24	0.45	19		29	1.08					6.7		6	0							
41	41481	6.00	83.00	4.80	0.80	75		44	0.35					7.0		14								
42	41781	0.25	9.00	0.20	0.80	76		32			0.020	0.050	0.120			14	5							
43	42881	4.00	42.00	3.20	0.80	79		25						6.5		2	1							
44	51381	1.17	66.00	0.94	0.80	53		28								8	1							
	Mean	2.72	54.95	1.73	0.70	72		54	0.62	0.210	0.027	0.123	0.119	6.5		15	4	0.48	2					
	Median	1.09	33.50	0.73	0.66	51		43	0.51	0.152	0.024	0.086	0.081	6.5		10	2	0.39	2					
	COV	2.28	1.30	2.15	0.31	1.02		0.77	0.67	0.95	0.51	1.01	1.08	0.08		1.08	1.30	0.68	0.91					
	N	32	30	32	32	32	0	32	19	18	24	22	20	30	0	32	22	10	2	0	0	0	0	0

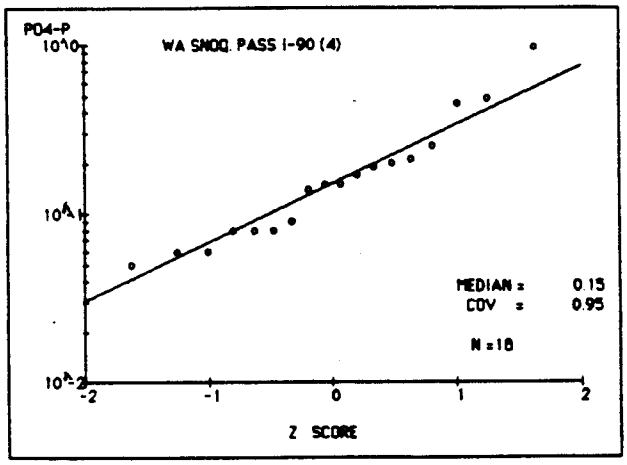
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv		SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	90479	2.53	66.00	1.06	0.42		117		515	0.26		0.000	0.000	0.000	6.4		17	11	0.00						
2	91279	1.02	48.00	0.83	0.81		36		20	0.31		0.000	0.000	0.030	7.2		23	5	0.00						
4	102479	1.70	36.00	1.22	0.72		23		60	0.24	0.050	0.000	0.000	0.030	5.9		12	6							
10	42480	2.15	72.00	1.51	0.70		52		30	0.42		0.050	0.000	0.050	7.3		10			1					
11	50280	0.17		0.09	0.55		24		61	0.95		0.000	0.000	0.040	7.3		8								
12	52380	1.06		0.91	0.86		43		47	0.66		0.040	0.300	0.330	5.8		11								
13	60980	4.06	38.00	1.22	0.30		27		18	0.51		0.040	0.020	0.560	5.8		4	1							
14	61380	1.95	24.00	1.21	0.62		13		14	0.66	0.080	0.020		0.030	5.4		1	1							
15	71680	1.34	133.00	0.90	0.67		78		57	2.43		0.030	0.100	0.040	6.9		8	1	0.47						
16	80480	0.22	15.00	0.12	0.54		16		74	0.38	0.090	0.030	0.030	0.000	5.8		10	3	1.05						
17	81880	1.98	27.00	1.21	0.61		60		52	0.94	0.150	0.020	0.120	0.090	6.8		16		0.20						
18	90280	3.25	66.00	1.17	0.36		36		24	0.31	0.140	0.020	0.040	0.070	7.0		13	1	0.22						
19	100280	3.57	105.00	1.21	0.34		38		57		0.060	0.020	0.060		6.5		6	1							
20	101080	0.15	4.00	0.11	0.72		34		71		0.190				5.7		10	1							
21	101780	0.62	16.00	0.57	0.92		22		36		0.080				6.1		2								
22	102480	0.83	13.00	0.72	0.87		58		57		0.200	0.020	0.150	0.100	6.7		20	1							
32	120580	0.04	9.00	0.03	0.80		220		81		0.480				6.9		39	4							
34	11081	1.37	42.00	1.18	0.86		16		19		0.060	0.020	0.040		6.6		3								
35	21081	3.50	107.00	2.80	0.80		69		33		0.210	0.020	0.080	0.040	6.8		19	16							
37	30381	0.20	58.00	0.11	0.53		44		24	0.40		0.020			6.7		5		0.26						
38	31781	0.61	42.00	0.49	0.80		69		48	0.44	0.170	0.020	0.050		6.5		11	1	0.56						
39	32581	0.48	33.00	0.38	0.80		43		37	0.78					6.7		9	2							
40	33181	2.75	25.00	1.24	0.45		19		29	1.08					6.7		6	0							
41	41481	6.00	83.00	4.80	0.80		75		44	0.35					7.0		14								
42	41781	0.25	9.00	0.20	0.80		76		32			0.020	0.050	0.120			14	5							
43	42881	4.00	42.00	3.20	0.80		79		25						6.5		2	1							
44	51381	1.17	66.00	0.94	0.80		53		28								8	1							
	Mean	2.21	51.10	1.34	0.68		53		52	0.64	0.151	0.026	0.087	0.110	6.5		12	3	0.47						
	Median	1.02	34.97	0.66	0.65		43		41	0.53	0.123	0.025	0.065	0.071	6.5		9	2	0.38	1					
	COV	1.94	1.07	1.78	0.32		0.74		0.79	0.67	0.72	0.33	0.87	1.18	0.08		0.98	1.22	0.72						
	N	27	25	27	27	0	27	0	27	17	13	19	17	15	25	0	27	19	8	1	0	0	0	0	0
8	121979	16.71	300.00	11.70	0.70		586		117	0.23	0.980	0.060	0.300	0.200	5.8		66	10	0.72	3					
29	120280	0.53	9.00	0.49	0.92		64		37		0.080	0.010	0.100	0.060	6.8		17								
30	120380	1.12	9.00	0.77	0.69		24		36		0.150	0.010	0.110	0.070	6.7		14	0							
31	120480	0.15	9.00	0.11	0.74		270		96		0.450	0.050	0.410	0.280	7.0		39	6							
36	21881	8.00	66.00	6.40	0.80		121		36	0.60	0.250	0.020	0.100	0.080	6.6		11		0.25						
	Mean	10.76	96.96	7.84	0.77		268		66	0.47	0.425	0.033	0.212	0.144	7.2		31	8	0.56						
	Median	1.64	27.03	1.26	0.77		124		56	0.37	0.266	0.023	0.168	0.113	6.6		23	8	0.42	3					
	COV	6.48	3.44	6.16	0.12		1.91		0.65	0.76	1.25	1.04	0.77	0.78	0.62		0.87	0.37	0.87						
	N	5	5	5	5		5	0	5	2	5	5	5	5	5	0	5	3	2	1	0	0	0	0	0

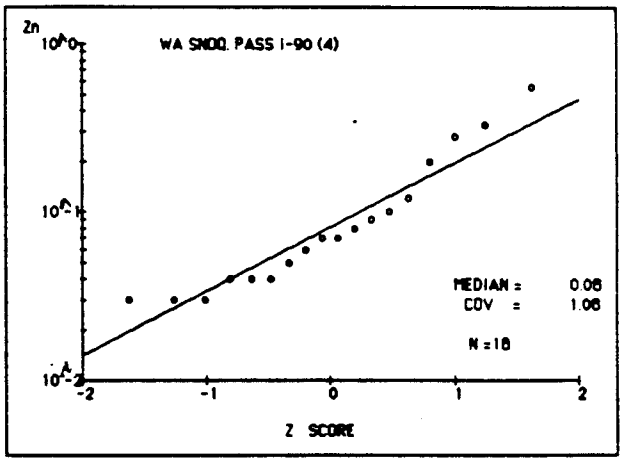

SS
WA SNOQ. PASS 1-90 (4)
MEDIAN = 50.61
COV = 1.02
N =32
Z SCORE


Cu
WA SNOQ. PASS 1-90 (4)
MEDIAN = 0.02
COV = 0.51
N =20
Z SCORE


TKN
WA SNOQ. PASS 1-90 (4)
MEDIAN = 0.39
COV = 0.68
N = 8
Z SCORE


Pb
WA SNOQ. PASS 1-90 (4)
MEDIAN = 0.09
COV = 1.01
N =17
Z SCORE


PO4-P
WA SNOQ. PASS 1-90 (4)
MEDIAN = 0.15
COV = 0.95
N =18
Z SCORE


Zn
WA SNOQ. PASS 1-90 (4)
MEDIAN = 0.08
COV = 1.08
N =18
Z SCORE

SITE: WA SPOKANE (7)
I-90

STATE: Washington

LOCATION: Western pier section of eastbound lanes at Latah Creek bridge

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 6

NO. OF TRAFFIC LANES MONITORED: 3

AVERAGE DAILY TRAFFIC - ADT (VPD): 35,000

ADT PER LANE (VPD): 5,833

DRAINAGE AREA (ACRES): 0.22

PERCENT IMPERVIOUS: 100

LENGTH OF ROAD SURFACE (FEET): 180

ROAD SURFACE TYPE: CONCRETE

CURB: YES

SECTION TYPE: BRIDGE

LAND USE: URBAN, UNDEFINED

AVERAGE ANNUAL PRECIPITATION (IN): 17.2

AVERAGE WIND SPEED (FT/SEC): 8.3

NO. OF EVENTS MONITORED: 12

NO. OF SNOW EVENTS MONITORED: 4

MONITORING PERIOD: October 1979 to June 1981

SOURCE:

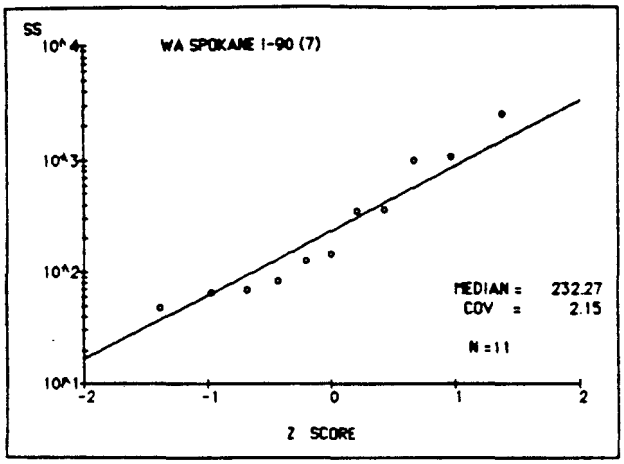
Report: "Summary -- Washington State Highway Runoff Water Quality Study, 1977-1982," by Mar, et al., Department of Civil Engineering, University of Washington (September 1982). Prepared for the Washington State Department of Transportation

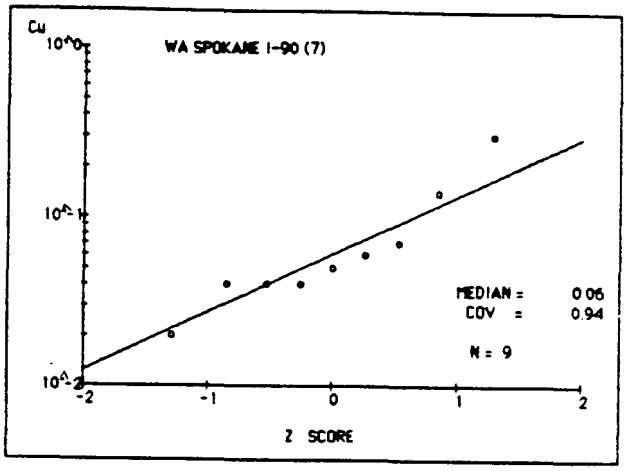
REMARKS:

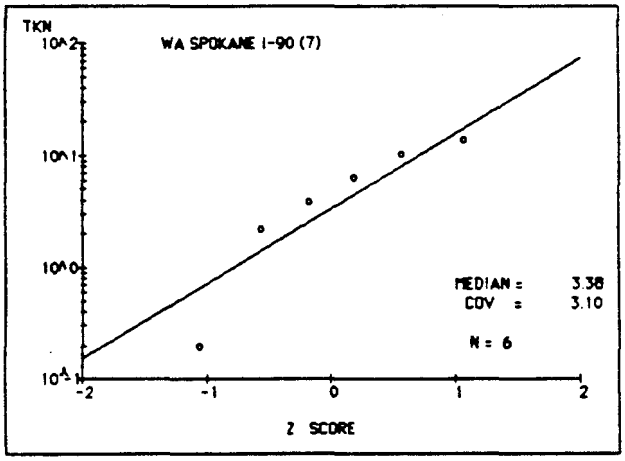
Runoff data were extracted from a computer tape of a data base of all sites studied in the State program, provided by the University of Washington. The concentrations on the tape were listed as EMCs.

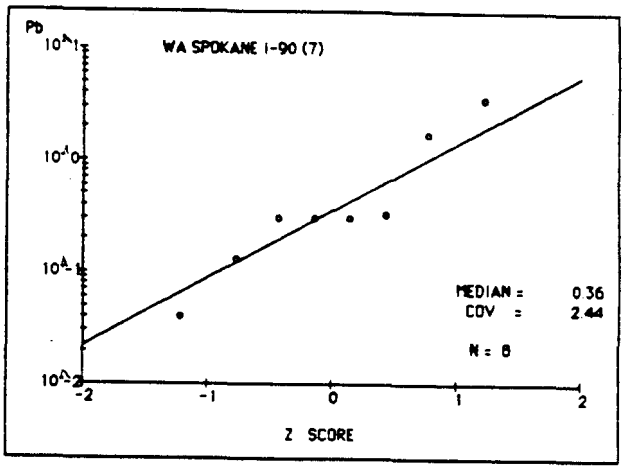
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	103079	1.72	102.00	1.20	0.70	67		301	3.09	1.720	0.040	0.000	2.230	5.4		21	19							
2	110979	0.19	12.00	0.13	0.70	144		105	0.86	0.890	0.050	0.300	1.000	5.2		49	10	3.83						
3	112179	0.55	45.00	0.39	0.70	85		153		0.690	0.040	0.300	0.610	5.3		24	6	0.20						
4	120679	1.31	90.00	0.92	0.70	128		223	0.45	1.080	0.060	0.300	1.530	5.3		42	14	2.19	1,413					
5	40180	4.56		3.19	0.70	968		576	3.56	3.790	0.140	1.700	9.700	6.1		242		10.30	195					
6	41680	0.55	30.00	0.39	0.70	2,490		1,194	0.70		0.300	3.500	21.060	6.2		210		13.78	11					
8	90980	0.08	63.00	0.07	0.88	342			1.71	0.900	0.070	0.330	8.050	6.6		80		6.31						
9	110380	0.81	52.00	0.57	0.70	48				1.300	0.040	0.130	4.960	6.9		15								
10	112680	1.70	39.00	1.19	0.70	70		165		0.340	0.020	0.040	10.770	6.3		16								
11	33081	6.50	186.00	5.20	0.80	1,037		437	1.58	1.450				7.0		174								
12	51581	2.75	79.00	0.88	0.32	352		169	0.33		0.000			6.3		40								
13	61381	2.80		0.64	0.23			106																
	Mean	2.54	73.75	1.39	0.67	551		341	1.65	1.379	0.083	0.945	8.019	6.1		87	13	11.02	2,850					
	Median	1.10	55.54	0.68	0.62	232		250	1.13	1.107	0.061	0.359	3.843	6.0		52	11	3.38	145					
	COV	2.07	0.87	1.79	0.41	2.15		0.92	1.06	0.74	0.94	2.44	1.83	0.11		1.36	0.53	3.10	19.67					
	N	12	10	12	12	11	0	10	8	9	10	9	9	11	0	11	4	6	3	0	0	0	0	0

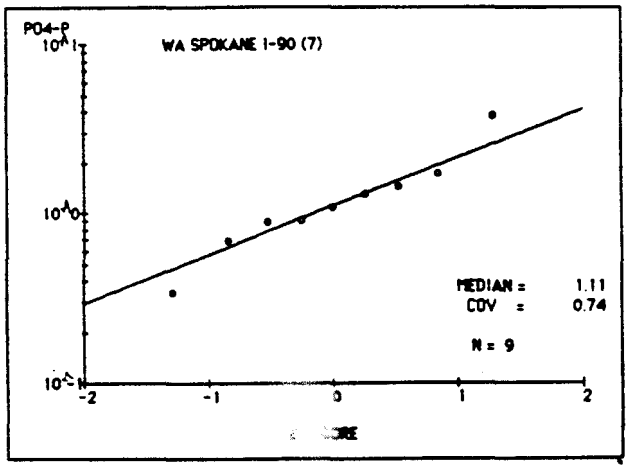
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
1	103079	1.72	102.00			67		301	3.09	1.720	0.040	0.000	2.230	5.4		21	19							
2	110979	0.19	12.00			144		105	0.86	0.890	0.050	0.300	1.000	5.2		49	10	3.83						
3	112179	0.55	45.00			85		153		0.690	0.040	0.300	0.610	5.3		24	6	0.20						
8	90980	0.08	63.00			342			1.71	0.900	0.070	0.330	8.050	6.6		80		6.31						
9	110380	0.81	52.00			48				1.300	0.040	0.130	4.960	6.9		15								
10	112680	1.70	39.00			70		165		0.340	0.020	0.040	10.770	6.3		16								
12	51581	2.75	79.00			352		169	0.33		0.000			6.3		40								
13	61381	2.80						106																
	Mean	1.83	60.47			164		168	1.76	1.012	0.044	0.260	5.643	6.0		36	12	9.63						
	Median	0.79	47.63			119		156	1.11	0.865	0.041	0.173	2.892	6.0		29	10	1.69						
	COV	2.09	0.78			0.95		0.40	1.23	0.61	0.43	1.12	1.68	0.11		0.69	0.63	5.61						
	N	8	7	0	0	7	0	6	4	6	7	6	6	7	0	7	3	3	0	0	0	0	0	0
4	120679	1.31	90.00			128		223	0.45	1.080	0.060	0.300	1.530	5.3		42	14	2.19	1,413					
5	40180	4.56				968		576	3.56	3.790	0.140	1.700	9.700	6.1		242		10.30	195					
6	41680	0.55	30.00			2,490		1,194	0.70		0.300	3.500	21.060	6.2		210		13.78	11					
11	33081	6.50	186.00			1,037		437	1.58	1.450				7.0		174								
	Mean	4.11	121.21			1,656		648	1.75	2.246	0.188	2.692	16.814	6.3		192		11.04	2,850					
	Median	2.15	79.49			752		509	1.15	1.811	0.136	1.213	6.786	6.1		139	14	6.77	145					
	COV	1.63	1.15			1.96		0.79	1.14	0.73	0.96	1.98	2.27	0.11		0.96		1.29	19.67					
	N	4	3	0	0	4	0	4	4	3	3	3	3	4	0	4	1	3	3	0	0	0	0	0

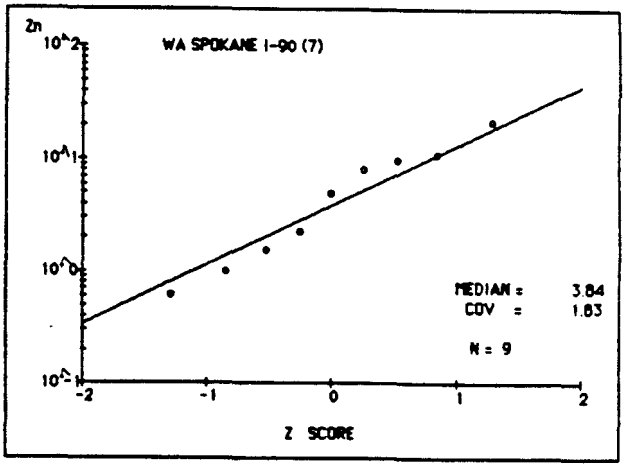

SS
WA SPOKANE I-90 (7)
MEDIAN = 232.27
COV = 2.15
N = 11
Z SCORE


Cu
WA SPOKANE I-90 (7)
MEDIAN = 0.06
COV = 0.94
N = 9
Z SCORE


TKN
WA SPOKANE I-90 (7)
MEDIAN = 3.38
COV = 3.10
N = 6
Z SCORE


Pb
WA SPOKANE I-90 (7)
MEDIAN = 0.36
COV = 2.44
N = 8
Z SCORE


PO4-P
WA SPOKANE I-90 (7)
MEDIAN = 1.11
COV = 0.74
N = 9


Zn
WA SPOKANE I-90 (7)
MEDIAN = 3.84
COV = 1.83
N = 9
Z SCORE

SITE: WA VANCOUVER (3)
I-205

STATE: Washington

LOCATION: Southbound lanes, at St. Johns Street

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 6

NO. OF TRAFFIC LANES MONITORED: 3

AVERAGE DAILY TRAFFIC - ADT (VPD): 17,000

ADT PER LANE (VPD): 2,833

DRAINAGE AREA (ACRES): 0.28

PERCENT IMPERVIOUS: 100

LENGTH OF ROAD SURFACE (FEET): 220

ROAD SURFACE TYPE: CONCRETE

CURB: YES

SECTION TYPE: AT GRADE

LAND USE: URBAN, AGRICULTURAL

AVERAGE ANNUAL PRECIPITATION (IN): 39

AVERAGE WIND SPEED (FT/SEC): 7.3

NO. OF EVENTS MONITORED: 93

NO. OF SNOW EVENTS MONITORED: 7

MONITORING PERIOD: August 1979 to May 1981

SOURCE:

Report: "Summary -- Washington State Highway Runoff Water Quality Study, 1977-1982," by Mar, et al., Department of Civil Engineering, University of Washington (September 1982). Prepared for the Washington State Department of Transportation

REMARKS:

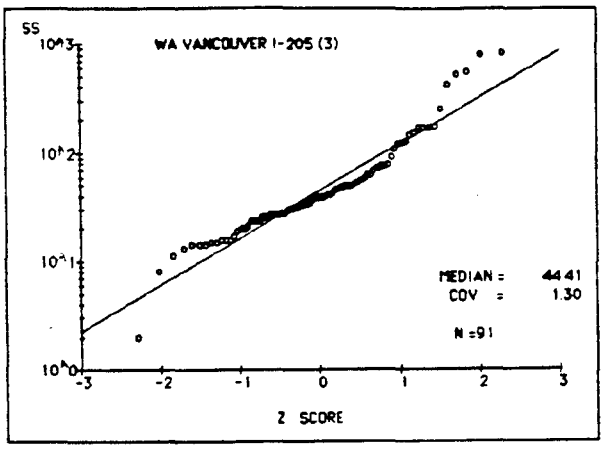
Runoff data were extracted from a computer tape of a data base of all sites studied in the State program, provided by the University of Washington. The concentrations on the tape were listed as EMCs.

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	81579	0.09	2.00	0.04	0.41	27		314		0.200				7.2		11								
2	81679	0.45	8.00	0.17	0.38	26		18	0.33	0.370				7.1		10	15							
3	82079	0.54	10.00	0.16	0.29	36		27	0.27	0.130				6.9		19	16	0.61						
4	82279	0.29	6.00	0.05	0.18	13		28	0.38	0.090				6.5		5	12	0.30						
5	83179	0.14	2.50	0.07	0.53	14		284						7.5		3	13							
6	90479	1.45	25.00	0.32	0.22	55		451	0.20					7.1		8								
7	90679	0.32	6.00	0.05	0.17	21		17	0.34		0.040	0.000	0.060	7.7		8	6	0.41						
8	91079	0.80	9.00	0.34	0.43	14		16	0.29		0.000	0.020	0.060	7.2		6	4	0.25						
9	101679	0.44	8.00	0.08	0.18	68		40	1.36	0.100	0.000	0.030	0.060	5.5		13	37	1.32						
10	101779	0.08	2.00	0.04	0.46	11		95	1.23	0.070	0.000	0.040	0.090	5.4		4	32	3.94						
11	101979	2.02	26.00	0.51	0.25	17		45	0.21	0.060	0.000	0.010	0.050	6.1		6	4	0.27						
12	102279	0.50	12.00	0.08	0.15	16		29	0.35	0.040		0.000	0.050	6.0		12	5							
13	102479	0.48	12.00	0.02	0.05	27		38	0.29	0.080	0.040	0.010	0.060	6.0		12	7	0.29						
14	102579	0.87	18.00	0.30	0.35	122		10	0.26	0.120	0.000	0.000	0.040	6.2		8	11	0.77						
15	102979	1.01	17.00	0.42	0.42	119		9		0.040				6.0		8								
16	103179	0.57	13.00	0.17	0.30	24		10	0.26	0.040	0.030	0.000	0.040	6.2		5	7							
17	110579	1.27	22.00	0.46	0.36	26		14	0.24	0.110	0.030	0.000	0.040	6.1		6	7	0.21						
18	111979	0.56	13.00	0.19	0.34	34		45	0.37	0.120	0.000	0.000	0.020	5.9		9	12	0.00						
19	112679	2.14	29.00	0.77	0.36	24		4	0.25	0.060	0.000	0.000	0.030	6.1		5	9	0.00						
20	120379	2.33	35.00	0.96	0.41	53		63	0.21	0.100	0.000	0.000	0.040	5.4		14	8	0.00						
21	120479	0.63	14.00	0.47	0.75	49		48	0.23	0.090	0.000	0.000	0.020	5.6		12	6	0.00						
22	121079	0.48	12.00	0.13	0.28	41		33	0.38	0.110	0.000	0.000	0.050	5.8		10	5	0.39						
23	121879	1.09	19.00	0.55	0.50	30		19	0.19	0.100	0.000	0.000	0.030	5.7		14	7	0.00						
24	121779	0.39	10.00	0.17	0.44	28		21	0.43	0.080	0.000	0.000	0.020	5.7		9	7	0.25						
25	121979	0.49	15.00	0.14	0.28	58		42	0.25	0.130	0.000	0.000	0.060	5.8		21	12	0.30						
26	122179	1.09	19.00	0.49	0.45	107		42	0.23	0.230	0.000	0.000	0.080	5.8		23	11	0.41						
27	122479	0.99	19.00	0.38	0.38	16		15	0.18	0.060	0.000	0.000	0.040	5.9		11	4	0.00						
28	10280	0.88	17.00	0.08	0.09	75		53	0.23	0.120	0.000	0.000	0.060	5.9		15	19	0.30						
29	123179	0.66	15.00	0.35	0.53	38		33	0.39	0.150	0.000	0.000	0.070	5.5		5	20	0.78						
30	10380	0.31	6.00	0.16	0.51	39		30	0.25	0.100	0.000	0.000	0.040	5.7		7	10	0.00						
33	11680	0.80	17.00	0.54	0.67	78		36	0.19	0.280	0.000	0.000	0.070	5.1		16		0.00	0					
34	11780	0.47	11.00	0.23	0.49	45		26	0.15	0.130	0.000	0.000	0.050	5.0		15		0.00	1					
35	20180	0.50	12.00	0.15	0.29	20		25	0.47	0.150	0.000	0.000	0.040	5.4		3		0.00	1					
36	20480	1.25	29.00	0.41	0.33	45		29	0.31	0.150	0.000	0.000	0.040	5.7		11		0.00	0					
37	20680	0.31	7.00	0.05	0.17	33		28	0.50	0.150	0.000	0.000	0.040	5.6		6		0.00	1					
38	21180	0.43	10.00	0.16	0.37	48		22	0.20	0.110	0.000	0.000	0.050	5.9		9		0.00	0					
39	22980	2.84	37.00	0.82	0.29	168		105	0.23	0.330		0.000	0.110	5.7		43		0.00	8					
40	30480	0.27	5.00	0.14	0.53	168		64	0.45		0.000	0.000	0.110	5.8		39		0.36	7					
41	30580	0.25	5.00	0.11	0.42	144		55	0.31	0.230	0.000	0.000	0.090	5.4		30			3					
42	30680	0.59	10.00	0.38	0.64	27		20	0.27	0.070	0.000	0.000	0.030	5.7		7		0.00	2					
43	31180	0.45	11.00	0.18	0.40	52		35	0.52	0.140		0.000	0.060	5.7		4		0.23	6					
44	31380	0.64	14.00	0.29	0.46	49		30	0.71	0.170	0.000	0.000	0.080	5.6		5		0.00	9					
45	31480	0.64	12.00	0.26	0.40	26		16	0.91	0.100	0.000	0.000	0.100	5.7		8		0.00	2					
46	31780	0.67	15.00	0.31	0.47	27		24		0.140	0.000	0.000	0.040	5.7		3		0.00	4					
47	32180	0.62	11.00	0.16	0.26	154		53	0.74	0.270	0.000	0.000	0.140	5.3		22		0.21	1					
48	32480	0.23	4.00	0.08	0.36	168		61		0.340	0.000	0.000	0.140	5.6		29		0.32	0					
49	33180	0.46	9.00	0.19	0.42	30		42	5.51	0.090	0.000	0.000	0.020	5.8		11		0.00	1					
50	40780	1.16	21.00	0.52	0.45	39		16	0.37	0.080	0.000	0.000	0.020	6.0		5		0.00	0					
51	40980	0.53	9.00	0.23	0.43	71		18	0.22	0.160	0.000	0.000	0.040	5.8		15		0.27	8					
53	41580	0.21	2.00	0.08	0.39	49		22	0.75		0.050	0.000	0.050	5.9		20			3					
54	42180	1.53	22.00	0.64	0.42	15		12	0.42		0.000	0.000	0.010	6.3		8		0.23	2					
55	51280	0.21	2.00	0.00	0.02	31		112	2.00		0.000	0.000	0.060	8.4		11			2					
56	51680	0.07	1.00	0.02	0.22	62		89	1.76		0.000	0.000	0.080	6.8		14			2					
57	52280	0.52	7.00	0.18	0.35	32		62	0.68		0.000	0.000	0.030	5.9		9			0					
58	52380	0.37	6.00	0.16	0.42	75		45	0.32		0.000	0.000	0.060	6.1		20			2					
59	52880	0.66	8.00	0.28	0.43	428		60	0.62		0.040	0.000	0.070	5.2		13			1					
60	60380	0.42	6.00	0.13	0.30	815		60	0.75		0.050	0.000	0.130	5.3		45			1					
62	61680	0.71	15.00	0.26	0.37	833		113			0.090	0.150	0.190	6.7		13	26	314.25						
63	62580	0.33	23.00	0.06	0.18	556		122			0.090	0.120	0.110	8.9		35	26	339.38						
64	70880	0.28	15.00	0.07	0.25	536		83			0.060	0.170	0.040	8.8		25	6	87.75						
65	82780	0.33	12.00	0.09	0.26	254		111	5.81	0.320				6.5		10		14.00						
66	90280	0.79	12.00	0.72	0.91	2		31		0.070				6.6			2	8.00						
67	110280	1.11	212.00	0.28	0.25	15		45		0.130	0.020	0.070	0.040	6.0		7	13							
68	110880	1.08	23.00	0.13	0.12	8		15		0.100	0.010	0.020		6.5		6	1							
69	112480	1.43	86.00	0.47	0.33	174		21		0.180	0.010	0.140	0.030	6.6		25								

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
70	120180	1.52	28.00	0.71	0.47	24		33		0.060				6.5		8								
71	120280	1.25	10.00	0.64	0.51	34		20		0.060		0.000		6.5		10								
72	120380	1.70	10.00	0.94	0.55	29		9		0.060				6.5		9	1							
73	120460	1.22	10.00	0.77	0.63	16		8		0.040				6.6		8								
74	122280	1.74	58.00	0.57	0.33	33		52		0.080		0.000		6.5		10								
75	122480	0.78	12.00	0.64	0.82	38		45		0.030				6.2		9								
77	123080	0.70	15.00	0.43	0.62	14		42		0.010	0.020	0.060		6.1		3								
78	11981	0.14	19.00	0.12	0.85	38		54		0.080	0.020	0.060		6.4		14	2							
79	12281	0.43	15.00	0.07	0.17	71		53		0.130	0.020	0.130	0.010	6.4		17								
80	12381	0.15	10.00	0.11	0.73	31		21		0.120	0.010			6.7		11	0							
81	12681	0.55	15.00	0.24	0.43	47		63		0.090	0.010	0.030		6.5		27								
82	12881	0.24	12.00	0.15	0.62	62		73		0.230	0.020	0.060	0.080	6.7		33								
83	20481	0.16	12.00	0.07	0.45	40		39		0.140	0.020	0.080		7.0		21	11							
84	21381	0.96	28.00	0.43	0.45	48		43		0.150	0.010	0.080	0.010	6.9		19	10							
85	21881	0.23	23.00	0.17	0.74	20		18		0.080	0.010	0.030		6.9		5								
86	21981	1.58	10.00	0.92	0.58	42		39		0.100	0.020	0.040		6.9		4								
87	22581	0.82	15.00	0.54	0.68	28		50	0.53	0.030		0.030	0.010	6.7		9	1	0.50						
88	30481	0.99	15.00	0.56	0.57	24		37	0.80	0.080	0.010			6.8		7	2	0.64						
89	31081	0.33	10.00	0.26	0.78	92		52	2.03	0.240	0.020	0.060		6.6		19		0.99						
90	31681	0.67	10.00	0.49	0.73	127		58	1.00	0.270	0.020	0.120	0.110	6.8		22		0.97						
91	32581	0.39	19.00	0.32	0.82	41		43	0.68	0.140	0.010			6.8		10		0.39						
92	40681	0.86	46.00	0.44	0.51	56		29	0.60					6.7		16								
93	40881	0.44	10.00	0.28	0.63			26																
94	40981	0.28	10.00	0.22	0.79	50		38						6.8		17		0.45						
95	41381	0.65	10.00	0.40	0.61	27		26						6.8		7		0.39						
96	42281	0.48	10.00	0.21	0.43	19		4						6.4		2		1.64						
97	50581	0.64		0.28	0.44			69																
98	50981	0.29		0.11	0.37	35		19			0.010	0.150	0.030			3	0	0.64						
	Mean	0.74	16.62	0.32	0.45	73		48	0.60	0.132	0.028	0.078	0.059	6.2		13	11	5.88	3					
	Median	0.56	12.19	0.22	0.38	44		35	0.44	0.107	0.022	0.053	0.048	6.2		10	7	0.91	2					
	COV	0.87	0.93	1.10	0.64	1.30		0.96	0.94	0.72	0.80	1.00	0.75	0.11		0.75	1.14	6.42	0.93					
	N	93	91	93.000	93	91	0	93	59	70	68	71	61	90	0	90	41	56	27	0	0	0	0	0

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	81579	0.09	2.00	0.04	0.41	27		314		0.200				7.2		11								
2	81679	0.45	8.00	0.17	0.38	26		18	0.33	0.370				7.1		10	15							
3	82079	0.54	10.00	0.16	0.29	36		27	0.27	0.130				6.9		19	16	0.61						
4	82279	0.29	6.00	0.05	0.18	13		28	0.38	0.090				6.5		5	12	0.30						
5	83179	0.14	2.50	0.07	0.53	14		284						7.5		3	13							
6	90479	1.45	25.00	0.32	0.22	55		451	0.20					7.1		8								
7	90679	0.32	6.00	0.05	0.17	21		17	0.34		0.040	0.000	0.060	7.7		8	6	0.41						
8	91079	0.80	9.00	0.34	0.43	14		16	0.29		0.000	0.020	0.060	7.2		6	4	0.25						
9	101679	0.44	8.00	0.06	0.18	68		40	1.36	0.100	0.000	0.030	0.060	5.5		13	37	1.32						
10	101779	0.08	2.00	0.04	0.46	11		95	1.23	0.070	0.000	0.040	0.090	5.4		4	32	3.94						
11	101979	2.02	26.00	0.51	0.25	17		45	0.21	0.060	0.000	0.010	0.050	6.1		6	4	0.27						
12	102279	0.50	12.00	0.08	0.15	16		29	0.35	0.040		0.000	0.050	6.0		12	5							
13	102479	0.48	12.00	0.02	0.05	27		38	0.29	0.080	0.040	0.010	0.060	6.0		12	7	0.29						
14	102579	0.87	18.00	0.30	0.35	122		10	0.26	0.120	0.000	0.000	0.040	6.2		8	11	0.77						
15	102979	1.01	17.00	0.42	0.42	119		9		0.040				6.0		8								
16	103179	0.57	13.00	0.17	0.30	24		10	0.26	0.040	0.030	0.000	0.040	6.2		5	7							
17	110579	1.27	22.00	0.46	0.36	26		14	0.24	0.110	0.030	0.000	0.040	6.1		6	7	0.21						
18	111979	0.56	13.00	0.19	0.34	34		45	0.37	0.120	0.000	0.000	0.020	5.9		9	12	0.00						
19	112679	2.14	29.00	0.77	0.36	24		4	0.25	0.060	0.000	0.000	0.030	6.1		5	9	0.00						
20	120379	2.33	35.00	0.96	0.41	53		63	0.21	0.100	0.000	0.000	0.040	5.4		14	8	0.00						
21	120479	0.63	14.00	0.47	0.75	49		48	0.23	0.090	0.000	0.000	0.020	5.6		12	6	0.00						
22	121079	0.48	12.00	0.13	0.28	41		33	0.38	0.110	0.000	0.000	0.050	5.8		10	5	0.39						
23	121879	1.09	19.00	0.55	0.50	30		19	0.19	0.100	0.000	0.000	0.030	5.7		14	7	0.00						
24	121779	0.39	10.00	0.17	0.44	28		21	0.43	0.080	0.000	0.000	0.020	5.7		9	7	0.25						
25	121979	0.49	15.00	0.14	0.28	58		42	0.25	0.130	0.000	0.000	0.060	5.8		21	12	0.30						
26	122179	1.09	19.00	0.49	0.45	107		42	0.23	0.230	0.000	0.000	0.080	5.8		23	11	0.41						
27	122479	0.99	19.00	0.38	0.38	16		15	0.18	0.060	0.000	0.000	0.040	5.9		11	4	0.00						
28	10280	0.88	17.00	0.08	0.09	75		53	0.23	0.120	0.000	0.000	0.060	5.9		15	19	0.30						
29	123179	0.66	15.00	0.35	0.53	38		33	0.39	0.150	0.000	0.000	0.070	5.5		5	20	0.78						
30	10380	0.31	6.00	0.16	0.51	39		30	0.25	0.100	0.000	0.000	0.040	5.7		7	10	0.00						
34	11780	0.47	11.00	0.23	0.49	45		26	0.15	0.130	0.000	0.000	0.050	5.0		15		0.00	1					
35	20180	0.50	12.00	0.15	0.29	20		25	0.47	0.150	0.000	0.000	0.040	5.4		3		0.00	1					
36	20480	1.25	29.00	0.41	0.33	45		29	0.31	0.150	0.000	0.000	0.040	5.7		11		0.00	0					
37	20680	0.31	7.00	0.05	0.17	33		28	0.50	0.150	0.000	0.000	0.040	5.6		8		0.00	1					
38	21180	0.43	10.00	0.16	0.37	48		22	0.20	0.110	0.000	0.000	0.050	5.9		9		0.00	0					
42	30680	0.59	10.00	0.36	0.64	27		20	0.27	0.070	0.000	0.000	0.030	5.7		7		0.00	2					
43	31180	0.45	11.00	0.18	0.40	52		35	0.52	0.140		0.000	0.060	5.7		4		0.23	6					
44	31380	0.64	14.00	0.29	0.46	49		30	0.71	0.170	0.000	0.000	0.080	5.8		5		0.00	9					
45	31480	0.64	12.00	0.26	0.40	26		16	0.91	0.100	0.000	0.000	0.100	5.7		8		0.00	2					
46	31780	0.67	15.00	0.31	0.47	27		24		0.140	0.000	0.000	0.040	5.7		3		0.00	4					
49	33180	0.46	9.00	0.19	0.42	30		42	5.51	0.090	0.000	0.000	0.020	5.8		11		0.00	1					
50	40780	1.16	21.00	0.52	0.45	39		16	0.37	0.080	0.000	0.000	0.020	6.0		5		0.00	0					
54	42180	1.53	22.00	0.64	0.42	15		12	0.42		0.000	0.000	0.010	6.3		8		0.23	2					
55	51280	0.21	2.00	0.00	0.02	31		112	2.00		0.000	0.000	0.060	6.4		11			2					
56	51680	0.07	1.00	0.02	0.22	62		89	1.76		0.000	0.000	0.080	6.8		14			2					
57	52280	0.52	7.00	0.18	0.35	32		62	0.68		0.000	0.000	0.030	5.9		9			0					
65	82780	0.33	12.00	0.09	0.26	254		111	5.81	0.320				6.5		10		14.00						
66	90280	0.79	12.00	0.72	0.91	2		31		0.070				6.8			2	8.00						
67	110280	1.11	212.00	0.28	0.25	15		45		0.130	0.020	0.070	0.040	6.0		7	13							
68	110880	1.08	23.00	0.13	0.12	8		15		0.100	0.010	0.020		6.5		6	1							
69	112480	1.43	86.00	0.47	0.33	174		21		0.180	0.010	0.140	0.030	6.6		25								
70	120180	1.52	28.00	0.71	0.47	24		33		0.060				6.5		8								
71	120280	1.25	10.00	0.64	0.51	34		20		0.060		0.000		6.5		10								
72	120380	1.70	10.00	0.94	0.55	29		9		0.060				6.5		9	1							
73	120480	1.22	10.00	0.77	0.63	16		8		0.040				6.6		8								
74	122280	1.74	58.00	0.57	0.33	33		52		0.080		0.000		6.5		10								
75	122480	0.78	12.00	0.64	0.82	38		45		0.030				6.2		9								
77	123080	0.70	15.00	0.43	0.62	14		42		0.010	0.020	0.060		6.1		3								
78	11981	0.14	19.00	0.12	0.85	38		54		0.080	0.020	0.060		6.4		14	2							
79	12281	0.43	15.00	0.07	0.17	71		53		0.130	0.020	0.130	0.010	6.4		17								
80	12381	0.15	10.00	0.11	0.73	31		21		0.120	0.010			6.7		11	0							
81	12681	0.55	15.00	0.24	0.43	47		63		0.090	0.010	0.030		6.5		27								
82	12881	0.24	12.00	0.15	0.62	62		73		0.230	0.020	0.060	0.080	6.7		33								
83	20481	0.16	12.00	0.07	0.45	40		39		0.140	0.020	0.080		7.0		21	11							
84	21381	0.96	28.00	0.43	0.45	48		43		0.150	0.010	0.080	0.010	6.9		19	10							

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
85	21881	0.23	23.00	0.17	0.74	20		18		0.080	0.010	0.030		6.9		5								
86	21981	1.58	10.00	0.92	0.58	42		39		0.100	0.020	0.040		6.9		4								
87	22581	0.82	15.00	0.54	0.66	28		50	0.53	0.030		0.030	0.010	6.7		9	1	0.50						
88	30461	0.99	15.00	0.56	0.57	24		37	0.80	0.080	0.010			6.8		7	2	0.64						
89	31081	0.33	10.00	0.26	0.78	92		52	2.03	0.240	0.020	0.060		6.6		19		0.99						
90	31681	0.67	10.00	0.49	0.73	127		58	1.00	0.270	0.020	0.120	0.110	6.8		22		0.97						
91	32581	0.39	19.00	0.32	0.82	41		43	0.68	0.140	0.010			6.8		10		0.39						
92	40681	0.86	46.00	0.44	0.51	56		29	0.60					6.7		16								
93	40881	0.44	10.00	0.28	0.63			26																
94	40981	0.28	10.00	0.22	0.79	50		38						6.6		17		0.45						
95	41381	0.65	10.00	0.40	0.61	27		26						6.8		7		0.39						
96	42281	0.48	10.00	0.21	0.43	19		4						6.4		2		1.64						
97	50581	0.64		0.28	0.44			69																
98	50981	0.29		0.11	0.37	35		19			0.010	0.150	0.030			3	0	0.64						
	Mean	0.77	17.52	0.35	0.46	44		45	0.64	0.118	0.019	0.063	0.048	6.3		11	10	1.04	3					
	Median	0.58	12.91	0.23	0.38	34		32	0.45	0.098	0.017	0.046	0.040	6.2		9	7	0.60	2					
	COV	0.88	0.92	1.13	0.69	0.82		0.97	1.01	0.66	0.51	0.93	0.67	0.09		0.64	1.12	1.40	0.84					
	N	79	77	79	79	77	0	79	49	64	55	57	47	76	0	76	38	47	16	0	0	0	0	0
33	11680	0.80	17.00	0.54	0.67	78		36	0.19	0.280	0.000	0.000	0.070	5.1		16		0.00	0					
39	22980	2.84	37.00	0.82	0.29	168		105	0.23	0.330		0.000	0.110	5.7		43		0.00	8					
40	30480	0.27	5.00	0.14	0.53	168		64	0.45		0.000	0.000	0.110	5.8		39		0.36	7					
41	30580	0.25	5.00	0.11	0.42	144		55	0.31	0.230	0.000	0.000	0.090	5.4		30			3					
47	32180	0.82	11.00	0.16	0.26	154		53	0.74	0.270	0.000	0.000	0.140	5.3		22		0.21	1					
48	32480	0.23	4.00	0.08	0.36	168		61		0.340	0.000	0.000	0.140	5.6		29		0.32	0					
51	40980	0.53	9.00	0.23	0.43	71		18	0.22	0.160	0.000	0.000	0.040	5.8		15		0.27	8					
53	41580	0.21	2.00	0.08	0.39	49		22	0.75		0.050	0.000	0.050	5.9		20			3					
	Mean	0.70	11.72	0.27	0.42	129		54	0.42	0.271			0.096	7.0		27		0.29	6					
	Median	0.47	7.71	0.19	0.40	114		45	0.36	0.260	0.050		0.086	5.6		25		0.28	4					
	COV	1.09	1.14	1.04	0.31	0.52		0.64	0.63	0.28			0.49	1.19		0.41		0.24	0.98					
	N	8	8	8	8	8		8	7	6	7	8	8	8	0	8	0	6	8	0	0	0	0	0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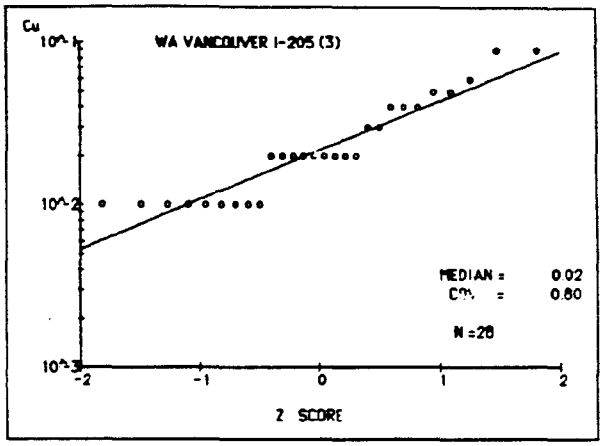
COV = 1.30
N =91
Z SCORE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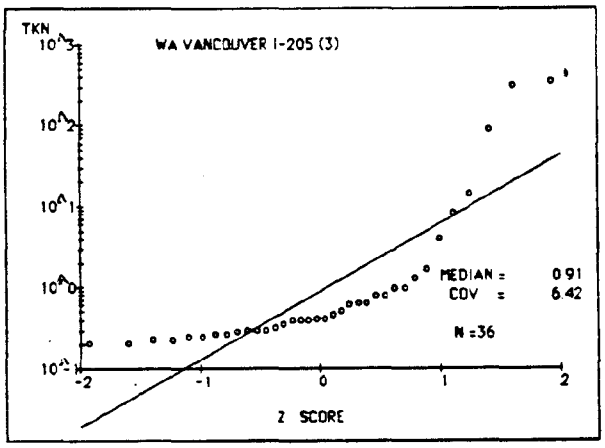
COV = 0.80
N =28
Z SCORE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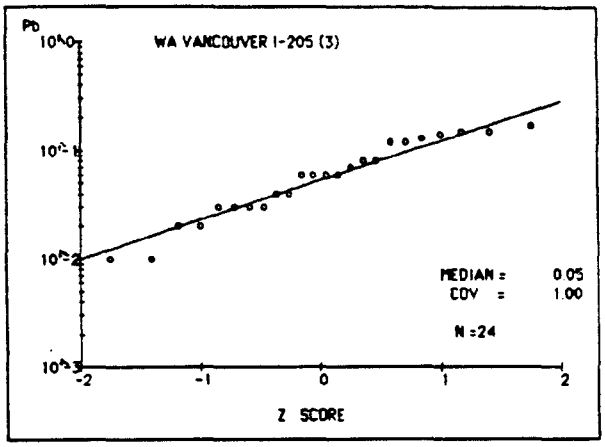
MEDIAN = 0.91
COV = 6.42
N =36
Z SCORE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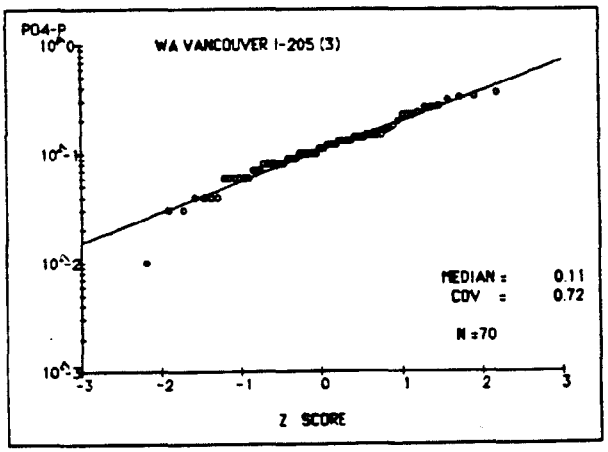
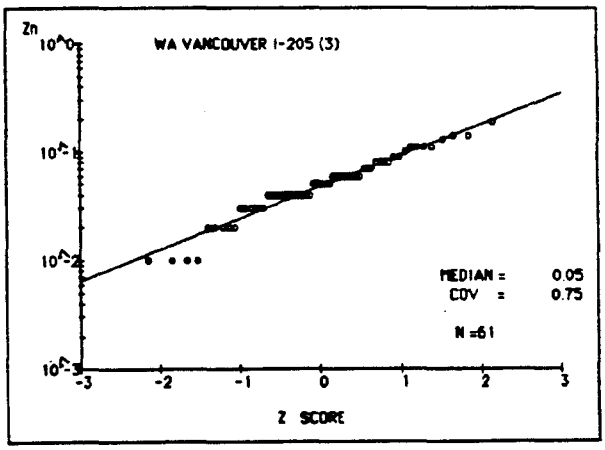
MEDIAN = 0.05
COV = 1.00
N =24
Z SCORE


PO4-P
WA VANCOUVER I-205 (3)
MEDIAN = 0.11
COV = 0.72
N =70
Z SCORE


Zn
WA VANCOUVER I-205 (3)
MEDIAN = 0.05
COV = 0.75
N =61
Z SCORE

SITE: WI MILWAUKEE
HWY 45

STATE: Wisconsin

LOCATION: Milwaukee, Wisconsin

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 6

NO. OF TRAFFIC LANES MONITORED: 6

AVERAGE DAILY TRAFFIC - ADT (VPD): 85,000

ADT PER LANE (VPD): 14,167

DRAINAGE AREA (ACRES): 106

PERCENT IMPERVIOUS: 31

LENGTH OF ROAD SURFACE (FEET): 9,500

ROAD SURFACE TYPE: CONCRETE

CURB: YES

SECTION TYPE: CUT, AT GRADE

LAND USE: URBAN, RESIDENTIAL

AVERAGE ANNUAL PRECIPITATION (IN): 27.6

AVERAGE WIND SPEED (FT/SEC): 12.4

NO. OF EVENTS MONITORED: 29

NO. OF SNOW EVENTS MONITORED: 7

MONITORING PERIOD: February 1976 to June 1977

SOURCE:

Constituents of Highway Runoff, Volume VI: Executive Summary, M.K. Gupta, Federal Highway Administration Report No. FHWA/RD-81/047, February, 1981

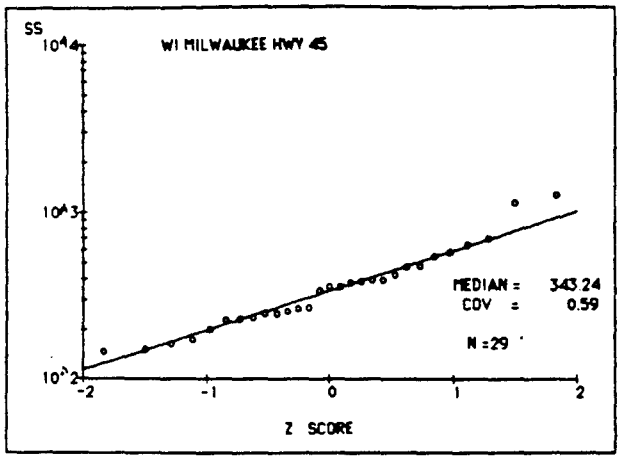
REMARKS:

Data were extracted from computer tapes. EMCs were calculated using discretely collected data and flow-weighted averaging.

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	20976																							
2	21076																							
3	21276																							
4	21676	0.55	15.42	0.40	0.72	545			0.56		0.230	2.000	0.860		11.00	109	29	1.40	1530	20.00	0.020	0.060	3,415	
5	32676	1.56	7.08	0.90	0.58	470	8	107	0.97	0.610	0.140	1.000	0.440	7.6	0.750	63	37	3.70	150	17.00	0.010	0.140	990	
6	32976	0.22	6.75	0.19	0.84	151	11	73	0.48	0.280	0.070	0.500	0.240	7.8	9.200	27	27	1.70	260	6.50	0.010	0.070	835	
7	61876	0.66	4.50	0.28	0.42	646	12	68	0.98	0.850	0.110	1.000	0.400	7.9	12.00	84	36	3.20	76	20.90	0.020	0.130	883	
8	72876	0.33	1.83	0.06	0.18	362	46	170		0.520	0.100	1.000	0.510	7.4	5.000	61	63	2.07	67	13.00	0.010	0.100	659	
9	73076	1.14	3.67	0.23	0.20	234	11	73		0.290	0.040	0.500	0.250	7.6	0.500	65	19	1.60	60	9.20	0.010	0.100	430	
10	80576	0.04	0.33	0.01	0.34	386	32	151		0.350	0.030	0.600	0.700	7.6	67.00	60	41	2.41	404	12.00	0.010	0.110	1,430	
11	81476	0.34	1.25	0.08	0.25	395		185		0.400	0.090	1.000	0.510	7.4	0.400	77	50	2.38	210	11.20	0.040	0.140	1,040	
12	82576	0.37	1.08	0.09	0.25	270	12	93		0.410	0.080	0.700	0.410	8.0	0.500	49	18	1.90	725	9.20	0.090	0.100	1,810	
13	82776	0.92	3.67	0.30	0.32	230	8	64		0.290	0.080	0.600	0.200	7.6	0.750	38	23	2.00	40	6.90	0.020	0.100	350	
14	90976	0.80	7.67	0.32	0.41	258	10	69		0.230	0.120	0.600	0.280	7.2	0.300	36	25	2.30	44	8.40	0.050	0.020	449	
15	91976	0.37	5.08	0.08	0.22	247	17	97		0.300	0.060	0.400	0.260	7.3	30.00	34	33	2.13	81	9.20	0.020	0.010	557	
16	103076	0.20	5.25	0.05	0.25	146	13	91		0.100	0.120	0.700	0.330	7.3		38	33	0.80	265	5.60	0.020	0.020	801	
17	22377	0.13	1.25	0.03	0.24	1,148	73	774		1.230	0.880	6.600	1.900	7.4	0.500	274	166	7.10	1570	35.00	0.060	0.130	3,737	
18	22377	0.12	1.17	0.17	1.46	477	40	378		1.130	0.260	2.200	0.940	7.3	0.750	122	290	6.20	1900	15.00	0.090	0.050	3,990	
19	30377	0.62	31.50	0.59	0.96	164		200		0.680	0.090	0.700	0.450	7.2	0.500	50	45	3.10	1395	7.00	0.040	0.010	2,860	
20	31277	0.40	7.25	0.15	0.38	382		220		0.370	0.130	1.100	0.640	7.5	0.500	81	36	2.30	1288	11.00	0.050	0.040	2,920	
21	31777	0.26	12.17	0.07	0.26	225	25	145		0.340	0.120	1.000	0.630	7.6	0.250	78	47	1.90	3413	7.80	0.060	0.050	6,494	
22	32777	0.09	3.17	0.08	0.87	247	18	184		0.300	0.150	0.800	0.480	7.8	1.000	58	39	1.70	1305	8.10	0.090	0.040	2,803	
23	32877	1.06	17.33	0.57	0.54	343		120		0.400	0.130	1.000	0.450	6.9	0.250	63	45	2.70	455	16.00	0.040	0.030	1,469	
24	50477	0.18	7.50	0.03	0.16	199	22	143		0.350	0.100	0.600	0.400	7.8	4.750	59	33	2.20	395	6.20	0.070	0.010	1,090	
25	60577	0.83	3.92	0.23	0.28	696		153		0.760		1.500	0.550	7.5	1.600	95	38	2.30	135	19.60	0.040	0.010	1,100	
26	60577	0.56	0.33	0.20	0.36	1,260	13	143		1.270	0.050	1.500	0.580	7.8	13.00	146	40	5.00	123	38.60	0.030	0.040	1,776	
27	60677	0.10	0.25	0.01	0.09	357	58	164		0.670	0.010	0.800	0.490	8.0	4.750	78	44	6.20	828	18.80	0.050	0.020	2,145	
28	60877	0.27	8.25	0.04	0.16	424	12	174		0.450	0.120	0.800	0.370	7.9	0.250	76	37	2.29	290	17.20	0.090	0.010	1,112	
29	61177	0.61	6.42	0.15	0.24	397	11	94		0.380	0.140	0.500	0.240	7.3	1.520	62	30	2.50	185	11.80	0.070	0.010	998	
30	61777	0.60	0.42	0.21	0.36	579		105		0.720	0.090	0.900	0.380	7.3	0.300	510	43	3.80	105	18.10	0.050	0.030	944	
31	62777	0.40	9.42	0.21	0.51	173	15	114		0.390	0.060	0.500	0.280	7.7	0.200	131	19	8.80	194	6.30	0.080	0.010	682	
32	63077	0.71	2.42	0.22	0.31	266	7	122		0.410	0.060	0.600	0.330	7.8	0.200	218	16	11.40	116	9.80	0.010	0.030	596	
	Mean	0.5358	7.29	0.23	0.42	399	21	155	0.76	0.521	0.128	1.032	0.493	7.6	5.374	94	45	3.30	643	13.57	0.045	0.060	1,664	
	Median	0.37	3.34	0.13	0.35	343	17	134	0.71	0.447	0.095	0.877	0.440	7.5	1.324	76	38	2.78	292	11.93	0.033	0.038	1,263	
	COV	1.05	1.94	1.53	0.68	0.59	0.74	0.58	0.38	0.60	0.90	0.62	0.51	0.04	3.93	0.71	0.65	0.64	1.96	0.54	0.92	1.23	0.86	
	N	29	29	29	29	29	22	28	4	28	28	29	29	28	28	29	29	29	29	29	29	29	29	0

WI MILWAUKEE HWY 45 December 15, 1986

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv		SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
5	32676	1.56	7.08	0.90	0.58		470	8	107	0.97	0.610	0.140	1.000	0.440	7.6	0.750	63	37	3.70	150	17.00	0.010	0.140	990	
6	32976	0.22	6.75	0.19	0.84		151	11	73	0.48	0.280	0.070	0.500	0.240	7.8	9.200	27	27	1.70	260	6.50	0.010	0.070	835	
7	61876	0.66	4.50	0.28	0.42		646	12	68	0.98	0.850	0.110	1.000	0.400	7.9	12.00	84	36	3.20	76	20.90	0.020	0.130	883	
8	72876	0.33	1.83	0.06	0.18		362	46	170		0.520	0.100	1.000	0.510	7.4	5.000	61	63	2.07	67	13.00	0.010	0.100	659	
9	73076	1.14	3.67	0.23	0.20		234	11	73		0.290	0.040	0.500	0.250	7.6	0.500	65	19	1.60	60	9.20	0.010	0.100	430	
10	80578	0.04	0.33	0.01	0.34		386	32	151		0.350	0.030	0.600	0.700	7.6	67.00	60	41	2.41	404	12.00	0.010	0.110	1,430	
11	81476	0.34	1.25	0.08	0.25		395		185		0.400	0.090	1.000	0.510	7.4	0.400	77	50	2.38	210	11.20	0.040	0.140	1,040	
12	82576	0.37	1.08	0.09	0.25		270	12	93		0.410	0.080	0.700	0.410	8.0	0.500	49	18	1.90	725	9.20	0.090	0.100	1,810	
13	82776	0.92	3.67	0.30	0.32		230	8	64		0.290	0.080	0.600	0.200	7.6	0.750	38	23	2.00	40	6.90	0.020	0.100	350	
14	90976	0.80	7.67	0.32	0.41		258	10	69		0.230	0.120	0.600	0.280	7.2	0.300	36	25	2.30	44	8.40	0.050	0.020	449	
15	91976	0.37	5.08	0.08	0.22		247	17	97		0.300	0.060	0.400	0.260	7.3	30.00	34	33	2.13	81	9.20	0.020	0.010	557	
16	103076	0.20	5.25	0.05	0.25		146	13	91		0.100	0.120	0.700	0.330	7.3		38	33	0.80	265	5.60	0.020	0.020	801	
23	32877	1.06	17.33	0.57	0.54		343		120		0.400	0.130	1.000	0.450	6.9	0.250	63	45	2.70	455	16.00	0.040	0.030	1,469	
24	50477	0.18	7.50	0.03	0.16		199	22	143		0.350	0.100	0.600	0.400	7.8	4.750	59	33	2.20	395	6.20	0.070	0.010	1,090	
25	60577	0.83	3.92	0.23	0.28		696		153		0.760		1.500	0.550	7.5	1.600	95	38	2.30	135	19.60	0.040	0.010	1,100	
26	60577	0.56	0.33	0.20	0.36		1,260	13	143		1.270	0.050	1.500	0.580	7.8	13.00	146	40	5.00	123	38.60	0.030	0.040	1,776	
27	60677	0.10	0.25	0.01	0.09		357	58	164		0.670	0.010	0.800	0.490	8.0	4.750	78	44	6.20	828	18.80	0.050	0.020	2,145	
28	60877	0.27	6.25	0.04	0.18		424	12	174		0.450	0.120	0.800	0.370	7.9	0.250	76	37	2.29	290	17.20	0.090	0.010	1,112	
29	61177	0.61	6.42	0.15	0.24		397	11	94		0.380	0.140	0.500	0.240	7.3	1.520	62	30	2.50	185	11.80	0.070	0.010	998	
30	61777	0.60	0.42	0.21	0.36		579		105		0.720	0.090	0.900	0.380	7.3	0.300	510	43	3.80	105	18.10	0.050	0.030	944	
31	62777	0.40	9.42	0.21	0.51		173	15	114		0.390	0.060	0.500	0.280	7.7	0.200	131	19	8.80	194	6.30	0.080	0.010	682	
32	63077	0.71	2.42	0.22	0.31		266	7	122		0.410	0.060	0.600	0.330	7.8	0.200	218	16	11.40	116	9.80	0.010	0.030	596	
	Mean	0.61	5.94	0.24	0.33		384	17	117	0.84	0.480	0.091	0.787	0.392	7.8	7.800	89	34	3.29	242	13.23	0.040	0.061	1,016	
	Median	0.42	2.82	0.12	0.29		334	15	111	0.77	0.417	0.075	0.738	0.371	7.6	1.551	72	32	2.77	168	11.72	0.029	0.036	905	
	COV	1.05	1.86	1.64	0.53		0.57	0.64	0.35	0.43	0.57	0.69	0.37	0.34	0.04	4.93	0.74	0.37	0.64	1.04	0.52	0.96	1.37	0.51	
	N	21	21	21	21		21	17	21	3	21	20	21	21	21	20	21	21	21	21	21	21	21	21	0
4	21676	0.55	15.42	0.40	0.72		545			0.56		0.230	2.000	0.860		11.00	109	29	1.40	1530	20.00	0.020	0.060	3,415	
17	22377	0.13	1.25	0.03	0.24		1,148	73	774		1.230	0.880	6.600	1.900	7.4	0.500	274	166	7.10	1570	35.00	0.060	0.130	3,737	
18	22377	0.12	1.17	0.17	1.46		477	40	378		1.130	0.260	2.200	0.940	7.3	0.750	122	290	6.20	1900	15.00	0.090	0.050	3,990	
19	30377	0.62	31.50	0.59	0.96		184		200		0.680	0.090	0.700	0.450	7.2	0.500	50	45	3.10	1395	7.00	0.040	0.010	2,860	
20	31277	0.40	7.25	0.15	0.38		382		220		0.370	0.130	1.100	0.640	7.5	0.500	81	36	2.30	1288	11.00	0.050	0.040	2,920	
21	31777	0.28	12.17	0.07	0.26		225	25	145		0.340	0.120	1.000	0.630	7.6	0.250	78	47	1.90	34:3	7.80	0.060	0.050	8,494	
22	32777	0.09	3.17	0.08	0.87		247	18	184		0.300	0.150	0.800	0.480	7.8	1.000	58	39	1.70	1305	8.10	0.090	0.040	2,803	
	Mean	0.33	12.82	0.24	0.73		464	41	320		0.698	0.261	2.048	0.847	7.5	1.735	111	93	3.45	1772	15.01	0.061	0.059	3,754	
	Median	0.24	5.71	0.14	0.57		375	34	265	0.56	0.574	0.196	1.510	0.750	7.5	0.824	94	63	2.82	1672	12.62	0.053	0.044	3,594	
	COV	0.92	2.01	1.38	0.79		0.73	0.67	0.68		0.69	0.88	0.92	0.52	0.03	1.85	0.61	1.08	0.71	0.35	0.64	0.56	.0.89	0.30	
	N	7	7	7	7	0	7	4	6	1	6	7	7	7	6	7	7	7	7	7	7	7	7	7	0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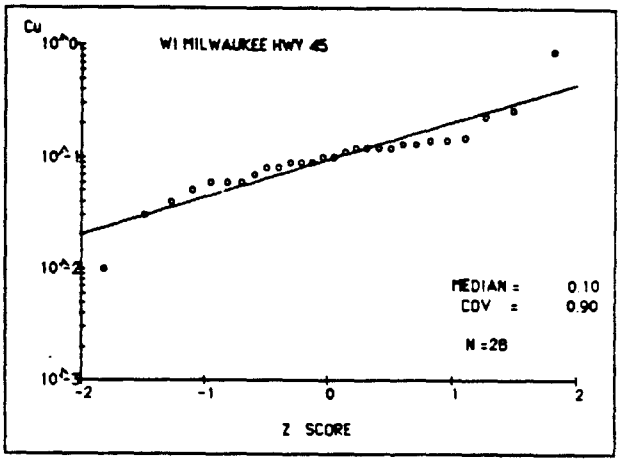
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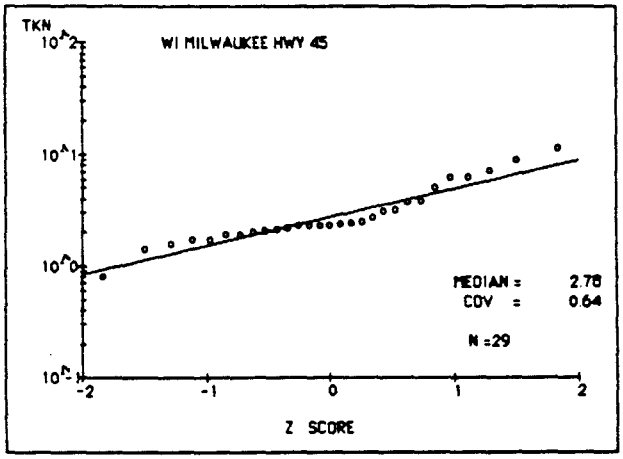
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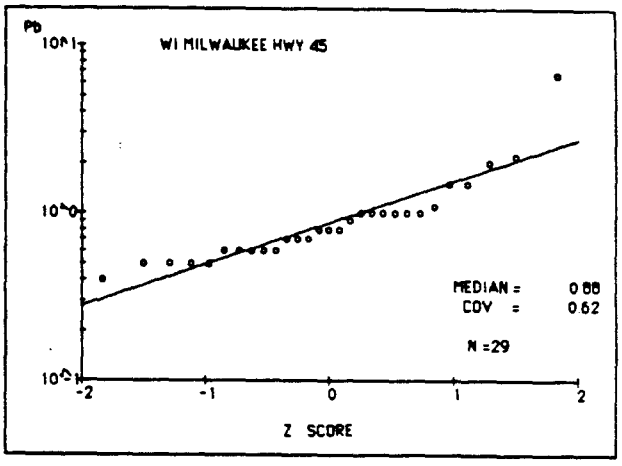
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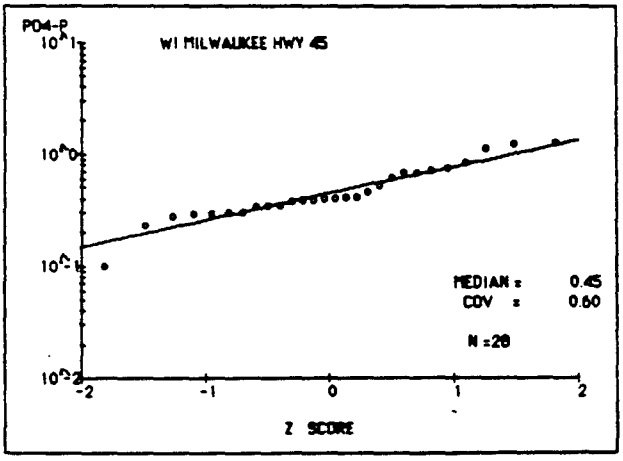
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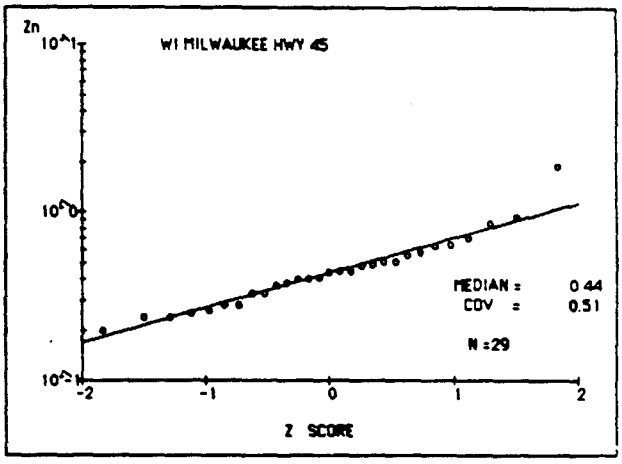

Zn
WI MILWAUKEE HWY 45
MEDIAN = 0.44
COV = 0.51
N = 29
Z SCORE

SITE: WI MILWAUKEE
I-794

STATE: Wisconsin

LOCATION: Milwaukee, Wisconsin

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 8

NO. OF TRAFFIC LANES MONITORED: 8

AVERAGE DAILY TRAFFIC - ADT (VPD): 53,000

ADT PER LANE (VPD): 6,625

DRAINAGE AREA (ACRES): 2.1

PERCENT IMPERVIOUS: 100

LENGTH OF ROAD SURFACE (FEET): 813

ROAD SURFACE TYPE: CONCRETE

CURB: YES

SECTION TYPE: BRIDGE

LAND USE: URBAN, UNDEFINED

AVERAGE ANNUAL PRECIPITATION (IN): 59.8

AVERAGE WIND SPEED (FT/SEC): 9.0

NO. OF EVENTS MONITORED: 35

NO. OF SNOW EVENTS MONITORED: 5

MONITORING PERIOD: June 1976 to September 1977

SOURCE:

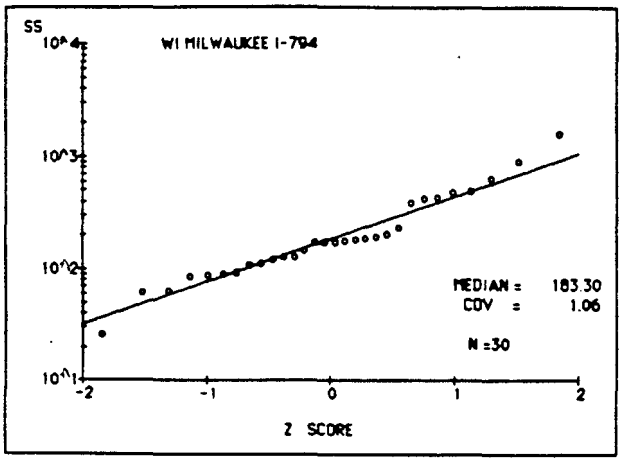
Constituents of Highway Runoff, Volume VI: Executive Summary, M.K. Gupta, Federal Highway Administration Report No. FHWA/RD-81/047, February, 1981

REMARKS:

Data were extracted from computer tapes. EMCs were calculated using discretely collected data and flow-weighted averaging.

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	61876	0.90	3.42	0.72	0.80	176	11	52	1.27	0.590	0.110		0.330	7.5	13.000	38	14	2.10		5.60	0.030	0.100	251	
2	72876	0.33	2.25	0.28	0.83	111	26	133		0.320	0.090	1.100	0.330	7.5	24.000	41	32	1.96	59	39.00	0.020	0.080	349	
3	73076	1.59	3.83	1.39	0.88																			
4	80576	0.05	0.42	0.04	0.72	92	63	226		0.360	0.080	1.100	0.510	7.2	3.000	38	67	4.01	110	3.00	0.010	0.100	714	
5	81376	0.64	5.00	0.58	0.90	146		148		0.340	0.180	3.100	0.860	7.2	0.300	47	31	1.99	20	11.00	0.040	0.120	342	
6	82576	0.14	1.00	0.12	0.87	179	49	190		0.410	0.220	1.700	0.600	7.3	9.000	51	58	4.90	45	7.20	0.030	0.100	500	
7	82876	1.05	3.08	1.17	1.12	173	12	57		0.260	0.100	1.800	0.270	7.2	0.650	27	19	2.00	13	4.80	0.030	0.100	242	
8	90976	0.85	6.92	0.85	1.00	87	10	48		0.120	0.070	0.900	0.140	7.3	0.300	25	16	1.85	10	2.50	0.030	0.020	240	
9	91976	0.30	4.67	0.28	0.93	61	18	87		0.180	0.080	0.800	0.220	7.2	11.000	14	30	2.13	21	2.90	0.020	0.010	212	
10	103076	0.15	4.50	0.15	1.03	193	30	5		0.200	0.190	2.600	0.640	7.2		74	62	1.60	422	7.20	0.030	0.040	1130	
11	22377	0.14	1.33	0.10	0.70	1576	133	1058		1.810	0.660	13.100	3.400	7.3	2.000	392	51	8.60	1030	43.00	0.120	0.140	3555	
12	30377	0.15	4.17	0.11	0.72	632		534		1.050	0.200	5.000	1.450	7.2	1.250	33	230	6.30	13300	16.00	0.120	0.060	21640	
13	30377	0.62	20.50	0.43	0.69	496		494		1.110	0.170	5.000	0.960	7.8	0.500	161	115	6.50	425	15.00	0.030	0.040	1092	
14	31277	0.30	6.17	0.21	0.70	886		638		1.230	0.490	7.400	1.500	7.6	0.800	207	50	10.70	299	27.00	0.030	0.110	1715	
15	31777	0.21	8.17	0.18	0.84	387	31	234		0.520	0.170	3.900	0.800	7.6	0.250	120	66	6.60	1063	13.00	0.400	0.050	2469	
16	32777	0.29	13.67	0.20	0.69	201	39	158		0.280	0.110	1.800	0.470	7.7	0.250	49	34	2.20	220	7.00	0.070	0.030	886	
17	32877	1.12	17.25	0.85	0.76	416		178		0.320	0.120	2.500	0.650	7.8	0.250	86	58	2.50	62	11.00	0.040	0.040	804	
18	53177	0.20	1.50	0.18	0.89	86	26	78		0.220	0.050	0.800	0.210	6.9	3.750	27	23	2.50	24	4.37	0.020	0.060	298	
19	60577	0.69	3.75	0.66	0.95	119	12	52		0.150	0.010	1.100	0.200	6.8	2.500	32	10	2.40	16	3.52	0.040	0.010	235	
20	60577	0.54	0.33	0.46	0.85	475	16			0.630				7.3		112		1.90					715	
21	60877	0.25	6.67	0.24	0.95	185		163		0.230	0.120	1.700	0.300	7.2	0.750	51	36	1.00	45	7.60	0.080	0.010	310	
22	61077	0.05	1.25	0.04	0.74	170	34	191		0.280	0.150	1.500	0.300	7.1	0.750	68	54	1.60	118	6.40	0.060	0.010	676	
23	61177	1.22	3.67	1.15	0.94	127	9	66		0.290	0.060	1.200	0.140	7.0	0.770	35	20	0.60	13	4.27	0.060	0.010	315	
24	61777	0.61	0.92	0.61	1.00	169		94		0.440	0.090	2.100	0.360	6.8	0.500	144	18	1.50	30	8.20	0.050	0.010	407	
25	63077	0.79	2.50	0.76	0.96	109	5	85		0.300	0.050	1.100	0.330	7.6	0.300	77	5	0.70	16	7.30	0.010	0.020	232	
26	70377	0.35	2.00	0.33	0.95	63																	168	
27	71777	2.10	9.00	1.66	0.79	26																	145	
28	80477	0.17	0.92	0.17	1.00																			
29	80577	0.15	0.42	0.14	0.93																			
30	80577	0.24	3.00	0.15	0.60																			
31	81377	1.28	2.33	0.93	0.73																		290	
32	82877	1.10	7.92	0.79	0.72	128																	256	
33	92377	0.05	0.08	0.01	0.16	433																	606	
34	92377	0.13	0.25	0.11	0.86	228																	474	
35	92477	0.61	2.00	0.77	0.95	90																	161	
	Mean	0.607	5.36	0.58	0.8465	267	31	240		0.476	0.161	2.688	0.631	7.3	3.284	79	49	3.27	455	10.92	0.056	0.060	896	
	Median	0.3635	2.49	0.29	0.80	183	22	130	1.27	0.377	0.114	2.028	0.459	7.3	1.196	59	34	2.49	84	6.06	0.040	0.038	512	
	COV	1.34	1.90	1.72	0.33	1.06	0.98	1.55		0.77	1.00	0.87	0.94	0.04	2.56	0.91	1.00	0.85	5.32	0.92	0.98	1.24	1.43	
	N	35	35	34	35	30	17	23	1	24	23	22	23	24	22	24	23	24	22	23	23	23	31	0

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv		SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	61876	0.90	3.42	0.72	0.80		176	11	52	1.27	0.590	0.110		0.330	7.5	13.000	38	14	2.10		5.60	0.030	0.100	251	
2	72876	0.33	2.25	0.28	0.83		111	26	133		0.320	0.090	1.100	0.330	7.5	24.000	41	32	1.96	59	39.00	0.020	0.080	349	
3	73076	1.59	3.83	1.39	0.88																				
4	80576	0.05	0.42	0.04	0.72		92	63	226		0.360	0.080	1.100	0.510	7.2	3.000	38	67	4.01	110	3.00	0.010	0.100	714	
5	81376	0.64	5.00	0.58	0.90		146		148		0.340	0.180	3.100	0.860	7.2	0.300	47	31	1.99	20	11.00	0.040	0.120	342	
6	82576	0.14	1.00	0.12	0.87		179	49	190		0.410	0.220	1.700	0.600	7.3	9.000	51	58	4.90	45	7.20	0.030	0.100	500	
7	82876	1.05	3.08	1.17	1.12		173	12	57		0.260	0.100	1.800	0.270	7.2	0.650	27	19	2.00	13	4.80	0.030	0.100	242	
8	90976	0.85	6.92	0.85	1.00		87	10	48		0.120	0.070	0.900	0.140	7.3	0.300	25	16	1.85	10	2.50	0.030	0.020	240	
9	91976	0.30	4.67	0.28	0.93		61	18	87		0.180	0.080	0.800	0.220	7.2	11.000	14	30	2.13	21	2.90	0.020	0.010	212	
10	103076	0.15	4.50	0.15	1.03		193	30	5		0.200	0.190	2.600	0.640	7.2		74	62	1.60	422	7.20	0.030	0.040	1130	
16	32777	0.29	13.67	0.20	0.69		201	39	158		0.280	0.110	1.800	0.470	7.7	0.250	49	34	2.20	220	7.00	0.070	0.030	886	
17	32877	1.12	17.25	0.85	0.76		416		178		0.320	0.120	2.500	0.650	7.8	0.250	86	58	2.50	62	11.00	0.040	0.040	804	
18	53177	0.20	1.50	0.18	0.89		86	26	78		0.220	0.050	0.800	0.210	6.9	3.750	27	23	2.50	24	4.37	0.020	0.060	298	
19	60577	0.69	3.75	0.66	0.95		119	12	52		0.150	0.010	1.100	0.200	6.8	2.500	32	10	2.40	16	3.52	0.040	0.010	235	
20	60577	0.54	0.33	0.46	0.85		475	16			0.630				7.3		112		1.90					715	
21	60877	0.25	6.67	0.24	0.95		185		163		0.230	0.120	1.700	0.300	7.2	0.750	51	36	1.00	45	7.60	0.080	0.010	310	
22	61077	0.05	1.25	0.04	0.74		170	34	191		0.280	0.150	1.500	0.300	7.1	0.750	68	54	1.60	118	6.40	0.060	0.010	676	
23	61177	1.22	3.67	1.15	0.94		127	9	66		0.290	0.060	1.200	0.140	7.0	0.770	35	20	0.60	13	4.27	0.060	0.010	315	
24	61777	0.61	0.92	0.61	1.00		169		94		0.440	0.090	2.100	0.360	6.8	0.500	144	18	1.50	30	8.20	0.050	0.010	407	
25	63077	0.79	2.50	0.76	0.96		109	5	85		0.300	0.050	1.100	0.330	7.6	0.300	77	5	0.70	16	7.30	0.010	0.020	232	
26	70377	0.35	2.00	0.33	0.95		63																	168	
27	71777	2.10	9.00	1.66	0.79		26																	145	
28	80477	0.17	0.92	0.17	1.00																				
29	80577	0.15	0.42	0.14	0.93																				
30	80577	0.24	3.00	0.15	0.60																				
31	81377	1.28	2.33	0.93	0.73																			290	
32	82877	1.10	7.92	0.79	0.72		128																	256	
33	92377	0.05	0.08	0.01	0.16		433																	606	
34	92377	0.13	0.25	0.11	0.86		228																	474	
35	92477	0.81	2.00	0.77	0.95		90																	161	
	Mean	0.68	4.66	0.68	0.87		172	25	130		0.313	0.112	1.589	0.385	7.3	4.553	55	34	2.11	69	7.60	0.038	0.052	421	
	Median	0.39	2.17	0.32	0.82		140	19	88	1.27	0.287	0.088	1.457	0.336	7.2	1.368	47	27	1.86	39	6.22	0.032	0.032	359	
	COV	1.43	1.89	1.88	0.35		0.71	0.81	1.08		0.44	0.78	0.44	0.56	0.04	3.17	0.62	0.79	0.54	1.47	0.70	0.65	1.30	0.61	
	N	30	30	30	30	0	25	15	18	1	19	18	17	18	19	17	19	18	19	17	18	18	18	26	0
11	22377	0.14	1.33	0.10	0.70		1576	133	1058		1.810	0.660	13.100	3.400	7.3	2.000	392	51	8.60	1030	43.00	0.120	0.140	3555	
12	30377	0.15	4.17	0.11	0.72		632		534		1.050	0.200	5.000	1.450	7.2	1.250	33	230	6.30	13300	16.00	0.120	0.060	21640	
13	30377	0.62	20.50	0.43	0.69		496		494		1.110	0.170	5.000	0.960	7.8	0.500	161	115	6.50	425	15.00	0.030	0.040	1092	
14	31277	0.30	6.17	0.21	0.70		886		638		1.230	0.490	7.400	1.500	7.6	0.800	207	50	10.70	299	27.00	0.030	0.110	1715	
15	31777	0.21	8.17	0.18	0.84		387	31	234		0.520	0.170	3.900	0.800	7.6	0.250	120	66	8.60	1063	13.00	0.400	.0.050	2469	
	Mean	0.29	9.29	0.21	0.73		814	109	614		1.176	0.350	6.980	1.654	7.5	1.049	211	105	7.77	3,404	23.21	0.160	0.082	8,261	
	Median	0.24	5.64	0.18	0.73		701	64	530		1.062	0.285	6.239	1.415	7.5	0.758	139	85	7.57	1,131	20.50	0.088	0.071	3,238	
	COV	0.67	1.31	0.64	0.08		0.59	1.37	0.59		0.48	0.72	0.50	0.61	0.03	0.96	1.14	0.72	0.23	2.84	0.53	1.52	0.57	1.66	
	N	5	5	5	5	0	5	2	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0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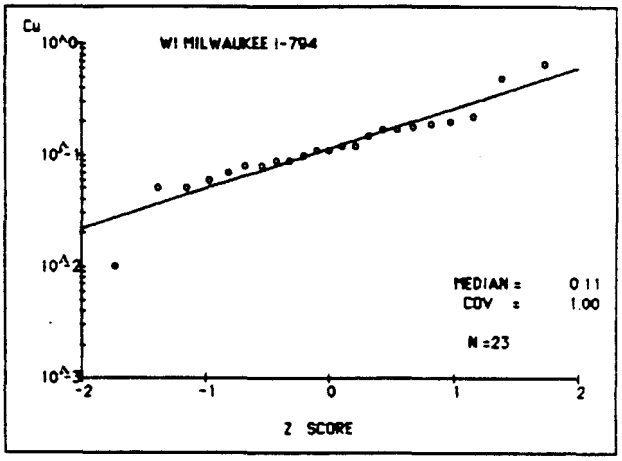
N =30
Z SCORE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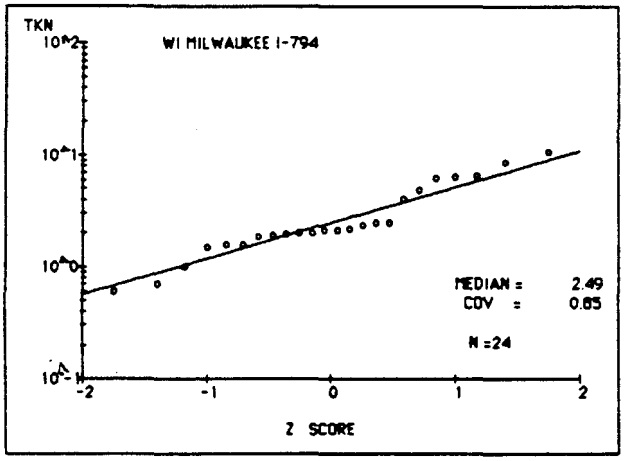
COV = 1.00
N =23
Z SCORE


TKN
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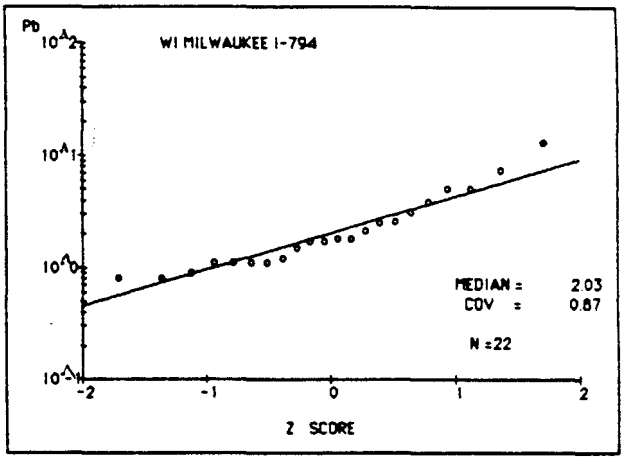
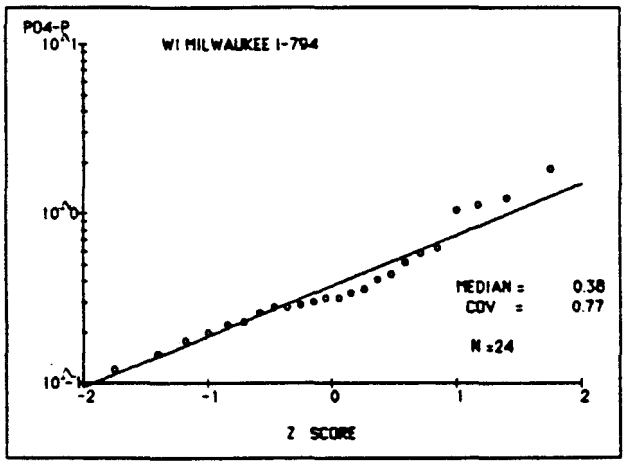
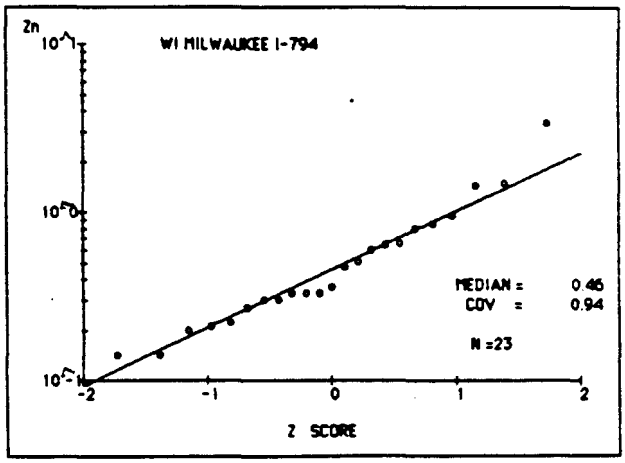
MEDIAN = 2.49
COV = 0.65
N =24
Z SCORE


Pb
WI MILWAUKEE I-794
MEDIAN = 2.03
COV = 0.87
N =22
Z SCORE


PO4-P
WI MILWAUKEE I-794
MEDIAN = 0.38
COV = 0.77
N =24
Z SCORE


Zn
WI MILWAUKEE I-794
MEDIAN = 0.46
COV = 0.94
N =23
Z SCORE

SITE: WI MILWAUKEE
I-94

STATE: Wisconsin

LOCATION: Milwaukee, Wisconsin

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 8

NO. OF TRAFFIC LANES MONITORED: 8

AVERAGE DAILY TRAFFIC - ADT (VPD): 116,000

ADT PER LANE (VPD): 14,500

DRAINAGE AREA (ACRES): 7.6

PERCENT IMPERVIOUS: 64

LENGTH OF ROAD SURFACE (FEET): 1,373

ROAD SURFACE TYPE: ASPHALT

CURB: YES

SECTION TYPE: HILLSIDE

LAND USE: URBAN, UNDEVELOPED

AVERAGE ANNUAL PRECIPITATION (IN): 27.6

AVERAGE WIND SPEED (FT/SEC): 12.4

NO. OF EVENTS MONITORED: 139

NO. OF SNOW EVENTS MONITORED: 30

MONITORING PERIOD: September 1978 to February 1981

SOURCE:

Volume I: Sources and Migration of Highway Runoff Pollutants, Executive Summary, N.P. Kobringer, Federal Highway Administration Report No. FHWA/RD-84/057, May, 1984

REMARKS:

Data were extracted from computer tapes. EMCs were calculated using discretely collected data and flow-weighted averaging.

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
1	91278	0.08		0.06	0.75																		289	5.0
2	91378	0.95		0.75	0.79	64						0.100	0.110						4	2.00			95	
3	91378	0.19		0.17	0.89														10				285	
4	91478	0.20		0.15	0.75														14				220	
5	91778	0.60		0.53	0.88														7				130	
6	91878	1.34		1.23	0.92														12				185	
7	92078	0.15		0.14	0.93														14				106	
8	92178	0.63		0.54	0.86														8				150	
9	93078	0.04		0.02	0.50														563				1,990	
10	100278	0.25		0.15	0.60	115		96	0.80	0.180	0.370	0.600	0.370	7.2	0.850	35	38	3.00	24	3.90	0.005	0.050	225	4.0
11	100578	0.44		0.32	0.73	47													20				138	
12	100578	0.12		0.10	0.83	223													6				242	
13	101678	0.11		0.08	0.73	245													27				385	
14	102278	0.23		0.14	0.61	44																	232	
15	102578	0.11		0.10	0.91	138																	263	
16	102578	0.03		0.03	1.00	128																	300	
17	110578	0.02		0.02	1.00	156													356				1,300	
18	111278	0.54		0.43	0.80	219																	392	
19	111778	0.68		0.60	0.88	142													30				273	
20	111778			0.02		137													210				765	
21	112278	0.40		0.43	1.08	108													262				615	
22	112678	0.40		0.43	1.08	103								-					5,600				9,660	
23	112978	0.06		0.06	1.00	407													3,750				6,930	
24	120378	0.66		0.20	0.30	116													7,500				11,900	
25	22179	0.35		0.36	1.03														8,930					
26	30379	0.41		0.56	1.37	402		260	1.00	0.290	0.220	2.700	0.880	7.5	0.001	114	93	3.40	445	15.00	0.005	0.090	1,310	16.0
27	30779	0.10		0.13	1.30	490		360	2.20	0.500	0.270	2.700	1.100	7.2	0.001	141	103	4.30	480	16.00	0.010	0.050	1,660	27.0
28	31879	0.21		0.27	1.29	227		155	0.91	0.250	0.140	1.300	0.460	7.5	0.001	63	47	2.00	225	6.80	0.030	0.030	760	10.0
29	31979	0.07		0.09	1.29	677					0.090	3.700	1.100	7.5					215	20.00	0.020	0.020	3,430	
30	32279	0.05		0.05	1.00														775					
31	32379	0.13		0.15	1.15	153		126	1.52	0.240	0.130	0.900	0.390	7.5	0.001	40	39	2.40	480	5.80	0.020	0.030	735	
32	32379	0.04		0.08	1.50														7,200					
33	32979	0.12		0.15	1.25	956		660	0.81	0.920	0.520	5.700	2.900	7.8	0.001	298	182	5.40	288	39.00	0.020	0.180	1,690	10.0
34	32979	0.39		0.50	1.28	1210		500	0.52	0.780	0.430	5.100	2.100	6.8	0.001	233	135	4.50	105	33.00	0.030	0.130	1,500	16.0
35	33079	0.81		0.78	0.96	1860		590	0.48	1.120	0.590	6.200	2.300	7.2	0.001	280	130	4.00	75	46.00	0.030	0.170	2,130	8.0
36	40579	0.11		0.09	0.82	173		130	0.86	0.390	0.140	0.850	0.440	7.1	0.001	43	37	2.80	125	7.40	0.005	0.030	579	
37	41179	1.22		1.09	0.89	172		75	0.49	0.240	0.230	0.700	0.380	6.9	0.250	37	18	1.70	50	5.50	0.005	0.020	340	
38	41279	0.03		0.03	1.00														41					
39	42079	0.11		0.10	0.91	142													250				862	
40	42479	0.05		0.04	0.80	73													210				815	
41	42479	0.42		0.33	0.79	191		120	0.59	0.580	0.140	0.800	0.360	6.8	0.001	43	34	2.20	14	6.10	0.020	0.005	334	
42	42579	1.20		0.97	0.81	191		95	0.38	0.300	0.120	0.700	0.290	6.9	0.001	41	33	2.20	20	5.70	0.020	0.005	369	
43	42779	0.24		0.18	0.75	91								7.1					70				393	
44	42979	0.32		0.29	0.91	59								7.2					50				357	
45	50279	0.34		0.26	0.76	60													35				267	
46	51179	0.03		0.02	0.67	938													425				2,710	
47	51179	0.03		0.02	0.67	278													195				1,050	
48	51379	0.15		0.09	0.60	398													18				525	
49	51379	0.13		0.10	0.77	230													22				276	
50	51879	0.39		0.29	0.74	319								5.9					50				583	
51	53079	1.07		0.87	0.81	141		100	0.54	0.290	0.140	0.600	0.320	5.1	0.001	42	41	2.10	18	4.40	0.005	0.005	374	
52	60479	0.04		0.02	0.50	284								6.3									865	
53	60579	0.07		0.06	0.86	410								6.4									580	
54	60779	0.39		0.32	0.82	197		91	0.73	0.290	0.160	0.850	0.530	6.7		46	34	2.50	12	6.70	0.040	0.005	293	11.0
55	60879	0.17		0.13	0.76	17								7.3									583	
56	60979	0.07		0.06	0.86	27								6.8									183	
57	61079	0.14		0.10	0.71	105								6.4									203	
58	61779	0.08		0.06	0.75	61								6.2									150	
59	62079	0.11		0.10	0.91	191								6.5									365	
60	62079	0.38		0.26	0.68	278		113	0.84		0.150	1.300	0.710	6.3		53	18	5.10	32	11.90	0.010	0.030	421	
61	62779	0.47		0.43	0.91	170								6.0									330	
62	62879	0.68		0.54	0.79	78					0.110	0.400	0.260	6.7		20			10	3.30	0.005	0.005	204	
63	63079	0.07		0.05	0.71	80					0.190	0.400	0.430	6.6		29			10	2.70	0.005	0.005	336	
64	70379	0.46		0.38	0.83	123		68	1.28	0.260	0.080	0.350	0.280	6.5		28	32	2.20	8	3.40	0.005	0.005	290	
65	70479	0.04		0.03	0.75	94								6.9									390	

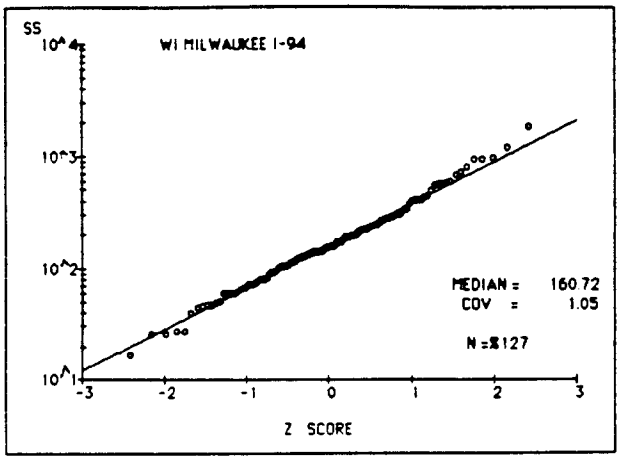
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
66	71079	0.04		0.02	0.50	102								6.4									405	
67	71179	0.40		0.28	0.70	214		86	1.06	0.370	0.150	1.200	0.490	6.7		42	27	5.30	10	7.50	0.020	0.005	333	2.0
68	71179	0.06		0.04	0.67	105		105	2.73	0.430	0.180	0.500	0.420	6.7		50	48	5.90	36	3.50	0.020	0.005	348	5.0
69	72479	0.42		0.35	0.83	136		94	0.76	0.290	0.070	0.600	0.480	6.8	0.001	27	26	3.00	21	5.30	0.005	0.005	264	6.0
70	73079	0.34		0.25	0.74	125		126	0.49	0.280	0.080	0.600	0.350	6.9	0.001	46	36	3.00	52	4.80	0.005	0.020	274	2.0
71	80379	0.20		0.16	0.80	72		86	0.82	0.240	0.150	0.500	0.350	6.4		20	31	2.50	32	3.00	0.005	0.020	243	
72	80579	0.34		0.30	0.88	72		55	0.45	0.140	0.150	0.600	0.250	6.0		16	6	2.10	16	2.60	0.030	0.010	112	5.0
73	80879	0.23		0.18	0.78	46		107	0.83	0.350	0.090	0.300	0.270	6.9		20	32	3.00	23	2.27	0.005	0.005	173	
74	80979	1.28		1.26	0.98	235		63	0.41	0.580	0.130	0.700	0.360	6.9	0.001	40	25	2.00	6	5.40	0.005	0.020	277	6.0
75	81279	0.06		0.05	0.83	104								6.9									324	
76	81379	0.03		0.02	0.67	173								7.6									1,130	8.0
77	81779	0.13		0.12	0.92	160		125	0.46	0.220	0.140	0.600	0.340	6.9		60	22	2.10	14	5.60	0.005	0.005	320	9.0
78	81779	0.12		0.11	0.92	60								6.8									90	
79	81979	0.04		0.03	0.75	80								7.0									290	
80	82079	0.85		0.81	0.95	47		46	0.68	0.120	0.130	0.200	0.280	7.2		22	3	1.40	13	2.20	0.005	0.005	135	1.0
81	82279	0.02		0.01	0.50	75								6.9									498	
82	82279	0.05		0.04	0.80	51								7.0									195	
83	82379	0.03		0.02	0.67	27								7.0									187	
84	82379	0.02		0.02	1.00	26								7.0									182	
85	82379	0.04		0.03	0.75	115								6.7									327	
86	82679	0.03		0.02	0.67	67								6.2									474	
87	82779	0.49		0.44	0.90	91		79	0.45	0.310	0.070	0.500	0.280	7.0	0.003	25	21	1.70	10	3.40	0.005	0.005	182	
88	82979	0.23		0.20	0.87	59		60	0.43	0.400	0.100	0.400	0.240	7.2		15	12	2.30	6	1.70	0.005	0.005	143	
89	91379	0.04		0.03	0.75	335								6.7									221	
90	100179	0.21		0.15	0.71	225		306	1.98	0.730	0.170	1.500	0.630	6.8		93	82	8.40	170	8.60	0.030	0.030	782	22.0
91	102079	0.24		0.23	0.96	97		89	0.60	0.200	0.140	0.700	0.430	6.2		40	7	9.80	100	4.80	0.020	0.060	210	
92	102079	0.06		0.04	0.67	40		84	1.20	0.100	0.130	0.500	0.390	6.6		32	16	4.20	30	2.40	0.030	0.040	175	
93	102279	0.59		0.43	0.73	145		167	1.59	0.310	0.210	1.000	0.540	6.8		46	35	8.40	13	7.60	0.040	0.060	658	
94	103179	0.25		0.23	0.92	134								6.9									325	
95	110679	0.20		0.16	0.80	83		94	1.45	0.220	0.170	0.100	0.360	6.9		26	12	2.00	116	3.40	0.005	0.010	401	
96	112179	0.98		0.74	0.76	140		61	0.43	0.120	0.050	0.600	0.210	7.2		31	6	2.30	40	4.00	0.005	0.040	247	
97	112279	0.22		0.19	0.86	195								6.4					13				221	
98	112579	0.66		0.60	0.91	69								6.8					11				110	
99	121179	0.09		0.04	0.44	371								7.0					260				1,100	
100	122279	0.16		0.13	0.81	305								7.0					160				711	
101	122379	0.15		0.13	0.87	123								7.0					140				474	
102	10280	0.07		0.07	1.00	252								7.3					9,750				15,400	
103	10680	0.02		0.01	0.50	196								6.7					29,500				45,600	
104	10680	0.07		0.05	0.71	267								6.6					21,500				45,000	
105	10680	0.09		0.07	0.78	153								7.1					10,500				18,700	
106	11080			0.04		286			1.56	0.320	0.420	2.300	1.400	7.2		100		3.90	7,750	9.50	0.060	0.060	12,700	
107	11180	0.11		0.10	0.91	947			1.58	0.121	0.300	6.300	2.530	7.8		317		6.40	1,100	25.00	0.005	0.020	3,130	
108	11380	0.05		0.05	1.00	183								7.2					3,120				5,370	
109	11580	0.02		0.01	0.50	563								7.4					2,950				6,670	
110	11580	0.14		0.11	0.79	269			1.80	0.330	0.220	1.800	0.730	7.7		103		3.10	500	11.00	0.030	0.050	960	
111	11680	0.28		0.23	0.82	298			0.92	0.350	0.180	1.500	0.740	6.9		97		2.80	400	11.00	0.040	0.050	805	
112	11680	0.06		0.06	1.00	444								7.4					350				876	
113	12480	0.02		0.02	1.00	266								7.4					28,700				31,600	
114	20380	0.03		0.01	0.33	548								6.6					35,000				57,400	
115	20680	0.26		0.03	0.12	332								7.1					30,900				33,700	
116	20980	0.03		0.02	0.67	236								7.0					16,600				26,100	
117	22280	0.16		0.22	1.38	800						4.700	2.500	7.6					8,000	30.00			2,320	
118	22280	0.06		0.11	1.83	129								7.7					1,340				2,580	
119	22280	0.03		0.02	0.67	26								6.8					4,440				8,090	
120	22580	0.06		0.02	0.33	50			0.22	0.110	0.100	0.400	0.630	7.4				4.00	10,000	1.30	0.030	0.005	17,800	
121	30480	0.17		0.13	0.76	597													7,000				11,500	
122	30580	0.07		0.04	0.57	291								7.0					16,800				26,400	
123	31380	0.09		0.09	1.00	430								7.3					18,000				17,900	
124	32360	0.10		0.09	0.90	210								8.0					1,200				2,620	
125	40280	0.02		0.01	0.50	191								6.4					2,900				4,880	
126	40380	0.06		0.05	0.83	568								7.1					495				1,560	
127	40380	0.24		0.21	0.88	144								7.4					1,850				3,030	
128	40780	0.04		0.02	0.50	154								7.5					193				651	
129	40880	0.49		0.48	0.98	128								7.2					60				278	
130	40680	0.38		0.31	0.82	80								7.5					375				895	

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
131	41180	0.29		0.19	0.66	111								7.3					100				388	
132	41480	0.08		0.07	0.88	241								7.6					700				1,610	
133	41480	0.21		0.27	1.29	724								7.7					1,350				2,570	
134	42480	0.02		0.02	1.00	142								6.8					1,080				2,420	
135	42780	0.08		0.05	0.63	158								6.9					170				580	
136	42880	0.12		0.08	0.67	164								7.3					95				436	
137	42880	2.70		2.30	0.85	87								7.1					48				218	
138	51280	0.11		0.09	0.82	204								6.4					80				498	
139	51380	0.31		0.24	0.77	580		188	0.46	0.500	0.280	2.200	0.770	6.6	0.001	109	63	4.00	16	13.00	0.030	0.070	627	
	Mean	0.27		0.24	0.84	233		152	0.93	0.354	0.185	1.470	0.676	6.9	0.015	69	46	3.56	4,249	9.12	0.017	0.036	2,479	9.7
	Median	0.14		0.11	0.79	161		122	0.79	0.300	0.160	0.896	0.518	6.9	0.002	50	30	3.18	185	6.29	0.012	0.018	759	6.8
	COV	1.64		1.89	0.33	1.05		0.74	0.62	0.63	0.59	1.30	0.84	0.07	7.49	0.93	1.14	0.50	22.91	1.05	1.07	1.69	3.11	1.01
	N	137	0	139	137	127	0	35	40	39	43	45	45	104	18	41	35	40	112	45	43	43	135	19

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O&G (mg/l)
1	91278	0.08		0.06	0.75																		289	5.0
2	91378	0.95		0.75	0.79	64						0.100	0.110						4	2.00			95	
3	91378	0.19		0.17	0.89														10				285	
4	91478	0.20		0.15	0.75														14				220	
5	91778	0.60		0.53	0.88														7				130	
6	91878	1.34		1.23	0.92														12				185	
7	92078	0.15		0.14	0.93														14				106	
8	92178	0.63		0.54	0.86														8				150	
9	93078	0.04		0.02	0.50														563				1,990	
10	100278	0.25		0.15	0.60	115		96	0.80	0.180	0.370	0.600	0.370	7.2	0.850	35	36	3.00	24	3.90	0.005	0.050	225	4.0
11	100578	0.44		0.32	0.73	47													20				138	
12	100578	0.12		0.10	0.83	223													6				242	
13	101678	0.11		0.08	0.73	245													27				385	
14	102278	0.23		0.14	0.61	44																	232	
15	102578	0.11		0.10	0.91	138																	263	
16	102578	0.03		0.03	1.00	128																	300	
17	110578	0.02		0.02	1.00	156													356				1,300	
18	111278	0.54		0.43	0.80	219																	392	
19	111778	0.68		0.60	0.88	142													30				273	
20	111778			0.02		137													210				765	
21	112278	0.40		0.43	1.08	108													262				615	
26	30379	0.41		0.56	1.37	402		260	1.00	0.290	0.220	2.700	0.880	7.5	0.001	114	93	3.40	445	15.00	0.005	0.090	1,310	16.0
27	30779	0.10		0.13	1.30	490		360	2.20	0.500	0.270	2.700	1.100	7.2	0.001	141	103	4.30	480	16.00	0.010	0.050	1,660	27.0
28	31879	0.21		0.27	1.29	227		155	0.91	0.250	0.140	1.300	0.460	7.5	0.001	63	47	2.00	225	6.80	0.030	0.030	760	10.0
29	31979	0.07		0.09	1.29	677					0.090	3.700	1.100	7.5					215	20.00	0.020	0.020	3,430	
31	32379	0.13		0.15	1.15	153		126	1.52	0.240	0.130	0.900	0.390	7.5	0.001	40	39	2.40	480	5.80	0.020	0.030	735	
33	32979	0.12		0.15	1.25	956		660	0.81	0.920	0.520	5.700	2.900	7.8	0.001	298	182	5.40	288	39.00	0.020	0.180	1,690	10.0
34	32979	0.39		0.50	1.28	1210		500	0.52	0.780	0.430	5.100	2.100	6.8	0.001	233	135	4.50	105	33.00	0.030	0.130	1,500	16.0
35	33079	0.81		0.78	0.96	1860		590	0.48	1.120	0.590	6.200	2.300	7.2	0.001	280	130	4.00	75	46.00	0.030	0.170	2,130	8.0
36	40579	0.11		0.09	0.82	173		130	0.86	0.390	0.140	0.850	0.440	7.1	0.001	43	37	2.80	125	7.40	0.005	0.030	579	
37	41179	1.22		1.09	0.89	172		75	0.49	0.240	0.230	0.700	0.380	6.9	0.250	37	18	1.70	50	5.50	0.005	0.020	340	
38	41279	0.03		0.03	1.00														41					
39	42079	0.11		0.10	0.91	142													250				862	
40	42479	0.05		0.04	0.80	73													210				815	
41	42479	0.42		0.33	0.79	191		120	0.59	0.580	0.140	0.800	0.360	6.8	0.001	43	34	2.20	14	6.10	0.020	0.005	334	
42	42579	1.20		0.97	0.81	191		95	0.38	0.300	0.120	0.700	0.290	6.9	0.001	41	33	2.20	20	5.70	0.020	0.005	369	
43	42779	0.24		0.18	0.75	91								7.1					70				393	
44	42979	0.32		0.29	0.91	59								7.2					50				357	
45	50279	0.34		0.26	0.76	60													35				267	
46	51179	0.03		0.02	0.67	938													425				2,710	
47	51179	0.03		0.02	0.67	278													195				1,050	
48	51379	0.15		0.09	0.60	398													18				525	
49	51379	0.13		0.10	0.77	230													22				276	
50	51879	0.39		0.29	0.74	319								5.9					50				583	
51	53079	1.07		0.87	0.81	141		100	0.54	0.290	0.140	0.600	0.320	5.1	0.001	42	41	2.10	18	4.40	0.005	0.005	374	
52	60479	0.04		0.02	0.50	284								6.3									865	
53	60579	0.07		0.06	0.86	410								6.4									580	
54	60779	0.39		0.32	0.82	197		91	0.73	0.290	0.160	0.850	0.530	6.7		46	34	2.50	12	6.70	0.040	0.005	293	11.0
55	60879	0.17		0.13	0.76	17								7.3									583	
56	60979	0.07		0.06	0.86	27								6.6									183	
57	61079	0.14		0.10	0.71	105								6.4									203	
58	61779	0.08		0.06	0.75	61								6.2									150	
59	62079	0.11		0.10	0.91	191								6.5									365	
60	62079	0.38		0.26	0.68	278		113	0.84		0.150	1.300	0.710	6.3		53	18	5.10	32	11.90	0.010	0.030	421	
61	62779	0.47		0.43	0.91	170								6.0									330	
62	62879	0.68		0.54	0.79	78					0.110	0.400	0.260	6.7		20			10	3.30	0.005	0.005	204	
63	63079	0.07		0.05	0.71	80					0.190	0.400	0.430	6.6		29			10	2.70	0.005	0.005	336	
64	70379	0.46		0.38	0.83	123		68	1.28	0.260	0.080	0.350	0.280	6.5		28	32	2.20	8	3.40	0.005	0.005	290	
65	70479	0.04		0.03	0.75	94								8.9									390	
66	71079	0.04		0.02	0.50	102								6.4									405	
67	71179	0.40		0.28	0.70	214		86	1.06	0.370	0.150	1.200	0.490	6.7		42	27	5.30	10	7.50	0.020	0.005	333	2.0
68	71179	0.06		0.04	0.67	105		105	2.73	0.430	0.180	0.500	0.420	6.7		50	48	5.90	36	3.50	0.020	0.005	348	5.0
69	72479	0.42		0.35	0.83	136		94	0.76	0.290	0.070	0.600	0.480	6.8	0.001	27	26	3.00	21	5.30	0.005	0.005	264	8.0
70	73079	0.34		0.25	0.74	125		126	0.49	0.280	0.080	0.600	0.350	6.9	0.001	46	36	3.00	52	4.80	0.005	0.020	274	2.0
71	80379	0.20		0.16	0.80	72		86	0.82	0.240	0.150	0.500	0.350	6.4		20	31	2.50	32	3.00	0.005	0.020	243	

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
72	80579	0.34		0.30	0.88	72		55	0.45	0.140	0.150	0.600	0.250	6.0		16	6	2.10	16	2.60	0.030	0.010	112	5.0
73	80879	0.23		0.18	0.78	46		107	0.83	0.350	0.090	0.300	0.270	6.9		20	32	3.00	23	2.27	0.005	0.005	173	
74	80979	1.28		1.26	0.98	235		63	0.41	0.580	0.130	0.700	0.360	6.9	0.001	40	25	2.00	6	5.40	0.005	0.020	277	6.0
75	81279	0.06		0.05	0.83	104								6.9									324	
76	81379	0.03		0.02	0.67	173								7.6									1,130	8.0
77	81779	0.13		0.12	0.92	160		125	0.46	0.220	0.140	0.600	0.340	6.9		60	22	2.10	14	5.60	0.005	0.005	320	9.0
78	81779	0.12		0.11	0.92	60								6.8									90	
79	81979	0.04		0.03	0.75	80								7.0									290	
80	82079	0.85		0.81	0.95	47		46	0.68	0.120	0.130	0.200	0.280	7.2		22	3	1.40	13	2.20	0.005	0.005	135	1.0
81	82279	0.02		0.01	0.50	75								6.9									498	
82	82279	0.05		0.04	0.80	51								7.0									195	
83	82379	0.03		0.02	0.67	27								7.0									187	
84	82379	0.02		0.02	1.00	26								7.0									182	
85	82379	0.04		0.03	0.75	115								6.7									327	
86	82679	0.03		0.02	0.67	67								6.2									474	
87	82779	0.49		0.44	0.90	91		79	0.45	0.310	0.070	0.500	0.280	7.0	0.003	25	21	1.70	10	3.40	0.005	0.005	182	
88	82979	0.23		0.20	0.87	59		60	0.43	0.400	0.100	0.400	0.240	7.2		15	12	2.30	6	1.70	0.005	0.005	143	
89	91379	0.04		0.03	0.75	335								6.7									221	
90	100179	0.21		0.15	0.71	225		306	1.98	0.730	0.170	1.500	0.630	6.8		93	82	8.40	170	8.60	0.030	0.030	782	22.0
91	102079	0.24		0.23	0.96	97		89	0.60	0.200	0.140	0.700	0.430	6.2		40	7	9.80	100	4.80	0.020	0.060	210	
92	102079	0.06		0.04	0.67	40		84	1.20	0.100	0.130	0.500	0.390	6.6		32	16	4.20	36	2.40	0.030	0.040	175	
93	102279	0.59		0.43	0.73	145		167	1.59	0.310	0.210	1.000	0.540	6.8		46	35	8.40	13	7.60	0.040	0.060	658	
94	103179	0.25		0.23	0.92	134								6.9									325	
95	110679	0.20		0.16	0.80	83		94	1.45	0.220	0.170	0.100	0.360	6.9		26	12	2.00	116	3.40	0.005	0.010	401	
96	112179	0.98		0.74	0.76	140		61	0.43	0.120	0.050	0.600	0.210	7.2		31	6	2.30	40	4.00	0.005	0.040	247	
97	112279	0.22		0.19	0.86	195								6.4					13				221	
98	112579	0.66		0.60	0.91	69								6.8					11				110	
99	121179	0.09		0.04	0.44	371								7.0					260				1,100	
100	122279	0.16		0.13	0.81	305								7.0					160				711	
101	122379	0.15		0.13	0.87	123								7.0					140				474	
110	11580	0.14		0.11	0.79	269			1.80	0.330	0.220	1.800	0.730	7.7		103		3.10	500	11.00	0.030	0.050	960	
111	11680	0.28		0.23	0.82	298			0.92	0.350	0.180	1.500	0.740	6.9		97		2.80	400	11.00	0.040	0.050	805	
112	11680	0.06		0.06	1.00	444								7.4					350				876	
126	40380	0.06		0.05	0.83	568								7.1					495				1,560	
128	40780	0.04		0.02	0.50	154								7.5					193				651	
129	40880	0.49		0.48	0.98	128								7.2					60				278	
130	40880	0.38		0.31	0.82	80								7.5					375				895	
131	41180	0.29		0.19	0.66	111								7.3					100				388	
135	42780	0.08		0.05	0.63	158								6.9					170				580	
136	42880	0.12		0.08	0.67	164								7.3					95				436	
137	42880	2.70		2.30	0.85	87								7.1					48				218	
138	51280	0.11		0.09	0.82	204								6.4					80				498	
139	51380	0.31		0.24	0.77	580		188	0.46	0.500	0.280	2.200	0.770	6.6	0.001	109	63	4.00	16	13.00	0.030	0.070	627	
	Mean	0.32		0.28	0.83	205		152	0.91	0.367	0.179	1.268	0.576	6.9	0.015	62	46	3.46	139	8.29	0.016	0.036	527	9.7
	Median	0.17		0.13	0.81	143		122	0.79	0.315	0.155	0.817	0.465	6.8	0.002	47	30	3.09	51	6.03	0.011	0.018	393	6.8
	COV	1.59		1.81	0.21	1.02		0.74	0.57	0.60	0.57	1.19	0.73	0.07	7.49	0.86	1.14	0.50	2.53	0.95	1.02	1.72	0.89	1.01
	N	107	0	108	107	99	0	35	37	36	40	41	41	80	18	39	35	37	81	41	40	40	107	19
22	112678	0.40		0.43	1.08	103													5,600				9,660	
23	112978	0.06		0.06	1.00	407													3,750				6,930	
24	120378	0.66		0.20	0.30	116													7,500				11,900	
25	22179	0.35		0.36	1.03														8,930					
30	32279	0.05		0.05	1.00														775					
32	32379	0.04		0.06	1.50														7,200					
102	10280	0.07		0.07	1.00	252								7.3					9,750				15,400	
103	10680	0.02		0.01	0.50	196								6.7					29,500				45,600	
104	10680	0.07		0.05	0.71	267								6.6					21,500				45,000	
105	10680	0.09		0.07	0.78	153								7.1					10,500				18,700	
106	11080			0.04		286			1.56	0.320	0.420	2.300	1.400	7.2		100		3.90	7,750	9.50	0.060	0.060	12,700	
107	11180	0.11		0.10	0.91	947			1.58	0.121	0.300	6.300	2.530	7.8		317		6.40	1,100	25.00	0.005	0.020	3,130	
108	11380	0.05		0.05	1.00	183								7.2					3,120				5,370	

EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv		SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
109	11580	0.02		0.01	0.50		563								7.4					2,950				6,670	
113	12480	0.02		0.02	1.00		266								7.4					28,700				31,600	
114	20380	0.03		0.01	0.33		548								6.6					35,000				57,400	
115	20680	0.26		0.03	0.12		332								7.1					30,900				33,700	
116	20980	0.03		0.02	0.67		236								7.0					16,600				26,100	
117	22280	0.16		0.22	1.38		800						4.700	2.500	7.6					8,000	30.00			2,320	
118	22280	0.06		0.11	1.83		129								7.7					1,340				2,580	
119	22280	0.03		0.02	0.67		26								6.8					4,440				8,090	
120	22580	0.06		0.02	0.33		50			0.22	0.110	0.100	0.400	0.630	7.4				4.00	10,000	1.30	0.030	0.005	17,800	
121	30480	0.17		0.13	0.76		597													7,000				11,500	
122	30580	0.07		0.04	0.57		291								7.0					16,800				26,400	
123	31380	0.09		0.09	1.00		430								7.3					18,000				17,900	
124	32380	0.10		0.09	0.90		210								8.0					1,200				2,620	
125	40280	0.02		0.01	0.50		191								6.4					2,900				4,880	
127	40380	0.24		0.21	0.88		144								7.4					1,850				3,030	
132	41480	0.08		0.07	0.88		241								7.6					700				1,610	
133	41480	0.21		0.27	1.29		724								7.7					1,350				2,570	
134	42480	0.02		0.02	1.00		142								6.8					1,080				2,420	
	Mean	0.12		0.10	0.88		332			1.55	0.193	0.308	4.906	1.905	7.2		248		4.82	11,156	27.62	0.047	0.039	16,598	
	Median	0.07		0.06	0.75		240			0.82	0.162	0.233	2.285	1.537	7.2		178		4.64	5,575	9.81	0.021	0.018	9,432	
	COV	1.26		1.50	0.61		0.96			1.62	0.65	0.87	1.90	0.73	0.06		0.97		0.28	1.73	2.63	2.04	1.93	1.45	
	N	30	0	31	30	0	28	0	0	3	3	3	4	4	24	0	2	0	3	31	4	3	3	28	0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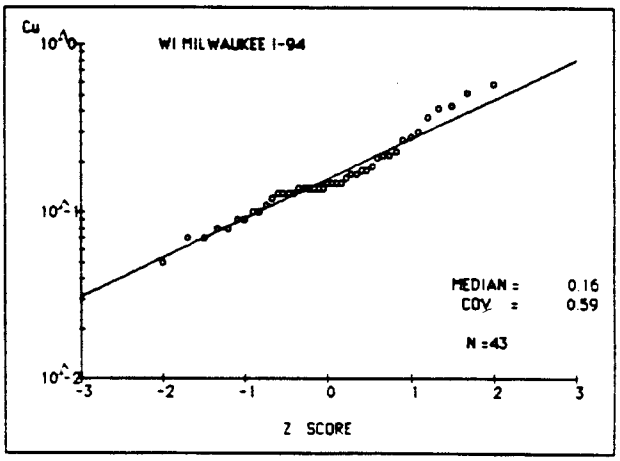
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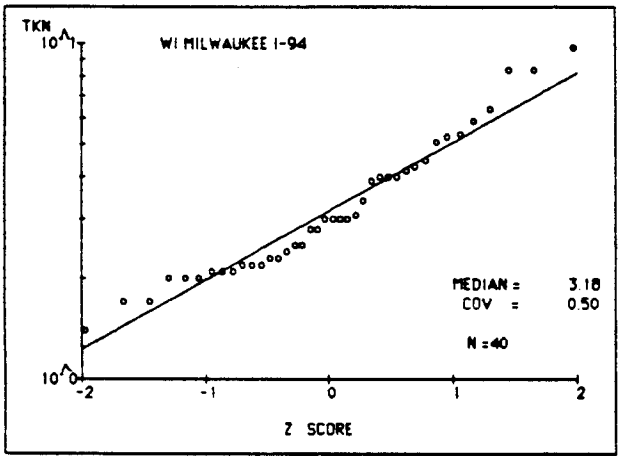
N = 43
Z SCORE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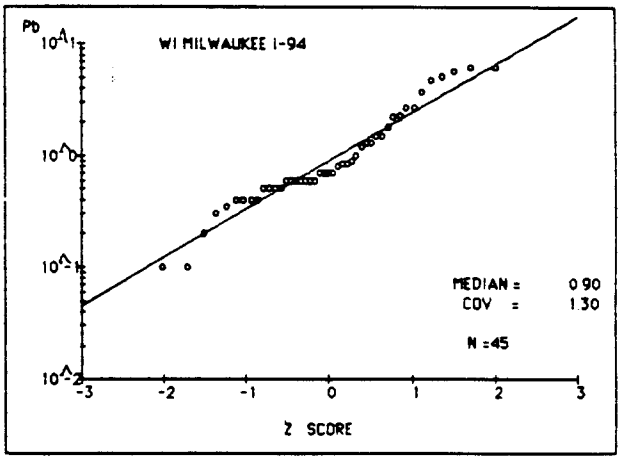
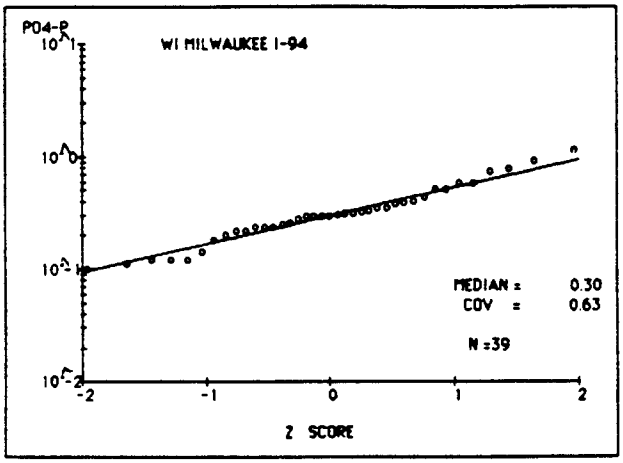
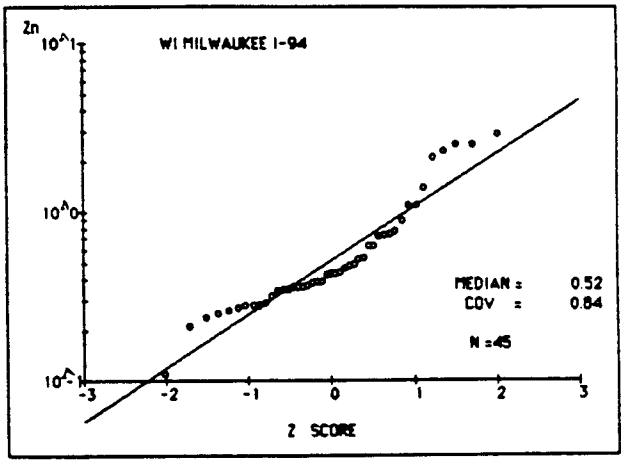
MEDIAN = 3.18
COV = 0.50
N = 40
Z SCORE


Pb
WI MILWAUKEE I-94
MEDIAN = 0.90
COV = 1.30
N = 45
Z SCORE


PO4-P
WI MILWAUKEE I-94
MEDIAN = 0.30
COV = 0.63
N = 39
Z SCORE


Zn
WI MILWAUKEE I-94
MEDIAN = 0.52
COV = 0.84
N = 45
Z SCORE

SITE: PA HARRISBURG Grass
I-81

STATE: Pennsylvania

LOCATION: Harrisburg, Pennsylvania

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 4

NO. OF TRAFFIC LANES MONITORED:

AVERAGE DAILY TRAFFIC - ADT (VPD): 27,800

ADT PER LANE (VPD): 6,950

DRAINAGE AREA (ACRES): 1.76

PERCENT IMPERVIOUS: 0

LENGTH OF ROAD SURFACE (FEET): 1345

ROAD SURFACE TYPE: GRASS

CURB:

SECTION TYPE: CUT AND AT GRADE

LAND USE: RURAL

AVERAGE ANNUAL PRECIPITATION (IN): 37.7

AVERAGE WIND SPEED (FT/SEC): 7.7

N0. OF EVENTS MONITORED: 5

NO. OF SNOW EVENTS MONITORED:

MONITORING PERIOD: July 1980 to February 1981

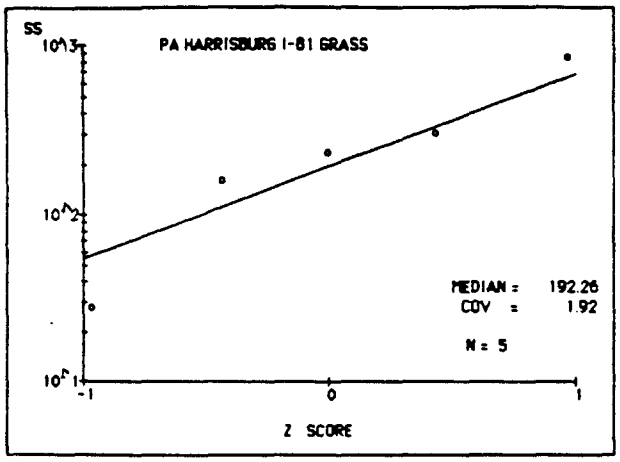
SOURCE:

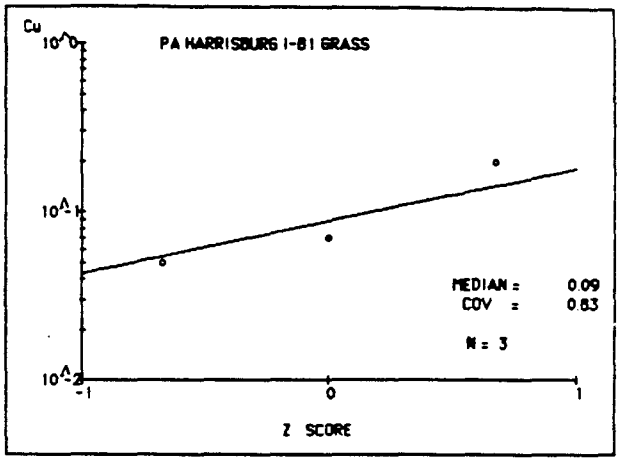
Volume I: Sources and Migration of Highway Runoff Pollutants, Executive Summary, N.P. Kobriger, Federal Highway Administration Report No. FHWA/RD-84/057, May, 1984

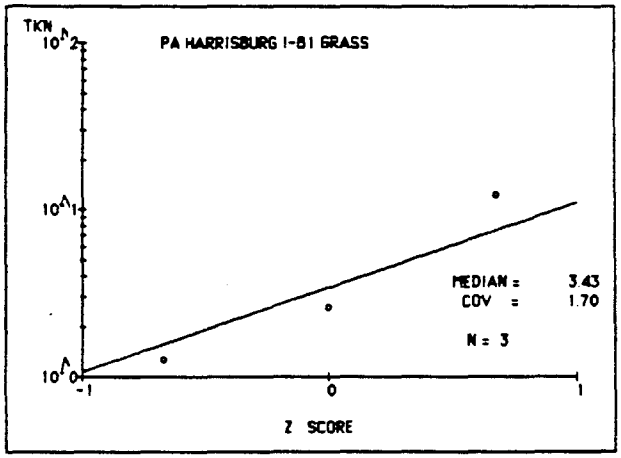
REMARKS:

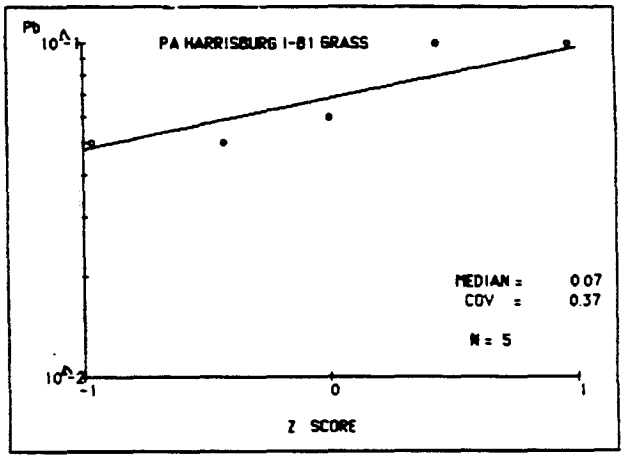
Data were extracted from computer tapes. EMCs were calculated using discretely collected data and flow-weighted averaging. Data were collected from a grass area adjacent to the highway.

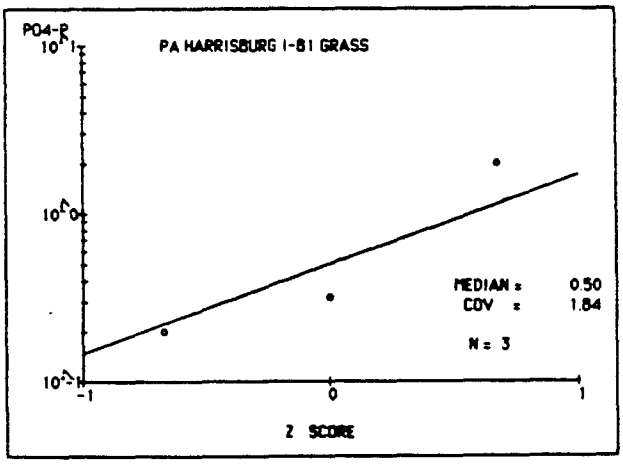
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
1	72180	2.02		0.02	0.01	849			4.60	2.000	0.200	0.100	0.710	7.1				12.30		150.00	0.005	0.180	9,800	
2	112480	1.97		0.84	0.43	28		16	3.43	0.320	0.050	0.050	0.140	6.4	0.010	7	12	1.26	12	0.90	0.030	0.005	130	1.0
3	20181	1.37		0.09	0.06	231						0.100	0.190	7.3						8.40			524	
4	21081	1.58		0.57	0.36	299						0.060	0.140	7.4						9.00			724	0.1
5	22081	1.02		0.00	0.00	160			6.55	0.200	0.070	0.050	0.310	7.3		34		2.60	51	3.30	0.020	0.005	387	
	Mean	1.61		1.06	0.50	416			4.95	1.056	0.115	0.073	0.305	7.1		29		6.75	42	47.26	0.022	0.140	2,570	2.1
	Median	1.54		0.08	0.05	192		16	4.69	0.504	0.089	0.068	0.241	7.1	0.010	15	12	3.43	25	8.04	0.014	0.017	715	0.2
	COV	0.29		13.69	9.97	1.92			0.33	1.84	0.83	0.37	0.77	0.06		1.58		1.70	1.36	5.79	1.19	8.44	3.45	9.37
	N	5	0	5	5	5	0	1	3	3	3	5	5	5	1	2	1	3	2	5	3	3	5	2

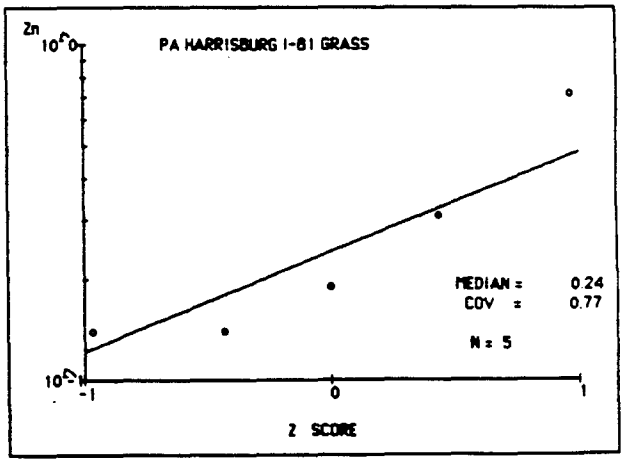

SS
PA HARRISBURG I-81 GRASS
MEDIAN = 192.26
COV = 1.92
N = 5
Z SCORE


Cu
PA HARRISBURG I-81 GRASS
MEDIAN = 0.09
COV = 0.83
N = 3
Z SCORE


TKN
PA HARRISBURG I-81 GRASS
MEDIAN = 3.43
COV = 1.70
N = 3
Z SCORE


Pb
PA HARRISBURG I-81 GRASS
MEDIAN = 0.07
COV = 0.37
N = 5
Z SCORE


PO4-P
PA HARRISBURG I-81 GRASS
MEDIAN = 0.50
COV = 1.84
N = 3
Z SCORE


Zn
PA HARRISBURG I-81 GRASS
MEDIAN = 0.24
COV = 0.77
N = 5
Z SCORE

SITE: WI MILWAUKEE GRASS HWY 45

STATE: Wisconsin

LOCATION: Milwaukee, Wisconsin

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 6

NO. OF TRAFFIC LANES MONITORED: 6

AVERAGE DAILY TRAFFIC - ADT (VPD): 85,000

ADT PER LANE (VPD): 14,167

DRAINAGE AREA (ACRES): 2.5

PERCENT IMPERVIOUS: 0

LENGTH OF ROAD SURFACE (FEET): 500

ROAD SURFACE TYPE: GRASS

CURB:

SECTION TYPE: FILL

LAND USE: URBAN

AVERAGE ANNUAL PRECIPITATION (IN): 27.6

AVERAGE WIND SPEED (FT/SEC): 12.4

NO. OF EVENTS MONITORED: 17

NO. OF SNOW EVENTS MONITORED:

MONITORING PERIOD: February 1977 to September 1977

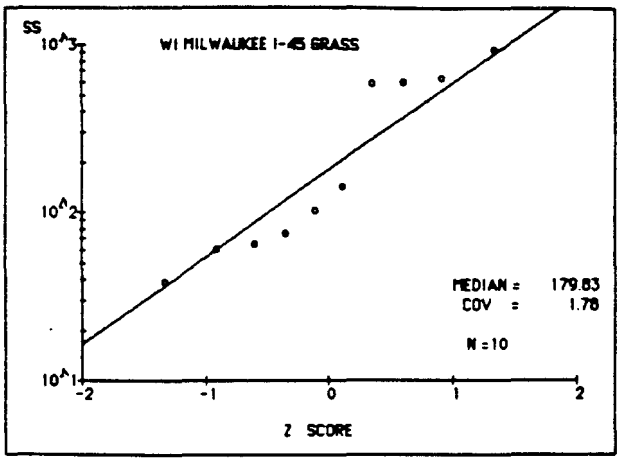
SOURCE:

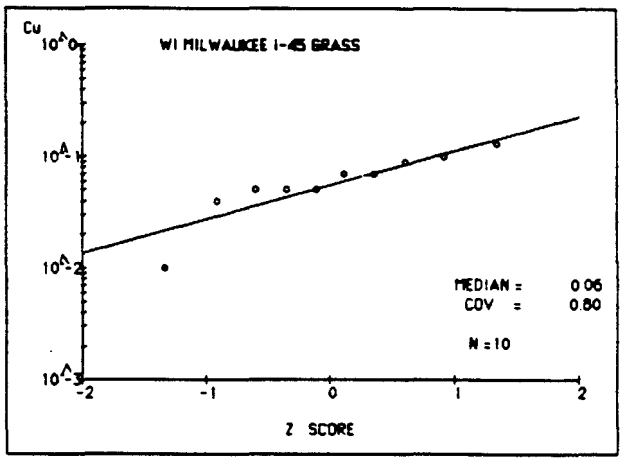
Constituents of Highway Runoff, Volume VI: Executive Summary, M.K. Gupta, Federal Highway Administration Report No. FHWA/RD-81/047, February, 1981.

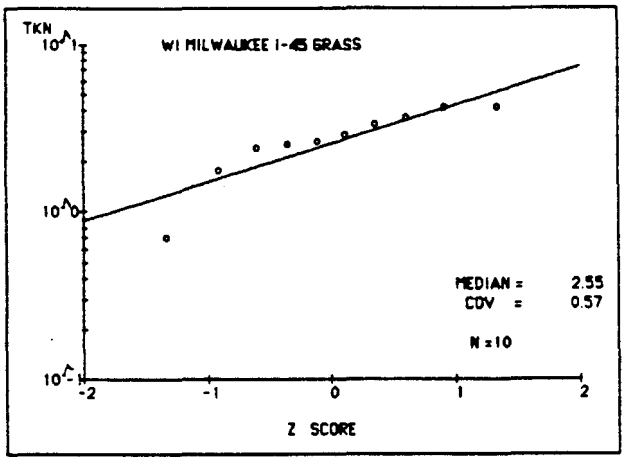
REMARKS:

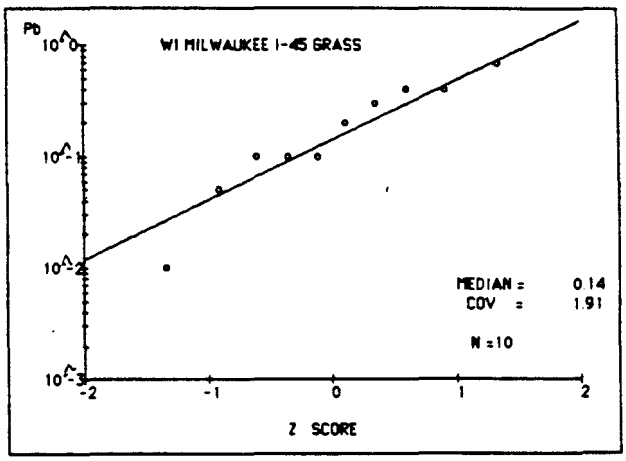
Data were extracted from computer tapes. EMCs were calculated using discretely collected data and flow-weighted averaging. Data were collected from a grass area adjacent to highway.

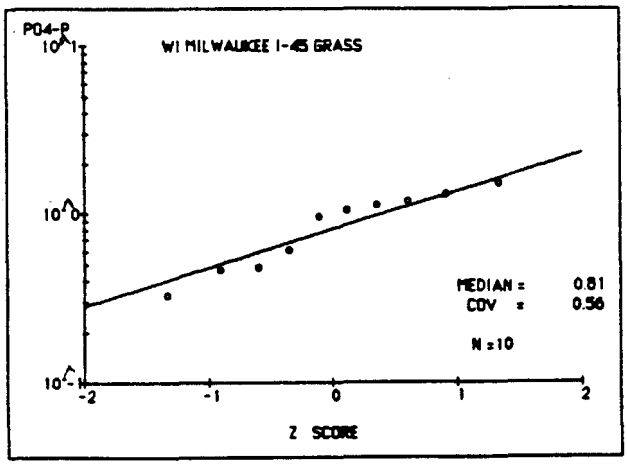
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
1	22377	0.10	0.67	0.24	2.45	75	19	139		1.110	0.130	0.050	0.140	7.2	0.500	25	44	3.30	278	2.90	0.020	0.020	651	
2	30377	0.62	31.50	0.60	0.96	39		143		0.960	0.050	0.100	0.150	7.3	0.500	12	40	2.60	253	3.20	0.020	0.010	728	
5	32877	1.06	17.00	0.34	0.32	61		80		0.480	0.070	0.200	0.120	7.3	0.250	17	25	2.40	219	10.00	0.050	0.020	1,058	
6	61777	0.60	0.42	0.06	0.11	938		144		1.510	0.100	0.700	0.340	7.6	0.700	837	51	4.20	250	43.60	0.070	0.050	1,702	
7	71777	2.32	2.08	0.32	0.14	631		108		1.180	0.090	0.400	0.270	7.9	0.850	93	37	3.64	102	33.40	0.050	0.060	1,365	
8	71777	1.84	10.00	0.97	0.53																			
10	72477	0.62	1.08	0.11	0.17	596		76		1.040	0.010	0.400	0.270	7.9	2.200	62	39	2.86	40	29.00	0.030	0.060	1,048	
11	81377	1.15	2.67	0.20	0.17	591	22	128		1.320	0.050	0.300	0.220	7.6	1.000	92	45	4.20	70	26.00	0.030	0.100	1,055	
12	82877	1.11	8.83	0.09	0.08	142		80		0.610	0.050	0.010	0.120	7.7		28	33	2.50	135	8.50	0.030	0.030	672	
14	91877	0.29	4.75	0.02	0.06	65		73		0.330	0.070	0.100	0.130	7.6	0.250	18	32	1.75	366	2.70	0.030	0.040	276	
16	92477	0.72	2.00	0.27	0.38																			
17	93077	1.00	11.58	0.19	0.19	103		42		0.460	0.040	0.100	0.100	7.5	0.250	19	23	0.70	74	6.00	0.060	0.010	428	
	Mean	1.05	9.41	0.32	0.44	367	21	103		0.923	0.071	0.307	0.187	7.6	0.733	96	37	2.93	189	18.53	0.039	0.042	924	
	Median	0.74	3.79	0.19	0.25	180	20	95		0.806	0.056	0.142	0.171	7.6	0.556	43	36	2.55	145	10.34	0.036	0.031	796	
	COV	1.01	2.27	1.43	1.45	1.78	0.10	0.42		0.56	0.80	1.91	0.44	0.03	0.86	2.00	0.26	0.57	0.84	1.49	0.46	0.92	0.59	
	N	12	12	12	12	10	2	10	0	10	10	10	10	10	9	10	10	10	10	10	10	10	10	0

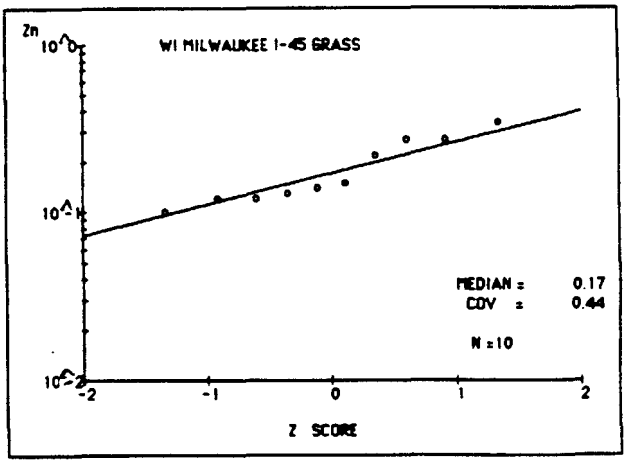

SS
WI MILWAUKEE I-45 GRASS
MEDIAN = 179.83
COV = 1.78
N = 10
Z SCORE


Cu
WI MILWAUKEE I-45 GRASS
MEDIAN = 0.06
COV = 0.80
N = 10
Z SCORE


TKN
WI MILWAUKEE I-45 GRASS
MEDIAN = 2.55
COV = 0.57
N = 10
Z SCORE


Pb
WI MILWAUKEE I-45 GRASS
MEDIAN = 0.14
COV = 1.91
N = 10
Z SCORE


PO4-P
WI MILWAUKEE I-45 GRASS
MEDIAN = 0.81
COV = 0.56
N = 10
Z SCORE


Zn
WI MILWAUKEE I-45 GRASS
MEDIAN = 0.17
COV = 0.44
N = 10
Z SCORE

SITE: WI MILWAUKEE GRASS
I-94

STATE: Wisconsin

LOCATION: Milwaukee, Wisconsin

SITE DESCRIPTION

NO. OF TRAFFIC LANES: 8

NO. OF TRAFFIC LANES MONITORED:

AVERAGE DAILY TRAFFIC - ADT (VPD): 116,000

ADT PER LANE (VPD): 14,500

DRAINAGE AREA (ACRES): 2.7

PERCENT IMPERVIOUS: 0

LENGTH OF ROAD SURFACE (FEET): 1,373

ROAD SURFACE TYPE: GRASS

CURB:

SECTION TYPE: CUT/FILL

LAND USE: URBAN

AVERAGE ANNUAL PRECIPITATION (IN): 27.6

AVERAGE WIND SPEED (FT/SEC): 12.4

NO. OF EVENTS MONITORED: 13

NO. OF SNOW EVENTS MONITORED:

MONITORING PERIOD: March 1979 to March 1980

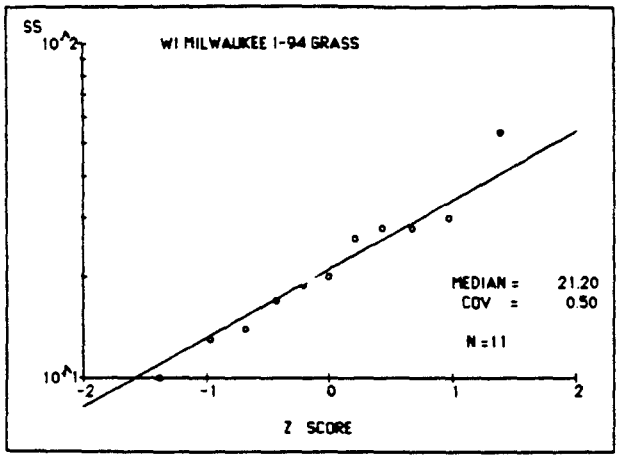
SOURCE:

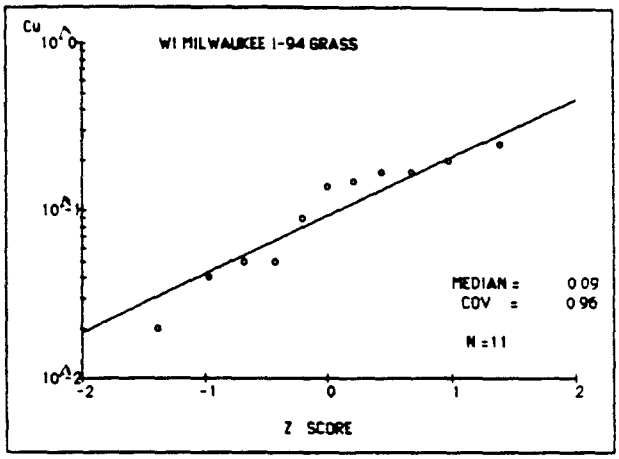
Volume I: Sources and Migration of Highway Runoff Pollutants, Executive Summary, N.P. Kobriger, Federal Highway Administration Report No. FHWA/RD-84/057, May, 1984

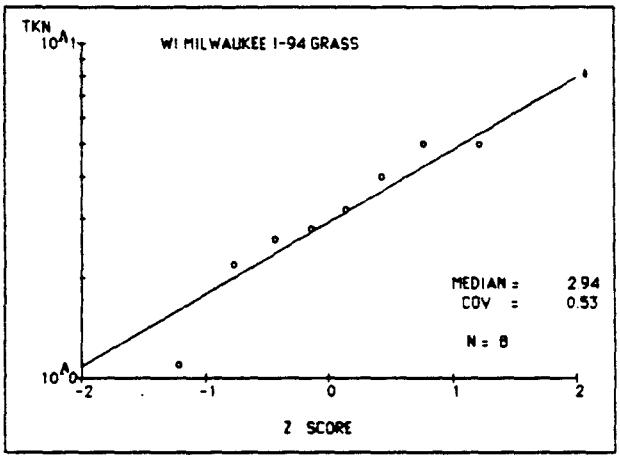
REMARKS:

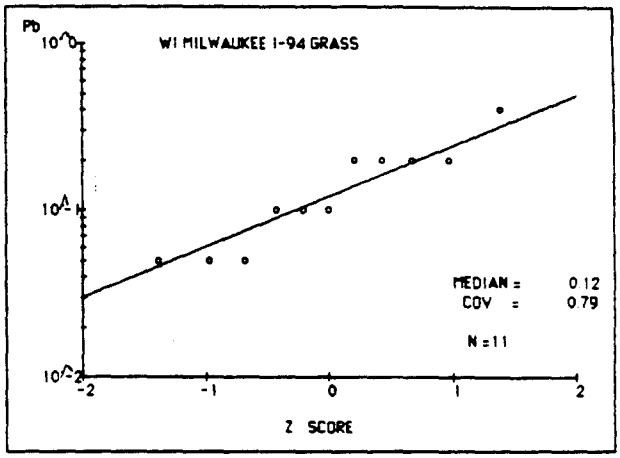
Data were extracted from computer tapes. EMCs were calculated using discretely collected data and flow-weighted averaging. Data were collected from a grass area adjacent to the highway

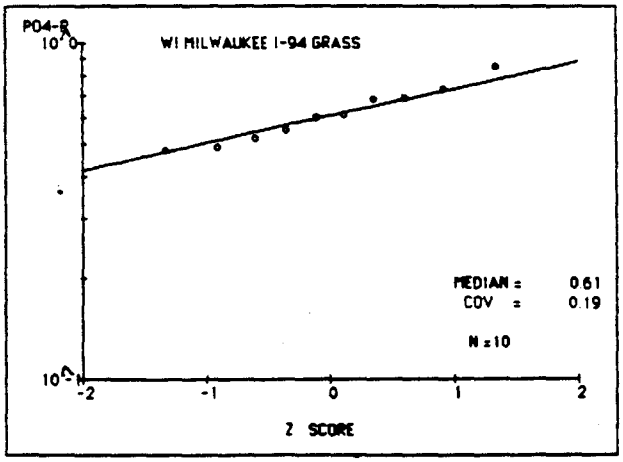
EVENT	DATE (MDY)	RAIN (in.)	DUR. (hr.)	RUNOFF (in.)	Rv	SS (mg/l)	BOD (mg/l)	COD (mg/l)	NO2+3 (mg/l)	PO4-P (mg/l)	Cu (mg/l)	Pb (mg/l)	Zn (mg/l)	pH	Hg (ug/l)	VSS (mg/l)	TOC (mg/l)	TKN (mg/l)	CL (mg/l)	Fe (mg/l)	Cd (mg/l)	Cr (mg/l)	TS (mg/l)	O & G (mg/l)
1	31379			0.02		17					0.020	0.050	0.050	7.1					148	0.10	0.005	0.020	511	
2	31679			0.00															25					
3	33079	0.39		0.00	0.00														105					
4	33079	0.80		0.06	0.07	54		51	0.53	0.520	0.050	0.200	0.140	7.3	0.010	26	16	3.20	170	2.90	0.005	0.030	574	4.0
5	41179	1.22		0.03	0.03	30		39	0.40	0.850	0.140	0.100	0.220	7.4	0.750	8	14	2.60	107	5.70	0.005	0.030	340	0.5
6	42579	1.20		0.02	0.02	19			0.10	0.610	0.040	0.050	0.090	6.9		4			120	1.10	0.020	0.005	471	
7	11180			0.00		10			0.16	0.550	0.200	0.200	0.140	7.3					86	0.90	0.030	0.030	232	
8	11680	0.21		0.01	0.05	20		64	0.17	0.480	0.050	0.050	0.040	6.9		7	22	1.10	112	0.36	0.005	0.005	275	0.5
9	22280	0.14		0.02	0.11	13		42	1.20	0.490	0.090	0.200	0.150	6.9	0.010	7	60	4.00	180	0.60	0.020	0.005	539	0.5
10	31080			0.01		26		120	1.20	0.680	0.250	0.200	0.100	7.3		14	40	5.00	600	0.90	0.005	0.040	1,120	1.0
11	31480			0.00		28			1.79	0.730	0.170	0.100	0.210	6.9		17		5.00	456	0.90	0.005	0.005	1,040	
12	31580			0.01		28			0.61	0.690	0.150	0.400	0.190	7.0		18		2.80	266	1.30	0.005	0.005	554	4.0
13	31680			0.01		14			0.09	0.600	0.170	0.100	0.180	7.0		10		2.20	110	0.90	0.005	0.005	326	4.0
	Mean	0.74		0.02	0.08	24		64	0.70	0.621	0.131	0.154	0.143	7.1	0.942	13	31	3.33	197	1.55	0.010	0.017	548	2.3
	Median	0.49		0.01	0.03	21		58	0.39	0.610	0.095	0.121	0.121	7.1	0.042	11	26	2.94	144	0.91	0.008	0.011	484	1.3
	COV	1.15		2.14	2.74	0.50		0.48	1.50	0.19	0.96	0.79	0.62	0.03	22.33	0.64	0.68	0.53	0.93	1.39	0.82	1.18	0.53	1.41
	N	6	0	13	6	11	0	5	10	10	11	11	11	11	3	9	5	8	13	11	11	11	11	7

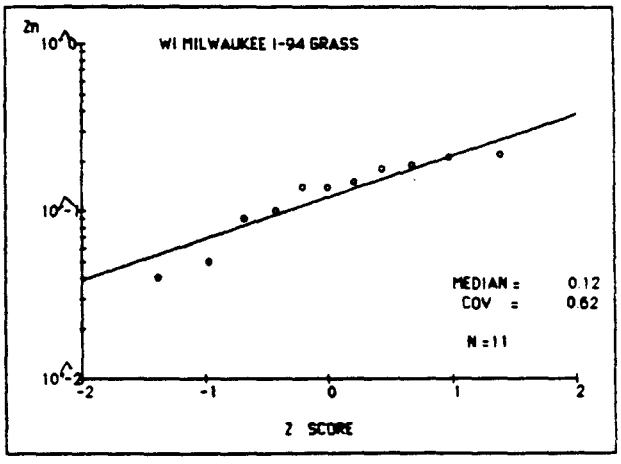

SS
WI MILWAUKEE I-94 GRASS
MEDIAN = 21.20
COV = 0.50
N = 11
Z SCORE


Cu
WI MILWAUKEE I-94 GRASS
MEDIAN = 0.09
COV = 0.96
N = 11
Z SCORE


TKN
WI MILWAUKEE I-94 GRASS
MEDIAN = 2.94
COV = 0.53
N = 8
Z SCORE


Pb
WI MILWAUKEE I-94 GRASS
MEDIAN = 0.12
COV = 0.79
N = 11
Z SCORE


PO4-P
WI MILWAUKEE I-94 GRASS
MEDIAN = 0.61
COV = 0.19
N = 10
Z SCORE


Zn
WI MILWAUKEE I-94 GRASS
MEDIAN = 0.12
COV = 0.62
N = 11
Z SCORE